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ANTLR 1989-2006 Developed by Terence Parr

Partially supported by University of San Francisco & jGuru.com

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As long as these guidelines are kept, we expect to continue enhancing this system and expect to make other tools available as they are completed.

The primary ANTLR guy:

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1.2 libjpeg 6b

1.2.1 Notifications :

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

1.2.2 Available under license :

The Independent JPEG Group's JPEG software

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README for release 6b of 27-Mar-1998

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

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

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

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

DOCUMENTATION

ROADMAP

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This file contains the following sections:

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

Other documentation files in the distribution are:

User documentation:

install.doc	How to configure and install the IJG software.
usage.doc	Usage instructions for cjpeg, djpeg, jpegtran,

rdjpgcom, and wrjpgcom.

- *.1 Unix-style man pages for programs (same info as usage.doc).
- wizard.doc Advanced usage instructions for JPEG wizards only.
- change.log Version-to-version change highlights.

Programmer and internal
documentation:

- libjpeg.doc How to use the JPEG library in your own programs.
- example.c Sample code for calling the JPEG library.
- structure.doc Overview of the JPEG library's internal structure.
- filelist.doc Road map of IJG files.
- coderrules.doc Coding style rules --- please read if you contribute code.

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

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

OVERVIEW

=====

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

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

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

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

The library is intended to be reused in other applications.

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

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

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

LEGAL ISSUES

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2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a program, you must acknowledge somewhere in your documentation that you've used the IJG code.

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

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

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

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic

coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

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

We are required to state that

"The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

REFERENCES

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We

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

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

A somewhat less technical, more

leisurely introduction to JPEG can be found in

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

at a full implementation, you've got one here...

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

The

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

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain text version at <ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems.

IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from [ftp.sgi.com](ftp://ftp.sgi.com) or from <ftp://ftp.uu.net/graphics/jpeg/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <ftp://ftp.sgi.com/graphics/tiff/>.

ARCHIVE LOCATIONS

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

Numerous Internet sites maintain copies of the UUNET files. However, only [ftp.uu.net](ftp://ftp.uu.net) is guaranteed to have the latest official version.

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

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

RELATED SOFTWARE

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Numerous viewing and image manipulation programs now support JPEG. (Quite a

few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites,

notably <ftp://wuarchive.wustl.edu/graphics/packages/NetPBM/>.

Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

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

FILE FORMAT WARS

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Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read.

(For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

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

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether

SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

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

TO DO

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

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

As always, speeding things up is of great interest.

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

1.3 minlog 1.2

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1.4 pcre 7.6

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THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel

Email local part: ph10

Email domain: cam.ac.uk

University of Cambridge Computing Service,
Cambridge, England.

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End

1.5 ncurses 5.9

1.5.1 Available under license :

Upstream source <http://invisible-island.net/ncurses/ncurses-examples.html>

Current ncurses maintainer: Thomas Dickey <dickey@invisible-island.net>

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1.6 open-Idap 2.4.40

1.6.1 Available under license :

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Version 2, June 1991

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depcomp - compile a program generating dependencies as side-effects

scriptversion=2005-07-09.11

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* Tim Martin
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```
* Rob Earhart
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*/
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* Tim Martin

* Rob Earhart
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 */
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The initial code for shuffling an array (originally in class "org.apache.commons.math3.random.RandomDataGenerator", now replaced by a method in class "org.apache.commons.math3.util.MathArrays") was inspired from the algorithm description provided in "Algorithms", by Ian Craw and John Pulham (University of Aberdeen 1999).
The textbook (containing a proof that the shuffle is uniformly random) is available here:
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Julian Seward, jseward@bzip.org
bzip2/libbzip2 version 1.0.6 of 6 September 2010

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1.16 openssl 1.0.2l

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1.21 debianutils 4.8.4

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1.22 diffutils 3.6-1

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1.23 hostname 3.20

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1.24 init-system-helpers 1.51

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1.25 libffi 3.2.1-8

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1.26 sensible-utils 0.0.12

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1.29 base-passwd 3.5.44

1.29.1 Available under license :

Format-Specification: <http://svn.debian.org/wsvn/dep/web/deps/dep5.mdwn?op=file&rev=135>
Name: base-passwd
Maintainer: Colin Watson <cjwatson@debian.org>

Files: update-passwd.c, man/*
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Files: passwd.master, group.master
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X-Notes: Originally written by Ian Murdock <imurdock@debian.org> and
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1.30 coreutils 8.28-1ubuntu1

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This debian package was first created by Michael Stone <mstone@debian.org>.

from coreutils 4.5.1.

Changes:

- * added Debian GNU/Linux package maintenance system files
- * at times, bug fixes awaiting inclusion in the upstream source

Authors

=====

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doc/coreutils.texi (The GNU Coreutils Manual)

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1.31 findutils 4.6.0+git+20170828-2

1.31.1 Available under license :

It was downloaded from <ftp://ftp.gnu.org/gnu/findutils>

Debian maintainer history: The original package was put together by
Ian Murdock <imurdock@debian.org>, afterwards Kevin Dalley
<kevind@rahul.net> took over. 2003-07 Andreas Metzler
<ametzler@debian.org> followed.

Upstream Authors:

* GNU find was written by Eric Decker <cire@cisco.com>,
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Jay Plett <jay@silence.princeton.nj.us>,
and Tim Wood <axolotl!tim@toad.com>.

The idea for `-print0` and `xargs -0` came from
Dan Bernstein <brnstnd@kramden.acf.nyu.edu>.

Improvements have been made by James Youngman <jay@gnu.org>.

* GNU xargs

was originally written by Mike Rendell, with enhancements by David
MacKenzie. Modifications by James Youngman Dmitry V. Levin

* GNU locate and its associated utilities were originally
written by James Woods, with enhancements by David MacKenzie, James Youngman
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1.32 lsb 9.20170808ubuntu1

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1.33 mawk 1.3.3-17ubuntu3

1.34 sysv-init 2.88dsf-59.10ubuntu1

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Init was written by Miquel van Smoorenburg <miquels@cistron.nl>.

This package was first put together by Bruce Perens <Bruce@Pixar.com> from pre-distribution sources. Ian Murdock <imurdock@debian.org> integrated it into the base system maintained it until the end of 1995. Miquel van Smoorenburg <miquels@cistron.nl> implemented Debian support. In version 2.85 the package was split into three (sysvinit, sysv-rc, and initscripts) in order to make room for alternative rc mechanisms.

The upstream source is available at:

Primary-Site: [ftp.cistron.nl/pub/people/miquels/software/92K sysvinit-2.86.tar.gz](ftp://cistron.nl/pub/people/miquels/software/92K%20sysvinit-2.86.tar.gz)
Alternate-Site: [sunsite.unc.edu/pub/Linux/system/daemons/init/92K sysvinit-2.86.tar.gz](http://sunsite.unc.edu/pub/Linux/system/daemons/init/92K%20sysvinit-2.86.tar.gz)

Send patches to sysvinit-devel@nongnu.org.

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The of the start-stop-daemon:

- * A rewrite of the original Debian's start-stop-daemon Perl script
- * in C (faster - it is executed many times during system startup).
- *
- * Written by Marek Michalkiewicz <marekm@i17linuxb.ists.pwr.wroc.pl>,
- * public domain.

1.35 libpcap 1.9.0

1.35.1 Available under license :

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1.36 kafka-clients 2.0.1

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1.37 commons-fileupload 1.4

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1.38 openssl 1.0.2g-1ubuntu4.15

1.39 debconf 1.5.66ubuntu1

1.40 commons-beanutils 1.9.4

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1.41 zlib 1.2.8

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/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.11, January 15th, 2017

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1.42 apparmor 2.12-4ubuntu5.1

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1.43 pygobject 3.26.1-2ubuntu1

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Any

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```

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

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1.46 mpdecimal 2.4.2-1ubuntu1

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1.47 libidn 1.33-2.1ubuntu1.2

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

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

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

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

If the program does terminal interaction, make it output a short

notice like this when it starts in an interactive mode:

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

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

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

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Finally, every program is threatened constantly by software patents.

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

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

@heading TERMS AND CONDITIONS

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@item Definitions.

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

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

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

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

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

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

An interactive user interface displays ``Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2)

tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

@item Source Code.

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

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

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

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

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

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You may convey verbatim copies of the Program's source code as you receive

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

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@item Conveying Modified Source Versions.

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

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

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

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

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

@end enumerate

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program,

in

or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

@item Conveying Non-Source Forms.

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

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

@item

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

@item

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

@item

Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the

Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

@item

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

@end enumerate

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

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

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If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the

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```
@smallexample
@var{one line to give the program's name and a brief idea of what it does.}
Copyright
(C) @var{year} @var{name of author}
```

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@end smallexample

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

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```
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This program comes with ABSOLUTELY NO WARRANTY;
for details type @samp{show w}.
This is free software, and you are welcome to redistribute it
under certain conditions; type @samp{show c} for details.
@end smallexample
```

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

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Version 3, 29 June 2007

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1.54 xdg-user-dirs 0.17-1ubuntu1

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1.55 jaxb-api 2.3.1

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1.62 python-idna 2.6-1

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1.63 ssh-import-id 5.7-0ubuntu1.1

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Found in path(s):

```

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* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/AutoreleasePool.java
* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/WeakOuter.java

```

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```

Found in path(s):

```

* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/RetainedWith.java
* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/ReflectionSupport.java
* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/RetainedLocalRef.java
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* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/LoopTranslation.java
*
* /j2objc-annotations-1-3-sources-jar/com/google/j2objc/annotations/J2ObjCIncompatible.java
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1.65 idna 2.6

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1.66 lua 5.3.5

1.67 libffi 3.2.1

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1.68 kryo 4.0.0

1.69 snappy-java 1.1.4

1.70 kryo 2.24.0

1.71 protobuf-java 3.0.0

1.72 serf 1.3.9-6

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1.73 kryo-serializers 0.41

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Found in path(s):

```
* /kryo-serializers-0-41-sources-  
jar/de/javakaffee/kryoserializers/CompatibleFieldSerializerReflectionFactorySupport.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CopyForIterateMapSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/SynchronizedCollectionsSerializer.java  
*  
/kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsEmptySetSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/ArraysAsListSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsEmptyListSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/DateSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/EnumMapSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsSingletonSetSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsEmptyMapSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/JdkProxySerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CopyForIterateCollectionSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/SubListSerializers.java  
*  
/kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/wicket/MiniMapSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/jodatime/JodaDateTimeSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/GregorianCalendarSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/KryoReflectionFactorySupport.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/EnumSetSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/cglib/CGLibProxySerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsSingletonListSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/UnmodifiableCollectionsSerializer.java  
* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/CollectionsSingletonMapSerializer.java
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* /kryo-serializers-0-41-sources-jar/de/javakaffee/kryoserializers/jodatime/JodaLocalDateSerializer.java

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```

Found in path(s):

```
* /error-prone-annotations-2-3-2-sources-
jar/com/google/errorprone/annotations/OverridingMethodsMustInvokeSuper.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/DoNotCall.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/CheckReturnValue.java
*
/error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/concurrent/GuardedBy.java
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Found in path(s):

- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/MustBeClosed.java
- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/FormatString.java
- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/RestrictedApi.java
- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/CompatibleWith.java
- *

/error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/FormatMethod.java

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- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/NoAllocation.java
- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/concurrent/LockMethod.java
- * /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/concurrent/UnlockMethod.java

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Found in path(s):

```
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/CompileTimeConstant.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/RequiredModifiers.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/CanIgnoreReturnValue.java
*
/error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/Immutable.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/SuppressPackageLocation.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/ForOverride.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/Var.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/concurrent/LazyInit.java
* /error-prone-annotations-2-3-2-sources-jar/com/google/errorprone/annotations/IncompatibleModifiers.java
```

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not-a-legal-formal-parameter-tuple.scala:2: error: not a legal formal parameter.

Note: Tuples cannot be directly destructured in method or function parameters.

Either create a single parameter accepting the Tuple2,

or consider a pattern matching anonymous function: `{ case (a, b) => ... }`

```
val x: ((Int, Int) => Int) = (((a, b)) => a)
```

^

not-a-legal-formal-parameter-tuple.scala:3: error: not a legal formal parameter.

Note: Tuples cannot be directly destructured in method or function parameters.

Either create a single parameter accepting the Tuple2,

or consider a pattern matching anonymous function: `{ case (param1, param2) => ... }`

```
val y: ((Int, Int, Int) => Int) = (((a, !)) => a)
```

^

not-a-legal-formal-parameter-tuple.scala:4: error: not a legal formal parameter.

Note: Tuples cannot be directly destructured in method or function parameters.

Either create a single parameter accepting the

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```
val z: ((Int, Int, Int) => Int) = (((a, NotAPatternVariableName, c)) => a)
```

^

three errors found

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1.85 jakarta-persistence-api 2.2.3

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1.86 jakarta-transaction-api 1.3.3

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1.87 berkeley-db 5.3.28-13.1ubuntu1

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* \$Id\$

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1.89 libxmu 1.1.2-2

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```
--- libxmu-1.1.2.orig/autogen.sh
+++ libxmu-1.1.2/autogen.sh
@@ -0,0 +1,14 @@
+#!/bin/sh
+
++srcdir=`dirname $0`
++test -z "$srcdir" && srcdir=.
+
++ORIGDIR=`pwd`
++cd $srcdir
+
++autoreconf -v --install || exit 1
++cd $ORIGDIR || exit $?
+
++if test -z "$NOCONFIGURE"; then
++  $srcdir/configure "$@"
++fi
--- libxmu-1.1.2.orig/debian/changelog
+++ libxmu-1.1.2/debian/changelog
@@ -0,0 +1,219 @@
+libxmu (2:1.1.2-2) unstable; urgency=medium
+
```

+ [Andreas Boll]

+ * Switch to dh with the autoreconf and quilt addons, fixing possible FTBFS

+ when building in parallel (closes: #801059). Thanks, Matthias Klose!

+

+ [Julien Cristau]

+ * Remove Cyril from Uploaders.

+ * Bump Standards-Version to 3.9.6, update Vcs-* control fields.

+

+ -- Julien Cristau <jcristau@debian.org> Sat, 14 Nov 2015 10:04:44 +0100

+

+libxmu (2:1.1.2-1) unstable; urgency=low

+

+ * New upstream release.

+ * Add \${misc:Depends} to libxmu-headers.

+

+ * Use /usr/share/quilt/quilt.make instead of xsfbs for patching.

+ * Add build-{arch,indep} debian/rules targets.

+ * Bump debhelper compat level from 5 to 7.

+

+ -- Julien Cristau <jcristau@debian.org> Mon, 05 May 2014 14:13:01 +0200

+

+libxmu (2:1.1.1-1) unstable; urgency=low

+

+ * New upstream release.

+ * Don't require (fake)root for debian/rules clean.

+ * Bump build-deps on xutils-dev, xmlto and xorg-sgml-doctools per

+ configure.ac.

+ * Xmu.html no longer hardcodes the full path to xlogo.svg, drop sed call

+ from debian/rules.

+ * Remove David Nusinow from Uploaders.

+ * Bump debhelper build-dep for \${misc:Pre-Depends} usage.

+

+ -- Julien Cristau <jcristau@debian.org> Sat, 21 Apr 2012 10:50:11 +0200

+

+libxmu (2:1.1.0-3) unstable; urgency=low

+

+ * Build for multiarch.

+

+ -- Steve Langasek <vorlon@debian.org> Fri, 21 Oct 2011 14:47:59 -0700

+

+libxmu (2:1.1.0-2) unstable; urgency=low

+

+ [Christopher James Halse Rogers]

+ * debian/patches/01_dont_export_private_deps.patch:

+

- The Xmu.h header uses libXt symbols in a #define, so libXt is not a

+ private dep. With binutils-gold, the indirect dependency on Xt is not

+ considered when linking with Xmu so this causes build failures.

```

+
+ [ Julien Cristau ]
+ * Drop Pre-Depends on x11-common, only needed for upgrades from the
+   monolith.
+
+ -- Julien Cristau <jcristau@debian.org> Thu, 28 Apr 2011 14:10:11 +0200
+
+libxmu (2:1.1.0-1) unstable; urgency=low
+
+ * New upstream release.
+ * Bump xutils-dev build-dep for new macros.
+ * Add xmlto, xorg-sgml-doctools, and w3m build-dep for the doc.
+ * Pass --with-xmlto and --without-fop (we want html and txt only).
+ * Pass --docdir=/usr/share/doc/libxmu-headers and add this directory to
+   libxmu-headers.install file.
+ * Remove the hardcoded path to the X logo in the Xmu.html file.
+ * Kill *.xml in the doc directory, no point in shipping them.
+ * Switch from --list-missing to --fail-missing for additional safety.
+
+
+ -- Cyril Brulebois <kibi@debian.org> Fri, 19 Nov 2010 08:42:29 +0100
+
+libxmu (2:1.0.5-2) unstable; urgency=high
+
+ [ Julien Cristau ]
+ * Rename the build directory to not include DEB_BUILD_GNU_TYPE for no
+   good reason. Thanks, Colin Watson!
+ * Remove myself from Uploaders
+ * Don't pass both -s and -Nfoo/-pfoo to dh_strip. This resulted in an empty
+   libxmu1-dbg (Closes: #594500). Thanks to Luca Falavigna for the report.
+
+ [ Cyril Brulebois ]
+ * Add myself to Uploaders.
+ * Bump urgency to high for the RC bugfix. Thanks to Jakub Wilk as well
+   for the report.
+
+ -- Cyril Brulebois <kibi@debian.org> Sat, 04 Sep 2010 14:32:30 +0200
+
+libxmu (2:1.0.5-1) unstable; urgency=low
+
+ [ Timo Aaltonen ]
+ * New upstream release.
+ + Fix 64bit support (closes: #521887)
+
+ [ Julien Cristau ]
+ * Bump Standards-Version to 3.8.3.
+
+ -- Julien Cristau <jcristau@debian.org> Wed, 25 Nov 2009 19:20:17 +0100

```

```

+
+libxmu (2:1.0.4-2) unstable; urgency=low
+
+
+ [ Julien Cristau ]
+ * Drop -1 debian revisions from build-deps.
+ * libxmu6{,-dbg}, libxmu-dev, libxmuu1{,-dbg} and libxmuu-dev don't need a
+   dependency on x11-common.
+ * Build libxmu-headers in binary-indep instead of binary-arch
+   (closes: #486418). Thanks, Martin Koeppe!
+ * Run autoreconf on build; build-depend on automake, libtool, xutils-dev.
+ * Handle parallel builds.
+
+ [ Brice Goglin ]
+ * Add a link to www.X.org and a reference to the upstream module
+   in the long description.
+ * Add upstream URL to debian/copyright.
+ * Add README.source, bump Standards-Version to 3.8.2.
+ * Use updated xsfbs, closes: #538587.
+ * Move -dbg packages to section debug.
+
+ -- Julien Cristau <jcristau@debian.org> Fri, 07 Aug 2009 14:30:36 +0200
+
+libxmu (2:1.0.4-1) unstable; urgency=low
+
+ [ Julien Cristau ]
+ * New upstream release.
+ * Make libxmu*-dev depend on libxmu-headers (= ${source:Version}). Thanks,
+   Josh Triplett.
+ * Don't export private
+   dependencies in xmu.pc and xmuu.pc. These
+   dependencies are handled by Requires.private.
+ * Due to the above, build-depend on quilt and apply the xsfbs patch rules.
+ * Update xsfbs to the latest version as of 2008-01-06.
+ * Add myself to Uploaders, and remove Branden and Fabio with their
+   permission.
+ * Bump Standards-Version to 3.7.3 (no changes).
+ * s/^XS-Vcs/Vcs/
+
+ [ Timo Aaltonen ]
+ * Bump the epoch so that this can be synced to Ubuntu in the future.
+
+ -- Julien Cristau <jcristau@debian.org> Thu, 17 Jan 2008 14:57:47 +0100
+
+libxmu (1:1.0.3-1) unstable; urgency=low
+
+ * New upstream release.
+ * Install the upstream changelog.

```

- + * Remove outdated CVS information from the package descriptions, and add
- + XS-Vcs-Git and XS-Vcs-Browser.
- + * Fix package sections (libraries in libs, development stuff in libdevel).
- + * Use \${binary:Version} instead of \${Source-Version}.
- +
- + -- Julien Cristau <jcristau@debian.org> Thu, 12 Apr 2007 13:40:07 +0200
- +
- +libxmu
- (1:1.0.2-2) unstable; urgency=low
- +
- + [Andres Salomon]
- + * Test for obj-\$(DEB_BUILD_GNU_TYPE) before creating it during build;
- + idempotency fix.
- +
- + [Drew Parsons]
- + * dbg package has priority extra.
- +
- + -- David Nusinow <dnusinow@debian.org> Wed, 30 Aug 2006 16:53:25 -0400
- +
- +libxmu (1:1.0.2-1) experimental; urgency=low
- +
- + * New upstream release
- + * Bump debhelper compat to 5
- + * Run dh_install with --list-missing
- + * Version the -headers package's x11-common pre-dep to use version 1:7.0.0
- + to match the rest of Debian and shut lintian up
- + * Bump standards version to 3.7.2.0
- +
- + -- David Nusinow <dnusinow@debian.org> Mon, 3 Jul 2006 18:43:32 -0400
- +
- +libxmu (1:1.0.1-3) unstable; urgency=low
- +
- + * Reorder makeshlib command in rules file so that ldconfig is run
- + properly. Thanks Drew Parsons and Steve Langasek.
- +
- + -- David Nusinow <dnusinow@debian.org> Tue, 18 Apr 2006 21:49:59 -0400
- +
- +libxmu (1:1.0.1-2) unstable; urgency=low
- +
- + * Upload to unstable
- +
- +
- David Nusinow <dnusinow@debian.org> Thu, 23 Mar 2006 22:44:59 -0500
- +
- +libxmu (1:1.0.1-1) experimental; urgency=low
- +
- + * First upload to Debian
- +

```

+ -- David Nusinow <dnusinow@debian.org> Thu, 29 Dec 2005 20:53:53 -0500
+
+libxmu (1:6.2.3-5) breezy; urgency=low
+
+ * Also, libxmu-dev needs to depend on libxt-dev too.
+
+ -- Adam Conrad <adconrad@ubuntu.com> Mon, 25 Jul 2005 09:43:47 +0000
+
+libxmu (1:6.2.3-4) breezy; urgency=low
+
+ * Bump libxt-dev build-dep once more, _XOPEN_SOURCE begone!
+
+ -- Adam Conrad <adconrad@ubuntu.com> Sun, 24 Jul 2005 10:48:14 +0000
+
+libxmu (1:6.2.3-3) breezy; urgency=low
+
+ * Make libxmu-dev depend on libxext-dev, since libxmu links to it.
+
+ -- Adam Conrad <adconrad@ubuntu.com> Sun, 24 Jul 2005 07:56:02 +0000
+
+libxmu (1:6.2.3-2) breezy; urgency=low
+
+ * Bump Build-Depends on libx11-dev, libxext-dev and libxt-dev to avoid
+ _XOPEN_SOURCE.
+
+ -- Daniel Stone <daniel.stone@ubuntu.com> Sat, 23 Jul 2005 00:20:50 +1000
+
+libxmu
+(1:6.2.3-1) breezy; urgency=low
+
+ * First libxmu release.
+
+ -- Daniel Stone <daniel.stone@ubuntu.com> Mon, 16 May 2005 22:10:17 +1000
+--- libxmu-1.1.2.orig/debian/compat
+++ libxmu-1.1.2/debian/compat
@@ -0,0 +1 @@
+9
+--- libxmu-1.1.2.orig/debian/control
+++ libxmu-1.1.2/debian/control
@@ -0,0 +1,155 @@
+Source: libxmu
+Section: x11
+Priority: optional
+Maintainer: Debian X Strike Force <debian-x@lists.debian.org>
+Build-Depends:
+ debhelper (>= 9),
+ dh-autoreconf,
+ libx11-dev (>= 1:0.99.2),

```

```

+ libxt-dev (>= 1:0.99.1),
+ libxext-dev (>= 1:0.99.1),
+ pkg-config,
+ quilt,
+ automake,
+ libtool,
+ xutils-dev (>= 1:7.6+2),
+## devel-docs:
+ xmlto (>= 0.0.22),
+ xorg-sgml-doctools (>= 1:1.8),
+ w3m,
+Standards-Version: 3.9.6
+Vcs-Git: git://anonscm.debian.org/git/pkg-xorg/lib/libxmu
+Vcs-Browser: https://anonscm.debian.org/cgit/pkg-xorg/lib/libxmu.git
+
+Package: libxmu6
+Section: libs
+Architecture: any
+Multi-Arch: same
+Pre-Depends: ${misc:Pre-Depends}
+Depends: ${shlibs:Depends},
+${misc:Depends}
+Description: X11 miscellaneous utility library
+ libXmu provides a set of miscellaneous utility convenience functions for X
+ libraries to use. libXmuu is a lighter-weight version that does not depend
+ on libXt or libXext; for more information, see libxmuu1.
+ .
+ More information about X.Org can be found at:
+ <URL:http://www.X.org>
+ .
+ This module can be found at
+ git://anongit.freedesktop.org/git/xorg/lib/libXmu
+
+Package: libxmu6-dbg
+Section: debug
+Architecture: any
+Multi-Arch: same
+Priority: extra
+Depends: ${shlibs:Depends}, ${misc:Depends}, libxmu6 (= ${binary:Version})
+Description: X11 miscellaneous utility library (debug package)
+ libXmu provides a set of miscellaneous utility convenience functions for X
+ libraries to use. libXmuu is a lighter-weight version that does not depend
+ on libXt or libXext; for more information, see libxmuu1.
+ .
+ This package contains the debug versions of the library found in libxmu6.
+ Non-developers likely
+ have little use for this package.
+ .

```


+ More information about X.Org can be found at:
+ <URL:<http://www.X.org>>
+ .
+ This module can be found at
+ [git://anongit.freedesktop.org/git/xorg/lib/libXmu](https://anongit.freedesktop.org/git/xorg/lib/libXmu)
+
+Package: libxmu-dev
+Section: libdevel
+Architecture: any
+Multi-Arch: same
+Depends: \${shlibs:Depends}, \${misc:Depends}, libxext-dev, libxt-dev, libxmu6 (= \${binary:Version}), libxmu-headers (= \${source:Version})
+Description: X11 miscellaneous utility library (development headers)
+ libXmu provides a set of miscellaneous utility convenience functions for X
+ libraries to use. libXmuu is a lighter-weight version that does not depend
+ on libXt or libXext; for more information, see libxmuu1.
+ .
+ This package contains the development headers for the library found in
+ libxmu6. Non-developers likely have little use for this package.
+ .
+ More information about X.Org can be found at:
+ <URL:<http://www.X.org>>
+ .
+ This module can be found at
+ [git://anongit.freedesktop.org/git/xorg/lib/libXmu](https://anongit.freedesktop.org/git/xorg/lib/libXmu)
+
+Package:
+ libxmuu1
+Section: libs
+Architecture: any
+Multi-Arch: same
+Pre-Depends: \${misc:Pre-Depends}
+Depends: \${shlibs:Depends}, \${misc:Depends}
+Description: X11 miscellaneous micro-utility library
+ libXmuu provides a set of miscellaneous utility convenience functions for X
+ libraries to use. It is a lighter version of libXmu that does not depend
+ on libXt or libXext; for more information on libXmu, see libxmu6.
+ .
+ More information about X.Org can be found at:
+ <URL:<http://www.X.org>>
+ .
+ This module can be found at
+ [git://anongit.freedesktop.org/git/xorg/lib/libXmu](https://anongit.freedesktop.org/git/xorg/lib/libXmu)
+
+Package: libxmuu1-dbg
+Section: debug
+Architecture: any
+Multi-Arch: same

- +Priority: extra
- +Depends: \${shlibs:Depends}, \${misc:Depends}, libxmuu1 (= \${binary:Version})
- +Description: X11 miscellaneous micro-utility library (debug package)
- + libXmuu provides a set of miscellaneous utility convenience functions for X
- + libraries to use. It is a lighter version of libXmu that does not depend
- + on libXt
- or libXext; for more information on libXmu, see libxmu6.
- + .
- + This package contains the debug versions of the library found in libxmuu1.
- + Non-developers likely have little use for this package.
- + .
- + More information about X.Org can be found at:
- + <URL:http://www.X.org>
- + .
- + This module can be found at
- + git://anongit.freedesktop.org/git/xorg/lib/libXmu
- + .
- +Package: libxmuu-dev
- +Section: libdevel
- +Architecture: any
- +Multi-Arch: same
- +Depends: \${shlibs:Depends}, \${misc:Depends}, libxmuu1 (= \${binary:Version}), libxmu-headers (= \${source:Version})
- +Description: X11 miscellaneous micro-utility library (development headers)
- + libXmuu provides a set of miscellaneous utility convenience functions for X
- + libraries to use. It is a lighter version of libXmu that does not depend
- + on libXt or libXext; for more information on libXmu, see libxmu6.
- + .
- + This package contains the development headers for the library found in
- + libxmuu1. Non-developers likely have little use for this package.
- + .
- + .
- + More information about X.Org can be found at:
- + <URL:http://www.X.org>
- + .
- + This module can be found at
- + git://anongit.freedesktop.org/git/xorg/lib/libXmu
- + .
- +Package: libxmu-headers
- +Section: libdevel
- +Architecture: all
- +Multi-Arch: foreign
- +Depends:
- + libx11-dev,
- + x11proto-core-dev,
- + \${misc:Depends},
- +Description: X11 miscellaneous utility library headers
- + libXmu and libXmuu are miscellaneous utility libraries for X library

+ developers to abstract some common functions. This package provides the
+ headers for both libraries (as libXmuu is a subset of libXmu), and
+ is depended upon by both. For more information, please see libxmu-dev or
+ libxmuu-dev.

+ .

+ More information about X.Org can be found at:
+ <URL:http://www.X.org>

+ .

+ This module can be found at
+ git://anongit.freedesktop.org/git/xorg/lib/libXmu
--- libxmu-1.1.2.orig/debian/copyright
+++ libxmu-1.1.2/debian/copyright
@@ -0,0 +1,77 @@

+This package was downloaded from
+http://xorg.freedesktop.org/releases/individual/lib/
+

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+
+-----
+

+Xmu/StrToBmap.c and Xmu/GrayPixmap.c also have:
+

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+-----

+

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--- libxmu-1.1.2.orig/debian/libxmu-dev.install

+++ libxmu-1.1.2/debian/libxmu-dev.install

```

@@ -0,0 +1,3 @@
+usr/lib/*/libXmu.a
+usr/lib/*/libXmu.so
+usr/lib/*/pkgconfig/xmu.pc
--- libxmu-1.1.2.orig/debian/libxmu-headers.install
+++ libxmu-1.1.2/debian/libxmu-headers.install
@@ -0,0 +1,2 @@
+usr/include/X11/*
+usr/share/doc/libxmu-headers
--- libxmu-1.1.2.orig/debian/libxmu6.install
+++
libxmu-1.1.2/debian/libxmu6.install
@@ -0,0 +1 @@
+usr/lib/*/libXmu.so.6*
--- libxmu-1.1.2.orig/debian/libxmu-dev.install
+++ libxmu-1.1.2/debian/libxmu-dev.install
@@ -0,0 +1,3 @@
+usr/lib/*/libXmu.a
+usr/lib/*/libXmu.so
+usr/lib/*/pkgconfig/xmu.pc
--- libxmu-1.1.2.orig/debian/libxmu1.install
+++ libxmu-1.1.2/debian/libxmu1.install
@@ -0,0 +1 @@
+usr/lib/*/libXmu.so.1*
--- libxmu-1.1.2.orig/debian/patches/01_dont_export_private_deps.diff
+++ libxmu-1.1.2/debian/patches/01_dont_export_private_deps.diff
@@ -0,0 +1,26 @@
+diff --git a/xmu.pc.in b/xmu.pc.in
+index a086f83..15dabbf 100644
+--- a/xmu.pc.in
++++ b/xmu.pc.in
+@@ -6,7 +6,7 @@ includedir=@includedir@
+ Name: Xmu
+ Description: Xmu Library
+ Version: @PACKAGE_VERSION@
+-Requires: xproto x11 xt
++Requires: xproto xt
+ Requires.private: x11 xt xext
+ Cflags: -I${includedir}
+ Libs: -L${libdir} -lXmu
+diff --git a/xmu.pc.in b/xmu.pc.in
+index 1e91ac4..72fa5f9 100644
+--- a/xmu.pc.in
++++ b/xmu.pc.in
+@@
+-6,7 +6,7 @@ includedir=@includedir@
+ Name: Xmu
+ Description: Mini Xmu Library

```

```

+ Version: @PACKAGE_VERSION@
+-Requires: xproto x11
++Requires: xproto
+ Requires.private: x11
+ Cflags: -I${includedir}
+ Libs: -L${libdir} -lXmu
--- libxmu-1.1.2.orig/debian/patches/series
+++ libxmu-1.1.2/debian/patches/series
@@ -0,0 +1 @@
+01_dont_export_private_deps.diff
--- libxmu-1.1.2.orig/debian/rules
+++ libxmu-1.1.2/debian/rules
@@ -0,0 +1,34 @@
+#!/usr/bin/make -f
+# debian/rules for the Debian libxmu package.
+# Copyright 2004 Scott James Remnant <scott@netsplit.com>
+# Copyright 2005 Daniel Stone <daniel@fooishbar.org>
+# Copyright 2005 David Nusinow <dnusinow@debian.org>
+
+# Uncomment this to turn on verbose mode.
+#export DH_VERBOSE=1
+
+.PHONY: build
+build:
+ dh build --with quilt,autoreconf --builddirectory=build/ --parallel
+
+%.
+ dh $@ --with quilt,autoreconf --builddirectory=build/ --parallel
+
+override_dh_auto_configure:
+ dh_auto_configure -- \
+ --disable-silent-rules
+ \
+ --docdir=${prefix}/share/doc/libxmu-headers \
+ --with-xmlto \
+ --without-fop
+
+override_dh_auto_install:
+ dh_auto_install
+ find debian/tmp/usr/share/doc/libxmu-headers -name '*.xml' -delete
+
+override_dh_install-arch:
+ dh_install --fail-missing -Xusr/include -X.la
+
+override_dh_strip:
+ dh_strip -Nlibxmu6 -Nlibxmu1
+ dh_strip -plibxmu6 --dbg-package=libxmu6-dbg
+ dh_strip -plibxmu1 --dbg-package=libxmu1-dbg

```

```
--- libxmu-1.1.2.orig/debian/watch
+++ libxmu-1.1.2/debian/watch
@@ -0,0 +1,3 @@
+#git=git://anongit.freedesktop.org/xorg/lib/libXmu
+version=3
+http://xorg.freedesktop.org/releases/individual/lib/ libXmu-(.*)\tar\gz
```

Found in path(s):

* /libxmu-1-1-2-2-diff-gz/libxmu_1.1.2-2.diff

1.90 giflib 5.2.1

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1.91 libedit 3.1-20170329-1

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1.92 sed 4.4-2

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1.95 libxdmcp 1.1.2-3

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1.96 pcre 8.39-9

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THE BASIC LIBRARY FUNCTIONS

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1.97 gpm 1.20.7-5

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Upstream-Name: gpm - general purpose mouse

Upstream-Contact: gpm@lists.linux.it

Source: <https://nico.schottelius.org/software/gpm/archives/>

Files: *

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Files: scripts/git-archiv-tarbz2.sh scripts/report_success.sh

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1.98 gobject-introspection 1.56.1-1

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1.100 libpsl 0.19.1-5build1

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1.102 libcap 2.25-1.2

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It is based somewhat on work done by Bruce Perens <Bruce@Pixar.com>.

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1.107 bzip2 1.0.6-8.1ubuntu0.2

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bzip2/libbzip2 version 1.0.6 of 6 September 2010

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1.108 zip 3.0

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1.111 e2fsprogs 1.44.1-1ubuntu1.3

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Index: tdbsa/tdb.c

```
=====
--- tdbsa.orig/tdb.c
+++ tdbsa/tdb.c
@@ -4,11 +4,11 @@ Rev: 23371
Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)
*/
/*
- Unix SMB/CIFS implementation.
+ trivial database library - standalone version

- trivial database library - private includes
-
- Copyright (C) Andrew Tridgell      2005
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This is the Debian GNU/Linux prepackaged version of the EXT2 file system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from <http://sourceforge.net/projects/e2fsprogs>

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This package was added to the e2fsprogs debian source package by Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

<http://sourceforge.net/projects/e2fsprogs>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

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```

DAMAGE.
#
# This is a Makefile stub which handles the creation of BSD shared
# libraries.
#
# In order to use this stub, the following makefile variables must be defined.
#
# BSDLIB_VERSION = 1.0
# BSDLIB_IMAGE = libce
# BSDLIB_MYDIR = et
# BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#

all:: image

real-subdirs:: Makefile
@echo " MKDIR pic"
@mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image: $(BSD_LIB)

$(BSD_LIB): $(OBJS)
(cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
$(MV) pic/$(BSD_LIB) .
$(RM) -f ../$(BSD_LIB)
(cd ..; $(LN) $(LINK_BUILD_FLAGS) \
`echo $(my_dir) | sed -e 's;lib/;;'`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
@echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
@$(INSTALL_PROGRAM) $(BSD_LIB) \
$(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
@-$(LDCONFIG)

install-strip: install

install-shlibs-strip: install-shlibs

uninstall-shlibs uninstall::
$(RM) -f $(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
$(RM)
-rf pic
$(RM) -f $(BSD_LIB)

```

\$(RM) -f ../\$(BSD_LIB)

This is the Debian GNU/Linux prepackaged version of the ss command-line interface parsing library. It is currently distributed together with the EXT2 file system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>, from sources obtained from a mirror of:
tsx-11.mit.edu:/pub/linux/packages/ext2fs/

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before you ship. The release schedules for this package are flexible, if you give me enough lead time.

Theodore Ts'o

23-June-2007

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Ty Coon, President of Vice

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This is the Debian GNU/Linux prepackaged version of the Common Error Description library. It is currently distributed together with the EXT2 file system utilities, which are otherwise packaged as "e2fsprogs".

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1.112 kerberos 1.12

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cmd/krb5/kadmin/server/iproplib_svc.c
cmd/krb5/kproplog/kproplog.c
cmd/krb5/slave/kpropd_rpc.c
lib/gss_mechs/mech_krb5/et/kdb5_err.c
lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
lib/gss_mechs/mech_spnego/mech/spnego_mech.c
lib/krb5/kadm5/kadm_host_srv_names.c
lib/krb5/kdb/kdb_convert.c
lib/krb5/kdb/kdb_hdr.h
lib/krb5/kdb/kdb_log.c
lib/krb5/kdb/kdb_log.h
lib/libgss/g_accept_sec_context.c
lib/libgss/g_acquire_cred.c
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lib/libgss/g_dsp_status.c
lib/libgss/g_dup_name.c
lib/libgss/g_exp_sec_context.c
lib/libgss/g_export_name.c
lib/libgss/g_glue.c
lib/libgss/g_imp_name.c
lib/libgss/g_imp_sec_context.c
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lib/libgss/g_inquire_context.c
lib/libgss/g_inquire_cred.c
lib/libgss/g_inquire_names.c
lib/libgss/g_process_context.c
lib/libgss/g_rel_buffer.c
lib/libgss/g_rel_cred.c
lib/libgss/g_rel_name.c
lib/libgss/g_rel_oid_set.c
lib/libgss/g_seal.c
lib/libgss/g_sign.c
lib/libgss/g_store_cred.c
lib/libgss/g_unseal.c

lib/libgss/g_userok.c
lib/libgss/g_utils.c
lib/libgss/g_verify.c
lib/libgss/gssd_pname_to_uid.c
uts/common/gssapi/include/gssapi_err_generic.h
uts/common/gssapi/include/mechglueP.h

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- lib/gssapi/generic/gssapi_err_generic.et
- lib/gssapi/mechglue/g_accept_sec_context.c
- lib/gssapi/mechglue/g_acquire_cred.c
- lib/gssapi/mechglue/g_canon_name.c
- lib/gssapi/mechglue/g_compare_name.c
- lib/gssapi/mechglue/g_context_time.c
- lib/gssapi/mechglue/g_delete_sec_context.c
- lib/gssapi/mechglue/g_dsp_name.c
- lib/gssapi/mechglue/g_dsp_status.c
- lib/gssapi/mechglue/g_dup_name.c
- lib/gssapi/mechglue/g_exp_sec_context.c
- lib/gssapi/mechglue/g_export_name.c
- lib/gssapi/mechglue/g_glue.c
- lib/gssapi/mechglue/g_imp_name.c
- lib/gssapi/mechglue/g_imp_sec_context.c
- lib/gssapi/mechglue/g_init_sec_context.c
- lib/gssapi/mechglue/g_initialize.c
- lib/gssapi/mechglue/g_inquire_context.c
- lib/gssapi/mechglue/g_inquire_cred.c
- lib/gssapi/mechglue/g_inquire_names.c
- lib/gssapi/mechglue/g_process_context.c
- lib/gssapi/mechglue/g_rel_buffer.c
- lib/gssapi/mechglue/g_rel_cred.c
- lib/gssapi/mechglue/g_rel_name.c
- lib/gssapi/mechglue/g_rel_oid_set.c
- lib/gssapi/mechglue/g_seal.c
- lib/gssapi/mechglue/g_sign.c
- lib/gssapi/mechglue/g_store_cred.c

lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c
lib/gssapi/mechglue/g_utils.c
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lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation,
including
the following new or changed files:

include/iprop_hdr.h
kadmin/server/ipropd_svc.c
lib/kdb/iprop.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
kprop/kpropd_rpc.c
kprop/kproplog.c

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On all platforms, Nmap is normally linked with:

- o libpcap: Network packet capture library. Distributed with Nmap in the libpcap subdirectory.
<http://www.tcpdump.org/>
- o libdnet: Networking library, used for low-level tasks such as sending ethernet frames. A modified version is distributed with Nmap in the libdnet-stripped subdirectory. A summary of Nmap-local modifications is in the file NMAP_MODIFICATIONS.
<http://code.google.com/p/libdnet/>
- o PCRE: Perl-compatible regular expressions. PCRE is part of Nmap's version detection and is also made available as an NSE library. Distributed with Nmap in the libpcre subdirectory.
<http://www.pcre.org/>
- o liblua: Lua programming language. Lua is the implementation language of NSE, the Nmap Scripting Engine. Nmap links with liblua to allow running Lua programs inside Nmap. Distributed with Nmap in the liblua subdirectory. liblua can be omitted by configuring with the --without-liblua configuration directive.
<http://www.lua.org/>
- o OpenSSL: Cryptographic library. OpenSSL is used by service detection and by NSE to connect to SSL services. NSE also provides access to OpenSSL functions such as encryption and digest calculation. OpenSSL can be disabled by configuring with the --without-openssl configuration directive.
<http://www.openssl.org/>

- o LIBLINEAR. Used for IPv6 OS classification.
<http://www.csie.ntu.edu.tw/~cjlin/liblinear/>
- o libsvn. The Subversion library, used by the updater program
nmap-update. <http://subversion.apache.org/>
- o APR (Apache Portable Runtime). Used by libsvn. <http://apr.apache.org/>

On Windows only, Nmap uses:

- o WinPcap: libpcap for Windows. The libpcap license applies to WinPcap, and it also has its own license. A binary copy of the library is distributed with Nmap in the subdirectory mswin32/winpcap.
<http://www.winpcap.org/>

Certain Nmap Scripting Engine scripts use the simplified BSD license in licenses/BSD-simplified.

Zenmap and Ndiff require:

- o Python. The binary distributions of Nmap include a Python interpreter and various libraries, built using either py2exe or py2app.
<http://www.python.org/>

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- o GLib, GTK+, ATK, Pango: These libraries are licensed under the GNU LGPL 2, a copy of which is in the file licenses/LGPL-2.
<http://www.gtk.org/>
- o Cairo: graphics library. Dual-licensed under the GNU LGPL 2.1 and the MPL 1.1. See the files licenses/LGPL-2.1 and licenses/MPL-1.1.
<http://www.cairographics.org/>
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<http://www.zlib.org/> <http://www.bzip.org/>
- o Expat: XML parser library.
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o PyCairo: bindings for Python. Dual-licensed under the GNU LGPL 2.1 and the MPL 1.1.

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o Various X.org libraries. These were built using MacPorts.

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Written

by: Philip Hazel

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Email domain: cam.ac.uk

University of Cambridge Computing Service,

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Written by: Philip Hazel

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```
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```

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```
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under certain conditions; type `show c'
for details.
```

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<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

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The End

1.117 cpp 8.4.0-1ubuntu1~18.04

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The

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* /jna-5-4-0-sources-jar/com/sun/jna/ptr/ByteByReference.java
* /jna-5-4-0-sources-jar/com/sun/jna/win32/StdCall.java
* /jna-5-4-0-sources-jar/com/sun/jna/FunctionMapper.java
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/jna-5-4-0-sources-jar/com/sun/jna/win32/StdCallLibrary.java
* /jna-5-4-0-sources-jar/com/sun/jna/FunctionResultContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/ptr/NativeLongByReference.java
* /jna-5-4-0-sources-jar/com/sun/jna/ptr/ByReference.java
* /jna-5-4-0-sources-jar/com/sun/jna/ptr/ShortByReference.java
* /jna-5-4-0-sources-jar/com/sun/jna/win32/W32APIFunctionMapper.java
* /jna-5-4-0-sources-jar/com/sun/jna/TypeMapper.java
* /jna-5-4-0-sources-jar/com/sun/jna/PointerType.java
* /jna-5-4-0-sources-jar/com/sun/jna/FromNativeContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/win32/W32APITypeMapper.java
* /jna-5-4-0-sources-jar/com/sun/jna/StructureReadContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/ptr/PointerByReference.java
* /jna-5-4-0-sources-jar/com/sun/jna/WString.java
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* /jna-5-4-0-sources-jar/com/sun/jna/ToNativeContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/IntegerType.java
* /jna-5-4-0-sources-jar/com/sun/jna/StructureWriteContext.java
*
/jna-5-4-0-sources-jar/com/sun/jna/MethodParameterContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/NativeMapped.java
* /jna-5-4-0-sources-jar/com/sun/jna/NativeLong.java
* /jna-5-4-0-sources-jar/com/sun/jna/FunctionParameterContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/MethodResultContext.java
* /jna-5-4-0-sources-jar/com/sun/jna/DefaultTypeMapper.java
* /jna-5-4-0-sources-jar/com/sun/jna/FromNativeConverter.java

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* /jna-5-4-0-sources-jar/com/sun/jna/win32/DLLCallback.java

1.120 json-c 0.12.1-1.3ubuntu0.3

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1.121 lvm2 1.02.145-4.1ubuntu3.18.04.3

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1.124 pygobject 3.26.1

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1.125 guava 28.0-jre

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Files:

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include/bsd/stdlib.h
include/bsd/unistd.h
src/bsd_getopt.c
src/err.c
src/fgetln.c
src/progname.c

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include/bsd/netinet/ip_icmp.h
include/bsd/sys/bitstring.h
include/bsd/sys/queue.h
include/bsd/sys/time.h
include/bsd/timeconv.h
include/bsd/vis.h
man/bitstring.3bsd
man/errc.3bsd
man/explicit_bzero.3bsd
man/fgetln.3bsd
man/fgetwln.3bsd
man/fpurge.3bsd
man/funopen.3bsd
man/getbsize.3bsd
man/heapsort.3bsd
man/nlist.3bsd
man/queue.3bsd
man/radixsort.3bsd
man/reallocarray.3bsd
man/reallocf.3bsd

man/setmode.3bsd
man/strmode.3bsd
man/strnstr.3bsd
man/unvis.3bsd
man/vis.3bsd
man/wcsncpy.3bsd
src/getbsize.c
src/heapsort.c
src/merge.c
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man/fmtcheck.3bsd
man/humanize_number.3bsd
man/stringlist.3bsd
man/timeval.3bsd
src/fmtcheck.c
src/humanize_number.c
src/stringlist.c

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Files:

include/bsd/sys/endian.h
man/byteorder.3bsd
man/closefrom.3bsd
man/expand_number.3bsd
man/flopen.3bsd
man/getpeereid.3bsd
man/pidfile.3bsd
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src/hash/sha512.h
src/hash/sha512c.c
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man/fparseln.3bsd

src/fparseln.c

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include/bsd/readpassphrase.h

man/readpassphrase.3bsd

man/strncpy.3bsd

man/strtonum.3bsd

src/arc4random.c

src/arc4random_openbsd.h

src/arc4random_uniform.c

src/arc4random_unix.h

src/closefrom.c
src/getentropy_aix.c
src/getentropy_bsd.c
src/getentropy_hpux.c
src/getentropy_hurd.c
src/getentropy_linux.c
src/getentropy_osx.c
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Any executables

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1.134 lcms 2.11

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1.135 tslint-config-airbnb 5.11.1

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1.136 nghttp2 1.30.0-1ubuntu1

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set yrange [0:]

set terminal pngcairo font 'Sans, 8' lw 1 size 1400,1024

set xtics rotate by -45

set style histogram errorbars gap 2 lw 1

set style fill solid border -1

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1.137 ftp-server 1.0.6_1

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1.138 checker-qual 3.5.0

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1.139 httpcomponents-client 4.5.13

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1.140 cryptsetup 2.0.2-1ubuntu1.2

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1.141 argparse 1.2.1

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1.142 libgpm 1.20.7-5

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AES in libhcrypto

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@version 3.0 (December 2000)

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@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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GSS-API mechlglue layer.

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AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libcrypto

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@item GSS-API CFX, SPNEGO, naming extensions, API extensions.

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@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libcrypto

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GSS-API mechlglue layer.

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@item GSS-API CFX, SPNEGO, naming extensions, API extensions.

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@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libhcrypto

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D3DES (V5.09) -

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Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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Windows support

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Upstream-Name: heimdal

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Source: <https://github.com/heimdal/heimdal>

Files-Excluded: doc/doxyout

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GSS-API mechlglue layer.

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AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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GSS-API mechlglue layer.

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@table

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@item GSS-API CFX, SPNEGO, naming extensions, API extensions.

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@item HDB LDAP backend.

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@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libcrypto

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Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libhcrypto

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libhcrypto

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D3DES (V5.09) -

A portable, public domain, version of the Data Encryption Standard.

Written with Symantec's THINK (Lightspeed) C by Richard Outerbridge.

Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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@heading Vincent Rijmen, Antoon Bosselaers, Paulo Barreto

AES in libcrypto

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@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libcrypto

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Written with Symantec's THINK (Lightspeed) C by Richard Outerbridge.

Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
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Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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lib/hcrypto/test_dh.c

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1.155 idna 2.8

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"""

A library to support the Internationalised Domain Names in Applications (IDNA) protocol as specified in RFC 5890 et.al. This new methodology, known as IDNA 2008, can generate materially different results to the previous standard. The library can act as a drop-in replacement for the "encodings.idna" module.

"""

```
import io, sys
from setuptools import setup
```

```
def main():
```

```
    python_version = sys.version_info[:2]
    if python_version < (2,7):
        raise SystemExit("Sorry, Python 2.7 or newer required")
```

```
    package_data = { }
    exec(open('idna/package_data.py').read(), package_data)
```

```
    arguments = {
        'name': 'idna',
        'packages': ['idna'],
        'version': package_data['__version__'],
        'description': 'Internationalized Domain Names in Applications (IDNA)',
        'long_description': io.open("README.rst", encoding="UTF-8").read(),
        'author': 'Kim Davies',
        'author_email': 'kim@cynosure.com.au',
        'license': 'BSD-like',
        'url': 'https://github.com/kjd/idna',
        'classifiers': [
            'Development Status :: 5 - Production/Stable',
            'Intended Audience :: Developers',
            'Intended Audience :: System Administrators',
            'License :: OSI Approved :: BSD License',
            'Operating System :: OS Independent',
            'Programming Language :: Python',
            'Programming Language :: Python :: 2',
            'Programming Language :: Python :: 2.7',
```

```

'Programming Language :: Python :: 3',
'Programming Language :: Python :: 3.4',
'Programming Language :: Python :: 3.5',
'Programming Language :: Python :: 3.6',
'Topic :: Internet :: Name Service (DNS)',
'Topic :: Software Development :: Libraries :: Python Modules',
'Topic :: Utilities',
],
'python_requires': '>=2.7, !=3.0.*, !=3.1.*, !=3.2.*, !=3.3.*',
'test_suite': 'tests',
}

setup(**arguments)

if __name__ == '__main__':
    main()

Found in path(s):
* /kjd-idna-v2-8-0-g1cdf175-1-tar-gz/kjd-idna-375dc46/setup.py

```

1.156 netaddr 0.7.19

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```

-----
netaddr
-----

```

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1.157 six 1.11.0

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The primary author and maintainer of six is Benjamin Peterson. He would like to acknowledge the following people who submitted bug reports, pull requests, and otherwise worked to improve six:

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Erik Rose
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Peter Ruibal
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Anthony Sottile
Lucas Wiman
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If you think you belong on this list, please let me know! --Benjamin

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1.158 chill-java 0.7.6

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 */
```

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* /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/ArraysAsListSerializer.java

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```
/**
```

* <p>Encodes and decodes to and from Base64 notation.</p>

* <p>Homepage: http://i harder.net/base64.</p>

*

* <p>Example:</p>

*

* <code>String encoded = Base64.encode(myByteArray);</code>

*

* <code>byte[] myByteArray = Base64.decode(encoded);</code>

*

* <p>The <tt>options</tt> parameter, which appears in a few places, is used to pass several pieces of information to the encoder. In the "higher level" methods such as encodeBytes(bytes, options) the options parameter can be used to indicate such things as first gzipping the bytes before encoding them, not inserting linefeeds, and encoding using the URL-safe and Ordered dialects.</p>

*

* <p>Note, according to RFC3548, Section 2.1, implementations should not add line feeds unless explicitly told to do so. I've got Base64 set to this behavior now, although earlier versions broke lines by default.</p>

*

* <p>The constants defined in Base64 can be OR-ed together to combine options, so you might make a call like this:</p>

*

* <code>String encoded = Base64.encodeBytes(mybytes, Base64.GZIP | Base64.DO_BREAK_LINES);</code>

* <p>to compress the data before encoding it and then making the output have newline characters.</p>

* <p>Also...</p>

* <code>String encoded = Base64.encodeBytes(crazyString.getBytes());</code>

*

*

*

*

* <p>

* Change Log:

* </p>

*

* v2.3.7 - Fixed subtle bug when base 64 input stream contained the value 01111111, which is an invalid base 64 character but should not throw an ArrayIndexOutOfBoundsException either. Led to discovery of mishandling (or potential for better handling) of other bad input characters. You should now get an IOException if you try decoding something that has bad characters in it.

* v2.3.6 - Fixed bug when breaking lines and the final byte of the encoded string ended in the last column; the buffer was not properly shrunk and contained an extra (null) byte that made it into the string.

* v2.3.5 - Fixed bug in { @link #encodeFromFile } where estimated buffer size was wrong for files of size 31, 34, and 37 bytes.

* v2.3.4 - Fixed bug when working with gzipped streams whereby flushing

- * the Base64.OutputStream closed the Base64 encoding (by padding with equals signs) too soon. Also added an option to suppress the automatic decoding of gzipped streams. Also added experimental support for specifying a class loader when using the
- * { @link #decodeToObject(java.lang.String, int, java.lang.ClassLoader)} method.
- * v2.3.3 - Changed default char encoding to US-ASCII which reduces the internal Java footprint with its CharEncoders and so forth. Fixed some javadocs that were inconsistent. Removed imports and specified things like java.io.IOException explicitly inline.
- * v2.3.2 - Reduced memory footprint! Finally refined the "guessing" of how big the final encoded data will be so that the code doesn't have to create two output arrays: an oversized initial one and then a final, exact-sized one. Big win when using the { @link #encodeBytesToBytes(byte[])} family of methods (and not using the gzip options which uses a different mechanism with streams and stuff).
- * v2.3.1 - Added { @link #encodeBytesToBytes(byte[], int, int, int)} and some similar helper methods to be more efficient with memory by not returning a String but just a byte array.
- * v2.3 - This is not a drop-in replacement! This is two years of comments and bug fixes queued up and finally executed. Thanks to everyone who sent me stuff, and I'm sorry I wasn't able to distribute your fixes to everyone else. Much bad coding was cleaned up including throwing exceptions where necessary instead of returning null values or something similar. Here are some changes that may affect you:
- *
- * Does not break lines, by default. This is to keep in compliance with RFC3548.
- * Throws exceptions instead of returning null values. Because some operations (especially those that may permit the GZIP option) use IO streams, there is a possibility of an java.io.IOException being thrown. After some discussion and thought, I've changed the behavior of the methods to throw java.io.IOExceptions rather than return null if ever there's an error. I think this is more appropriate, though it will require some changes to your code. Sorry, it should have been done this way to begin with.
- * Removed all references to System.out, System.err, and the like. Shame on me. All I can say is sorry they were ever there.
- * Throws NullPointerExceptions and IllegalArgumentExceptions as needed such as when passed arrays are null or offsets are invalid.
- * Cleaned up as much javadoc as I could to avoid any javadoc warnings. This was especially annoying before for people who were thorough in their own projects and then had gobs of javadoc warnings on this file.
- *
- * v2.2.1 - Fixed bug using URL_SAFE and ORDERED encodings. Fixed bug when using very small files (~< 40 bytes).
- * v2.2 - Added some helper methods for encoding/decoding directly from one file to the next. Also added a main() method to support command line

- * encoding/decoding from one file to the next. Also added these Base64 dialects:
- *
- * The default is RFC3548 format.
- * Calling Base64.setFormat(Base64.BASE64_FORMAT.URLSAFE_FORMAT) generates
- * URL and file name friendly format as described in Section
- 4 of RFC3548.
- * <http://www.faqs.org/rfcs/rfc3548.html>
- * Calling Base64.setFormat(Base64.BASE64_FORMAT.ORDERED_FORMAT) generates
- * URL and file name friendly format that preserves lexical ordering as described
- * in <http://www.faqs.org/qa/rfcc-1940.html>
- *
- * Special thanks to Jim Kellerman at <http://www.powerset.com/>
- * for contributing the new Base64 dialects.
- *
- *
- * v2.1 - Cleaned up javadoc comments and unused variables and methods. Added
- * some convenience methods for reading and writing to and from files.
- * v2.0.2 - Now specifies UTF-8 encoding in places where the code fails on systems
- * with other encodings (like EBCDIC).
- * v2.0.1 - Fixed an error when decoding a single byte, that is, when the
- * encoded data was a single byte.
- * v2.0 - I got rid of methods that used booleans to set options.
- * Now everything is more consolidated and cleaner.
- The code now detects
- * when data that's being decoded is gzip-compressed and will decompress it
- * automatically. Generally things are cleaner. You'll probably have to
- * change some method calls that you were making to support the new
- * options format (<tt>int</tt>s that you "OR" together).
- * v1.5.1 - Fixed bug when decompressing and decoding to a
- * byte[] using <tt>decode(String s, boolean gzipCompressed)</tt>.
- * Added the ability to "suspend" encoding in the Output Stream so
- * you can turn on and off the encoding if you need to embed base64
- * data in an otherwise "normal" stream (like an XML file).
- * v1.5 - Output stream pases on flush() command but doesn't do anything itself.
- * This helps when using GZIP streams.
- * Added the ability to GZip-compress objects before encoding them.
- * v1.4 - Added helper methods to read/write files.
- * v1.3.6 - Fixed OutputStream.flush() so that 'position' is reset.
- *
- v1.3.5 - Added flag to turn on and off line breaks. Fixed bug in input stream
- * where last buffer being read, if not completely full, was not returned.
- * v1.3.4 - Fixed when "improperly padded stream" error was thrown at the wrong time.
- * v1.3.3 - Fixed I/O streams which were totally messed up.
- *
- *
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* plenty of well-wishing instead!

* Please visit <http://iharder.net/base64>

* periodically to check for updates or to contribute improvements.

* </p>

*

* @author Robert Harder

* @author rob@iharder.net

* @version 2.3.7

*/

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* /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/UnmodifiableSortedMapSerializer.java
*
/chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/UnmodifiableMapSerializer.java
* /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/UnmodifiableCollectionSerializer.java
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- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/IterableRegistrarSerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/SqlTimeSerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/config/ReflectingInstantiator.java
- *
- /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/URISerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/PackageRegistrar.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/KryoInstantiator.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/SimpleDateFormatSerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/config/Config.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/RegexSerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/config/JavaMapConfig.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/config/ConfigurationException.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/IterableRegistrar.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/SqlDateSerializer.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/SingleDefaultRegistrar.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/TimestampSerializer.java
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- *
- /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/InetSocketAddressSerializer.java
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- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/IKryoRegistrar.java
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- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/ClassRegistrar.java
- * /chill-java-0-7-6-sources-2-jar/com/twitter/chill/java/UUIDSerializer.java

1.159 libgirepository 1.56.1-1

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Version 2, June 1991

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

Preamble

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

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

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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

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

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"Source code" for a work means the preferred form of the work for

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<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

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Argon2 reference source code package - reference C implementations

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Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#

This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php_curl, or with an Apache+mod_ssl webserver for SSL client authentication. Just configure this file as the SSLCACertificateFile.#

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@(#) \$RCSfile: certdata.txt,v \$

\$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$

1.163 gir 1.56.1-1

1.163.1 Available under license :

gobject-introspection has two licenses; one for the typelib library, and one for the tools.

The scanner (giscanner/) and typelib libraries (girepository/) are licensed under the LGPLv2+. See the file COPYING.LGPL.

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There is also some MIT code in giscanner/. In general where applicable files should have headers denoting their license status; if they do not, please file a bug at <https://gitlab.gnome.org/GNOME/gobject-introspection/issues>.

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

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1.164 python-six 1.11.0-2

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1.165 python-gi 3.26.1-2ubuntu1

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1.166 python-chardet 3.0.4-1

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1.167 ncurses-term 6.1-1ubuntu1.18.04

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-- vile: txtmode file-encoding=utf-8

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Calling this script install-sh is preferred over install.sh, to prevent `make' implicit rules from creating a file called install from it when there is no Makefile.

This script is compatible with the BSD install script, but was written from scratch. It can only install one file at a time, a restriction shared with many OS's install programs.

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-- vile: txtmode file-encoding=utf-8

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-- vile:txtmode fc=72
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1.168 python-pkg-resources 39.0.1-2

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1.169 util-linux 2.31.1-0.4ubuntu3.7

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Original sources were obtained from:

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1.172 pythonurllib 1.22-1ubuntu0.18.04.2

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Upstream-Contact: Andrey Petrov <andrey.petrov@shazow.net>

Source: <http://pypi.python.org/pypi/urllib3>

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Contributions to the urllib3 project

Creator & Maintainer

* Andrey Petrov <andrey.petrov@shazow.net>

Contributors

In chronological order:

* victor.vde <<http://code.google.com/u/victor.vde/>>

* HTTPS patch (which inspired HTTPSConnectionPool)

* erikcederstrand <<http://code.google.com/u/erikcederstrand/>>

* NTLM-authenticated HTTPSConnectionPool

* Basic-authenticated HTTPSConnectionPool (merged into make_headers)

* niphlod <niphlod@gmail.com>

* Client-verified SSL certificates for HTTPSConnectionPool

* Response gzip and deflate encoding support

* Better unicode support for filepost using StringIO buffers

* btoconnor <brian@btoconnor.net>

* Non-multipart encoding for POST requests

* p.dobrogost <<http://code.google.com/u/@WBRSRIBZDhBFXQB6/>>

* Code review, PEP8 compliance, benchmark fix

* kennethreitz <me@kennethreitz.com>

* Bugfixes, suggestions, Requests integration

* georgemarshal <<http://github.com/georgemarshal>>

* Bugfixes, Improvements and Test coverage

*

Thomas Kluyver <thomas@kluyver.me.uk>

* Python 3 support

* brandon-rhodes <<http://rhodesmill.org/brandon>>

* Design review, bugfixes, test coverage.

* studer <theo.studer@gmail.com>

* IPv6 url support and test coverage

* Shivaram Lingamneni <slingamn@cs.stanford.edu>

* Support for explicitly closing pooled connections

- * hartator <hartator@gmail.com>
- * Corrected multipart behavior for params

- * Thomas Weischuh <thomas@t-8ch.de>
- * Support for TLS SNI
- * API unification of ssl_version/cert_reqs
- * SSL fingerprint and alternative hostname verification
- * Bugfixes in testsuite

- * Sune Kirkeby <mig@ibofobi.dk>
- * Optional SNI-support for Python 2 via PyOpenSSL.

- * Marc Schlaich <marc.schlaich@gmail.com>
- * Various bugfixes and test improvements.

- * Bryce Boe <bbzbryce@gmail.com>
- * Correct six.moves conflict
- * Fixed pickle support of some exceptions

- * Boris Figovsky <boris.figovsky@ravellosystems.com>
- * Allowed to skip SSL hostname verification

- * Cory Benfield
- <<http://lukasa.co.uk/about/>>
- * Stream method for Response objects.
- * Return native strings in header values.
- * Generate 'Host' header when using proxies.

- * Jason Robinson <jaywink@basshero.org>
- * Add missing WrappedSocket.fileno method in PyOpenSSL

- * Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
- * Fixed a race condition

- * Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
- * Added HTTPS (CONNECT) proxy support

- * Stephen Holsapple <sholsapp@gmail.com>
- * Added abstraction for granular control of request fields

- * Martin von Gagern <Martin.vGagern@gmx.net>
- * Support for non-ASCII header parameters

- * Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- * Support for separate connect and request timeouts

- * Peter Waller <p@pwaller.net>

- * `HTTPResponse.tell()` for determining amount received over the wire
- * Nipunn Koorapati <nipunn1313@gmail.com>
- * Ignore default ports when comparing hosts for equality
- * Danilo @dbrgn <<http://dbrgn.ch/>>
- * Disabled TLS compression by default on Python 3.2+
- * Disabled TLS compression in `pyopenssl` contrib module
- * Configurable cipher suites in `pyopenssl` contrib module
- * Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
- * Account retries on proxy errors
- * Nicolas Delaby <nicolas.delaby@ezeep.com>
- * Use the platform-specific CA certificate locations
- * Josh Schneier <<https://github.com/jschneier>>
- * `HTTPHeaderDict` and associated tests and docs
- * Bugfixes, docs, test coverage
- * Tahia Khan <<http://tahia.tk/>>
- * Added Timeout examples in docs
- * Arthur Grunseid <<http://grunseid.com>>
- * `source_address` support and tests (with <https://github.com/bui>)
- * Ian Cordasco <graffatcolmingov@gmail.com>
- * PEP8 Compliance and Linting
- * Add ability to pass socket options to an HTTP Connection
- * Erik Tollerud <erik.tollerud@gmail.com>
- * Support for standard library `io` module.
- * Krishna Prasad <kprasad.iitd@gmail.com>
- * Google App Engine documentation
- * Aaron Meurer <asmeurer@gmail.com>
- * Added `Url.url`, which unparses a `Url`
- * Evgeny Kapun <abacabadabacaba@gmail.com>
- * Bugfixes
- * Benjamin Meyer <bm_witness@yahoo.com>
- * Security Warning Documentation update for proper capture
- * Shivan Sornarajah <github@sornars.com>
- * Support for using `ConnectionPool` and `PoolManager` as context managers.

- * Alex Gaynor <alex.gaynor@gmail.com>
- * Updates to the default SSL configuration
- * Tomas Tomecek <ttomecek@redhat.com>
- * Implemented generator for getting chunks from chunked responses.
- * tlynn <https://github.com/tlynn>
- * Respect the warning preferences at import.
- * David D. Riddle <ddriddle@illinois.edu>
- * IPv6 bugfixes in testsuite
- * Jon Wayne Parrott <jonwayne@google.com>
- * App Engine environment tests.
- * John Krauss <https://github.com/talos>
- * Clues to debugging problems with `cryptography` dependency in docs
- * Disassem <https://github.com/Disassem>
- * Fix pool-default headers not applying for url-encoded requests like GET.
- * James Atherfold <jlatherfold@hotmail.com>
- * Bugfixes relating to cleanup of connections during errors.
- * Christian Pedersen <https://github.com/chripede>
- * IPv6 HTTPS proxy bugfix
- * Jordan Moldow <https://github.com/jmoldow>
- * Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- * Bugfix for ``ConnectionPool.urlopen(release_conn=False)``.
- * Creation of ``HTTPConnectionPool.ResponseCls``.
- * Predrag Gruevski <https://github.com/obi1kenobi>
- * Made cert digest comparison use a constant-time algorithm.
- * Adam Talsma <https://github.com/a-tal>
- * Bugfix to ca_cert file paths.
- * Evan Meagher <https://evanmeagher.net>
- * Bugfix related to `memoryview` usage in PyOpenSSL adapter
- * John Vandenberg <jayvdb@gmail.com>
- * Python 2.6 fixes; pyflakes and pep8 compliance
- * Andy Caldwell <andy.m.caldwell@googlemail.com>
- * Bugfix related to reusing connections in indeterminate states.

- * Ville Skytt <ville.skytta@iki.fi>
- * Logging efficiency improvements, spelling fixes,
Travis config.
- * Shige Takeda <smtakeda@gmail.com>
- * Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response
- * Jesse Shapiro <jesse@jesseshapiro.net>
- * Various character-encoding fixes/tweaks
- * Disabling IPv6 DNS when IPv6 connections not supported
- * David Foster <http://dafoster.net/>
- * Ensure order of request and response headers are preserved.
- * Jeremy Cline <jeremy@jcline.org>
- * Added connection pool keys by scheme
- * Aviv Palivoda <palaviv@gmail.com>
- * History list to Retry object.
- * HTTPResponse contains the last Retry object.
- * Nate Prewitt <nate.prewitt@gmail.com>
- * Ensure timeouts are not booleans and greater than zero.
- * Fixed infinite loop in ``stream`` when amt=None.
- * Added length_remaining to determine remaining data to be read.
- * Added enforce_content_length to raise exception when incorrect content-length received.
- * Seth Michael Larson <sethmichaellarson@protonmail.com>
- * Created selectors
backport that supports PEP 475.
- * Alexandre Dias <alex.dias@smarkets.com>
- * Don't retry on timeout if method not in whitelist
- * Moinuddin Quadri <moin18@gmail.com>
- * Lazily load idna package
- * Tom White <s6yg1ez3@mail2tor.com>
- * Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
- * Tim Burke <tim.burke@gmail.com>
- * Stop buffering entire deflate-encoded responses.
- * Tuukka Mustonen <tuukka.mustonen@gmail.com>
- * Add counter for status_forcelist retries.
- * Erik Rose <erik@mozilla.com>
- * Bugfix to pyopenssl vendoring

* [Your name or handle] <[email or website]>

* [Brief summary of your changes]

1.173 iproute snmp

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1.179 ssh-import-id 5.7

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1.180 file-saver 2.0.5

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1.181 curl 7.51.0

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1.182 iconv 2.27

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Ty Coon, President of Vice

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Version 3, 29 June 2007

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The

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1.183 file 5.32-2ubuntu0.4

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1.184 selinux 2.7-2build2

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Manoj Srivastava <srivasta@debian.org>
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1.185 libxau 1.0.8-1ubuntu1

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1.186 audit 2.8.2-1ubuntu1.1

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1.187 dhcp 4.2.4-7ubuntu12.10

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* configure.ac, Makefile.am: The original versions were derived from the ones in the XML Catalog Manager project, version 2.2.

Author: Julio Merino <jmmv@users.sourceforge.net>

* atf-c/ui.c: The format_paragraph and format_text functions were derived from the ones in the Monotone project, revision 3a0982da308228d796df35f98d787c5cff2bb5b6.

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* atf-c++/detail/io.hpp, atf-c++/detail/io.cpp, atf-c++/detail/io_test.cpp: These files were derived from the file_handle, systembuf, pipe and pistream classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

* admin/check-style.sh,
admin/check-style-common.awk,
admin/check-style-cpp.awk, admin/check-style-shell.awk: These files, except the first one, were first implemented in the Buildtool project. They were later adapted to be part of Boost.Process and, during that process, the shell script was created.

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=====
vim: filetype=text:textwidth=75:expandtab:shiftwidth=2:softtabstop=2
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<!-- \$Id\$ -->

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<xsl:stylesheet version="1.0"

xmlns:xsl="http://www.w3.org/1999/XSL/Transform"

xmlns:xi="http://www.w3.org/2001/XInclude"

xmlns:db="http://docbook.org/ns/docbook">

```

<xsl:template name="isc.copyright.format">
  <xsl:param name="text"/>
  <xsl:value-of select="$isc.copyright.leader"/>
  <xsl:value-of select="normalize-space(substring-before($text, '&#10;'))"/>
  <xsl:text>&#10;</xsl:text>
  <xsl:variable name="rest" select="substring-after($text, '&#10;')"/>
  <xsl:if test="translate($rest, '&#9;&#32;', '')">
    <xsl:call-template name="isc.copyright.format">
      <xsl:with-param
name="text" select="$rest"/>
    </xsl:call-template>
  </xsl:if>
</xsl:template>

```

```

<xsl:variable name="isc.copyright.text">
  <xsl:text>
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  </xsl:text>
</xsl:variable>

```

```

<xsl:variable name="isc.copyright">
  <xsl:call-template name="isc.copyright.format">
    <xsl:with-param name="text">
      <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
        <xsl:text>Copyright (C) </xsl:text>
        <xsl:call-template name="copyright.years">
          <xsl:with-param name="years" select="year"/>
        </xsl:call-template>
        <xsl:text> </xsl:text>
        <xsl:value-of select="holder"/>
        <xsl:value-of select="$isc.copyright.breakline"/>
        <xsl:text>&#10;</xsl:text>
      </xsl:for-each>
    <xsl:value-of select="$isc.copyright.text"/>
    </xsl:with-param>
  </xsl:call-template>
</xsl:variable>
</xsl:stylesheet>

```

<!--

- Local variables:
- mode: sgml
- End:

-->

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The following list of people, sorted by last name, have contributed code or patches to this implementation of sudo since I began maintaining it in 1993. This list is known to be incomplete--if you believe you should be listed, please send a note to sudo@sudo.ws.

Ackeret, Matt

Adler, Mark
Allbery, Russ
Anderson, Jamie
Andrew, Nick
Andric, Dimitry
Barron, Danny
Bates, Tom
Behan, Zdenk
Bellis, Ray
Benali, Elias
Beverly, Jamie
Boardman, Spider
Bostley, P.J.
Bowes, Keith
Boyce, Keith Garry
Brantley, Michael
Braun, Rob
Bezina, Pavel
Brooks, Piete
Brown, Jerry
Burr, Michael E
Burton, Ross
Bussjaeger, Andreas
Calvin, Gary
Campbell, Aaron
Chazelas, Stephane
ek, Vtzslav
Coleman, Chris
Corzine, Deven T.
Cusack, Frank
Dai, Wei
Dill, David
Earickson, Jeff
Eckhardt, Drew
Edgington, Ben
Esipovich, Marc
Espie, Marc
Faigon, Ariel
Farrell, Brian
Fobes, Steve
Frysinger, Mike
G., Daniel Richard
Gailly, Jean-loup
Gelman, Stephen
Gerraty, Simon J.
Graber, Stephane
Guillory, B.
Hayman, Randy M.

Henke, Joachim
Hideaki, YOSHIFUJI
Hieb, Dave
Holloway, Nick
Hoover, Adam
Hunter, Michael T.
Hutchings, Ben
Irrgang, Eric
Jackson, Brian
Jackson, John R.
Jackson, Richard L., Jr.
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Jorge, Joel Pele
Pele Jorge, Joel
Juhani, Timo
KIKUCHI, Ayamura
Kadow, Kevin
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King, Dale
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Knoble, Jim
Knox, Tim
Komarnitsky, Alek O.
Kondrashov, Nikolai
Kopeek, Daniel
Kranenburg, Paul
Krause, David
Lakin, Eric
Larsen, Case
Levin, Dmitry V.
Libby, Kendall
Lobbess, Phillip E.
McIntyre, Jason
MacKenzie, David J.
McLaughlin, Tom
Makey, Jeff
Marchionna, Michael D.
Markham, Paul
Martinian,
Emin
Meskes, Michael
Michael, David
Miller, Todd C.
Minier, Loc
Moffat, Darren

Moldung, Jan Thomas
Morris, Charles
Mueller, Andreas
Mller, Dworkin
Nieusma, Jeff
Nikitser, Peter A.
Nussel, Ludwig
Ouellet, Jean-Philippe
Paquet, Eric
Paradis, Chantal
Percival, Ted
Perera, Andres
Peron, Christian S.J.
Peschel, Aaron
Peslyak, Alexander
Peterson, Toby
Petten, Diego Elio
Pickett, Joel
Plotnick, Alex
de Raadt, Theo
Rasch, Gudleik
Reid, Steve
Richards, Matt
Rossum, Guido van
Rouillard, John P.
Rowe, William A., Jr.
Roy, Alain
Ruusame, Elan
Ryabinkin, Eygene
SATO, Yuichi
Snchez, Wilfredo
Saucier, Jean-Francois
Schoenfeld, Patrick
Schuring, Arno
Schwarze, Ingo
Scott, Dougal
Sieger, Nick
Simon, Thor Lancelot
Slemko, Marc
Smith, Andy
Sobrado, Igor
Soulén, Steven
Spangler, Aaron
Spradling, Cloyce D.
Stier, Matthew
Stoeckmann, Tobias
Street, Russell
Stritzky, Tilo

Stroucken, Michael
Tarrall, Robert
Thomas, Matthew
Todd, Giles
Toft, Martin
Torek, Chris
Tucker, Darren
Uhl, Robert
Uzel, Petr
Valery, Reznic
Van Dinter, Theo
Venckus, Martynas
de Vries, Maarten
Wagner, Klaus
Walsh, Dan
Warburton, John
Webb, Kirk
Wetzel, Timm
Wieringen, Marco van
Wilk, Jakub
Winiger, Gary
Wood, David
Zacarias, Gustavo
Zolnowsky, John

The following people have worked to translate sudo into other languages:

Blttermann, Mario
Bogusz, Jakub
Casagrande, Milo
Castro, Felipe
Cho, Seong-ho
Chornoivan, Yuri
Diguez, Francisco
Ferreira, Rafael
Garca-Fontes, Walter
Gezer, Volkan
Hamasaki, Takeshi
Hamming, Peter
Hansen, Joe
Hantrais, Frdric
Hein, Jochen
Hufthammer, Karl Ove
Jerovek, Damir
Karvonen, Jorma
Kazik, Duan
Kelemen,

Gbor
Koir, Klemen
Kozlov, Yuri
Kramer, Jakob
Krznar, Tomislav
Marchal, Frdric
Margeviius, Algimantas
Maryanov, Pavel
Nikoli, Miroslav
Nylander, Daniel
Psa, Petr
Qun, Trn Ngc
Regueiro, Leandro
Sarer, zgr
Sendn, Abel
Sikrom, ka
Spingos, Dimitris
Taniguchi, Yasuaki
Tomat, Fbio
Uranga, Mikel Olasagasti
Vorotnikov, Artem
Wang, Wylmer

1.190 automation 1.11-8

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* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/RegExp.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/State.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/AutomatonProvider.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/TransitionComparator.java
*
/automaton-1-11-8-sources-3-jar/dk/brics/automaton/MinimizationOperations.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/BasicOperations.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/Transition.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/StatePair.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/RunAutomaton.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/SpecialOperations.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/BasicAutomata.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/DatatypesAutomatonProvider.java
* /automaton-1-11-8-sources-3-jar/dk/brics/automaton/Automaton.java

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/*

* dk.brics.automaton - AutomatonMatcher

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1.191 reactive-streams 1.0.3

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 * /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/FlowAdapters.java
 * /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Processor.java
 *
 /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Subscription.java
 * /reactive-streams-1-0-3-sources-3-jar/org/reactivestreams/Subscriber.java

1.192 commons-logging 1.2

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* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/LogFactoryImpl.java
* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/Jdk13LumberjackLogger.java
*
/commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/SimpleLog.java
* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/Jdk14Logger.java
* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/LogSource.java
* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/NoOpLog.java
* /commons-logging-1-1-sources-9-jar/org/apache/commons/logging/impl/LogKitLogger.java
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1.193 commons-validator 1.7

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1.194 asm 5.0.4

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```

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*/

```

```

/**

```

```

* Creates a new JSRInliner. <i>Subclasses must not use this
* constructor</i>. Instead, they must use the
* { @link #JSRInlinerAdapter(int, MethodVisitor, int, String, String, String, String[])}
* version.
*
* @param mv
*
the <code>MethodVisitor</code> to send the resulting inlined
*   method code to (use <code>null</code> for none).

```

```

* @param access
*     the method's access flags (see { @link Opcodes}). This
*     parameter also indicates if the method is synthetic and/or
*     deprecated.
* @param name
*     the method's name.
* @param desc
*     the method's descriptor (see { @link Type}).
* @param signature
*     the method's signature. May be <tt>null</tt>.
* @param exceptions
*     the internal names of the method's exception classes (see
*     { @link Type#getInternalName() getInternalName}). May be
*     <tt>null</tt>.
* @throws IllegalStateException
*     If a subclass calls this constructor.
*/

```

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*/
/**
 * Constructs a new { @link LocalVariableAnnotationNode}. <i>Subclasses must
 * not use this constructor</i>. Instead, they must use the
 * { @link #LocalVariableAnnotationNode(int, TypePath, LabelNode[], LabelNode[], int[], String)}
 * version.
 *
 * @param typeRef
 *      a reference to the annotated type. See { @link TypeReference}.
 * @param typePath
 *      the path to the annotated type argument, wildcard bound, array
 *      element type, or static inner type within 'typeRef'. May be
 *      <tt>null</tt> if the annotation targets 'typeRef' as a whole.
 * @param start
 *      the first instructions corresponding to the continuous ranges
 *      that make the scope of this local variable (inclusive).
 * @param end
 *      the last instructions corresponding to the continuous ranges
 *      that make the scope of this local variable (exclusive). This
 *      array must have the same size as the 'start' array.
 * @param index
 *      the local variable's index in each range. This array must have
 *      the same size as the 'start' array.
 * @param desc
 *      the class descriptor of
the annotation class.
*/

```

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* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LocalVariableAnnotationNode.java
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- */
- /**
- * Constructs a new { @link ClassNode}. <i>Subclasses must not use this
 - * constructor</i>. Instead, they must use the { @link #ClassNode(int)}
 - * version.
 - *
 - * @throws IllegalStateException
 - * If a subclass calls this constructor.
 - */

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/**

* Creates a new { @link GeneratorAdapter}. <i>Subclasses must not use this
 * constructor</i>. Instead, they must use the
 * { @link #GeneratorAdapter(int, MethodVisitor, int, String, String)}
 * version.

*

* @param mv

* the

method visitor to which this adapter delegates calls.

* @param access

* the method's access flags (see { @link Opcodes}).

* @param name

* the method's name.

* @param desc

* the method's descriptor (see { @link Type Type}).

* @throws IllegalStateException

* If a subclass calls this constructor.

*/

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* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXAnnotationAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/Processor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/SAXFieldAdapter.java
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/xml/ASMContentHandler.java
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/**

* Creates a new { @link AnalyzerAdapter}. <i>Subclasses must not use this

* constructor</i>. Instead, they must use the

* { @link #AnalyzerAdapter(int, String, int, String, String, MethodVisitor)}

* version.

*

* @param owner

*

the owner's class name.

* @param access

* the method's access flags (see { @link Opcodes}).

* @param name

```

*      the method's name.
* @param desc
*      the method's descriptor (see { @link Type Type}).
* @param mv
*      the method visitor to which this adapter delegates calls. May
*      be <tt>null</tt>.
* @throws IllegalStateException
*      If a subclass calls this constructor.
*/

```

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/**

* Constructs a new { @link Textifier}. <i>Subclasses must not use this

* constructor</i>. Instead, they must use the { @link #Textifier(int)}

* version.

```
*  
* @throws IllegalStateException  
*     If a subclass calls this constructor.  
*/
```

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*/

Found in path(s):

* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Label.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Type.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/AnnotationWriter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SimpleVerifier.java
 *

/asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/NameMapping.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/Printer.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/Shrinker.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/Method.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckAnnotationAdapter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingSignatureAdapter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingFieldAdapter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassWriter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Attribute.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SourceInterpreter.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MethodInsnNode.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/MethodVisitor.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceFieldVisitor.java
 * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SourceValue.java

```

*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/AdviceAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/Remapper.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicValue.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/FieldWriter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ByteVector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/AbstractInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Interpreter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/JumpInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/TableSwitchGenerator.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FieldNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FieldInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LabelNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ClassConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckSignatureAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicVerifier.java
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/CodeSizeEvaluator.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/InstructionAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/IntInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingClassAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MultiANewArrayInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassReader.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/VarInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingMethodAdapter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Value.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/StaticInitMerger.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/AnnotationConstantsCollector.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/AnnotationVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InsnNode.java
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureReader.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LdcInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LookupSwitchInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LineNumberNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/JarOptimizer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/LocalVariablesSorter.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceAnnotationVisitor.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/Constant.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TypeAnnotationNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/Handle.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TryCatchBlockNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ClassOptimizer.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/ASMifier.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceClassVisitor.java
*
/asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TableSwitchInsnNode.java
* /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Frame.java

```

- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InvokeDynamicInsnNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/AnalyzerException.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Subroutine.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/SerialVersionUIDAdder.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InnerClassNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/ParameterNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/LocalVariableNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/Analyzer.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/SmallSet.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/RemappingAnnotationAdapter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/TypeInsnNode.java
- *
- /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceSignatureVisitor.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InsnNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/MethodOptimizer.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckFieldAdapter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Frame.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckMethodAdapter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/SimpleRemapper.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/AnnotationNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/FieldVisitor.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Context.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/TraceMethodVisitor.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/MethodConstantsCollector.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Handler.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/MethodNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/InsnList.java
- *
- /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/FieldConstantsCollector.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/MethodWriter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/analysis/BasicInterpreter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureWriter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/commons/TryCatchBlockSorter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Item.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Edge.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/ClassVisitor.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/tree/FrameNode.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/optimizer/ConstantPool.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/Opcodes.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/util/CheckClassAdapter.java
- * /asm-5-0-4-sources-6-jar/org/objectweb/asm/signature/SignatureVisitor.java

1.195 jakarta-annotation-api 1.3.5

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##

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1.197 classmate 1.5.1

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Java ClassMate library was originally written by Tatu Saloranta (tatu.saloranta@iki.fi)

Other developers who have contributed code are:

* Brian Langel

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* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintTarget.java

* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/FutureOrPresent.java

* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Null.java

* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintValidatorContext.java

* /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ExecutableDescriptor.java

- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/Default.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/MessageInterpolator.java
- *
- /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/package-info.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/Unwrapping.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/ValueExtractor.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/ValidationTarget.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/MethodDescriptor.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/package-info.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/UnexpectedTypeException.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintViolation.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintDefinitionException.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ValidateUnwrappedValue.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/SupportedValidationTarget.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/package-info.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/ValidationProvider.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ElementKind.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/GroupConversionDescriptor.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/valueextraction/ExtractedValue.java
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- jar/javax/validation/valueextraction/ValueExtractorDeclarationException.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraintvalidation/package-info.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/AssertTrue.java
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- jar/javax/validation/valueextraction/ValueExtractorDefinitionException.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/BootstrapConfiguration.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ElementDescriptor.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ContainerElementTypeDescriptor.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Min.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/groups/ConvertGroup.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Max.java

- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ReportAsSingleViolation.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Pattern.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Validation.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/NotBlank.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/spi/package-info.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Constraint.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Valid.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/TraversableResolver.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/ExecutableValidator.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ValidatorFactory.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/ContainerDescriptor.java
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- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/GroupSequence.java
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- /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintDeclarationException.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/PropertyDescriptor.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintValidator.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/executable/ExecutableType.java
- * /jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/AssertFalse.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/ClassMemberValue.java

* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/ShortMemberValue.java

*

/javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/AnnotationMemberValue.java

* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/MemberValueVisitor.java

* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/StringMemberValue.java

* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/Annotation.java

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/javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/annotation/LongMemberValue.java

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* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/FieldDecl.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/Translator.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/analysis/Type.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/runtime/Cflow.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/Mnemonic.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/SymbolTable.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/convert/TransformCall.java

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* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/AssignExpr.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/EnclosingMethodAttribute.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/CtNewNestedClass.java
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/javassist-3-19-0-ga-sources-1-jar/javassist/expr/FieldAccess.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/util/proxy/Proxy.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/CtNewClass.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/InnerClassesAttribute.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/tools/Dump.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/stackmap/TypedBlock.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/analysis/Subroutine.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/Lex.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ClassFileWriter.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/DuplicateMemberException.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/Loader.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/Variable.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/analysis/ControlFlow.java
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/javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/ClassMetaobject.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/tools/rmi/Proxy.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/CodeAnalyzer.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/scopedpool/SoftValueHashMap.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/expr/NewExpr.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/scopedpool/ScopedClassPoolRepository.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/scopedpool/ScopedClassPoolFactory.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/expr/Instanceof.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ClassFilePrinter.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/StackMap.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ConstantAttribute.java

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- * /javassist-3-19-0-ga-sources-1-jar/javassist/util/proxy/FactoryHelper.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/runtime/Inner.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/rmi/ObjectImporter.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/rmi/Sample.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/web/Webserver.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/Compiler.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/CallExpr.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/CtClass.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/analysis/Analyzer.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ParameterAnnotationsAttribute.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/NewExpr.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/CannotReflectException.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/expr/NewArray.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/rmi/RemoteRef.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/util/proxy/SerializedProxy.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/CannotInvokeException.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ProceedHandler.java
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- /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/DeprecatedAttribute.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/AccessorMaker.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/analysis/MultiType.java
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- * /javassist-3-19-0-ga-sources-1-jar/javassist/tools/rmi/RemoteException.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/LongVector.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ExceptionsAttribute.java
- * /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/Keyword.java

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* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/ASTList.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/bytecode/ClassFile.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/tools/reflect/Reflection.java
*
/javassist-3-19-0-ga-sources-1-jar/javassist/compiler/ast/InstanceOfExpr.java
* /javassist-3-19-0-ga-sources-1-jar/javassist/expr/Handler.java
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* /javassist-3-19-0-ga-sources-1-jar/javassist/compiler/NoFieldException.java
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1.205 python 2.7.15~rc1-1

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This is the Debian GNU/Linux prepackaged version of the Python programming
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A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting

Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National

Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL- compatible? (1)
0.9.0 thru 1.2				
	1991-1995	CWI	yes	
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes

2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009		
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2.6.5	2.6.4	2010	PSF	yes

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1.206 commons-cli 1.3.1

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1.210 jewelcli 0.8.2

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```

Found in path(s):

```
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/AbstractOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/SpecificationMultiplicity.java
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 */
```

Found in path(s):

```
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ArgumentCollectionImpl.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/CliInstanceImpl.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/CliInstanceImpl.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/CliInterfaceImpl.java
*
```

```
/jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ArgumentValidatorImpl.java
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* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/OptionsSpecificationImpl.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/Option.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/Option.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentValidatorImpl.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionsSpecificationImpl.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentCollectionImpl.java
```

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```
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```

* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionType.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/UnparsedOptionSpecificationImpl.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ParsedOptionSpecificationImpl.java
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/jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/ParsedOptionSpecificationImpl.java
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* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/UnparsedOptionSpecificationBuilder.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/InterfaceOptionsSpecificationParser.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/InterfaceOptionsSpecificationParser.java
*
/jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/HelpValidationErrorImpl.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ConvertUnparsedGetterMethodToUnparsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionUtils.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/InstanceOptionsSpecificationParser.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/CliSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/OptionUtils.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/ConvertUnparsedSetterMethodToUnparsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionName.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionContext.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/ConvertSetterMethodToParsedOptionSpecification.java
*
/jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/HelpRequestedException.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/CliSpecification.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/UnparsedOptionSummary.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/InstanceOptionsSpecificationParser.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/UnparsedOptionSummary.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ParsedOptionSummary.java
* /jewelcli-0-8-2-sources-jar/com/lexicalscope/jewel/cli/ParsedOptionSummary.java

* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ConvertUnparsedSetterMethodToUnparsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ConvertUnparsedGetterMethodToUnparsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ConvertGetterMethodToParsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ParsedOptionSpecificationBuilder.java
*
/jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ConvertSetterMethodToParsedOptionSpecification.java
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* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/AbstractConvertMethodToOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureWrongNumberOfValues.java
* /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionHelpMessage.java
*
/jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentValidationExceptionFactory.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureType.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/UnparsedAnnotationAdapter.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/InstanceArgumentPresentingStrategy.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ConvertTypeOfObject.java
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* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ParsedOptionSpecification.java
* /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureUnexpectedValue.java
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- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentImpl.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ArgumentImpl.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionSpecification.java
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- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentCollectionBuilder.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ArgumentPresentingStrategy.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/OptionHelpMessage.java
- *
- /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureMissingOption.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/InstanceArgumentPresentingStrategy.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailurePatternMismatch.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureUnableToConstructType.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/AbstractOptionAdapter.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureUnexpectedOption.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/HelpMessageOptionSummaryBuilderImpl.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/AbstractOptionSpecificationBuilder.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureHelpRequested.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionAdapter.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/AbstractCliImpl.java
- *
- /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/InterfaceArgumentPresentingStrategy.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/AbstractCliImpl.java
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- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureMissingValue.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ConvertTypeOfObject.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureInvalidValueForType.java
- *
- /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/HelpMessageBuilderImpl.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/HelpMessageBuilderImpl.java
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- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ArgumentPresentingStrategy.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ParsedOptionSpecification.java
- * /jewelcli-0-8-2-sources-jar/com/lexicalescope/jewel/cli/ValidationFailureMisplacedOption.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/OptionAnnotationAdapter.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/UnparsedOptionSpecification.java
- * /jewelcli-0-8-2-sources-jar/uk/co/flamingpenguin/jewel/cli/ArgumentCollectionBuilder.java

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1.213 python-certifi 2018.1.18-2

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This package contains a modified version of ca-bundle.crt:

ca-bundle.crt -- Bundle of CA Root Certificates

Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#

This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php_curl, or with an Apache+mod_ssl webserver for SSL client authentication. Just configure this file as the SSLCACertificateFile.#

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@(#) \$RCSfile: certdata.txt,v \$

\$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$

1.214 jsoup 1.10.2

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1.215 jemalloc 5.2.1

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1.216 python-setuptools 39.0.1-2

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1.217 force-shading 1.11.0

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jar/com/amazonaws/services/cloudwatch/model/MetricDataQuery.java
* /aws-java-sdk-cloudwatch-1-11-553-sources-jar/com/amazonaws/services/cloudwatch/model/Dimension.java
* /aws-java-sdk-cloudwatch-1-11-553-sources-
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/ aws-java-sdk-cloudwatch-1-11-553-sources-
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* /aws-java-sdk-cloudwatch-1-11-553-sources-
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* /aws-java-sdk-cloudwatch-1-11-553-sources-
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```



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* /aws-java-sdk-cloudwatch-1-11-553-sources-
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jar/com/amazonaws/services/cloudwatch/model/ListDashboardsRequest.java
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* /aws-java-sdk-cloudwatch-1-11-553-sources-
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* /aws-java-sdk-cloudwatch-1-11-553-sources-
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* /aws-java-sdk-cloudwatch-1-11-553-sources-jar/com/amazonaws/services/cloudwatch/model/MetricAlarm.java
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* /aws-java-sdk-cloudwatch-1-11-553-sources-
jar/com/amazonaws/services/cloudwatch/model/transform/InvalidParameterCombinationExceptionUnmarshaller.java
a

```

1.221 jpsg-core 1.4

1.221.1 Available under license :

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```

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- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/Condition.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/PrimitiveTypeModifierPreProcessor.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/CheckingMatcher.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/Jdk8FunctionReplacer.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/AAnProcessor.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/concurrent/RealForkJoinTasks.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/ObjectType.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/Generator.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/Dimensions.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/NonexistentDimensionException.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/ConstProcessor.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/TemplateProcessor.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/function/UnaryOperator.java
- *
- /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/FloatingWrappingProcessor.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/PrimitiveType.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/DefinitionProcessor.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/PrimitiveTypeModifierPostProcessor.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/Context.java
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/BitsModifierPostProcessor.kt
- * /jpsg-core-1-4-sources-jar/io/timeandspace/jpsg/concurrent/NoForkJoinTasks.kt

1.222 flink-metrics-core 1.11.0

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1.223 smoothie-map 2.0.2

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 */
```

Found in path(s):

```
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/EquivalenceBasedHashFunction.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/package-info.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/ComparableClassValue.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/Equivalence.java
*
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/StatelessEquivalence.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/Utils.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/ContinuousSegments.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/FilteringIterator.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/ObjSet.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/KeySearchStats.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/OptimizationObjective.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/LongMath.java
* /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/ObjCollection.java
```

- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/CompileTimeConstant.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/DefaultHashFunction.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/map/KeyValue.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/package-info.java
- *
- /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/AmortizedPerSegment.java
- * /smoothie-map-2-0-2-sources-
- jar/io/timeandspace/smoothie/SmoothieMapWithCustomKeyAndValueEquivalences.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/AmortizedPerOrder.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/ObjectSize.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/VisibleForTesting.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/Segments.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/HashCodeDistribution.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/map/package-info.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/AbstractSegment.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/collect/map/ObjObjMap.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/IntMath.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/ColdPath.java
- *
- /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/PoorHashCodeDistributionOccasion.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/BitSetAndState.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/InterleavedSegment_BitSetAndStateArea.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMapStats.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/InflatedSegmentQueryContext.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMapWithCustomKeyEquivalence.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/BinomialDistributionInverseCdfApproximation.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/OrdinarySegmentStats.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/IsFullCapacitySegmentBitSet.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/OutboundOverflowCounts.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/RarelyCalledAmortizedPerSegment.java
- *
- /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMapBuilder.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/Statistics.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMapWithCustomValueEquivalence.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/AbstractEntry.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMapWithCustomKeyHashFunction.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/InterleavedSegments.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SwissTable.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SmoothieMap.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/UnsafeUtils.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/HashTable.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SimpleMutableEntry.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/ContinuousSegment_BitSetAndStateArea.java
- *
- /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/BarelyCalled.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/HotPath.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/PrecomputedBinomialCdfValues.java
- * /smoothie-map-2-0-2-sources-jar/io/timeandspace/smoothie/SuppressForbidden.java

1.224 flink-core 1.11.0

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1.226 jmespath-java 1.11.553

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 */
```

Found in path(s):

```
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathFilter.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/ObjectMapperSingleton.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathFlatten.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathLengthFunction.java
*
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathMultiSelectList.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpEquals.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/NumericComparator.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathValueProjection.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathField.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathAndExpression.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/InvalidTypeException.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathIdentity.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/Comparator.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathSubExpression.java
```

* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathProjection.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpGreaterThanOrEqualTo.java
*
/jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathContainsFunction.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/CamelCaseUtils.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpGreaterThan.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathLiteral.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathExpression.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathVisitor.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpNotEquals.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathEvaluationVisitor.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathFunction.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpLessThan.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/JmesPathNotExpression.java
* /jmespath-java-1-11-553-sources-jar/com/amazonaws/jmespath/OpLessThanOrEqualTo.java
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Found in path(s):

* /jmespath-java-1-11-553-sources-jar/META-INF/maven/com.amazonaws/jmespath-java/pom.xml

1.227 flink-java 1.11.0

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1.228 aws-java-sdk-core 1.11.553

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```
/*
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/EndpointPrefixAwareSigner.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/EC2CredentialsUtils.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/internal/CredentialsEndpointRetryParameters.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/ConnectionUtils.java
 *
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/EC2CredentialsFetcher.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/ContainerCredentialsProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/ContainerCredentialsRetryPolicy.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/EC2ContainerCredentialsProviderWrapper.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/internal/CredentialsEndpointRetryPolicy.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/CredentialsEndpointProvider.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/SimpleTypeJsonUnmarshallers.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonParser.java
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```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/package-info.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/apache/client/impl/SdkHttpClient.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/apache/Utils/Utils.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/InternalLogFactory.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkStructuredJsonFactory.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/apache/client/impl/ConnectionManagerAwareHttpClient.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/ssl/ShouldClearSslSessionPredicate.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/CapacityManager.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/IdempotentUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/IRequestHandler2.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/DateTimeJsonSerializer.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/CanHandleNullCredentials.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/apache/client/impl/ApacheConnectionFactory.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/FakeIOException.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/apache/request/impl/ApacheHttpRequestFactory.java
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```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/EC2MetadataUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkFilterInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkDigestInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/RegionAwareSigner.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/MetricAware.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionMetadata.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base32Codec.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/IOUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Throwables.java

```

```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/MetricsInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/EncodingSchemeEnum.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base64.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AbstractBase32Codec.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/SdkRuntime.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/CodecUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkBufferedInputStream.java
*
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/ServiceAwareSigner.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/HttpClientWrappingInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base64Codec.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base32.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base16.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base16Codec.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/Region.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkFilterOutputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AbortedException.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWS4Signer.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ResetException.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/jmx/MBeans.java
*
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/ListWithAutoConstructFlag.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Codec.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/EncodingScheme.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionMetadataParser.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/jmx/SdkMBeanRegistrySupport.java
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```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/Builder.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/Protocol.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ImmutableMapParameter.java

```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/SignerConfigJsonHelper.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/JsonIndex.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/SignerConfig.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/ssl/SdkTLSSocketFactory.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/FIFOCache.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/request/Progress.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/RequestProgressInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/request/ProgressSupport.java
*


```

/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/UnreliableFilterInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/ProfileCredentialsProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressEventFilter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/SDKProgressPublisher.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/package-info.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/BoundedLinkedHashMap.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/auth/profile/internal/AbstractProfilesConfigFileScanner.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Platform.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/auth/profile/internal/ProfileProcessCredentialsProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/internal/SignerKey.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressInputStream.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/internal/AWS4SignerRequestParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/UnreliableTestConfig.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/auth/profile/internal/securitytoken/STSPProfileCredentialsServiceProvider.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/auth/profile/internal/securitytoken/ProfileCredentialsService.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/Profile.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/LengthCheckInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/BasicProfileConfigLoader.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ResponseProgressInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkSSLSocket.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/ProcessCredentialsProvider.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFileWriter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/DelegateSSLSocket.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/internal/SignerConstants.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFile.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/auth/profile/internal/securitytoken/STSPProfileCredentialsServiceLoader.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressTracker.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/RoleInfo.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/DeliveryMode.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/internal/AWS4SignerUtils.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/Releasable.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/SyncProgressListener.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkSocket.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkStructuredPlainJsonFactory.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkStructuredCborFactory.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkJsonProtocolFactory.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/StructuredJsonGenerator.java

*

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/JsonResponseHandler.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkCborGenerator.java

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/**
* Interface for providing AWS region information. Implementations are free to use any strategy for
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AwsRegionProvider.java

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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/JodaTime.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/StringMapBuilder.java

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- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/model/CredentialScope.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionImpl.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/apache/SdkProxyRoutePlanner.java
- *
 - /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/InMemoryRegionsProvider.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/PartitionRegionImpl.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/SimpleTypeCborUnmarshallers.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/model/Service.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkStructuredIonFactory.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AbstractRegionMetadataProvider.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/model/Endpoint.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/PartitionsLoader.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/model/Region.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionMetadataFactory.java
 - * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/http/apache/client/impl/CRC32ChecksumResponseInterceptor.java
- *
 - /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/PartitionMetadataProvider.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/partitions/model/Partition.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/RegionMetadataProvider.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkIonGenerator.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/InMemoryRegionImpl.java
 - * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/LegacyRegionXmlLoadUtils.java

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- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/RequestClientOptions.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSSessionCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSSessionCredentialsProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/json/Jackson.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ClassLoaderHelper.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ServiceClientHolderInputStream.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/BasicSessionCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricAdmin.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/jmx/spi/SdkMBeanRegistry.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/jmx/spi/JmxInfoProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricAdminMBean.java

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- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/CustomBackoffStrategy.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/CRC32MismatchException.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/ClasspathPropertiesFileCredentialsProvider.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSCredentialsProviderChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/HandlerContextAware.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/EC2MetadataClient.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AwsHostNameUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/DefaultAWSCredentialsProviderChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/InstanceProfileCredentialsProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/EnvironmentVariableCredentialsProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SystemPropertiesCredentialsProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/IdleConnectionReaper.java

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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/http/IOExceptionParser.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/http/ErrorCodeParser.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/auth/SignerProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/MetadataCache.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/NullResponseMetadataCache.java
*
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/auth/DefaultSignerProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/adapters/types/StringToInputStreamAdapter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/auth/NoOpSignerProvider.java
```

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/adapters/types/TypeAdapter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/auth/SignerProviderContext.java

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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/TimingInfoFullSupport.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/InstanceMetadataRegionProvider.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/MarshallLocation.java

*

/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/MarshallerRegistry.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/presign/PresignerFacade.java

* /aws-java-sdk-core-1-11-553-sources-

jar/com/amazonaws/profile/path/config/SharedConfigDefaultLocationProvider.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/builder/ExecutorFactory.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/client/SdkInterruptedException.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/RetryPolicyContext.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/ProtocolRequestMarshaller.java

* /aws-java-sdk-core-1-11-553-sources-

jar/com/amazonaws/protocol/json/internal/NullAsEmptyBodyProtocolRequestMarshaller.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/Protocol.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SdkClientException.java

*

/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/DefaultMarshallingType.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/ListUnmarshaller.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/AwsErrorResponseHandler.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ClientConfigurationFactory.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/OperationInfo.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/builder/AwsAsyncClientBuilder.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSStaticCredentialsProvider.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/RetryCondition.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/JsonMarshaller.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/builder/AwsSyncClientBuilder.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkJsonGenerator.java
 *
 /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/TimingInfoUnmodifiable.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AwsEnvVarOverrideRegionProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/MapUnmarshaller.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/DefaultAwsRegionProviderChain.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/AndRetryCondition.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/ProfileAssumeRoleCredentialsProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonWebServiceResult.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonErrorShapeMetadata.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/TimingInfo.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/StringInputStream.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/builder/AwsClientBuilder.java
 *
 /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/request/HttpRequestFactory.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/StaticSignerProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/MarshallingInfo.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/BackoffStrategy.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/cred/CredentialsDefaultLocationProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/ClientHandler.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/BasicProfile.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProviderChain.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/V2CompatibleBackoffStrategy.java
 *
 /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/JsonMarshallerContext.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/HeaderMarshallers.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/config/ConfigEnvVarOverrideLocationProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/RetryOnExceptionsCondition.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SdkClock.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/QueryParamMarshallers.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonErrorResponseMetadata.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/DefaultValueSupplier.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/AwsDirectoryBasePathProvider.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/profile/path/cred/CredentialsEnvVarOverrideLocationProvider.java
 *
 /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/StructuredPojo.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/AllProfiles.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolver.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/RetryOnStatusCodeCondition.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypeJsonMarshallers.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/FixedDelayBackoffStrategy.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/RetryPolicy.java
 * /aws-java-sdk-core-1-11-553-sources-


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jar/com/amazonaws/auth/profile/internal/ProfileStaticCredentialsProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SdkBaseException.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/PathMarshallers.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AwsSystemPropertyRegionProvider.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/AbstractErrorUnmarshaller.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/profile/path/cred/CredentialsLegacyConfigLocationProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkFunction.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/PredefinedBackoffStrategies.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/MaxNumberOfRetriesCondition.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/ExecutionContext.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/response/AwsResponseHandlerAdapter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AwsRegionProviderChain.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/RequestConfig.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypePathMarshallers.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/ClientExecutionParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/OrRetryCondition.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/ClientHandlerParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonContent.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/internal/ValueToStringConverters.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/v2/SimpleRetryPolicy.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/AwsAsyncClientParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/presign/PresignerParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/MarshallingType.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/V2CompatibleBackoffStrategyAdapter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/ProfileKeyConstants.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/ClientHandlerImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/AwsSyncClientParams.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/ProtocolMarshaller.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/profile/internal/AwsProfileNameLoader.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/SdkHttpMetadata.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/AmazonWebServiceRequestAdapter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/AwsProfileRegionProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/XMLWriter.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolverImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonClientMetadata.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/RetryPolicyAdapter.java
*
/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSRefreshableSessionCredentials.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/StaticCredentialsProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/JsonOperationMetadata.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkJsonMarshallerFactory.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/SdkStructuredJsonFactoryImpl.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/package-info.java
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- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/Unmarshaller.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/SimpleTypeUnmarshallers.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonClientException.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/HttpMethodName.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWSCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SigningAlgorithm.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/XmlUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/VoidUnmarshaller.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/LegacyErrorUnmarshaller.java

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/**

- * Interface for providing AWS credentials. Implementations are free to use any
- * strategy for providing AWS credentials, such as simply providing static
- * credentials that don't change, or more complicated implementations, such as
- * integrating with existing key management systems.

*/

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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/RequestSigner.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ImmutableRequest.java

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- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/cache/KeyConverter.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressEvent.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AWSRequestMetrics.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonWebServiceRequest.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ServiceLatencyProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/HostRegexToRegionMapping.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterTimedOutException.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterState.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/RequestHandler2.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/RequestMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterExecution.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/NamespaceRemovingInputStream.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/protocol/json/StructuredJsonMarshaller.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/RepeatableInputStreamRequestEntity.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/VoidStaxUnmarshaller.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/internal/config/HostRegexToRegionMappingJsonHelper.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterExecutionBuilder.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/actions/package-info.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/endpointdiscovery/AwsProfileEndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/HandlerChainFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/CsmConfigurationProviderChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ProxyAuthenticationMethod.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/PollingStrategy.java
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- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/SdkPlainSocketFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWS4UnsignedPayloadSigner.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/PropertiesFileCredentialsProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressListenerChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SignerParams.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/CredentialsRequestHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/package-info.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/internal/ServiceMetricTypeGuesser.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/StringCondition.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterParameters.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ByteThroughputHelper.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/HttpClientConfig.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/StaxResponseHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/SimpleServiceMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/SimpleThroughputMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/NumericCondition.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/internal/JsonDocumentFields.java

- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/StandardErrorUnmarshaller.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/internal/AuthErrorRetryStrategy.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Condition.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/resources/package-info.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/internal/JsonPolicyWriter.java
- *
- /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/monitoring/internal/ClientSideMonitoringRequestHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/HandlerBeforeAttemptContext.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/HttpSuccessStatusAcceptor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/AmazonHttpClient.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/AbstractRequestHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/CsmConfiguration.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/RequestMetricCollector.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/internal/JsonPolicyReader.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/DefaultRequest.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/FixedDelayStrategy.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/TimestampFormat.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryRefreshCache.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AWSServiceMetrics.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ApacheHttpClientConfig.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterUnrecoverableException.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/PredefinedRetryPolicies.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/endpointdiscovery/Constants.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/internal/AgentMonitoringListener.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/NoOpWaiterHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/InternalConfigJsonHelper.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricInputStreamEntity.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/ApiMonitoringEvent.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ServiceMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressEventType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/RequestHandler2Adaptor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/AcceptorPathMatcher.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonServiceException.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/CompositeAcceptor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/RetryUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/Presigner.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/JsonUnmarshallerContext.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricFilterInputStream.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/apache/request/impl/HttpGetWithBody.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/XpathUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/internal/AuthRetryParameters.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/ServiceEndpointBuilder.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/endpointdiscovery/DaemonThreadFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Resource.java

- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SignerFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/InternalConfig.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ServiceNameFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/PropertiesCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/VoidJsonUnmarshaller.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/DefaultServiceEndpointBuilder.java
- *
- /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/monitoring/SystemPropertyCsmConfigurationProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/CollectionUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/ClientConnectionRequestFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonWebServiceClient.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/package-info.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkPredicate.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/IdentityEndpointBuilder.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AWS3Signer.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/endpointdiscovery/EnvironmentVariableEndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ThroughputMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/Wrapped.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/DefaultCsmConfigurationProviderChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/ApiCallMonitoringEvent.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Action.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/MonitoringListener.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/MapEntry.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/impl/client/HttpRequestNoRetryHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AWSRequestMetricsFullSupport.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/DateCondition.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/SimpleMetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/VersionInfoUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/PolicyReaderOptions.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/BooleanCondition.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/monitoring/internal/AsynchronousAgentDispatcher.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/PollingStrategyContext.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/protocol/SdkHttpRequestExecutor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/SimpleTypeJsonUnmarshallers.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/RuntimeHttpUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/Waiter.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/HttpClientConfigJsonHelper.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ClientConfiguration.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/ProfileCsmConfigurationProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SDKGlobalConfiguration.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/apache/utils/HttpContextUtils.java

- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/DefaultErrorResponseHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/AmazonWebServiceResponse.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/HttpMethod.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Principal.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/Request.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/endpointdiscovery/DefaultEndpointDiscoveryProviderChain.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/ClientConnectionFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/CountingInputStream.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/CsmConfigurationProvider.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ResponseMetadataCache.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/HttpFailureStatusAcceptor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/AwsClientSideMonitoringMetrics.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/SdkFunction.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Statement.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/HandlerAfterAttemptContext.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/ApiCallAttemptMonitoringEvent.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterAcceptor.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/QueryStringSigner.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/BasicAWSCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/SimpleTypeStaxUnmarshallers.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/StaticCsmConfigurationProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AbstractAWSSigner.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ResponseMetadata.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/monitoring/MonitoringEvent.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterImpl.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/client/builder/AdvancedConfig.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/AwsSdkMetrics.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/StringUtils.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/event/ProgressListener.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/Signer.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/NoOpSigner.java
- *
- /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/Response.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/ConditionFactory.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/impl/client/SdkHttpRequestRetryHandler.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/Marshaller.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/StaxUnmarshallerContext.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/AnonymousAWSCredentials.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/Policy.java
- * /aws-java-sdk-core-1-11-553-sources-
- jar/com/amazonaws/endpointdiscovery/SystemPropertyEndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricType.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/MaxAttemptsRetryStrategy.java
- * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/HttpResponse.java
- *

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/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/ArnCondition.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/waiters/WaiterBuilder.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/retry/RetryPolicy.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/monitoring/EnvironmentVariableCsmConfigurationProvider.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/cache/Cache.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/policy/conditions/package-info.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/MetricCollector.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/HttpResponseHandler.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/cache/CacheLoader.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/RequestHandler.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/config/EndpointDiscoveryConfig.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/CRC32ChecksumCalculatingInputStream.java
*
/aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryProviderChain.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ServiceMetricCollector.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/JsonUnmarshallerContextImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/auth/SignerTypeAware.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/metrics/ByteThroughputProvider.java
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 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/UriResourcePathUtils.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/http/JsonErrorCodeParser.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/SdkConnectionKeepAliveStrategy.java
 *
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkThreadLocalsRegistry.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskTracker.java
 * /aws-java-sdk-core-1-11-553-sources-
 jar/com/amazonaws/http/timers/client/NoOpClientExecutionAbortTrackerTask.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ValidationUtils.java
 * /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/NumberUtils.java

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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/DelegateInputStream.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/client/ClientExecutionTimer.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/HandlerContextKey.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/client/HttpClientFactory.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTask.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/DelegatingDnsResolver.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/handlers/StackedRequestHandler.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/transform/JsonErrorUnmarshaller.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/DelegateSocket.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkIOUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SDKGlobalTime.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/http/JsonErrorMessageParser.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/settings/HttpClientSettings.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/timers/client/ClientExecutionAbortTrackerTaskImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/SdkHttpUtils.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SystemDefaultDnsResolver.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/JsonErrorResponseHandler.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/JavaVersionParser.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/timers/client/ClientExecutionAbortTrackerTask.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkInternalList.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/CommonsLog.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/JulLog.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkMetricsSocket.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskTrackerImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/DnsResolver.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkSSLMetricsSocket.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/internal/SdkInternalMap.java
*
/ aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTaskImpl.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/ReadLimitInfo.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/TimeoutThreadPoolBuilder.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/conn/ssl/privileged/PrivilegedMasterSecretValidator.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/JulLogFactory.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/conn/ssl/MasterSecretValidators.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/PredefinedClientConfigurations.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTask.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/client/ConnectionManagerFactory.java
* /aws-java-sdk-core-1-11-553-sources-
jar/com/amazonaws/http/timers/client/ClientExecutionTimeoutException.java
*

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/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/CommonsLogFactory.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/log/InternalLog.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/exception/HttpRequestTimeoutException.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/http/timers/request/NoOpHttpRequestAbortTaskTracker.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/SdkThreadLocals.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/Base16Lower.java
* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/util/ComparableUtils.java
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* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/SdkProtectedApi.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/Immutable.java

*

/aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/ThreadSafe.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/NotThreadSafe.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/annotation/SdkTestInternalApi.java

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Found in path(s):

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/Regions.java

* /aws-java-sdk-core-1-11-553-sources-jar/com/amazonaws/regions/ServiceAbbreviations.java

1.229 zstd 1.3.3+dfsg-2ubuntu1.2

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1.231 jsr305 1.3.9

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1.233 minlog 1.3.0

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1.237 kerberos 1.16-2ubuntu0.2

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lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
lib/gssapi/mechglue/g_canon_name.c
lib/gssapi/mechglue/g_compare_name.c
lib/gssapi/mechglue/g_context_time.c
lib/gssapi/mechglue/g_delete_sec_context.c
lib/gssapi/mechglue/g_dsp_name.c
lib/gssapi/mechglue/g_dsp_status.c
lib/gssapi/mechglue/g_dup_name.c
lib/gssapi/mechglue/g_exp_sec_context.c
lib/gssapi/mechglue/g_export_name.c
lib/gssapi/mechglue/g_glue.c
lib/gssapi/mechglue/g_imp_name.c
lib/gssapi/mechglue/g_imp_sec_context.c
lib/gssapi/mechglue/g_init_sec_context.c
lib/gssapi/mechglue/g_initialize.c
lib/gssapi/mechglue/g_inquire_context.c
lib/gssapi/mechglue/g_inquire_cred.c
lib/gssapi/mechglue/g_inquire_names.c
lib/gssapi/mechglue/g_process_context.c
lib/gssapi/mechglue/g_rel_buffer.c
lib/gssapi/mechglue/g_rel_cred.c
lib/gssapi/mechglue/g_rel_name.c
lib/gssapi/mechglue/g_rel_oid_set.c
lib/gssapi/mechglue/g_seal.c
lib/gssapi/mechglue/g_sign.c
lib/gssapi/mechglue/g_store_cred.c
lib/gssapi/mechglue/g_unseal.c
lib/gssapi/mechglue/g_userok.c

lib/gssapi/mechglue/g_utils.c
lib/gssapi/mechglue/g_verify.c
lib/gssapi/mechglue/gssd_pname_to_uid.c
lib/gssapi/mechglue/mglueP.h
lib/gssapi/mechglue/oid_ops.c
lib/gssapi/spnego/gssapiP_spnego.h
lib/gssapi/spnego/spnego_mech.c

and the initial implementation of incremental propagation, including
the
following new or changed files:

include/iprof_hdr.h
kadmin/server/iprof_svc.c
lib/kdb/iprof.x
lib/kdb/kdb_convert.c
lib/kdb/kdb_log.c
lib/kdb/kdb_log.h
lib/krb5/error_tables/kdb5_err.et
slave/kpropd_rpc.c
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* DNS resolver (dirmngr/dns.c)

dns.c - Recursive, Reentrant DNS Resolver.

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

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

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

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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- b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally

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<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

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Version 3, 29 June 2007

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The

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section 10

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

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1.247 zone 0.10.3

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1.248 jasmine-core 3.6.0

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1.249 python-certifi 2019.9.11

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This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

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@(#) \$RCSfile: certdata.txt,v \$
\$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$

1.250 python-certifi 2018.1.18

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1.251 urllib3 1.22

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* victor.vde <<http://code.google.com/u/victor.vde/>>

* HTTPS patch (which inspired HTTPSConnectionPool)

* erikcederstrand <<http://code.google.com/u/erikcederstrand/>>

* NTLM-authenticated HTTPSConnectionPool

* Basic-authenticated HTTPSConnectionPool (merged into make_headers)

* niphlod <niphlod@gmail.com>

* Client-verified SSL certificates for HTTPSConnectionPool

* Response gzip and deflate encoding support

* Better unicode support for filepost using StringIO buffers

* btoconnor <brian@btoconnor.net>

* Non-multipart encoding for POST requests

* p.dobrogost <<http://code.google.com/u/@WBRSRIBZDhBFXQB6/>>

* Code review, PEP8 compliance, benchmark fix

* kennethreitz <me@kennethreitz.com>

* Bugfixes, suggestions, Requests integration

* georgemarshall <<http://github.com/georgemarshall>>

* Bugfixes, Improvements and Test coverage

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* Optional SNI-support for Python 2 via PyOpenSSL.
- * Marc Schlaich <marc.schlaich@gmail.com>
* Various bugfixes and test improvements.
- * Bryce Boe <bbzbryce@gmail.com>
* Correct six.moves conflict
* Fixed pickle support of some exceptions
- * Boris Figovsky <boris.figovsky@ravellosystems.com>
* Allowed to skip SSL hostname verification
- * Cory Benfield
<<http://lukasa.co.uk/about/>>
* Stream method for Response objects.
* Return native strings in header values.
* Generate 'Host' header when using proxies.
- * Jason Robinson <jaywink@basshero.org>
* Add missing WrappedSocket.fileno method in PyOpenSSL
- * Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
* Fixed a race condition

- * Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
- * Added HTTPS (CONNECT) proxy support

- * Stephen Holsapple <sholsapp@gmail.com>
- * Added abstraction for granular control of request fields

- * Martin von Gagern <Martin.vGagern@gmx.net>
- * Support for non-ASCII header parameters

- * Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- * Support for separate connect and request timeouts

- * Peter Waller <p@pwaller.net>
- * HTTPResponse.tell() for determining amount received over the wire

- * Nipunn Koorapati <nipunn1313@gmail.com>
- * Ignore default ports when comparing hosts for equality

- * Danilo @dbrgn <http://dbrgn.ch/>
- * Disabled TLS compression by default on Python 3.2+
- * Disabled TLS compression in pyopenssl contrib module
- * Configurable cipher suites in pyopenssl contrib module

- * Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
- * Account retries on proxy errors

- * Nicolas Delaby <nicolas.delaby@ezeep.com>
- * Use the platform-specific CA certificate locations

- * Josh Schneier <https://github.com/jschneier>
- * HTTPHeaderDict and associated tests and docs
- * Bugfixes, docs, test coverage

- * Tahia Khan <http://tahia.tk/>
- * Added Timeout examples in docs

- * Arthur Grunseid <http://grunseid.com>
- * source_address support and tests (with https://github.com/bui)

- * Ian Cordasco <graffatcolmingov@gmail.com>
- * PEP8 Compliance and Linting
- * Add ability to pass socket options to an HTTP Connection

- * Erik Tollerud <erik.tollerud@gmail.com>
- * Support for standard library io module.

- * Krishna Prasad <kprasad.iitd@gmail.com>
- * Google App Engine documentation

- * Aaron Meurer <asmeurer@gmail.com>
- * Added `Url.url`, which unparses a `Url`

- * Evgeny Kapun <abacabadabacaba@gmail.com>
- * Bugfixes

- * Benjamin Meyer <bm_witness@yahoo.com>
- * Security Warning Documentation update for proper capture

- * Shivan Sornarajah <github@sornars.com>
- * Support for using `ConnectionPool` and `PoolManager` as context managers.

- * Alex Gaynor <alex.gaynor@gmail.com>
- * Updates to the default SSL configuration

- * Tomas Tomecek <ttomecek@redhat.com>
- * Implemented generator for getting chunks from chunked responses.

- * tlynn <https://github.com/tlynn>
- * Respect the warning preferences at import.

- * David D. Riddle <ddriddle@illinois.edu>
- * IPv6 bugfixes in testsuite

- * Jon Wayne Parrott <jonwayne@google.com>
- * App Engine environment tests.

- * John Krauss <https://github.com/talos>
- * Clues to debugging problems with ``cryptography`` dependency in docs

- * Disassem <https://github.com/Disassem>
- * Fix pool-default headers not applying for url-encoded requests like GET.

- * James Atherfold <jlatherfold@hotmail.com>
- * Bugfixes relating to cleanup of connections during errors.

- * Christian Pedersen <https://github.com/chripede>
- * IPv6 HTTPS proxy bugfix

- * Jordan Moldow <https://github.com/jmoldow>
- * Fix low-level exceptions leaking from ```HTTPResponse.stream()```.
- * Bugfix for ```ConnectionPool.urlopen(release_conn=False)```.
- * Creation of ```HTTPConnectionPool.ResponseCls```.

- * Predrag Gruevski <https://github.com/obi1kenobi>
- * Made cert digest comparison use a constant-time algorithm.

- * Adam Talsma <<https://github.com/a-tal>>
- * Bugfix to ca_cert file paths.

- * Evan Meagher <<https://evanmeagher.net>>
- * Bugfix related to `memoryview` usage in PyOpenSSL adapter

- * John Vandenberg <jayvdb@gmail.com>
- * Python 2.6 fixes; pyflakes and pep8 compliance

- * Andy Caldwell <andy.m.caldwell@gmail.com>
- * Bugfix related to reusing connections in indeterminate states.

- * Ville Skytt <ville.skytta@iki.fi>
- * Logging efficiency improvements, spelling fixes, Travis config.

- * Shige Takeda <smtakeda@gmail.com>
- * Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response

- * Jesse Shapiro <jesse@jesseshapiro.net>
- * Various character-encoding fixes/tweaks
- * Disabling IPv6 DNS when IPv6 connections not supported

- * David Foster <<http://dafoster.net/>>
- * Ensure order of request and response headers are preserved.

- * Jeremy Cline <jeremy@jcline.org>
- * Added connection pool keys by scheme

- * Aviv Palivoda <palaviv@gmail.com>
- * History list to Retry object.
- * HTTPResponse contains the last Retry object.

- * Nate Prewitt <nate.prewitt@gmail.com>
- * Ensure timeouts are not booleans and greater than zero.
- * Fixed infinite loop in ``stream`` when amt=None.
- * Added length_remaining to determine remaining data to be read.
- * Added enforce_content_length to raise exception when incorrect content-length received.

- * Seth Michael Larson <sethmichaellarson@protonmail.com>
- * Created selectors backport that supports PEP 475.

- * Alexandre Dias <alex.dias@smarkets.com>
- * Don't retry on timeout if method not in whitelist

- * Moinuddin Quadri <moin18@gmail.com>

* Lazily load idna package

* Tom White <s6yg1ez3@mail2tor.com>

* Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.

* Tim Burke <tim.burke@gmail.com>

* Stop buffering entire deflate-encoded responses.

* Tuukka Mustonen <tuukka.mustonen@gmail.com>

* Add counter for status_forcelist retries.

* Erik Rose <erik@mozilla.com>

* Bugfix to pyopenssl vendoring

* [Your name or handle] <[email or website]>

* [Brief summary of your changes]

1.252 python-requests 2.22.0

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1.253 urllib3 1.25.6

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- * Various bugfixes and test improvements.

- * Bryce Boe <bbzbryce@gmail.com>
- * Correct six.moves conflict
- * Fixed pickle support of some exceptions

- * Boris Figovsky <boris.figovsky@ravellosystems.com>
- * Allowed to skip SSL hostname verification

- * Cory Benfield
- <<https://lukasa.co.uk/about/>>
- * Stream method for Response objects.
- * Return native strings in header values.
- * Generate 'Host' header when using proxies.

- * Jason Robinson <jaywink@basshero.org>

- * Add missing `WrappedSocket.fileno` method in `PyOpenSSL`
- * Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
 - * Fixed a race condition
- * Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
 - * Added HTTPS (CONNECT) proxy support
- * Stephen Holsapple <sholsapp@gmail.com>
 - * Added abstraction for granular control of request fields
- * Martin von Gagern <Martin.vGagern@gmx.net>
 - * Support for non-ASCII header parameters
- * Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
 - * Support for separate connect and request timeouts
- * Peter Waller <p@pwaller.net>
 - * `HTTPResponse.tell()` for determining amount received over the wire
- * Nipunn Koorapati <nipunn1313@gmail.com>
 - * Ignore default ports when comparing hosts for equality
- * Danilo @dbrgn <https://dbrgn.ch/>
 - * Disabled TLS compression by default on Python 3.2+
 - * Disabled TLS compression in `pyopenssl` contrib module
 - * Configurable cipher suites in `pyopenssl` contrib module
- * Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
 - * Account retries on proxy errors
- * Nicolas Delaby <nicolas.delaby@ezeep.com>
 - * Use the platform-specific CA certificate locations
- * Josh Schneier <https://github.com/jschneier>
 - * `HTTPHeaderDict` and associated tests and docs
 - * Bugfixes, docs, test coverage
- * Tahia Khan <http://tahia.tk/>
 - * Added Timeout examples in docs
- * Arthur Grunseid <https://grunseid.com>
 - * `source_address` support and tests (with <https://github.com/bui>)
- * Ian Cordasco <graffatcolmingov@gmail.com>
 - * PEP8 Compliance and Linting
 - * Add ability to pass socket options to an HTTP Connection

- * Erik Tollerud <erik.tollerud@gmail.com>
- * Support for standard library io module.

- * Krishna Prasad <kprasad.iitd@gmail.com>
- * Google App Engine documentation

- * Aaron Meurer
<asmeurer@gmail.com>
- * Added Url.url, which unparses a Url

- * Evgeny Kapun <abacabadabacaba@gmail.com>
- * Bugfixes

- * Benjamin Meyer <bm_witness@yahoo.com>
- * Security Warning Documentation update for proper capture

- * Shivan Sornarajah <github@sornars.com>
- * Support for using ConnectionPool and PoolManager as context managers.

- * Alex Gaynor <alex.gaynor@gmail.com>
- * Updates to the default SSL configuration

- * Tomas Tomecek <ttomecek@redhat.com>
- * Implemented generator for getting chunks from chunked responses.

- * tlynn <https://github.com/tlynn>
- * Respect the warning preferences at import.

- * David D. Riddle <ddriddle@illinois.edu>
- * IPv6 bugfixes in testsuite

- * Thea Flowers <magicalgirl@google.com>
- * App Engine environment tests.
- * Documentation re-write.

- * John Krauss <https://github.com/talos>
- * Clues to debugging problems with `cryptography` dependency in docs

- * Disassem <https://github.com/Disassem>
- * Fix pool-default headers not applying for url-encoded requests like GET.

- * James Atherfold <jlatherfold@hotmail.com>
- * Bugfixes relating to cleanup of connections during errors.

- * Christian Pedersen <https://github.com/chripede>
- * IPv6 HTTPS proxy bugfix

- * Jordan Moldow <<https://github.com/jmoldow>>
- * Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- * Bugfix for ``ConnectionPool.urlopen(release_conn=False)``.
- * Creation of ``HTTPConnectionPool.ResponseCls``.

- * Predrag Gruevski <<https://github.com/obi1kenobi>>
- * Made cert digest comparison use a constant-time algorithm.

- * Adam Talsma <<https://github.com/a-tal>>
- * Bugfix to ca_cert file paths.

- * Evan Meagher <<https://evanmeagher.net>>
- * Bugfix related to ``memoryview`` usage in PyOpenSSL adapter

- * John Vandenberg <jayvdb@gmail.com>
- * Python 2.6 fixes; pyflakes and pep8 compliance

- * Andy Caldwell <andy.m.caldwell@gmail.com>
- * Bugfix related to reusing connections in indeterminate states.

- * Ville Skytt <ville.skytta@iki.fi>
- * Logging efficiency improvements, spelling fixes, Travis config.

- * Shige Takeda <smtakeda@gmail.com>
- * Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response

- * Jess Shapiro <jesse@jesseshapiro.net>
- * Various character-encoding fixes/tweaks
- * Disabling IPv6 DNS when IPv6 connections not supported

- * David Foster <<http://dafoster.net/>>
- * Ensure order of request and response headers are preserved.

- * Jeremy Cline <jeremy@jcline.org>
- * Added connection pool keys by scheme

- * Aviv Palivoda <palaviv@gmail.com>
- * History list to Retry object.
- * HTTPResponse contains the last Retry object.

- * Nate Prewitt <nate.prewitt@gmail.com>
- * Ensure timeouts are not booleans and greater than zero.
- * Fixed infinite loop in ``stream`` when amt=None.
- * Added length_remaining to determine remaining data to be read.
- * Added enforce_content_length to raise exception when incorrect content-length received.

- * Seth Michael Larson <sethmichaellarson@protonmail.com>

- * Created selectors backport that supports PEP 475.
- * Alexandre Dias <alex.dias@smarkets.com>
- * Don't retry on timeout if method not in whitelist
- * Moinuddin Quadri <moin18@gmail.com>
- * Lazily load idna package
- * Tom White <s6yg1ez3@mail2tor.com>
- * Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
- * Tim Burke <tim.burke@gmail.com>
- * Stop buffering entire deflate-encoded responses.
- * Tuukka Mustonen <tuukka.mustonen@gmail.com>
- * Add counter for status_forcelist retries.
- * Erik Rose <erik@mozilla.com>
- * Bugfix to pyopenssl vendoring
- * Wolfgang Richter <wolfgang.richter@gmail.com>
- * Bugfix related to loading full certificate chains with PyOpenSSL backend.
- * Mike Miller <github@mikeage.net>
- * Logging improvements to include the HTTP(S) port when opening a new connection
- * Ioannis Tziakos <mail@itziakos.gr>
- * Fix ``util.selectors._fileobj_to_fd`` to accept ``long``.
- * Update appveyor tox setup to use the 64bit python.
- * Akamai
(through Jess Shapiro) <jshapiro@akamai.com>
- * Ongoing maintenance; 2017-2018
- * Dominique Leuenberger <dimstar@opensuse.org>
- * Minor fixes in the test suite
- * Will Bond <will@wbond.net>
- * Add Python 2.6 support to ``contrib.securetransport``
- * Aleksei Alekseev <alekseev.yeskela@gmail.com>
- * using auth info for socks proxy
- * Chris Wilcox <git@crwilcox.com>
- * Improve contribution guide
- * Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior
- * Bruce Merry <<https://www.brucemerry.org.za>>

* Fix leaking exceptions when system calls are interrupted with zero timeout

* Hugo van Kemenade <<https://github.com/hugovk>>

* Drop support for EOL Python 2.6

* Tim Bell <<https://github.com/timb07>>

* Bugfix for responses with Content-Type: message/* logging warnings

* Justin Bramley <<https://github.com/jbramleycl>>

* Add ability to handle multiple Content-Encodings

* Katsuhiko YOSHIDA <<https://github.com/kyoshidajp>>

* Remove Authorization header

regardless of case when redirecting to cross-site

* James Meickle <<https://permadeath.com/>>

* Improve handling of Retry-After header

* Chris Jerdonek <chris.jerdonek@gmail.com>

* Remove a spurious TypeError from the exception chain inside
HTTPConnectionPool._make_request(), also for BaseExceptions.

* [Your name or handle] <[email or website]>

* [Brief summary of your changes]

1.254 spring-plugin-core 2.0.0.RELEASE

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1.255 rxjs 6.5.4

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1.259 pam 1.1.8-3.6ubuntu2.18.04.3

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Patch for Ubuntu bug #399071

Display the contents of /etc/legal as part of the MOTD, the first time the user logs in, and set a flag in the user's homedir if possible to prevent repeat displays.

Authors: Dustin Kirkland <kirkland@canonical.com>

Upstream status: Ubuntu-specific, maybe submit to Debian

Index: pam.ubuntu/modules/pam_motd/pam_motd.c

```
=====
--- pam.ubuntu.orig/modules/pam_motd/pam_motd.c
+++ pam.ubuntu/modules/pam_motd/pam_motd.c
@@ -73,6 +73,61 @@
     close(fd);
 }

+int display_legal(pam_handle_t *pamh)
+{
+    int retval = PAM_IGNORE, rc;
+    char *user = NULL;
+    char *dir = NULL;
+    char *flag = NULL;
+    struct passwd *pwd = NULL;
+    struct stat s;
+    int f;
+    /* Get the user name to determine if we need to print the disclaimer */
```

```

+ rc = pam_get_item(pamh, PAM_USER, &user);
+ if (rc == PAM_SUCCESS && user != NULL && *(const char *)user != '\0')
+ {
+     PAM_MODUTIL_DEF_PRIVS(privs);
+
+     /* Get the password entry */
+     pwd = pam_modutil_getpwnam (pamh, user);
+     if (pwd != NULL)
+     {
+         if (pam_modutil_drop_priv(pamh, &privs, pwd)) {
+             pam_syslog(pamh, LOG_ERR,
+                 "Unable to change UID to %d temporarily\n",
+                 pwd->pw_uid);
+             retval = PAM_SESSION_ERR;
+             goto finished;
+         }
+
+         if (asprintf(&dir, "%s/.cache", pwd->pw_dir) == -1 || !dir)
+             goto finished;
+         if (asprintf(&flag, "%s/motd.legal-displayed", dir) == -1 || !flag)
+             goto finished;
+
+         if (stat(flag, &s) != 0)
+         {
+             display_file(pamh, "/etc/legal");
+             mkdir(dir, 0700);
+             f = open(flag, O_WRONLY|O_CREAT|O_EXCL,
+                 S_IRUSR|S_IWUSR|S_IRGRP|S_IROTH);
+             if (f>=0) close(f);
+         }
+
+         +finished:
+         if (pam_modutil_regain_priv(pamh,
+             &privs)) {
+             pam_syslog(pamh, LOG_ERR,
+                 "Unable to change UID back to %d\n", privs.old_uid);
+             retval = PAM_SESSION_ERR;
+         }
+
+         _pam_drop(flag);
+         _pam_drop(dir);
+     }
+ }
+ return retval;
+ }
+
PAM_EXTERN

```

```

int pam_sm_open_session(pam_handle_t *pamh, int flags,
    int argc, const char **argv)
@@ -116,6 +171,9 @@
    /* Display the updated motd */
    display_file(pamh, motd_path);

+ /* Display the legal disclaimer only if necessary */
+ retval = display_legal(pamh);
+
    return retval;
}

```

This package was debianized by J.H.M. Dassen (Ray) jdassen@debian.org on Wed, 23 Sep 1998 20:29:32 +0200.

It was downloaded from <ftp://ftp.kernel.org/pub/linux/libs/pam/pre/>

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1.260 nettle 3.4.1-0ubuntu0.18.04.1

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Version 3, 29 June 2007

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

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when it starts in an interactive mode:

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

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

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school, if any, to sign a "copyright disclaimer" for the program, if
necessary. Here is a sample; alter the names:

```
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```

```
signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice
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1.265 annotations 2.0.1

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1.266 json-path 2.6.0

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 */
```

Found in path(s):

```
* /json-path-2-6-0-sources-jar/com/jayway/restassured/path/json/exception/JsonPathException.java
* /json-path-2-6-0-sources-
```

```

jar/com/jayway/restassured/internal/path/json/mapping/JsonPathJackson1ObjectDeserializer.groovy
* /json-path-2-6-0-sources-jar/com/jayway/restassured/mapper/factory/DefaultJackson1ObjectMapperFactory.java
*
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* /json-path-2-6-0-sources-jar/com/jayway/restassured/mapper/factory/Jackson1ObjectMapperFactory.java

```

1.267 python-certifi 2019.09.11

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1.268 python-certifi 2018.01.18

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1.269 aspect-j 1.9.7

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1.270 libxmuu 1.1.2-2

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1.271 libmemcached11 1.0.18-4.2ubuntu0.18.04.1

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1.274 libcryptsetup12 2.0.2-1ubuntu1.2

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1.276 base-files 10.1ubuntu2.11

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`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

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```
Gnomovision version 69, Copyright (C) 19xx name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

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```
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program `Gnomovision' (a program to direct compilers to make passes
at assemblers) written by James Hacker.
```

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

That's all there is to it!

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The

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The End

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past and future changes. (new: src/libgrypt.pc.in,
src/Makefile.am, src/secmem.c, mpi/hppa1.1/mpi-h-mul3.S,
mpi/hppa1.1/udiv-qrnnd.S, mpi/hppa1.1/mpi-h-mul2.S,
mpi/hppa1.1/mpi-h-mul1.S, mpi/Makefile.am, tests/prime.c,
tests/register.c, tests/ac.c, tests/basic.c, tests/tsexp.c,
tests/keygen.c, tests/pubkey.c, configure.ac, acinclude.m4)

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```
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@c End:
```

1.282 selenium-webdriver 4.0.0-alpha.5

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1.283 core-js 2.4.1

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```

```
## Commands to generate dependency files  
GEN_DEPS.c= $(CC) -E -MM $(DEFS) $(CPPFLAGS)  
GEN_DEPS.cc= $(CXX) -E -MM $(DEFS) $(CPPFLAGS)
```

```
## Flags for position independent code  
SHAREDLIBCFLAGS = -fPIC  
SHAREDLIBCXXFLAGS = -fPIC  
SHAREDLIBCPPFLAGS = -DPIC
```

```
## Additional flags when building libraries and with threads  
THREADSCPPFLAGS = -D_REENTRANT  
LIBCPPFLAGS =
```

```
## Compiler switch to embed a runtime search path  
LD_RPATH=  
LD_RPATH_PRE= -Wl,-rpath,
```

```
## Compiler switch to embed a library name
```

```

LD_SONAME = -Wl,-soname -Wl,$(notdir $(MIDDLE_SO_TARGET))

## Shared library options
LD_SOOPTIONS= -Wl,-Bsymbolic

## Shared object suffix
SO = so

## Non-shared intermediate object suffix
STATIC_O = ao

## Compilation
rules
%. $(STATIC_O): $(srcdir)/%.c
$(COMPILE.c) $(STATICCPPFLAGS) $(STATICCFLAGS) -o $@ $<
%.o: $(srcdir)/%.c
$(COMPILE.c) $(DYNAMICCPPFLAGS) $(DYNAMICCFLAGS) -o $@ $<

%. $(STATIC_O): $(srcdir)/%.cpp
$(COMPILE.cc) $(STATICCPPFLAGS) $(STATICCXXFLAGS) -o $@ $<
%.o: $(srcdir)/%.cpp
$(COMPILE.cc) $(DYNAMICCPPFLAGS) $(DYNAMICCXXFLAGS) -o $@ $<

## Dependency rules
%.d: $(srcdir)/%.c
@echo "generating dependency information for $<"
@$(SHELL) -ec '$(GEN_DEPS.c) $< \
| sed "s/($*)\.o[ :]*/1.o $@ : /g"' > $@; \
[ -s $@ ] || rm -f $@

%.d: $(srcdir)/%.cpp
@echo "generating dependency information for $<"
@$(SHELL) -ec '$(GEN_DEPS.cc) $< \
| sed "s/($*)\.o[ :]*/1.o $@ : /g"' > $@; \
[ -s $@ ] || rm -f $@

## Versioned libraries rules

%. $(SO).$(SO_TARGET_VERSION_MAJOR): %. $(SO).$(SO_TARGET_VERSION)
$(RM) $@ && ln -s ${<F} $@
%. $(SO): %. $(SO).$(SO_TARGET_VERSION_MAJOR)
$(RM) $@ && ln -s ${*F}. $(SO).$(SO_TARGET_VERSION) $@

## Bind internal references

# Ldflags that pkgdata will use
BIR_LDFLAGS= -Wl,-Bsymbolic

```

Dependencies [i.e. map files] for the final library

BIR_DEPS=

Remove shared library 's'

STATIC_PREFIX_WHEN_USED =

STATIC_PREFIX =

End BSD-specific setup

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1.290 evo-inflector 1.3

1.290.1 Available under license :

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Found in path(s):

* /evo-inflector-1-3-jar/META-INF/maven/org.atteo/evo-inflector/pom.xml

1.291 systemd 237-3ubuntu10.53

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1.292 glib 2.56.4-0ubuntu0.18.04.9

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- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/PoolEntry.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodahaleHealthChecker.java

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- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyCallableStatement.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusMetricsTracker.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/hibernate/HikariConfigurationUtil.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/HikariDataSource.java
- *
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/UtilityElf.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/HikariConfigMXBean.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodahaleMetricsTrackerFactory.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyPreparedStatement.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/HikariPoolMXBean.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/prometheus/PrometheusHistogramMetricsTracker.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/PropertyElf.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/hibernate/HikariConnectionProvider.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyStatement.java

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* /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/HikariJNDIFactory.java
* /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/HikariPool.java
* /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/dropwizard/CodaHaleMetricsTracker.java
*

/hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/MetricsTracker.java

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jar/com/zaxxer/hikari/metrics/prometheus/PrometheusHistogramMetricsTrackerFactory.java

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- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/SuspendResumeLock.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyResultSet.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/JavassistProxyFactory.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/HikariConfig.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/metrics/prometheus/HikariCPCollector.java
- *
- /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/FastList.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/ConcurrentBag.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/util/DriverDataSource.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyFactory.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyConnection.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyLeakTaskFactory.java
- * /hikaricp-4-0-3-sources-jar/com/zaxxer/hikari/pool/ProxyLeakTask.java

1.300 byte-buddy 1.11.22

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1.301 vim 8.0.1453-1ubuntu1.8

1.302 jboss-logging 3.4.3.Final

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- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/RecordComponentInfo.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/RecordComponentInternal.java

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/jandex-2-4-2-final-sources-jar/org/jboss/jandex/RecordComponentInfoGenerator.java
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* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/DotName.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Type.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/FieldInternal.java
*
/jandex-2-4-2-final-sources-jar/org/jboss/jandex/UnsupportedVersion.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/AnnotationTarget.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/NameTable.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/JarIndexer.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/AnnotationValue.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexView.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/AnnotationInstance.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/CompositeIndex.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Main.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Result.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexWriter.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/JandexAntTask.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ClassInfo.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexReader.java
*
/jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexReaderV1.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ClassType.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/PackedDataOutputStream.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Index.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/MethodParameterInfo.java

```

* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/FieldInfo.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexWriterV1.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/PackedDataInputStream.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/PrimitiveType.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/StrongInternPool.java
* /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Indexer.java

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- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexWriterV2.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/VoidType.java
- *
- /jandex-2-4-2-final-sources-jar/org/jboss/jandex/MethodInfoGenerator.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/MethodParameterTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/FieldInfoGenerator.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ThrowsTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ArrayType.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/WildcardType.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ParameterizedType.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/TypeVariable.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/TypeParameterTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/GenericSignatureParser.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/MethodInternal.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexWriterImpl.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/TypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/IndexReaderImpl.java
- *
- /jandex-2-4-2-final-sources-jar/org/jboss/jandex/ClassExtendsTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/UnresolvedTypeVariable.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/TypeParameterBoundTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/AnnotationTargetFilterCollection.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/PositionBasedTypeTarget.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/Utils.java
- * /jandex-2-4-2-final-sources-jar/org/jboss/jandex/EmptyTypeTarget.java

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1.306 flink-runtime 1.11.0

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1.308 multiregexp 0.5.1_8

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  <developers>
    <developer>
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      <email>paul.masurel@gmail.com</email>
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</project>

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Found

in path(s):

* /multiregexp-0-5-1-jar/META-INF/maven/com.fulmicoton/multiregexp/pom.xml

1.309 flink-streaming-java 1.11.0

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1.310 flink-connector-kafka-base_2.11 1.11.0

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Mesa 3-D
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ASM Bytecode Manipulation Framework v6.0

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The Unicode Standard, Unicode Character Database, Version 10.0.0

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Mesa 3-D
graphics library

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rijndael-alg-fst.c

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

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DES core in libhcrypto

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D3DES (V5.09) -

A portable, public domain, version of the Data Encryption Standard.

Written with Symantec's THINK (Lightspeed) C by Richard Outerbridge.

Thanks to: Dan Hoey for his excellent Initial and Inverse permutation code; Jim Gillogly & Phil Karn for the DES key schedule code; Dennis Ferguson, Eric Young and Dana How for comparing notes; and Ray Lau, for humouring me on.

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Windows support

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lib/hcrypto/test_dh.c

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1.318 postgresql-jdbc 42.3.3

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1.319 aws-java-sdk-s3 1.12.86

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- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketCrossOriginConfigurationRequest.java
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- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectListing.java
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 jar/com/amazonaws/services/s3/internal/GetObjectTaggingResponseHeaderHandler.java
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jar/com/amazonaws/services/s3/model/GetBucketIntelligentTieringConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringPredicateVisitor.java
*
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jar/com/amazonaws/services/s3/model/GetBucketIntelligentTieringConfigurationResult.java
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jar/com/amazonaws/services/s3/model/ListBucketIntelligentTieringConfigurationsResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringAndOperator.java
* /aws-java-sdk-s3-1-12-86-sources-

```

```

jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/ListBucketIntelligentTieringConfigurationsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketIntelligentTieringConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketIntelligentTieringConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoRangeGetMode.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/intelligenttiering/Tiering.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringFilter.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringNaryOperator.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketIntelligentTieringConfigurationResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringPrefixPredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringFilterPredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringTagPredicate.java
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```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClientParams.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClientV2Params.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/KeyFilter.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/AmazonS3EncryptionClientParamsWrapper.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/AmazonS3EncryptionClientV2ParamsWrapper.java

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClientV2Builder.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClientBuilder.java

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jar/com/amazonaws/services/s3/model/metrics/MetricsAccessPointArnPredicate.java

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jar/com/amazonaws/services/s3/transfer/internal/PresignedUrlRetryableDownloadTaskImpl.java

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 */
// The Amazon S3 DevPay token header is a special exception and can be safely moved
```

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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/Prelude.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/Header.java

*

/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/HeaderType.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/Checksums.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/Utils.java

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jar/com/amazonaws/services/s3/model/SetBucketAnalyticsConfigurationResult.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/replication/ReplicationAndOperator.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsTagPredicate.java

* /aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/ListBucketInventoryConfigurationsRequest.java

*

/aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/SetBucketAnalyticsConfigurationRequest.java

* /aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/replication/ReplicationFilterPredicate.java

* /aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/analytics/StorageClassAnalysisDataExport.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryDestination.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryFormat.java

* /aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/GetBucketInventoryConfigurationResult.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsAndOperator.java

```

* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/inventory/InventoryS3BucketDestination.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventorySchedule.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/analytics/StorageClassAnalysisSchemaVersion.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketInventoryConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsNaryOperator.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecyclePrefixPredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecycleFilter.java
* /aws-java-sdk-s3-1-12-86-sources-
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsFilterPredicate.java
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*
/ aws-java-sdk-s3-1-12-86-sources-
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecycleFilterPredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecyclePredicateVisitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecycleTagPredicate.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketOwnershipControlsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketOwnershipControlsResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketOwnershipControlsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/replication/ReplicationNaryOperator.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/replication/ReplicationPrefixPredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketMetricsConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/CompleteMultipartDownload.java

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryPrefixPredicate.java
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 /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryConfiguration.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketMetricsConfigurationResult.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/replication/ReplicationFilter.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketInventoryConfigurationResult.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3CredentialsProviderChain.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsPredicateVisitor.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsExportDestination.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryFilterPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketMetricsConfigurationResult.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsS3ExportFileFormat.java
 *
 /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsFilterPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryPredicateVisitor.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecycleAndOperator.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsFilter.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketAnalyticsConfigurationRequest.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsPrefixPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketOwnershipControlsResult.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/AccessControlTranslation.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsConfiguration.java
 *
 /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListBucketMetricsConfigurationsRequest.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsS3BucketDestination.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketMetricsConfigurationRequest.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/OwnerOverride.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsPrefixPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/replication/ReplicationTagPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsNaryOperator.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsTagPredicate.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListBucketAnalyticsConfigurationsRequest.java
 *
 /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/StorageClassAnalysis.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketOwnershipControlsRequest.java

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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/metrics/MetricsPredicateVisitor.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketMetricsConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/ListBucketAnalyticsConfigurationsResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketAnalyticsConfigurationResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryFrequency.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketOwnershipControlsResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/RequestCopyUtils.java
*
/
aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketMetricsConfigurationResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsFilter.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/analytics/AnalyticsAndOperator.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/replication/ReplicationPredicateVisitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/lifecycle/LifecycleNaryOperator.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryFilter.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryOptionalField.java
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 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/PreparedDownloadContext.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/ObjectCannedAclProvider.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3AccessPointBuilder.java
 *
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/DownloadS3ObjectCallable.java
 * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ScanRange.java
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- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringAccessTier.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/EndpointParams.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/IntermediateOutpostResource.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ArnUtils.java
- *
- /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/intelligenttiering/IntelligentTieringStatus.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/XmlIntelligentTieringPredicateVisitor.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/BucketConfigurationXmlFactory.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/OutpostResourceType.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3OutpostAccessPointBuilder.java

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- */

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- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketCrossOriginConfiguration.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/DeleteObjectsResponse.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketLifecycleConfiguration.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ObjectExpirationResult.java
- *
- /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ResponseHeaderHandlerChain.java
- * /aws-java-sdk-s3-1-12-86-sources-

```

jar/com/amazonaws/services/s3/model/SetBucketNotificationConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ResponseHeaderOverrides.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CopyMonitor.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/ServerSideEncryptionHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ObjectRestoreResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MultiObjectDeleteException.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/HeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CopyPartRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteObjectsResult.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/TransferMonitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CORSRule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GenericBucketRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ServerSideEncryptionResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/UploadMonitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CopyPartResult.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GlacierJobParameters.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/InitiateMultipartUploadHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3ClientParamsWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketWebsiteConfigurationRequest.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketWebsiteConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ListPartsHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3ClientParams.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v1/MultipartUploadContext.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketLocationRequest.java

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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RedirectRule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RoutingRule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketAclRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/ByteRangeCapturingInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketWebsiteConfigurationRequest.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketPolicyRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Tier.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListObjectsV2Request.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListObjectsV2Result.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferManagerParams.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketLifecycleConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferManagerBuilder.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketPolicyRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3Builder.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v2/MultipartUploadContext.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketCrossOriginConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketTaggingConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketPolicyRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3AbortableInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3ClientConfigurationFactory.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketWebsiteConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RoutingRuleCondition.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketAclRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3ClientBuilder.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/AbstractTransfer.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3ObjectInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/MultipleFileUploadImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/MultipleFileTransfer.java

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*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/TransferStateChangeListener.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/MultipleFileDownloadImpl.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/MultipleFileTransferMonitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/DownloadMonitor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/MultipleFileDownload.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/MultipleFileUpload.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/SecuredCEK.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/SecuredCEK.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/KMSecuredCEK.java
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* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketLoggingConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/FileLocks.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListNextBatchOfObjectsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketReplicationConfigurationRequest.java
*
/aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketVersioningConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketAccelerateConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/DownloadTaskImpl.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketLifecycleConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListNextBatchOfVersionsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketCrossOriginConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/DownloadCallable.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketTaggingConfigurationRequest.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/WriteGetObjectResponseRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/S3ObjectLambdaOperationEndpointBuilder.java
*

/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3ObjectLambdaEndpointBuilder.java

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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CreateBucketRequest.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/XmlWriter.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/IsSigV4RetryablePredicate.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/model/CopyResult.java

*

/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CopyPartCallable.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/Unmarshallers.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ownership/ObjectOwnership.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/Constants.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3V4AuthErrorRetryStrategy.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CopyPartRequestFactory.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/Transfer.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/UploadPartResult.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ObjectResource.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ProgressListener.java

*

/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectRequest.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MultipartUpload.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/OutputSerialization.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3MetadataResponseHandler.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketPolicyStatusRequest.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/AbstractHandler.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoStorageMode.java

* /aws-java-sdk-s3-1-12-86-sources-

jar/com/amazonaws/services/s3/model/transform/LifecyclePredicateVisitorImpl.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CSVOutput.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetPublicAccessBlockRequest.java

*

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/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CopyCallable.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/JceEncryptionConstants.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3QueryStringSigner.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicationTimeStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/S3ConditionFactory.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/RegionalEndpointsOptionResolver.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeletePublicAccessBlockResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PublicAccessBlockConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MultipartUploadListing.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Encryption.java
*
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/Copy.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/policy/resources/S3ObjectResource.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/HeadBucketRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PolicyStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/UploadImpl.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/RequestPaymentConfigurationXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoConfigurationV2.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ObjectExpirationHeaderHandler.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetPublicAccessBlockRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CompleteMultipartCopy.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PartSummary.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListMultipartUploadsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/UseArnRegionResolver.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CopyObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/BucketNameUtils.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/AbstractS3ResponseHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListPartsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PartListing.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RestoreObjectRequest.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RestoreRequestType.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/CompleteMultipartUpload.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/package-info.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeletePublicAccessBlockRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Metrics.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/AclXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/UploadCallable.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3BucketResource.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CompleteMultipartUploadResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MetricsStatus.java
*

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/aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/MetricsPredicateVisitorImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ResponseMetadata.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetPublicAccessBlockResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3RequestEndpointResolver.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/BucketConfigurationXmlFactoryFunctions.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectParameters.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/policy/actions/S3Actions.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PartETag.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/LegacyS3ProgressListener.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/RequestXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferManager.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3OutpostResource.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/VersionListing.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/StorageClass.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GeneratePresignedUrlRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/InitiateMultipartUploadRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/MultiObjectDeleteXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CannedAccessControlList.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketPolicyStatusResult.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetPublicAccessBlockResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CSVInput.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/ObjectTaggingProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ClientOptions.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferProgress.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetRequestPaymentConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/metrics/S3ServiceMetric.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ownership/OwnershipControlsRule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListObjectsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ProgressEvent.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/DualstackEndpointBuilder.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Region.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/UploadPartRequestFactory.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetRequestPaymentConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MetadataEntry.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/SSEResultBase.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/AmazonS3Exception.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RestoreObjectResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ExpressionType.java

```

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/AwsChunkedEncodingInputStream.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/TransferManagerUtils.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3ObjectResponseHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ObjectRestoreHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/Upload.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/InputSubstream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/Headers.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3AccessPointResource.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/policy/resources/S3BucketResource.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MetadataDirective.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ArnConverter.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/UploadPartRequest.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3ErrorResponseHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CopyObjectResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/FileHeaderInfo.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptionMaterials.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ReplicationPredicateVisitorImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/model/UploadResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListBucketsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/InitiateMultipartUploadResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/UploadContext.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/TransferProgressUpdatingListener.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3Location.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/S3ResourceType.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3RestoreOutputPathResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/CopyImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/AnalyticsPredicateVisitorImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/AbortMultipartUploadRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/QuoteFields.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/IllegalBucketNameException.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicationTime.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ownership/OwnershipControls.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3VersionHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3Signer.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/S3RestoreOutputPathHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PutObjectResult.java
* /aws-java-sdk-s3-1-12-86-sources-

```



```

jar/com/amazonaws/services/s3/internal/crypto/AdjustedRangeInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/InputSerialization.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/ObjectMetadataProvider.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectMetadata.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferManagerConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/UploadPartCallable.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectMetadataRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptionMaterialsAccessor.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/AbstractSSEHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CompleteMultipartUploadRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/OutputLocation.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteObjectsRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3XmlResponseHandler.java
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Found in path(s):
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ExpectedBucketOwnerRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/ExpectedSourceBucketOwnerRequest.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3ObjectWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/DigestValidationInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClient.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionV2.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/PauseStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/S3ProgressPublisher.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/CryptoRuntime.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoKeyWrapAlgorithm.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3KeyWrapScheme.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/S3CryptoModule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoModuleAE.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/CipherLite.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/PersistableDownload.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/PersistableTransfer.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CryptoMode.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoModuleEO.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/CipherLiteInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v1/CryptoModuleDispatcher.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/ContentCryptoMaterial.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/S3ProgressListenerChain.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/S3CryptoModuleBase.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoModuleAESTrict.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/ContentCryptoScheme.java
*
/aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/InternalKeyWrapAlgorithm.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/S3ObjectWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/ContentCryptoMaterial.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoScheme.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3Encryption.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/S3CryptoModuleAE.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/exception/PauseException.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/RenewableCipherLiteInputStream.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v2/MultipartUploadCryptoContext.java
*

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/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/AWSS3V4Signer.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/AesCtr.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/S3ProgressListener.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/AesGcm.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoModuleBase.java
* / aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v1/MultipartUploadCbcContext.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/GCMCipherLite.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/AesCbc.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/S3CryptoModule.java
* / aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v2/S3CryptoModuleAESTrict.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/v1/MultipartUploadCryptoContext.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3EncryptionClientV2.java
* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/PersistableUpload.java
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*/
/**
* Interface for providing encryption materials.
* Implementations are free to use any strategy for providing encryption
* materials, such as simply providing static material that doesn't change,
* or more complicated implementations, such as integrating with existing
* key management systems.
*/

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```

* / aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptionMaterialsProvider.java
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- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketTaggingConfiguration.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketPolicy.java
- *
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/Mimetypes.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3StringResponseHandler.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/ServiceUtils.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/RepeatableFileInputStream.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/RepeatableInputStream.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/TagSet.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EmailAddressGrantee.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/XmlResponsesSaxParser.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CanonicalGrantee.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Owner.java

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Bucket.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RequestPaymentConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/AccessControlList.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Grantee.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketLoggingConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketNotificationConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Grant.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/RestUtils.java
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```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectTaggingRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectTaggingResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteObjectTaggingResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3AccelerateUnsupported.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3VersionResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ObjectTaggingXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketAccelerateStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectTaggingResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectTagging.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/S3RequesterChargedHeaderHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectAclRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteObjectTaggingRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Tag.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectTaggingRequest.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/DeleteObjectTaggingHeaderHandler.java

```

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 */
```

Found in path(s):

```
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KeyWrapAlgorithmResolver.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KeyWrapperProvider.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KeyWrapperContext.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/RsaOaepKeyWrapperProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/future/FutureImpl.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/future/DelegatingFuture.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/future/CompositeFuture.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KMSKeyWrapperProvider.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/AesGcmKeyWrapperProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/future/FailedFuture.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KMSKeyWrapperContext.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/keywrap/CipherProvider.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/CryptoUtils.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/KeyWrapperFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v2/KMSMaterialsHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/future/CompletedFuture.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/AesGcmKeyWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/keywrap/KeyWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/keywrap/Mgf1Scheme.java
```

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/keywrap/KMSKeyWrapper.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/crypto/v1/KSMaterialsHandler.java
*
/
aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/crypto/keywrap/RsaOaepKeyWrapper.java
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*/
/**
* Synchronous client for accessing Amazon S3.
*
* <h1>Appendix: Amazon S3 client-side encryption meta information</h1>
*
* <h2>Introduction</h2>
* <p>
* This appendix summarizes the current crypto related meta information
* associated with an S3 object encrypted using SDK client-side encryption. In
* SDK's terminology, these meta
* information are classified as "user metadata".
* In general, the meta information is just a map of key/value pairs. Physically
* they are persisted either as metadata of the encrypted S3 object, or as a
* separate S3 object called an "instruction file" (which is just a JSON file in
* plaintext.) For all references to the Cipher Algorithm Names, Modes, and Padding,
* such as <code>"AES/GCM/NoPadding"</code>, please refer to Oracle's <a
* href="http://docs.oracle.com/javase/7/docs/technotes/guides/security/StandardNames.html"
* >Java<sup>®</sup> Cryptography Architecture Standard Algorithm Name Documentation</a>
* for more details.
*
* <h2>S3 metadata vs instruction file</h2>
* <p>
* Note when a key/value pair is stored as "user metadata" as part of the S3
* metadata, the SDK always adds an additional prefix of <b>x-amz-meta-</b> to
* the key name. In contrast, the SDK doesn't add any prefix when the key names
* are stored in an instruction file. (The reason has to do with

```

how the http

* headers are handled.)

* <p>

* For example, x-amz-key would get stored as x-amz-meta-x-amz-key

* in S3 metadata. In contrast, x-amz-key would simply be stored as is

* (ie without the prefix) in an instruction file. All the keys described below

* are considered "user metadata" by the SDK.

*

* <h2>S3 1st gen crypto meta information</h2>

* <p>

* For non-KMS client side encryption, this crypto meta information is used

* to support the "Encryption Only" crypto mode (which involves the use of

* <code>AES/CBC/PKCS5Padding</code> for content encryption, and

* <code>AES/ECB</code> for encrypting the one-time randomly generated data

* key). For KMS client-side encryption, the 2nd gen crypto meta information is used.

* <h3>Scope</h3>

* This metadata can only be generated when encrypting using the V1 encryption client,

* { @link com.amazonaws.services.s3.AmazonS3EncryptionClient}, but can be interpreted (decrypted) by

* { @link com.amazonaws.services.s3.AmazonS3EncryptionClientV2}.

* The format is also known as v1 metadata, but because there are now v1 and v2 clients,

* the term v1 metadata is confusing.

* <p>

* Encryption: { @link com.amazonaws.services.s3.AmazonS3EncryptionClient}, crypto mode
EncryptionOnly

* Decryption: { @link com.amazonaws.services.s3.AmazonS3EncryptionClient}, crypto mode
EncryptionOnly or

* { @link com.amazonaws.services.s3.AmazonS3EncryptionClientV2}, crypto mode AuthenticationOnly

* <p>

* <h3>Metadata</h3>

* <table border=1>

* <tr aligned="left">

* <th>key</th>

* <th>description</th>

* </tr>

* <tr>

* <td width="200">x-amz-key</td>

* <td>Content encrypting key (cek) in encrypted form, base64 encoded. The cek

* is randomly generated per S3 object, and is always an AES 256-bit key. The

* corresponding cipher is always "AES/CBC/PKCS5Padding".</td>

* </tr>

* <tr>

* <td>x-amz-iv</td>

* <td>Randomly generated IV (per S3 object), base64 encoded</td>

* </tr>

* <tr>

* <td>x-amz-matdesc </td>

* <td>Customer provided material description in JSON (UTF8) format. Used to

* identify the client-side master key (ie used to encrypt/wrap the generated


```

* content encrypting key).

```

```

* </tr>
* <td><b>x-amz-unencrypted-content-length</b></td>
* <td>Unencrypted content length. (optional but should be specified whenever
* possible. Same as v1.)</td>
* </tr>
* <tr>
* <td><b>x-amz-tag-len</b></td>
* <td>Tag length (in bits) when AEAD is in use.
* <ul>
* <li>Only applicable if AEAD is in use. This meta information is absent
* otherwise, or if KMS is in use.</li>
* <li>Supported value: <code>"128"</code></li>
* </ul>
* </td>
* </tr>
* </table>
* <h3>Metadata using V1 client</h3>
* <table border=1>
* <tr aligned="left">
* <th>key</th>
* <th>description</th>
* </tr>
* <td><b>x-amz-matdesc</b></td>
* <td>Customer provided material
* description in JSON format. (Same as v1). Used
* to identify the client-side master key.
* <ul>
* <li>For KMS client side encryption, the KMS Customer Master Key ID is stored
* as part of the material description, <b>x-amz-matdesc</b>, under the key-name
* <code>"kms_cmek_id"</code>.</li>
* </ul>
* </td>
* </tr>
* <tr>
* <td><b>x-amz-wrap-alg</b></td>
* <td>Key wrapping algorithm used.
* <ul>
* <li>Supported values:
* <code>"AESWrap", "RSA/ECB/OAEPWithSHA-256AndMGF1Padding", "kms"</code></li>
* <li>No standard key wrapping is used if this meta information is absent</li>
* <li>Always set to <b>"kms"</b> if KMS is used for client-side encryption</li>
* </ul>
* </td>
* </tr>
* <tr>
* <td><b>x-amz-cek-alg</b></td>
* <td>Content encryption algorithm used.
* <ul>

```

```

* <li>Supported values:
* <code>"AES/GCM/NoPadding", "AES/CBC/PKCS5Padding"</code></li>
* <li>Default to <code>"AES/CBC/PKCS5Padding"</code> if this key is absent.</li>
* </ul>
* </td>
* </tr>
* </table>
* <h3>Metadata using V2 client</h3>
* <table border=1>
* <tr aligned="left">
* <th>key</th>
* <th>description</th>
* </tr>
* <tr>
* <td><b>x-amz-matdesc</b></td>
* <td>Customer provided material description in JSON format. (Same as v1). For KMS client side encryption,
* the cek algorithm is stored as part of the material description under the key-name <code>aws:x-amz-cek-
alg</code>.
* </td>
* </tr>
* <tr>
* <td><b>x-amz-wrap-alg</b></td>
* <td>Key wrapping algorithm used.
* <ul>
* <li>Supported values:
* <code>"AES/GCM/NoPadding" (symmetric default), "RSA-OAEP-SHA1", "RSA-OAEP-SHA1" (asymmetric
default), "kms"</code>
* </li>
* <li>No standard key wrapping is used if this meta information is absent</li>
* <li>Always set to <b>"kms"</b> if KMS is used for client-side encryption</li>
* </ul>
* </td>
* </tr>
* <tr>
* <td><b>x-amz-cek-alg</b></td>
* <td>Content encryption algorithm used. Supported values: <code>"AES/GCM/NoPadding"</code>
* </td>
* </tr>
*
* </table>
* <p>
* <h3>KMS Integration for client-side encryption</h3>
* <ol>
* <li>All client-side KMS protected S3 objects are stored in v2 crypto meta information
* format. However, the key wrapping algorithm, <b>x-amz-wrap-alg</b> is always
* set to <b>"kms"</b>.</li>
* <li>For V1 clients, the KMS Customer Master Key ID is currently stored as part of the
* material description, <b>x-amz-matdesc</b>, under the key-name

```

```

* <b>"kms_cmek_id"</b>.</li>
* <li>For V2 clients, the KMS Customer Master Key ID is <b>not</b> stored as part of the
* material description and must be supplied by the decrypting client.</li>
* </ol>
* <p>
* <h4>Sample S3 crypto meta information for KMS client-side encryption</h4>
* <p>
* <h5>V1 client, CryptoMode: EncryptionOnly</h5>
*
* <pre>
* x-amz-meta-x-amz-key-v2:
*
CiAJ2GqwpJRnt4izujwoalC2YdNRNSMEslG5rw3pEI+J8hKnAQEBAwB4CdhqsKSUZ7eIs7o8KGpQtmHTUTUj
BLJRua8N6RCPifIAAAB+MHwGCSqGSib3DQEHBqBvMG0CAQAwaAYJKoZlIhvcNAQcBMB4GCWCGSAFl
AwQBLjARBAytFVYw4I6QmwcPK1ECARCAOIvzoM6KxA9DHyNMm/BEbbjle2vLA7IY7f9OkUoSqrxdgKxp
cZJNpTXtwMkKkDocVj3Z1zGjZTufFsOH
* x-amz-iv: xqOHh+M6y0UogwG5SHJM3Q==
* x-amz-unencrypted-content-length: 32768
* x-amz-cek-alg: AES/CBC/PKCS5Padding
* x-amz-wrap-alg: kms
* x-amz-matdesc: { "kms_cmek_id": "d3fd2273-4ca0-4da5-b1c2-c89742ec6a26" }
* </pre>
*
* <h5>V1 client, CryptoMode: AuthenticatedEncryption/StrictAuthenticatedEncryption</h5>
*
* <pre>
* x-amz-key-v2:
CiAJ2GqwpJRnt4izujwoalC2YdNRNSMEslG5rw3pEI+J8hKnAQEBAwB4CdhqsKSUZ7eIs7o8KGpQtmHTUTUj
BLJRua8N6RCPifIAAAB+MHwGCSqGSib3DQEHBqBvMG0CAQAwaAYJKoZlIhvcNAQcBMB4GCWCGSAFl
AwQBLjARBAytFVYw4I6QmwcPK1ECARCAOIvzoM6KxA9DHyNMm/BEbbjle2vLA7IY7f9OkUoSqrxdgKxp
NID9QaL/7928m1Djtd0bJpHefjm89C
* x-amz-iv: VZBksyij6DhrUMye
* x-amz-unencrypted-content-length: 32768
* x-amz-cek-alg: AES/GCM/NoPadding
* x-amz-wrap-alg: kms
* x-amz-matdesc: { "kms_cmek_id": "d3fd2273-4ca0-4da5-b1c2-c89742ec6a26" }
* x-amz-tag-len: 128
* </pre>
*
* <h5>V2 client, CryptoMode: AuthenticatedEncryption/StrictAuthenticatedEncryption</h5>
*
* <pre>
* x-amz-key-v2:
CiAJ2GqwpJRnt4izujwoalC2YdNRNSMEslG5rw3pEI+J8hKnAQEBAwB4CdhqsKSUZ7eIs7o8KGpQtmHTUTUj
BLJRua8N6RCPifIAAAB+MHwGCSqGSib3DQEHBqBvMG0CAQAwaAYJKoZlIhvcNAQcBMB4GCWCGSAFl
AwQBLjARBAytFVYw4I6QmwcPK1ECARCAOIvzoM6KxA9DHyNMm/BEbbjle2vLA7IY7f9OkUoSqrxdgKxp
NID9QaL/7928m1Djtd0bJpHefjm89C
* x-amz-iv: VZBksyij6DhrUMye

```

```

* x-amz-unencrypted-content-length: 32768
* x-amz-cek-alg: AES/GCM/NoPadding
* x-amz-wrap-alg: kms
* x-amz-matdesc: {"aws:x-amz-cek-alg":"AES/GCM/NoPadding"}
* x-amz-tag-len: 128
* </pre>
*
* <h2>S3 metadata of an instruction file</h2>
* <p>
* The following key is always included as part of the S3 metadata of the
* instruction file (which is just an S3 object). Since the SDK treats this key
* as "user metadata", the key name is always prefixed with <b>x-amz-meta-</b>
* when physically stored.
* <p>
* <table border=1>
* <tr aligned="left">
* <th>key</th>
* <th>description</th>
* </tr>
* <tr>
* <td
width="200"><b>x-amz-crypto-instr-file</b></td>
* <td>the presence of this key is used to indicate this S3 object is an
* instruction file (of an associated client-side encrypted S3 object).</td>
* </tr>
* </table>
* /

```

Found in path(s):

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/package-info.java
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```

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```

Found in path(s):

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/waiters/HeadObjectFunction.java

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/waiters/HeadBucketFunction.java

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*/

/**

* Gets the optional `versionIdMarker` parameter indicating where in the

* sorted list of all versions in the specified bucket to begin returning

* results. Results are always ordered first lexicographically (i.e.

* alphabetically) and then from most recent version to least recent

* version.

* `<p>`

* A key marker must be specified when specifying a `versionIdMarker`.

* Results begin immediately after the version with the specified key and

* version ID.

* `</p>`

*

* @return The optional `versionIdMarker` parameter indicating where in the

* sorted list of all versions in the specified bucket to begin

* returning results.

*

* @see ListVersionsRequest#setVersionIdMarker(String)

* @see ListVersionsRequest#withVersionIdMarker(String)

*/

Found in path(s):

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ListVersionsRequest.java

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- * permissions and limitations under the License.
- */

Found in path(s):

- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Progress.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectObjectContentEventVisitor.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/JSONType.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockLegalHold.java
- *
- /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectRetentionResult.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectLockConfigurationResult.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectObjectContentEventStream.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PresignedUrlUploadResult.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/JSONInput.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/eventstreaming/MessageDecoder.java
- * /aws-java-sdk-s3-1-12-86-sources-
- jar/com/amazonaws/services/s3/transfer/internal/AbstractDownloadCallableConfig.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectLegalHoldRequest.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectObjectContentResult.java
- * /aws-java-sdk-s3-1-12-86-sources-
- jar/com/amazonaws/services/s3/transfer/internal/PresignedUrlDownloadImpl.java
- *
- /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectLegalHoldRequest.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Stats.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockLegalHoldStatus.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectLegalHoldResult.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockMode.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/PresignedUrlDownload.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/UploadObjectStrategy.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ParquetInput.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockRule.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectRecordsInputStream.java
- *
- /aws-java-sdk-s3-1-12-86-sources-
- jar/com/amazonaws/services/s3/model/transform/ObjectLockLegalHoldXmlFactory.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectLegalHoldResult.java
- * /aws-java-sdk-s3-1-12-86-sources-
- jar/com/amazonaws/services/s3/model/transform/SelectObjectContentEventUnmarshaller.java
- * /aws-java-sdk-s3-1-12-86-sources-
- jar/com/amazonaws/services/s3/model/SelectObjectContentEventException.java
- * /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CompressionType.java

```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/XmlWriterUtils.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ObjectLockRetentionXmlFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectRetentionRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ObjectLockConfigurationXmlFactory.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectRetentionRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetObjectLockConfigurationResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockRetentionMode.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PresignedUrlDownloadResult.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetObjectLockConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DefaultRetention.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/AbstractDownloadCallable.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectObjectContentRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectRetentionResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/RequestProgress.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/internal/PresignUrlDownloadCallable.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/JSONOutput.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SelectObjectContentEvent.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/AbortableTransfer.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockEnabled.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetObjectLockConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ObjectLockRetention.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PresignedUrlDownloadRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PresignedUrlUploadRequest.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PresignedUrlDownloadConfig.java
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```
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/TopicConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/KeyWrapException.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptionMaterialsFactory.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3DataSource.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/OnFileDelete.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptedPutObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SSECustomerKeyProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/AbstractPutObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SimpleMaterialProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3Event.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/UploadObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SSECustomerKey.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/CloudFunctionConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/FileDeletionEvent.java
*
/ aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/MultipleFileTransferProgressUpdatingListener.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AmazonS3URI.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/UploadObjectObserver.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SSEAwsKeyManagementParams.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/transfer/MultipleFileTransferStateChangeListener.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/KMSEncryptionMaterialsProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/MultiFileOutputStream.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/PartCreationEvent.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/QueueConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/AmazonS3ExceptionBuilder.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3ObjectId.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/MaterialsDescriptionProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ExtraMaterialsDescription.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/S3SyncProgressListener.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptedGetObjectRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PutInstructionFileRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SSEAwsKeyManagementParamsProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/DecodedStreamBuffer.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/NotificationConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/PutObjectRequest.java
*
/ aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3Direct.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/InstructionFileId.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/internal/S3DirectSpi.java
```

* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3ObjectIdBuilder.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptedInitiateMultipartUploadRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/auth/ChunkContentIterator.java
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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/ServerSideEncryptionS3.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketEncryptionRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketEncryptionRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ExistingObjectReplicationStatus.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetBucketEncryptionResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicaModifications.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SseKmsEncryptedObjects.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/InventoryEncryption.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetBucketEncryptionResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/EncryptionConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ExistingObjectReplication.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketEncryptionResult.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/inventory/ServerSideEncryptionKMS.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteMarkerReplicationStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SourceSelectionCriteria.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ServerSideEncryptionConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ServerSideEncryptionRule.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SseKmsEncryptedObjectsStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteBucketEncryptionRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ServerSideEncryptionByDefault.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicaModificationsStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/DeleteMarkerReplication.java

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* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/iterable/S3Objects.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/StaticEncryptionMaterialsProvider.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/iterable/S3Versions.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/Download.java
*
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/internal/DownloadImpl.java
```

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* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/NotificationConfigurationStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ServerSideEncryptionRuleStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicationRule.java
*
```

```

/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketReplicationConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/SetBucketAccelerateConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/exception/FileLockException.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicationDestinationConfig.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/FilterRuleStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/request/S3HandlerContextKeys.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/GetBucketPolicyStatusStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SetObjectAclRequest.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/StatsStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/HeadBucketResult.java
*
/aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/DeleteBucketReplicationConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/TopicConfigurationStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/BucketNotificationConfigurationStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/S3KeyFilterStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ProgressStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/SSEAlgorithm.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/CompleteMultipartUploadRetryablePredicate.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/LambdaConfigurationStaxUnmarshaller.java
*
/aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/QueueConfigurationStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/ReplicationRuleStatus.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/Filter.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/HeadBucketResultHandler.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/BucketAccelerateConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/internal/CompleteMultipartUploadRetryCondition.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/GetBucketEncryptionStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/transform/FilterStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AbstractAmazonS3EncryptionV2.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/transfer/TransferCompletionFilter.java
*
/aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/LambdaConfiguration.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketNotificationConfigurationRequest.java

```

```
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/GetS3AccountOwnerRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/GetBucketReplicationConfigurationRequest.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/ServerSideEncryptionByDefaultStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/S3KeyFilter.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/model/FilterRule.java
* /aws-java-sdk-s3-1-12-86-sources-
jar/com/amazonaws/services/s3/model/transform/GetPublicAccessBlockStaxUnmarshaller.java
* /aws-java-sdk-s3-1-12-86-sources-jar/com/amazonaws/services/s3/AbstractAmazonS3.java
```

1.320 aws-java-sdk-core 1.12.86

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```
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ReflectionMethodInvoker.java
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- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Platform.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/SyncProgressListener.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/request/Progress.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/internal/AWS4SignerUtils.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/internal/SignerKey.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/SDKProgressPublisher.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFileWriter.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressTracker.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/auth/profile/internal/securitytoken/ProfileCredentialsService.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkSSLSocket.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/BoundedLinkedHashMap.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ResponseProgressInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/Profile.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/LengthCheckInputStream.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressEventFilter.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/ProcessCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/BasicProfileConfigLoader.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/request/ProgressSupport.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/auth/profile/internal/securitytoken/STSProfileCredentialsServiceProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/internal/AWS4SignerRequestParams.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/ProfileCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/RequestProgressInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/auth/profile/internal/ProfileProcessCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/UnreliableFilterInputStream.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/auth/profile/internal/securitytoken/STSProfileCredentialsServiceLoader.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/auth/profile/internal/AbstractProfilesConfigFileScanner.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DelegateSSLSocket.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/RoleInfo.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/UnreliableTestConfig.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFile.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkSocket.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/Releasable.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/DeliveryMode.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/package-info.java
*
/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/internal/SignerConstants.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/FIFOCache.java
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/SimpleTypeUnmarshallers.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SigningAlgorithm.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/Unmarshaller.java
*
/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonClientException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/LegacyErrorUnmarshaller.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SignatureVersion.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/XmlUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSCredentials.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/HttpMethodName.java
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkStructuredPlainJsonFactory.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/StructuredJsonGenerator.java

*

/*aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/JsonResponseHandler.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkFilterOutputStream.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/IOUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/CodecUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/ListWithAutoConstructFlag.java

*

/*aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/Region.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AbstractBase32Codec.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base16.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionMetadata.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Codec.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkBufferedInputStream.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Throwables.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWS4Signer.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ResetException.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkDigestInputStream.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionMetadataParser.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionUtils.java

*

/*aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/MetricAware.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base32.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/jmx/SdkMBeanRegistrySupport.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/EC2MetadataUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base32Codec.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/MetricsInputStream.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/EncodingScheme.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/HttpClientWrappingInputStream.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/EncodingSchemeEnum.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkFilterInputStream.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base64Codec.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AbortedException.java
*
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/ServiceAwareSigner.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base16Codec.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/jmx/MBeans.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base64.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/SdkRuntime.java
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/PartitionRegionImpl.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/model/Endpoint.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/PartitionMetadataProvider.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/LegacyRegionXmlMetadataBuilder.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionImpl.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/InMemoryRegionsProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/model/CredentialScope.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkStructuredIonFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/LegacyRegionXmlLoadUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/model/Service.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionMetadataFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/InMemoryRegionImpl.java
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/http/apache/client/impl/CRC32ChecksumResponseInterceptor.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/RegionMetadataProvider.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/model/Region.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/SimpleTypeCborUnmarshallers.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkIonGenerator.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/partitions/model/Partition.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AbstractRegionMetadataProvider.java
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/Immutable.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/SdkProtectedApi.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/SdkInternalApi.java
*

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/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/Beta.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/ThreadSafe.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/NotThreadSafe.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/SdkTestInternalApi.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/CapacityManager.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/FakeIOException.java

*

/aws-java-sdk-core-1-12-86-sources-

jar/com/amazonaws/http/apache/client/impl/ApacheConnectionFactory.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/ssl/ShouldClearSslSessionPredicate.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/apache/client/impl/ApacheHttpClientFactory.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/InternalLogFactory.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/apache/client/impl/SdkHttpClient.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DateTimeJsonSerializer.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/IdempotentUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/package-info.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkStructuredJsonFactory.java

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- jar/com/amazonaws/http/timers/request/NoOpHttpRequestAbortTaskTracker.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkThreadLocalsRegistry.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/JsonErrorUnmarshaller.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/JavaVersionParser.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/DnsResolver.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTask.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskTracker.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTaskImpl.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/TimeoutThreadPoolBuilder.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/SdkHttpUtils.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkInternalMap.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskTrackerImpl.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/http/JsonErrorCodeParser.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/SdkConnectionKeepAliveStrategy.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/ClientExecutionTimer.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SDKGlobalTime.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/JulLogFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DelegateInputStream.java
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/http/timers/client/NoOpClientExecutionAbortTrackerTask.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/DelegatingDnsResolver.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/UriResourcePathUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/HandlerContextKey.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DelegateSocket.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/Base16Lower.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/StackedRequestHandler.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SdkThreadLocals.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/ClientExecutionTimeoutException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ComparableUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/CommonsLog.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/client/ConnectionFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/request/HttpRequestTimer.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTask.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTrackerTask.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/PredefinedClientConfigurations.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/settings/HttpClientSettings.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/ssl/MasterSecretValidators.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/NumberUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/CommonsLogFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/JsonErrorResponseHandler.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkSSLMetricsSocket.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/http/JsonErrorMessageParser.java
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/http/conn/ssl/privileged/PrivilegedMasterSecretValidator.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/client/HttpClientFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SignableRequest.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/InternalLog.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/log/JulLog.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTaskImpl.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkMetricsSocket.java
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/http/timers/client/ClientExecutionAbortTrackerTaskImpl.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkInternalList.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ValidationUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SystemDefaultDnsResolver.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/exception/HttpRequestTimeoutException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkIOUtils.java

```

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 */
/**
 * Interface for providing AWS region information. Implementations are free to use any strategy for
 * providing region information.
 */
```

Found in path(s):

`/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AwsRegionProvider.java`

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/URLEncodedUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/BasicNameValuePair.java

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* /aws-java-sdk-core-1-12-86-sources-

jar/com/amazonaws/regions/MetadataSupportedRegionFromEndpointProvider.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/endpoint/DefaultRegionFromEndpointResolver.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/RegionFromEndpointResolverAwareSigner.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/endpoint/RegionFromEndpointResolver.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ClassLoaderHelper.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSSessionCredentialsProvider.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricAdmin.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricAdminMBean.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSSessionCredentials.java

*

/* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ServiceClientHolderInputStream.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/json/Jackson.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/jmx/JmxInfoProviderSupport.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/BasicSessionCredentials.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/RequestClientOptions.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/jmx/spi/JmxInfoProvider.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/jmx/spi/SdkMBeanRegistry.java

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Found in path(s):

```
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/internal/config/HostRegexToRegionMappingJsonHelper.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/FileStoreTlsKeyManagersProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterAcceptor.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AwsClientSideMonitoringMetrics.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/HttpResponseHandler.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/Presigner.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/VoidStaxUnmarshaller.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ThroughputMetricType.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricType.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/Response.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/Wrapped.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/internal/JsonPolicyReader.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/TimestampFormat.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AnonymousAWSCredentials.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/ClientConnectionFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryProvider.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/DefaultCsmConfigurationProviderChain.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/ResponseMetadataCache.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/PollingStrategy.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressEventType.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ServiceLatencyProvider.java
* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/endpointdiscovery/EnvironmentVariableEndpointDiscoveryProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/endpointdiscovery/Constants.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/actions/package-info.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ClientConfiguration.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWS3Signer.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricInputStreamEntity.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SignerFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/InternalConfig.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/NoneTlsKeyManagersProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/NumericCondition.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterBuilder.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/VoidJsonUnmarshaller.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/AmazonHttpClient.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/SimpleThroughputMetricType.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/ApiMonitoringEvent.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AWSServiceMetrics.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/HttpMethod.java
*
```

```

/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/protocol/SdkHttpRequestExecutor.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryRefreshCache.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/RequestHandler2Adaptor.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/ServiceEndpointBuilder.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/Request.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/HandlerChainFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/internal/MaxAttemptsResolver.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressListener.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/PolicyReaderOptions.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/internal/AgentMonitoringListener.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/RepeatableInputStreamRequestEntity.java
*
/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ServiceMetricType.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/arn/ArnResource.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ByteThroughputHelper.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/MonitoringEvent.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/Signer.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/HttpResponse.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ByteThroughputProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/CollectionUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/builder/AdvancedConfig.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/RetryPolicy.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/StandardErrorUnmarshaller.java
*
/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/InternalConfigJsonHelper.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/StringUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/SdkFunction.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/JsonUnmarshallerContext.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/CRC32ChecksumCalculatingInputStream.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Statement.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/ApiCallMonitoringEvent.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterHandler.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/QueryStringSigner.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/BooleanCondition.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterUnrecoverableException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/DefaultRequest.java
*
/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/DefaultErrorResponseHandler.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/resources/package-info.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterImpl.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/NoOpSigner.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonServiceException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/DateCondition.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/CompositeAccepter.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/RequestMetricCollector.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/RuntimeHttpUtils.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/ConditionFactory.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/CsmConfigurationProvider.java

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- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/BasicProfileConfigFileLoader.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/StaxUnmarshallerContext.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/cache/EndpointDiscoveryCacheLoader.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/CredentialsRequestHandler.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ResponseMetadata.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/arn/AwsResource.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AWSRequestMetricsFullSupport.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Resource.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/CsmConfiguration.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryProviderChain.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SignerTypeAware.java
- *
- /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/endpointdiscovery/DefaultEndpointDiscoveryProviderChain.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/internal/AsynchronousAgentDispatcher.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/SimpleServiceMetricType.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DefaultServiceEndpointBuilder.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/Marshaller.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/TlsKeyManagersProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/AbstractFileTlsKeyManagersProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/ArnCondition.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/AccepterPathMatcher.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWS4UnsignedPayloadSigner.java
- *
- /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/endpointdiscovery/SystemPropertyEndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/MapEntry.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/SimpleTypeJsonUnmarshallers.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkPredicate.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/ProfileCsmConfigurationProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/package-info.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonWebServiceResponse.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterTimedOutException.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/PollingStrategyContext.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterExecution.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/FixedDelayStrategy.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressListenerChain.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/RetryUtils.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricFilterInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/RequestHandler2.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/AbstractRequestHandler.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/PropertiesCredentials.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/HostRegexToRegionMapping.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/HandlerBeforeAttemptContext.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/apache/Utils/HttpContextUtils.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/MonitoringListener.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryIdentifiersRefreshCache.java
 *
 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/StaticCsmConfigurationProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/NoOpWaiterHandler.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/SdkPlainSocketFactory.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/StaxResponseHandler.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Principal.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/RequestHandler.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/internal/RetryModeResolver.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/JsonUnmarshallerContextImpl.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/internal/JsonDocumentFields.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/VersionInfoUtils.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Policy.java
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 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/internal/ServiceMetricTypeGuesser.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterState.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/CsmConfigurationProviderChain.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/event/ProgressEvent.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/AwsSdkMetrics.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/impl/client/HttpRequestNoRetryHandler.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/WebIdentityTokenCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/SystemPropertyCsmConfigurationProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/IdentityEndpointBuilder.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SDKGlobalConfiguration.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/ApiCallAttemptMonitoringEvent.java
 *
 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AbstractAWSSigner.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/apache/request/impl/HttpGetWithBody.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/monitoring/EnvironmentVariableCsmConfigurationProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/Waiter.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterExecutionBuilder.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/PredefinedRetryPolicies.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/package-info.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/RequestMetricType.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/arn/ArnConverter.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/HttpClientConfig.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/NamespaceRemovingInputStream.java
 *
 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/internal/JsonPolicyWriter.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/StringCondition.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ApacheHttpClientConfig.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/internal/AuthErrorRetryStrategy.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ServiceNameFactory.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonWebServiceRequest.java

- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/HttpSuccessStatusAcceptor.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/HttpFailureStatusAcceptor.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Condition.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/PropertiesFileCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/HttpClientConfigJsonHelper.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/cache/CacheLoader.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/conditions/IpAddressCondition.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/arn/Arn.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/CountingInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/XpathUtils.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/endpointdiscovery/DaemonThreadFactory.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/WaiterParameters.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/StructuredJsonMarshaller.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/conn/ClientConnectionRequestFactory.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/EndpointDiscoveryConfig.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/cache/Cache.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/handlers/HandlerAfterAttemptContext.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/endpointdiscovery/AwsProfileEndpointDiscoveryProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonWebServiceClient.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SignerParams.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/SimpleTypeStaxUnmarshallers.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/Action.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/internal/AuthRetryParameters.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/MetricCollector.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/BasicAWSCredentials.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/waiters/MaxAttemptsRetryStrategy.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/ServiceMetricCollector.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/policy/package-info.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/metrics/SimpleMetricType.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AWSRequestMetrics.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/SystemPropertyTlsKeyManagersProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/cache/KeyConverter.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ProxyAuthenticationMethod.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/monitoring/internal/ClientSideMonitoringRequestHandler.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/impl/client/SdkHttpRequestRetryHandler.java

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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/EC2ResourceFetcher.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/EC2ContainerCredentialsProviderWrapper.java
*
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/InstanceMetadataServiceCredentialsFetcher.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/TokenBucket.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/EndpointPrefixAwareSigner.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/BaseCredentialsFetcher.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/ContainerCredentialsRetryPolicy.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/ContainerCredentialsProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/InstanceMetadataServiceResourceFetcher.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/RetryMode.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/CredentialsEndpointProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/internal/CredentialsEndpointRetryParameters.java
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* Interface for providing AWS credentials. Implementations are free to use any
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* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/SignerConfig.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/JsonIndex.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/Protocol.java
*

/aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/config/Builder.java
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 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/builder/AwsClientBuilder.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/SdkHttpMetadata.java
 *
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/MarshallingInfo.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/cred/CredentialsDefaultLocationProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/DefaultMarshallingType.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/ProfileAssumeRoleCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/TimingInfoUnmodifiable.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/PathMarshallers.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolverImpl.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/ClientHandlerParams.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/V2CompatibleBackoffStrategy.java

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/RetryOnStatusCodeCondition.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/ExecutionContext.java
 *
 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/AwsDirectoryBasePathProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/ValueToStringConverters.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/EndpointToRegion.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/OrRetryCondition.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/QueryParamMarshallers.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/RetryPolicyAdapter.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AwsSystemPropertyRegionProvider.java
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 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/config/ConfigEnvVarOverrideLocationProvider.java
 *
 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/XMLWriter.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/MarshallingType.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/ClientExecutionParams.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/ProfileStaticCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonContent.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/HeaderMarshallers.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkStructuredJsonFactoryImpl.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/BasicProfile.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/MarshallerRegistry.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SdkClock.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/FixedDelayBackoffStrategy.java
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 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AwsProfileRegionProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/builder/ExecutorFactory.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/cred/CredentialsLegacyConfigLocationProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/ListUnmarshaller.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/AwsAsyncClientParams.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/BackoffStrategy.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/DefaultValueSupplier.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/response/AwsResponseHandlerAdapter.java
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 /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/AllProfiles.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/PredefinedBackoffStrategies.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSRefreshableSessionCredentials.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/builder/AwsSyncClientBuilder.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonOperationMetadata.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SdkBaseException.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/OperationInfo.java

- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/Protocol.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/StructuredPojo.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/AwsSyncClientParams.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProviderChain.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/SdkClientException.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypeJsonMarshallers.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/profile/path/config/SharedConfigDefaultLocationProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/RetryOnExceptionsCondition.java
- * /aws-java-sdk-core-1-12-86-sources-
- jar/com/amazonaws/profile/path/cred/CredentialsEnvVarOverrideLocationProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/StringInputStream.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/JsonMarshallerContext.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/AwsProfileNameLoader.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/SimpleRetryPolicy.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonErrorResponseMetadata.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/InstanceMetadataRegionProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/profile/internal/ProfileKeyConstants.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/ProtocolRequestMarshaller.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/AmazonWebServiceResult.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypePathMarshallers.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonProtocolMarshallerBuilder.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AwsEnvVarOverrideRegionProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/AmazonWebServiceRequestAdapter.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/RetryPolicy.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/MaxNumberOfRetriesCondition.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/RequestConfig.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/RetryPolicyContext.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/MarshallLocation.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkJsonMarshallerFactory.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/AwsRegionProviderChain.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSStaticCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/v2/AndRetryCondition.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolver.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/StaticCredentialsProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/transform/MapUnmarshaller.java
- *
- /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/ClientHandler.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/presign/PresignerFacade.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/AwsErrorResponseHandler.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/request/HttpRequestFactory.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/ClientConfigurationFactory.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/StaticSignerProvider.java
- * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/builder/AwsAsyncClientBuilder.java


```

* /aws-java-sdk-core-1-12-86-sources-
jar/com/amazonaws/protocol/json/internal/NullAsEmptyBodyProtocolRequestMarshaller.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/JsonClientMetadata.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/timers/client/SdkInterruptedException.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/presign/PresignerParams.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/client/ClientHandlerImpl.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkFunction.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/regions/DefaultAwsRegionProviderChain.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/protocol/json/SdkJsonGenerator.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/retry/V2CompatibleBackoffStrategyAdapter.java
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Found in path(s):

```

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/adapters/types/StringToInputStreamAdapter.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/auth/NoOpSignerProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/MetadataCache.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/NullResponseMetadataCache.java
*
/ aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/auth/SignerProviderContext.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/adapters/types/TypeAdapter.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/auth/SignerProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/auth/DefaultSignerProvider.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/adapters/types/StringToByteBufferAdapter.java
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Found in path(s):

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/DynamoDBBackoffStrategy.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/CRC32MismatchException.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/EnvironmentVariableCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/AWSCredentialsProviderChain.java
 *
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/SystemPropertiesCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/EC2MetadataClient.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/CustomBackoffStrategy.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/util/AwsHostNameUtils.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/HandlerContextAware.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/ClasspathPropertiesFileCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/http/IdleConnectionReaper.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/InstanceProfileCredentialsProvider.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/auth/DefaultAWSCredentialsProviderChain.java

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Found in path(s):

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/annotation/package-info.java
 * /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/SdkSSLContext.java

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```

Found in path(s):

```

* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/http/CompositeErrorCodeParser.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/http/ErrorCodeParser.java
* /aws-java-sdk-core-1-12-86-sources-jar/com/amazonaws/internal/http/IonErrorCodeParser.java

```

1.321 jmespath-java 1.12.86

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```

Found in path(s):

```

* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathFlatten.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpNotEquals.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpLessThanOrEqualTo.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathIdentity.java
*
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathValueProjection.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/NumericComparator.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathMultiSelectList.java

```

```

* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathLengthFunction.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathSubExpression.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathFunction.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/Comparator.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathVisitor.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpGreaterThanOrEqualTo.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathContainsFunction.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathFilter.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathNotExpression.java
*
/jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathField.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpGreaterThan.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathEvaluationVisitor.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/InvalidTypeException.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/CamelCaseUtils.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/ObjectMapperSingleton.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathProjection.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathAndExpression.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpEquals.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathLiteral.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/JmesPathExpression.java
* /jmespath-java-1-12-86-sources-jar/com/amazonaws/jmespath/OpLessThan.java
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```

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Found in path(s):

```

* /jmespath-java-1-12-86-sources-jar/META-INF/maven/com.amazonaws/jmespath-java/pom.xml

```

1.322 aws-java-sdk-kms 1.12.86

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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/auth/policy/actions/KMSActions.java

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*/

/**

* <p>

* Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.

* </p>

* <p>

* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services account,

* you must use the key ARN.

* </p>

* <p>

* For example:

* </p>

*

*

* <p>

* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>

* </p>

*

*

* <p>

* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>

* </p>

*

*

* <p>

* To get the key ID and key ARN for a KMS key, use <a>ListKeys or <a>DescribeKey.

```

* </p>
*/
/**
* <p>
* The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant.
* </p>
* <p>
* To specify the principal, use the <a
* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
(ARN)</a>
* of an Amazon Web Services principal. Valid Amazon Web Services principals include Amazon Web Services
accounts
* (root), IAM users, federated users, and assumed role users. For examples of the ARN syntax to use for
specifying
* a principal, see <a
* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html#arn-syntax-iam">Amazon
Web
* Services Identity and Access Management (IAM)</a> in the Example ARNs section of the <i>Amazon Web
Services
* General Reference</i>.
* </p>
* <p>
* The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke
* the grant. For details, see <a>RevokeGrant</a> and <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and
revoking
* grants</a> in the <i>Key Management Service Developer Guide</i>.
* </p>
*/
/**
* <p>
* Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.
* </p>
* <p>
* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services
account,
* you must use the key ARN.
* </p>
* <p>
* For example:
* </p>
* <ul>
* <li>
* <p>
* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* </ul>

```

```

* <p>
* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* </ul>
* <p>
* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
* </p>
*
* @param keyId
*   Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.</p>
*   <p>
*   Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web
Services
*   account, you must use the key ARN.
*   </p>
*   <p>
*   For example:
*   </p>
*   <ul>
*   <li>
*   <p>
*   Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
*   </p>
*   </li>
*   <li>
*   <p>
*   Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-
1234567890ab</code>
*   </p>
*   </li>
*   </ul>
*   <p>
*   To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
*/
/**
* <p>
* Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.
* </p>
* <p>
* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services
account,
* you must use the key ARN.
* </p>
* <p>
* For example:
* </p>

```

```

* <ul>
* <li>
* <p>
* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* <li>
* <p>
* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* </ul>
* <p>
* To get the
key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
* </p>
*
* @return Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.</p>
*
* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web
Services
* account, you must use the key ARN.
* </p>
* <p>
* For example:
* </p>
* <ul>
* <li>
* <p>
* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* <li>
* <p>
* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-
1234567890ab</code>
* </p>
* </li>
* </ul>
* <p>
* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.

*/
/**
* <p>
* The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant.
* </p>
* <p>

```


* To specify the principal, use the <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
 (ARN)
 * of an Amazon Web Services principal. Valid Amazon Web Services principals include Amazon Web Services
 accounts
 * (root), IAM users, federated users, and assumed role users. For examples of the ARN syntax to use for
 specifying
 * a principal, see <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html#arn-syntax-iam">Amazon
 Web
 * Services Identity and Access Management (IAM) in the Example ARNs section of the <i>Amazon Web
 Services
 * General Reference</i>.
 * </p>
 * <p>
 * The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke
 * the grant. For details,
 see <a>RevokeGrant and <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and
 revoking
 * grants in the <i>Key Management Service Developer Guide</i>.
 * </p>
 *
 * @param retiringPrincipal
 * The principal that has permission to use the <a>RetireGrant operation to retire the grant. </p>
 * <p>
 * To specify the principal, use the <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource
 Name
 * (ARN) of an Amazon Web Services principal. Valid Amazon Web Services principals include Amazon
 Web
 * Services accounts (root), IAM users, federated users, and assumed role users. For examples of the ARN
 * syntax to use for specifying a principal, see <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html#arn-syntax-
 iam">Amazon
 Web
 * Services Identity and Access Management (IAM) in the Example ARNs section of the <i>Amazon
 Web
 * Services General Reference</i>.
 * </p>
 * <p>
 * The grant determines the retiring principal. Other principals might have permission to retire the grant or
 * revoke the grant. For details, see <a>RevokeGrant and <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring
 and
 * revoking grants in the <i>Key Management Service Developer Guide</i>.
 */
 /**

* <p>

* The principal that has permission to use the <a>RetireGrant operation to retire the grant.

* </p>

* <p>

* To specify the principal, use the <a

* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name (ARN)

* of an Amazon Web Services principal. Valid Amazon Web Services principals include Amazon Web Services accounts

* (root), IAM users, federated users, and assumed role users. For examples of the ARN syntax to use for specifying

* a principal, see <a

* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html#arn-syntax-iam">Amazon Web

* Services Identity and Access Management (IAM) in the Example ARNs section of the <i>Amazon Web Services

* General Reference</i>.

* </p>

* <p>

* The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke

* the grant. For details, see <a>RevokeGrant and <a

* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and

revoking

* grants in the <i>Key Management Service Developer Guide</i>.

* </p>

*

* @return The principal that has permission to use the <a>RetireGrant operation to retire the grant. </p>

* <p>

*

To specify the principal, use the <a

* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource

Name

* (ARN) of an Amazon Web Services principal. Valid Amazon Web Services principals include

Amazon Web

* Services accounts (root), IAM users, federated users, and assumed role users. For examples of the ARN

* syntax to use for specifying a principal, see <a

* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html#arn-syntax-iam">Amazon

* Web Services Identity and Access Management (IAM) in the Example ARNs section of the

<i>Amazon Web

* Services General Reference</i>.

* </p>

* <p>

* The grant determines the retiring principal. Other principals might have permission to retire the grant

* or revoke the grant. For details, see <a>RevokeGrant and <a

* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring

and

* revoking grants in the <i>Key Management Service Developer Guide</i>.

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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ImportKeyMaterialResult.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListResourceTagsRequest.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/InvalidGrantIdException.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListRetirableGrantsResult.java
*
/ aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/DisableKeyRotationRequest.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/IncorrectKeyException.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/UpdateKeyDescriptionResult.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListKeysRequest.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListResourceTagsResult.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/GetKeyPolicyRequest.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/ListRetirableGrantsRequestMarshaller.java

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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/DisableKeyRequest.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/MultiRegionKey.java
* /aws-java-sdk-kms-1-12-86-sources-
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/ aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/DeleteCustomKeyStoreRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/DataKeySpec.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/InvalidKeyUsageException.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/CreateCustomKeyStoreRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/AWSKMSAsyncClient.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/TagException.java
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/KMSInternalException.java
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/AlgorithmSpec.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/GenerateDataKeyPairResult.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/CancelKeyDeletionResult.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/GenerateDataKeyPairWithoutPlaintextRequestMarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/TagResourceRequestProtocolMarshaller.java

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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListRetirableGrantsRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/DescribeKeyRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/GetKeyPolicyResult.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/ListKeyPoliciesRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/InvalidArnException.java
* /aws-java-sdk-kms-1-12-86-sources-
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* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/GenerateDataKeyWithoutPlaintextRequest.java
*
/ aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/InvalidAliasNameException.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/DeleteCustomKeyStoreResultJsonUnmarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/AbstractAWSKMS.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/MalformedPolicyDocumentException.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/MultiRegionKeyJsonUnmarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/TagResourceResult.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/VerifyRequestProtocolMarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/EnableKeyRotationResult.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/CloudHsmClusterNotActiveExceptionUnmarshaller.java

```

```

*
/ aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/UpdateCustomKeyStoreResultJsonUnmarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/Tag.java
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jar/com/amazonaws/services/kms/model/DescribeCustomKeyStoresRequest.java
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* /aws-java-sdk-kms-1-12-86-sources-jar/com/amazonaws/services/kms/model/GenerateDataKeyPairRequest.java
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jar/com/amazonaws/services/kms/model/transform/ListKeyPoliciesRequestProtocolMarshaller.java
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jar/com/amazonaws/services/kms/model/transform/EnableKeyRotationRequestMarshaller.java
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/ aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/ConnectCustomKeyStoreRequestProtocolMarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/GenerateDataKeyWithoutPlaintextResultJsonUnmarshaller.java
* /aws-java-sdk-kms-1-12-86-sources-
jar/com/amazonaws/services/kms/model/transform/UpdateAliasRequestMarshaller.java

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1.323 openssh 7.6p1-4ubuntu0.6

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*

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1.324 cyrus-sasl 2.1.27~101-g0780600+dfsg-3ubuntu2.4

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- * /jul-to-slf4j-1-7-36-sources-jar/org/slf4j/bridge/SLF4JBridgeHandler.java

1.328 spring-security-config 5.6.2

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1.338 log4j-api 2.17.2

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2.13.2

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1.343 jackson-dataformat-cbor 2.13.2

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1.347 log4j-slf4j-impl 2.17.2

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1.348 jackson-databind 2.13.2.2

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Jackson JSON processor

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1.349 tomcat 9.0.60

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The original XML Schemas for Java EE Deployment Descriptors:

- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd

- web-app_3_1.xsd
- web-common_3_1.xsd
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- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd

- web-common_3_0.xsd
- web-fragment_3_0.xsd
- javaee_7.xsd
- javaee_web_services_1_4.xsd
- javaee_web_services_client_1_4.xsd
- jsp_2_3.xsd
- web-app_3_1.xsd
- web-common_3_1.xsd
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1.350 log4j-jul 2.17.2

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jar/org/springframework/jdbc/core/support/AbstractLobCreatingPreparedStatementCallback.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/rowset/ResultSetWrappingSqlRowSet.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/RdbmsOperation.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/JdbcAccessor.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/CallableStatementCreatorFactory.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/lookup/AbstractRoutingDataSource.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlReturn Type.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SQLExceptionTranslator.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/SqlParameterSourceUtils.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/DataSourceFactory.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/JdbcTransactionManager.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlParameterValue.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlParameter.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/LazyConnectionDataSourceProxy.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/DriverManagerDataSource.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SingleColumnRowMapper.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/GeneratedKeyHolder.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/CallMetaDataProviderFactory.java
```

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* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/SimpleDriverDataSource.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/support/JdbcBeanDefinitionReader.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/ParsedSql.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/DataSourceTransactionManager.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/StatementCreatorUtils.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/AbstractFallbackSQLExceptionTranslator.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcTemplate.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/KeyHolder.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/JdbcTemplate.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlProvider.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/PreparedStatementCreatorFactory.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/JdbcUtils.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/SingleConnectionDataSource.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SQLExceptionCodesFactory.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/datasource/embedded/AbstractEmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/DatabaseStartupValidator.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/CallParameterMetaData.java
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* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/LobHandler.java
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* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/xml/SqlXmlFeatureNotImplementedException.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/GenericStoredProcedure.java
*
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/lookup/IndiDataSourceLookup.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/xml/XmlCharacterStreamProvider.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/lookup/SingleDataSourceLookup.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/config/JdbcNamespaceHandler.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/SQLWarningException.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SqlValue.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/datasource/lookup/DataSourceLookupFailureException.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/InterruptibleBatchPreparedStatementSetter.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/AbstractSequenceMaxValueIncrementer.java
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*
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/xml/XmlResultProvider.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/MetaDataAccessException.java
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 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/JdbcTransactionObjectSupport.java
 *
 /spring-jdbc-5-3-18-sources-
 jar/org/springframework/jdbc/core/support/AbstractLobStreamingResultSetExtractor.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/MapSqlParameterSource.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/CustomSQLExceptionTranslatorRegistry.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/rowset/SqlRowSet.java
 * /spring-jdbc-5-3-18-sources-
 jar/org/springframework/jdbc/core/namedparam/BeanPropertySqlParameterSource.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/SqlFunction.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/ResourceDatabasePopulator.java
 * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/SqlParameterSource.java
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* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/JdbcOperationsExtensions.kt
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*/

/**

- * Strategy interface for translating between { @link SQLException SQLExceptions }
- * and Spring's data access strategy-agnostic { @link DataAccessException }
- * hierarchy.

*

- * <p>Implementations can be generic (for example, using
- * { @link java.sql.SQLException#getSQLState() SQLState } codes for JDBC) or
- * wholly
- * proprietary (for example, using Oracle error codes) for greater precision.

*

- * @author Rod Johnson
- * @author Juergen Hoeller
- * @see org.springframework.dao.DataAccessException

*/

Found in path(s):

- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SQLExceptionTranslator.java

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/**

- * The classes in this package make JDBC easier to use and
- * reduce the likelihood of common errors. In particular, they:
- *
- * Simplify error handling, avoiding the need for try/catch/finally
- * blocks in application code.
- * Present exceptions to application code in a generic hierarchy of
- * unchecked exceptions, enabling applications to catch data access
- * exceptions without being dependent on JDBC, and to ignore fatal
- * exceptions there is no value in catching.
- * Allow the implementation of error handling to be modified
- * to target different RDBMSes without introducing proprietary
- * dependencies into application code.
- *

*

- * <p>This package and related packages are discussed in Chapter 9 of
- * Expert One-On-One J2EE Design and

Development

* by Rod Johnson (Wrox, 2002).

*/

Found in path(s):

* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/package-info.java

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* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/ConnectionProperties.java

* /spring-jdbc-5-3-18-sources-

jar/org/springframework/jdbc/support/incrementer/SqlServerMaxValueIncrementer.java

* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/rowset/SqlRowSetMetaData.java

*

/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/HsqlMaxValueIncrementer.java

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*/

```

/**
 * Implement this interface when parameters need to be customized based
 * on the connection. We might need to do this to make use of proprietary
 * features, available only with a specific Connection type.
 *
 * @author Rod Johnson
 * @author Thomas Risberg
 * @see CallableStatementCreatorFactory#newCallableStatementCreator(ParameterMapper)
 * @see org.springframework.jdbc.object.StoredProcedure#execute(ParameterMapper)
 */
/**
 * Create a Map of input parameters, keyed by name.
 * @param con a JDBC connection. This is useful (and the purpose of this interface)
 * if we need to do something RDBMS-specific with a proprietary Connection
 * implementation class. This class conceals such proprietary details. However,
 * it is best to avoid using such proprietary RDBMS features if possible.
 * @return a Map of input parameters, keyed by name (never { @code null })
 * @throws SQLException if an SQLException is encountered setting
 * parameter values (that is, there's no need to catch SQLException)
 */

```

Found in path(s):

* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ParameterMapper.java

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- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/GenericTableMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/ScriptUtils.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/GenericCallMetaDataProvider.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/simple/AbstractJdbcInsert.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/ScriptException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/DataSourceUtils.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/CannotReadScriptException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/JdbcOperations.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/CompositeDatabasePopulator.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/CallableStatementCallback.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/UncategorizedScriptException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/TableMetaDataContext.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ColumnMapRowMapper.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/simple/SimpleJdbcInsert.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcOperations.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/CallMetaDataContext.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/DataClassRowMapper.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/NamedParameterUtils.java
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- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/TableMetaDataProviderFactory.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/DatabasePopulatorUtils.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/support/incrementer/AbstractIdentityColumnMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/TransactionAwareDataSourceProxy.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/ScriptParseException.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/support/incrementer/MySQLMaxValueIncrementer.java

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- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/CallableStatementCreator.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/support/incrementer/Db2LuwMaxValueIncrementer.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SQLExceptionCodes.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/TableParameterMetaData.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/CallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/CannotGetJdbcConnectionException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/WebSphereDataSourceAdapter.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/AbstractDataSource.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/HanaCallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseConfigurerFactory.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/datasource/lookup/IsolationLevelDataSourceRouter.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/config/DatabasePopulatorConfigUtils.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/SybaseMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/UpdatableSqlQuery.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/IncorrectResultSetColumnCountException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/DerbyMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/SqlQuery.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/support/incrementer/HanaSequenceMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ResultSetSupportingSqlParameter.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/support/incrementer/PostgreSQLSequenceMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/simple/SimpleJdbcInsertOperations.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/RowMapper.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/PostgresTableMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/SqlUpdate.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/PreparedStatementCreator.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/simple/SimpleJdbcCallOperations.java

- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/TableMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/CustomSQLExceptionTranslatorRegistrar.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/NamedParameterBatchUpdateUtils.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/AbstractColumnMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/PostgresSequenceMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/BatchSqlUpdate.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/simple/SimpleJdbcCall.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlOutParameter.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/NamedParameterJdbcDaoSupport.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlReturnResultSet.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/incrementer/OracleSequenceMaxValueIncrementer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseFactory.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseBuilder.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/BatchUpdateUtils.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseType.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlRowSetResultSetExtractor.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/Db2CallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/StatementCallback.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ParameterizedPreparedStatementSetter.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/SimpleConnectionHandle.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/HsqlTableMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/xml/SqlXmlHandler.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/SqlOperation.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/IsolationLevelDataSourceAdapter.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/config/SortedResourcesFactoryBean.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/support/AbstractSqlTypeValue.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/JdbcUpdateAffectedIncorrectNumberOfRowsException.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ResultSetExtractor.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/PreparedStatementCallback.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/rowset/ResultSetWrappingSqlRowSetMetaData.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseConfigurer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/GenericSqlQuery.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/ConnectionHandle.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/HsqlEmbeddedDatabaseConfigurer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/TemporaryLobCreator.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/LobRetrievalFailureException.java


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*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/namedparam/EmptySqlParameterSource.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/MappingSqlQuery.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/DerbyCallMetaDataProvider.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/DerbyTableMetaDataProvider.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/AbstractDataFieldMaxValueIncrementer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlReturnUpdateCount.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/SybaseAnywhereMaxValueIncrementer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/RowMapperResultSetExtractor.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ArgumentTypePreparedStatementSetter.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/UncategorizedSQLException.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/lookup/MapDataSourceLookup.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/BadSqlGrammarException.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/UserCredentialsDataSourceAdapter.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/datasource/embedded/H2EmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/OracleTableMetaDataProvider.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/datasource/embedded/DerbyEmbeddedDatabaseConfigurer.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/core/support/AbstractInterruptibleBatchPreparedStatementSetter.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/SqlCall.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/embedded/OutputStreamFactory.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/InvalidResultSetAccessException.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/RowCountCallbackHandler.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/HsqlSequenceMaxValueIncrementer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlTypeValue.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/support/JdbcDaoSupport.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/ConnectionHolder.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/object/MappingSqlQueryWithParameters.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/SqlInOutParameter.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/Db2MainframeMaxValueIncrementer.java
* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ArgumentPreparedStatementSetter.java
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jar/org/springframework/jdbc/support/incrementer/H2SequenceMaxValueIncrementer.java
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/**
* Close this LobCreator session and free its temporarily created BLOBs and CLOBs.
* Will not need to do anything if using PreparedStatement's standard methods,
* but might be necessary to free database resources if using proprietary means.
* <p><b>NOTE</b></p>: Needs to be invoked after the involved
PreparedStatement have
* been executed or the affected O/R mapping sessions have been flushed.
* Otherwise, the database resources for the temporary BLOBs might stay allocated.
*/

```

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*/

```

Found in path(s):

```

* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/DisposableSqlTypeValue.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/DB2MainframeSequenceMaxValueIncrementer.java
* /spring-jdbc-5-3-18-sources-
jar/org/springframework/jdbc/support/incrementer/DB2SequenceMaxValueIncrementer.java
*
/spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/xml/SqlXmlValue.java
No license file was found, but licenses were detected in source scan.

```

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```

Found in path(s):

```

* /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/AbstractLobHandler.java
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```

```

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- */

Found in path(s):

- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/PassThroughClob.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/CustomSQLExceptionCodesTranslation.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/config/EmbeddedDatabaseBeanDefinitionParser.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/PassThroughBlob.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/init/DataSourceInitializer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/config/InitializeDatabaseBeanDefinitionParser.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/OracleCallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/support/SqlLobValue.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/SybaseCallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/ParameterDisposer.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/DelegatingDataSource.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/AbstractDriverBasedDataSource.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/lookup/BeanFactoryDataSourceLookup.java
- *
- /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/xml/Jdbc4SqlXmlHandler.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/datasource/ConnectionProxy.java
- * /spring-jdbc-5-3-18-sources-
- jar/org/springframework/jdbc/datasource/embedded/EmbeddedDatabaseFactoryBean.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/SqlServerCallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/lob/DefaultLobHandler.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/core/metadata/PostgresCallMetaDataProvider.java
- * /spring-jdbc-5-3-18-sources-jar/org/springframework/jdbc/support/SQLExceptionSubclassTranslator.java

1.361 python 2.7.17-1~18.04ubuntu1.7

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
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1.362 python 3.6.9-1~18.04ubuntu1.7

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called

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In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

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Mersenne Twister

The `_random` module includes code based on a download from <http://www.math.keio.ac.jp/~matumoto/MT2002/emt19937ar.html>. The following are the verbatim comments from the original code:

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`
or `init_by_array(init_key, key_length)`.

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Any feedback is very welcome.

<http://www.math.keio.ac.jp/matsumoto/emt.html>

email: matsumoto@math.keio.ac.jp

Sockets

The `socket' module uses the functions, `getaddrinfo', and
`getnameinfo',
which are coded in separate source files from the WIDE
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Modified by Jack Jansen, CWI, July 1995:

- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.
- Arguments more compliant with python standard

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/* Modified by Guido van Rossum */

/* Beep added by Mark Hammond */

/* Win9X Beep and platform identification added by Uncle Timmy */

Files: Tools/pybench/*

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1.363 zlib 1.2.11.dfsg-0ubuntu2.1

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Files-Excluded:

contrib/ada
contrib/amd64
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contrib/dotzlib
contrib/gcc_gvmt64
contrib/infbck9
contrib/inflate86
contrib/iostream
contrib/iostream2
contrib/iostream3
contrib/masmx64
contrib/masmx86
contrib/pascal
contrib/puff
contrib/testzlib
contrib/untgz
contrib/vstudio
doc/rfc*

This is the pre-packaged Debian Linux version of the zlib compression library. It was packaged by Michael Alan Dorman <mdorman@debian.org> from sources originally retrieved from <ftp.uu.net> in the directory /pub/archiving/zip/zlib as the file zlib-1.0.4.tar.gz.

There is a homepage at <http://www.gzip.org/zlib/>

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The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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1.364 python3-6-minimal 3.6.9-1~18.04ubuntu1.7

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)

2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

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Mersenne Twister

The `_random' module includes code based on a download from
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following are the verbatim comments from the original code:

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`
or `init_by_array(init_key, key_length)`.

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Any feedback is very welcome.
<http://www.math.keio.ac.jp/matumoto/emt.html>
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Sockets

The `socket' module uses the functions, `getaddrinfo', and
`getnameinfo',
which are coded in separate source files from the WIDE
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Modified by Jack Jansen, CWI, July 1995:

- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.
- Arguments more compliant with python standard

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/* Modified by Guido van Rossum */

/* Beep added by Mark Hammond */

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
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1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
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Mersenne Twister

The ``_random'` module includes code based on a download from ``http://www.math.keio.ac.jp/~matumoto/MT2002/emt19937ar.html'`. The following are the verbatim comments from the original code:

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`
or `init_by_array(init_key, key_length)`.

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Any feedback is very welcome.

<http://www.math.keio.ac.jp/matsumoto/emt.html>

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Sockets

The ``socket'` module uses the functions, ``getaddrinfo'`, and
``getnameinfo'`,
which are coded in separate source files from the WIDE
Project, ``http://www.wide.ad.jp/about/index.html'`.

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Modified by Jack Jansen, CWI, July 1995:

- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.
- Arguments more compliant with python standard

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ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.6.1	1.6	2001	CNRI	yes (2)
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2.0.1	2.0+1.6.1	2001	PSF	yes
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2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
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Mersenne Twister

The ``_random'` module includes code based on a download from
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following are the verbatim comments from the original code:

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`
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Any feedback is very welcome.

<http://www.math.keio.ac.jp/matumoto/emt.html>

email: matumoto@math.keio.ac.jp

Sockets

The ``socket'` module uses the functions, ``getaddrinfo'`, and ``getnameinfo'`, which are coded in separate source files from the WIDE Project, ``http://www.wide.ad.jp/about/index.html'`.

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Modified by Jack Jansen, CWI, July 1995:

- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.
- Arguments more compliant with python standard

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/* Win9X Beep and platform identification added by Uncle Timmy */

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A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting
Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands
as a successor of a language called
ABC. Guido remains Python's
principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for
National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>)
in Reston, Virginia where he released several versions of the
software.

In May 2000, Guido and the Python core development team moved to
BeOpen.com to form the BeOpen PythonLabs team. In October of the same
year, the PythonLabs team moved to Digital Creations (now Zope

Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
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2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

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Mersenne Twister

The `_random' module includes code based on a download from <http://www.math.keio.ac.jp/~matumoto/MT2002/emt19937ar.html>'. The following are the verbatim comments from the original code:

A C-program for MT19937, with initialization improved 2002/1/26.
Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`
or `init_by_array(init_key, key_length)`.

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<http://www.math.keio.ac.jp/matumoto/emt.html>

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Sockets

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``getnameinfo'`,
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- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.

- Arguments more compliant with python standard

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1.370 spring-security-crypto 5.6.2

1.370.1 Available under license :

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1.371 json-smart 2.4.8

1.371.1 Available under license :

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Found in path(s):

* /json-smart-2-4-8-1-jar/META-INF/maven/net.minidev/json-smart/pom.xml

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Manifest-Version: 1.0

Bnd-LastModified: 1644737862078

Build-Jdk: 11.0.14

Built-By: uriel

Bundle-Description: JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It

is easy for machines to parse and generate. It is based on a subset of the JavaScript Programming Language, Standard ECMA-262 3rd Edition - December 1999. JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C-family of languages, including C, C++, C#, Java, JavaScript, Perl, Python, and many others. These properties make JSON an ideal data-interchange language.

Bundle-DocURL: <https://urielch.github.io/>

Bundle-License: <http://www.apache.org/licenses/LICENSE-2.0.txt>

Bundle-ManifestVersion: 2

Bundle-Name: json-smart

Bundle-SymbolicName: net.minidev.json-smart

Bundle-Vendor: Chemouni Uriel

Bundle-Version:

2.4.8

Created-By: Apache Maven Bundle Plugin

Export-Package: net.minidev.json;uses:="net.minidev.asm,net.minidev.json.parser,net.minidev.json.reader,net.minidev.json.writer";version="2.4.8",net.minidev.json.annotate;version="2.4.8",net.minidev.json.parser;uses:="net.minidev.json.writer";version="2.4.8",net.minidev.json.reader;uses:="net.minidev.json";version="2.4.8",net.minidev.json.writer;uses:="net.minidev.json,net.minidev.json.parser";version="2.4.8"

Import-Package: net.minidev.asm;version="[2.4,3)",net.minidev.json,net.minidev.json.annotate,net.minidev.json.parser,net.minidev.json.reader,net.minidev.json.writer

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"

Tool: Bnd-5.1.1.202006162103

Found in path(s):

* /json-smart-2-4-8-1-jar/META-INF/MANIFEST.MF

1.372 hibernate-validator 6.2.3.Final

1.372.1 Available under license :

Apache-2.0

1.373 tomcat-embed-el 9.0.60

1.373.1 Available under license :

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1.374 spring-security-core 5.6.2

1.374.1 Available under license :

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1.375 accessors-smart 2.4.8

1.375.1 Available under license :

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Found in path(s):

* /accessors-smart-2-4-8-1-jar/META-INF/maven/net.minidev/accessors-smart/pom.xml

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Manifest-Version: 1.0

Bnd-LastModified: 1644737816481

Build-Jdk: 11.0.14

Built-By: uriel

Bundle-Description: Java reflect give poor performance on getter setter
r an constructor calls, accessors-smart use ASM to speed up those calls.
ls.

Bundle-DocURL: <https://urielch.github.io/>

Bundle-License: <http://www.apache.org/licenses/LICENSE-2.0.txt>

Bundle-ManifestVersion: 2

Bundle-Name: accessors-smart

Bundle-SymbolicName: net.minidev.accessors-smart

Bundle-Vendor: Chemouni Uriel

Bundle-Version: 2.4.8
Created-By: Apache Maven Bundle Plugin
Export-Package: net.minidev.asm;uses:="org.objectweb.asm";version="2.4.8",net.minidev.asm.ex;version="2.4.8"
Import-Package: org.objectweb.asm;version="[8.0,10)",net.minidev.asm.ex
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"
Tool: Bnd-5.1.1.202006162103

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* /accessors-smart-2-4-8-1-jar/META-INF/MANIFEST.MF

1.376 postgres-sql 42.3.3

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1.377 tomcat-embed-websocket 9.0.60

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1.378 keyutils 1.5.9-9.2ubuntu2.1

1.378.1 Available under license :

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Upstream-Name: keyutils

Upstream-Contact: David Howells <dhowells@redhat.com>

Source: <http://people.redhat.com/~dhowells/keyutils/>

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1.379 ts-node 3.3.0

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1.381 libdevmapper 1.02.145

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```
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jar/org/springframework/data/rest/webmvc/config/RestControllerImportSelector.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RestControllerConfiguration.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/util/InputStreamHttpInputMessage.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/CorsConfigurationAware.java
* /spring-data-rest-webmvc-3-6-3-sources-
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* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/MappingAwareSortArgumentResolver.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/RepositoryCorsRegistry.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/DomainClassResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/MappingAwareDefaultedPageableArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/support/ExcerptProjector.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/MappedProperties.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/MappingAwarePageableArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/HttpHeadersPreparer.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/WrappedProperties.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/DefaultExcerptProjector.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/EmbeddedResourcesAssembler.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/JacksonMappingAwareSortTranslator.java
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jar/org/springframework/data/rest/webmvc/mapping/DefaultLinkCollector.java
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jar/org/springframework/data/rest/webmvc/json/AggregateReferenceResolvingModule.java
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jar/org/springframework/data/rest/webmvc/config/HalFormsAdaptingResponseBodyAdvice.java
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jar/org/springframework/data/rest/webmvc/support/PersistentEntityProjector.java
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jar/org/springframework/data/rest/webmvc/alps/RootResourceInformationToAlpsDescriptorConverter.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/config/JsonPatchHandler.java
*
/spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/patch/PatchConverter.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/patch/TestOperation.java
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* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/support/Projector.java
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jar/org/springframework/data/rest/webmvc/json/patch/LateObjectEvaluator.java
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jar/org/springframework/data/rest/webmvc/json/patch/JsonLateObjectEvaluator.java
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jar/org/springframework/data/rest/webmvc/ProfileResourceProcessor.java
*
/spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/patch/PatchOperation.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/alps/AlpsController.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/DomainObjectReader.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/patch/MoveOperation.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/DefaultedPageableHandlerMethodArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/spi/BackendIdConverter.java
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jar/org/springframework/data/rest/webmvc/RepositoryRestExceptionHandler.java
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jar/org/springframework/data/rest/webmvc/BasePathAwareHandlerMapping.java
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jar/org/springframework/data/rest/webmvc/support/ETagDoesntMatchException.java
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jar/org/springframework/data/rest/webmvc/json/patch/PatchException.java
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jar/org/springframework/data/rest/webmvc/json/patch/RemoveOperation.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/patch/JsonPatchPatchConverter.java
*

```



```

/spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/BaseUri.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/alps/AlpsJsonHttpMessageConverter.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/support/ETag.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/patch/AddOperation.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/JacksonMetadata.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/IncomingRequest.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/PersistentEntityResourceAssemblerArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/ETagArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/DefaultedPageable.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/BackendIdHandlerMethodArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/patch/ReplaceOperation.java
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 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/support/RepositoryConstraintViolationExceptionMessage.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/AbstractRepositoryRestController.java
 *
 /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/support/RepositoryEntityLinks.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/PersistentEntityResource.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/PersistentEntityJackson2Module.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/config/PersistentEntityResourceHandlerMethodArgumentResolver.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/RepositoryController.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/config/RootResourceInformationHandlerMethodArgumentResolver.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/RepositoryPropertyReferenceController.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/RepositoryRestHandlerAdapter.java
 *
 /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/config/ResourceMetadataHandlerMethodArgumentResolver.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/RootResourceInformation.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/convert/UriListHttpMessageConverter.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/ResourceNotFoundException.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/RepositoryRestHandlerMapping.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/config/RepositoryRestMvcConfiguration.java
 * /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/PersistentEntityToJsonSchemaConverter.java
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* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositoryEntityController.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/package-info.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositoryRestController.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositorySchemaController.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositorySearchController.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/Jackson2DatatypeHelper.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/RepositoryLinkBuilder.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositoryLinksResource.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/PersistentEntityResourceAssembler.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/ControllerUtils.java
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* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/ProfileController.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/json/JsonSchemaPropertyCustomizer.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/RepositoryRestConfigurerDelegate.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/ProjectionDefinitionRegistrar.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/DelegatingHandlerMapping.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/support/PagingAndSortingTemplateVariables.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/QuerydslAwareRootResourceInformationHandlerMethodArgumentResolver.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/JacksonSerializers.java
* /spring-data-rest-webmvc-3-6-3-sources-jar/org/springframework/data/rest/webmvc/json/EnumTranslator.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/RepositoryRestConfigurer.java
* /spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/RepositorySearchesResource.java
*
/spring-data-rest-webmvc-3-6-3-sources-
jar/org/springframework/data/rest/webmvc/config/ArgumentResolverPagingAndSortingTemplateVariables.java

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1.384 spring-data-rest-core 3.6.3

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* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/EntityLookup.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/PersistentEntitiesResourceMappings.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/DefaultSelfLinkProvider.java
*
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/EntityLookupConfiguration.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/UnwrappingRepositoryInvokerFactory.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/RepositoryDetectionStrategy.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/PersistentPropertyResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/EntityLookupRegistrar.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/EnumTranslationConfiguration.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/PropertyAwareResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/JsonSchemaFormat.java
*
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/SelfLinkProvider.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/EntityLookupSupport.java
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* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleBeforeCreate.java

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* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/annotation/RepositoryEventHandler.java
*
/spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleBeforeDelete.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/annotation/HandleBeforeLinkSave.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleAfterDelete.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/config/RepositoryRestConfiguration.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleAfterSave.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/UriToEntityConverter.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/annotation/HandleBeforeLinkDelete.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/event/AbstractRepositoryEventListener.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleAfterLinkSave.java
*
/spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/ValidationErrors.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/event/ValidatingRepositoryEventListener.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/Description.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/ResourceMappingUtils.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/RestResource.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/event/AnnotatedEventHandlerInvoker.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleAfterCreate.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/annotation/HandleBeforeSave.java
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* /spring-data-rest-core-3-6-3-sources-

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jar/org/springframework/data/rest/core/mapping/ConfigurableHttpMethods.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/ConfigurationApplyingSupportedHttpMethodsAdapter.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ExposureConfigurer.java
*
/spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/StringToLdapNameConverter.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ComposableFilter.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ExposureConfiguration.java
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* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/ResolvableResourceDescriptionSupport.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ResourceDescription.java
*
/spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/TypedResourceDescription.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ResourceMappings.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/MappingResourceMetadata.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ParametersMetadata.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/config/ProjectionDefinitionConfiguration.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/SimpleResourceDescription.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/Projection.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/annotation/RepositoryRestResource.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/projection/ProjectionDefinitions.java
*

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/spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/AnnotationBasedResourceDescription.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/SupportedHttpMethods.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/MetadataConfiguration.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/CrudMethodsSupportedHttpMethods.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ResourceType.java
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* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/EvoInflectorTypeBasedCollectionResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/ResourceStringUtils.java
*
/spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/RepositoryRelProvider.java
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/Path.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/RepositoryAwareResourceMetadata.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/config/ResourceMappingConfiguration.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/SearchResourceMappings.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/TypeBasedCollectionResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/RepositoryCollectionResourceMapping.java
* /spring-data-rest-core-3-6-3-sources-
jar/org/springframework/data/rest/core/mapping/RepositoryMethodResourceMapping.java
*

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/spring-data-rest-core-3-6-3-sources-  
jar/org/springframework/data/rest/core/mapping/CollectionResourceMapping.java  
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/support/SimpleRelProvider.java  
* /spring-data-rest-core-3-6-3-sources-  
jar/org/springframework/data/rest/core/mapping/MethodResourceMapping.java  
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/mapping/ResourceMetadata.java  
* /spring-data-rest-core-3-6-3-sources-jar/org/springframework/data/rest/core/config/ResourceMapping.java  
* /spring-data-rest-core-3-6-3-sources-  
jar/org/springframework/data/rest/core/mapping/RepositoryResourceMappings.java
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1.393 jasmine-spec-reporter 5.0.0

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```
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/HttpServlet.java
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/AbstractHttpServlet.java
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/SimpleLruCache.java
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/ServletURIPool.java
*
/servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/TlsHelper.java
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/ServletURI.java
* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/SslReverseProxyMode.java
```

* /servlet-api-4-0-0-sources-4-jar/org/xipki/http/servlet/package-info.java

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Found in path(s):

* /servlet-api-4-0-0-sources-4-jar/META-INF/maven/org.xipki/servlet-api/pom.xml

1.396 openssl 1.1.1-1ubuntu2.1~18.04.17

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libcurl can be built to use a fair amount of various third party libraries, libraries that are written and provided by other parties that are distributed using their own licenses. Even libcurl itself contains code that may cause problems to some. This document attempts to describe what licenses libcurl and the other libraries use and what possible dilemmas linking and mixing them all can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that [GPL](<https://www.gnu.org/licenses/gpl.html>) licensed code is not allowed to be linked with code licensed under the [Original BSD license](<https://spdx.org/licenses/BSD-4-Clause.html>) (with the announcement clause). You may still build your own copies that use them all, but distributing them as binaries would be to violate the GPL license - unless you accompany your license with an [exception](<https://www.gnu.org/licenses/gpl-faq.html#GPLIncompatibleLibs>). This

particular problem
was addressed when the [Modified BSD
license](<https://opensource.org/licenses/BSD-3-Clause>) was created, which does
not have the announcement clause that collides with GPL.

libcurl

Uses an [MIT style license](<https://curl.haxx.se/docs/copyright.html>) that is
very liberal.

OpenSSL

(May be used for SSL/TLS support) Uses an Original BSD-style license with an
announcement clause that makes it "incompatible" with GPL. You are not
allowed to ship binaries that link with OpenSSL that includes GPL code
(unless that specific GPL code includes an exception for OpenSSL - a habit
that is growing more and more common). If OpenSSL's licensing is a problem
for you, consider using another TLS library.

GnuTLS

(May be used for SSL/TLS support) Uses the
[LGPL](<https://www.gnu.org/licenses/lgpl.html>) license. If this is a problem
for you, consider using another TLS library. Also note that GnuTLS itself
depends on and uses other libs (libgcrypt and libgpg-error) and they too
are
LGPL- or GPL-licensed.

WolfSSL

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NSS

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axTLS

(May be used for SSL/TLS support) Uses a Modified BSD-style license.

mbedTLS

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##

BoringSSL

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same license as that.

libressl

(May be used for SSL/TLS support) As an OpenSSL fork, it has the same license as that.

c-ares

(Used for asynchronous name resolves) Uses an MIT license that is very liberal and imposes no restrictions on any other library or part you may link with.

zlib

(Used for compressed Transfer-Encoding support) Uses an MIT-style license that shouldn't collide with any other library.

MIT Kerberos

(May be used for GSS support) MIT licensed, that shouldn't collide with any other parts.

Heimdal

(May be used for GSS support) Heimdal is Original BSD licensed with the announcement clause.

GNU GSS

(May be used for GSS support) GNU GSS is GPL licensed. Note that you may not distribute binary curl packages that uses this if you build curl to also link and use any Original BSD licensed libraries!

libidn

(Used for IDNA support) Uses the GNU Lesser General

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OpenLDAP

(Used for LDAP support) Uses a Modified BSD-style license. Since libcurl uses OpenLDAP as a shared library only, I have not heard of anyone that ships OpenLDAP linked with libcurl in an app.

libssh2

(Used for scp and sftp support) libssh2 uses a Modified BSD-style license.

1.401 ion-java 1.0.2

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1.405 libxml2 2.9.4+dfsg1-6.1ubuntu1.6

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Upstream-Name: libxml2

Source: <ftp://xmlsoft.org/libxml2/>

Files-Excluded:

result

test

Comment:

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Files: *

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1.406 openssh 7.6p1-4ubuntu0.7

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- *
- * Optimised ANSI C code for the Rijndael cipher (now AES)
- *
- * @author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
- * @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
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1.408 glibc 2.27-3ubuntu1.6

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```
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```

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```
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1.410 postgresql 10.21

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.. -* - restructuredtext -* -

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Special thanks to Darin Gordon for testing and feedback on the :mod:`passlib.totp` module.

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converted to python May 2008

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UnixCrypt.java 0.9 96/11/25

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modified April 2001

by Iris Van den Broeke, Daniel Deville

modified Aug 2005

by Greg Wilkins (gregw)

converted to python Jun 2009

by Eli Collins

jBCrypt

The source file ``passlib/crypto/_blowfish/base.py`` contains code derived
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* Leaflet 1.6.0, a JS library for interactive maps. <http://leafletjs.com>

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* jQuery UI Position 1.12.1

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* Date: 2019-04-08

*/

/*!

```

* Web Cabin Docker - Docking Layout Interface.
*
* Dependencies:
* JQuery 1.11.1
* JQuery-contextMenu 1.6.6
* font-awesome 4.2.0
*
* Author: Jeff Houde (lochemage@webcabin.org)
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/*!
* jQuery JavaScript Library v3.4.1
* https://jquery.com/
*
* Includes Sizzle.js
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*
* Date: 2019-05-01T21:04Z
*/

/*! jQuery UI - v1.12.1 - 2016-09-16
* http://jqueryui.com
* Includes: position.js
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* Build: `lodash exports="amd" -d -o ./main.js`
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/**!

* @fileOverview Kickass library to create and place poppers near their reference elements.

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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Release	Derived	Year	Owner	GPL-
	from			compatible? (1)

0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now		
PSF	yes			

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This package contains a modified version of ca-bundle.crt:

ca-bundle.crt -- Bundle of CA Root Certificates

Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#
This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:
<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>
It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php_curl, or with an Apache+mod_ssl webserver for SSL client authentication.
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@(#) \$RCSfile: certdata.txt,v \$
\$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$
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/*!

backgrid 0.3.8

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*/

/*!

* Determine if an object is a Buffer

*

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/*!

* The buffer module from node.js, for the browser.

*

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* jQuery Mousewheel 3.1.13

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* <https://github.com/jquery/jquery-color>

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widget.js, mouse.js, position.js, draggable.js, droppable.js, resizable.js, selectable.js, sortable.js, accordion.js,
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tooltip.js, effect.js, effect-blind.js, effect-bounce.js, effect-clip.js, effect-drop.js, effect-explode.js, effect-fade.js, effect-fold.js, effect-highlight.js, effect-puff.js, effect-pulsate.js, effect-scale.js, effect-shake.js, effect-size.js, effect-slide.js, effect-transfer.js

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* michael{dot}leibman{at}gmail{dot}com

* <http://github.com/mleibman/slickgrid>

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*

* SlickGrid v2.3

*

* NOTES:

* Cell/row DOM manipulations are done directly bypassing jQuery's DOM manipulation methods.

* This increases the speed dramatically, but can only be done safely

because there are no event handlers

* or data associated with any cell/row DOM nodes. Cell editors must make sure they implement .destroy()

* and do proper cleanup.

*/

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1.414 openssh-sftp-server 7.6p1-4ubuntu0.7

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*
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*
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* @author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
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- * HPUX support.

Oliver Jowett <oliver.jowett@gmail.com>

- * Detect whether zlib is new enough in configure script.
- * Fixes for Solaris 10 32/64-bit confusion.

Evan Jones <evanj@mit.edu>

- * Optimize Java serialization code when writing a small message to a stream.
- * Optimize Java serialization of strings so that UTF-8 encoding happens only once per string per serialization call.
- * Clean up some Java warnings.
- * Fix bug with permanent callbacks that delete themselves when run.

Michael Kucharski <m.kucharski@gmail.com>

- * Added CodedInputStream.getTotalBytesRead().

Kacper Kowalik <xarthisius.kk@gmail.com>

- * Fixed m4/acx_pthread.m4 problem for some Linux distributions.

William Orr <will@worrbase.com>

- * Fixed detection of sched_yield on Solaris.
- * Added atomicops for Solaris

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- * MS Visual Studio error format option.

- * Detect unordered_map in stl_hash.m4.

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- * gzip/zlib I/O support.

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- * Fixed warnings about generated constructors not explicitly initializing all fields (only present with certain compiler settings).

- * Added generation of field number constants.

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- * Fixed initialization ordering problem in logging code.

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- * HPUX support.

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- * Detect whether zlib is new enough in configure script.
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- * Optimize Java serialization of strings so that UTF-8 encoding happens only once per string per serialization call.
- * Clean up some Java warnings.
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- * Fixed m4/acx_pthread.m4 problem for some Linux distributions.

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- * Fixed detection of sched_yield on Solaris.
- * Added atomicops for Solaris

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Also see the ChangeLog for even more people who have helped over the years by submitting fixes, patches and reporting bugs.

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Version 3.1, 31 March 2009

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libssh v0.7.3

libssh v0.7.3

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- Linux: <librarydir-prefix>/mysql-shell/libssh.so
- OSX: <librarydir-prefix>/mysql-shell/libssh.dylib
- Windows: <installation-path>\bin\libssh.dll

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Additional Libraries Used by libssh

libssh has dependencies on the following libraries:

libgcrypt v1.7.3

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libgpg-error v1.24

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md5 (Message-Digest
Algorithm 5)

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The code has been modified by Mikael Ronstroem to handle
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of 4 bytes long. Word 0 of the calculated 4-word hash value
is returned as the hash value.

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memcached

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nt_servc (Windows NT Service class library)

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SHA-1 in C

SHA-1 in C

SHA-1 in C

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Unicode Data Files, V5.2.0

Unicode Data Files, V5.2.0

```
# unidata-5.2.0.txt
# Date: 2009-09-22, 16:23:42 PDT [KW]
#
# This file defines the Default Unicode Collation Element Table
# (DUCET) for the Unicode Collation Algorithm
#
# Copyright (c) 2001-2009 Unicode, Inc.
# For terms of use, see http://www.unicode.org/terms\_of\_use.html
#
# See UTS #10, Unicode Collation Algorithm, for more information.
#
# Diagnostic weight ranges
# Primary weight range:
#   0200..3ACA (14539)
# Secondary weight range: 0020..0192 (371)
# Variant secondaries:   0159..015E (6)
# Digit secondaries:    015F..0192 (52)
# Tertiary weight range: 0002..001F (30)
#
@version 5.2.0
```

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Files, V9.0

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xxHash

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zlib

zlib

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1.420 activation 1.2.2

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1.422 failureaccess 1.0.1

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```

Found in path(s):

```
* /failureaccess-1-0-1-sources-4-jar/com/google/common/util/concurrent/internal/InternalFutures.java
* /failureaccess-1-0-1-sources-4-jar/com/google/common/util/concurrent/internal/InternalFutureFailureAccess.java
```

1.423 listenablefuture 9999.0-empty-to-avoid-conflict-with-guava

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1.424 python 3.6.7-1~18.04

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This package was put together by Klee Dienes <klee@debian.org> from sources from ftp.python.org/pub/python, based on the Debianization by the previous maintainers Bernd S. Brentrup <bsb@uni-muenster.de> and Bruce Perens.

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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Release	Derived from	Year	Owner	GPL- compatible? (1)
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0.9.0 thru 1.2

	1991-1995	CWI	yes	
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
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2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009		
	PSF	yes		
3.0	2.6	2008	PSF	yes
3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes

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py3compile, py3clean and debpython module:

=====

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1.425 ng-zorro-antd 9.3.0

1.425.1 Available under license :

```
<nz-calendar>
  <ul *nzDateCell="let date" class="events">
    <ng-container [ngSwitch]="date.getDate()">
      <ng-container *ngSwitchCase="8">
        <li *ngFor="let item of listDataMap.eight">
          <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
        </li>
      </ng-container>
      <ng-container *ngSwitchCase="10">
        <li *ngFor="let item of listDataMap.ten">
          <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
        </li>
      </ng-container>
      <ng-container *ngSwitchCase="11">
        <li *ngFor="let item of listDataMap.eleven">
          <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
        </li>
      </ng-container>
    </ng-container>
  </ul>
  <ng-container *nzMonthCell="let month">
    <div *ngIf="getMonthData(month) as monthData" class="notes-month">
      <section>{{ monthData }}</section>
      <span>Backlog number</span>
    </div>
  </ng-container>
</nz-calendar>
```

```
{ "version":3,"file":"index.js","sourceRoot":"","sources":["../../schematics/demo/calendar-notice-
calendar/index.ts"],"names":[],"mappings":":;AAAA,2DAGoC;AACpC,iEAA6D;AAI7D,mBAAwB,OAAe;IACrC,
OAAO,kBAAC,CAAC;QACX,gCAAc,mBACP,OAAO,GACZ;YACE,QAAQ,EAAE,kFAAkF;YAC5F,UAAU,EA
AE,uFAAuF;SACpG,CACF;KACF,CAAC,CAAC;AACL,CAAC;AAVD,4BAUC"}
import { Component } from '@angular/core';
```

```
@Component({
  selector: '<%= selector %>',
  <% if(inlineTemplate) { %>template: `
    <nz-calendar>
```

```

<ul *nzDateCell="let date" class="events">
  <ng-container [ngSwitch]="date.getDate()">
    <ng-container *ngSwitchCase="8">
      <li *ngFor="let item of listDataMap.eight">
        <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
      </li>
    </ng-container>
    <ng-container *ngSwitchCase="10">
      <li *ngFor="let item of listDataMap.ten">
        <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
      </li>
    </ng-container>
    <ng-container *ngSwitchCase="11">
      <li *ngFor="let item of listDataMap.eleven">
        <nz-badge [nzStatus]="item.type" [nzText]="item.content"></nz-badge>
      </li>
    </ng-container>
  </ng-container>
</ul>
<ng-container *nzMonthCell="let month">
  <div *ngIf="getMonthData(month) as monthData" class="notes-month">
    <section>{{ monthData }}</section>
    <span>Backlog number</span>
  </div>
</ng-container>
</nz-calendar>
`<% } else { %>templateUrl: './<%= dasherize(name) %>.component.html'<% } %>,
<% if(inlineStyle) { %>styles: [
  .events {
    list-style: none;
    margin: 0;
    padding: 0;
  }

  .events .ant-badge-status {
    overflow: hidden;
    white-space: nowrap;
    width: 100%;
    text-overflow: ellipsis;
    font-size: 12px;
  }

  .notes-month {
    text-align: center;
    font-size: 28px;
  }

  .notes-month section {

```

```

    font-size: 28px;
  }
`]<% } else { %>styleUrls: ['./<%= dasherize(name) %>.component.<%= style %>']<% } %>
}))
export class <%= classify(name) %>Component {
  listDataMap = {
    eight: [
      { type: 'warning', content: 'This is warning event.' },
      { type: 'success',
content: 'This is usual event.' }
    ],
    ten: [
      { type: 'warning', content: 'This is warning event.' },
      { type: 'success', content: 'This is usual event.' },
      { type: 'error', content: 'This is error event.' }
    ],
    eleven: [
      { type: 'warning', content: 'This is warning event' },
      { type: 'success', content: 'This is very long usual event.....' },
      { type: 'error', content: 'This is error event 1.' },
      { type: 'error', content: 'This is error event 2.' },
      { type: 'error', content: 'This is error event 3.' },
      { type: 'error', content: 'This is error event 4.' }
    ]
  };

  getMonthData(date: Date): number | null {
    if (date.getMonth() === 8) {
      return 1394;
    }
    return null;
  }
}

{"$schema":"http://json-schema.org/schema","id":"notice-calendar-calendar","title":"NG-ZORRO notice-calendar
calendar","type":"object","properties":{"path":{"type":"string","format":"path","description":"The path to create the
component."},"visible":false},"project":{"type":"string","description":"The name of the
project."},"$default":{"$source":"projectName"},"name":{"type":"string","description":"The name of the
component."},"$default":{"$source":"argv","index":0},"x-prompt":"What should be the name of the
component?","inlineStyle":{"description":"When true, includes styles inline in the component.ts file. Only CSS
styles can be included inline. By default, an external styles file is created and referenced in the component.ts
file."},"type":"boolean","default":false,"alias":"s"},"inlineTemplate":{"description":"When true, includes template
inline in the component.ts file. By default, an external template file is created and referenced in the component.ts
file."},"type":"boolean","default":false,"alias":"t"},"prefix":{"type":"string","description":"The
prefix to apply to the generated component
selector."},"alias":"p","oneOf":[{"maxLength":0},{"minLength":1,"format":"html-
selector"}]},"styleext":{"description":"The file extension to use for style files."},"type":"string","default":"css","x-
deprecated":"Use \"style\" instead."},"style":{"description":"The file extension or preprocessor to use for style
files."},"type":"string","default":"css","enum":["css","scss","sass","less","styl"]},"spec":{"type":"boolean","descripti

```


on": "When true (the default), generates a \"spec.ts\" test file for the new component.", "default": true, "x-deprecated": "Use \"skipTests\" instead."}, "skipTests": {"type": "boolean", "description": "When true, does not create \"spec.ts\" test files for the new component."}, "flat": {"type": "boolean", "description": "Flag to indicate if a dir is created.", "default": false}, "skipImport": {"type": "boolean", "description": "When true, does not import this component into the owning NgModule."}, "selector": {"type": "string", "format": "html-selector", "description": "The selector to use for the component."}, "module": {"type": "string", "description": "Allows specification of the declaring module."}, "alias": "m", "export": {"type": "boolean", "default": false, "description": "When true, the declaring NgModule exports this component."}, "entryComponent": {"type": "boolean", "default": false, "description": "When true, the new component is the entry component of the declaring NgModule."}, "classnameWithModule": {"type": "boolean", "description": "When true, Use module class name as additional prefix for the component classname.", "default": false}, "required": ["name"]}

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```
{ "version": 3, "file": "schema.js", "sourceRoot": "", "sources": [ "../../../../schematics/demo/calendar-notice-calendar/schema.ts"], "names": [], "mappings": "" }
```

```
import { fakeAsync, ComponentFixture, TestBed } from '@angular/core/testing';
import { <%= classify(name) %>Component } from './<%= dasherize(name) %>.component';
```

```
describe(<%= classify(name) %>Component, () => {
  let component: <%= classify(name) %>Component;
  let fixture: ComponentFixture<%= classify(name) %>Component>;
```

```
  beforeEach(fakeAsync(() => {
    TestBed.configureTestingModule({
      declarations: [ <%= classify(name) %>Component ]
    })
    .compileComponents();
```

```
    fixture = TestBed.createComponent(<%= classify(name) %>Component);
    component = fixture.componentInstance;
    fixture.detectChanges();
  }));
```

```
  it('should compile', () => {
    expect(component).toBeTruthy();
  });
});
```

1.426 angular-ui-grid 4.0.4

1.426.1 Available under license :

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1.427 typescript 4.0.5

1.427.1 Available under license :

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1.428 material-design-icons-iconfont 6.1.0

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1.429 ngx-tippy-wrapper 3.0.0

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1.430 angular-devkit-core 11.0.2

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1.431 angular-material 11.0.1

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1.432 chartjs-plugin-zoom 0.7.7

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1.433 types-angular 1.5.23

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[1] <https://developers.google.com/apps-script/>

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1.434 protractor-html-reporter 1.3.2

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1.435 angular-animations 11.0.2

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Angular

The sources for this package are in the main [Angular](https://github.com/angular/angular) repo. Please file issues and pull requests against that repo.

Usage information and reference details can be found in [Angular documentation](https://angular.io/docs).

License: MIT

Found in path(s):

* /animations-11-0-2-tgz/package/README.md

No license file was found, but licenses were detected in source scan.

```
{ "version": 3, "file": "animations-browser-testing.umd.js", "sources": [ "../external/npm/node_modules/tslib/tslib.es6.js", "../packages/animations/browser/testing/src/mock_animation_driver.ts", "../packages/animations/browser/testing/src/testing.ts", "../packages/animations/browser/testing/public_api.ts", "../packages/animations/browser/testing/index.ts", "../packages/animations/browser/testing/testing.ts"], "sourcesContent": ["/*!
```

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SOFTWARE.\r\n*****

```

*/\n/* global Reflect, Promise */\n\nvar extendStatics = function(d, b) {\n  extendStatics =\n    Object.setPrototypeOf ||\n      ({ __proto__: [] } instanceof Array && function(d, b) {\n        d.__proto__ = b; }) ||\n      function(d, b) {\n        for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p];\n      };\n  return extendStatics(d, b);\n};\n\nexport function __extends(d, b) {\n  extendStatics(d, b);\n  function __() {\n    this.constructor = d;\n  }\n  d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\n}\n\nexport var assign = function()

```

```
{\r\n  __assign = Object.assign || function __assign(t) {\r\n      for (var s, i = 1, n = arguments.length; i < n; i++)  
\r\n          s = arguments[i]; \r\n          for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] =  
s[p]; \r\n      } \r\n      return t; \r\n    } \r\n    return __assign.apply(this, arguments); \r\n\r\n\r\nexport function  
__rest(s, e) {\r\n    var t = {};\r\n    for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) <  
0)\r\n        t[p] = s[p]; \r\n    if (s != null && typeof Object.getOwnPropertySymbols === "function") \r\n        for
```

```
(var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\r\n    if (e.indexOf(p[i]) < 0) &&  
Object.prototype.propertyIsEnumerable.call(s, p[i])){\r\n        t[p[i]] = s[p[i]]; \r\n    } \r\n    return  
t;\r\n} \r\n\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n    var c = arguments.length, r = c < 3 ?  
target : desc === null ? desc  
= Object.getOwnPropertyDescriptor(target, key) : desc, d;\r\n    if (typeof Reflect === "object" && typeof  
Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);\r\n    else for (var i =  
decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) ||  
r;\r\n    return c > 3 && r && Object.defineProperty(target, key, r), r;\r\n} \r\n\r\n\r\nexport function  
__param(paramIndex, decorator) {\r\n    return function (target, key) { decorator(target, key, paramIndex);  
}\r\n} \r\n\r\n\r\n\r\nexport function __metadata(metadataKey, metadataValue) {\r\n    if (typeof Reflect === "object" &&  
typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey, metadataValue);\r\n} \r\n\r\n\r\n\r\nexport  
function __awaiter(thisArg, _arguments, P, generator) {\r\n    function adopt(value) { return value instanceof P ?  
value : new P(function (resolve) { resolve(value); }); }\r\n    return new (P || (P = Promise))(function  
(resolve, reject) {\r\n        function fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }\r\n        function rejected(value) { try { step(generator["throw"](value)); } catch (e) { reject(e); } }\r\n        function  
step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\r\n        step((generator = generator.apply(thisArg, _arguments || [])).next());\r\n    });\r\n} \r\n\r\n\r\n\r\nexport function  
__generator(thisArg, body) {\r\n    var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [],  
ops: [] }, f, y, t, g;\r\n    return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol ===  
"function" && (g[Symbol.iterator] = function() { return this; }), g;\r\n    function verb(n) { return function (v) {  
return step([n, v]); }; }\r\n    function step(op) {\r\n        if (f) throw new TypeError("Generator is already  
executing.");\r\n        while (_) try  
{\r\n            if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y), 0) :  
y.next) && !(t = t.call(y, op[1])).done) return t;\r\n            if (y = 0, t) op = [op[0] & 2, t.value];\r\n            switch  
(op[0]) {\r\n                case 0: case 1: t = op; break;\r\n                case 4: _.label++; return { value: op[1], done: false  
};\r\n                case 5: _.label++; y = op[1]; op = [0]; continue;\r\n                case 7: op = _.ops.pop(); _.trys.pop();  
continue;\r\n                default:\r\n                    if (!(t = _.trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 ||  
op[0] === 2)) { _ = 0; continue; }\r\n                    if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _.label  
= op[1]; break; }\r\n                    if (op[0] === 6 && _.label < t[1]) { _.label = t[1]; t = op; break; }\r\n                    if  
(t && _.label < t[2]) { _.label = t[2]; _.ops.push(op); break; }\r\n                    if (t[2]) _.ops.pop();\r\n                    _.trys.pop(); continue;\r\n                }\r\n                op = body.call(thisArg,  
_);\r\n            } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }\r\n            if (op[0] & 5) throw op[1]; return { value:  
op[0] ? op[1] : void 0, done: true }; }\r\n        }\r\n    } \r\n\r\n\r\n\r\nexport var __createBinding = Object.create ? (function(o, m,  
k, k2) {\r\n    if (k2 === undefined) k2 = k;\r\n    Object.defineProperty(o, k2, { enumerable: true, get: function() {  
return m[k]; } });\r\n}) : (function(o, m, k, k2) {\r\n    if (k2 === undefined) k2 = k;\r\n    o[k2] =  
m[k];\r\n});\r\n\r\n\r\n\r\nexport function __exportStar(m, exports) {\r\n    for (var p in m) if (p !== "default" &&  
!exports.hasOwnProperty(p)) __createBinding(exports, m, p);\r\n} \r\n\r\n\r\n\r\nexport function __values(o) {\r\n    var s =  
typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0;\r\n    if (m) return m.call(o);\r\n    if (o  
&& typeof o.length === "number") return {\r\n        next: function () {\r\n            if (o && i >= o.length) o = void 0;\r\n            return { value: o && o[i++], done:  
!o }; }\r\n    };\r\n    throw new TypeError(s ? "Object is not iterable." : "Symbol.iterator is not  
defined.");\r\n} \r\n\r\n\r\n\r\nexport function __read(o, n) {\r\n    var m = typeof Symbol === "function" &&  
o[Symbol.iterator];\r\n    if (!m) return o;\r\n    var i = m.call(o), ar = [], e;\r\n    try {\r\n        while ((n === void 0  
|| n-- > 0) && !(r = i.next()).done) ar.push(r.value);\r\n    } \r\n    catch (error) { e = { error: error }; }\r\n    finally  
{\r\n        try {\r\n            if (r && !r.done && (m = i["return"])) m.call(i);\r\n        } \r\n        finally { if (e) throw  
e.error; }\r\n    } \r\n    return ar;\r\n} \r\n\r\n\r\n\r\nexport function __spread() {\r\n    for (var ar = [], i = 0; i <  
arguments.length; i++)\r\n        ar = ar.concat(__read(arguments[i]));\r\n    return ar;\r\n} \r\n\r\n\r\n\r\nexport function  
__spreadArrays(...args)\r\n{\r\n
```

```

    for (var s = 0, i = 0, il = arguments.length; i < il; i++) s += arguments[i].length;\r\n    for (var r = Array(s), k = 0, i
= 0; i < il; i++)\r\n        for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\r\n            r[k] = a[j];\r\n
return r;\r\n}\r\n\r\nexport function __await(v) {\r\n    return this instanceof __await ? (this.v = v, this) : new
__await(v);\r\n}\r\n\r\nexport function __asyncGenerator(thisArg, _arguments, generator) {\r\n    if
(!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not defined.");\r\n    var g =
generator.apply(thisArg, _arguments || []), i, q = [];\r\n    return i = { }, verb("next"), verb("throw"),
verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i;\r\n    function verb(n) { if (g[n]) i[n] =
function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\r\n    function
resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n
    function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);
}\r\n    function fulfill(value) { resume("next", value); }\r\n    function reject(value) { resume("throw", value);
}\r\n    function settle(f, v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\nexport function
__asyncDelegator(o) {\r\n    var i, p;\r\n    return i = { }, verb("next"), verb("throw"), function (e) { throw e; },
verb("return"), i[Symbol.iterator] = function () { return this; }, i;\r\n    function verb(n, f) { i[n] = o[n] ? function
(v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\nexport
function __asyncValues(o) {\r\n    if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n    var m = o[Symbol.asyncIterator], i;\r\n    return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](),
    i = { }, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i);\r\n
    function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),
settle(resolve, reject, v.done, v.value); }); }; }\r\n    function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject); }\r\n}\r\n\r\nexport function
__makeTemplateObject(cooked, raw) {\r\n    if (Object.defineProperty) { Object.defineProperty(cooked, "raw", {
value: raw }); } else { cooked.raw = raw; }\r\n    return cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create
? (function(o, v) {\r\n    Object.defineProperty(o, "default", { enumerable: true, value: v });\r\n}) : function(o, v)
{\r\n    o["default"] = v;\r\n};\r\n\r\nexport function __importStar(mod) {\r\n    if (mod && mod.__esModule)
return mod;\r\n    var result = {};\r\n    if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod,
k)) __createBinding(result, mod, k);\r\n    __setModuleDefault(result, mod);\r\n    return result;\r\n}\r\n\r\nexport
function __importDefault(mod) {\r\n    return (mod && mod.__esModule) ? mod : { default: mod
};\r\n}\r\n\r\nexport function __classPrivateFieldGet(receiver, privateMap) {\r\n    if (!privateMap.has(receiver))
{\r\n        throw new TypeError("attempted to get private field on non-instance");\r\n    }\r\n    return
privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n    if
(!privateMap.has(receiver)) {\r\n        throw new TypeError("attempted to set private field on non-instance");\r\n   
}\r\n    privateMap.set(receiver, value);\r\n    return value;\r\n}\r\n\r\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\nimport { AnimationPlayer,\n    AUTO_STYLE, NoopAnimationPlayer, StyleData } from '@angular/animations';\nimport { AnimationDriver,\n    allowPreviousPlayerStylesMerge as allowPreviousPlayerStylesMerge, containsElement as containsElement,\n    invokeQuery as invokeQuery, matchesElement as matchesElement, validateStyleProperty as validateStyleProperty }\nfrom '@angular/animations/browser';\n\n/**\n * @publicApi\n */\nexport class MockAnimationDriver\n    implements AnimationDriver {\n    static log: AnimationPlayer[] = [];\n    validateStyleProperty(prop: string):\n        boolean {\n        return validateStyleProperty(prop);\n    }\n    matchesElement(element: any, selector: string): boolean {\n        return matchesElement(element, selector);\n    }\n    containsElement(elm1: any, elm2: any): boolean {\n        return containsElement(elm1, elm2);\n    }\n    query(element: any, selector: string, multi: boolean): any[] {\n        return invokeQuery(element, selector, multi);\n    }\n    computeStyle(element: any, prop: string, defaultValue?:\n        string):\n        string {\n        return defaultValue || "";\n    }\n    animate(\n        element: any, keyframes: {[key: string]:\n        string|number}[], duration: number, delay: number,\n        easing: string, previousPlayers: any[] = []):

```

```

MockAnimationPlayer {\n  const player =\n    new MockAnimationPlayer(element, keyframes, duration, delay,
easing, previousPlayers);\n  MockAnimationDriver.log.push(<AnimationPlayer>player);\n  return player;\n
}\n}\n\n/*\n * @publicApi\n */\nexport class MockAnimationPlayer extends NoopAnimationPlayer {\n  private
__finished = false;\n  private __started = false;\n  public previousStyles: {[key: string]: string|number} = {};\n
private _onInitFns: (() => any)[] = [];\n  public currentSnapshot: StyleData = {};\n\n  constructor(\n    public
element: any, public keyframes: {[key: string]: string|number}[],\n    public duration: number, public delay:
number, public easing: string,\n    public previousPlayers: any[]) {\n    super(duration, delay);\n\n    if
(allowPreviousPlayerStylesMerge(duration,
delay)) {\n      previousPlayers.forEach(player => {\n        if (player instanceof MockAnimationPlayer) {\n
const styles = player.currentSnapshot;\n        Object.keys(styles).forEach(prop => this.previousStyles[prop] =
styles[prop]);\n        }\n      });\n    }\n\n    /* @internal */\n    onInit(fn: () => any) {\n      this._onInitFns.push(fn);\n
}\n\n    /* @internal */\n    init() {\n      super.init();\n      this._onInitFns.forEach(fn => fn());\n      this._onInitFns = [];\n
}\n\n    finish(): void {\n      super.finish();\n      this.__finished = true;\n    }\n\n    destroy(): void {\n      super.destroy();\n
this.__finished = true;\n    }\n\n    /* @internal */\n    triggerMicrotask() {\n    }\n\n    play(): void {\n      super.play();\n
this.__started = true;\n    }\n\n    hasStarted() {\n      return this.__started;\n    }\n\n    beforeDestroy() {\n      const captures:
StyleData = {};\n      Object.keys(this.previousStyles).forEach(prop => {\n        captures[prop] =
this.previousStyles[prop];\n      });\n      if (this.hasStarted()) {\n        // when assembling the captured styles, it's
important that\n        // we build the keyframe styles in the following order:\n        // {other styles within keyframes, ...
previousStyles }\n        this.keyframes.forEach(kf => {\n          Object.keys(kf).forEach(prop => {\n            if (prop !=
'offset') {\n              captures[prop] = this.__finished ? kf[prop] : AUTO_STYLE;\n            }\n          });\n        });\n        this.currentSnapshot = captures;\n      }\n    }\n\n    /*\n    * @license\n    * Copyright Google LLC All Rights
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LICENSE file at https://angular.io/license\n    */\n  }\n\n  /*\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  * Use of this source code is governed by an MIT-style license that can be\n  * found in the
LICENSE file at https://angular.io/license\n  */\n}\n\n/*\n * @module\n * @description\n * Entry point for all public
APIs of this package.\n * \n * from './src/testing';\n */\n/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this module. It is only used during
editing\n// by the TypeScript language service and during build for verification. `ngc`\n// replaces this file with
production index.ts when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n\n/*\n * Generated
bundle index. Do not edit.\n */\n\nexport * from
'./index';\n\n], "names": ["validateStyleProperty", "matchesElement", "containsElement", "invokeQuery", "allowPrevious
PlayerStylesMerge", "AUTO_STYLE", "NoopAnimationPlayer"], "mappings": ";;;;;;;;;IAAA;;;;;;;;;;IAcA;IAEA,I
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,EAAE,EAAE,EAAE,YAAY,KAAC,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAA
C,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EAAE,CAAC,IAAI,KAAC,IAAI,CAAC,IAAI,CAAC;gBAAE,IA
AI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC
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as PRE_STYLE, StyleData } from '@angular/animations';\nimport { AnimationStyleNormalizer } from
'../../src/dsl/style_normalization/animation_style_normalizer';\nimport
{ AnimationDriver } from '../../src/render/animation_driver';\n\n// We don't include ambient node types here since
@angular/animations/browser\n// is meant to target the browser so technically it should not depend on node\n//
types. `process` is just declared locally here as a result.\ndeclare const process: any;\n\nexport function isBrowser():
boolean {\n  return (typeof window !== 'undefined' && typeof window.document !== 'undefined');\n}\n\nexport
function isNode(): boolean {\n  // Checking only for `process` isn't enough to identify whether or not we're in a
Node\n  // environment, because Webpack by default will polyfill the `process`. While we can discern\n  // that

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Webpack polyfilled it by looking at `process.browser`, it's very Webpack-specific and\n // might not be future-
proof. Instead we look at the stringified version of `process` which\n // is `[object process]` in Node and `[object
Object]` when polyfilled.\n return typeof process
!=='undefined' && {}.toString.call(process) === '[object process]';\n\n\nexport function
optimizeGroupPlayer(players: AnimationPlayer[]): AnimationPlayer {\n switch (players.length) {\n case 0:\n
return new NoopAnimationPlayer();\n case 1:\n return players[0];\n default:\n return new
AnimationGroupPlayer(players);\n }\n}\n\n\nexport function normalizeKeyframes(\n driver: AnimationDriver,
normalizer: AnimationStyleNormalizer, element: any,\n keyframes: StyleData[], preStyles: StyleData = {},\n
postStyles: StyleData = {}): StyleData[] {\n const errors: string[] = [];\n const normalizedKeyframes: StyleData[] =
[];\n let previousOffset = -1;\n let previousKeyframe: StyleData|null = null;\n keyframes.forEach(kf => {\n const
offset = kf['offset'] as number;\n const isSameOffset = offset === previousOffset;\n const normalizedKeyframe:
StyleData = (isSameOffset && previousKeyframe) || {};\n Object.keys(kf).forEach(prop => {\n
let normalizedProp = prop;\n let normalizedValue = kf[prop];\n if (prop !== 'offset') {\n
normalizedProp = normalizer.normalizePropertyName(normalizedProp, errors);\n switch (normalizedValue) {\n
case PRE_STYLE:\n normalizedValue = preStyles[prop];\n break;\n\n case
AUTO_STYLE:\n normalizedValue = postStyles[prop];\n break;\n\n default:\n
normalizedValue =\n normalizer.normalizeStyleValue(prop, normalizedProp, normalizedValue, errors);\n
break;\n }\n }\n normalizedKeyframe[normalizedProp] = normalizedValue;\n });\n if
(!isSameOffset) {\n normalizedKeyframes.push(normalizedKeyframe);\n }\n previousKeyframe =
normalizedKeyframe;\n previousOffset = offset;\n });\n if (errors.length) {\n const LINE_START = '\n - ';\n
throw new Error(\n `Unable to animate due to the following
errors:${LINE_START}${errors.join(LINE_START)}`);\n
}\n\n return normalizedKeyframes;\n}\n\n\nexport function listenOnPlayer(\n player: AnimationPlayer,
eventName: string, event: AnimationEvent|undefined,\n callback: (event: any) => any) {\n switch (eventName)
{\n case 'start':\n player.onStart(() => callback(event && copyAnimationEvent(event, 'start', player)));
break;\n case 'done':\n player.onDone(() => callback(event && copyAnimationEvent(event, 'done', player)));
break;\n case 'destroy':\n player.onDestroy(() => callback(event && copyAnimationEvent(event, 'destroy',
player)));
break;\n }\n}\n\n\nexport function copyAnimationEvent(\n e: AnimationEvent, phaseName: string,
player: AnimationPlayer): AnimationEvent {\n const totalTime = player.totalTime;\n const disabled = (player as
any).disabled ? true : false;\n const event = makeAnimationEvent(\n e.element, e.triggerName, e.fromState,
e.toState, phaseName || e.phaseName,\n totalTime === undefined
? e.totalTime : totalTime, disabled);\n const data = (e as any)['_data'];\n if (data !== null) {\n (event as
any)['_data'] = data;\n }\n return event;\n}\n\n\nexport function makeAnimationEvent(\n element: any,
triggerName: string, fromState: string, toState: string, phaseName: string = "",\n totalTime: number = 0, disabled?:
boolean): AnimationEvent {\n return {element, triggerName, fromState, toState, phaseName, totalTime, disabled:
!!disabled};\n}\n\n\nexport function getOrSetAsInMap(\n map: Map<any, any>|{[key: string]: any}, key: any,
defaultValue: any) {\n let value: any;\n if (map instanceof Map) {\n value = map.get(key);\n if (!value) {\n
map.set(key, value = defaultValue);\n }\n } else {\n value = map[key];\n if (!value) {\n value = map[key] =
defaultValue;\n }\n }\n return value;\n}\n\n\nexport function parseTimelineCommand(command: string): [string,
string] {\n const separatorPos = command.indexOf(':');\n const id = command.substring(1,
separatorPos);\n const action = command.substr(separatorPos + 1);\n return [id, action];\n}\n\n\nlet _contains:
(elm1: any, elm2: any) => boolean = (elm1: any, elm2: any) => false;\nlet _matches: (element: any, selector: string)
=> boolean = (element: any, selector: string) =>\n false;\nlet _query: (element: any, selector: string, multi:
boolean) => any[] =\n (element: any, selector: string, multi: boolean) => {\n return [];\n };\n\n\n// Define utility
methods for browsers and platform-server(domino) where Element\n// and utility methods exist.\nconst _isNode =
isNode();\nif (_isNode || typeof Element !== 'undefined') {\n // this is well supported in all browsers\n _contains =
(elm1: any, elm2: any) => {\n return elm1.contains(elm2) as boolean;\n };\n\n _matches = () => {\n if
(_isNode || Element.prototype.matches) {\n return (element: any, selector: string) =>

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element.matches(selector);\n  } else {\n    const proto = Element.prototype as any;\n    const fn = proto.matchesSelector || proto.mozMatchesSelector || proto.msMatchesSelector ||\n    proto.oMatchesSelector || proto.webkitMatchesSelector;\n    if (fn) {\n      return (element: any, selector: string)\n      => fn.apply(element, [selector]);\n    } else {\n      return _matches;\n    }\n  })();\n  _query = (element:\n  any, selector: string, multi: boolean): any[] => {\n    let results: any[] = [];\n    if (multi) {\n      results.push(...element.querySelectorAll(selector));\n    } else {\n      const elm = element.querySelector(selector);\n      if (elm) {\n        results.push(elm);\n      }\n      return results;\n    }\n  }\n\n  function containsVendorPrefix(prop:\n  string): boolean {\n    // Webkit is the only real popular vendor prefix nowadays\n    // cc: http://shouldiprefix.com/\n    return prop.substring(1, 6) === 'ebkit'; // webkit or Webkit\n  }\n\n  let _CACHED_BODY: {style: any}|null =\n  null;\n  let _IS_WEBKIT = false;\n\n  export function validateStyleProperty(prop:\n  string): boolean {\n    if (!_CACHED_BODY) {\n      _CACHED_BODY = getBodyNode() || {};\n      _IS_WEBKIT =\n      _CACHED_BODY!.style ? ('WebkitAppearance' in _CACHED_BODY!.style) : false;\n    }\n\n    let result = true;\n    if (_CACHED_BODY!.style && !containsVendorPrefix(prop)) {\n      result = prop in _CACHED_BODY!.style;\n    }\n    if (!result && _IS_WEBKIT) {\n      const camelProp = 'Webkit' + prop.charAt(0).toUpperCase() +\n      prop.substr(1);\n      result = camelProp in _CACHED_BODY!.style;\n    }\n\n    return result;\n  }\n\n  export function getBodyNode(): any|null {\n    if (typeof document !== 'undefined') {\n      return document.body;\n    }\n    return null;\n  }\n\n  export const matchesElement = _matches;\n  export const containsElement = _contains;\n  export const\n  invokeQuery = _query;\n\n  export function hyphenatePropsObject(object: {[key: string]: any}): {[key: string]: any}\n  {\n    const newObj: {[key: string]: any} = {};\n    Object.keys(object).forEach(prop => {\n      const newProp =\n      prop.replace(/([a-z])([A-Z])/g,\n      '$1-$2');\n      newObj[newProp] = object[prop];\n    });\n    return newObj;\n  }\n\n  /**\n   * @license\n   * Copyright\n   * Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  import { AnimationPlayer, NoopAnimationPlayer }\n  from '@angular/animations';\n  import { Injectable } from '@angular/core';\n\n  import { containsElement, invokeQuery,\n  matchesElement, validateStyleProperty } from './shared';\n\n  /**\n   * @publicApi\n   */\n  @Injectable()\n  export class\n  NoopAnimationDriver implements AnimationDriver {\n    validateStyleProperty(prop: string): boolean {\n      return\n      validateStyleProperty(prop);\n    }\n\n    matchesElement(element: any, selector: string): boolean {\n      return\n      matchesElement(element, selector);\n    }\n\n    containsElement(elm1: any, elm2: any): boolean {\n      return\n      containsElement(elm1, elm2);\n    }\n\n    query(element: any, selector: string, multi: boolean): any[] {\n      return\n      invokeQuery(element, selector, multi);\n    }\n\n    computeStyle(element: any, prop: string, defaultValue?:\n    string): string {\n      return defaultValue || '';\n    }\n\n    animate(\n      element: any, keyframes: {[key: string]:\n      string|number}[], duration: number, delay: number,\n      easing: string, previousPlayers: any[] = [],\n      scrubberAccessRequested?: boolean): AnimationPlayer {\n      return new NoopAnimationPlayer(duration, delay);\n    }\n  }\n\n  /**\n   * @publicApi\n   */\n  export abstract class AnimationDriver {\n    static NOOP: AnimationDriver = new\n    NoopAnimationDriver();\n\n    abstract validateStyleProperty(prop: string): boolean;\n\n    abstract\n    matchesElement(element: any, selector: string): boolean;\n\n    abstract containsElement(elm1: any, elm2: any):\n    boolean;\n\n    abstract query(element: any, selector: string, multi: boolean): any[];\n\n    abstract\n    computeStyle(element: any, prop: string, defaultValue?: string): string;\n\n    abstract animate(\n      element: any,\n      keyframes: {[key:\n      string]: string|number}[], duration: number, delay: number,\n      easing?: string|null, previousPlayers?: any[],\n      scrubberAccessRequested?: boolean): any;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights\n   * Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the\n   * LICENSE file at https://angular.io/license\n   */\n  import { AnimateTimings, AnimationMetadata,\n  AnimationMetadataType, AnimationOptions, sequence, StyleData } from '@angular/animations';\n  import { Ast as\n  AnimationAst, AstVisitor as AnimationAstVisitor } from './dsl/animation_ast';\n  import { AnimationDslVisitor } from\n  './dsl/animation_dsl_visitor';\n  import { isNode } from './render/shared';\n\n  export const ONE_SECOND =\n  1000;\n\n  export const SUBSTITUTION_EXPR_START = '{';\n  export const SUBSTITUTION_EXPR_END =\n  '}';\n\n  export const ENTER_CLASSNAME = 'ng-enter';\n  export const LEAVE_CLASSNAME = 'ng-leave';\n  export

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const ENTER_SELECTOR = '.ng-enter';\nexport const LEAVE_SELECTOR = '.ng-leave';\nexport
const NG_TRIGGER_CLASSNAME = 'ng-trigger';\nexport const NG_TRIGGER_SELECTOR = '.ng-
trigger';\nexport const NG_ANIMATING_CLASSNAME = 'ng-animating';\nexport const
NG_ANIMATING_SELECTOR = '.ng-animating';\n\nexport function resolveTimingValue(value: string|number)
{\n  if (typeof value === 'number') return value;\n\n  const matches = value.match(/^(?[\.\d]+)(m?s)/);\n  if
(!matches || matches.length < 2) return 0;\n\n  return _convertTimeValueToMS(parseFloat(matches[1]),
matches[2]);\n}\n\nfunction _convertTimeValueToMS(value: number, unit: string): number {\n  switch (unit) {\n
case 's':\n    return value * ONE_SECOND;\n    default: // ms or something else\n    return value;\n
}\n}\n\nexport function resolveTiming(\n  timings: string|number|AnimateTimings, errors: any[],
allowNegativeValues?: boolean) {\n  return timings.hasOwnProperty('duration') ?\n    <AnimateTimings>timings
:\n    parseTimeExpression(<string|number>timings, errors, allowNegativeValues);\n}\n\nfunction
parseTimeExpression(\n  exp: string|number, errors: string[], allowNegativeValues?: boolean): AnimateTimings
{\n  const regex = /^(?[\.\d]+)(m?s)(?:\s+(-?[\.\d]+)(m?s))?(?:\s+([-a-z]+(?:\.(+?\d\.\d)?))?)?$/i;\n  let duration:
number;\n  let delay: number = 0;\n  let easing: string = '';\n  if (typeof exp === 'string') {\n    const matches =
exp.match(regex);\n    if (matches === null) {\n      errors.push(`The provided timing value "${exp}" is
invalid.`);\n      return {duration: 0, delay: 0, easing: ''};\n    }\n\n    duration =
_convertTimeValueToMS(parseFloat(matches[1]), matches[2]);\n\n    const delayMatch = matches[3];\n    if
(delayMatch !== null) {\n      delay = _convertTimeValueToMS(parseFloat(delayMatch), matches[4]);\n    }\n\n
const easingVal = matches[5];\n    if (easingVal) {\n      easing = easingVal;\n    }\n  } else {\n    duration = exp;\n
}\n\n  if (!allowNegativeValues) {\n    let containsErrors = false;\n    let startIndex = errors.length;\n
    if (duration < 0) {\n      errors.push(`Duration values below 0 are not allowed for this animation step.`);\n
containsErrors = true;\n    }\n    if (delay < 0) {\n      errors.push(`Delay values below 0 are not allowed for this
animation step.`);\n      containsErrors = true;\n    }\n    if (containsErrors) {\n      errors.splice(startIndex, 0, `The
provided timing value "${exp}" is invalid.`);\n    }\n\n    return {duration, delay, easing};\n  }\n\n  export function
copyObj(\n    obj: {[key: string]: any}, destination: {[key: string]: any} = {}): {[key: string]: any} {\n
Object.keys(obj).forEach(prop => {\n    destination[prop] = obj[prop];\n  });\n  return destination;\n}\n\nexport
function normalizeStyles(styles: StyleData|StyleData[]): StyleData {\n  const normalizedStyles: StyleData = {};\n  if
(Array.isArray(styles)) {\n    styles.forEach(data => copyStyles(data, false, normalizedStyles));\n  } else {\n
copyStyles(styles, false, normalizedStyles);\n
}\n  return normalizedStyles;\n}\n\nexport function copyStyles(\n  styles: StyleData, readPrototype: boolean,
destination: StyleData = {}): StyleData {\n  if (readPrototype) {\n    // we make use of a for-in loop so that the\n
// prototypically inherited properties are\n    // revealed from the backFill map\n    for (let prop in styles) {\n
destination[prop] = styles[prop];\n    }\n  } else {\n    copyObj(styles, destination);\n  }\n  return
destination;\n}\n\nfunction getStyleAttributeString(element: any, key: string, value: string) {\n  // Return the key-
value pair string to be added to the style attribute for the\n  // given CSS style key.\n  if (value) {\n    return key + ':'
+ value + ';\n  } else {\n    return '';\n  }\n}\n\nfunction writeStyleAttribute(element: any) {\n  // Read the style
property of the element and manually reflect it to the\n  // style attribute. This is needed because Domino on
platform-server doesn't\n  // understand the full set of allowed CSS
properties and doesn't reflect some\n  // of them automatically.\n  let styleAttrValue = '';\n  for (let i = 0; i <
element.style.length; i++) {\n    const key = element.style.item(i);\n    styleAttrValue +=
getStyleAttributeString(element, key, element.style.getPropertyValue(key));\n  }\n  for (const key in element.style)
{\n    // Skip internal Domino properties that don't need to be reflected.\n    if (!element.style.hasOwnProperty(key) ||
key.startsWith('_')) {\n      continue;\n    }\n    const dashKey = camelCaseToDashCase(key);\n    styleAttrValue +=
getStyleAttributeString(element, dashKey, element.style[key]);\n  }\n  element.setAttribute('style',
styleAttrValue);\n}\n\nexport function setStyles(element: any, styles: StyleData, formerStyles?: {[key: string]: any})
{\n  if (element['style']) {\n    Object.keys(styles).forEach(prop => {\n    const camelProp =
dashCaseToCamelCase(prop);\n    if (formerStyles && !formerStyles.hasOwnProperty(prop)) {\n
formerStyles[prop]

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= element.style[camelProp];\n    }\n    element.style[camelProp] = styles[prop];\n  });\n  // On the server set the
'style' attribute since it's not automatically reflected.\n  if (isNode()) {\n    writeStyleAttribute(element);\n  }\n}\n\n\nexport function eraseStyles(element: any, styles: StyleData) {\n  if (element['style']) {\n
Object.keys(styles).forEach(prop => {\n    const camelProp = dashCaseToCamelCase(prop);\n
element.style[camelProp] = '';\n  });\n  // On the server set the 'style' attribute since it's not automatically
reflected.\n  if (isNode()) {\n    writeStyleAttribute(element);\n  }\n}\n}\n\n\nexport function
normalizeAnimationEntry(steps: AnimationMetadata)\n                                AnimationMetadata[]:
AnimationMetadata {\n  if (Array.isArray(steps)) {\n    if (steps.length === 1) return steps[0];\n    return
sequence(steps);\n  }\n  return steps as AnimationMetadata;\n}\n\n\nexport function validateStyleParams(\n
  value: string|number, options: AnimationOptions, errors: any[]) {\n  const params = options.params || {};\n  const
matches = extractStyleParams(value);\n  if (matches.length) {\n    matches.forEach(varName => {\n      if
(!params.hasOwnProperty(varName)) {\n        errors.push(\n          `Unable to resolve the local animation param
${varName} in the given list of values`);\n      }\n    });\n  }\n}\n\n\nconst PARAM_REGEX =\n  new
RegExp(`${SUBSTITUTION_EXPR_START}\\\\s*(.+?)\\\\s*${SUBSTITUTION_EXPR_END}`, 'g');\n\nexport
function extractStyleParams(value: string|number): string[] {\n  let params: string[] = [];\n  if (typeof value ===
'string') {\n    let match: any;\n    while (match = PARAM_REGEX.exec(value)) {\n      params.push(match[1] as
string);\n    }\n    PARAM_REGEX.lastIndex = 0;\n  }\n  return params;\n}\n\n\nexport function interpolateParams(\n
  value: string|number, params: {[name: string]: any}, errors: any[]): string|number {\n  const original =
value.toString();\n
  const str = original.replace(PARAM_REGEX, (_, varName) => {\n    let localVal = params[varName];\n    // this
means that the value was never overridden by the data passed in by the user\n    if
(!params.hasOwnProperty(varName)) {\n      errors.push(`Please provide a value for the animation param
${varName}`);\n      localVal = '';\n    }\n    return localVal.toString();\n  });\n  // we do this to assert that numeric
values stay as they are\n  return str === original ? value : str;\n}\n\n\nexport function iteratorToArray(iterator: any):
any[] {\n  const arr: any[] = [];\n  let item = iterator.next();\n  while (!item.done) {\n    arr.push(item.value);\n    item
= iterator.next();\n  }\n  return arr;\n}\n\n\nexport function mergeAnimationOptions(\n  source: AnimationOptions,
destination: AnimationOptions): AnimationOptions {\n  if (source.params) {\n    const p0 = source.params;\n    if
(!destination.params) {\n      destination.params = {};\n    }\n    const p1 = destination.params;\n
    Object.keys(p0).forEach(param => {\n      if (!p1.hasOwnProperty(param)) {\n        p1[param] = p0[param];\n
      }\n    });\n  }\n  return destination;\n}\n\n\nconst DASH_CASE_REGEX = /-+([a-z0-9])/g;\n\nexport function
dashCaseToCamelCase(input: string): string {\n  return input.replace(DASH_CASE_REGEX, (...m: any[]) =>
m[1].toUpperCase());\n}\n\n\nfunction camelCaseToDashCase(input: string): string {\n  return input.replace(/([a-
z])([A-Z])/g, '$1-$2').toLowerCase();\n}\n\n\nexport function allowPreviousPlayerStylesMerge(duration: number,
delay: number) {\n  return duration === 0 || delay === 0;\n}\n\n\nexport function
balancePreviousStylesIntoKeyframes(\n  element: any, keyframes: {[key: string]: any}[], previousStyles: {[key:
string]: any}) {\n  const previousStyleProps = Object.keys(previousStyles);\n  if (previousStyleProps.length &&
keyframes.length) {\n    let startingKeyframe = keyframes[0];\n    let missingStyleProps: string[] = [];\n
    previousStyleProps.forEach(prop => {\n
      if (!startingKeyframe.hasOwnProperty(prop)) {\n        missingStyleProps.push(prop);\n      }\n
      startingKeyframe[prop] = previousStyles[prop];\n    });\n
    if (missingStyleProps.length) {\n      // tslint:disable-
next-line\n      for (var i = 1; i < keyframes.length; i++) {\n        let kf = keyframes[i];\n
        missingStyleProps.forEach(function(prop) {\n          kf[prop] = computeStyle(element, prop);\n        });\n
      }\n    }\n    return keyframes;\n}\n\n\nexport function visitDslNode(\n  visitor: AnimationDslVisitor, node:
AnimationMetadata, context: any): any;\n\nexport function visitDslNode(\n  visitor: AnimationAstVisitor, node:
AnimationAst<AnimationMetadataType>, context: any): any;\n\nexport function visitDslNode(visitor: any, node:
any, context: any): any {\n  switch (node.type) {\n    case AnimationMetadataType.Trigger:\n      return
visitor.visitTrigger(node, context);\n    case AnimationMetadataType.State:\n      return visitor.visitState(node,
context);\n  }\n}

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    case AnimationMetadataType.Transition:\n    return visitor.visitTransition(node, context);\n    case
AnimationMetadataType.Sequence:\n    return visitor.visitSequence(node, context);\n    case
AnimationMetadataType.Group:\n    return visitor.visitGroup(node, context);\n    case
AnimationMetadataType.Animate:\n    return visitor.visitAnimate(node, context);\n    case
AnimationMetadataType.Keyframes:\n    return visitor.visitKeyframes(node, context);\n    case
AnimationMetadataType.Style:\n    return visitor.visitStyle(node, context);\n    case
AnimationMetadataType.Reference:\n    return visitor.visitReference(node, context);\n    case
AnimationMetadataType.AnimateChild:\n    return visitor.visitAnimateChild(node, context);\n    case
AnimationMetadataType.AnimateRef:\n    return visitor.visitAnimateRef(node, context);\n    case
AnimationMetadataType.Query:\n    return visitor.visitQuery(node, context);\n    case
AnimationMetadataType.Stagger:\n    return visitor.visitStagger(node,
context);\n    default:\n    throw new Error(`Unable to resolve animation metadata node #${node.type}`);\n
}\n}\n\nexport function computeStyle(element: any, prop: string): string {\n    return
(<any>window.getComputedStyle(element))[prop];\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nexport const ANY_STATE = '*';\nexport declare type
TransitionMatcherFn = (fromState: any, toState: any, element: any, params: {[key: string]: any}) =>
boolean;\n\nexport function parseTransitionExpr(\n    transitionValue: string | TransitionMatcherFn, errors: string[]):
TransitionMatcherFn[] {\n    const expressions: TransitionMatcherFn[] = [];\n    if (typeof transitionValue == 'string')
{\n        transitionValue.split(/\\s*,\\s*/).forEach(\n            str => parseInnerTransitionStr(str, expressions, errors);\n        }\n    }
    else
    {\n        expressions.push(<TransitionMatcherFn>transitionValue);\n    }\n    return expressions;\n}\n\nfunction
parseInnerTransitionStr(\n    eventStr: string, expressions: TransitionMatcherFn[], errors: string[]) {\n    if
(eventStr[0] == ':') {\n        const result = parseAnimationAlias(eventStr, errors);\n        if (typeof result == 'function') {\n
            expressions.push(result);\n            return;\n        }\n        eventStr = result;\n    }\n    const match = eventStr.match(/^(\\s*|[-
\\w]+)\\s*(<?[=-]>\\s*(\\s*|\\s*[-\\w]+)$/);\n    if (match == null || match.length < 4) {\n        errors.push(`The provided
transition expression \"${eventStr}\" is not supported`);\n        return expressions;\n    }\n    const fromState =
match[1];\n    const separator = match[2];\n    const toState = match[3];\n
    expressions.push(makeLambdaFromStates(fromState, toState));\n    const isFullAnyStateExpr = fromState ==
ANY_STATE && toState == ANY_STATE;\n    if (separator[0] == '<' && !isFullAnyStateExpr) {\n
        expressions.push(makeLambdaFromStates(toState,
fromState));\n    }\n}\n\nfunction parseAnimationAlias(alias: string, errors: string[]): string | TransitionMatcherFn {\n
    switch (alias) {\n        case 'enter':\n            return 'void => *';\n        case 'leave':\n            return '* => void';\n        case
'increment':\n            return (fromState: any, toState: any): boolean => parseFloat(toState) > parseFloat(fromState);\n        case
'decrement':\n            return (fromState: any, toState: any): boolean => parseFloat(toState) <
parseFloat(fromState);\n        default:\n            errors.push(`The transition alias value \"${alias}\" is not supported`);\n
            return '* => *';\n    }\n}\n\n// DO NOT REFACTOR ... keep the follow set instantiations\n// with the values intact
(closure compiler for some reason\n// removes follow-up lines that add the values outside of\n// the
constructor...\nconst TRUE_BOOLEAN_VALUES = new Set<string>(['true', '1']);\nconst
FALSE_BOOLEAN_VALUES = new Set<string>(['false', '0']);\n\nfunction makeLambdaFromStates(lhs: string,
rhs: string):
TransitionMatcherFn {\n    const LHS_MATCH_BOOLEAN = TRUE_BOOLEAN_VALUES.has(lhs) ||
FALSE_BOOLEAN_VALUES.has(lhs);\n    const RHS_MATCH_BOOLEAN =
TRUE_BOOLEAN_VALUES.has(rhs) || FALSE_BOOLEAN_VALUES.has(rhs);\n    return (fromState: any,
toState: any): boolean => {\n        let lhsMatch = lhs == ANY_STATE || lhs == fromState;\n        let rhsMatch = rhs ==
ANY_STATE || rhs == toState;\n        if (!lhsMatch && LHS_MATCH_BOOLEAN && typeof fromState ==
'boolean') {\n            lhsMatch = fromState ? TRUE_BOOLEAN_VALUES.has(lhs) :
FALSE_BOOLEAN_VALUES.has(lhs);\n        }\n        if (!rhsMatch && RHS_MATCH_BOOLEAN && typeof

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toState === 'boolean') {\n    rhsMatch = toState ? TRUE_BOOLEAN_VALUES.has(rhs) :
FALSE_BOOLEAN_VALUES.has(rhs);\n    }\n\n    return lhsMatch && rhsMatch;\n    };\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport { AnimateTimings,
AnimationAnimateChildMetadata, AnimationAnimateMetadata, AnimationAnimateRefMetadata,
AnimationGroupMetadata, AnimationKeyframesSequenceMetadata, AnimationMetadata, AnimationMetadataType,
AnimationOptions, AnimationQueryMetadata, AnimationQueryOptions, AnimationReferenceMetadata,
AnimationSequenceMetadata, AnimationStaggerMetadata, AnimationStateMetadata, AnimationStyleMetadata,
AnimationTransitionMetadata, AnimationTriggerMetadata, AUTO_STYLE, style, StyleData } from
'@angular/animations';\nimport { AnimationDriver } from '../render/animation_driver';\nimport
{ getOrSetAsInMap } from '../render/shared';\nimport { copyObj, ENTER_SELECTOR, extractStyleParams,
iteratorToArray, LEAVE_SELECTOR, NG_ANIMATING_SELECTOR, NG_TRIGGER_SELECTOR,
normalizeAnimationEntry, resolveTiming, SUBSTITUTION_EXPR_START, validateStyleParams, visitDslNode }
from '../util';\nimport { AnimateAst, AnimateChildAst, AnimateRefAst, Ast, DynamicTimingAst, GroupAst,
KeyframesAst, QueryAst, ReferenceAst, SequenceAst,
StaggerAst, StateAst, StyleAst, TimingAst, TransitionAst, TriggerAst } from './animation_ast';\nimport
{ AnimationDslVisitor } from './animation_dsl_visitor';\nimport { parseTransitionExpr } from
'./animation_transition_expr';\n\nconst SELF_TOKEN = 'self';\nconst SELF_TOKEN_REGEX = new
RegExp(`\\s*${SELF_TOKEN}\\s*`, 'g');\n\n/*\n * [Validation]\n * The visitor code below will traverse the
animation AST generated by the animation verb functions\n * (the output is a tree of objects) and attempt to perform
a series of validations on the data. The\n * following corner-cases will be validated:\n *\n * 1. Overlap of
animations\n * Given that a CSS property cannot be animated in more than one place at the same time, it's\n *
important that this behavior is detected and validated. The way in which this occurs is that\n * each time a style
property is examined, a string-map containing the property will be updated with\n * the start and end times for when
the property is used within an
animation step.\n *\n * If there are two or more parallel animations that are currently running (these are invoked by
the\n * group()) on the same element then the validator will throw an error. Since the start/end timing\n * values are
collected for each property then if the current animation step is animating the same\n * property and its timing
values fall anywhere into the window of time that the property is\n * currently being animated within then this is
what causes an error.\n *\n * 2. Timing values\n * The validator will validate to see if a timing value of `duration
delay easing` or\n * `durationNumber` is valid or not.\n *\n * (note that upon validation the code below will replace
the timing data with an object containing\n * {duration,delay,easing}).\n *\n * 3. Offset Validation\n * Each of the
style() calls are allowed to have an offset value when placed inside of keyframes().\n * Offsets within keyframes()
are considered valid when:\n *\n * - No offsets are used at all\n
* - Each style() entry contains an offset value\n
* - Each offset is between 0 and 1\n
* - Each offset is greater to
or equal than the previous one\n
* Otherwise an error will be thrown.\n */\n\nexport function
buildAnimationAst(\n    driver: AnimationDriver, metadata: AnimationMetadata[]|AnimationMetadata[],\n    errors:
any[]): Ast<AnimationMetadataType> {\n    return new AnimationAstBuilderVisitor(driver).build(metadata,
errors);\n}\n\nconst ROOT_SELECTOR = ";\n\nexport class AnimationAstBuilderVisitor implements
AnimationDslVisitor {\n    constructor(private _driver: AnimationDriver) {}\n\n    build(metadata:
AnimationMetadata[]|AnimationMetadata[], errors: any[]):\n        Ast<AnimationMetadataType> {\n        const context =
new AnimationAstBuilderContext(errors);\n        this._resetContextStyleTimingState(context);\n        return
<Ast<AnimationMetadataType>>visitDslNode(\n            this, normalizeAnimationEntry(metadata), context);\n        }\n\n        private _resetContextStyleTimingState(context: AnimationAstBuilderContext)
{\n            context.currentQuerySelector = ROOT_SELECTOR;\n            context.collectedStyles = {};\n
context.collectedStyles[ROOT_SELECTOR] = {};\n            context.currentTime = 0;\n        }\n\n        visitTrigger(metadata:
AnimationTriggerMetadata, context: AnimationAstBuilderContext):\n            TriggerAst {\n            let queryCount =
context.queryCount;\n            let depCount = context.depCount;\n            const states: StateAst[] = [];\n            const

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transitions: TransitionAst[] = [];
if (metadata.name.charAt(0) == '@') {
  context.errors.push(
    'animation triggers cannot be prefixed with an `@` sign (e.g. trigger(`@foo`, [...]))'
  );
}
metadata.definitions.forEach(def => {
  this._resetContextStyleTimingState(context);
  if (def.type == AnimationMetadataType.State) {
    const stateDef = def as AnimationStateMetadata;
    const name = stateDef.name;
    name.toString().split(/s*/, /s*/).forEach(n => {
      stateDef.name = n;
      states.push(this.visitState(stateDef, context));
    });
    stateDef.name = name;
  } else if (def.type == AnimationMetadataType.Transition) {
    const transition = this.visitTransition(def as AnimationTransitionMetadata, context);
    queryCount += transition.queryCount;
    depCount += transition.depCount;
    transitions.push(transition);
  } else {
    context.errors.push('only state() and transition() definitions can sit inside of a trigger()');
  }
});
return {
  type: AnimationMetadataType.Trigger,
  name: metadata.name,
  states,
  transitions,
  queryCount,
  depCount,
  options: null
};
}
visitState(metadata: AnimationStateMetadata, context: AnimationAstBuilderContext): StateAst {
  const styleAst = this.visitStyle(metadata.styles, context);
  const astParams = (metadata.options && metadata.options.params) || null;
  if (styleAst.containsDynamicStyles) {
    const missingSubs = new Set<string>();
    const params = astParams || {};
    styleAst.styles.forEach(value => {
      if (isObject(value)) {
        const stylesObj = value as any;
        Object.keys(stylesObj).forEach(prop => {
          extractStyleParams(stylesObj[prop]).forEach(sub => {
            if (!params.hasOwnProperty(sub)) {
              missingSubs.add(sub);
            }
          });
        });
      }
      if (missingSubs.size) {
        const missingSubsArr = iteratorToArray(missingSubs.values());
        context.errors.push(`state("${metadata.name}", ...) must define default values for all the following style substitutions: ${missingSubsArr.join(', ')}`);
      }
    });
    return {
      type: AnimationMetadataType.State,
      name: metadata.name,
      style: styleAst,
      options: astParams ? { params: astParams } : null
    };
  }
  visitTransition(metadata: AnimationTransitionMetadata, context: AnimationAstBuilderContext): TransitionAst {
    context.queryCount = 0;
    context.depCount = 0;
    const animation = visitDslNode(this, normalizeAnimationEntry(metadata.animation), context);
    const matchers = parseTransitionExpr(metadata.expr, context.errors);
    return {
      type: AnimationMetadataType.Transition,
      matchers,
      animation,
      queryCount: context.queryCount,
      depCount: context.depCount,
      options: normalizeAnimationOptions(metadata.options)
    };
  }
  visitSequence(metadata: AnimationSequenceMetadata, context: AnimationAstBuilderContext): SequenceAst {
    return {
      type: AnimationMetadataType.Sequence,
      steps: metadata.steps.map(s => visitDslNode(this, s, context)),
      options: normalizeAnimationOptions(metadata.options)
    };
  }
  visitGroup(metadata: AnimationGroupMetadata, context: AnimationAstBuilderContext): GroupAst {
    const currentTime = context.currentTime;
    let furthestTime = 0;
    const steps = metadata.steps.map(step => {
      context.currentTime = currentTime;
      const innerAst = visitDslNode(this, step, context);
      furthestTime = Math.max(furthestTime, context.currentTime);
      return innerAst;
    });
    context.currentTime = furthestTime;
    return {
      type: AnimationMetadataType.Group,
      steps,
      options: normalizeAnimationOptions(metadata.options)
    };
  }
  visitAnimate(metadata: AnimationAnimateMetadata, context: AnimationAstBuilderContext): AnimateAst {
    const timingAst = constructTimingAst(metadata.timings, context.errors);
    context.currentAnimateTimings = timingAst;
    let styleAst: StyleAst | KeyframesAst;
    let styleMetadata: AnimationMetadata = metadata.styles ? metadata.styles : style({});
    if (styleMetadata.type == AnimationMetadataType.Keyframes) {
      styleAst = this.visitKeyframes(styleMetadata as AnimationKeyframesSequenceMetadata, context);
    } else {
      let styleMetadata = metadata.styles as AnimationStyleMetadata;
      let isEmpty = false;
      if (!styleMetadata) {
        isEmpty = true;
        const newStyleData: {[prop: string]: string | number} = {};
        if (timingAst.easing) {
          newStyleData['easing'] = timingAst.easing;
        }
        styleMetadata = style(newStyleData);
      }
      context.currentTime += timingAst.duration + timingAst.delay;
      const _styleAst = this.visitStyle(styleMetadata, context);
    }
  }
}

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_styleAst.isEmptyStep = isEmpty;\n    styleAst = _styleAst;\n    }\n\n    context.currentAnimateTimings = null;\n    return {\n      type: AnimationMetadataType.Animate,\n      timings: timingAst,\n      style: styleAst,\n      options: null\n    };\n  }\n\n  visitStyle(metadata: AnimationStyleMetadata, context: AnimationAstBuilderContext): StyleAst {\n    const ast = this._makeStyleAst(metadata, context);\n    this._validateStyleAst(ast, context);\n    return ast;\n  }\n\n  private _makeStyleAst(metadata: AnimationStyleMetadata, context: AnimationAstBuilderContext): StyleAst {\n    const styles: (StyleData|string)[] = [];\n    if (Array.isArray(metadata.styles)) {\n      (metadata.styles as (StyleData | string)[]).forEach(styleTuple => {\n        if (typeof styleTuple === 'string') {\n          if (styleTuple === AUTO_STYLE) {\n            styles.push(styleTuple);\n          } else {\n            context.errors.push(`The provided style string value ${styleTuple} is not allowed.`);\n          }\n        } else {\n          styles.push(metadata.styles);\n        }\n      });\n    } else {\n      styles.push(metadata.styles);\n    }\n\n    let containsDynamicStyles = false;\n    let collectedEasing: string|null = null;\n    styles.forEach(styleData => {\n      if (isObject(styleData)) {\n        const styleMap = styleData as StyleData;\n        const easing = styleMap['easing'];\n        if (easing) {\n          collectedEasing = easing as string;\n          delete styleMap['easing'];\n        }\n        if (!containsDynamicStyles) {\n          for (let prop in styleMap) {\n            const value = styleMap[prop];\n            if (value.toString().indexOf(SUBSTITUTION_EXPR_START) >= 0) {\n              containsDynamicStyles = true;\n              break;\n            }\n          }\n        }\n      }\n    });\n\n    return {\n      type: AnimationMetadataType.Style,\n      styles,\n      easing: collectedEasing,\n      offset: metadata.offset,\n      containsDynamicStyles,\n      options: null\n    };\n  }\n\n  private _validateStyleAst(ast: StyleAst, context: AnimationAstBuilderContext): void {\n    const timings = context.currentAnimateTimings;\n    let endTime = context.currentTime;\n    let startTime = context.currentTime;\n    if (timings && startTime > 0) {\n      startTime -= timings.duration + timings.delay;\n    }\n\n    ast.styles.forEach(tuple => {\n      if (typeof tuple === 'string') return;\n\n      Object.keys(tuple).forEach(prop => {\n        if (!this._driver.validateStyleProperty(prop)) {\n          context.errors.push(`The provided animation property \"${prop}\" is not a supported CSS property for animations`);\n          return;\n        }\n\n        const collectedStyles = context.collectedStyles[context.currentQuerySelector!];\n        const collectedEntry = collectedStyles[prop];\n        let updateCollectedStyle = true;\n        if (collectedEntry) {\n          if (startTime !== endTime && startTime >= collectedEntry.startTime && endTime <= collectedEntry.endTime) {\n            context.errors.push(`The CSS property \"${prop}\" that exists between the times of \"${collectedEntry.startTime}ms\" and \"${collectedEntry.endTime}ms\" is also being animated in a parallel animation between the times of \"${startTime}ms\" and \"${endTime}ms\"`);\n            updateCollectedStyle = false;\n          }\n          // we always choose the smaller start time value since we\n          // want to have a record of the entire animation window where\n          // the style property is being animated in between\n          startTime = collectedEntry.startTime;\n        }\n        if (updateCollectedStyle) {\n          collectedStyles[prop] = {startTime, endTime};\n        }\n        if (context.options) {\n          validateStyleParams(tuple[prop], context.options, context.errors);\n        }\n      });\n    });\n  }\n\n  visitKeyframes(metadata: AnimationKeyframesSequenceMetadata, context: AnimationAstBuilderContext): KeyframesAst {\n    const ast: KeyframesAst = {\n      type: AnimationMetadataType.Keyframes,\n      styles: [],\n      options: null\n    };\n    if (!context.currentAnimateTimings) {\n      context.errors.push(`keyframes() must be placed inside of a call to animate()`);\n      return ast;\n    }\n\n    const MAX_KEYFRAME_OFFSET = 1;\n    let totalKeyframesWithOffsets = 0;\n    const offsets: number[] = [];\n    let offsetsOutOfOrder = false;\n    let keyframesOutOfRange = false;\n    let previousOffset: number = 0;\n    const keyframes: StyleAst[] = metadata.steps.map(styles => {\n      const style = this._makeStyleAst(styles, context);\n      let offsetVal: number|null = style.offset != null ? style.offset : consumeOffset(style.styles);\n      let offset: number = 0;\n      if (offsetVal != null) {\n        totalKeyframesWithOffsets++;\n        offset = style.offset = offsetVal;\n      }\n      keyframesOutOfRange = keyframesOutOfRange || offset < 0 || offset > 1;\n      offsetsOutOfOrder = offsetsOutOfOrder || offset < previousOffset;\n      previousOffset = offset;\n      offsets.push(offset);\n      return style;\n    });\n\n    if (keyframesOutOfRange) {\n      context.errors.push(`Please ensure that all keyframe offsets are`

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between 0 and 1`);\n  }\n\n  if (offsetsOutOfOrder)
  {\n    context.errors.push(`Please ensure that all keyframe offsets are in order`);\n  }\n\n  const length =
metadata.steps.length;\n  let generatedOffset = 0;\n  if (totalKeyframesWithOffsets > 0 &&
totalKeyframesWithOffsets < length) {\n    context.errors.push(`Not all style() steps within the declared
keyframes() contain offsets`);\n  } else if (totalKeyframesWithOffsets === 0) {\n    generatedOffset =
MAX_KEYFRAME_OFFSET / (length - 1);\n  }\n\n  const limit = length - 1;\n  const currentTime =
context.currentTime;\n  const currentAnimateTimings = context.currentAnimateTimings!;\n  const
animateDuration = currentAnimateTimings.duration;\n  keyframes.forEach((kf, i) => {\n    const offset =
generatedOffset > 0 ? (i === limit ? 1 : (generatedOffset * i)) : offsets[i];\n    const durationUpToThisFrame = offset
* animateDuration;\n    context.currentTime = currentTime + currentAnimateTimings.delay +
durationUpToThisFrame;\n    currentAnimateTimings.duration
= durationUpToThisFrame;\n    this._validateStyleAst(kf, context);\n    kf.offset = offset;\n\n    ast.styles.push(kf);\n  });\n\n  return ast;\n}\n\nvisitReference(metadata: AnimationReferenceMetadata,
context: AnimationAstBuilderContext):\n  ReferenceAst {\n  return {\n    type:
AnimationMetadataType.Reference,\n    animation: visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context),\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n}\n\nvisitAnimateChild(metadata:
AnimationAnimateChildMetadata, context: AnimationAstBuilderContext):\n  AnimateChildAst {\n
context.depCount++;\n  return {\n    type: AnimationMetadataType.AnimateChild,\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n}\n\nvisitAnimateRef(metadata:
AnimationAnimateRefMetadata, context: AnimationAstBuilderContext):\n  AnimateRefAst {\n  return {\n
type: AnimationMetadataType.AnimateRef,\n    animation:
this.visitReference(metadata.animation, context),\n    options: normalizeAnimationOptions(metadata.options)\n
};\n}\n\nvisitQuery(metadata: AnimationQueryMetadata, context: AnimationAstBuilderContext): QueryAst {\n
const parentSelector = context.currentQuerySelector!;\n  const options = (metadata.options || {}) as
AnimationQueryOptions;\n\n  context.queryCount++;\n  context.currentQuery = metadata;\n  const [selector,
includeSelf] = normalizeSelector(metadata.selector);\n  context.currentQuerySelector =\n
parentSelector.length ? (parentSelector + ' ' + selector) : selector;\n  getOrSetAsInMap(context.collectedStyles,
context.currentQuerySelector, {});\n\n  const animation = visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context);\n  context.currentQuery = null;\n
context.currentQuerySelector = parentSelector;\n\n  return {\n    type: AnimationMetadataType.Query,\n
selector,\n    limit: options.limit || 0,\n    optional:
!!options.optional,\n    includeSelf,\n    animation,\n    originalSelector: metadata.selector,\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n}\n\nvisitStagger(metadata: AnimationStaggerMetadata,
context: AnimationAstBuilderContext):\n  StaggerAst {\n  if (!context.currentQuery) {\n
context.errors.push(`stagger() can only be used inside of query()`);\n  }\n\n  const timings = metadata.timings ===
'full' ?\n    { duration: 0, delay: 0, easing: 'full' } :\n    resolveTiming(metadata.timings, context.errors, true);\n\n
return {\n    type: AnimationMetadataType.Stagger,\n    animation: visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context),\n    timings,\n    options: null\n  };\n}\n\nfunction
normalizeSelector(selector: string): [string, boolean] {\n  const hasAmpersand = selector.split(/\\s*,\\s*/).find((token
=> token === SELF_TOKEN) ? true : false;\n  if (hasAmpersand) {\n    selector =
selector.replace(SELF_TOKEN_REGEX,
");\n  }\n\n  // the :enter and :leave selectors are filled in at runtime during timeline building\n  selector =
selector.replace(/@\\s*/g, NG_TRIGGER_SELECTOR)\n    .replace(/@\\s*w+/g, match =>
NG_TRIGGER_SELECTOR + ' ' + match.substr(1))\n    .replace(/:animating/g,
NG_ANIMATING_SELECTOR);\n\n  return [selector, hasAmpersand];\n}\n\nfunction normalizeParams(obj:
{[key: string]: any}|any): {[key: string]: any}|null {\n  return obj ? copyObj(obj) : null;\n}\n\nexport type
StyleTimeTuple = {\n  startTime: number; endTime: number;\n};\n\nexport class AnimationAstBuilderContext {\n

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public queryCount: number = 0;\n public depCount: number = 0;\n public currentTransition:
AnimationTransitionMetadata|null = null;\n public currentQuery: AnimationQueryMetadata|null = null;\n public
currentQuerySelector: string|null = null;\n public currentAnimateTimings: TimingAst|null = null;\n public
currentTime: number = 0;\n public collectedStyles:
{[selectorName: string]: {[propName: string]: StyleTimeTuple}} = {};\n public options: AnimationOptions|null =
null;\n constructor(public errors: any[]) {} \n\nfunction consumeOffset(styles: StyleData|string|(StyleData |
string|[]): number|null {\n if (typeof styles === 'string') return null;\n\n let offset: number|null = null;\n\n if
(Array.isArray(styles)) {\n styles.forEach(styleTuple => {\n if (isObject(styleTuple) &&
styleTuple.hasOwnProperty('offset')) {\n const obj = styleTuple as StyleData;\n offset =
parseFloat(obj['offset'] as string);\n delete obj['offset'];\n }\n });\n } else if (isObject(styles) &&
styles.hasOwnProperty('offset')) {\n const obj = styles;\n offset = parseFloat(obj['offset'] as string);\n delete
obj['offset'];\n }\n\n return offset;\n}\n\nfunction isObject(value: any): boolean {\n return !Array.isArray(value) &&
typeof value === 'object';\n}\n\nfunction constructTimingAst(value: string|number|AnimateTimings,
errors: any[]) {\n let timings: AnimateTimings|null = null;\n if (value.hasOwnProperty('duration')) {\n timings =
value as AnimateTimings;\n } else if (typeof value === 'number') {\n const duration = resolveTiming(value,
errors).duration;\n return makeTimingAst(duration, 0, "");\n }\n\n const strValue = value as string;\n const
isDynamic = strValue.split(/\\s+/.some(v => v.charAt(0) === '{' && v.charAt(1) === '}');\n if (isDynamic) {\n
const ast = makeTimingAst(0, 0, "") as any;\n ast.dynamic = true;\n ast.strValue = strValue;\n return ast as
DynamicTimingAst;\n }\n\n timings = timings || resolveTiming(strValue, errors);\n return
makeTimingAst(timings.duration, timings.delay, timings.easing);\n}\n\nfunction
normalizeAnimationOptions(options: AnimationOptions|null): AnimationOptions {\n if (options) {\n options =
copyObj(options);\n if (options['params']) {\n options['params'] = normalizeParams(options['params'])!;\n }\n }
else {\n options
= {};\n }\n\n return options;\n}\n\nfunction makeTimingAst(duration: number, delay: number, easing: string|null):
TimingAst {\n return {duration, delay, easing};\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport {StyleData} from '@angular/animations';\nimport
{AnimationEngineInstruction, AnimationTransitionInstructionType} from
'./render/animation_engine_instruction';\n\nexport interface AnimationTimelineInstruction extends
AnimationEngineInstruction {\n element: any;\n keyframes: StyleData[];\n preStyleProps: string[];\n
postStyleProps: string[];\n duration: number;\n delay: number;\n totalTime: number;\n easing: string|null;\n
stretchStartingKeyframe?: boolean;\n subTimeline: boolean;\n}\n\nexport function createTimelineInstruction(\n
element: any, keyframes: StyleData[], preStyleProps: string[],
postStyleProps: string[],\n duration: number, delay: number, easing: string|null = null,\n subTimeline: boolean =
false): AnimationTimelineInstruction {\n return {\n type:
AnimationTransitionInstructionType.TimelineAnimation,\n element,\n keyframes,\n preStyleProps,\n
postStyleProps,\n duration,\n delay,\n totalTime: duration + delay,\n easing,\n subTimeline\n
};\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {AnimationTimelineInstruction} from './animation_timeline_instruction';\n\nexport class
ElementInstructionMap {\n private _map = new Map<any, AnimationTimelineInstruction[]>();\n\n consume(element: any): AnimationTimelineInstruction[] {\n let instructions = this._map.get(element);\n if
(instructions) {\n this._map.delete(element);\n } else {\n
instructions = [];\n }\n\n return instructions;\n }\n\n append(element: any, instructions:
AnimationTimelineInstruction[]) {\n let existingInstructions = this._map.get(element);\n if
(!existingInstructions) {\n this._map.set(element, existingInstructions = []);\n }\n\n
existingInstructions.push(...instructions);\n }\n\n has(element: any): boolean {\n return this._map.has(element);\n
}\n\n clear() {\n this._map.clear();\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights

```

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```

import { AnimateChildOptions, AnimateTimings,
AnimationMetadataType, AnimationOptions, AnimationQueryOptions, AUTO_STYLE, PRE_STYLE as
PRE_STYLE, StyleData } from '@angular/animations';
import { AnimationDriver } from
'./render/animation_driver';
import { copyObj, copyStyles, interpolateParams, iteratorToArray, resolveTiming,
resolveTimingValue, visitDslNode } from './util';
import { AnimateAst, AnimateChildAst, AnimateRefAst, Ast,
AstVisitor, DynamicTimingAst, GroupAst, KeyframesAst, QueryAst, ReferenceAst, SequenceAst, StaggerAst,
StateAst, StyleAst, TimingAst, TransitionAst, TriggerAst } from './animation_ast';
import
{ AnimationTimelineInstruction, createTimelineInstruction } from './animation_timeline_instruction';
import
{ ElementInstructionMap } from './element_instruction_map';

const ONE_FRAME_IN_MILLISECONDS =
1;
const ENTER_TOKEN = 'enter';
const ENTER_TOKEN_REGEX = new RegExp(ENTER_TOKEN,
'g');
const LEAVE_TOKEN = 'leave';
const LEAVE_TOKEN_REGEX = new RegExp(LEAVE_TOKEN,
'g');

/* The code within this file aims to generate web-animations-compatible keyframes from Angular's
animation DSL code.
The code below will be converted from:
sequence([
  style({ opacity:
0 }),
  animate(1000, style({ opacity: 0 })),
  To:
keyframes = [{ opacity: 0, offset: 0 }, { opacity: 1, offset: 1 }]
duration = 1000
delay = 0
easing = "
For this operation to cover the combination of animation verbs (style, animate, group, etc...) a
combination of prototypical inheritance, AST traversal and merge-sort-like algorithms are used.
[AST Traversal]
Each of the animation verbs, when executed, will return a string-map object representing what
type of action it is (style, animate, group, etc...) and the data associated with it. This means
that when functional composition mix of these functions is evaluated (like in the example above)
then it will end up producing a tree of objects representing the animation itself.
When this animation object tree is processed by the visitor code below it will visit each of the
verb statements within the visitor. And during each visit it will build the context of the
animation keyframes by interacting with the `TimelineBuilder`.
[TimelineBuilder]
This class is responsible for tracking the styles and building a series of keyframe
objects for a timeline between a start and end time. The builder starts off with an initial timeline and each
time the AST comes across a `group()`, `keyframes()` or a combination of the two within a `sequence()` then it
will generate a sub timeline for each step as well as a new one after they are complete.
As the AST is traversed, the timing state on each of the timelines will be incremented. If a sub
timeline was created (based on one of the cases above) then the parent timeline will attempt to
merge the styles used within the sub timelines into itself (only with group() this will happen).
This happens with a merge operation (much like how the merge works in mergesort) and it will only
copy the most recently used styles from the sub timelines into the parent timeline. This ensures
that if the styles are used later
on in another phase of the animation then they will be the most up-to-date values.
[How Missing Styles Are Updated]
Each timeline has a `backFill` property which is responsible for filling in new styles into
already processed keyframes if a new style shows up later within the animation sequence.
sequence([
  style({ width: 0 }),
  animate(1000, style({ width: 100 })),
  animate(1000, style({ width:
200 })),
  animate(1000, style({ width: 300 })),
  animate(1000, style({ width: 400, height: 400 })) // notice
how `height` doesn't exist anywhere else
])
What is happening here is that the `height` value is added later in the sequence, but is missing
from all previous animation steps. Therefore when a keyframe is created it would also be missing
from all previous keyframes up until where it is first used. For the timeline
keyframe generation to properly fill in the style it will place the previous value
(the value from the parent timeline) or a default value of `` into the backFill object. Given that each of the
keyframe styles are objects that prototypically inherit from the backFill object, this means that if a
value is added into the backFill then it will automatically propagate any missing values to all
keyframes. Therefore the missing `height` value will be properly filled into the already
processed keyframes.
When a sub-timeline is created it will have its own backFill property. This is done so that
styles present within the sub-timeline do not accidentally seep into the previous/future timeline
keyframes
(For prototypically-inherited contents to be

```

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detected a `for(i in obj)` loop must be used.)*[Validation]* The code in this file is not responsible for
validation. That functionality happens with within the `AnimationValidatorVisitor` code.*\nexport function
buildAnimationTimelines(\n  driver: AnimationDriver, rootElement:
  any, ast: Ast<AnimationMetadataType>,\n  enterClassName: string, leaveClassName: string, startingStyles:
StyleData = {},\n  finalStyles: StyleData = {}, options: AnimationOptions,\n  subInstructions?:
ElementInstructionMap, errors: any[] = []): AnimationTimelineInstruction[] {\n  return new
AnimationTimelineBuilderVisitor().buildKeyframes(\n    driver, rootElement, ast, enterClassName,
leaveClassName, startingStyles, finalStyles,\n    options, subInstructions, errors);\n}\n\nexport class
AnimationTimelineBuilderVisitor implements AstVisitor {\n  buildKeyframes(\n    driver: AnimationDriver,
rootElement: any, ast: Ast<AnimationMetadataType>,\n    enterClassName: string, leaveClassName: string,
startingStyles: StyleData,\n    finalStyles: StyleData, options: AnimationOptions, subInstructions?:
ElementInstructionMap,\n    errors: any[] = []): AnimationTimelineInstruction[] {\n    subInstructions =
subInstructions || new ElementInstructionMap();\n    const
context = new AnimationTimelineContext(\n      driver, rootElement, subInstructions, enterClassName,
leaveClassName, errors, []);\n    context.options = options;\n    context.currentTimeline.setStyles([startingStyles],
null, context.errors, options);\n\n    visitDslNode(this, ast, context);\n\n    // this checks to see if an actual animation
happened\n    const timelines = context.timelines.filter(timeline => timeline.containsAnimation());\n    if
(timelines.length && Object.keys(finalStyles).length) {\n      const tl = timelines[timelines.length - 1];\n      if
(!tl.allowOnlyTimelineStyles()) {\n        tl.setStyles([finalStyles], null, context.errors, options);\n      }\n    }\n\n    return timelines.length ? timelines.map(timeline => timeline.buildKeyframes()) :\n    [createTimelineInstruction(rootElement, [], [], [], 0, 0, "", false)];\n  }\n\n  visitTrigger(ast: TriggerAst, context:
AnimationTimelineContext): any {\n    // these values are not visited
in this AST\n  }\n\n  visitState(ast: StateAst, context: AnimationTimelineContext): any {\n    // these values are not
visited in this AST\n  }\n\n  visitTransition(ast: TransitionAst, context: AnimationTimelineContext): any {\n    //
these values are not visited in this AST\n  }\n\n  visitAnimateChild(ast: AnimateChildAst, context:
AnimationTimelineContext): any {\n    const elementInstructions =
context.subInstructions.consume(context.element);\n    if (elementInstructions) {\n      const innerContext =
context.createSubContext(ast.options);\n      const startTime = context.currentTimeline.currentTime;\n      const
endTime = this._visitSubInstructions(\n        elementInstructions, innerContext, innerContext.options as
AnimateChildOptions);\n      if (startTime != endTime) {\n        // we do this on the upper context because we
created a sub context for\n        // the sub child animations\n        context.transformIntoNewTimeline(endTime);\n      }\n    }\n    context.previousNode
= ast;\n  }\n\n  visitAnimateRef(ast: AnimateRefAst, context: AnimationTimelineContext): any {\n    const
innerContext = context.createSubContext(ast.options);\n    innerContext.transformIntoNewTimeline();\n    this.visitReference(ast.animation, innerContext);\n    context.transformIntoNewTimeline(innerContext.currentTimeline.currentTime);\n    context.previousNode = ast;\n  }\n\n  private _visitSubInstructions(\n    instructions: AnimationTimelineInstruction[], context:
AnimationTimelineContext,\n    options: AnimateChildOptions): number {\n    const startTime =
context.currentTimeline.currentTime;\n    let furthestTime = startTime;\n\n    // this is a special-case for when a user
wants to skip a sub\n    // animation from being fired entirely.\n    const duration = options.duration != null ?
resolveTimingValue(options.duration) : null;\n    const delay = options.delay != null ?
resolveTimingValue(options.delay) : null;\n    if (duration != 0) {\n      instructions.forEach(instruction
=> {\n        const instructionTimings =\n          context.appendInstructionToTimeline(instruction, duration,
delay);\n        furthestTime =\n          Math.max(furthestTime, instructionTimings.duration +
instructionTimings.delay);\n      });\n    }\n\n    return furthestTime;\n  }\n\n  visitReference(ast: ReferenceAst,
context: AnimationTimelineContext) {\n    context.updateOptions(ast.options, true);\n    visitDslNode(this,
ast.animation, context);\n    context.previousNode = ast;\n  }\n\n  visitSequence(ast: SequenceAst, context:
AnimationTimelineContext) {\n    const subContextCount = context.subContextCount;\n    let ctx = context;\n

```



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const options = ast.options;\n\n if (options && (options.params || options.delay)) {\n    ctx =
context.createSubContext(options);\n    ctx.transformIntoNewTimeline();\n\n    if (options.delay != null) {\n
if (ctx.previousNode.type == AnimationMetadataType.Style) {\n
ctx.currentTimeline.snapshotCurrentStyles();\n
    ctx.previousNode = DEFAULT_NOOP_PREVIOUS_NODE;\n    }\n\n    const delay =
resolveTimingValue(options.delay);\n    ctx.delayNextStep(delay);\n    }\n\n    if (ast.steps.length) {\n
ast.steps.forEach(s => visitDslNode(this, s, ctx));\n\n    // this is here just incase the inner steps only contain or end
with a style() call\n    ctx.currentTimeline.applyStylesToKeyframe();\n\n    // this means that some animation
function within the sequence\n    // ended up creating a sub timeline (which means the current\n    // timeline
cannot overlap with the contents of the sequence)\n    if (ctx.subContextCount > subContextCount) {\n
ctx.transformIntoNewTimeline();\n    }\n\n    context.previousNode = ast;\n    }\n\n    visitGroup(ast: GroupAst,
context: AnimationTimelineContext) {\n    const innerTimelines: TimelineBuilder[] = [];\n    let furthestTime =
context.currentTimeline.currentTime;\n    const delay = ast.options && ast.options.delay
? resolveTimingValue(ast.options.delay) : 0;\n\n    ast.steps.forEach(s => {\n    const innerContext =
context.createSubContext(ast.options);\n    if (delay) {\n    innerContext.delayNextStep(delay);\n    }\n\n
visitDslNode(this, s, innerContext);\n    furthestTime = Math.max(furthestTime,
innerContext.currentTimeline.currentTime);\n    innerTimelines.push(innerContext.currentTimeline);\n    });\n\n
// this operation is run after the AST loop because otherwise\n    // if the parent timeline's collected styles were
updated then\n    // it would pass in invalid data into the new-to-be forked items\n    innerTimelines.forEach(\n
timeline => context.currentTimeline.mergeTimelineCollectedStyles(timeline));\n
context.transformIntoNewTimeline(furthestTime);\n    context.previousNode = ast;\n    }\n\n    private
_visitTiming(ast: TimingAst, context: AnimationTimelineContext): AnimateTimings {\n    if ((ast as
DynamicTimingAst).dynamic) {\n    const strValue
= (ast as DynamicTimingAst).strValue;\n    const timingValue =\n    context.params ?
interpolateParams(strValue, context.params, context.errors) : strValue;\n    return resolveTiming(timingValue,
context.errors);\n    } else {\n    return {duration: ast.duration, delay: ast.delay, easing: ast.easing};\n    }\n\n
}\n\n    visitAnimate(ast: AnimateAst, context: AnimationTimelineContext) {\n    const timings =
context.currentAnimateTimings = this._visitTiming(ast.timings, context);\n    const timeline =
context.currentTimeline;\n    if (timings.delay) {\n    context.incrementTime(timings.delay);\n
timeline.snapshotCurrentStyles();\n    }\n\n    const style = ast.style;\n    if (style.type ==
AnimationMetadataType.Keyframes) {\n    this.visitKeyframes(style, context);\n    } else {\n
context.incrementTime(timings.duration);\n    this.visitStyle(style as StyleAst, context);\n
timeline.applyStylesToKeyframe();\n    }\n\n    context.currentAnimateTimings = null;\n
context.previousNode = ast;\n    }\n\n    visitStyle(ast: StyleAst, context: AnimationTimelineContext) {\n    const
timeline = context.currentTimeline;\n    const timings = context.currentAnimateTimings!;\n\n    // this is a special
case for when a style() call\n    // directly follows an animate() call (but not inside of an animate() call)\n    if
(!timings && timeline.getCurrentStyleProperties().length) {\n    timeline.forwardFrame();\n    }\n\n    const easing
= (timings && timings.easing) || ast.easing;\n    if (ast.isEmptyStep) {\n    timeline.applyEmptyStep(easing);\n    }
else {\n    timeline.setStyles(ast.styles, easing, context.errors, context.options);\n    }\n\n    context.previousNode =
ast;\n    }\n\n    visitKeyframes(ast: KeyframesAst, context: AnimationTimelineContext) {\n    const
currentAnimateTimings = context.currentAnimateTimings!;\n    const startTime =
(context.currentTimeline!).duration;\n    const duration = currentAnimateTimings.duration;\n    const innerContext
= context.createSubContext();\n    const innerTimeline = innerContext.currentTimeline;\n    innerTimeline.easing =
currentAnimateTimings.easing;\n\n    ast.styles.forEach(step => {\n    const offset: number = step.offset || 0;\n
innerTimeline.forwardTime(offset * duration);\n    innerTimeline.setStyles(step.styles, step.easing, context.errors,
context.options);\n    innerTimeline.applyStylesToKeyframe();\n    });\n\n    // this will ensure that the parent
timeline gets all the styles from\n    // the child even if the new timeline below is not used\n
context.currentTimeline.mergeTimelineCollectedStyles(innerTimeline);\n\n    // we do this because the window

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between this timeline and the sub timeline\n // should ensure that the styles within are exactly the same as they
were before\n context.transformIntoNewTimeline(startTime + duration);\n context.previousNode = ast;\n }\n\n
visitQuery(ast: QueryAst, context: AnimationTimelineContext) {\n // in the event
that the first step before this is a style step we need\n // to ensure the styles are applied before the children are
animated\n const startTime = context.currentTimeline.currentTime;\n const options = (ast.options || { }) as
AnimationQueryOptions;\n const delay = options.delay ? resolveTimingValue(options.delay) : 0;\n\n if (delay
&&\n (context.previousNode.type === AnimationMetadataType.Style ||\n (startTime == 0 &&
context.currentTimeline.getCurrentStyleProperties().length))) {\n
context.currentTimeline.snapshotCurrentStyles();\n context.previousNode =
DEFAULT_NOOP_PREVIOUS_NODE;\n }\n\n let furthestTime = startTime;\n const elms =
context.invokeQuery(\n ast.selector, ast.originalSelector, ast.limit, ast.includeSelf,\n options.optional ? true
: false, context.errors);\n\n context.currentQueryTotal = elms.length;\n let sameElementTimeline:
TimelineBuilder|null = null;\n elms.forEach((element, i) => {\n context.currentQueryIndex
= i;\n const innerContext = context.createSubContext(ast.options, element);\n if (delay) {\n
innerContext.delayNextStep(delay);\n }\n\n if (element === context.element) {\n sameElementTimeline
= innerContext.currentTimeline;\n }\n\n visitDslNode(this, ast.animation, innerContext);\n\n // this is here
just incase the inner steps only contain or end\n // with a style() call (which is here to signal that this is a
preparatory\n // call to style an element before it is animated again)\n
innerContext.currentTimeline.applyStylesToKeyframe();\n\n const endTime =
innerContext.currentTimeline.currentTime;\n furthestTime = Math.max(furthestTime, endTime);\n });\n\n
context.currentQueryIndex = 0;\n context.currentQueryTotal = 0;\n
context.transformIntoNewTimeline(furthestTime);\n\n if (sameElementTimeline) {\n
context.currentTimeline.mergeTimelineCollectedStyles(sameElementTimeline);\n
context.currentTimeline.snapshotCurrentStyles();\n }\n\n context.previousNode = ast;\n }\n\n
visitStagger(ast: StaggerAst, context: AnimationTimelineContext) {\n const parentContext =
context.parentContext!;\n const tl = context.currentTimeline;\n const timings = ast.timings;\n const duration =
Math.abs(timings.duration);\n const maxTime = duration * (context.currentQueryTotal - 1);\n let delay =
duration * context.currentQueryIndex;\n\n let staggerTransformer = timings.duration < 0 ? 'reverse':
timings.easing;\n switch (staggerTransformer) {\n case 'reverse':\n delay = maxTime - delay;\n
break;\n case 'full':\n delay = parentContext.currentStaggerTime;\n break;\n }\n\n const timeline =
context.currentTimeline;\n if (delay) {\n timeline.delayNextStep(delay);\n }\n\n const startingTime =
timeline.currentTime;\n visitDslNode(this, ast.animation, context);\n context.previousNode =
ast;\n\n // time = duration + delay\n // the reason why this computation is so complex is because\n // the inner
timeline may either have a delay value or a stretched\n // keyframe depending on if a subtimeline is not used or is
used.\n parentContext.currentStaggerTime =\n (tl.currentTime - startingTime) + (tl.startTime -
parentContext.currentTimeline.startTime);\n }\n\n\nexport declare type StyleAtTime = {\n time: number; value:
string | number;\n};\n\nconst DEFAULT_NOOP_PREVIOUS_NODE =
<Ast<AnimationMetadataType>>{};\n\nexport class AnimationTimelineContext {\n public parentContext:
AnimationTimelineContext|null = null;\n public currentTimeline: TimelineBuilder;\n public
currentAnimateTimings: AnimateTimings|null = null;\n public previousNode: Ast<AnimationMetadataType> =
DEFAULT_NOOP_PREVIOUS_NODE;\n public subContextCount = 0;\n public options: AnimationOptions =
{};\n public currentQueryIndex: number = 0;\n public currentQueryTotal: number = 0;\n public
currentStaggerTime: number = 0;\n\n constructor(\n private _driver: AnimationDriver, public element: any,\n public subInstructions: ElementInstructionMap, private _enterClassName: string,\n private _leaveClassName:
string, public errors: any[], public timelines: TimelineBuilder[],\n initialTimeline?: TimelineBuilder) {\n
this.currentTimeline = initialTimeline || new TimelineBuilder(this._driver, element, 0);\n
timelines.push(this.currentTimeline);\n }\n\n get params() {\n return this.options.params;\n }\n\n
updateOptions(options: AnimationOptions|null, skipIfExists?: boolean) {\n if (!options) return;\n\n const

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newOptions = options as any;\n    let optionsToUpdate = this.options;\n\n    // NOTE: this will get patched up when other animation methods support duration overrides\n    if (newOptions.duration != null) {\n        (optionsToUpdate as any).duration = resolveTimingValue(newOptions.duration);\n    }\n\n    if (newOptions.delay != null) {\n        optionsToUpdate.delay = resolveTimingValue(newOptions.delay);\n    }\n\n    const newParams = newOptions.params;\n    if (newParams) {\n        let paramsToUpdate: {[name: string]: any} = optionsToUpdate.params!;\n        if (!paramsToUpdate) {\n            paramsToUpdate = this.options.params = {};\n        }\n        Object.keys(newParams).forEach(name => {\n            if (!skipIfExists || !paramsToUpdate.hasOwnProperty(name)) {\n                paramsToUpdate[name] = interpolateParams(newParams[name], paramsToUpdate, this.errors);\n            }\n        });\n    }\n\n    private _copyOptions() {\n        const options: AnimationOptions = {};\n        if (this.options) {\n            const oldParams = this.options.params;\n            if (oldParams) {\n                const params: {[name: string]: any} = options['params'] = {};\n                Object.keys(oldParams).forEach(name => {\n                    params[name] = oldParams[name];\n                });\n            }\n        }\n        return options;\n    }\n\n    createSubContext(options: AnimationOptions|null = null, element?: any, newTime?: number): AnimationTimelineContext {\n        const target = element || this.element;\n        const context = new AnimationTimelineContext(\n            this._driver, target, this.subInstructions, this._enterClassName, this._leaveClassName,\n            this.errors, this.timelines, this.currentTimeline.fork(target, newTime || 0));\n        context.previousNode = this.previousNode;\n        context.currentAnimateTimings = this.currentAnimateTimings;\n        context.options = this._copyOptions();\n        context.updateOptions(options);\n        context.currentQueryIndex = this.currentQueryIndex;\n        context.currentQueryTotal = this.currentQueryTotal;\n        context.parentContext = this;\n        this.subContextCount++;\n        return context;\n    }\n\n    transformIntoNewTimeline(newTime?: number) {\n        this.previousNode = DEFAULT_NOOP_PREVIOUS_NODE;\n        this.currentTimeline = this.currentTimeline.fork(this.element, newTime);\n        this.timelines.push(this.currentTimeline);\n        return this.currentTimeline;\n    }\n\n    appendInstructionToTimeline(\n        instruction: AnimationTimelineInstruction, duration: number|null,\n        delay: number|null): AnimateTimings {\n        const updatedTimings: AnimateTimings = {\n            duration: duration != null ? duration : instruction.duration,\n            delay: this.currentTimeline.currentTime + (delay != null ? delay : 0) + instruction.delay,\n            easing: ""\n        };\n        const builder = new SubTimelineBuilder(\n            this._driver, instruction.element, instruction.keyframes, instruction.preStyleProps,\n            instruction.postStyleProps, updatedTimings, instruction.stretchStartingKeyframe);\n        this.timelines.push(builder);\n        return updatedTimings;\n    }\n\n    incrementTime(time: number) {\n        this.currentTimeline.forwardTime(this.currentTimeline.duration + time);\n    }\n\n    delayNextStep(delay: number) {\n        // negative delays are not yet supported\n        if (delay > 0) {\n            this.currentTimeline.delayNextStep(delay);\n        }\n    }\n\n    invokeQuery(\n        selector: string, originalSelector: string, limit: number, includeSelf: boolean,\n        optional: boolean, errors: any[]): any[] {\n        let results: any[] = [];\n        if (includeSelf) {\n            results.push(this.element);\n        }\n        if (selector.length > 0) {\n            // if :self is only used then the selector is empty\n            selector = selector.replace(ENTER_TOKEN_REGEX, '.' + this._enterClassName);\n            selector = selector.replace(LEAVE_TOKEN_REGEX, '.' + this._leaveClassName);\n            const multi = limit != 1;\n            let elements = this._driver.query(this.element, selector, multi);\n            if (limit != 0) {\n                elements = limit < 0 ? elements.slice(elements.length + limit, elements.length) : elements.slice(0, limit);\n            }\n            results.push(...elements);\n        }\n        if (!optional && results.length == 0) {\n            errors.push(`\\`query("${originalSelector}")\\` returned zero elements. (Use \\`query("${originalSelector}")`,\n            { optional: true })\\` if you wish to allow this.`);\n        }\n        return results;\n    }\n\n    export class TimelineBuilder {\n        public duration: number = 0; // TODO(issue/24571): remove '!'\n        public easing!: string|null;\n        private _previousKeyframe: StyleData = {};\n        private _currentKeyframe: StyleData = {};\n        private _keyframes = new Map<number, StyleData>();\n        private _styleSummary: {[prop: string]: StyleAtTime} = {};\n        private _localTimelineStyles: StyleData;\n        private _globalTimelineStyles: StyleData;\n        private _pendingStyles: StyleData

```

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= {};\n private _backFill: StyleData = {};\n private _currentEmptyStepKeyframe: StyleData|null = null;\n\nconstructor(\n  private _driver: AnimationDriver, public element: any, public startTime: number,\n  private\n  _elementTimelineStylesLookup?: Map<any, StyleData>) {\n  if (!this._elementTimelineStylesLookup) {\n  this._elementTimelineStylesLookup = new Map<any, StyleData>();\n  }\n\n  this._localTimelineStyles\n  = Object.create(this._backFill, {});\n  this._globalTimelineStyles =\n  this._elementTimelineStylesLookup.get(element);\n  if (!this._globalTimelineStyles) {\n  this._globalTimelineStyles = this._localTimelineStyles;\n  this._elementTimelineStylesLookup.set(element,\n  this._localTimelineStyles);\n  }\n\n  this._loadKeyframe();\n  }\n\n  containsAnimation(): boolean {\n  switch\n  (this._keyframes.size) {\n  case 0:\n  return false;\n  case 1:\n  return\n  this.getCurrentStyleProperties().length > 0;\n  default:\n  return true;\n  }\n  }\n\n  getCurrentStyleProperties(): string[] {\n  return Object.keys(this._currentKeyframe);\n  }\n\n  get currentTime() {\n  return this.startTime + this.duration;\n  }\n\n  delayNextStep(delay: number) {\n  // in the event that a style() step\n  is placed right before a stagger()\n  // and that style() step is the very first style() value in the animation\n  // then\n  we need to make a copy\n  of the keyframe [0, copy, 1] so that the delay\n  // properly applies the style() values to work with the stagger...\n  const hasPreStyleStep = this._keyframes.size === 1 && Object.keys(this._pendingStyles).length;\n  if\n  (this.duration || hasPreStyleStep) {\n  this.forwardTime(this.currentTime + delay);\n  if (hasPreStyleStep) {\n  this.snapshotCurrentStyles();\n  }\n  } else {\n  this.startTime += delay;\n  }\n  }\n\n  fork(element: any,\n  currentTime?: number): TimelineBuilder {\n  this.applyStylesToKeyframe();\n  return new TimelineBuilder(\n  this._driver, element, currentTime || this.currentTime, this._elementTimelineStylesLookup);\n  }\n\n  private\n  _loadKeyframe() {\n  if (this._currentKeyframe) {\n  this._previousKeyframe = this._currentKeyframe;\n  }\n\n  this._currentKeyframe = this._keyframes.get(this.duration);\n  if (!this._currentKeyframe) {\n  this._currentKeyframe = Object.create(this._backFill, {});\n  this._keyframes.set(this.duration,\n  this._currentKeyframe);\n  }\n  }\n\n  forwardFrame() {\n  this.duration +=\n  ONE_FRAME_IN_MILLISECONDS;\n  this._loadKeyframe();\n  }\n\n  forwardTime(time: number) {\n  this.applyStylesToKeyframe();\n  this.duration = time;\n  this._loadKeyframe();\n  }\n\n  private\n  _updateStyle(prop: string, value: string|number) {\n  this._localTimelineStyles[prop] = value;\n  this._globalTimelineStyles[prop] = value;\n  this._styleSummary[prop] = {time: this.currentTime, value};\n  }\n\n  allowOnlyTimelineStyles() {\n  return this._currentEmptyStepKeyframe !== this._currentKeyframe;\n  }\n\n  applyEmptyStep(easing: string|null) {\n  if (easing) {\n  this._previousKeyframe['easing'] = easing;\n  }\n\n  //\n  special case for animate(duration):\n  // all missing styles are filled with a `*` value then\n  // if any destination\n  styles are filled in later on the same\n  // keyframe then they will override the overridden styles\n  // We use\n  `_globalTimelineStyles`\n  here because there may be\n  // styles in previous keyframes that are not present in this timeline\n  Object.keys(this._globalTimelineStyles).forEach(prop => {\n  this._backFill[prop] =\n  this._globalTimelineStyles[prop] || AUTO_STYLE;\n  this._currentKeyframe[prop] = AUTO_STYLE;\n  });\n\n  this._currentEmptyStepKeyframe = this._currentKeyframe;\n  }\n\n  setStyles(\n  input: (StyleData|string)[],\n  easing: string|null, errors: any[],\n  options?: AnimationOptions) {\n  if (easing) {\n  this._previousKeyframe['easing'] = easing;\n  }\n\n  const params = (options && options.params) || {};\n  const\n  styles = flattenStyles(input, this._globalTimelineStyles);\n  Object.keys(styles).forEach(prop => {\n  const val =\n  interpolateParams(styles[prop], params, errors);\n  this._pendingStyles[prop] = val;\n  if\n  (!this._localTimelineStyles.hasOwnProperty(prop)) {\n  this._backFill[prop] =\n  this._globalTimelineStyles.hasOwnProperty(prop)\n  ?\n  this._globalTimelineStyles[prop] :\n  AUTO_STYLE;\n  }\n  this._updateStyle(prop, val);\n  });\n  }\n\n  applyStylesToKeyframe() {\n  const styles = this._pendingStyles;\n  const props =\n  Object.keys(styles);\n  if (props.length === 0) return;\n\n  this._pendingStyles = {};\n  props.forEach(prop =>\n  {\n  const val = styles[prop];\n  this._currentKeyframe[prop] = val;\n  });\n\n  Object.keys(this._localTimelineStyles).forEach(prop => {\n  if (!this._currentKeyframe.hasOwnProperty(prop))

```



```

Math.pow(10, decimalPoints - 1);
return Math.round(offset * mult) / mult;
}

function flattenStyles(input:
(StyleData|string)[], allStyles: StyleData)
{
  const styles: StyleData = {};
  let allProperties: string[];
  input.forEach(token => {
    if (token === '*') {
      allProperties = allProperties || Object.keys(allStyles);
      allProperties.forEach(prop => {
        styles[prop] =
          AUTO_STYLE;
      });
    } else {
      copyStyles(token as StyleData, false, styles);
    }
  });
  return
    styles;
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is
governed by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
import { AnimationMetadata, AnimationMetadataType, AnimationOptions, StyleData } from
'@angular/animations';
import { AnimationDriver } from '../render/animation_driver';
import { ENTER_CLASSNAME, LEAVE_CLASSNAME, normalizeStyles } from '../util';
import { Ast } from
'/animation_ast';
import { buildAnimationAst } from '/animation_ast_builder';
import { buildAnimationTimelines }
from '/animation_timeline_builder';
import {
  AnimationTimelineInstruction } from '/animation_timeline_instruction';
import { ElementInstructionMap } from
'/element_instruction_map';

export class Animation {
  private _animationAst:
AnimationMetadataType;
  constructor(private _driver: AnimationDriver, input:
AnimationMetadata|AnimationMetadata[]) {
    const errors: any[] = [];
    const ast = buildAnimationAst(_driver,
input, errors);
    if (errors.length) {
      const errorMessage = `animation validation
failed:
${errors.join('\n')}`;
      throw new Error(errorMessage);
    }
    this._animationAst = ast;
  }

  buildTimelines(
    element: any, startingStyles: StyleData|StyleData[],
    destinationStyles:
StyleData|StyleData[], options: AnimationOptions,
    subInstructions?: ElementInstructionMap):
AnimationTimelineInstruction[] {
    const start = Array.isArray(startingStyles) ?
normalizeStyles(startingStyles)
:
      <StyleData>startingStyles;

    const dest = Array.isArray(destinationStyles) ?
normalizeStyles(destinationStyles) :
      <StyleData>destinationStyles;
    const errors: any = [];
    subInstructions = subInstructions || new
ElementInstructionMap();
    const result = buildAnimationTimelines(
      this._driver, element,
this._animationAst, ENTER_CLASSNAME, LEAVE_CLASSNAME,
start, dest,
      options, subInstructions,
errors);
    if (errors.length) {
      const errorMessage = `animation building failed:
${errors.join('\n')}`;
      throw new Error(errorMessage);
    }
    return result;
  }
}

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 * found in the LICENSE file at https://angular.io/license
 */
@publicApi
export abstract class
AnimationStyleNormalizer {
  abstract normalizePropertyName(propertyName:
string, errors: string[]): string;
  abstract normalizeStyleValue(
    userProvidedProperty: string,
normalizedProperty: string, value: string|number,
errors: string[]): string;
}

@publicApi
export class NoopAnimationStyleNormalizer {
  normalizePropertyName(propertyName: string, errors:
string[]): string {
    return propertyName;
  }

  normalizeStyleValue(
    userProvidedProperty: string,
normalizedProperty: string, value: string|number,
errors: string[]): string {
    return <any>value;
  }
}

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 */
import { dashCaseToCamelCase } from '../util';
import { AnimationStyleNormalizer } from
'/animation_style_normalizer';

export class WebAnimationsStyleNormalizer extends
AnimationStyleNormalizer {
  normalizePropertyName(propertyName:
string, errors: string[]): string {
    return dashCaseToCamelCase(propertyName);
  }

  normalizeStyleValue(
    userProvidedProperty: string,
normalizedProperty: string, value: string|number,
errors: string[]): string {
    let unit: string = '';
    const strVal = value.toString().trim();
    if
(DIMENSIONAL_PROP_MAP[normalizedProperty] && value
!<= 0 && value <= 0) {
      if (typeof value ===
'number') {
        unit = 'px';
      } else {
        const valAndSuffixMatch =
value.match(/^[+]?[d\.]?([a-z]*)$/);
        if (valAndSuffixMatch &&
valAndSuffixMatch[1].length == 0) {
          errors.push(`Please provide
a CSS unit value for
${userProvidedProperty}:
${value}`);
        }
      }
    }
    return strVal + unit;
  }
}

```

```

}\n\nconst DIMENSIONAL_PROP_MAP =\n  (() => makeBooleanMap(\n
'width,height,minWidth,minHeight,maxWidth,maxHeight,left,top,bottom,right,fontSize,outlineWidth,outlineOffset,
paddingTop,paddingLeft,paddingBottom,paddingRight,marginTop,marginLeft,marginBottom,marginRight,borderR
adius,borderWidth,borderTopWidth,borderLeftWidth,borderRightWidth,borderBottomWidth,textIndent,perspective'
\n
    .split(',')\n\nfunction makeBooleanMap(keys: string[]): {[key: string]: boolean} {\n  const map: {[key:
string]: boolean} = {};\n  keys.forEach(key => map[key] = true);\n  return map;\n}\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {StyleData} from
'@angular/animations';\nimport {AnimationEngineInstruction, AnimationTransitionInstructionType} from
'./render/animation_engine_instruction';\nimport {AnimationTimelineInstruction} from
'./animation_timeline_instruction';\n\nexport interface AnimationTransitionInstruction extends
AnimationEngineInstruction {\n  element: any;\n  triggerName: string;\n  isRemovalTransition: boolean;\n  fromState: string;\n  fromStyles: StyleData;\n  toState: string;\n  toStyles: StyleData;\n  timelines:
AnimationTimelineInstruction[];\n  queriedElements: any[];\n  preStyleProps: Map<any, {[prop: string]:
boolean}>;\n  postStyleProps: Map<any, {[prop: string]: boolean}>;\n  totalTime: number;\n  errors?:
any[];\n}\n\nexport function createTransitionInstruction(\n  element: any, triggerName: string, fromState: string,
toState: string,\n  isRemovalTransition: boolean, fromStyles: StyleData, toStyles: StyleData,\n  timelines:
AnimationTimelineInstruction[], queriedElements: any[],\n  preStyleProps: Map<any, {[prop: string]:
boolean}>,\n  postStyleProps: Map<any, {[prop: string]: boolean}>, totalTime: number,\n  errors?: any[]):
AnimationTransitionInstruction {\n  return {\n    type: AnimationTransitionInstructionType.TransitionAnimation,\n
element,\n    triggerName,\n    isRemovalTransition,\n    fromState,\n    fromStyles,\n    toState,\n    toStyles,\n
timelines,\n    queriedElements,\n    preStyleProps,\n    postStyleProps,\n    totalTime,\n    errors\n  };\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{AnimationOptions, StyleData} from '@angular/animations';\nimport {AnimationDriver} from
'./render/animation_driver';\nimport {getOrSetAsInMap} from './render/shared';\nimport {copyObj,
interpolateParams, iteratorToArray, mergeAnimationOptions} from './util';\nimport {StyleAst, TransitionAst}
from './animation_ast';\nimport {buildAnimationTimelines} from './animation_timeline_builder';\nimport
{TransitionMatcherFn} from './animation_transition_expr';\nimport {AnimationTransitionInstruction,
createTransitionInstruction} from './animation_transition_instruction';\nimport {ElementInstructionMap} from
'./element_instruction_map';\n\nconst EMPTY_OBJECT = {};\n\nexport
class AnimationTransitionFactory {\n  constructor(\n    private _triggerName: string, public ast: TransitionAst,\n    private _stateStyles: {[stateName: string]: AnimationStateStyles}) {} \n\n  match(currentState: any, nextState: any,
element: any, params: {[key: string]: any}): boolean {\n    return oneOrMoreTransitionsMatch(this.ast.matchers,
currentState, nextState, element, params);\n  }\n\n  buildStyles(stateName: string, params: {[key: string]: any},
errors: any[]) {\n    const backupStateStyler = this._stateStyles["*"];\n    const stateStyler =
this._stateStyles[stateName];\n    const backupStyles = backupStateStyler ? backupStateStyler.buildStyles(params,
errors) : {};\n    return stateStyler ? stateStyler.buildStyles(params, errors) : backupStyles;\n  }\n\n  build(\n
driver: AnimationDriver, element: any, currentState: any, nextState: any,\n    enterClassName: string,
leaveClassName: string, currentOptions?: AnimationOptions,\n    nextOptions?: AnimationOptions,
subInstructions?: ElementInstructionMap,\n    skipAstBuild?: boolean): AnimationTransitionInstruction {\n
const errors: any[] = [];\n\n    const transitionAnimationParams = this.ast.options && this.ast.options.params ||
EMPTY_OBJECT;\n    const currentAnimationParams = currentOptions && currentOptions.params ||
EMPTY_OBJECT;\n    const currentStateStyles = this.buildStyles(currentState, currentAnimationParams, errors);\n
const nextAnimationParams = nextOptions && nextOptions.params || EMPTY_OBJECT;\n    const nextStateStyles
= this.buildStyles(nextState, nextAnimationParams, errors);\n\n    const queriedElements = new Set<any>();\n
const preStyleMap = new Map<any, {[prop: string]: boolean}>();\n    const postStyleMap = new Map<any, {[prop:

```

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string]: boolean}>());\n    const isRemoval = nextState === 'void';\n\n    const animationOptions = { params:
{...transitionAnimationParams, ...nextAnimationParams} };\n\n    const timelines = skipAstBuild ?\n    [] :\nbuildAnimationTimelines(\n
        driver, element, this.ast.animation, enterClassName, leaveClassName, currentStateStyles,\nnextStateStyles, animationOptions, subInstructions, errors);\n\n    let totalTime = 0;\n    timelines.forEach(tl => {\n
        totalTime = Math.max(tl.duration + tl.delay, totalTime);\n    });\n\n    if (errors.length) {\n        return
createTransitionInstruction(\n            element, this._triggerName, currentState, nextState, isRemoval,
currentStateStyles,\n            nextStateStyles, [], [], preStyleMap, postStyleMap, totalTime, errors);\n    }\n\n    timelines.forEach(tl => {\n        const elm = tl.element;\n        const preProps = getOrSetAsInMap(preStyleMap, elm,
{});\n        tl.preStyleProps.forEach(prop => preProps[prop] = true);\n        const postProps =
getOrSetAsInMap(postStyleMap, elm, {});\n        tl.postStyleProps.forEach(prop => postProps[prop] = true);\n\n        if (elm !== element) {\n            queriedElements.add(elm);\n        }\n    });\n\n    const queriedElementsList = iteratorToArray(queriedElements.values());\n    return createTransitionInstruction(\n
        element, this._triggerName, currentState, nextState, isRemoval, currentStateStyles,\n        nextStateStyles,
timelines, queriedElementsList, preStyleMap, postStyleMap, totalTime);\n    }\n}\n\nfunction
oneOrMoreTransitionsMatch(\n    matchFns: TransitionMatcherFn[], currentState: any, nextState: any, element:
any,\n    params: {[key: string]: any}): boolean {\n    return matchFns.some(fn => fn(currentState, nextState, element,
params));\n}\n\nexport class AnimationStateStyles {\n    constructor(private styles: StyleAst, private defaultParams:
{[key: string]: any}) {}\n\n    buildStyles(params: {[key: string]: any}, errors: string[]): StyleData {\n        const
finalStyles: StyleData = {};\n        const combinedParams = copyObj(this.defaultParams);\n\n        Object.keys(params).forEach(key => {\n            const value = params[key];\n            if (value !== null) {\n\n                combinedParams[key]
= value;\n            }\n        });\n\n        this.styles.styles.forEach(value => {\n            if (typeof value !== 'string') {\n                const
styleObj = value as any;\n                Object.keys(styleObj).forEach(prop => {\n                    let val = styleObj[prop];\n                    if
(val.length > 1) {\n                        val = interpolateParams(val, combinedParams, errors);\n                    }\n                    finalStyles[prop]
= val;\n                });\n            }\n        });\n\n        return finalStyles;\n    }\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport { AnimationMetadataType, StyleData } from
'@angular/animations';\nimport { copyStyles, interpolateParams } from './util';\nimport { SequenceAst, StyleAst,
TransitionAst, TriggerAst } from './animation_ast';\nimport { AnimationStateStyles, AnimationTransitionFactory }
from './animation_transition_factory';\n\n/**\n * @publicApi\n\n * \n\nexport function buildTrigger(name: string, ast: TriggerAst): AnimationTrigger {\n    return new
AnimationTrigger(name, ast);\n}\n\n/**\n * @publicApi\n * \n\nexport class AnimationTrigger {\n    public
transitionFactories: AnimationTransitionFactory[] = [];\n    public fallbackTransition: AnimationTransitionFactory;\n    public states: {[stateName: string]: AnimationStateStyles} = {};\n\n    constructor(public name: string, public ast:
TriggerAst) {\n        ast.states.forEach(ast => {\n            const defaultParams = (ast.options && ast.options.params) || {};\n\n            this.states[ast.name] = new AnimationStateStyles(ast.style, defaultParams);\n        });\n\n        balanceProperties(this.states, 'true', '1');\n        balanceProperties(this.states, 'false', '0');\n\n        ast.transitions.forEach(ast
=> {\n            this.transitionFactories.push(new AnimationTransitionFactory(name, ast, this.states));\n        });\n\n        this.fallbackTransition = createFallbackTransition(name, this.states);\n    }\n\n    get containsQueries()\n    {\n        return this.ast.queryCount > 0;\n    }\n\n    matchTransition(currentState: any, nextState: any, element: any,
params: {[key: string]: any}): AnimationTransitionFactory|null {\n        const entry =\n        this.transitionFactories.find(f => f.match(currentState, nextState, element, params));\n        return entry || null;\n    }\n\n    matchStyles(currentState: any, params: {[key: string]: any}, errors: any[]): StyleData {\n        return
this.fallbackTransition.buildStyles(currentState, params, errors);\n    }\n}\n\nfunction createFallbackTransition(\n    triggerName: string,\n    states: {[stateName: string]: AnimationStateStyles}): AnimationTransitionFactory {\n    const matchers = [(fromState: any, toState: any) => true];\n    const animation: SequenceAst = { type:
AnimationMetadataType.Sequence, steps: [], options: null };\n    const transition: TransitionAst = {\n        type:

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AnimationMetadataType.Transition,\n  animation,\n  matchers,\n  options: null,\n  queryCount: 0,\n  depCount:
0\n  };\n  return new AnimationTransitionFactory(triggerName, transition, states);\n}\n\nfunction
balanceProperties(obj: {[key: string]: any}, key1: string, key2: string) {\n  if (obj.hasOwnProperty(key1)) {\n    if
(!obj.hasOwnProperty(key2)) {\n      obj[key2] = obj[key1];\n    } else if (obj.hasOwnProperty(key2)) {\n
obj[key1] = obj[key2];\n    }\n  }\n  return obj;\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be found in the LICENSE file at
https://angular.io/license\n */\n\nimport { AnimationMetadata, AnimationMetadataType, AnimationOptions,
  AnimationPlayer, AUTO_STYLE, StyleData } from '@angular/animations';\nimport { Ast } from
'./dsl/animation_ast';\nimport { buildAnimationAst } from './dsl/animation_ast_builder';\nimport
{ buildAnimationTimelines } from './dsl/animation_timeline_builder';\nimport { AnimationTimelineInstruction } from
'./dsl/animation_timeline_instruction';\nimport { ElementInstructionMap }
from './dsl/element_instruction_map';\nimport { AnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nimport { ENTER_CLASSNAME,
  LEAVE_CLASSNAME } from './util';\nimport { AnimationDriver } from './animation_driver';\nimport
{ getOrSetAsInMap, listenOnPlayer, makeAnimationEvent, normalizeKeyframes, optimizeGroupPlayer } from
'./shared';\n\nconst EMPTY_INSTRUCTION_MAP = new ElementInstructionMap();\n\nexport class
TimelineAnimationEngine {\n  private _animations: {[id: string]: Ast<AnimationMetadataType>} = {};\n  private
_playersById: {[id: string]: AnimationPlayer} = {};\n  public players: AnimationPlayer[] = [];\n\n  constructor(\n    public bodyNode: any, private _driver: AnimationDriver,\n    private _normalizer: AnimationStyleNormalizer)\n  {\n\n    register(id: string, metadata: AnimationMetadata|AnimationMetadata[]) {\n      const errors: any[] = [];\n      const ast = buildAnimationAst(this._driver, metadata, errors);\n      if (errors.length)\n        throw new Error(`Unable to build the animation due to the following errors: ${errors.join('\\n')}`);\n      else {\n        this._animations[id] = ast;\n      }\n\n      private _buildPlayer(\n        i: AnimationTimelineInstruction,\n        preStyles: StyleData,\n        postStyles?: StyleData): AnimationPlayer {\n        const element = i.element;\n        const keyframes = normalizeKeyframes(\n          this._driver, this._normalizer, element, i.keyframes, preStyles,\n          postStyles);\n        return this._driver.animate(element, keyframes, i.duration, i.delay, i.easing, [], true);\n      }\n\n      create(id: string, element: any, options: AnimationOptions = {}): AnimationPlayer {\n        const errors: any[] = [];\n        const ast = this._animations[id];\n        let instructions: AnimationTimelineInstruction[];\n        const autoStylesMap = new Map<any, StyleData>();\n        if (ast) {\n          instructions = buildAnimationTimelines(\n            this._driver,\n            element, ast, ENTER_CLASSNAME, LEAVE_CLASSNAME,\n            {}, {}, options,\n            EMPTY_INSTRUCTION_MAP, errors);\n          instructions.forEach(inst => {\n            const styles = getOrSetAsInMap(autoStylesMap, inst.element, {});\n            inst.postStyleProps.forEach(prop => styles[prop] = null);\n          });\n        } else {\n          errors.push('The requested animation doesn\\'t exist or has already been destroyed');\n          instructions = [];\n        }\n        if (errors.length) {\n          throw new Error(`Unable to create the animation due to the following errors: ${errors.join('\\n')}`);\n        }\n        autoStylesMap.forEach((styles, element) => {\n          Object.keys(styles).forEach(prop => {\n            styles[prop] = this._driver.computeStyle(element, prop, AUTO_STYLE);\n          });\n        });\n        const players = instructions.map(i => {\n          const styles = autoStylesMap.get(i.element);\n          return this._buildPlayer(i, {}, styles);\n        });\n        const player = optimizeGroupPlayer(players);\n        this._playersById[id] = player;\n        player.onDestroy(() => this.destroy(id));\n        this.players.push(player);\n        return player;\n      }\n\n      destroy(id: string) {\n        const player = this._getPlayer(id);\n        player.destroy();\n        delete this._playersById[id];\n        const index = this.players.indexOf(player);\n        if (index >= 0) {\n          this.players.splice(index, 1);\n        }\n      }\n\n      private _getPlayer(id: string): AnimationPlayer {\n        const player = this._playersById[id];\n        if (!player) {\n          throw new Error(`Unable to find the timeline player referenced by ${id}`);\n        }\n        return player;\n      }\n\n      listen(id: string, element: string, eventName: string, callback: (event: any) => any): void {\n        // triggerName, fromState, toState are all ignored for timeline animations\n        const baseEvent = makeAnimationEvent(element, "", "",);\n        listenOnPlayer(this._getPlayer(id), eventName, baseEvent, callback);\n        return () => {};\n      }\n\n      command(id:

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string, element: any, command: string, args: any[]): void
{
  if (command === 'register') {
    this.register(id, args[0] as AnimationMetadata | AnimationMetadata[]);
  }
  if (command === 'create') {
    const options = (args[0] || {}) as AnimationOptions;
    this.create(id, element, options);
  }
  const player = this._getPlayer(id);
  switch (command) {
    case 'play':
      player.play();
      break;
    case 'pause':
      player.pause();
      break;
    case 'reset':
      player.reset();
      break;
    case 'restart':
      player.restart();
      break;
    case 'finish':
      player.finish();
      break;
    case 'init':
      player.init();
      break;
    case 'setPosition':
      player.setPosition(parseFloat(args[0] as string));
      break;
    case 'destroy':
      this.destroy(id);
      break;
  }
}

/**
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 * https://angular.io/license
 */
import { AnimationOptions, AnimationPlayer, AUTO_STYLE, NoopAnimationPlayer, AnimationGroupPlayer as AnimationGroupPlayer, PRE_STYLE as PRE_STYLE, StyleData } from '@angular/animations';
import { AnimationTimelineInstruction } from './dsl/animation_timeline_instruction';
import { AnimationTransitionFactory } from './dsl/animation_transition_factory';
import { AnimationTransitionInstruction } from './dsl/animation_transition_instruction';
import { AnimationTrigger } from './dsl/animation_trigger';
import { ElementInstructionMap } from './dsl/element_instruction_map';
import { AnimationStyleNormalizer } from './dsl/style_normalization/animation_style_normalizer';
import { copyObj, ENTER_CLASSNAME, eraseStyles, iteratorToArray, LEAVE_CLASSNAME, NG_ANIMATING_CLASSNAME, NG_ANIMATING_SELECTOR, NG_TRIGGER_CLASSNAME, NG_TRIGGER_SELECTOR, setStyles } from './util';
import { AnimationDriver } from './animation_driver';
import { getOrSetAsInMap, listenOnPlayer, makeAnimationEvent, normalizeKeyframes, optimizeGroupPlayer } from './shared';
const QUEUED_CLASSNAME = 'ng-animate-queued';
const QUEUED_SELECTOR = '.ng-animate-queued';
const DISABLED_CLASSNAME = 'ng-animate-disabled';
const DISABLED_SELECTOR = '.ng-animate-disabled';
const STAR_CLASSNAME = 'ng-star-inserted';
const STAR_SELECTOR = '.ng-star-inserted';
const EMPTY_PLAYER_ARRAY: TransitionAnimationPlayer[] = [];
const NULL_REMOVAL_STATE: ElementAnimationState = {
  namespaceId: '',
  setForRemoval: false,
  setForMove: false,
  hasAnimation: false,
  removedBeforeQueried: false
};
const NULL_REMOVED_QUERIED_STATE: ElementAnimationState = {
  namespaceId: '',
  setForMove: false,
  setForRemoval: false,
  hasAnimation: false,
  removedBeforeQueried: true
};
interface TriggerListener {
  name: string;
  phase: string;
  callback: (event: any) => any;
}
interface QueueInstruction {
  element: any;
  triggerName: string;
  fromState: StateValue;
  toState: StateValue;
  transition: AnimationTransitionFactory;
  player: TransitionAnimationPlayer;
  isFallbackTransition: boolean;
}
const REMOVAL_FLAG = '__ng_removed';
interface ElementAnimationState {
  setForRemoval: boolean;
  setForMove: boolean;
  hasAnimation: boolean;
  namespaceId: string;
  removedBeforeQueried: boolean;
}
export class StateValue {
  public value: string;
  public options: AnimationOptions;
  get params(): {[key: string]: any} {
    return this.options.params as {[key: string]: any};
  }
  constructor(input: any, public namespaceId: string = '') {
    const isObj = input && input.hasOwnProperty('value');
    const value = isObj ? input['value'] : input;
    this.value = normalizeTriggerValue(value);
    if (isObj) {
      const options = copyObj(input as any);
      delete options['value'];
      this.options = options as AnimationOptions;
    } else {
      this.options = {};
    }
    if (!this.options.params) {
      this.options.params = {};
    }
    absorbOptions(options: AnimationOptions) {
      const newParams = options.params;
      if (newParams) {
        const oldParams = this.options.params!;
        Object.keys(newParams).forEach(prop => {
          if (oldParams[prop] == null) {
            oldParams[prop] = newParams[prop];
          }
        });
      }
    }
  }
  static VOID_VALUE = 'void';
  static DEFAULT_STATE_VALUE = new StateValue(VOID_VALUE);
  static AnimationTransitionNamespace {
    public players: TransitionAnimationPlayer[] = [];
    private _triggers: {[triggerName: string]: AnimationTrigger} = {};
    private _queue: QueueInstruction[] = [];
    private _elementListeners = new

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Map<any, TriggerListener[]>());\n\n private _hostClassName: string;\n\n constructor(\n    public id: string, public
hostElement: any, private _engine:
TransitionAnimationEngine) {\n    this._hostClassName = 'ng-tns-' + id;\n    addClass(hostElement,
this._hostClassName);\n    }\n\n listen(element: any, name: string, phase: string, callback: (event: any) => boolean):
() => any {\n    if (!this._triggers.hasOwnProperty(name)) {\n        throw new Error(`Unable to listen on the animation
trigger event \"${\n        phase}\" because the animation trigger \"${name}\" doesn't exist!`);\n    }\n\n    if (phase
== null || phase.length == 0) {\n        throw new Error(`Unable to listen on the animation trigger \"${\n        name}\"
because the provided event is undefined!`);\n    }\n\n    if (!isTriggerEventValid(phase)) {\n        throw new
Error(`The provided animation trigger event \"${phase}\" for the animation trigger \"${\n        name}\" is not
supported!`);\n    }\n\n    const listeners = getOrSetAsInMap(this._elementListeners, element, []);\n    const data =
{name, phase, callback};\n    listeners.push(data);\n\n    const triggersWithStates
= getOrSetAsInMap(this._engine.statesByElement, element, {});\n    if
(!triggersWithStates.hasOwnProperty(name)) {\n        addClass(element, NG_TRIGGER_CLASSNAME);\n
addClass(element, NG_TRIGGER_CLASSNAME + '-' + name);\n        triggersWithStates[name] =
DEFAULT_STATE_VALUE;\n    }\n\n    return () => {\n        // the event listener is removed AFTER the flush has
occurred such\n        // that leave animations callbacks can fire (otherwise if the node\n        // is removed in between
then the listeners would be deregistered)\n        this._engine.afterFlush(() => {\n            const index =
listeners.indexOf(data);\n            if (index >= 0) {\n                listeners.splice(index, 1);\n            }\n\n            if
(!this._triggers[name]) {\n                delete triggersWithStates[name];\n            }\n        });\n    }\n\n    register(name:
string, ast: AnimationTrigger): boolean {\n        if (this._triggers[name]) {\n            // throw\n            return false;\n        } else {\n            this._triggers[name] = ast;\n
            return true;\n        }\n    }\n\n    private _getTrigger(name: string) {\n        const trigger = this._triggers[name];\n        if
(!trigger) {\n            throw new Error(`The provided animation trigger \"${name}\" has not been registered!`);\n        }\n
        return trigger;\n    }\n\n    trigger(element: any, triggerName: string, value: any, defaultToFallback: boolean = true):\n
TransitionAnimationPlayer|undefined {\n        const trigger = this._getTrigger(triggerName);\n        const player = new
TransitionAnimationPlayer(this.id, triggerName, element);\n\n        let triggersWithStates =
this._engine.statesByElement.get(element);\n        if (!triggersWithStates) {\n            addClass(element,
NG_TRIGGER_CLASSNAME);\n            addClass(element, NG_TRIGGER_CLASSNAME + '-' + triggerName);\n
            this._engine.statesByElement.set(element, triggersWithStates = {});\n        }\n\n        let fromState =
triggersWithStates[triggerName];\n        const toState = new StateValue(value, this.id);\n        const isObj = value &&
value.hasOwnProperty('value');\n
        if (!isObj && fromState) {\n            toState.absorbOptions(fromState.options);\n        }\n\n        triggersWithStates[triggerName] = toState;\n\n        if (!fromState) {\n            fromState = DEFAULT_STATE_VALUE;\n
        }\n\n        const isRemoval = toState.value === VOID_VALUE;\n        // normally this isn't reached by here, however,
if an object expression\n        // is passed in then it may be a new object each time. Comparing the value\n        // is
important since that will stay the same despite there being a new object.\n        // The removal arc here is special cased
because the same element is triggered\n        // twice in the event that it contains animations on the outer/inner
portions\n        // of the host container\n        if (!isRemoval && fromState.value === toState.value) {\n            // this means
that despite the value not changing, some inner params\n            // have changed which means that the animation final
styles need to be applied\n            if (!objEquals(fromState.params, toState.params))\n                {\n                    const errors: any[] = [];\n                    const fromStyles = trigger.matchStyles(fromState.value, fromState.params,
errors);\n                    const toStyles = trigger.matchStyles(toState.value, toState.params, errors);\n                    if (errors.length) {\n
                        this._engine.reportError(errors);\n                    }\n                }\n            else {\n                this._engine.afterFlush(() => {\n
                    eraseStyles(element, fromStyles);\n                    setStyles(element, toStyles);\n                });\n            }\n        }\n\n        return;\n
    }\n\n    const playersOnElement: TransitionAnimationPlayer[] =\n    getOrSetAsInMap(this._engine.playersByElement, element, []);\n    playersOnElement.forEach(player => {\n        //
only remove the player if it is queued on the EXACT same trigger/namespace\n        // we only also deal with queued
players here because if the animation has\n        // started then we want to keep the player alive until the flush

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happens\n    // (which is where the previousPlayers are passed into the new palyer)\n
    if (player.namespaceId == this.id && player.triggerName == triggerName && player.queued) {\n
player.destroy();\n    }\n    });\n\n    let transition =\n        trigger.matchTransition(fromState.value, toState.value,\n        element, toState.params);\n    let isFallbackTransition = false;\n    if (!transition) {\n        if (!defaultToFallback)\n        return;\n        transition = trigger.fallbackTransition;\n        isFallbackTransition = true;\n    }\n\n    this._engine.totalQueuedPlayers++;\n    this._queue.push(\n        {element, triggerName, transition, fromState,\n        toState, player, isFallbackTransition});\n\n    if (!isFallbackTransition) {\n        addClass(element,\n        QUEUED_CLASSNAME);\n        player.onStart() => {\n            removeClass(element, QUEUED_CLASSNAME);\n        };\n    }\n\n    player.onDone() => {\n        let index = this.players.indexOf(player);\n        if (index >= 0) {\n            this.players.splice(index, 1);\n        }\n        const players = this._engine.playersByElement.get(element);\n        if (players) {\n            let index = players.indexOf(player);\n            if (index >= 0) {\n                players.splice(index,\n                1);\n            }\n        }\n        this.players.push(player);\n        playersOnElement.push(player);\n        return player;\n    }\n\n    deregister(name: string) {\n        delete this._triggers[name];\n    }\n\n    this._engine.statesByElement.forEach((stateMap, element) => {\n        delete stateMap[name];\n    });\n\n    this._elementListeners.forEach((listeners, element) => {\n        this._elementListeners.set(element,\n        listeners.filter(entry => {\n            return entry.name != name;\n        }));\n    });\n\n    clearElementCache(element:\n    any) {\n        this._engine.statesByElement.delete(element);\n        this._elementListeners.delete(element);\n        const\n        elementPlayers = this._engine.playersByElement.get(element);\n        if (elementPlayers) {\n            elementPlayers.forEach(player => player.destroy());\n            this._engine.playersByElement.delete(element);\n        }\n    }\n\n    private _signalRemovalForInnerTriggers(rootElement: any, context: any) {\n        const elements =\n        this._engine.driver.query(rootElement, NG_TRIGGER_SELECTOR, true);\n        // emulate a leave animation for all\n        inner nodes within this node.\n        // If there are no animations found for any of the nodes then clear the cache\n        //\n        for the element.\n        elements.forEach(elm => {\n            // this means that an inner remove() operation has already\n            kicked off\n            // the animation on this element...\n            if (elm[REMOVAL_FLAG]) return;\n            const\n            namespaces = this._engine.fetchNamespacesByElement(elm);\n            if (namespaces.size) {\n                namespaces.forEach(ns => ns.triggerLeaveAnimation(elm, context, false, true));\n            } else {\n                this.clearElementCache(elm);\n            }\n        });\n        // If the child elements were removed along with the parent, their\n        animations might not\n        // have completed. Clear all the elements from the cache so we don't end up with a memory\n        leak.\n        this._engine.afterFlushAnimationsDone(\n            () => elements.forEach(elm => this.clearElementCache(elm)));\n        triggerLeaveAnimation(\n            element:\n            any, context: any, destroyAfterComplete?: boolean,\n            defaultToFallback?: boolean): boolean {\n            const\n            triggerStates = this._engine.statesByElement.get(element);\n            if (triggerStates) {\n                const players:\n                TransitionAnimationPlayer[] = [];\n                Object.keys(triggerStates).forEach(triggerName => {\n                    // this check is\n                    here in the event that an element is removed\n                    // twice (both on the host level and the component level)\n                    if\n                    (this._triggers[triggerName]) {\n                        const player = this.trigger(element, triggerName, VOID_VALUE,\n                        defaultToFallback);\n                        if (player) {\n                            players.push(player);\n                        }\n                    }\n                    if\n                    (players.length) {\n                        this._engine.markElementAsRemoved(this.id, element, true, context);\n                        if\n                        (destroyAfterComplete) {\n                            optimizeGroupPlayer(players).onDone()\n                            => this._engine.processLeaveNode(element);\n                        }\n                        return true;\n                    }\n                    return false;\n                })\n            }\n            prepareLeaveAnimationListeners(element: any) {\n                const listeners = this._elementListeners.get(element);\n                if\n                (listeners) {\n                    const visitedTriggers = new Set<string>();\n                    listeners.forEach(listener => {\n                        const\n                        triggerName = listener.name;\n                        if (visitedTriggers.has(triggerName)) return;\n                        visitedTriggers.add(triggerName);\n                        const trigger = this._triggers[triggerName];\n                        const transition =\n                        trigger.fallbackTransition;\n                        const elementStates = this._engine.statesByElement.get(element);\n                        const\n                        fromState = elementStates[triggerName] || DEFAULT_STATE_VALUE;\n                        const toState = new\n                        StateValue(VOID_VALUE);\n                        const player = new TransitionAnimationPlayer(this.id, triggerName,\n                        element);\n                        this._engine.totalQueuedPlayers++;\n                        this._queue.push({\n
```



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    public playersByElement = new Map<any, TransitionAnimationPlayer[]>();\n public playersByQueriedElement =
    new Map<any, TransitionAnimationPlayer[]>();\n public statesByElement = new Map<any, {[triggerName: string]:
    StateValue}>();\n public disabledNodes = new Set<any>();\n\n public totalAnimations = 0;\n public
    totalQueuedPlayers = 0;\n\n private _namespaceLookup: {[id: string]: AnimationTransitionNamespace} = {};\n
    private _namespaceList: AnimationTransitionNamespace[] = [];\n private _flushFns: (() => any)[] = [];\n private
    _whenQuietFns: (() => any)[] = [];\n\n public namespacesByHostElement = new Map<any,
    AnimationTransitionNamespace>();\n public collectedEnterElements: any[] = [];\n public collectedLeaveElements:
    any[] = [];\n\n // this method is designed to be overridden by the code that uses this engine\n public
    onRemovalComplete = (element: any, context: any) => {};\n\n /** @internal */\n _onRemovalComplete(element:
    any, context: any) {\n this.onRemovalComplete(element,
    context);\n }\n\n constructor(\n public bodyNode: any, public driver: AnimationDriver,\n private
    _normalizer: AnimationStyleNormalizer) {\n\n get queuedPlayers(): TransitionAnimationPlayer[] {\n const
    players: TransitionAnimationPlayer[] = [];\n this._namespaceList.forEach(ns => {\n ns.players.forEach(player
    => {\n if (player.queued) {\n players.push(player);\n }\n });\n });\n return players;\n }\n\n createNamespace(namespaceId: string, hostElement: any) {\n const ns = new
    AnimationTransitionNamespace(namespaceId, hostElement, this);\n if (hostElement.parentNode) {\n
    this._balanceNamespaceList(ns, hostElement);\n } else {\n // defer this later until flush during when the host
    element has\n // been inserted so that we know exactly where to place it in\n // the namespace list\n
    this.newHostElements.set(hostElement, ns);\n\n // given that this host element is apart of
    the animation code, it\n // may or may not be inserted by a parent node that is an of an\n // animation renderer
    type. If this happens then we can still have\n // access to this item when we query for :enter nodes. If the parent\n
    // is a renderer then the set data-structure will normalize the entry\n this.collectEnterElement(hostElement);\n
    }\n return this._namespaceLookup[namespaceId] = ns;\n }\n\n private _balanceNamespaceList(ns:
    AnimationTransitionNamespace, hostElement: any) {\n const limit = this._namespaceList.length - 1;\n if (limit
    >= 0) {\n let found = false;\n for (let i = limit; i >= 0; i--) {\n const nextNamespace =
    this._namespaceList[i];\n if (this.driver.containsElement(nextNamespace.hostElement, hostElement)) {\n
    this._namespaceList.splice(i + 1, 0, ns);\n found = true;\n break;\n }\n }\n if (!found) {\n
    this._namespaceList.splice(0, 0, ns);\n }\n
    } else {\n this._namespaceList.push(ns);\n }\n\n this.namespacesByHostElement.set(hostElement, ns);\n
    return ns;\n }\n\n register(namespaceId: string, hostElement: any) {\n let ns =
    this._namespaceLookup[namespaceId];\n if (!ns) {\n ns = this.createNamespace(namespaceId, hostElement);\n
    }\n return ns;\n }\n\n registerTrigger(namespaceId: string, name: string, trigger: AnimationTrigger) {\n let ns =
    this._namespaceLookup[namespaceId];\n if (ns && ns.register(name, trigger)) {\n this.totalAnimations++;\n
    }\n }\n\n destroy(namespaceId: string, context: any) {\n if (!namespaceId) return;\n\n const ns =
    this._fetchNamespace(namespaceId);\n\n this.afterFlush(() => {\n
    this.namespacesByHostElement.delete(ns.hostElement);\n delete this._namespaceLookup[namespaceId];\n
    const index = this._namespaceList.indexOf(ns);\n if (index >= 0) {\n this._namespaceList.splice(index, 1);\n
    }\n });\n\n this.afterFlushAnimationsDone()\n
    => ns.destroy(context);\n }\n\n private _fetchNamespace(id: string) {\n return this._namespaceLookup[id];\n
    }\n\n fetchNamespacesByElement(element: any): Set<AnimationTransitionNamespace> {\n // normally there
    should only be one namespace per element, however\n // if @triggers are placed on both the component element
    and then\n // its host element (within the component code) then there will be\n // two namespaces returned. We
    use a set here to simply the dedupe\n // of namespaces incase there are multiple triggers both the elm and host\n
    const namespaces = new Set<AnimationTransitionNamespace>();\n const elementStates =
    this.statesByElement.get(element);\n if (elementStates) {\n const keys = Object.keys(elementStates);\n for
    (let i = 0; i < keys.length; i++) {\n const nsId = elementStates[keys[i]].namespaceId;\n if (nsId) {\n
    const ns = this._fetchNamespace(nsId);\n if (ns) {\n

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    namespaces.add(ns);\n    }\n    }\n    }\n    return namespaces;\n  }\n\n  trigger(namespaceId: string,
element: any, name: string, value: any): boolean {\n    if (isElementNode(element)) {\n      const ns =
this._fetchNamespace(namespaceId);\n      if (ns) {\n        ns.trigger(element, name, value);\n        return true;\n      }\n    }\n    return false;\n  }\n\n  insertNode(namespaceId: string, element: any, parent: any, insertBefore: boolean):
void {\n    if (!isElementNode(element)) return;\n\n    // special case for when an element is removed and reinserted
(move operation)\n    // when this occurs we do not want to use the element for deletion later\n    const details =
element[REMOVAL_FLAG] as ElementAnimationState;\n    if (details && details.setForRemoval) {\n      details.setForRemoval = false;\n      details.setForMove = true;\n      const index =
this.collectedLeaveElements.indexOf(element);\n      if (index >= 0) {\n        this.collectedLeaveElements.splice(index,
1);\n      }\n    }\n\n    // in the event that the namespaceId is blank then the caller\n    // code does not contain any
animation code in it, but it is\n    // just being called so that the node is marked as being inserted\n    if
(namespaceId) {\n      const ns = this._fetchNamespace(namespaceId);\n      // This if-statement is a workaround for
router issue #21947.\n      // The router sometimes hits a race condition where while a route\n      // is being
instantiated a new navigation arrives, triggering leave\n      // animation of DOM that has not been fully initialized,
until this\n      // is resolved, we need to handle the scenario when DOM is not in a\n      // consistent state during the
animation.\n      if (ns) {\n        ns.insertNode(element, parent);\n      }\n    }\n\n    // only *directives and host
elements are inserted before\n    if (insertBefore) {\n      this.collectEnterElement(element);\n    }\n  }\n\n  collectEnterElement(element: any) {\n    this.collectedEnterElements.push(element);\n  }\n\n  markElementAsDisabled(element: any, value: boolean) {\n    if (value) {\n      if
(!this.disabledNodes.has(element)) {\n        this.disabledNodes.add(element);\n        addClass(element,
DISABLED_CLASSNAME);\n      }\n    } else if (this.disabledNodes.has(element)) {\n      this.disabledNodes.delete(element);\n      removeClass(element, DISABLED_CLASSNAME);\n    }\n  }\n\n  removeNode(namespaceId: string, element: any, isHostElement: boolean, context: any): void {\n    if
(isElementNode(element)) {\n      const ns = namespaceId ? this._fetchNamespace(namespaceId) : null;\n      if (ns) {\n        ns.removeNode(element, context);\n      } else {\n        this.markElementAsRemoved(namespaceId, element,
false, context);\n      }\n    }\n\n    if (isHostElement) {\n      const hostNS =
this.namespacesByHostElement.get(element);\n      if (hostNS && hostNS.id !== namespaceId) {\n        hostNS.removeNode(element, context);\n      }\n    }\n  }\n\n  } else {\n    this._onRemovalComplete(element, context);\n  }\n\n  }\n\n  markElementAsRemoved(namespaceId: string, element: any, hasAnimation?: boolean, context?: any) {\n    this.collectedLeaveElements.push(element);\n    element[REMOVAL_FLAG] = {\n      namespaceId,
setForRemoval: context, hasAnimation, removedBeforeQueried: false;\n    }\n\n    listen(\n      namespaceId: string,
element: any, name: string, phase: string,\n      callback: (event: any) => boolean): () => any {\n      if
(isElementNode(element)) {\n        return this._fetchNamespace(namespaceId).listen(element, name, phase,
callback);\n      }\n      return () => {};\n    }\n\n    private _buildInstruction(\n      entry: QueueInstruction, subTimelines:
ElementInstructionMap, enterClassName: string,\n      leaveClassName: string, skipBuildAst?: boolean) {\n      return
entry.transition.build(\n        this.driver, entry.element, entry.fromState.value, entry.toState.value,
enterClassName,\n        leaveClassName, entry.fromState.options,
entry.toState.options, subTimelines, skipBuildAst);\n    }\n\n    destroyInnerAnimations(containerElement: any) {\n      let elements = this.driver.query(containerElement, NG_TRIGGER_SELECTOR, true);\n      elements.forEach(element => this.destroyActiveAnimationsForElement(element));\n\n      if
(this.playersByQueriedElement.size === 0) return;\n\n      elements = this.driver.query(containerElement,
NG_ANIMATING_SELECTOR, true);\n      elements.forEach(element =>
this.finishActiveQueriedAnimationOnElement(element);\n    }\n\n    destroyActiveAnimationsForElement(element:
any) {\n      const players = this.playersByElement.get(element);\n      if (players) {\n        players.forEach(player => {\n          // special case for when an element is set for destruction, but hasn't started.\n          // in this situation we want to
delay the destruction until the flush occurs\n          // so that any event listeners attached to the player are triggered.\n

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    if (player.queued) {\n      player.markedForDestroy
    = true;\n    } else {\n      player.destroy();\n    }\n  });\n }\n }\n\nfinishActiveQueriedAnimationOnElement(element: any) {\n  const players =
this.playersByQueriedElement.get(element);\n  if (players) {\n    players.forEach(player => player.finish());\n  }\n }\n\nwhenRenderingDone(): Promise<any> {\n  return new Promise(resolve => {\n    if (this.players.length)
{\n      return optimizeGroupPlayer(this.players).onDone(() => resolve());\n    } else {\n      resolve();\n    }\n  });\n }\n\nprocessLeaveNode(element: any) {\n  const details = element[REMOVAL_FLAG] as
ElementAnimationState;\n  if (details && details.setForRemoval) {\n    // this will prevent it from removing it
twice\n    element[REMOVAL_FLAG] = NULL_REMOVAL_STATE;\n    if (details.namespaceId) {\n
this.destroyInnerAnimations(element);\n    const ns = this._fetchNamespace(details.namespaceId);\n    if (ns)
{\n      ns.clearElementCache(element);\n    }\n  }\n  this._onRemovalComplete(element, details.setForRemoval);\n }\n\nif
(this.driver.matchesElement(element, DISABLED_SELECTOR)) {\n  this.markElementAsDisabled(element,
false);\n }\n\nthis.driver.query(element, DISABLED_SELECTOR, true).forEach(node => {\n
this.markElementAsDisabled(node, false);\n });\n }\n\nflush(microtaskId: number = -1) {\n  let players:
AnimationPlayer[] = [];\n  if (this.newHostElements.size) {\n    this.newHostElements.forEach((ns, element) =>
this._balanceNamespaceList(ns, element);\n    this.newHostElements.clear();\n  }\n\n  if (this.totalAnimations
&& this.collectedEnterElements.length) {\n    for (let i = 0; i < this.collectedEnterElements.length; i++) {\n
const elm = this.collectedEnterElements[i];\n    addClass(elm, STAR_CLASSNAME);\n    }\n  }\n\n  if
(this._namespaceList.length && (this.totalQueuedPlayers || this.collectedLeaveElements.length)) {\n
const cleanupFns: Function[] = [];\n    try {\n      players = this._flushAnimations(cleanupFns, microtaskId);\n
    } finally {\n      for (let i = 0; i < cleanupFns.length; i++) {\n        cleanupFns[i]();\n      }\n    } else {\n
for (let i = 0; i < this.collectedLeaveElements.length; i++) {\n      const element =
this.collectedLeaveElements[i];\n      this.processLeaveNode(element);\n    }\n  }\n\n  this.totalQueuedPlayers =
0;\n  this.collectedEnterElements.length = 0;\n  this.collectedLeaveElements.length = 0;\n
this._flushFns.forEach(fn => fn());\n  this._flushFns = [];\n\n  if (this._whenQuietFns.length) {\n    // we move
these over to a variable so that\n    // if any new callbacks are registered in another\n    // flush they do not
populate the existing set\n    const quietFns = this._whenQuietFns;\n    this._whenQuietFns = [];\n    if
(players.length) {\n      optimizeGroupPlayer(players).onDone(() => {\n
        quietFns.forEach(fn => fn());\n      });\n    } else {\n      quietFns.forEach(fn => fn());\n    }\n  }\n\n
reportError(errors: string[]) {\n  throw new Error(\n    `Unable to process animations due to the following failed
trigger transitions\\n $ {\n      errors.join("\\n");\n    });\n }\n\nprivate _flushAnimations(cleanupFns: Function[],
microtaskId: number):\n  TransitionAnimationPlayer[] {\n    const subTimelines = new
ElementInstructionMap();\n    const skippedPlayers: TransitionAnimationPlayer[] = [];\n    const
skippedPlayersMap = new Map<any, AnimationPlayer[]>();\n    const queuedInstructions: QueuedTransition[] =
[];\n    const queriedElements = new Map<any, TransitionAnimationPlayer[]>();\n    const allPreStyleElements =
new Map<any, Set<string>>();\n    const allPostStyleElements = new Map<any, Set<string>>();\n    const
disabledElementsSet = new Set<any>();\n    this.disabledNodes.forEach(node => {\n
disabledElementsSet.add(node);\n\n    const nodesThatAreDisabled = this.driver.query(node, QUEUED_SELECTOR, true);\n    for (let i = 0; i <
nodesThatAreDisabled.length; i++) {\n      disabledElementsSet.add(nodesThatAreDisabled[i]);\n    }\n  });\n\nconst bodyNode = this.bodyNode;\n  const allTriggerElements = Array.from(this.statesByElement.keys());\n
const enterNodeMap = buildRootMap(allTriggerElements, this.collectedEnterElements);\n\n  // this must occur
before the instructions are built below such that\n  // the :enter queries match the elements (since the timeline
queries\n  // are fired during instruction building).\n  const enterNodeMapIds = new Map<any, string>();\n  let i
= 0;\n  enterNodeMap.forEach((nodes, root) => {\n    const className = ENTER_CLASSNAME + i++;\n
enterNodeMapIds.set(root, className);\n    nodes.forEach(node => addClass(node, className));\n  });\n\nconst allLeaveNodes: any[] = [];\n  const mergedLeaveNodes = new Set<any>();\n  const

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leaveNodesWithoutAnimations
= new Set<any>();\n  for (let i = 0; i < this.collectedLeaveElements.length; i++) {\n    const element =
this.collectedLeaveElements[i];\n    const details = element[REMOVAL_FLAG] as ElementAnimationState;\n
if (details && details.setForRemoval) {\n      allLeaveNodes.push(element);\n
mergedLeaveNodes.add(element);\n      if (details.hasAnimation) {\n        this.driver.query(element,
STAR_SELECTOR, true).forEach(elm => mergedLeaveNodes.add(elm));\n      } else {\n
leaveNodesWithoutAnimations.add(element);\n      }\n    }\n    const leaveNodeMapIds = new Map<any,
string>();\n    const leaveNodeMap = buildRootMap(allTriggerElements, Array.from(mergedLeaveNodes));\n
leaveNodeMap.forEach((nodes, root) => {\n      const className = LEAVE_CLASSNAME + i++;\n
leaveNodeMapIds.set(root, className);\n      nodes.forEach(node => addClass(node, className));\n    });\n
cleanupFns.push(() => {\n      enterNodeMap.forEach((nodes,
root) => {\n        const className = enterNodeMapIds.get(root);\n        nodes.forEach(node => removeClass(node,
className));\n      });\n      leaveNodeMap.forEach((nodes, root) => {\n        const className =
leaveNodeMapIds.get(root);\n        nodes.forEach(node => removeClass(node, className));\n      });\n
allLeaveNodes.forEach(element => {\n      this.processLeaveNode(element);\n    });\n  });\n  const allPlayers:
TransitionAnimationPlayer[] = [];\n  const erroneousTransitions: AnimationTransitionInstruction[] = [];\n  for (let
i = this._namespaceList.length - 1; i >= 0; i--) {\n    const ns = this._namespaceList[i];\n
ns.drainQueuedTransitions(microtaskId).forEach(entry => {\n      const player = entry.player;\n      const element
= entry.element;\n      allPlayers.push(player);\n      if (this.collectedEnterElements.length) {\n        const
details = element[REMOVAL_FLAG] as ElementAnimationState;\n        // move animations
are currently not supported...\n        if (details && details.setForMove) {\n          player.destroy();\n
return;\n        }\n      }\n      const nodeIsOrphaned = !bodyNode || !this.driver.containsElement(bodyNode,
element);\n      const leaveClassName = leaveNodeMapIds.get(element);\n      const enterClassName =
enterNodeMapIds.get(element);\n      const instruction = this._buildInstruction(\n        entry, subTimelines,
enterClassName, leaveClassName, nodeIsOrphaned);\n      if (instruction.errors && instruction.errors.length) {\n
        erroneousTransitions.push(instruction);\n        return;\n      }\n      // even though the element may not be
apart of the DOM, it may\n      // still be added at a later point (due to the mechanics of content\n      // projection
and/or dynamic component insertion) therefore it's\n      // important we still style the element.\n      if
(nodeIsOrphaned) {\n        player.onStart()\n        => eraseStyles(element, instruction.fromStyles);\n        player.onDestroy() => setStyles(element,
instruction.toStyles);\n        skippedPlayers.push(player);\n        return;\n      }\n      // if a unmatched
transition is queued to go then it SHOULD NOT render\n      // an animation and cancel the previously running
animations.\n      if (entry.isFallbackTransition) {\n        player.onStart() => eraseStyles(element,
instruction.fromStyles);\n        player.onDestroy() => setStyles(element, instruction.toStyles);\n
skippedPlayers.push(player);\n        return;\n      }\n      // this means that if a parent animation uses this
animation as a sub trigger\n      // then it will instruct the timeline builder to not add a player delay, but\n      //
instead stretch the first keyframe gap up until the animation starts. The\n      // reason this is important is to prevent
extra initialization styles from being\n      // required by the user
in the animation.\n      instruction.timelines.forEach(tl => tl.stretchStartingKeyframe = true);\n
subTimelines.append(element, instruction.timelines);\n      const tuple = { instruction, player, element};\n
queuedInstructions.push(tuple);\n      instruction.queriedElements.forEach(\n        element =>
getOrSetAsInMap(queriedElements, element, []).push(player));\n
instruction.preStyleProps.forEach((stringMap, element) => {\n      const props = Object.keys(stringMap);\n
if (props.length) {\n        let setVal: Set<string> = allPreStyleElements.get(element);\n        if (!setVal) {\n
          allPreStyleElements.set(element, setVal = new Set<string>());\n        }\n        props.forEach(prop =>
setVal.add(prop));\n      }\n    });\n      instruction.postStyleProps.forEach((stringMap, element) => {\n
const props = Object.keys(stringMap);\n      let setVal: Set<string> = allPostStyleElements.get(element);\n

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        if (!setVal) {\n            allPostStyleElements.set(element, setVal = new Set<string>());\n        }\n        props.forEach(prop => setVal.add(prop));\n    });\n    }\n    }\n    if (erroneousTransitions.length) {\n        const\n        errors: string[] = [];\n        erroneousTransitions.forEach(instruction => {\n            errors.push(`@${instruction.triggerName} has failed due to:\\n`);\n            instruction.errors!.forEach(error =>\n            errors.push(` - ${error}\\n`));\n        });\n        allPlayers.forEach(player => player.destroy());\n        this.reportError(errors);\n    }\n    const allPreviousPlayersMap = new Map<any,\n    TransitionAnimationPlayer[]>();\n    // this map works to tell which element in the DOM tree is contained by\n    // which animation. Further down below this map will get populated once\n    // the players are built and in doing so it\n    // can efficiently figure out\n    // if a sub player is skipped due to a parent player having priority.\n    const animationElementMap = new Map<any, any>();\n    queuedInstructions.forEach(entry => {\n        const\n        element = entry.element;\n        if (subTimelines.has(element)) {\n            animationElementMap.set(element,\n            element);\n            this._beforeAnimationBuild(\n                entry.player.namespaceId, entry.instruction,\n                allPreviousPlayersMap);\n        }\n        skippedPlayers.forEach(player => {\n            const element =\n            player.element;\n            const previousPlayers =\n                this._getPreviousPlayers(element, false, player.namespaceId,\n                player.triggerName, null);\n            previousPlayers.forEach(prevPlayer => {\n                getOrSetAsInMap(allPreviousPlayersMap, element, []).push(prevPlayer);\n                prevPlayer.destroy();\n            });\n        });\n        // this is a special case for nodes that will be removed (either by)\n        // having their own leave animations\n        // or by being queried in a container\n        // that will be removed once a parent animation is complete. The idea\n        // here is that * styles\n        // must be identical to ! styles because of\n        // backwards compatibility (* is also filled in by default in many\n        // places).\n        // Otherwise * styles will return an empty value or auto since the element\n        // that is being\n        // getComputedStyle'd will not be visible (since * = destination)\n        const replaceNodes = allLeaveNodes.filter((node\n        => {\n            return replacePostStylesAsPre(node, allPreStyleElements, allPostStyleElements);\n        }));\n        // POST\n        // STAGE: fill the * styles\n        const postStylesMap = new Map<any, StyleData>();\n        const allLeaveQueriedNodes =\n        cloakAndComputeStyles(\n            postStylesMap, this.driver, leaveNodesWithoutAnimations, allPostStyleElements,\n            AUTO_STYLE);\n        allLeaveQueriedNodes.forEach((node => {\n            if (replacePostStylesAsPre(node,\n            allPreStyleElements, allPostStyleElements)) {\n                replaceNodes.push(node);\n            }\n        }));\n        // PRE STAGE:\n        // fill the ! styles\n        const preStylesMap = new Map<any, StyleData>();\n        enterNodeMap.forEach((nodes,\n        root) => {\n            cloakAndComputeStyles(\n                preStylesMap, this.driver, new Set(nodes), allPreStyleElements,\n                PRE_STYLE);\n        });\n        replaceNodes.forEach((node => {\n            const post = postStylesMap.get(node);\n            const\n            pre = preStylesMap.get(node);\n            postStylesMap.set(node, { ...post, ...pre } as any);\n        });\n        const rootPlayers:\n        TransitionAnimationPlayer[] = [];\n        const subPlayers: TransitionAnimationPlayer[] = [];\n        const\n        NO_PARENT_ANIMATION_ELEMENT_DETECTED = {};\n        queuedInstructions.forEach(entry => {\n            const { element, player, instruction } = entry;\n            // this means that it was never consumed by a parent animation\n            // which\n            // means that it is independent and therefore should be set for animation\n            if\n            (subTimelines.has(element)) {\n                if (disabledElementsSet.has(element)) {\n                    player.onDestroy(() =>\n                    setStyles(element, instruction.toStyles));\n                    player.disabled = true;\n                    player.overrideTotalTime(instruction.totalTime);\n                    skippedPlayers.push(player);\n                    return;\n                }\n                // this will flow up the DOM and query the map\n                // to figure out\n                // if a parent animation has priority over it. In the situation\n                // that a parent is detected then\n                // it will cancel the loop. If\n                // nothing is detected, or it takes a few hops to find a parent,\n                // then it will fill\n                // in the missing nodes and signal them as having\n                // a detected parent (or a NO_PARENT value via a special\n                // constant).\n                let parentWithAnimation: any = NO_PARENT_ANIMATION_ELEMENT_DETECTED;\n                if\n                (animationElementMap.size > 1) {\n                    let elm = element;\n                    const parentsToAdd: any[] = [];\n                    while\n                    (elm = elm.parentNode) {\n                        const detectedParent = animationElementMap.get(elm);\n                        if\n                        (detectedParent) {\n                            parentWithAnimation = detectedParent;\n                            break;\n                        }\n                    }\n                    parentsToAdd.push(elm);\n                }\n            }\n        });\n    }\n}

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    }\n    parentsToAdd.forEach(parent => animationElementMap.set(parent, parentWithAnimation));\n
  }\n\n  const innerPlayer = this._buildAnimation(\n    player.namespaceId, instruction,\n    allPreviousPlayersMap, skippedPlayersMap, preStylesMap,\n    postStylesMap);\n\n  player.setRealPlayer(innerPlayer);\n\n  if (parentWithAnimation ===\n  NO_PARENT_ANIMATION_ELEMENT_DETECTED) {\n    rootPlayers.push(player);\n  } else {\n    const parentPlayers = this.playersByElement.get(parentWithAnimation);\n    if (parentPlayers &&\n    parentPlayers.length) {\n      player.parentPlayer = optimizeGroupPlayer(parentPlayers);\n    }\n    skippedPlayers.push(player);\n  } else {\n    eraseStyles(element, instruction.fromStyles);\n    player.onDestroy(() => setStyles(element, instruction.toStyles));\n    // there still might be a ancestor player\n    animating this\n    // element therefore\n    we will still add it as a sub player\n    // even if its animation may be disabled\n    subPlayers.push(player);\n    if (disabledElementsSet.has(element)) {\n      skippedPlayers.push(player);\n    }\n  }\n\n  // find all\n  of the sub players' corresponding inner animation player\n  subPlayers.forEach(player => {\n    // even if any\n    players are not found for a sub animation then it\n    // will still complete itself after the next tick since it's Noop\n    const playersForElement = skippedPlayersMap.get(player.element);\n    if (playersForElement &&\n    playersForElement.length) {\n      const innerPlayer = optimizeGroupPlayer(playersForElement);\n      player.setRealPlayer(innerPlayer);\n    }\n  });\n\n  // the reason why we don't actually play the animation is\n  // because all that a skipped player is designed to do is to\n  // fire the start/done transition callback events\n  skippedPlayers.forEach(player => {\n    if (player.parentPlayer)\n      {\n        player.syncPlayerEvents(player.parentPlayer);\n      } else {\n        player.destroy();\n      }\n  });\n\n  // run through all of the queued removals and see if they\n  // were picked up by a query. If not then perform the\n  removal\n  // operation right away unless a parent animation is ongoing.\n  for (let i = 0; i < allLeaveNodes.length;\n  i++) {\n    const element = allLeaveNodes[i];\n    const details = element[REMOVAL_FLAG] as\n    ElementAnimationState;\n    removeClass(element, LEAVE_CLASSNAME);\n\n    // this means the element has\n    a removal animation that is being\n    // taken care of and therefore the inner elements will hang around\n    // until\n    that animation is over (or the parent queried animation)\n    if (details && details.hasAnimation) continue;\n\n    let players: TransitionAnimationPlayer[] = [];\n\n    // if this element is queried or if it contains queried children\n    // then we want for the element not to be\n    removed from the page\n    // until the queried animations have finished\n    if (queriedElements.size) {\n      let\n      queriedPlayerResults = queriedElements.get(element);\n      if (queriedPlayerResults &&\n      queriedPlayerResults.length) {\n        players.push(...queriedPlayerResults);\n      }\n\n      let\n      queriedInnerElements = this.driver.query(element, NG_ANIMATING_SELECTOR, true);\n      for (let j = 0; j <\n      queriedInnerElements.length; j++) {\n        let queriedPlayers = queriedElements.get(queriedInnerElements[j]);\n        if (queriedPlayers && queriedPlayers.length) {\n          players.push(...queriedPlayers);\n        }\n      }\n\n      const activePlayers = players.filter(p => !p.destroyed);\n      if (activePlayers.length) {\n        removeNodesAfterAnimationDone(this, element, activePlayers);\n      } else {\n        this.processLeaveNode(element);\n      }\n\n      // this is required so the cleanup method doesn't remove them\n      allLeaveNodes.length = 0;\n      rootPlayers.forEach(player => {\n        this.players.push(player);\n        player.onDone(() => {\n          player.destroy();\n          const index = this.players.indexOf(player);\n          this.players.splice(index, 1);\n          player.play();\n        });\n      });\n      return rootPlayers;\n    }\n\n    elementContainsData(namespaceId: string, element: any) {\n      let containsData = false;\n      const details =\n      element[REMOVAL_FLAG] as ElementAnimationState;\n      if (details && details.setForRemoval) containsData =\n      true;\n      if (this.playersByElement.has(element)) containsData = true;\n      if\n      (this.playersByQueriedElement.has(element)) containsData = true;\n      if (this.statesByElement.has(element))\n      containsData = true;\n      return this._fetchNamespace(namespaceId).elementContainsData(element) ||\n      containsData;\n    }\n\n    afterFlush(callback: () => any) {\n      this._flushFns.push(callback);\n    }\n\n    afterFlushAnimationsDone(callback: () => any) {\n      this._whenQuietFns.push(callback);\n    }

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    }\n\n private _getPreviousPlayers(\n    element: string, isQueriedElement: boolean, namespaceId?: string,
triggerName?: string,\n    toStateValue?: any): TransitionAnimationPlayer[] {\n    let players:
TransitionAnimationPlayer[] = [];\n    if (isQueriedElement) {\n        const queriedElementPlayers =
this.playersByQueriedElement.get(element);\n        if (queriedElementPlayers) {\n            players =
queriedElementPlayers;\n        }\n    } else {\n        const elementPlayers = this.playersByElement.get(element);\n        if
(elementPlayers) {\n            const isRemovalAnimation = !toStateValue || toStateValue == VOID_VALUE;\n            elementPlayers.forEach(player => {\n                if (player.queued) return;\n                if (!isRemovalAnimation &&
player.triggerName != triggerName) return;\n                players.push(player);\n            });\n        }\n    }\n    if (namespaceId
|| triggerName) {\n        players = players.filter(player => {\n            if (namespaceId && namespaceId
!= player.namespaceId) return false;\n            if (triggerName && triggerName != player.triggerName) return false;\n            return true;\n        });\n    }\n    return players;\n}\n\n private _beforeAnimationBuild(\n    namespaceId: string,
instruction: AnimationTransitionInstruction,\n    allPreviousPlayersMap: Map<any, TransitionAnimationPlayer[]>)\n{\n    const triggerName = instruction.triggerName;\n    const rootElement = instruction.element;\n\n    // when a
removal animation occurs, ALL previous players are collected\n    // and destroyed (even if they are outside of the
current namespace)\n    const targetNameSpaceId: string|undefined =\n        instruction.isRemovalTransition ?
undefined : namespaceId;\n    const targetTriggerName: string|undefined =\n        instruction.isRemovalTransition ?
undefined : triggerName;\n\n    for (const timelineInstruction of instruction.timelines) {\n        const element =
timelineInstruction.element;\n        const isQueriedElement = element
!= rootElement;\n        const players = getOrSetAsInMap(allPreviousPlayersMap, element, []);\n        const
previousPlayers = this._getPreviousPlayers(\n            element, isQueriedElement, targetNameSpaceId,
targetTriggerName, instruction.toState);\n        previousPlayers.forEach(player => {\n            const realPlayer = (player
as TransitionAnimationPlayer).getRealPlayer() as any;\n            if (realPlayer.beforeDestroy) {\n
realPlayer.beforeDestroy();\n            }\n            player.destroy();\n            players.push(player);\n        });\n    }\n\n    // this
needs to be done so that the PRE/POST styles can be\n    // computed properly without interfering with the previous
animation\n    eraseStyles(rootElement, instruction.fromStyles);\n}\n\n private _buildAnimation(\n    namespaceId: string, instruction: AnimationTransitionInstruction,\n    allPreviousPlayersMap: Map<any,
TransitionAnimationPlayer[]>,\n    skippedPlayersMap: Map<any, AnimationPlayer[]>, preStylesMap: Map<any,
StyleData>,\n    postStylesMap: Map<any, StyleData>): AnimationPlayer {\n    const triggerName =
instruction.triggerName;\n    const rootElement = instruction.element;\n\n    // we first run this so that the previous
animation player\n    // data can be passed into the successive animation players\n    const allQueriedPlayers:
TransitionAnimationPlayer[] = [];\n    const allConsumedElements = new Set<any>();\n    const allSubElements =
new Set<any>();\n    const allNewPlayers = instruction.timelines.map(timelineInstruction => {\n        const element =
timelineInstruction.element;\n        allConsumedElements.add(element);\n\n        // FIXME (matsko): make sure to-be-
removed animations are removed properly\n        const details = element[REMOVAL_FLAG];\n        if (details &&
details.removedBeforeQueried)\n            return new NoopAnimationPlayer(timelineInstruction.duration,
timelineInstruction.delay);\n\n        const isQueriedElement = element !== rootElement;\n        const previousPlayers
= \n            flattenGroupPlayers((allPreviousPlayersMap.get(element) || EMPTY_PLAYER_ARRAY)\n                .map(p => p.getRealPlayer()))\n                .filter(p => {\n                    // the `element` is not apart of the
AnimationPlayer definition, but\n                    // Mock/WebAnimations\n                    // use the element within their
implementation. This will be added in Angular5 to\n                    // AnimationPlayer\n                    const pp = p as any;\n                    return pp.element ? pp.element === element : false;\n                });\n\n        const preStyles =
preStylesMap.get(element);\n        const postStyles = postStylesMap.get(element);\n        const keyframes =
normalizeKeyframes(\n            this.driver, this._normalizer, element, timelineInstruction.keyframes, preStyles,\n            postStyles);\n        const player = this._buildPlayer(timelineInstruction, keyframes, previousPlayers);\n\n        // this
means that this particular player belongs to a sub
trigger. It is\n        // important that we match this player up with the corresponding (@trigger.listener)\n        if
(timelineInstruction.subTimeline && skippedPlayersMap) {\n            allSubElements.add(element);\n        }\n\n        if
(isQueriedElement) {\n            const wrappedPlayer = new TransitionAnimationPlayer(namespaceId, triggerName,

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element);\n    wrappedPlayer.setRealPlayer(player);\n    allQueriedPlayers.push(wrappedPlayer);\n    }\n\nreturn player;\n});\n\nallQueriedPlayers.forEach(player => {\n  getOrSetAsInMap(this.playersByQueriedElement, player.element, []).push(player);\n  player.onDone(() => deleteOrUnsetInMap(this.playersByQueriedElement, player.element, player));\n});\n\nallConsumedElements.forEach(element => addClass(element, NG_ANIMATING_CLASSNAME));\nconst\nplayer = optimizeGroupPlayer(allNewPlayers);\nplayer.onDestroy(() => {\n  allConsumedElements.forEach(element => removeClass(element, NG_ANIMATING_CLASSNAME));\n  setStyles(rootElement, instruction.toStyles);\n});\n\n// this basically makes all of the callbacks for sub\n// element animations\n// be dependent on the upper players for when they finish\nallSubElements.forEach(element => {\n  getOrSetAsInMap(skippedPlayersMap, element, []).push(player);\n});\n\nreturn player;\n});\n\nprivate _buildPlayer(\n  instruction: AnimationTimelineInstruction, keyframes:\n  StyleData[],\n  previousPlayers: AnimationPlayer[]): AnimationPlayer {\n  if (keyframes.length > 0) {\n    return this.driver.animate(\n      instruction.element, keyframes, instruction.duration, instruction.delay,\n      instruction.easing, previousPlayers);\n  }\n\n  // special case for when an empty transition/definition is provided\n  // ... there is no point in rendering an empty animation\n  return new NoopAnimationPlayer(instruction.duration,\n    instruction.delay);\n}\n\nexport class TransitionAnimationPlayer implements AnimationPlayer\n{\n  private _player: AnimationPlayer = new NoopAnimationPlayer();\n  private _containsRealPlayer = false;\n  private _queuedCallbacks: {[name: string]: (() => any)[*]} = {};\n  public readonly destroyed = false;\n  //\n  TODO(issue/24571): remove '!'.\n  public parentPlayer!: AnimationPlayer;\n  public markedForDestroy: boolean\n  = false;\n  public disabled = false;\n  public readonly queued: boolean = true;\n  public readonly totalTime: number =\n  0;\n\n  constructor(public namespaceId: string, public triggerName: string, public element: any) {\n\n    setRealPlayer(player: AnimationPlayer) {\n      if (this._containsRealPlayer) return;\n\n      this._player = player;\n\n      Object.keys(this._queuedCallbacks).forEach(phase => {\n        this._queuedCallbacks[phase].forEach(\n          callback => listenOnPlayer(player, phase, undefined, callback));\n      });\n\n      this._queuedCallbacks = {};\n\n      this._containsRealPlayer = true;\n      this.overrideTotalTime(player.totalTime);\n      (this as {queued:\n        boolean}).queued = false;\n    }\n\n    getRealPlayer() {\n      return this._player;\n    }\n\n    overrideTotalTime(totalTime:\n      number) {\n      (this as any).totalTime = totalTime;\n    }\n\n    syncPlayerEvents(player: AnimationPlayer) {\n      const\n      p = this._player as any;\n      if (p.triggerCallback) {\n        player.onStart(() => p.triggerCallback!('start'));\n      }\n\n      player.onDone(() => this.finish());\n      player.onDestroy(() => this.destroy());\n    }\n\n    private _queueEvent(name:\n      string, callback: (event: any) => any): void {\n      getOrSetAsInMap(this._queuedCallbacks, name,\n        []).push(callback);\n    }\n\n    onDone(fn: () => void): void {\n      if (this.queued) {\n        this._queueEvent('done', fn);\n      }\n\n      this._player.onDone(fn);\n    }\n\n    onStart(fn: () => void): void {\n      if (this.queued) {\n        this._queueEvent('start', fn);\n      }\n\n      this._player.onStart(fn);\n    }\n\n    onDestroy(fn: () => void): void {\n      if\n      (this.queued) {\n        this._queueEvent('destroy', fn);\n      }\n\n      this._player.onDestroy(fn);\n    }\n\n    init(): void {\n      this._player.init();\n    }\n\n    hasStarted(): boolean {\n      return this.queued ? false : this._player.hasStarted();\n    }\n\n    play(): void {\n      !this.queued &&\n      this._player.play();\n    }\n\n    pause(): void {\n      !this.queued && this._player.pause();\n    }\n\n    restart(): void {\n      !this.queued && this._player.restart();\n    }\n\n    finish(): void {\n      this._player.finish();\n    }\n\n    destroy(): void {\n      (this as {destroyed: boolean}).destroyed = true;\n      this._player.destroy();\n    }\n\n    reset(): void {\n      !this.queued\n      && this._player.reset();\n    }\n\n    setPosition(p: any): void {\n      if (!this.queued) {\n        this._player.setPosition(p);\n      }\n    }\n\n    getPosition(): number {\n      return this.queued ? 0 : this._player.getPosition();\n    }\n\n    /** @internal\n    *\n    triggerCallback(phaseName: string): void {\n      const p = this._player as any;\n      if (p.triggerCallback) {\n        p.triggerCallback(phaseName);\n      }\n    }\n\n    }\n\nfunction deleteOrUnsetInMap(map: Map<any, any[]>|{[key: string]: any}, key: any, value: any) {\n  let currentValues: any[]|null|undefined;\n  if (map instanceof Map) {\n    currentValues = map.get(key);\n    if\n    (currentValues) {\n      if (currentValues.length) {\n        const index = currentValues.indexOf(value);\n        currentValues.splice(index, 1);\n      }\n      if (currentValues.length === 0) {\n        map.delete(key);\n      }\n    }\n  }\n  else {\n    currentValues = map[key];\n    if (currentValues) {\n      if (currentValues.length) {\n        const index =

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currentValues.indexOf(value);\n    currentValues.splice(index, 1);\n    }\n    if (currentValues.length == 0) {\n
    delete map[key];\n    }\n    }\n    return currentValues;\n}\n\nfunction normalizeTriggerValue(value: any): any
{\n // we use `!= null` here because it's the most simple\n // way to test against a `\"falsy\"` value without mixing\n //
in empty strings or a zero value. DO NOT
OPTIMIZE.\n return value != null ? value : null;\n}\n\nfunction isElementNode(node: any) {\n return node &&
node['nodeType'] === 1;\n}\n\nfunction isTriggerEventValid(eventName: string): boolean {\n return eventName
== 'start' || eventName == 'done';\n}\n\nfunction cloakElement(element: any, value?: string) {\n const oldValue =
element.style.display;\n element.style.display = value != null ? value : 'none';\n return oldValue;\n}\n\nfunction
cloakAndComputeStyles(\n  valuesMap: Map<any, StyleData>, driver: AnimationDriver, elements: Set<any>,\n  elementPropsMap: Map<any, Set<string>>, defaultStyle: string): any[] {\n const cloakVals: string[] = [];\n
elements.forEach(element => cloakVals.push(cloakElement(element)));\n\n const failedElements: any[] = [];\n\n
elementPropsMap.forEach((props: Set<string>, element: any) => {\n const styles: StyleData = {};\n
props.forEach(prop => {\n const value = styles[prop] = driver.computeStyle(element, prop, defaultStyle);\n\n
// there is no easy way to detect this because a sub element could be removed\n // by a parent animation
element being detached.\n if (!value || value.length == 0) {\n element[REMOVAL_FLAG] =
NULL_REMOVED_QUERIED_STATE;\n failedElements.push(element);\n }\n });\n
valuesMap.set(element, styles);\n });\n\n // we use a index variable here since Set.forEach(a, i) does not return\n //
an index value for the closure (but instead just the value)\n let i = 0;\n elements.forEach(element =>
cloakElement(element, cloakVals[i++]));\n\n return failedElements;\n}\n\n/*\nSince the Angular renderer code will
return a collection of inserted\nnodes in all areas of a DOM tree, it's up to this algorithm to figure\nout which nodes
are roots for each animation @trigger.\n\nBy placing each inserted node into a Set and traversing upwards, it\nis
possible to find the @trigger elements and well any direct *star\ninsertion nodes, if a @trigger root is found then the
enter element\nis placed into the Map[@trigger] spot.\n*/\nfunction buildRootMap(roots: any[], nodes: any[]):
Map<any, any[]> {\n const rootMap = new Map<any, any[]>();\n roots.forEach(root => rootMap.set(root, []));\n\n
if (nodes.length == 0) return rootMap;\n\n const NULL_NODE = 1;\n const nodeSet = new Set(nodes);\n const
localRootMap = new Map<any, any>();\n\n function getRoot(node: any): any {\n if (!node) return
NULL_NODE;\n let root = localRootMap.get(node);\n if (root) return root;\n\n const parent =
node.parentNode;\n if (rootMap.has(parent)) { // ngIf inside @trigger\n root = parent;\n } else if
(nodeSet.has(parent)) { // ngIf inside ngIf\n root = NULL_NODE;\n } else { // recurse upwards\n root =
getRoot(parent);\n }\n\n localRootMap.set(node, root);\n return root;\n }\n\n nodes.forEach(node => {\n
const root = getRoot(node);\n if (root !== NULL_NODE) {\n rootMap.get(root)!.push(node);\n }\n });\n\n
return rootMap;\n}\n\nconst CLASSES_CACHE_KEY = '$$classes';\nfunction containsClass(element: any,
className: string): boolean {\n if (element.classList) {\n return element.classList.contains(className);\n } else
{\n const classes = element[CLASSES_CACHE_KEY];\n return classes && classes[className];\n }\n}\n\nfunction
addClass(element: any, className: string) {\n if (element.classList) {\n
element.classList.add(className);\n } else {\n let classes: {[className: string]: boolean} =
element[CLASSES_CACHE_KEY];\n if (!classes) {\n classes = element[CLASSES_CACHE_KEY] = {};\n }\n
classes[className] = true;\n }\n}\n\nfunction removeClass(element: any, className: string) {\n if
(element.classList) {\n element.classList.remove(className);\n } else {\n let classes: {[className: string]:
boolean} = element[CLASSES_CACHE_KEY];\n if (classes) {\n delete classes[className];\n }\n }\n}\n\nfunction
removeNodesAfterAnimationDone(\n  engine: TransitionAnimationEngine,\n  element: any, players: AnimationPlayer[]) {\n
optimizeGroupPlayer(players).onDone(() =>
engine.processLeaveNode(element));\n}\n\nfunction flattenGroupPlayers(players: AnimationPlayer[]):
AnimationPlayer[] {\n const finalPlayers: AnimationPlayer[] = [];\n _flattenGroupPlayersRecur(players,
finalPlayers);\n return finalPlayers;\n}\n\nfunction _flattenGroupPlayersRecur(players: AnimationPlayer[],
finalPlayers: AnimationPlayer[]) {\n for (let i = 0; i < players.length; i++) {\n const player = players[i];\n if
(player instanceof AnimationGroupPlayer) {\n _flattenGroupPlayersRecur(player.players, finalPlayers);\n }
else {\n finalPlayers.push(player);\n }\n }\n}\n\nfunction objEquals(a: {[key: string]: any}, b: {[key: string]:

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any)): boolean {\n  const k1 = Object.keys(a);\n  const k2 = Object.keys(b);\n  if (k1.length !== k2.length) return
false;\n  for (let i = 0; i < k1.length; i++) {\n    const prop = k1[i];\n    if (!b.hasOwnProperty(prop)
|| a[prop] !== b[prop]) return false;\n  }\n  return true;\n}\n\nfunction replacePostStylesAsPre(\n  element: any,
allPreStyleElements: Map<any, Set<string>>,\n  allPostStyleElements: Map<any, Set<string>>): boolean {\n
const postEntry = allPostStyleElements.get(element);\n  if (!postEntry) return false;\n  let preEntry =
allPreStyleElements.get(element);\n  if (preEntry) {\n    postEntry.forEach(data => preEntry!.add(data));\n  } else
{\n    allPreStyleElements.set(element, postEntry);\n  }\n  allPostStyleElements.delete(element);\n  return
true;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { AnimationMetadata, AnimationPlayer, AnimationTriggerMetadata } from
'@angular/animations';\nimport { TriggerAst } from './dsl/animation_ast';\nimport { buildAnimationAst } from
'./dsl/animation_ast_builder';\nimport
{ AnimationTrigger, buildTrigger } from './dsl/animation_trigger';\nimport { AnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nimport { AnimationDriver } from
'./animation_driver';\nimport { parseTimelineCommand } from './shared';\nimport { TimelineAnimationEngine } from
'./timeline_animation_engine';\nimport { TransitionAnimationEngine } from
'./transition_animation_engine';\n\nexport class AnimationEngine {\n  private _transitionEngine:
TransitionAnimationEngine;\n  private _timelineEngine: TimelineAnimationEngine;\n\n  private _triggerCache:
{[key: string]: AnimationTrigger} = {};\n  // this method is designed to be overridden by the code that uses this
engine\n  public onRemovalComplete = (element: any, context: any) => {};\n\n  constructor(\n    private
bodyNode: any, private _driver: AnimationDriver,\n    normalizer: AnimationStyleNormalizer) {\n
this._transitionEngine = new TransitionAnimationEngine(bodyNode, _driver, normalizer);\n
this._timelineEngine = new TimelineAnimationEngine(bodyNode, _driver, normalizer);\n\n
this._transitionEngine.onRemovalComplete = (element: any, context: any) =>\n
this.onRemovalComplete(element, context);\n  }\n\n  registerTrigger(\n    componentId: string, namespaceId:
string, hostElement: any, name: string,\n    metadata: AnimationTriggerMetadata): void {\n    const cacheKey =
componentId + '-' + name;\n    let trigger = this._triggerCache[cacheKey];\n    if (!trigger) {\n      const errors: any[]
= [];\n      const ast =\n        buildAnimationAst(this._driver, metadata as AnimationMetadata, errors) as
TriggerAst;\n      if (errors.length) {\n        throw new Error(`The animation trigger "${\n          name}" has failed
to build due to the following errors:\n - ${errors.join("\n - ")}`);\n      }\n      trigger = buildTrigger(name, ast);\n
this._triggerCache[cacheKey] = trigger;\n    }\n    this._transitionEngine.registerTrigger(namespaceId, name,
trigger);\n  }\n\n  register(namespaceId: string, hostElement: any) {\n    this._transitionEngine.register(namespaceId,
hostElement);\n  }\n\n  destroy(namespaceId: string, context: any) {\n    this._transitionEngine.destroy(namespaceId,
context);\n  }\n\n  onInsert(namespaceId: string, element: any, parent: any, insertBefore: boolean): void {\n
this._transitionEngine.insertNode(namespaceId, element, parent, insertBefore);\n  }\n\n  onRemove(namespaceId:
string, element: any, context: any, isHostElement?: boolean): void {\n
this._transitionEngine.removeNode(namespaceId, element, isHostElement || false, context);\n  }\n\n
disableAnimations(element: any, disable: boolean) {\n    this._transitionEngine.markElementAsDisabled(element,
disable);\n  }\n\n  process(namespaceId: string, element: any, property: string, value: any) {\n    if
(property.charAt(0) === '@') {\n      const [id, action] = parseTimelineCommand(property);\n      const args = value as
any[];\n      this._timelineEngine.command(id,
element, action, args);\n    } else {\n      this._transitionEngine.trigger(namespaceId, element, property, value);\n
    }\n  }\n\n  listen(\n    namespaceId: string, element: any, eventName: string, eventPhase: string,\n    callback:
(event: any) => any): () => any {\n    // @@listen\n    if (eventName.charAt(0) === '@') {\n      const [id, action] =
parseTimelineCommand(eventName);\n      return this._timelineEngine.listen(id, element, action, callback);\n    }\n
return this._transitionEngine.listen(namespaceId, element, eventName, eventPhase, callback);\n  }\n\n
flush(microtaskId: number = -1): void {\n    this._transitionEngine.flush(microtaskId);\n  }\n\n  get players():

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AnimationPlayer[] {\n  return (this._transitionEngine.players as AnimationPlayer[])\n
.concat(this._timelineEngine.players as AnimationPlayer[]);\n }\n\n whenRenderingDone(): Promise<any> {\n
return this._transitionEngine.whenRenderingDone();\n }\n}\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\nimport {eraseStyles, setStyles} from './util';\n\n/**\n
* Returns an instance of `SpecialCasedStyles` if and when any special (non animateable) styles are\n
* detected.\n
* \n * In CSS there exist properties that cannot be animated within a keyframe animation\n
* (whether it be via CSS keyframes or web-animations) and the animation implementation\n
* will ignore them. This function is designed to detect those special cased styles and\n
* return a container that will be executed at the start and end of the animation.\n
* \n * @returns an instance of `SpecialCasedStyles` if any special styles are detected otherwise `null`\n
*/\nexport function packageNonAnimatableStyles(\n  element: any, styles: {[key: string]: any} | {[key: string]: any} | []): SpecialCasedStyles | null {\n  let startStyles: {[key: string]: any} | null = null;\n  let endStyles: {[key: string]: any} | null = null;\n  if (Array.isArray(styles) && styles.length) {\n    startStyles = filterNonAnimatableStyles(styles[0]);\n    if (styles.length > 1) {\n      endStyles = filterNonAnimatableStyles(styles[styles.length - 1]);\n    }\n  } else if (styles) {\n    startStyles = filterNonAnimatableStyles(styles);\n  }\n\n  return (startStyles || endStyles) ? new SpecialCasedStyles(element, startStyles, endStyles) : null;\n}\n\n/**\n
* Designed to be executed during a keyframe-based animation to apply any special-cased styles.\n
* \n * When started (when the `start()` method is run) then the provided `startStyles`\n
* will be applied. When finished (when the `finish()` method is called) the `endStyles`\n
* will be applied as well any any starting styles. Finally when `destroy()` is called then all styles will be removed.\n
*/\nexport class SpecialCasedStyles {\n  static initialStylesByElement = new WeakMap<any, {[key: string]: any}>();\n  private _state = SpecialCasedStylesState.Pending;\n  private _initialStyles!: {[key: string]: any};\n  constructor(\n    private _element: any, private _startStyles: {[key: string]: any} | null,\n    private _endStyles: {[key: string]: any} | null) {\n    let initialStyles = SpecialCasedStyles.initialStylesByElement.get(_element);\n    if (!initialStyles) {\n      SpecialCasedStyles.initialStylesByElement.set(_element, initialStyles = {});\n    }\n    this._initialStyles = initialStyles;\n  }\n\n  start() {\n    if (this._state < SpecialCasedStylesState.Started) {\n      if (this._startStyles) {\n        setStyles(this._element, this._startStyles, this._initialStyles);\n      }\n      this._state = SpecialCasedStylesState.Started;\n    }\n  }\n\n  finish() {\n    this.start();\n    if (this._state < SpecialCasedStylesState.Finished) {\n      setStyles(this._element, this._initialStyles);\n      if (this._endStyles) {\n        setStyles(this._element, this._endStyles);\n      }\n      this._endStyles = null;\n    }\n    this._state = SpecialCasedStylesState.Started;\n  }\n\n  destroy() {\n    this.finish();\n    if (this._state < SpecialCasedStylesState.Destroyed) {\n      SpecialCasedStyles.initialStylesByElement.delete(this._element);\n      if (this._startStyles) {\n        eraseStyles(this._element, this._startStyles);\n      }\n      this._endStyles = null;\n    }\n    if (this._endStyles) {\n      eraseStyles(this._element, this._endStyles);\n      this._endStyles = null;\n    }\n    setStyles(this._element, this._initialStyles);\n    this._state = SpecialCasedStylesState.Destroyed;\n  }\n}\n\n/**\n
* An enum of states reflective of what the status of `SpecialCasedStyles` is.\n
* \n * Depending on how `SpecialCasedStyles` is interacted with, the start and end\n
* styles may not be applied in the same way. This enum ensures that if and when\n
* the ending styles are applied then the starting styles are applied.\n
* \n * It is also used to reflect what the current status of the special cased styles are\n
* which helps prevent the starting/ending styles not be applied twice. It is also used to cleanup the styles once `SpecialCasedStyles` is destroyed.\n
*/\nconst enum SpecialCasedStylesState {\n  Pending = 0,\n  Started = 1,\n  Finished = 2,\n  Destroyed = 3,\n}\n\nfunction filterNonAnimatableStyles(styles: {[key: string]: any}) {\n  let result: {[key: string]: any} | null = null;\n  const props = Object.keys(styles);\n  for (let i = 0; i < props.length; i++) {\n    const prop = props[i];\n    if (isNonAnimatableStyle(prop)) {\n      result = result || {};\n      result[prop] = styles[prop];\n    }\n  }\n  return result;\n}\n\nfunction isNonAnimatableStyle(prop: string) {\n  return prop === 'display' || prop === 'position';\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code

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file at https://angular.io/license\n *\nconst ELAPSED_TIME_MAX_DECIMAL_PLACES = 3;\nconst ANIMATION_PROP = 'animation';\nconst ANIMATIONEND_EVENT = 'animationend';\nconst ONE_SECOND = 1000;\n\nexport class ElementAnimationStyleHandler {\n  private readonly _eventFn: (e: any) => any;\n  private _finished = false;\n  private _destroyed = false;\n  private _startTime = 0;\n  private _position = 0;\n\n  constructor(\n    private readonly _element: any, private readonly _name: string,\n    private readonly _duration: number, private readonly _delay: number,\n    private readonly _easing: string, private readonly _fillMode: \"both\"|\"forwards\", \n    private readonly _onDoneFn: () => any) {\n    this._eventFn = (e) => this._handleCallback(e);\n  }\n\n  apply() {\n    applyKeyframeAnimation(\n      this._element,\n      `${this._duration}ms ${this._easing} ${this._delay}ms 1 normal ${this._fillMode} ${this._name}`);\n    addRemoveAnimationEvent(this._element, this._eventFn, false);\n    this._startTime = Date.now();\n  }\n\n  pause() {\n    playPauseAnimation(this._element, this._name, 'paused');\n  }\n\n  resume() {\n    playPauseAnimation(this._element, this._name, 'running');\n  }\n\n  setPosition(position: number) {\n    const index = findIndexForAnimation(this._element, this._name);\n    this._position = position * this._duration;\n    setAnimationStyle(this._element, 'Delay', `-${this._position}ms`, index);\n  }\n\n  getPosition() {\n    return this._position;\n  }\n\n  private _handleCallback(event: any) {\n    const timestamp = event._ngTestManualTimestamp || Date.now();\n    const elapsedTime =\n      parseFloat(event.elapsedTime.toFixed(ELAPSED_TIME_MAX_DECIMAL_PLACES)) * ONE_SECOND;\n    if (event.animationName == this._name &&\n      Math.max(timestamp - this._startTime, 0) >= this._delay &&\n      elapsedTime >= this._duration) {\n      this.finish();\n    }\n  }\n\n  finish() {\n    if (this._finished)\n      return;\n    this._finished = true;\n    this._onDoneFn();\n    addRemoveAnimationEvent(this._element, this._eventFn, true);\n  }\n\n  destroy() {\n    if (this._destroyed) return;\n    this._destroyed = true;\n    this.finish();\n  }\n\n  removeKeyframeAnimation(this._element, this._name);\n}\n\nfunction playPauseAnimation(element: any, name: string, status: 'running'|'paused') {\n  const index = findIndexForAnimation(element, name);\n  setAnimationStyle(element, 'PlayState', status, index);\n}\n\nfunction applyKeyframeAnimation(element: any, value: string): number {\n  const anim = getAnimationStyle(element, '');\n  let index = 0;\n  if (anim.length) {\n    index = countChars(anim, ',') + 1;\n    value = `${anim}, ${value}`;\n  }\n  setAnimationStyle(element, '', value);\n  return index;\n}\n\nfunction removeKeyframeAnimation(element: any, name: string) {\n  const anim = getAnimationStyle(element, '');\n  const tokens = anim.split(',');\n  const index = findMatchingTokenIndex(tokens, name);\n  if (index >= 0) {\n    tokens.splice(index, 1);\n    const newValue = tokens.join(',');\n    setAnimationStyle(element, '', newValue);\n  }\n}\n\nfunction findIndexForAnimation(element: any, value: string) {\n  const anim = getAnimationStyle(element, '');\n  if (anim.indexOf(',') > 0) {\n    const tokens = anim.split(',');\n    return findMatchingTokenIndex(tokens, value);\n  }\n  return findMatchingTokenIndex([anim], value);\n}\n\nfunction findMatchingTokenIndex(tokens: string[], searchToken: string): number {\n  for (let i = 0; i < tokens.length; i++) {\n    if (tokens[i].indexOf(searchToken) >= 0) {\n      return i;\n    }\n  }\n  return -1;\n}\n\nfunction addRemoveAnimationEvent(element: any, fn: (e: any) => any, doRemove: boolean) {\n  doRemove ?\n    element.removeEventListener(ANIMATIONEND_EVENT, fn) :\n    element.addEventListener(ANIMATIONEND_EVENT, fn);\n}\n\nfunction setAnimationStyle(element: any, name: string, value: string, index?: number) {\n  const prop = ANIMATION_PROP + name;\n  if (index != null) {\n    const oldValue = element.style[prop];\n    if (oldValue.length) {\n      const tokens = oldValue.split(',');\n      tokens[index] = value;\n      value = tokens.join(',');\n    }\n    element.style[prop] = value;\n  }\n}\n\nfunction getAnimationStyle(element: any, name: string) {\n  return element.style[ANIMATION_PROP + name];\n}\n\nfunction countChars(value: string, char: string): number {\n  let count = 0;\n  for (let i = 0; i < value.length; i++) {\n    const c = value.charAt(i);\n    if (c === char) count++;\n  }\n  return count;\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\nimport { AnimationPlayer }
```

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from '@angular/animations';\n\nimport {computeStyle} from '../util';\nimport {SpecialCasedStyles} from
'../special_cased_styles';\nimport {ElementAnimationStyleHandler} from
'./element_animation_style_handler';\n\nconst
DEFAULT_FILL_MODE = 'forwards';\nconst DEFAULT_EASING = 'linear';\n\nexport const enum
AnimatorControlState {\n  INITIALIZED = 1,\n  STARTED = 2,\n  FINISHED = 3,\n  DESTROYED =
4\n}\n\nexport class CssKeyframesPlayer implements AnimationPlayer {\n  private _onDoneFns: Function[] = [];\n
private _onStartFns: Function[] = [];\n  private _onDestroyFns: Function[] = [];\n\n  private _started = false;\n  //
TODO(issue/24571): remove '!'.\n  private _styler!: ElementAnimationStyleHandler;\n\n  // TODO(issue/24571):
remove '!'.\n  public parentPlayer!: AnimationPlayer;\n  public readonly totalTime: number;\n  public readonly
easing: string;\n  public currentSnapshot: {[key: string]: string} = {};\n\n  private _state: AnimatorControlState =
0;\n\n  constructor(\n    public readonly element: any, public readonly keyframes: {[key: string]:
string|number}[],\n    public readonly animationName: string, private readonly _duration: number,\n    private
readonly
_delay: number, easing: string,\n    private readonly _finalStyles: {[key: string]: any},\n    private readonly
_specialStyles?: SpecialCasedStyles|null) {\n    this.easing = easing || DEFAULT_EASING;\n    this.totalTime =
_duration + _delay;\n    this._buildStyler();\n  }\n\n  onStart(fn: () => void): void {\n    this._onStartFns.push(fn);\n
}\n\n  onDone(fn: () => void): void {\n    this._onDoneFns.push(fn);\n  }\n\n  onDestroy(fn: () => void): void {\n
this._onDestroyFns.push(fn);\n  }\n\n  destroy() {\n    this.init();\n    if (this._state >=
AnimatorControlState.DESTROYED) return;\n    this._state = AnimatorControlState.DESTROYED;\n    this._styler.destroy();\n
this._flushStartFns();\n    this._flushDoneFns();\n    if (this._specialStyles) {\n      this._specialStyles.destroy();\n
    }\n    this._onDestroyFns.forEach(fn => fn());\n    this._onDestroyFns = [];\n  }\n\n  private _flushDoneFns() {\n
this._onDoneFns.forEach(fn => fn());\n    this._onDoneFns = [];\n  }\n\n  private _flushStartFns() {\n    this._onStartFns.forEach(fn => fn());\n    this._onStartFns = [];\n  }\n\n  finish() {\n    this.init();\n    if (this._state >= AnimatorControlState.FINISHED) return;\n    this._state =
AnimatorControlState.FINISHED;\n    this._styler.finish();\n    this._flushStartFns();\n    if (this._specialStyles) {\n
      this._specialStyles.finish();\n    }\n    this._flushDoneFns();\n  }\n\n  setPosition(value: number) {\n
this._styler.setPosition(value);\n  }\n\n  getPosition(): number {\n    return this._styler.getPosition();\n  }\n\n  hasStarted(): boolean {\n    return this._state >= AnimatorControlState.STARTED;\n  }\n\n  init(): void {\n    if
(this._state >= AnimatorControlState.INITIALIZED) return;\n    this._state =
AnimatorControlState.INITIALIZED;\n    const elm = this.element;\n    this._styler.apply();\n    if (this._delay) {\n
      this._styler.pause();\n    }\n  }\n\n  play(): void {\n    this.init();\n    if (!this.hasStarted()) {\n
      this._flushStartFns();\n      this._state = AnimatorControlState.STARTED;\n      if (this._specialStyles) {\n
        this._specialStyles.start();\n      }\n    }\n    this._styler.resume();\n  }\n\n  pause(): void {\n    this.init();\n
this._styler.pause();\n  }\n\n  restart(): void {\n    this.reset();\n    this.play();\n  }\n\n  reset(): void {\n
this._styler.destroy();\n    this._buildStyler();\n    this._styler.apply();\n  }\n\n  private _buildStyler() {\n
this._styler = new ElementAnimationStyleHandler(\n    this.element, this.animationName, this._duration,\n    this._delay, this.easing,\n    DEFAULT_FILL_MODE, () => this.finish());\n  }\n\n  /** @internal */\n  triggerCallback(phaseName: string): void {\n    const methods = phaseName == 'start' ? this._onStartFns :
this._onDoneFns;\n    methods.forEach(fn => fn());\n    methods.length = 0;\n  }\n\n  beforeDestroy() {\n
this.init();\n    const styles: {[key: string]: string} = {};\n    if (this.hasStarted()) {\n      const
finished = this._state >= AnimatorControlState.FINISHED;\n      Object.keys(this._finalStyles).forEach(prop => {\n
        if (prop != 'offset') {\n          styles[prop] = finished ? this._finalStyles[prop] : computeStyle(this.element,
prop);\n        }\n      });\n    }\n    this.currentSnapshot = styles;\n  }\n\n  "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {NoopAnimationPlayer} from
'@angular/animations';\nimport {hyphenatePropsObject} from '../shared';\n\nexport class DirectStylePlayer extends
NoopAnimationPlayer {\n  private _startingStyles: {[key: string]: any}|null = {};\n  private __initialized = false;\n
private _styles: {[key: string]: any};\n\n  constructor(public element: any, styles: {[key: string]: any}) {\n

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super();\n  this._styles = hyphenatePropsObject(styles);\n }\n\n init() {\n  if (this.__initialized
|| !this._startingStyles) return;\n  this.__initialized = true;\n  Object.keys(this._styles).forEach(prop => {\n
this._startingStyles![prop] = this.element.style[prop];\n  });\n  super.init();\n }\n\n play() {\n  if
(!this._startingStyles) return;\n  this.init();\n  Object.keys(this._styles)\n    .forEach(prop =>
this.element.style.setProperty(prop, this._styles[prop]));\n  super.play();\n }\n\n destroy() {\n  if
(!this._startingStyles) return;\n  Object.keys(this._startingStyles).forEach(prop => {\n    const value =
this._startingStyles![prop];\n    if (value) {\n      this.element.style.setProperty(prop, value);\n    } else {\n
this.element.style.removeProperty(prop);\n    }\n  });\n  this._startingStyles = null;\n  super.destroy();\n
}\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file
at https://angular.io/license\n */\n\nimport { AnimationPlayer, StyleData } from '@angular/animations';\n\nimport
{ allowPreviousPlayerStylesMerge, balancePreviousStylesIntoKeyframes, computeStyle } from '../util';\n\nimport
{ AnimationDriver } from './animation_driver';\n\nimport { containsElement, hyphenatePropsObject, invokeQuery,
matchesElement, validateStyleProperty } from './shared';\n\nimport { packageNonAnimatableStyles } from
'./special_cased_styles';\n\nimport { CssKeyframesPlayer } from './css_keyframes_player';\n\nimport
{ DirectStylePlayer } from './direct_style_player';\n\n\nconst KEYFRAMES_NAME_PREFIX = 'gen_css_kf_';\nconst
TAB_SPACE = ' '\n\nexport class CssKeyframesDriver implements AnimationDriver {\n  private _count = 0;\n
private readonly _head: any = document.querySelector('head');\n  private _warningIssued = false;\n\n
validateStyleProperty(prop: string): boolean {\n  return validateStyleProperty(prop);\n }\n\n
matchesElement(element: any, selector: string): boolean {\n
  return matchesElement(element, selector);\n }\n\n
containsElement(elm1: any, elm2: any): boolean {\n  return
containsElement(elm1, elm2);\n }\n\n
query(element: any, selector: string, multi: boolean): any[] {\n  return
invokeQuery(element, selector, multi);\n }\n\n
computeStyle(element: any, prop: string, defaultValue?: string):
string {\n  return (window.getComputedStyle(element) as any)[prop] as string;\n }\n\n
buildKeyframeElement(element: any, name: string, keyframes: {[key: string]: any}[]): any {\n  keyframes =
keyframes.map(kf => hyphenatePropsObject(kf));\n  let keyframeStr = `@keyframes ${name} {\n`;\n  let tab =
";\n  keyframes.forEach(kf => {\n    tab = TAB_SPACE;\n    const offset = parseFloat(kf['offset']);\n
keyframeStr += `${tab}${offset * 100}% {\n`;\n    tab += TAB_SPACE;\n    Object.keys(kf).forEach(prop =>
{\n      const value = kf[prop];\n      switch (prop) {\n        case 'offset':\n          return;\n        case 'easing':\n
if (value) {\n          keyframeStr += `${tab}animation-timing-function: ${value};\n`;\n          }\n
return;\n        default:\n          keyframeStr += `${tab}${prop}: ${value};\n`;\n          return;\n        }\n
keyframeStr += `${tab}}\n`;\n      });\n    keyframeStr += `\n`;\n\n    const kfElm =
document.createElement('style');\n    kfElm.textContent = keyframeStr;\n    return kfElm;\n  })\n\n
animate(\n  element: any, keyframes: StyleData[], duration: number, delay: number, easing: string,\n  previousPlayers:
AnimationPlayer[] = [], scrubberAccessRequested?: boolean): AnimationPlayer {\n  if (scrubberAccessRequested)
{\n    this._notifyFaultyScrubber();\n  }\n\n  const previousCssKeyframePlayers =
<CssKeyframesPlayer[]>previousPlayers.filter(\n    player => player instanceof CssKeyframesPlayer);\n\n  const
previousStyles: {[key: string]: any} = {};\n\n  if (allowPreviousPlayerStylesMerge(duration,
delay)) {\n    previousCssKeyframePlayers.forEach(player => {\n      let styles = player.currentSnapshot;\n
Object.keys(styles).forEach(prop => previousStyles[prop] = styles[prop]);\n    });\n  }\n\n  keyframes =
balancePreviousStylesIntoKeyframes(element, keyframes, previousStyles);\n  const finalStyles =
flattenKeyframesIntoStyles(keyframes);\n\n  // if there is no animation then there is no point in applying\n  //
styles and waiting for an event to get fired. This causes lag.\n  // It's better to just directly apply the styles to the
element\n  // via the direct styling animation player.\n  if (duration == 0) {\n    return new
DirectStylePlayer(element, finalStyles);\n  }\n\n  const animationName =
`${KEYFRAMES_NAME_PREFIX}${this._count++}`;\n  const kfElm = this.buildKeyframeElement(element,
animationName, keyframes);\n  document.querySelector('head')!.appendChild(kfElm);\n\n  const specialStyles =
packageNonAnimatableStyles(element, keyframes);\n

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const player = new CssKeyframesPlayer(\n    element, keyframes, animationName, duration, delay, easing,
finalStyles, specialStyles);\n\n player.onDestroy(() => removeElement(kfElm));\n return player;\n }\n\n private
_notifyFaultyScrubber() {\n    if (!this._warningIssued) {\n        console.warn(\n            '@angular/animations: please
load the web-animations.js polyfill to allow programmatic access...\n',\n            ' visit http://bit.ly/IWukam to learn
more about using the web-animation-js polyfill.);\n        this._warningIssued = true;\n    }\n }\n\nfunction
flattenKeyframesIntoStyles(keyframes: null|{[key: string]: any})\n    {[key: string]: any}[]:
{[key: string]: any} {\n    let flatKeyframes: {[key: string]: any} = {};\n    if (keyframes) {\n        const kfs =
Array.isArray(keyframes) ? keyframes : [keyframes];\n        kfs.forEach(kf => {\n            Object.keys(kf).forEach(prop =>
{\n                if (prop == 'offset' || prop == 'easing')
return;\n                flatKeyframes[prop] = kf[prop];\n            });\n        });\n    }\n    return flatKeyframes;\n }\n\nfunction
removeElement(node: any) {\n    node.parentNode.removeChild(node);\n }\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport { AnimationPlayer } from
'@angular/animations';\n\nimport { computeStyle } from '../util';\n\nimport { SpecialCasedStyles } from
'./special_cased_styles';\n\nimport { DOMAnimation } from './dom_animation';\n\nexport class
WebAnimationsPlayer implements AnimationPlayer {\n    private _onDoneFns: Function[] = [];\n    private
_onStartFns: Function[] = [];\n    private _onDestroyFns: Function[] = [];\n    private _duration: number;\n    private
_delay: number;\n    private _initialized = false;\n    private _finished = false;\n    private _started = false;\n    private
_destroyed = false;\n    // TODO(issue/24571):
remove('!);\n    private _finalKeyframe!: {[key: string]: string|number};\n\n    // TODO(issue/24571): remove '!);\n
public readonly domPlayer!: DOMAnimation;\n    public time = 0;\n\n    public parentPlayer: AnimationPlayer|null =
null;\n    public currentSnapshot: {[styleName: string]: string|number} = {};\n\n    constructor(\n        public element:
any, public keyframes: {[key: string]: string|number}[],\n        public options: {[key: string]: string|number},\n        private _specialStyles?: SpecialCasedStyles|null) {\n        this._duration = <number>options['duration'];\n        this._delay
= <number>options['delay'] || 0;\n        this.time = this._duration + this._delay;\n    }\n\n    private _onFinish() {\n        if
(!this._finished) {\n            this._finished = true;\n            this._onDoneFns.forEach(fn => fn());\n            this._onDoneFns =
[];\n        }\n    }\n\n    init(): void {\n        this._buildPlayer();\n        this._preparePlayerBeforeStart();\n    }\n\n    private
_buildPlayer(): void {\n        if (this._initialized) return;\n
        this._initialized = true;\n        const keyframes = this.keyframes;\n        (this as { domPlayer:
DOMAnimation }).domPlayer =\n            this._triggerWebAnimation(this.element, keyframes, this.options);\n
        this._finalKeyframe = keyframes.length ? keyframes[keyframes.length - 1] : {};\n
        this.domPlayer.addEventListener('finish', () => this._onFinish());\n    }\n\n    private _preparePlayerBeforeStart() {\n
        // this is required so that the player doesn't start to animate right away\n        if (this._delay) {\n
            this._resetDomPlayerState();\n        } else {\n            this.domPlayer.pause();\n        }\n    }\n\n    /** @internal */\n
_triggerWebAnimation(element: any, keyframes: any[], options: any): DOMAnimation {\n        // jscompiler doesn't
seem to know animate is a native property because it's not fully\n        // supported yet across common browsers (we
polyfill it for Edge/Safari) [CL #143630929]\n        return element['animate'](keyframes, options) as
DOMAnimation;\n    }\n\n    onStart(fn: () => void): void
{\n        this._onStartFns.push(fn);\n    }\n\n    onDone(fn: () => void): void {\n        this._onDoneFns.push(fn);\n    }\n\n
onDestroy(fn: () => void): void {\n        this._onDestroyFns.push(fn);\n    }\n\n    play(): void {\n        this._buildPlayer();\n
        if (!this.hasStarted()) {\n            this._onStartFns.forEach(fn => fn());\n            this._onStartFns = [];\n            this._started =
true;\n            if (this._specialStyles) {\n                this._specialStyles.start();\n            }\n        }\n        this.domPlayer.play();\n    }\n\n
pause(): void {\n        this.init();\n        this.domPlayer.pause();\n    }\n\n    finish(): void {\n        this.init();\n        if
(this._specialStyles) {\n            this._specialStyles.finish();\n        }\n        this._onFinish();\n        this.domPlayer.finish();\n    }\n\n
reset(): void {\n        this._resetDomPlayerState();\n        this._destroyed = false;\n        this._finished = false;\n        this._started =
false;\n    }\n\n    private _resetDomPlayerState() {\n        if (this.domPlayer) {\n
            this.domPlayer.cancel();\n        }\n    }\n\n

```


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ADgB,IAAZA,IAAsBA,EAAU,MAC7B,CAAEF,KAAM,EAAoBkB,KAAMD,EAAiBd,UAAWC,EAAOF,QAAS
A,IA6jBzF3E,EAAQ4F,QA5+BR,SAASA,EAAQP,EAAMQ,GACnB,MAAO,CAAEpB,KAAM,EAAiBY,KAAM
A,EAAMQ,YAAaA,EAAaI,QAAS,KA4+BnF3E,EAAQ8F,aA1eR,SAASA,EAAaI,EAAWD,GAETb,YADgB,I
AAZA,IAAsBA,EAAU,MAC7B,CAAEF,KAAM,GAAqBG,UAAWA,EAAWD,QAASA,IAyevE3E,EAAQ+F,sB
AAwB3C,EACHCpD,EAAQgG,WAhDS,IAkDjBC,OAAOC,eAAeI,EAAS,aAAc,CAAEEmG,OAAO","sourcesCo
ntent":["/*\n

* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n\n(function
(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports) :\n typeof define === 'function' && define.amd ? define('@angular/animations', ['exports'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.animations = {}));\n})(this, (function (exports) {\n 'use strict';\n\n /**\n * An injectable service that produces an animation sequence programmatically within an\n * Angular component or directive.\n * Provided by the `BrowserAnimationsModule` or `NoopAnimationsModule`.\n *\n * @usageNotes\n * \n * To use this service, add it to your component or directive as a dependency.\n * The

service is instantiated along with your component.

Apps do not typically need to create their own animation players, but if you do need to, follow these steps:

1. Use the `build()` method to create a programmatic animation using the `animate()` function. The method returns an `AnimationFactory` instance.
2. Use the factory object to create an `AnimationPlayer` and attach it to a DOM element.
3. Use the player object to control the animation programmatically.

For example:

```

// import the service from BrowserAnimationsModule
import { AnimationBuilder } from '@angular/animations';
// require the service as a dependency
class MyCmp {
  constructor(private _builder: AnimationBuilder) {}

  makeAnimation(element: any) {
    // first define a reusable animation
    const myAnimation = this._builder.build([
      style({ width: 0 }),
      animate(1000, style({ width: '100px' }))
    ]);

    // use the returned factory object to create a player
    const player = myAnimation.create(element);
    player.play();
  }
}

/** @publicApi */
var AnimationBuilder = /** @class */ (function () {
  function AnimationBuilder() {}
  return AnimationBuilder;
})();

/**
 * A factory object returned from the `AnimationBuilder`.build() method.
 */
var AnimationFactory = /** @class */ (function () {
  function AnimationFactory() {}
  return AnimationFactory;
})();

/**
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
/** @publicApi */
var AUTO_STYLE = /**
 * Creates a named animation trigger, containing a list of `state()` and `transition()` entries to be evaluated when the expression bound to the trigger changes.
 * @param name An identifying string.
 * @param definitions An animation definition object, containing an array of `state()` and `transition()` declarations.
 * @return An object that encapsulates the trigger data.
 * @usageNotes Define an animation trigger in the `animations` section of `@Component` metadata. In the template, reference the trigger by name and bind it to a trigger expression that evaluates to a defined animation state, using the following format:
 * `[@triggerName]="expression"`
 * Animation trigger bindings convert all values to strings, and then match the previous and current values against any linked transitions.
 * Booleans can be specified as `1` or `true` and `0` or `false`.
 */
###

Usage Example
The following example creates an animation trigger reference based on the provided name value.
The provided animation value is expected to be an array consisting of state and transition declarations.
typescript
@Component({
  selector: 'my-component',
  templateUrl: 'my-component-tpl.html',
  animations: [
    trigger('myAnimationTrigger', [
      state(...),
      state(...),
      transition(...),
      transition(...)
    ])
  ]
})
class MyComponent {
  myStatusExp = 'something';
}

The template associated with this component makes use of the defined trigger by binding to an element within its template code.
html
<!-- somewhere inside of my-component-tpl.html -->
<div
  [@myAnimationTrigger]="myStatusExp">...</div>

typescript
### Using an inline function
The `transition` animation method also supports reading an inline function which can decide if its associated animation should be run.
this method is run each time the `myAnimationTrigger` trigger value changes.
function myInlineMatcherFn(fromState: string, toState: string, element: any, params: {[key: string]: any}): boolean {
  // notice that `element` and `params` are also available here
  return toState === 'yes-please-animate';
}

@Component({
  selector: 'my-component',
  templateUrl: 'my-component-tpl.html',
  animations: [
    trigger('myAnimationTrigger', [
      transition(myInlineMatcherFn, [
        // the animation sequence code
      ])
    ])
  ]
})
class MyComponent {
  myStatusExp = 'yes-please-animate';
}

```

```

    * } \n    * `` \n    * \n    * ### Disabling Animations \n    * When true, the special animation control binding
    * `@.disabled` binding prevents \n    * all animations from rendering. \n    * Place the `@.disabled` binding on an
    * element to disable \n    * animations on the element itself, as well as any inner animation triggers \n    * within the
    * element. \n    * \n    * The following example shows how to use this feature: \n    * \n    * ``typescript \n    *
    * @Component({ \n    *   selector: 'my-component', \n    *   template: ` \n    *     <div [@.disabled]="isDisabled"> \n
    *     <div [@childAnimation]="exp"> </div> \n    *   </div> \n    *   `, \n    *   animations: [ \n    *
    *     trigger('childAnimation', [ \n    *       // ... \n    *     ]) \n    *   ]) \n    *   class MyComponent { \n    *
    *     isDisabled = true; \n    *     exp = '...'; \n    *   } \n    * `` \n    * \n    * When `@.disabled` is true, it prevents the
    * `@childAnimation` trigger from animating, \n
    * along with any inner animations. \n    * \n    * ### Disable animations application-wide \n    * When an area of
    * the template is set to have animations disabled, \n    * ***all*** inner components have their animations disabled as
    * well. \n    * This means that you can disable all animations for an app \n    * by placing a host binding set on
    * `@.disabled` on the topmost Angular component. \n    * \n    * ``typescript \n    * import { Component,
    *   HostBinding } from '@angular/core'; \n    * \n    * @Component({ \n    *   selector: 'app-component', \n    *
    *   templateUrl: 'app.component.html', \n    * }) \n    * class AppComponent { \n    *   @HostBinding('@.disabled') \n
    *   public animationsDisabled = true; \n    * } \n    * `` \n    * \n    * ### Overriding disablement of inner
    * animations \n    * Despite inner animations being disabled, a parent animation can `query()` \n    * for inner elements
    * located in disabled areas of the template and still animate \n    * them if needed. This
    * is also the case for when a sub animation is \n    * queried by a parent and then later animated using
    * `animateChild()`. \n    * \n    * ### Detecting when an animation is disabled \n    * If a region of the DOM (or the
    * entire application) has its animations disabled, the animation \n    * trigger callbacks still fire, but for zero seconds.
    * When the callback fires, it provides \n    * an instance of an `AnimationEvent`. If animations are disabled, \n    * the
    * `disabled` flag on the event is true. \n    * \n    * @publicApi \n    * \n    * function trigger(name, definitions) { \n
    *   return { type: 7 /* Trigger */, name: name, definitions: definitions, options: {} }; \n    * } \n    * /** \n    * Defines an
    * animation step that combines styling information with timing information. \n    * \n    * @param timings Sets
    * `AnimateTimings` for the parent animation. \n    * A string in the format `duration [delay] [easing]`. \n    * -
    * Duration and delay are expressed as a number and optional time
    * unit, \n    * such as `1s` or `10ms` for one second and 10 milliseconds, respectively. \n    * The default unit is
    * milliseconds. \n    * - The easing value controls how the animation accelerates and decelerates \n    * during its
    * runtime. Value is one of `ease`, `ease-in`, `ease-out`, \n    * `ease-in-out`, or a `cubic-bezier()` function call. \n    * If
    * not supplied, no easing is applied. \n    * \n    * For example, the string `1s 100ms ease-out` specifies a duration
    * of \n    * 1000 milliseconds, and delay of 100 ms, and the `ease-out` easing style, \n    * which decelerates near the
    * end of the duration. \n    * @param styles Sets AnimationStyles for the parent animation. \n    * A function call to
    * either `style()` or `keyframes()` \n    * that returns a collection of CSS style entries to be applied to the parent
    * animation. \n    * When null, uses the styles from the destination state. \n    * This is useful when describing an
    * animation step that will complete an animation; \n
    * see `Animating to the final state` in `transitions()`. \n    * @returns An object that encapsulates the animation
    * step. \n    * \n    * @usageNotes \n    * Call within an animation `sequence()`, `{ @link animations/group group() }`,
    * or \n    * `transition()` call to specify an animation step \n    * that applies given style data to the parent animation for
    * a given amount of time. \n    * \n    * ### Syntax Examples \n    * ***Timing examples*** \n    * \n    * The following
    * examples show various `timings` specifications. \n    * - `animate(500)` : Duration is 500 milliseconds. \n    * -
    * `animate("1s")` : Duration is 1000 milliseconds. \n    * - `animate("100ms 0.5s")` : Duration is 100 milliseconds,
    * delay is 500 milliseconds. \n    * - `animate("5s ease-in")` : Duration is 5000 milliseconds, easing in. \n    * -
    * `animate("5s 10ms cubic-bezier(.17,.67,.88,.1)")` : Duration is 5000 milliseconds, delay is 10 \n    * milliseconds,
    * easing according to a bezier curve. \n    * \n
    * ***Style examples*** \n    * \n    * The following example calls `style()` to set a single CSS style. \n    *
    * ``typescript \n    * animate(500, style({ background: 'red' })); \n    * `` \n    * \n    * The following example calls
    * `keyframes()` to set a CSS style \n    * to different values for successive keyframes. \n    * ``typescript \n    *
  
```

```

animate(500, keyframes(\n * [\n * style({ background: \"blue\" })),\n * style({ background: \"red\" })))\n
* ])\n * ```\n * \n * @publicApi\n * \n function animate(timings, styles) {\n if (styles === void 0) {\n
styles = null; }\n return { type: 4 /* Animate */, styles: styles, timings: timings }; }\n } \n /**\n *
@description Defines a list of animation steps to be run in parallel.\n * \n * @param steps An array of
animation step objects.\n * - When steps are defined by `style()` or `animate()`\n * function calls, each call
within the group is executed instantly.\n * \n *
- To specify offset styles to be applied at a later time, define steps with\n * `keyframes()`, or use `animate()` calls
with a delay value.\n * For example:\n * \n * ```typescript\n * group([\n * animate(\"1s\", style({
background: \"black\" })),\n * animate(\"2s\", style({ color: \"white\" })))\n * ])\n * ```\n * \n * @param
options An options object containing a delay and\n * developer-defined parameters that provide styling defaults
and\n * can be overridden on invocation.\n * \n * @return An object that encapsulates the group data.\n * \n
* @usageNotes\n * Grouped animations are useful when a series of styles must be\n * animated at different
starting times and closed off at different ending times.\n * \n * When called within a `sequence()` or a\n *
`transition()` call, does not continue to the next\n * instruction until all of the inner animation steps have
completed.\n * \n * @publicApi\n
*/\n function group(steps, options) {\n if (options === void 0) { options = null; }\n return { type: 3 /*
Group */, steps: steps, options: options }; }\n } \n /**\n * Defines a list of animation steps to be run sequentially,
one by one.\n * \n * @param steps An array of animation step objects.\n * - Steps defined by `style()` calls
apply the styling data immediately.\n * - Steps defined by `animate()` calls apply the styling data over time\n *
as specified by the timing data.\n * \n * ```typescript\n * sequence([\n * style({ opacity: 0 })),\n *
animate(\"1s\", style({ opacity: 1 })))\n * ])\n * ```\n * \n * @param options An options object containing a
delay and\n * developer-defined parameters that provide styling defaults and\n * can be overridden on
invocation.\n * \n * @return An object that encapsulates the sequence data.\n * \n * @usageNotes\n *
When you pass an array
of steps to a\n * `transition()` call, the steps run sequentially by default.\n * Compare this to the `{ @link
animations/group group()}` call, which runs animation steps in\n * parallel.\n * \n * When a sequence is used
within a `{ @link animations/group group()}` or a `transition()` call,\n * execution continues to the next
instruction only after each of the inner animation\n * steps have completed.\n * \n * @publicApi\n * \n */\n
function sequence(steps, options) {\n if (options === void 0) { options = null; }\n return { type: 2 /*
Sequence */, steps: steps, options: options }; }\n } \n /**\n * Declares a key/value object containing CSS
properties/styles that\n * can then be used for an animation `state`, within an animation `sequence`,\n * or as
styling data for calls to `animate()` and `keyframes()`. \n * \n * @param tokens A set of CSS styles or HTML
styles associated with an animation state.\n * The value
can be any of the following:\n * - A key-value style pair associating a CSS property with a value.\n * - An
array of key-value style pairs.\n * - An asterisk (*), to use auto-styling, where styles are derived from the
element\n * being animated and applied to the animation when it starts.\n * \n * Auto-styling can be used to
define a state that depends on layout or other\n * environmental factors.\n * \n * @return An object that
encapsulates the style data.\n * \n * @usageNotes\n * The following examples create animation styles that
collect a set of\n * CSS property values:\n * \n * ```typescript\n * // string values for CSS properties\n *
style({ background: \"red\", color: \"blue\" })\n * \n * // numerical pixel values\n * style({ width: 100, height:
0 })\n * ```\n * \n * The following example uses auto-styling to allow a component to animate from\n * a
height of 0 up to the height of the parent
element:\n * \n * ```\n * style({ height: 0 })),\n * animate(\"1s\", style({ height: \"*\" })))\n * ```\n * \n
* @publicApi\n * \n */\n function style(tokens) {\n return { type: 6 /* Style */, styles: tokens, offset: null }; }\n
} \n /**\n * Declares an animation state within a trigger attached to an element.\n * \n * @param name One
or more names for the defined state in a comma-separated string.\n * The following reserved state names can be
supplied to define a style for specific use\n * cases:\n * \n * - `void` You can associate styles with this name
to be used when\n * the element is detached from the application. For example, when an `ngIf` evaluates\n * to

```


false, the state of the associated element is void.

- `*` (asterisk) Indicates the default state. You can associate styles with this name to be used as the fallback when the state that is being animated is not declared within the trigger.
- `@param styles` A set of CSS styles associated with this state, created using the `style()` function.
- This set of styles persists on the element once the state has been reached.
- `@param options` Parameters that can be passed to the state when it is invoked.
- 0 or more key-value pairs.
- `@return` An object that encapsulates the new state data.
- `@usageNotes` Use the `trigger()` function to register states to an animation trigger.
- Use the `transition()` function to animate between states.
- When a state is active within a component, its associated styles persist on the element, even when the animation ends.
- `@publicApi` function `state(name, styles, options) { return { type: 0 /* State */, name: name, styles: styles, options: options }; }`
- Defines a set of animation styles, associating each style with an optional `offset` value.
- `@param steps` A set of animation styles with optional offset data.
- The optional `offset` value for a style specifies a percentage of the total animation time at which that style is applied.
- `@returns` An object that encapsulates the keyframes data.
- `@usageNotes` Use with the `animate()` call. Instead of applying animations from the current state to the destination state, keyframes describe how each style entry is applied and at what point within the animation arc.
- Compare [CSS Keyframe Animations](https://www.w3schools.com/css/css3_animations.asp).
- ### Usage
- In the following example, the offset values describe when each `backgroundColor` value is applied. The color is red at the start, and changes to blue when 20% of the total time has elapsed.
- `typescript` // the provided offset values
- `animate("5s", keyframes([`
- `style({ backgroundColor: "red", offset: 0 }),`
- `style({ backgroundColor: "blue", offset: 0.2 }),`
- `style({ backgroundColor: "orange", offset: 0.3 }),`
- `style({ backgroundColor: "black", offset: 1 })]`
- `))`
- If there are no `offset` values specified in the style entries, the offsets are calculated automatically.
- `typescript` `animate("5s", keyframes([`
- `style({ backgroundColor: "red" }) // offset = 0`
- `style({ backgroundColor: "blue" }) // offset = 0.33`
- `style({ backgroundColor: "orange" }) // offset = 0.66`
- `style({ backgroundColor: "black" }) // offset = 1`
- `])`
- `@publicApi` function `keyframes(steps) { return { type: 5 /* Keyframes */, steps: steps }; }`
- Declares an animation transition as a sequence of animation steps to run when a given condition is satisfied. The condition is a Boolean expression or function that compares the previous and current animation states, and returns true if this transition should occur.
- When the state criteria of a defined transition are met, the associated animation is triggered.
- `@param stateChangeExpr` A Boolean expression or function that compares the previous and current animation states, and returns true if this transition should occur. Note that `"true"` and `"false"` match 1 and 0, respectively. An expression is evaluated each time a state change occurs in the animation trigger element.
- The animation steps run when the expression evaluates to true.
- A state-change string takes the form `"state1 => state2"`, where each side is a defined animation state, or an asterisk (*) to refer to a dynamic start or end state.
- The expression string can contain multiple comma-separated statements; for example `"state1 => state2, state3 => state4"`.
- Special values `:enter` and `:leave` initiate a transition on the entry and exit states, equivalent to `"void => *"` and `"* => void"`.
- Special values `:increment` and `:decrement` initiate a transition when a numeric value has increased or decreased in value.
- A function is executed each time a state change occurs in the animation trigger element.
- The animation steps run when the function returns true.
- `@param steps` One or more animation objects, as returned by the `animate()` or `sequence()` function, that form a transformation from one state to another.
- A sequence is used by default when you pass an array.
- `@param options` An options object that can contain a delay value for the start of the animation, and additional developer-defined parameters. Provided values for additional parameters are used as defaults, and override values can be passed

to the caller on invocation.

- @returns An object that encapsulates the transition data.

@usageNotes

- The template associated with a component binds an animation trigger to an element.

```

* ``HTML
* <!-- somewhere inside of my-component-tpl.html -->
* <div
[@myAnimationTrigger]="myStatusExp">...</div>
* ``

```

All transitions are defined within an animation trigger, along with named states that the transitions change to and from.

```

* ``typescript
* trigger("myAnimationTrigger", [
*   // define states
*   state("on", style({ background: "green" })),
*   state("off", style({ background: "grey" })),
*   ...
* ])
* ``

```

Note that when you call the `sequence()` function within a `@link animations/group group()` or a `transition()` call, execution does not continue to the next instruction until each of the inner animation steps have completed.

Syntax examples

The following examples define transitions between the two defined states (and default states), using various options:

```

* ``typescript
* // Transition occurs when the state value
* // bound to "myAnimationTrigger" changes from "on" to "off"
* transition("on => off", animate(500))
* // Run the same animation for both directions
* transition("on <=> off", animate(500))
* // Define multiple state-change pairs separated by commas
* transition("on => off, off => void", animate(500))
* ``

```

Special values for state-change expressions

- Catch-all state change for when an element is inserted into the page and the destination state is unknown:

```

* ``typescript
* transition("void => *", [
*   style({ opacity: 0 }),
*   animate(500)
* ])
* ``

```

- Capture a state change between any states:

```

* ``typescript
* transition("* => *", animate("1s 0s"))
* ``

```

Entry and exit transitions:

```

* ``typescript
* transition(":enter", [
*   style({ opacity: 0 }),
*   animate(500, style({ opacity: 1 })),
* ])
* transition(":leave", [
*   animate(500, style({ opacity: 0 })),
* ])
* ``

```

- Use `:increment` and `:decrement` to initiate transitions:

```

* ``typescript
* transition(":increment", group([
*   query(':enter', [
*     style({ left: '100%' })
*   ]),
*   animate('0.5s ease-out', style('*'))
* ]),
* query(':leave', [
*   animate('0.5s ease-out', style({ left: '-100%' })),
* ]))
* transition(":decrement", group([
*   query(':enter', [
*     style({ left: '100%' })
*   ]),
*   animate('0.5s ease-out', style('*'))
* ]),
* query(':leave', [
*   animate('0.5s ease-out', style({ left: '-100%' })),
* ]))
* ``

```

State-change functions

Here is an example of a `fromState` specified as a state-change function that invokes an animation when true:

```

* ``typescript
* transition((fromState, toState) => {
*   return
*   fromState == "off" && toState == "on";
* },
* animate("1s 0s"))
* ``

```

Animating to the final state

If the final step in a transition is a call to `animate()` that uses a timing value with no style data, that step is automatically considered the final animation arc for the element to reach the final state. Angular automatically adds or removes CSS styles to ensure that the element is in the correct final state.

The following example defines a transition that starts by hiding the element, then makes sure that it animates properly to whatever state is currently active for trigger:

```

* ``typescript
* transition("void => *", [
*   style({ opacity: 0 }),
*   animate(500)
* ])
* ``

```

Boolean value matching

If a trigger binding value is a Boolean, it can be matched using a transition expression that compares true and false or 1 and 0. For example:

```

* ``
* // in the template
* <div
[@openClose]="open ? true : false">...</div>
* // in the component metadata
* trigger('openClose', [
*   state('true', style({ height: '*' })),
*   state('false', style({ height: '0px' })),
*   transition('false <=> true',
*     animate(500))
* ])
* ``

```

@publicApi

```

**/
function transition(stateChangeExpr, steps,
options) {
  if (options === void 0) { options = null; }
  return { type: 1 /* Transition */, expr:
stateChangeExpr, animation:
steps, options: options };
}

```

Produces a reusable animation that can be invoked in another animation or sequence, by calling the `useAnimation()` function.

@param steps One or more animation objects, as returned by the `animate()` or `sequence()` function, that form a transformation from one state to another.

A sequence is used by default when you pass an array.

@param options An options object that can contain a delay value for the start of the animation, and additional developer-defined


```

template: `
  <div [@queryAnimation]="exp">
    <h1>Title</h1>
    <div
      class="content">
        Blah blah blah
      </div>
    </div>
  `,
  animations: [
    trigger('queryAnimation', [
      transition('* => goAnimate', [
        // hide the inner elements
        query('h1', style({ opacity: 0 })),
        query('.content', style({ opacity: 0 })),
        // animate the inner elements in, one by one
        query('h1', animate(1000, style({ opacity: 1 }))),
        query('.content', animate(1000, style({ opacity: 1 }))),
      ]),
      class Cmp {
        exp = '';
        goAnimate() {
          this.exp = 'goAnimate';
        }
      }
    ],
    @publicApi
  )
  function query(selector, animation, options) {
    if (options === void 0) { options = null; }
    return { type: 11 /* Query */, selector: selector, animation: animation, options: options };
  }
  /**
   * Use within an animation `query()` call to issue a timing gap after each queried item is animated.
   * @param timings A delay value.
   * @param animation One ore more animation steps.
   * @returns An object that encapsulates the stagger data.
   * @usageNotes
   * In the following example, a container element wraps a list of items stamped out by an `ngFor`. The container element contains an animation trigger that will later be set to query for each of the inner items. Each time items are added, the opacity fade-in animation runs, and each removed item is faded out. When either of these animations occur, the stagger effect is applied after each item's animation is started.
   * ```html
   * <!-- list.component.html -->
   * <button (click)="toggle()">Show / Hide Items</button>
   * <div [@listAnimation]="items.length">
   *   <div *ngFor="let item of items">
   *     {{ item }}
   *   </div>
   * </div>
   * ```
   * Here is the component code:
   * ```typescript
   * import { trigger, transition, style, animate, query, stagger } from '@angular/animations';
   * @Component({
   *   templateUrl: 'list.component.html',
   *   animations: [
   *     trigger('listAnimation', [
   *       ...
   *     ]),
   *     class ListComponent {
   *       items = [];
   *       showItems() {
   *         this.items = [0,1,2,3,4];
   *       }
   *       hideItems() {
   *         this.items = [];
   *       }
   *       toggle() {
   *         this.items.length ? this.hideItems() : this.showItems();
   *       }
   *     }
   *   ],
   *   Here is the animation trigger code:
   *   ```typescript
   *   trigger('listAnimation', [
   *     transition('* => *', [ // each time the binding value changes
   *       query(':leave', [
   *         stagger(100, [
   *           animate('0.5s', style({ opacity: 0 }))),
   *         ]),
   *       query(':enter', [
   *         style({ opacity: 0 }),
   *         stagger(100, [
   *           animate('0.5s', style({ opacity: 1 }))),
   *         ]),
   *       ]),
   *     ]),
   *     @publicApi
   *   ]
   *   function stagger(timings, animation) {
   *     return { type: 12 /* Stagger */, timings: timings, animation: animation };
   *   }
   *   /**
   *    * @license
   *    * Copyright Google LLC All Rights Reserved.
   *    * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
   *    *
   *    * @license
   *    * Copyright Google LLC All Rights Reserved.
   *    * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
   *    *
   *    * An empty programmatic controller for reusable animations.
   *    * Used internally when animations are disabled, to avoid checking for the null case when an animation player is expected.
   *    * @see `animate()`
   *    * @see `AnimationPlayer`
   *    * @see `GroupPlayer`
   *    * @publicApi
   *    *
   *    * @class */
   *    (function () {
   *      function NoopAnimationPlayer(duration, delay) {
   *        if (duration === void 0) { duration = 0; }
   *        if (delay === void 0) { delay = 0; }
   *        this._onDoneFns = [];
   *        this._onStartFns = [];
   *        this._onDestroyFns = [];
   *        this._started = false;
   *        this._destroyed = false;
   *        this._finished = false;
   *        this.parentPlayer = null;
   *        this.totalTime = duration + delay;
   *      }
   *      NoopAnimationPlayer.prototype._onFinish = function () {
   *        if (!this._finished) {
   *          this._finished = true;
   *          this._onDoneFns.forEach(function (fn) { return fn(); });
   *          this._onDoneFns = [];
   *        }
   *      };
   *      NoopAnimationPlayer.prototype.onStart = function (fn) {
   *        this._onStartFns.push(fn);
   *      };
   *      NoopAnimationPlayer.prototype.onDone = function (fn) {
   *        this._onDoneFns.push(fn);
   *      };
   *      NoopAnimationPlayer.prototype.onDestroy = function (fn) {
   *        this._onDestroyFns.push(fn);
   *      };
   *    })();
  
```

```

NoopAnimationPlayer.prototype.hasStarted = function () {\n      return this._started;\n    };\n
NoopAnimationPlayer.prototype.init = function () { };\n    NoopAnimationPlayer.prototype.play = function () {\n      if (!this.hasStarted()) {\n        this._onStart();\n        this.triggerMicrotask();\n      }\n      this._started = true;\n    };\n    /**\n    @internal */\n    NoopAnimationPlayer.prototype.triggerMicrotask = function () {\n      var _this = this;\n      scheduleMicroTask(function () { return _this._onFinish(); });\n    };\n
NoopAnimationPlayer.prototype._onStart = function () {\n      this._onStartFns.forEach(function (fn) { return\n      fn(); });\n      this._onStartFns = [];\n    };\n    NoopAnimationPlayer.prototype.pause = function () { };\n
NoopAnimationPlayer.prototype.restart = function () { };\n    NoopAnimationPlayer.prototype.finish = function () {\n      this._onFinish();\n    };\n    NoopAnimationPlayer.prototype.destroy = function () {\n      if\n      (!this._destroyed) {\n        this._destroyed = true;\n        if (!this.hasStarted()) {\n          this._onStart();\n        }\n        this.finish();\n        this._onDestroyFns.forEach(function (fn) { return fn(); });\n      }\n      this._onDestroyFns = [];\n    };\n    NoopAnimationPlayer.prototype.reset = function () { };\n
NoopAnimationPlayer.prototype.setPosition = function (position) { };\n
NoopAnimationPlayer.prototype.getPosition = function () {\n      return 0;\n    };\n    /** @internal */\n
NoopAnimationPlayer.prototype.triggerCallback = function (phaseName) {\n      var methods = phaseName ==\n      'start' ? this._onStartFns : this._onDoneFns;\n      methods.forEach(function (fn) { return fn(); });\n      methods.length = 0;\n    };\n    return NoopAnimationPlayer;\n  }());\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style\n   * license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  /**\n   * A programmatic controller for a group of reusable animations.\n   * Used internally to control\n   * animations.\n   * @see `AnimationPlayer`\n   * @see `@link animations/group group()``\n   */\n  var AnimationGroupPlayer = /** @class */ (function () {\n    function AnimationGroupPlayer(_players) {\n      var _this = this;\n      this._onDoneFns = [];\n      this._onStartFns = [];\n      this._finished = false;\n      this._started = false;\n      this._destroyed = false;\n      this._onDestroyFns = [];\n      this.parentPlayer =\n      null;\n      this.totalTime = 0;\n      this.players = _players;\n      var doneCount = 0;\n      var\n      destroyCount = 0;\n      var startCount = 0;\n      var total = this.players.length;\n      if (total == 0) {\n        scheduleMicroTask(function () { return _this._onFinish(); });\n      } else {\n        this.players.forEach(function (player) {\n          player.onDone(function () {\n            if\n            (++doneCount == total) {\n              _this._onFinish();\n            }\n          });\n          player.onDestroy(function () {\n            if (++destroyCount == total) {\n              _this._onDestroy();\n            }\n          });\n          player.onStart(function () {\n            if\n            (++startCount == total) {\n              _this._onStart();\n            }\n          });\n        });\n        this.totalTime = this.players.reduce(function (time, player) { return Math.max(time, player.totalTime);\n        }, 0);\n      }\n      AnimationGroupPlayer.prototype._onFinish = function () {\n        if (!this._finished) {\n          this._finished = true;\n        }\n        this._onDoneFns.forEach(function (fn) { return fn(); });\n        this._onDoneFns = [];\n      };\n    }\n    AnimationGroupPlayer.prototype.init = function () {\n      this.players.forEach(function (player) { return\n      player.init(); });\n    };\n    AnimationGroupPlayer.prototype.onStart = function (fn) {\n      this._onStartFns.push(fn);\n    };\n    AnimationGroupPlayer.prototype._onStart = function () {\n      if\n      (!this.hasStarted()) {\n        this._started = true;\n        this._onStartFns.forEach(function (fn) { return fn();\n        });\n        this._onStartFns = [];\n      }\n    };\n    AnimationGroupPlayer.prototype.onDone = function\n    (fn) {\n      this._onDoneFns.push(fn);\n    };\n    AnimationGroupPlayer.prototype.onDestroy = function\n    (fn) {\n      this._onDestroyFns.push(fn);\n    };\n    AnimationGroupPlayer.prototype.hasStarted = function\n    () {\n      return\n      this._started;\n    };\n    AnimationGroupPlayer.prototype.play = function () {\n      if (!this.parentPlayer)\n      {\n        this.init();\n      }\n      this._onStart();\n      this.players.forEach(function (player) { return

```

```

player.play(); });\n    });\n    AnimationGroupPlayer.prototype.pause = function () {\nthis.players.forEach(function (player) { return player.pause(); });\n    });\n    AnimationGroupPlayer.prototype.restart = function () {\n    this.players.forEach(function (player) { return\nplayer.restart(); });\n    });\n    AnimationGroupPlayer.prototype.finish = function () {\nthis._onFinish();\n    this.players.forEach(function (player) { return player.finish(); });\n    });\n    AnimationGroupPlayer.prototype.destroy = function () {\n    this._onDestroy();\n    });\n    AnimationGroupPlayer.prototype._onDestroy = function () {\n    if (!this._destroyed)\n    {\n    this._destroyed = true;\n    this._onFinish();\n    this.players.forEach(function (player) {\nreturn player.destroy(); });\n    this._onDestroyFns.forEach(function (fn) { return fn(); });\n    this._onDestroyFns = [];\n    });\n    });\n    AnimationGroupPlayer.prototype.reset = function () {\nthis.players.forEach(function (player) { return player.reset(); });\n    this._destroyed = false;\n    this._finished = false;\n    this._started = false;\n    });\n    AnimationGroupPlayer.prototype.setPosition =\nfunction (p) {\n    var timeAtPosition = p * this.totalTime;\n    this.players.forEach(function (player) {\n    var position = player.totalTime ? Math.min(1, timeAtPosition / player.totalTime) : 1;\nplayer.setPosition(position);\n    });\n    });\n    AnimationGroupPlayer.prototype.getPosition = function\n    () {\n    var min = 0;\n    this.players.forEach(function (player) {\n    var p = player.getPosition();\n    min = Math.min(p, min);\n    });\n    return min;\n    });\n    AnimationGroupPlayer.prototype.beforeDestroy = function () {\n    this.players.forEach(function (player) {\n    if (player.beforeDestroy) {\n    player.beforeDestroy();\n    }\n    });\n    });\n    /**\n    @internal *\n    AnimationGroupPlayer.prototype.triggerCallback = function (phaseName) {\n    var\nmethods = phaseName === 'start' ? this._onStartFns : this._onDoneFns;\n    methods.forEach(function (fn) {\nreturn fn(); });\n    methods.length = 0;\n    });\n    return AnimationGroupPlayer;\n    }());\n    /**\n    *\n    @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by an\n    MIT-style license that\n    can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    var PRE_STYLE = '!\n    /**\n    *\n    @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by\n    an MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    /**\n    *\n    @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by an\n    MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    /**\n    *\n    @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by an\n    MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    /**\n    *\n    @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by an\n    MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    Generated bundle index. Do not edit.\n    */\n    exports.AUTO_STYLE = AUTO_STYLE;\n    exports.AnimationBuilder = AnimationBuilder;\n    exports.AnimationFactory\n    = AnimationFactory;\n    exports.NoopAnimationPlayer = NoopAnimationPlayer;\n    exports.animate = animate;\n    exports.animateChild = animateChild;\n    exports.animation = animation;\n    exports.group = group;\n    exports.keyframes = keyframes;\n    exports.query = query;\n    exports.sequence = sequence;\n    exports.stagger =\nstagger;\n    exports.state = state;\n    exports.style = style;\n    exports.transition = transition;\n    exports.trigger =\ntrigger;\n    exports.useAnimation = useAnimation;\n    exports.AnimationGroupPlayer = AnimationGroupPlayer;\n    exports.PRE_STYLE = PRE_STYLE;\n    Object.defineProperty(exports, '__esModule', { value: true\n    });\n    (function() {\n    // sourceMappingURL=animations.umd.js.map\n    })\n    }

```

Found in path(s):

* /animations-11-0-2-tgz/package/bundles/animations.umd.min.js.map

No license file was found, but licenses were detected in source scan.

```

{"version":3,"file":"browser__testing.js","sources":["../../../../../packages/animations/browser/testing/src/mock_animation_driver.ts","../../../../../packages/animations/browser/testing/src/testing.ts","../../../../../packages/animations/browser/testing/public_api.ts","../../../../../packages/ani

```

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mations/browser/testing/testing.ts"], "sourcesContent": ["/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport { AnimationPlayer, AUTO_STYLE, NoopAnimationPlayer,
StyleData } from '@angular/animations';\nimport { AnimationDriver, allowPreviousPlayerStylesMerge as
allowPreviousPlayerStylesMerge, containsElement as containsElement, invokeQuery as invokeQuery,
matchesElement as matchesElement,
validateStyleProperty as validateStyleProperty } from '@angular/animations/browser';\n\n/**\n * @publicApi\n */\nexport class MockAnimationDriver implements AnimationDriver {\n  static log: AnimationPlayer[] = [];\n  validateStyleProperty(prop: string): boolean {\n    return validateStyleProperty(prop);\n  }\n  matchesElement(element: any, selector: string): boolean {\n    return matchesElement(element, selector);\n  }\n  containsElement(elm1: any, elm2: any): boolean {\n    return containsElement(elm1, elm2);\n  }\n  query(element:
any, selector: string, multi: boolean): any[] {\n    return invokeQuery(element, selector, multi);\n  }\n  computeStyle(element: any, prop: string, defaultValue?: string): string {\n    return defaultValue || '';\n  }\n  animate(\n    element: any, keyframes: {[key: string]: string|number}[], duration: number, delay: number,\n    easing: string, previousPlayers: any[] = []): MockAnimationPlayer {\n    const player =\n      new
MockAnimationPlayer(element,
keyframes, duration, delay, easing, previousPlayers);\n    MockAnimationDriver.log.push(<AnimationPlayer>player);\n    return player;\n  }\n}\n\n/**\n * @publicApi\n */\nexport class MockAnimationPlayer extends NoopAnimationPlayer {\n  private __finished = false;\n  private
__started = false;\n  public previousStyles: {[key: string]: string|number} = {};\n  private _onInitFns: (() => any)[] =
[];\n  public currentSnapshot: StyleData = {};\n  constructor(\n    public element: any, public keyframes: {[key:
string]: string|number}[],\n    public duration: number, public delay: number, public easing: string,\n    public
previousPlayers: any[]) {\n    super(duration, delay);\n    if (allowPreviousPlayerStylesMerge(duration, delay)) {\n      previousPlayers.forEach(player => {\n        if (player instanceof MockAnimationPlayer) {\n          const styles =
player.currentSnapshot;\n          Object.keys(styles).forEach(prop => this.previousStyles[prop] = styles[prop]);\n        }\n      });\n    }\n  }\n  /* @internal */\n  onInit(fn: () => any) {\n    this._onInitFns.push(fn);\n  }\n  /*
@internal */\n  init() {\n    super.init();\n    this._onInitFns.forEach(fn => fn());\n    this._onInitFns = [];\n  }\n  finish(): void {\n    super.finish();\n    this.__finished = true;\n  }\n  destroy(): void {\n    super.destroy();\n    this.__finished = true;\n  }\n  /* @internal */\n  triggerMicrotask() {\n  }\n  play(): void {\n    super.play();\n    this.__started = true;\n  }\n  hasStarted() {\n    return this.__started;\n  }\n  beforeDestroy() {\n    const captures:
StyleData = {};\n    Object.keys(this.previousStyles).forEach(prop => {\n      captures[prop] =
this.previousStyles[prop];\n    });\n    if (this.hasStarted()) {\n      // when assembling the captured styles, it's
important that\n      // we build the keyframe styles in the following order:\n      // {other styles within keyframes, ...
previousStyles }\n      this.keyframes.forEach(kf
=> {\n        Object.keys(kf).forEach(prop => {\n          if (prop !== 'offset') {\n            captures[prop] =
this.__finished ? kf[prop] : AUTO_STYLE;\n          }\n        });\n      });\n    }\n    this.currentSnapshot =
captures;\n  }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nexport { MockAnimationDriver, MockAnimationPlayer } from './mock_animation_driver';\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n * @module\n *
@description\n * Entry point for all public APIs of this package.\n */\nexport * from './src/testing';\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// This file is
not used to build this module. It is only used during editing\n// by the TypeScript language service and during build
for verification. `ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n//
names.\n\nexport * from './public_api';\n\n", "/*\n * Generated bundle index. Do not edit.\n */\n\nexport * from
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}

Found

in path(s):

* /animations-11-0-2-tgz/package/fesm2015/browser/testing.js.map

No license file was found, but licenses were detected in source scan.

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```

.ts","../..../packages/animations/browser/src/dsl/animation_transition_instruction.ts","../..../packages/animations/browser/src/dsl/animation_transition_factory.ts","../..../packages/animations/browser/src/dsl/animation_trigger.ts","../..../packages/animations/browser/src/render/timeline_animation_engine.ts","../..../packages/animations/browser/src/render/transition_animation_engine.ts","../..../packages/animations/browser/src/render/animation_engine_next.ts","../..../packages/animations/browser/src/render/special_cased_styles.ts","../..../packages/animations/browser/src/render/css_keyframes/element_animation_style_handler.ts","../..../packages/animations/browser/src/render/css_keyframes/css_keyframes_player.ts","../..../packages/animations/browser/src/render/css_keyframes/direct_style_player.ts","../..../packages/animations/browser/src/render/css_keyframes/css_keyframes_driver.ts","../..../packages/animations/browser/src/render/web_animations/web_animations_player.ts","../..../packages/animations/browser/src/render/web_animations/web_animations_driver.ts","../..../packages/animations/browser/src/private_export.ts","../..../packages/animations/browser/src/browser.ts","../..../packages/animations/browser/public_api.ts","../..../packages/animations/browser/index.ts","../..../packages/animations/browser/browser.ts"],"sourcesContent":["/*!

```

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*/\r\n* global Reflect, Promise *\r\n\r\nvar extendStatics = function(d, b) {\r\n  extendStatics = Object.setPrototypeOf ||\r\n    ({ __proto__: [] } instanceof Array && function(d, b) { d.__proto__ = b; }) ||\r\n    function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; }\r\n  return extendStatics(d, b);\r\n};\r\n\r\nexport function __extends(d, b) {\r\n  extendStatics(d, b);\r\n  function __() { this.constructor = d; }\r\n  d.prototype = b === null ? Object.create(b) : (__.prototype = b.prototype, new __());\r\n}\r\n\r\nexport var __assign = function() {\r\n  __assign = Object.assign || function __assign(t) {\r\n    for (var s, i = 1, n = arguments.length; i < n; i++) {\r\n      s = arguments[i];\r\n      for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];\r\n    }\r\n    return t;\r\n  }\r\n  return __assign.apply(this, arguments);\r\n}\r\n\r\nexport function __rest(s, e) {\r\n  var t = {};\r\n  for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\r\n    t[p] = s[p];\r\n  if (s != null && typeof Object.getOwnPropertySymbols === "function")\r\n    for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\r\n      if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\r\n        t[p[i]] = s[p[i]];\r\n    }\r\n  return t;\r\n}\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n  var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\r\n  if (typeof Reflect === "object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);\r\n  else for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\r\n  return c > 3 && r && Object.defineProperty(target, key, r, r);\r\n}\r\n\r\nexport function __param(paramIndex, decorator) {\r\n  return function (target, key) { decorator(target, key, paramIndex); }\r\n}\r\n\r\nexport function __metadata(metadataKey, metadataValue) {\r\n  if (typeof Reflect === "object" && typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey, metadataValue);\r\n}\r\n\r\nexport function __awaiter(thisArg, _arguments, P, generator) {\r\n  function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\r\n  return new (P || (P = Promise))(function (resolve,

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verb("return"), i[Symbol.iterator] = function () { return this; }, i;\r\n  function verb(n, f) { i[n] = o[n] ? function
(v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\nexport
function __asyncValues(o) {\r\n  if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n  var m = o[Symbol.asyncIterator], i;\r\n  return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](), i = {}),
  verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i);\r\n
function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),
settle(resolve, reject, v.done, v.value); }); }; }\r\n  function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject); }\r\n}\r\n\r\nexport function
__makeTemplateObject(cooked, raw) {\r\n  if (Object.defineProperty) { Object.defineProperty(cooked, "raw", {
value: raw }); } else { cooked.raw = raw; }\r\n  return cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create
? (function(o, v) {\r\n  Object.defineProperty(o, "default", { enumerable: true, value: v });\r\n}) : function(o, v)
{\r\n  o["default"] = v;\r\n};\r\n\r\nexport function __importStar(mod) {\r\n  if (mod && mod.__esModule)
return mod;\r\n  var result = {};\r\n  if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod,
k)) __createBinding(result, mod, k);\r\n  __setModuleDefault(result, mod);\r\n  return result;\r\n};\r\n\r\nexport
function __importDefault(mod) {\r\n  return (mod && mod.__esModule) ? mod : { default: mod
};\r\n};\r\n\r\nexport function __classPrivateFieldGet(receiver, privateMap) {\r\n  if (!privateMap.has(receiver))
{\r\n    throw new TypeError("attempted to get private field on non-instance");\r\n  }\r\n  return
privateMap.get(receiver);\r\n};\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n  if
(!privateMap.has(receiver)) {\r\n    throw new TypeError("attempted to set private field on non-instance");\r\n  }
\r\n  privateMap.set(receiver, value);\r\n  return value;\r\n};\r\n\r\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\nimport { AnimationEvent,
  AnimationPlayer, AUTO_STYLE, NoopAnimationPlayer, AnimationGroupPlayer, PRE_STYLE as PRE_STYLE,
  StyleData } from '@angular/animations';\n\nimport { AnimationStyleNormalizer } from
'../src/dsl/style_normalization/animation_style_normalizer';\nimport { AnimationDriver } from
'../src/render/animation_driver';\n\n// We don't include ambient node types here since
@angular/animations/browser\n// is meant to target the browser so technically it should not depend on node\n//
types. `process` is just declared locally here as a result.\ndeclare const process: any;\n\nexport function isBrowser():
boolean {\n  return (typeof window !== 'undefined' && typeof window.document !== 'undefined');\n}\n\nexport
function isNode(): boolean {\n  // Checking only for `process` isn't enough to identify whether or not we're in a
Node\n  // environment, because Webpack by default will polyfill the `process`. While we can discern\n  // that
Webpack polyfilled it by looking at `process.browser`, it's very Webpack-specific
and\n  // might not be future-proof. Instead we look at the stringified version of `process` which\n  // is `[object
process]` in Node and `[object Object]` when polyfilled.\n  return typeof process !== 'undefined' &&
{ }.toString.call(process) === '[object process]';\n}\n\nexport function optimizeGroupPlayer(players:
AnimationPlayer[]): AnimationPlayer {\n  switch (players.length) {\n    case 0:\n      return new
NoopAnimationPlayer();\n    case 1:\n      return players[0];\n    default:\n      return new
AnimationGroupPlayer(players);\n  }\n}\n\nexport function normalizeKeyframes(\n  driver: AnimationDriver,
normalizer: AnimationStyleNormalizer, element: any,\n  keyframes: StyleData[], preStyles: StyleData = {},\n  postStyles: StyleData = {}): StyleData[] {\n  const errors: string[] = [];\n  const normalizedKeyframes: StyleData[] =
[];\n  let previousOffset = -1;\n  let previousKeyframe: StyleData|null = null;\n  keyframes.forEach(kf => {\n    const
offset
    = kf['offset'] as number;\n    const isSameOffset = offset === previousOffset;\n    const normalizedKeyframe:
StyleData = (isSameOffset && previousKeyframe) || {};\n    Object.keys(kf).forEach(prop => {\n      let
normalizedProp = prop;\n      let normalizedValue = kf[prop];\n      if (prop !== 'offset') {\n        normalizedProp =
normalizer.normalizePropertyName(normalizedProp, errors);\n        switch (normalizedValue) {\n          case
PRE_STYLE:\n            normalizedValue = preStyles[prop];\n            break;\n          case AUTO_STYLE:\n

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normalizedValue = postStyles[prop];\n      break;\n\n      default:\n        normalizedValue =\n        normalizer.normalizeStyleValue(prop, normalizedProp, normalizedValue, errors);\n        break;\n      }\n    }\n    normalizedKeyframe[normalizedProp] = normalizedValue;\n  });\n  if (!isSameOffset) {\n    normalizedKeyframes.push(normalizedKeyframe);\n  }\n  previousKeyframe = normalizedKeyframe;\n  previousOffset = offset;\n});\nif (errors.length) {\n  const LINE_START = '\\n - ';\n  throw new Error(`\n  Unable to animate due to the following errors:${LINE_START}${errors.join(LINE_START)}`);\n}\n}\n\nreturn\nnormalizedKeyframes;\n}\n\nexport function listenOnPlayer(\n  player: AnimationPlayer, eventName: string,\n  event: AnimationEvent|undefined,\n  callback: (event: any) => any) {\n  switch (eventName) {\n    case 'start':\n      player.onStart() => callback(event && copyAnimationEvent(event, 'start', player));\n      break;\n    case 'done':\n      player.onDone() => callback(event && copyAnimationEvent(event, 'done', player));\n      break;\n    case\n    'destroy':\n      player.onDestroy() => callback(event && copyAnimationEvent(event, 'destroy', player));\n      break;\n  }\n}\n\nexport function copyAnimationEvent(\n  e: AnimationEvent, phaseName: string, player:\n  AnimationPlayer): AnimationEvent {\n  const totalTime = player.totalTime;\n  const disabled = (player as any).disabled ? true : false;\n  const event = makeAnimationEvent(\n    e.element,\n    e.triggerName, e.fromState, e.toState, phaseName || e.phaseName,\n    totalTime === undefined ? e.totalTime :\n    totalTime, disabled);\n  const data = (e as any)['_data'];\n  if (data != null) {\n    (event as any)['_data'] = data;\n  }\n  return event;\n}\n\nexport function makeAnimationEvent(\n  element: any, triggerName: string, fromState: string,\n  toState: string, phaseName: string = '',\n  totalTime: number = 0, disabled?: boolean): AnimationEvent {\n  return\n  {element, triggerName, fromState, toState, phaseName, totalTime, disabled: !!disabled};\n}\n\nexport function\n  getOrSetAsInMap(\n    map: Map<any, any>|{[key: string]: any}, key: any, defaultValue: any) {\n    let value: any;\n    if (map instanceof Map) {\n      value = map.get(key);\n      if (!value) {\n        map.set(key, value = defaultValue);\n      }\n    } else {\n      value = map[key];\n      if (!value) {\n        value =\n        map[key] = defaultValue;\n      }\n    }\n    return value;\n}\n\nexport function parseTimelineCommand(command:\n  string): [string, string] {\n  const separatorPos = command.indexOf(':');\n  const id = command.substring(1,\n  separatorPos);\n  const action = command.substr(separatorPos + 1);\n  return [id, action];\n}\n\nlet _contains: (elm1:\n  any, elm2: any) => boolean = (elm1: any, elm2: any) => false;\nlet _matches: (element: any, selector: string) =>\n  boolean = (element: any, selector: string) => {\n    false;\n  }\nlet _query: (element: any, selector: string, multi: boolean)\n  => any[] = (\n  element: any, selector: string, multi: boolean) => {\n    return [];\n  };\n\n// Define utility methods\nfor browsers and platform-server(domino) where Element\n// and utility methods exist.\nconst _isNode =\n  isNode();\nif (_isNode || typeof Element !== 'undefined') {\n  // this is well supported in all browsers\n  _contains =\n  (elm1: any, elm2: any) => {\n    return elm1.contains(elm2) as boolean;\n  };\n  _matches\n  = (() => {\n    if (_isNode || Element.prototype.matches) {\n      return (element: any, selector: string) =>\n      element.matches(selector);\n    } else {\n      const proto = Element.prototype as any;\n      const fn =\n      proto.matchesSelector || proto.mozMatchesSelector || proto.msMatchesSelector ||\n      proto.oMatchesSelector ||\n      proto.webkitMatchesSelector;\n      if (fn) {\n        return (element: any, selector: string) => fn.apply(element,\n        [selector]);\n      } else {\n        return _matches;\n      }\n    }\n  })();\n  _query = (element: any, selector: string,\n  multi: boolean): any[] => {\n    let results: any[] = [];\n    if (multi) {\n      results.push(...element.querySelectorAll(selector));\n    } else {\n      const elm = element.querySelector(selector);\n      if (elm) {\n        results.push(elm);\n      }\n    }\n    return results;\n  };\n}\n\nfunction containsVendorPrefix(prop:\n  string): boolean {\n  // Webkit is the only real popular vendor prefix nowadays\n  // cc: http://shouldiprefix.com/\n  return prop.substring(1, 6) === 'ebkit'; // webkit or Webkit\n}\n\nlet\n  _CACHED_BODY: {style: any}|null = null;\nlet _IS_WEBKIT = false;\nexport function\n  validateStyleProperty(prop: string): boolean {\n    if (!_CACHED_BODY) {\n      _CACHED_BODY =\n      getBodyNode() || {};\n      _IS_WEBKIT = _CACHED_BODY!.style ? ('WebkitAppearance' in\n      _CACHED_BODY!.style) : false;\n    }\n    let result = true;\n    if (_CACHED_BODY!.style &&\n    !containsVendorPrefix(prop)) {\n      result = prop in _CACHED_BODY!.style;\n      if (!result && _IS_WEBKIT) {\n        const camelProp = 'Webkit' + prop.charAt(0).toUpperCase() + prop.substr(1);\n        result = camelProp in\n        _CACHED_BODY!.style;\n      }\n    }\n    return result;\n}\n\nexport function getBodyNode(): any|null {\n  if

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(typeof document !== 'undefined') {\n  return document.body;\n }\n return null;\n}\n\nexport const
matchesElement = _matches;\nexport const containsElement = _contains;\nexport const invokeQuery =
_query;\n\nexport function
hypenatePropsObject(object: {[key: string]: any}): {[key: string]: any} {\n  const newObj: {[key: string]: any} =
{};\n  Object.keys(object).forEach(prop => {\n    const newProp = prop.replace(/([a-z])([A-Z])/g, '$1-$2');\n
    newObj[newProp] = object[prop];\n  });\n  return newObj;\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport { AnimationPlayer, NoopAnimationPlayer } from
'@angular/animations';\nimport { Injectable } from '@angular/core';\nimport { containsElement, invokeQuery,
matchesElement, validateStyleProperty } from './shared';\n\n/**\n * @publicApi\n */\n\n@Injectable()\nexport class
NoopAnimationDriver implements AnimationDriver {\n  validateStyleProperty(prop: string): boolean {\n    return
validateStyleProperty(prop);\n  }\n\n  matchesElement(element: any, selector: string): boolean {\n    return
matchesElement(element,
selector);\n  }\n\n  containsElement(elm1: any, elm2: any): boolean {\n    return containsElement(elm1, elm2);\n
}\n\n  query(element: any, selector: string, multi: boolean): any[] {\n    return invokeQuery(element, selector,
multi);\n  }\n\n  computeStyle(element: any, prop: string, defaultValue?: string): string {\n    return defaultValue ||
'';\n  }\n\n  animate(\n    element: any, keyframes: {[key: string]: string|number}[], duration: number, delay:
number,\n    easing: string, previousPlayers: any[] = [],\n    scrubberAccessRequested?: boolean):
AnimationPlayer {\n    return new NoopAnimationPlayer(duration, delay);\n  }\n}\n\n/**\n * @publicApi\n */\n\nexport abstract class AnimationDriver {\n  static NOOP: AnimationDriver = new NoopAnimationDriver();\n\n  abstract validateStyleProperty(prop: string): boolean;\n\n  abstract matchesElement(element: any, selector: string):
boolean;\n\n  abstract containsElement(elm1: any, elm2: any): boolean;\n\n  abstract
query(element: any, selector: string, multi: boolean): any[];\n\n  abstract computeStyle(element: any, prop: string,
defaultValue?: string): string;\n\n  abstract animate(\n    element: any, keyframes: {[key: string]: string|number}[],
duration: number, delay: number,\n    easing?: string|null, previousPlayers?: any[], scrubberAccessRequested?:
boolean): any;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
import { AnimateTimings, AnimationMetadata, AnimationMetadataType, AnimationOptions, sequence,
StyleData } from '@angular/animations';\nimport { Ast as AnimationAst, AstVisitor as AnimationAstVisitor } from
'./dsl/animation_ast';\nimport { AnimationDslVisitor } from './dsl/animation_dsl_visitor';\nimport { isNode } from
'./render/shared';\n\nexport const ONE_SECOND = 1000;\n\nexport const SUBSTITUTION_EXPR_START =
'{';\n\nexport
const SUBSTITUTION_EXPR_END = '}';\n\nexport const ENTER_CLASSNAME = 'ng-enter';\n\nexport const
LEAVE_CLASSNAME = 'ng-leave';\n\nexport const ENTER_SELECTOR = 'ng-enter';\n\nexport const
LEAVE_SELECTOR = 'ng-leave';\n\nexport const NG_TRIGGER_CLASSNAME = 'ng-trigger';\n\nexport const
NG_TRIGGER_SELECTOR = 'ng-trigger';\n\nexport const NG_ANIMATING_CLASSNAME = 'ng-
animating';\n\nexport const NG_ANIMATING_SELECTOR = 'ng-animating';\n\nexport function
resolveTimingValue(value: string|number) {\n  if (typeof value == 'number') return value;\n\n  const matches =
value.match(/^(?![\\.|\\d]+)(m?s)/);\n  if (!matches || matches.length < 2) return 0;\n\n  return
_convertTimeValueToMS(parseFloat(matches[1]), matches[2]);\n}\n\nfunction _convertTimeValueToMS(value:
number, unit: string): number {\n  switch (unit) {\n    case 's':\n      return value * ONE_SECOND;\n    default: // ms
or something else\n      return value;\n  }\n}\n\nexport function resolveTiming(\n  timings:
string|number|AnimateTimings,\n  errors: any[], allowNegativeValues?: boolean) {\n  return timings.hasOwnProperty('duration') ?\n
<AnimateTimings>timings :\n    parseTimeExpression(<string|number>timings, errors,
allowNegativeValues);\n}\n\nfunction parseTimeExpression(\n  exp: string|number, errors: string[],
allowNegativeValues?: boolean): AnimateTimings {\n  const regex = /^(?![\\.|\\d]+)(m?s)?(?:\\s+(-
?|[\\.|\\d]+)(m?s))?(?:\\s+([-a-z]+(?:\\.(.+?\\|\\|)))?)?$/i;\n  let duration: number;\n  let delay: number = 0;\n  let easing:

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string = ";
if (typeof exp === 'string') {
  const matches = exp.match(regex);
  if (matches === null) {
    errors.push(`The provided timing value "${exp}" is invalid.`);
    return {duration: 0, delay: 0, easing: ""};
  }
  duration = _convertTimeValueToMS(parseFloat(matches[1]), matches[2]);
  const delayMatch = matches[3];
  if (delayMatch !== null) {
    delay = _convertTimeValueToMS(parseFloat(delayMatch), matches[4]);
  }
  const easingVal = matches[5];
  if (easingVal) {
    easing = easingVal;
  }
} else {
  duration = exp;
}
if (!allowNegativeValues) {
  let containsErrors = false;
  let startIndex = errors.length;
  if (duration < 0) {
    errors.push(`Duration values below 0 are not allowed for this animation step.`);
    containsErrors = true;
  }
  if (delay < 0) {
    errors.push(`Delay values below 0 are not allowed for this animation step.`);
    containsErrors = true;
  }
  if (containsErrors) {
    errors.splice(startIndex, 0, `The provided timing value "${exp}" is invalid.`);
  }
}
return {duration, delay, easing};
}

export function copyObj(obj: {[key: string]: any}, destination: {[key: string]: any} = {}): {[key: string]: any} {
  Object.keys(obj).forEach(prop => {
    destination[prop] = obj[prop];
  });
  return destination;
}

export function normalizeStyles(styles: StyleData | StyleData[]): StyleData {
  const normalizedStyles: StyleData = {};
  if (Array.isArray(styles)) {
    styles.forEach(data => copyStyles(data, false, normalizedStyles));
  } else {
    copyStyles(styles, false, normalizedStyles);
  }
  return normalizedStyles;
}

export function copyStyles(styles: StyleData, readPrototype: boolean, destination: StyleData = {}): StyleData {
  if (readPrototype) {
    // we make use of a for-in loop so that the
    // prototypically inherited properties are
    // revealed from the backFill map
    for (let prop in styles) {
      destination[prop] = styles[prop];
    }
  } else {
    copyObj(styles, destination);
  }
  return destination;
}

function getStyleAttributeString(element: any, key: string, value: string) {
  // Return the key-value pair string to be added to the style attribute for the
  // given CSS style key.
  if (value) {
    return key + ':' + value + ';';
  } else {
    return key;
  }
}

function writeStyleAttribute(element: any) {
  // Read the style property of the element and manually reflect it to the
  // style attribute. This is needed because Domino on platform-server doesn't
  // understand the full set of allowed CSS properties and doesn't reflect
  // some of them automatically.
  let styleAttrValue = "";
  for (let i = 0; i < element.style.length; i++) {
    const key = element.style.item(i);
    styleAttrValue += getStyleAttributeString(element, key, element.style.getPropertyValue(key));
  }
  for (const key in element.style) {
    // Skip internal Domino properties that don't need to be reflected.
    if (!element.style.hasOwnProperty(key) || key.startsWith('_')) {
      continue;
    }
    const dashKey = camelCaseToDashCase(key);
    styleAttrValue += getStyleAttributeString(element, dashKey, element.style[key]);
  }
  element.setAttribute('style', styleAttrValue);
}

export function setStyles(element: any, styles: StyleData, formerStyles?: {[key: string]: any}) {
  if (element['style']) {
    Object.keys(styles).forEach(prop => {
      const camelProp = dashCaseToCamelCase(prop);
      if (formerStyles && !formerStyles.hasOwnProperty(prop)) {
        formerStyles[prop] = element.style[camelProp];
      }
      element.style[camelProp] = styles[prop];
    });
    // On the server set the 'style' attribute since it's not automatically reflected.
    if (isNode()) {
      writeStyleAttribute(element);
    }
  }
}

export function eraseStyles(element: any, styles: StyleData) {
  if (element['style']) {
    Object.keys(styles).forEach(prop => {
      const camelProp = dashCaseToCamelCase(prop);
      element.style[camelProp] = "";
    });
    // On the server set the 'style' attribute since it's not automatically reflected.
    if (isNode()) {
      writeStyleAttribute(element);
    }
  }
}

export function normalizeAnimationEntry(steps: AnimationMetadata | AnimationMetadata[]): AnimationMetadata {
  if (Array.isArray(steps)) {
    if (steps.length === 1) return steps[0];
    return sequence(steps);
  }
  return steps as AnimationMetadata;
}

export function validateStyleParams(value: string | number, options: AnimationOptions, errors: any[]) {
  const params = options.params || {};
  const matches = extractStyleParams(value);
  if (matches.length) {
    matches.forEach(varName => {
      if (!params.hasOwnProperty(varName)) {
        errors.push(`Unable to resolve the local animation param

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    ${varName} in the given list of values`);\n    }\n    });\n    }\n    }\n\n    const PARAM_REGEX =\n    new\n    RegExp(`${SUBSTITUTION_EXPR_START}\\\\\\\\s*(.+?)\\\\\\\\\\\\\\\\s*${SUBSTITUTION_EXPR_END}`, 'g');\n\n    export\n    function extractStyleParams(value: string|number): string[] {\n    let params: string[] = [];\n    if (typeof value ===\n    'string') {\n    let match: any;\n    while (match = PARAM_REGEX.exec(value)) {\n    params.push(match[1] as\n    string);\n    }\n    PARAM_REGEX.lastIndex\n    = 0;\n    }\n    }\n    return params;\n    }\n\n    export function interpolateParams(\n    value: string|number, params: {[name:\n    string]: any}, errors: any[]): string|number {\n    const original = value.toString();\n    const str =\n    original.replace(PARAM_REGEX, (_, varName) => {\n    let localVal = params[varName];\n    // this means that\n    the value was never overridden by the data passed in by the user\n    if (!params.hasOwnProperty(varName)) {\n    errors.push(`Please provide a value for the animation param ${varName}`);\n    localVal = '';\n    }\n    return\n    localVal.toString();\n    });\n\n    // we do this to assert that numeric values stay as they are\n    return str === original ?\n    value : str;\n    }\n\n    export function iteratorToArray(iterator: any): any[] {\n    const arr: any[] = [];\n    let item =\n    iterator.next();\n    while (!item.done) {\n    arr.push(item.value);\n    item = iterator.next();\n    }\n    return\n    arr;\n    }\n\n    export function mergeAnimationOptions(\n    source: AnimationOptions, destination:\n    AnimationOptions): AnimationOptions {\n    if (source.params) {\n    const p0 = source.params;\n    if\n    (!destination.params) {\n    destination.params = {};\n    }\n    const p1 = destination.params;\n    Object.keys(p0).forEach(param => {\n    if (!p1.hasOwnProperty(param)) {\n    p1[param] = p0[param];\n    }\n    });\n    }\n    return destination;\n    }\n\n    const DASH_CASE_REGEXP = /-+([a-z0-9])/g;\n\n    export function\n    dashCaseToCamelCase(input: string): string {\n    return input.replace(DASH_CASE_REGEXP, (...m: any[]) =>\n    m[1].toUpperCase());\n    }\n\n    function camelCaseToDashCase(input: string): string {\n    return input.replace(/([a-\n    z])([A-Z])/g, '$1-$2').toLowerCase();\n    }\n\n    export function allowPreviousPlayerStylesMerge(duration: number,\n    delay: number) {\n    return duration === 0 || delay === 0;\n    }\n\n    export function\n    balancePreviousStylesIntoKeyframes(\n    element: any, keyframes: {[key: string]: any}[], previousStyles: {[key:\n    string]: any}) {\n    const previousStyleProps = Object.keys(previousStyles);\n\n    if (previousStyleProps.length && keyframes.length) {\n    let startingKeyframe = keyframes[0];\n    let\n    missingStyleProps: string[] = [];\n    previousStyleProps.forEach(prop => {\n    if\n    (!startingKeyframe.hasOwnProperty(prop)) {\n    missingStyleProps.push(prop);\n    }\n    }\n    startingKeyframe[prop] = previousStyles[prop];\n    });\n\n    if (missingStyleProps.length) {\n    // tslint:disable-\n    next-line\n    for (var i = 1; i < keyframes.length; i++) {\n    let kf = keyframes[i];\n    missingStyleProps.forEach(function(prop) {\n    kf[prop] = computeStyle(element, prop);\n    });\n    }\n    }\n    }\n    return keyframes;\n    }\n\n    export function visitDslNode(\n    visitor: AnimationDslVisitor, node:\n    AnimationMetadata, context: any): any;\n    export function visitDslNode(\n    visitor: AnimationAstVisitor, node:\n    AnimationAst<AnimationMetadataType>, context: any): any;\n    export function visitDslNode(visitor: any, node:\n    any, context: any): any\n\n    {\n    switch (node.type) {\n    case AnimationMetadataType.Trigger:\n    return visitor.visitTrigger(node,\n    context);\n    case AnimationMetadataType.State:\n    return visitor.visitState(node, context);\n    case\n    AnimationMetadataType.Transition:\n    return visitor.visitTransition(node, context);\n    case\n    AnimationMetadataType.Sequence:\n    return visitor.visitSequence(node, context);\n    case\n    AnimationMetadataType.Group:\n    return visitor.visitGroup(node, context);\n    case\n    AnimationMetadataType.Animate:\n    return visitor.visitAnimate(node, context);\n    case\n    AnimationMetadataType.Keyframes:\n    return visitor.visitKeyframes(node, context);\n    case\n    AnimationMetadataType.Style:\n    return visitor.visitStyle(node, context);\n    case\n    AnimationMetadataType.Reference:\n    return visitor.visitReference(node, context);\n    case\n    AnimationMetadataType.AnimateChild:\n    return visitor.visitAnimateChild(node, context);\n    case\n    AnimationMetadataType.AnimateRef:\n\n    return visitor.visitAnimateRef(node, context);\n    case AnimationMetadataType.Query:\n    return\n    visitor.visitQuery(node, context);\n    case AnimationMetadataType.Stagger:\n    return visitor.visitStagger(node,\n    context);\n    default:\n    throw new Error(`Unable to resolve animation metadata node #${node.type}`);\n    }\n    }\n
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}\n}\n\nexport function computeStyle(element: any, prop: string): string {\n  return
(<any>window.getComputedStyle(element))[prop];\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nexport const ANY_STATE = '*';\n\nexport declare type
TransitionMatcherFn = (fromState: any, toState: any, element: any, params: {[key: string]: any}) =>
boolean;\n\nexport function parseTransitionExpr(\n  transitionValue: string | TransitionMatcherFn, errors: string[]):
TransitionMatcherFn[] {\n  const expressions:
TransitionMatcherFn[] = [];\n  if (typeof transitionValue == 'string') {\n
transitionValue.split(/\\s*,\\s*/).forEach((\n    str => parseInnerTransitionStr(str, expressions, errors));\n  } else {\n
expressions.push(<TransitionMatcherFn>transitionValue);\n  }\n  return expressions;\n}\n\n\nfunction
parseInnerTransitionStr(\n  eventStr: string, expressions: TransitionMatcherFn[], errors: string[]) {\n  if
(eventStr[0] == ':') {\n    const result = parseAnimationAlias(eventStr, errors);\n    if (typeof result == 'function') {\n
expressions.push(result);\n    return;\n  }\n  eventStr = result;\n  }\n  const match = eventStr.match(/^(\\s*|[-
\\w]+)\\s*(<?[=->]\\s*(\\s*|[-\\w]+)$/);\n  if (match == null || match.length < 4) {\n    errors.push(`The provided
transition expression \"${eventStr}\" is not supported`);\n    return expressions;\n  }\n  const fromState =
match[1];\n  const separator = match[2];\n  const toState = match[3];\n
expressions.push(makeLambdaFromStates(fromState,
toState));\n  const isFullAnyStateExpr = fromState == ANY_STATE && toState == ANY_STATE;\n  if
(separator[0] == '<' && !isFullAnyStateExpr) {\n    expressions.push(makeLambdaFromStates(toState,
fromState));\n  }\n  }\n}\n\nfunction parseAnimationAlias(alias: string, errors: string[]): string | TransitionMatcherFn {\n
switch (alias) {\n  case 'enter':\n    return 'void => *';\n  case 'leave':\n    return '* => void';\n  case
'increment':\n    return (fromState: any, toState: any): boolean => parseFloat(toState) > parseFloat(fromState);\n
case 'decrement':\n    return (fromState: any, toState: any): boolean => parseFloat(toState) <
parseFloat(fromState);\n  default:\n    errors.push(`The transition alias value \"${alias}\" is not supported`);\n
return '* => *';\n}\n}\n\n// DO NOT REFACTOR ... keep the follow set instantiations\n// with the values intact
(closure compiler for some reason\n// removes follow-up lines that add the values outside
of\n// the constructor...\n\nconst TRUE_BOOLEAN_VALUES = new Set<string>(['true', '1']);\nconst
FALSE_BOOLEAN_VALUES = new Set<string>(['false', '0']);\n\nfunction makeLambdaFromStates(lhs: string,
rhs: string): TransitionMatcherFn {\n  const LHS_MATCH_BOOLEAN = TRUE_BOOLEAN_VALUES.has(lhs) ||
FALSE_BOOLEAN_VALUES.has(lhs);\n  const RHS_MATCH_BOOLEAN =
TRUE_BOOLEAN_VALUES.has(rhs) || FALSE_BOOLEAN_VALUES.has(rhs);\n  return (fromState: any,
toState: any): boolean => {\n    let lhsMatch = lhs == ANY_STATE || lhs == fromState;\n    let rhsMatch = rhs ==
ANY_STATE || rhs == toState;\n    if (!lhsMatch && LHS_MATCH_BOOLEAN && typeof fromState ===
'boolean') {\n      lhsMatch = fromState ? TRUE_BOOLEAN_VALUES.has(lhs) :
FALSE_BOOLEAN_VALUES.has(lhs);\n    }\n    if (!rhsMatch && RHS_MATCH_BOOLEAN && typeof
toState === 'boolean') {\n      rhsMatch = toState ? TRUE_BOOLEAN_VALUES.has(rhs) :
FALSE_BOOLEAN_VALUES.has(rhs);\n    }\n    return lhsMatch && rhsMatch;\n  };\n}\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AnimateTimings,
AnimationAnimateChildMetadata, AnimationAnimateMetadata, AnimationAnimateRefMetadata,
AnimationGroupMetadata, AnimationKeyframesSequenceMetadata, AnimationMetadata, AnimationMetadataType,
AnimationOptions, AnimationQueryMetadata, AnimationQueryOptions, AnimationReferenceMetadata,
AnimationSequenceMetadata, AnimationStaggerMetadata, AnimationStateMetadata, AnimationStyleMetadata,
AnimationTransitionMetadata, AnimationTriggerMetadata, AUTO_STYLE, style, StyleData } from
'@angular/animations';\n\nimport { AnimationDriver } from '../render/animation_driver';\nimport
{ getOrSetAsInMap } from '../render/shared';\nimport { copyObj, ENTER_SELECTOR, extractStyleParams,
iteratorToArray, LEAVE_SELECTOR, NG_ANIMATING_SELECTOR, NG_TRIGGER_SELECTOR,
normalizeAnimationEntry, resolveTiming,

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SUBSTITUTION_EXPR_START, validateStyleParams, visitDslNode} from './util';\n\nimport { AnimateAst, AnimateChildAst, AnimateRefAst, Ast, DynamicTimingAst, GroupAst, KeyframesAst, QueryAst, ReferenceAst, SequenceAst, StaggerAst, StateAst, StyleAst, TimingAst, TransitionAst, TriggerAst} from './animation_ast';\n\nimport { AnimationDslVisitor} from './animation_dsl_visitor';\n\nimport {parseTransitionExpr} from './animation_transition_expr';\n\nconst SELF_TOKEN = 'self';\nconst SELF_TOKEN_REGEX = new RegExp(`\\s*\${SELF_TOKEN}\\s*,?`, 'g');\n\n/* [Validation]\n * The visitor code below will traverse the animation AST generated by the animation verb functions\n * (the output is a tree of objects) and attempt to perform a series of validations on the data. The\n * following corner-cases will be validated:\n * 1. Overlap of animations\n * Given that a CSS property cannot be animated in more than one place at the same time, it's\n * important that this behavior is detected and validated.

The way in which this occurs is that\n * each time a style property is examined, a string-map containing the property will be updated with\n * the start and end times for when the property is used within an animation step.\n *\n * If there are two or more parallel animations that are currently running (these are invoked by the\n * group()) on the same element then the validator will throw an error. Since the start/end timing\n * values are collected for each property then if the current animation step is animating the same\n * property and its timing values fall anywhere into the window of time that the property is\n * currently being animated within then this is what causes an error.\n *\n * 2. Timing values\n * The validator will validate to see if a timing value of `duration delay easing` or\n * `durationNumber` is valid or not.\n * (note that upon validation the code below will replace the timing data with an object containing\n * {duration, delay, easing}).\n * 3. Offset Validation\n * Each of the style() calls are allowed to have an offset value when placed inside of keyframes().\n * Offsets within keyframes() are considered valid when:\n * - No offsets are used at all\n * - Each style() entry contains an offset value\n * - Each offset is between 0 and 1\n * - Each offset is greater to or equal than the previous one\n * Otherwise an error will be thrown.\n */\n\nexport function buildAnimationAst(\n driver: AnimationDriver,\n metadata: AnimationMetadata|AnimationMetadata[],\n errors: any[]): Ast<AnimationMetadataType> {\n return new AnimationAstBuilderVisitor(driver).build(metadata, errors);\n}\n\nconst ROOT_SELECTOR = ";\n\nexport class AnimationAstBuilderVisitor implements AnimationDslVisitor {\n constructor(private _driver: AnimationDriver) {\n }\n build(metadata: AnimationMetadata|AnimationMetadata[], errors: any[]):\n Ast<AnimationMetadataType> {\n const context = new AnimationAstBuilderContext(errors);\n this._resetContextStyleTimingState(context);\n

return <Ast<AnimationMetadataType>>visitDslNode(\n this, normalizeAnimationEntry(metadata), context);\n}\n\nprivate _resetContextStyleTimingState(context: AnimationAstBuilderContext) {\n context.currentQuerySelector = ROOT_SELECTOR;\n context.collectedStyles = {};\n context.collectedStyles[ROOT_SELECTOR] = {};\n context.currentTime = 0;\n}\n\nvisitTrigger(metadata: AnimationTriggerMetadata, context: AnimationAstBuilderContext):\n TriggerAst {\n let queryCount = context.queryCount;\n let depCount = context.depCount;\n const states: StateAst[] = [];\n const transitions: TransitionAst[] = [];\n if (metadata.name.charAt(0) === '@') {\n context.errors.push(\n 'animation triggers cannot be prefixed with an `@` sign (e.g. trigger(`@foo`, [...]))');\n }\n metadata.definitions.forEach(def => {\n this._resetContextStyleTimingState(context);\n if (def.type === AnimationMetadataType.State) {\n {\n const stateDef = def as AnimationStateMetadata;\n const name = stateDef.name;\n name.toString().split(/\\s*,\\s*/).forEach(n => {\n stateDef.name = n;\n states.push(this.visitState(stateDef, context));\n });\n stateDef.name = name;\n } else if (def.type === AnimationMetadataType.Transition) {\n const transition = this.visitTransition(def as AnimationTransitionMetadata, context);\n queryCount += transition.queryCount;\n depCount += transition.depCount;\n transitions.push(transition);\n } else {\n context.errors.push(\n 'only state() and transition() definitions can sit inside of a trigger()');\n }\n }\n });\n return {\n type: AnimationMetadataType.Trigger,\n name: metadata.name,\n states,\n transitions,\n queryCount,\n depCount,\n options: null\n };\n}\n\nvisitState(metadata: AnimationStateMetadata, context:

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AnimationAstBuilderContext): StateAst {\n  const styleAst = this.visitStyle(metadata.styles, context);\n  const\n  astParams = (metadata.options && metadata.options.params) || null;\n  if (styleAst.containsDynamicStyles) {\n  const missingSubs = new Set<string>();\n    const params = astParams || {};\n    styleAst.styles.forEach(value =>\n  {\n    if (isObject(value)) {\n      const stylesObj = value as any;\n      Object.keys(stylesObj).forEach(prop\n=> {\n        extractStyleParams(stylesObj[prop]).forEach(sub => {\n          if (!params.hasOwnProperty(sub))\n  {\n            missingSubs.add(sub);\n          }\n        });\n      });\n    }\n  });\n  if (missingSubs.size)\n  {\n    const missingSubsArr = iteratorToArray(missingSubs.values());\n    context.errors.push(`state("${styleAst\n  metadata\n    .name}"...) must define default values for all the following style substitutions: ${\n  missingSubsArr.join(\n  ')});\n  }\n  }\n  return {\n    type: AnimationMetadataType.State,\n    name: metadata.name,\n    style:\n  styleAst,\n    options: astParams ? {params: astParams} : null\n  };\n  }\n  visitTransition(metadata:\n  AnimationTransitionMetadata, context: AnimationAstBuilderContext):\n  TransitionAst {\n    context.queryCount\n  = 0;\n    context.depCount = 0;\n    const animation = visitDslNode(this,\n  normalizeAnimationEntry(metadata.animation), context);\n    const matchers = parseTransitionExpr(metadata.expr,\n  context.errors);\n    return {\n      type: AnimationMetadataType.Transition,\n      matchers,\n      animation,\n      queryCount: context.queryCount,\n      depCount: context.depCount,\n      options:\n  normalizeAnimationOptions(metadata.options)\n    };\n  }\n  visitSequence(metadata:\n  AnimationSequenceMetadata, context: AnimationAstBuilderContext):\n  SequenceAst {\n    return {\n      type:\n  AnimationMetadataType.Sequence,\n      steps: metadata.steps.map(s\n=> visitDslNode(this, s, context)),\n      options: normalizeAnimationOptions(metadata.options)\n    };\n  }\n  visitGroup(metadata: AnimationGroupMetadata, context: AnimationAstBuilderContext): GroupAst {\n    const\n  currentTime = context.currentTime;\n    let furthestTime = 0;\n    const steps = metadata.steps.map(step => {\n  context.currentTime = currentTime;\n    const innerAst = visitDslNode(this, step, context);\n    furthestTime =\n  Math.max(furthestTime, context.currentTime);\n    return innerAst;\n  });\n    context.currentTime =\n  furthestTime;\n    return {\n      type: AnimationMetadataType.Group,\n      steps,\n      options:\n  normalizeAnimationOptions(metadata.options)\n    };\n  }\n  visitAnimate(metadata: AnimationAnimateMetadata,\n  context: AnimationAstBuilderContext):\n  AnimateAst {\n    const timingAst =\n  constructTimingAst(metadata.timings, context.errors);\n    context.currentAnimateTimings = timingAst;\n    let\n  styleAst: StyleAst|KeyframesAst;\n    let styleMetadata: AnimationMetadata = metadata.styles ? metadata.styles : style({});\n    if (styleMetadata.type\n  == AnimationMetadataType.Keyframes) {\n      styleAst = this.visitKeyframes(styleMetadata as\n  AnimationKeyframesSequenceMetadata, context);\n    } else {\n      let styleMetadata = metadata.styles as\n  AnimationStyleMetadata;\n      let isEmpty = false;\n      if (!styleMetadata) {\n        isEmpty = true;\n        const\n  newStyleData: {[prop: string]: string|number} = {};\n        if (timingAst.easing) {\n          newStyleData['easing'] =\n  timingAst.easing;\n        }\n        styleMetadata = style(newStyleData);\n      }\n      context.currentTime +=\n  timingAst.duration + timingAst.delay;\n      const _styleAst = this.visitStyle(styleMetadata, context);\n      _styleAst.isEmptyStep = isEmpty;\n      styleAst = _styleAst;\n    }\n    context.currentAnimateTimings = null;\n    return {\n      type: AnimationMetadataType.Animate,\n      timings: timingAst,\n      style: styleAst,\n      options: null\n    };\n  }\n  visitStyle(metadata: AnimationStyleMetadata, context:\n  AnimationAstBuilderContext): StyleAst {\n    const ast = this._makeStyleAst(metadata, context);\n    this._validateStyleAst(ast, context);\n    return ast;\n  }\n  private _makeStyleAst(metadata:\n  AnimationStyleMetadata, context: AnimationAstBuilderContext):\n  StyleAst {\n    const styles:\n  (StyleData|string)[] = [];\n    if (Array.isArray(metadata.styles)) {\n      (metadata.styles as (StyleData | \n  string)[]).forEach(styleTuple => {\n        if (typeof styleTuple == 'string') {\n          if (styleTuple ==\n  AUTO_STYLE) {\n            styles.push(styleTuple);\n          } else {\n            context.errors.push(`The provided style\n  string value ${styleTuple} is not allowed.`);\n          }\n        } else {\n          styles.push(styleTuple);\n        }\n      });\n    } else {\n      styles.push(metadata.styles);\n    }\n    let containsDynamicStyles = false;\n    let

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collectedEasing: string|null = null;\n  styles.forEach(styleData => {\n    if (isObject(styleData)) {\n      const
styleMap = styleData as StyleData;\n      const easing = styleMap['easing'];\n      if (easing) {\n
collectedEasing = easing as string;\n      delete styleMap['easing'];\n      }\n      if (!containsDynamicStyles) {\n
        for (let prop in styleMap) {\n          const value = styleMap[prop];\n          if
(value.toString().indexOf(SUBSTITUTION_EXPR_START) >= 0) {\n            containsDynamicStyles = true;\n
            break;\n          }\n        }\n      }\n    }\n  });\n  return {\n    type: AnimationMetadataType.Style,\n
styles,\n    easing: collectedEasing,\n    offset: metadata.offset,\n    containsDynamicStyles,\n    options: null\n
};\n  }\n  private _validateStyleAst(ast: StyleAst, context: AnimationAstBuilderContext): void {\n    const timings
= context.currentAnimateTimings;\n    let endTime
= context.currentTime;\n    let startTime = context.currentTime;\n    if (timings && startTime > 0) {\n      startTime
-= timings.duration + timings.delay;\n    }\n\n    ast.styles.forEach(tuple => {\n      if (typeof tuple == 'string')
return;\n\n      Object.keys(tuple).forEach(prop => {\n        if (!this._driver.validateStyleProperty(prop)) {\n
context.errors.push(`The provided animation property \"${\n          prop}\n        \" is not a supported CSS property for
animations`);\n        return;\n      })\n\n      const collectedStyles =
context.collectedStyles[context.currentQuerySelector!];\n      const collectedEntry = collectedStyles[prop];\n
let updateCollectedStyle = true;\n      if (collectedEntry) {\n        if (startTime != endTime && startTime >=
collectedEntry.startTime &&\n          endTime <= collectedEntry.endTime) {\n          context.errors.push(`The
CSS property \"${prop}\" that exists between the times of \"${\n            collectedEntry.startTime\n          }ms\"
and \"${\n            collectedEntry\n              .endTime\n            }ms\" is also being animated in a parallel animation
between the times of \"${\n              startTime\n            }ms\" and \"${\n              endTime\n            }ms\"`);\n          updateCollectedStyle =
false;\n        }\n        // we always choose the smaller start time value since we\n        // want to have a record of
the entire animation window where\n        // the style property is being animated in between\n        startTime =
collectedEntry.startTime;\n      }\n\n      if (updateCollectedStyle) {\n        collectedStyles[prop] = {startTime,
endTime};\n      }\n\n      if (context.options) {\n        validateStyleParams(tuple[prop], context.options,
context.errors);\n      }\n    });\n  }\n  visitKeyframes(metadata: AnimationKeyframesSequenceMetadata,
context: AnimationAstBuilderContext):\n  KeyframesAst {\n    const ast: KeyframesAst = {type:
AnimationMetadataType.Keyframes,
styles: [], options: null};\n    if (!context.currentAnimateTimings) {\n      context.errors.push(`keyframes() must be
placed inside of a call to animate()`);\n      return ast;\n    }\n\n    const MAX_KEYFRAME_OFFSET = 1;\n\n    let
totalKeyframesWithOffsets = 0;\n    const offsets: number[] = [];\n    let offsetsOutOfOrder = false;\n    let
keyframesOutOfRange = false;\n    let previousOffset: number = 0;\n\n    const keyframes: StyleAst[] =
metadata.steps.map(styles => {\n      const style = this._makeStyleAst(styles, context);\n      let offsetVal:
number|null =\n        style.offset != null ? style.offset : consumeOffset(style.styles);\n      let offset: number = 0;\n
if (offsetVal != null) {\n        totalKeyframesWithOffsets++;\n        offset = style.offset = offsetVal;\n      }\n
keyframesOutOfRange = keyframesOutOfRange || offset < 0 || offset > 1;\n      offsetsOutOfOrder =
offsetsOutOfOrder || offset < previousOffset;\n      previousOffset = offset;\n      offsets.push(offset);\n
      return style;\n    });\n\n    if (keyframesOutOfRange) {\n      context.errors.push(`Please ensure that all keyframe
offsets are between 0 and 1`);\n    }\n\n    if (offsetsOutOfOrder) {\n      context.errors.push(`Please ensure that all
keyframe offsets are in order`);\n    }\n\n    const length = metadata.steps.length;\n    let generatedOffset = 0;\n    if
(totalKeyframesWithOffsets > 0 && totalKeyframesWithOffsets < length) {\n      context.errors.push(`Not all
style() steps within the declared keyframes() contain offsets`);\n    }\n    else if (totalKeyframesWithOffsets == 0) {\n
generatedOffset = MAX_KEYFRAME_OFFSET / (length - 1);\n    }\n\n    const limit = length - 1;\n    const
currentTime = context.currentTime;\n    const currentAnimateTimings = context.currentAnimateTimings!;\n    const
animateDuration = currentAnimateTimings.duration;\n    keyframes.forEach((kf, i) => {\n      const offset =
generatedOffset > 0 ? (i == limit ? 1 : (generatedOffset
* i)) : offsets[i];\n      const durationUpToThisFrame = offset * animateDuration;\n      context.currentTime =
currentTime + currentAnimateTimings.delay + durationUpToThisFrame;\n      currentAnimateTimings.duration =
durationUpToThisFrame;\n      this._validateStyleAst(kf, context);\n      kf.offset = offset;\n    })

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ast.styles.push(kf);\n  });\n\n  return ast;\n }\n\n  visitReference(metadata: AnimationReferenceMetadata,
context: AnimationAstBuilderContext):\n  ReferenceAst {\n  return {\n    type:
AnimationMetadataType.Reference,\n    animation: visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context),\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n }\n\n  visitAnimateChild(metadata:
AnimationAnimateChildMetadata, context: AnimationAstBuilderContext):\n  AnimateChildAst {\n
context.depCount++;\n  return {\n    type: AnimationMetadataType.AnimateChild,\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n }\n\n  visitAnimateRef(metadata: AnimationAnimateRefMetadata, context: AnimationAstBuilderContext):\n  AnimateRefAst {\n  return {\n    type: AnimationMetadataType.AnimateRef,\n    animation:
this.visitReference(metadata.animation, context),\n    options: normalizeAnimationOptions(metadata.options)\n  };\n }\n\n  visitQuery(metadata: AnimationQueryMetadata, context: AnimationAstBuilderContext): QueryAst {\n
const parentSelector = context.currentQuerySelector!;\n  const options = (metadata.options || { }) as
AnimationQueryOptions;\n\n  context.queryCount++;\n  context.currentQuery = metadata;\n  const [selector,
includeSelf] = normalizeSelector(metadata.selector);\n  context.currentQuerySelector =\nparentSelector.length ? (parentSelector + ' ' + selector) : selector;\n  getOrSetAsInMap(context.collectedStyles,
context.currentQuerySelector, { });\n\n  const animation = visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context);\n\n  context.currentQuery = null;\n  context.currentQuerySelector = parentSelector;\n\n  return {\n    type:
AnimationMetadataType.Query,\n    selector,\n    limit: options.limit || 0,\n    optional: !!options.optional,\n    includeSelf,\n    animation,\n    originalSelector: metadata.selector,\n    options:
normalizeAnimationOptions(metadata.options)\n  };\n }\n\n  visitStagger(metadata: AnimationStaggerMetadata,
context: AnimationAstBuilderContext):\n  StaggerAst {\n  if (!context.currentQuery) {\n
context.errors.push(`stagger() can only be used inside of query()`);\n  }\n  const timings = metadata.timings ===
'full' ?\n    { duration: 0, delay: 0, easing: 'full' } :\n    resolveTiming(metadata.timings, context.errors, true);\n\n  return {\n    type: AnimationMetadataType.Stagger,\n    animation: visitDslNode(this,
normalizeAnimationEntry(metadata.animation), context),\n    timings,\n    options: null\n  };\n }\n\nfunction
normalizeSelector(selector:
string): [string, boolean] {\n  const hasAmpersand = selector.split(/\\s*,\\s*/).find(token => token ===
SELF_TOKEN) ? true : false;\n  if (hasAmpersand) {\n    selector = selector.replace(SELF_TOKEN_REGEX, "");\n  }\n\n  // the :enter and :leave selectors are filled in at runtime during timeline building\n  selector =
selector.replace(/@\\s*/g, NG_TRIGGER_SELECTOR)\n    .replace(/@\\s*w+/g, match =>
NG_TRIGGER_SELECTOR + ' ' + match.substr(1))\n    .replace(/:animating/g,
NG_ANIMATING_SELECTOR);\n\n  return [selector, hasAmpersand];\n }\n\nfunction normalizeParams(obj:
{[key: string]: any}|any): {[key: string]: any}|null {\n  return obj ? copyObj(obj) : null;\n }\n\nexport type
StyleTimeTuple = {\n  startTime: number; endTime: number;\n};\n\nexport class AnimationAstBuilderContext {\n
public queryCount: number = 0;\n  public depCount: number = 0;\n  public currentTransition:
AnimationTransitionMetadata|null = null;\n  public currentQuery:
AnimationQueryMetadata|null = null;\n  public currentQuerySelector: string|null = null;\n  public
currentAnimateTimings: TimingAst|null = null;\n  public currentTime: number = 0;\n  public collectedStyles:
{[selectorName: string]: {[propName: string]: StyleTimeTuple}} = { };\n  public options: AnimationOptions|null =
null;\n  constructor(public errors: any[]) { }\n\nfunction consumeOffset(styles: StyleData|string|(StyleData |
string)|[]): number|null {\n  if (typeof styles === 'string') return null;\n\n  let offset: number|null = null;\n\n  if
(Array.isArray(styles)) {\n    styles.forEach(styleTuple => {\n      if (isObject(styleTuple) &&
styleTuple.hasOwnProperty('offset')) {\n        const obj = styleTuple as StyleData;\n        offset =
parseFloat(obj['offset'] as string);\n        delete obj['offset'];\n      }\n    });\n  } else if (isObject(styles) &&
styles.hasOwnProperty('offset')) {\n    const obj = styles;\n    offset = parseFloat(obj['offset'] as string);\n    delete
obj['offset'];\n  }

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    }\n return offset;\n}\n\nfunction isObject(value: any): boolean {\n return !Array.isArray(value) && typeof value
== 'object';\n}\n\nfunction constructTimingAst(value: string|number|AnimateTimings, errors: any[]) {\n let timings:
AnimateTimings|null = null;\n if (value.hasOwnProperty('duration')) {\n timings = value as AnimateTimings;\n }
else if (typeof value == 'number') {\n const duration = resolveTiming(value, errors).duration;\n return
makeTimingAst(duration, 0, '');\n }\n\n const strValue = value as string;\n const isDynamic =
strValue.split(/\\s+/).some(v => v.charAt(0) == '{' && v.charAt(1) == '{');\n if (isDynamic) {\n const ast =
makeTimingAst(0, 0, '') as any;\n ast.dynamic = true;\n ast.strValue = strValue;\n return ast as
DynamicTimingAst;\n }\n\n timings = timings || resolveTiming(strValue, errors);\n return
makeTimingAst(timings.duration, timings.delay, timings.easing);\n}\n\nfunction
normalizeAnimationOptions(options: AnimationOptions|null):
AnimationOptions {\n if (options) {\n options = copyObj(options);\n if (options['params']) {\n
options['params'] = normalizeParams(options['params']);\n }\n } else {\n options = {};\n }\n return
options;\n}\n\nfunction makeTimingAst(duration: number, delay: number, easing: string|null): TimingAst {\n
return {duration, delay, easing};\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {StyleData} from '@angular/animations';\nimport
{AnimationEngineInstruction, AnimationTransitionInstructionType} from
'./render/animation_engine_instruction';\n\nexport interface AnimationTimelineInstruction extends
AnimationEngineInstruction {\n element: any;\n keyframes: StyleData[];\n preStyleProps: string[];\n
postStyleProps: string[];\n duration: number;\n delay: number;\n totalTime:
number;\n easing: string|null;\n stretchStartingKeyframe?: boolean;\n subTimeline: boolean;\n}\n\nexport
function createTimelineInstruction(\n element: any, keyframes: StyleData[], preStyleProps: string[],
postStyleProps: string[],\n duration: number, delay: number, easing: string|null = null,\n subTimeline: boolean =
false): AnimationTimelineInstruction {\n return {\n type:
AnimationTransitionInstructionType.TimelineAnimation,\n element,\n keyframes,\n preStyleProps,\n
postStyleProps,\n duration,\n delay,\n totalTime: duration + delay,\n easing,\n subTimeline\n
};\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {AnimationTimelineInstruction} from './animation_timeline_instruction';\n\nexport class
ElementInstructionMap {\n private _map = new Map<any, AnimationTimelineInstruction[]>();\n\n consume(element: any): AnimationTimelineInstruction[] {\n let instructions = this._map.get(element);\n if
(instructions) {\n this._map.delete(element);\n } else {\n instructions = [];\n }\n return instructions;\n
}\n\n append(element: any, instructions: AnimationTimelineInstruction[]) {\n let existingInstructions =
this._map.get(element);\n if (!existingInstructions) {\n this._map.set(element, existingInstructions = []);\n }\n
existingInstructions.push(...instructions);\n }\n\n has(element: any): boolean {\n return
this._map.has(element);\n }\n\n clear() {\n this._map.clear();\n }\n}\n\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {AnimateChildOptions, AnimateTimings,
AnimationMetadataType, AnimationOptions, AnimationQueryOptions, AUTO_STYLE,
PRE_STYLE as PRE_STYLE, StyleData} from '@angular/animations';\nimport {AnimationDriver} from
'./render/animation_driver';\nimport {copyObj, copyStyles, interpolateParams, iteratorToArray, resolveTiming,
resolveTimingValue, visitDslNode} from './util';\nimport {AnimateAst, AnimateChildAst, AnimateRefAst, Ast,
AstVisitor, DynamicTimingAst, GroupAst, KeyframesAst, QueryAst, ReferenceAst, SequenceAst, StaggerAst,
StateAst, StyleAst, TimingAst, TransitionAst, TriggerAst} from './animation_ast';\nimport
{AnimationTimelineInstruction, createTimelineInstruction} from './animation_timeline_instruction';\nimport
{ElementInstructionMap} from './element_instruction_map';\n\nconst ONE_FRAME_IN_MILLISECONDS =
1;\nconst ENTER_TOKEN = 'enter';\nconst ENTER_TOKEN_REGEX = new RegExp(ENTER_TOKEN,
'g');\nconst LEAVE_TOKEN = 'leave';\nconst LEAVE_TOKEN_REGEX = new RegExp(LEAVE_TOKEN,

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'g');\n\n/*\n * The code within this file aims to generate web-animations-compatible keyframes from Angular's\n * animation DSL code.\n * The code below will be converted from:\n * ``\n * sequence([\n * style({\n opacity: 0 })),\n * animate(1000, style({ opacity: 0 })))\n *])\n * ``\n * To:\n * ``\n * keyframes = [{ opacity:\n 0, offset: 0 }, { opacity: 1, offset: 1 }]\n * duration = 1000\n * delay = 0\n * easing = "\n * ``\n * For this operation to cover the combination of animation verbs (style, animate, group, etc...) a\n * combination of prototypical inheritance, AST traversal and merge-sort-like algorithms are used.\n * [AST Traversal]\n * Each of the animation verbs, when executed, will return an string-map object representing what\n * type of action it is (style, animate, group, etc...) and the data associated with it. This means\n * that when functional composition mix of these functions is evaluated (like in the example above)\n * then it will end up producing a tree of objects representing the animation itself.\n * When this animation object tree is processed by the visitor code below it will visit each of the\n * verb statements within the visitor. And during each visit it will build the context of the\n * animation keyframes by interacting with the `TimelineBuilder`.\n * [TimelineBuilder]\n * This class is responsible for tracking the styles and building a series of keyframe objects for a\n * timeline between a start and end time. The builder starts off with an initial timeline and each\n * time the AST comes across a `group()`, `keyframes()` or a combination of the two within a\n * `sequence()` then it will generate a sub timeline for each step as well as a new one after\n * they are complete.\n * As the AST is traversed, the timing state on each of the timelines will be incremented. If a sub\n * timeline was created (based on one of the cases above) then the parent timeline will attempt to\n * merge the styles used within the sub timelines into itself (only with group() this will happen).\n * This happens with a merge operation (much like how the merge works in mergesort) and it will only\n * copy the most recently used styles from the sub timelines into the parent timeline. This ensures\n * that if the styles are used later on in another phase of the animation then they will be the most\n * up-to-date values.\n * [How Missing Styles Are Updated]\n * Each timeline has a `backFill` property which is responsible for filling in new styles into\n * already processed keyframes if a new style shows up later within the animation sequence.\n * ``\n * sequence([\n * style({ width: 0 })),\n * animate(1000, style({ width: 100 })),\n * animate(1000, style({ width: 200 })),\n * animate(1000, style({ width: 300 })),\n * animate(1000, style({ width: 400, height: 400 }))] // notice how `height` doesn't exist anywhere\n * else\n *])\n * ``\n * What is happening here is that the `height` value is added later in the sequence, but is missing\n * from all previous animation steps. Therefore when a keyframe is created it would also be missing\n * from all previous keyframes up until where it is first used. For the timeline keyframe generation\n * to properly fill in the style it will place the previous value (the value from the parent\n * timeline) or a default value of `` into the backFill object. Given that each of the keyframe\n * styles are objects that prototypically inherit from the backFill object, this means that if a\n * value is added into the backFill then it will automatically propagate any missing values to all\n * keyframes. Therefore the missing `height` value will be properly filled into the already\n * processed keyframes.\n * When a sub-timeline is created it will have its own backFill property. This is done so that\n * styles present within the sub-timeline do not accidentally seep into the previous/future timeline\n * keyframes\n * (For prototypically-inherited contents to be detected a `for(i in obj)` loop must be used.)\n * [Validation]\n * The code in this file is not responsible for validation. That functionality happens within\n * the `AnimationValidatorVisitor` code.\n */\n\nexport function buildAnimationTimelines(\n driver: AnimationDriver,\n rootElement: any, ast: Ast<AnimationMetadataType>,\n enterClassName: string, leaveClassName: string,\n startingStyles: StyleData = {},\n finalStyles: StyleData = {}, options: AnimationOptions,\n subInstructions?:\n ElementInstructionMap, errors: any[] = []): AnimationTimelineInstruction[] {\n return new\n AnimationTimelineBuilderVisitor().buildKeyframes(\n driver, rootElement, ast, enterClassName,\n leaveClassName, startingStyles, finalStyles,\n options, subInstructions, errors);\n }\n\nexport class\n AnimationTimelineBuilderVisitor implements AstVisitor {\n buildKeyframes(\n driver: AnimationDriver,\n rootElement: any, ast: Ast<AnimationMetadataType>,\n enterClassName: string, leaveClassName: string,\n startingStyles: StyleData,\n finalStyles: StyleData, options:\n

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AnimationOptions, subInstructions?: ElementInstructionMap,\n    errors: any[] = []):
AnimationTimelineInstruction[] {\n    subInstructions = subInstructions || new ElementInstructionMap();\n    const
context = new AnimationTimelineContext(\n        driver, rootElement, subInstructions, enterClassName,
leaveClassName, errors, []);\n    context.options = options;\n    context.currentTimeline.setStyles([startingStyles],
null, context.errors, options);\n\n    visitDslNode(this, ast, context);\n\n    // this checks to see if an actual animation
happened\n    const timelines = context.timelines.filter(timeline => timeline.containsAnimation());\n    if
(timelines.length && Object.keys(finalStyles).length) {\n        const tl = timelines[timelines.length - 1];\n        if
(!tl.allowOnlyTimelineStyles()) {\n            tl.setStyles([finalStyles], null, context.errors, options);\n        }\n    }\n\n    return timelines.length ? timelines.map(timeline => timeline.buildKeyframes()) :\n\n        [createTimelineInstruction(rootElement, [], [], [], 0, 0, "", false)];\n    }\n\n    visitTrigger(ast: TriggerAst,
context: AnimationTimelineContext): any {\n        // these values are not visited in this AST\n    }\n\n    visitState(ast:
StateAst, context: AnimationTimelineContext): any {\n        // these values are not visited in this AST\n    }\n\n    visitTransition(ast: TransitionAst, context: AnimationTimelineContext): any {\n        // these values are not visited in
this AST\n    }\n\n    visitAnimateChild(ast: AnimateChildAst, context: AnimationTimelineContext): any {\n        const
elementInstructions = context.subInstructions.consume(context.element);\n        if (elementInstructions) {\n            const
innerContext = context.createSubContext(ast.options);\n            const startTime =
context.currentTimeline.currentTime;\n            const endTime = this._visitSubInstructions(\n                elementInstructions,
innerContext, innerContext.options as AnimateChildOptions);\n            if (startTime != endTime) {\n\n                // we do this on the upper context because we created a sub context for\n                // the sub child animations\n                context.transformIntoNewTimeline(endTime);\n            }\n            context.previousNode = ast;\n        }\n\n        visitAnimateRef(ast: AnimateRefAst, context: AnimationTimelineContext): any {\n            const innerContext =
context.createSubContext(ast.options);\n            innerContext.transformIntoNewTimeline();\n            this.visitReference(ast.animation, innerContext);\n            context.transformIntoNewTimeline(innerContext.currentTimeline.currentTime);\n            context.previousNode = ast;\n        }\n\n        private _visitSubInstructions(\n            instructions: AnimationTimelineInstruction[], context:
AnimationTimelineContext,\n            options: AnimateChildOptions): number {\n            const startTime =
context.currentTimeline.currentTime;\n            let furthestTime = startTime;\n\n            // this is a special-case for when a user
wants to skip a sub\n            // animation from being fired entirely.\n            const duration = options.duration
!= null ? resolveTimingValue(options.duration) : null;\n            const delay = options.delay != null ?
resolveTimingValue(options.delay) : null;\n            if (duration != 0) {\n                instructions.forEach(instruction => {\n                    const instructionTimings =\n                        context.appendInstructionToTimeline(instruction, duration, delay);\n                    furthestTime =\n                        Math.max(furthestTime, instructionTimings.duration + instructionTimings.delay);\n                });\n            }\n            return furthestTime;\n        }\n\n        visitReference(ast: ReferenceAst, context: AnimationTimelineContext)
{\n            context.updateOptions(ast.options, true);\n            visitDslNode(this, ast.animation, context);\n            context.previousNode = ast;\n        }\n\n        visitSequence(ast: SequenceAst, context: AnimationTimelineContext) {\n            const subContextCount = context.subContextCount;\n            let ctx = context;\n            const options = ast.options;\n            if
(options && (options.params || options.delay)) {\n                ctx = context.createSubContext(options);\n                ctx.transformIntoNewTimeline();\n                if (options.delay != null) {\n                    if (ctx.previousNode.type ==
AnimationMetadataType.Style) {\n                        ctx.currentTimeline.snapshotCurrentStyles();\n                        ctx.previousNode =
DEFAULT_NOOP_PREVIOUS_NODE;\n                    }\n                    const delay = resolveTimingValue(options.delay);\n                    ctx.delayNextStep(delay);\n                }\n            }\n            if (ast.steps.length) {\n                ast.steps.forEach(s => visitDslNode(this, s,
ctx));\n                // this is here just incase the inner steps only contain or end with a style() call\n                ctx.currentTimeline.applyStylesToKeyframe();\n                // this means that some animation function within the
sequence\n                // ended up creating a sub timeline (which means the current\n                // timeline cannot overlap with the
contents of the sequence)\n                if (ctx.subContextCount > subContextCount) {\n                    ctx.transformIntoNewTimeline();\n                }\n                context.previousNode = ast;\n            }\n\n            visitGroup(ast:
GroupAst, context: AnimationTimelineContext) {\n                const innerTimelines: TimelineBuilder[] = [];\n                let
furthestTime = context.currentTimeline.currentTime;\n                const delay = ast.options && ast.options.delay ?

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resolveTimingValue(ast.options.delay) : 0;\n\n ast.steps.forEach(s => {\n    const innerContext =
context.createSubContext(ast.options);\n    if (delay) {\n        innerContext.delayNextStep(delay);\n    }\n\n    visitDslNode(this, s, innerContext);\n    furthestTime = Math.max(furthestTime,
innerContext.currentTimeline.currentTime);\n    innerTimelines.push(innerContext.currentTimeline);\n    });\n\n    // this operation is run after the AST loop because otherwise\n    // if the parent timeline's collected styles were
updated then\n    // it would pass in invalid data into the new-to-be forked items\n    innerTimelines.forEach(\n    timeline => context.currentTimeline.mergeTimelineCollectedStyles(timeline));\n\n    context.transformIntoNewTimeline(furthestTime);\n\n    context.previousNode = ast;\n    }\n\n    private _visitTiming(ast: TimingAst, context: AnimationTimelineContext):
AnimateTimings {\n    if ((ast as DynamicTimingAst).dynamic) {\n        const strValue = (ast as
DynamicTimingAst).strValue;\n        const timingValue =\n            context.params ? interpolateParams(strValue,
context.params, context.errors) : strValue;\n        return resolveTiming(timingValue, context.errors);\n    } else {\n    return {duration: ast.duration, delay: ast.delay, easing: ast.easing};\n    }\n\n    visitAnimate(ast: AnimateAst,
context: AnimationTimelineContext) {\n    const timings = context.currentAnimateTimings =
this._visitTiming(ast.timings, context);\n    const timeline = context.currentTimeline;\n    if (timings.delay) {\n    context.incrementTime(timings.delay);\n    timeline.snapshotCurrentStyles();\n    }\n\n    const style = ast.style;\n    if (style.type == AnimationMetadataType.Keyframes) {\n    this.visitKeyframes(style, context);\n    } else {\n    context.incrementTime(timings.duration);\n    this.visitStyle(style as StyleAst, context);\n    timeline.applyStylesToKeyframe();\n    }\n\n    context.currentAnimateTimings = null;\n    context.previousNode =
ast;\n    }\n\n    visitStyle(ast: StyleAst, context: AnimationTimelineContext) {\n    const timeline =
context.currentTimeline;\n    const timings = context.currentAnimateTimings!;\n\n    // this is a special case for when
a style() call\n    // directly follows an animate() call (but not inside of an animate() call)\n    if (!timings &&
timeline.getCurrentStyleProperties().length) {\n    timeline.forwardFrame();\n    }\n\n    const easing = (timings &&
timings.easing) || ast.easing;\n    if (ast.isEmptyStep) {\n    timeline.applyEmptyStep(easing);\n    } else {\n    timeline.setStyles(ast.styles, easing, context.errors, context.options);\n    }\n\n    context.previousNode = ast;\n    }\n\n    visitKeyframes(ast: KeyframesAst, context: AnimationTimelineContext)
{\n    const currentAnimateTimings = context.currentAnimateTimings!;\n    const startTime =
(context.currentTimeline!).duration;\n    const duration = currentAnimateTimings.duration;\n    const innerContext =
context.createSubContext();\n    const innerTimeline = innerContext.currentTimeline;\n    innerTimeline.easing =
currentAnimateTimings.easing;\n\n    ast.styles.forEach(step => {\n    const offset: number = step.offset || 0;\n    innerTimeline.forwardTime(offset * duration);\n    innerTimeline.setStyles(step.styles, step.easing, context.errors,
context.options);\n    innerTimeline.applyStylesToKeyframe();\n    });\n\n    // this will ensure that the parent
timeline gets all the styles from\n    // the child even if the new timeline below is not used\n    context.currentTimeline.mergeTimelineCollectedStyles(innerTimeline);\n\n    // we do this because the window
between this timeline and the sub timeline\n    // should ensure that the styles within are exactly the
same as they were before\n    context.transformIntoNewTimeline(startTime + duration);\n    context.previousNode
= ast;\n    }\n\n    visitQuery(ast: QueryAst, context: AnimationTimelineContext) {\n    // in the event that the first step
before this is a style step we need\n    // to ensure the styles are applied before the children are animated\n    const
startTime = context.currentTimeline.currentTime;\n    const options = (ast.options || {}) as
AnimationQueryOptions;\n    const delay = options.delay ? resolveTimingValue(options.delay) : 0;\n\n    if (delay
&&\n        (context.previousNode.type === AnimationMetadataType.Style ||\n        (startTime == 0 &&
context.currentTimeline.getCurrentStyleProperties().length))) {\n    context.currentTimeline.snapshotCurrentStyles();\n    context.previousNode =
DEFAULT_NOOP_PREVIOUS_NODE;\n    }\n\n    let furthestTime = startTime;\n    const elms =
context.invokeQuery(\n        ast.selector, ast.originalSelector, ast.limit, ast.includeSelf,\n        options.optional ? true : false, context.errors);\n\n    context.currentQueryTotal = elms.length;\n    let
sameElementTimeline: TimelineBuilder|null = null;\n    elms.forEach((element, i) => {\n    context.currentQueryIndex = i;\n    const innerContext = context.createSubContext(ast.options, element);\n    if

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(delay) {\n    innerContext.delayNextStep(delay);\n    }\n\n    if (element === context.element) {\n
sameElementTimeline = innerContext.currentTimeline;\n    }\n\n    visitDslNode(this, ast.animation,
innerContext);\n\n    // this is here just incase the inner steps only contain or end\n    // with a style() call (which is
here to signal that this is a preparatory\n    // call to style an element before it is animated again)\n
innerContext.currentTimeline.applyStylesToKeyframe();\n\n    const endTime =
innerContext.currentTimeline.currentTime;\n    furthestTime = Math.max(furthestTime, endTime);\n    });\n\n
context.currentQueryIndex
= 0;\n    context.currentQueryTotal = 0;\n    context.transformIntoNewTimeline(furthestTime);\n\n    if
(sameElementTimeline) {\n    context.currentTimeline.mergeTimelineCollectedStyles(sameElementTimeline);\n
context.currentTimeline.snapshotCurrentStyles();\n    }\n\n    context.previousNode = ast;\n    }\n\n    visitStagger(ast:
StaggerAst, context: AnimationTimelineContext) {\n    const parentContext = context.parentContext!;\n    const tl =
context.currentTimeline;\n    const timings = ast.timings;\n    const duration = Math.abs(timings.duration);\n    const
maxTime = duration * (context.currentQueryTotal - 1);\n    let delay = duration * context.currentQueryIndex;\n\n
let staggerTransformer = timings.duration < 0 ? 'reverse' : timings.easing;\n    switch (staggerTransformer) {\n
case 'reverse':\n        delay = maxTime - delay;\n        break;\n    case 'full':\n        delay =
parentContext.currentStaggerTime;\n        break;\n    }\n\n    const timeline = context.currentTimeline;\n
    if (delay) {\n    timeline.delayNextStep(delay);\n    }\n\n    const startingTime = timeline.currentTime;\n
visitDslNode(this, ast.animation, context);\n    context.previousNode = ast;\n\n    // time = duration + delay\n    // the
reason why this computation is so complex is because\n    // the inner timeline may either have a delay value or a
stretched\n    // keyframe depending on if a subtimeline is not used or is used.\n    parentContext.currentStaggerTime
=\n    (tl.currentTime - startingTime) + (tl.startTime - parentContext.currentTimeline.startTime);\n    }\n\n}\n\nexport
declare type StyleAtTime = {\n    time: number; value: string | number;\n};\n\nconst
DEFAULT_NOOP_PREVIOUS_NODE = <Ast<AnimationMetadataType>>{};\n\nexport class
AnimationTimelineContext {\n    public parentContext: AnimationTimelineContext|null = null;\n    public
currentTimeline: TimelineBuilder;\n    public currentAnimateTimings: AnimateTimings|null = null;\n    public
previousNode: Ast<AnimationMetadataType>
= DEFAULT_NOOP_PREVIOUS_NODE;\n    public subContextCount = 0;\n    public options: AnimationOptions =
{};\n    public currentQueryIndex: number = 0;\n    public currentQueryTotal: number = 0;\n    public
currentStaggerTime: number = 0;\n\n    constructor(\n        private _driver: AnimationDriver, public element: any,\n        public subInstructions: ElementInstructionMap, private _enterClassName: string,\n        private _leaveClassName:
string, public errors: any[], public timelines: TimelineBuilder[],\n        initialTimeline?: TimelineBuilder) {\n\n        this.currentTimeline = initialTimeline || new TimelineBuilder(this._driver, element, 0);\n
        timelines.push(this.currentTimeline);\n    }\n\n    get params() {\n    return this.options.params;\n    }\n\n
updateOptions(options: AnimationOptions|null, skipIfExists?: boolean) {\n    if (!options) return;\n\n    const
newOptions = options as any;\n    let optionsToUpdate = this.options;\n\n    // NOTE: this will get patched up when
other animation
methods support duration overrides\n    if (newOptions.duration != null) {\n    (optionsToUpdate as any).duration
= resolveTimingValue(newOptions.duration);\n    }\n\n    if (newOptions.delay != null) {\n
optionsToUpdate.delay = resolveTimingValue(newOptions.delay);\n    }\n\n    const newParams =
newOptions.params;\n    if (newParams) {\n    let paramsToUpdate: {[name: string]: any} =
optionsToUpdate.params!;\n    if (!paramsToUpdate) {\n    paramsToUpdate = this.options.params = {};\n
    }\n\n    Object.keys(newParams).forEach(name => {\n    if (!skipIfExists ||
!paramsToUpdate.hasOwnProperty(name)) {\n    paramsToUpdate[name] =
interpolateParams(newParams[name], paramsToUpdate, this.errors);\n    }\n    });\n    }\n\n    private
_copyOptions() {\n    const options: AnimationOptions = {};\n    if (this.options) {\n    const oldParams =
this.options.params;\n    if (oldParams) {\n    const params: {[name: string]: any} = options['params']
= {};\n    Object.keys(oldParams).forEach(name => {\n    params[name] = oldParams[name];\n    });\n
    }\n    }\n    return options;\n    }\n\n    createSubContext(options: AnimationOptions|null = null, element?: any,

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newTime?: number);\n  AnimationTimelineContext {\n    const target = element || this.element;\n    const context = new AnimationTimelineContext(\n      this._driver, target, this.subInstructions, this._enterClassName, this._leaveClassName,\n      this.errors, this.timelines, this.currentTimeline.fork(target, newTime || 0));\n    context.previousNode = this.previousNode;\n    context.currentAnimateTimings = this.currentAnimateTimings;\n    context.options = this._copyOptions();\n    context.updateOptions(options);\n    context.currentQueryIndex = this.currentQueryIndex;\n    context.currentQueryTotal = this.currentQueryTotal;\n    context.parentContext = this;\n    this.subContextCount++;\n    return context;\n  }\n\n  transformIntoNewTimeline(newTime?: number) {\n    this.previousNode = DEFAULT_NOOP_PREVIOUS_NODE;\n    this.currentTimeline = this.currentTimeline.fork(this.element, newTime);\n    this.timelines.push(this.currentTimeline);\n    return this.currentTimeline;\n  }\n\n  appendInstructionToTimeline(\n    instruction: AnimationTimelineInstruction, duration: number|null,\n    delay: number|null): AnimateTimings {\n    const updatedTimings: AnimateTimings = {\n      duration: duration != null ? duration : instruction.duration,\n      delay: this.currentTimeline.currentTime + (delay != null ? delay : 0) + instruction.delay,\n      easing: "\n    };\n    const builder = new SubTimelineBuilder(\n      this._driver, instruction.element, instruction.keyframes, instruction.preStyleProps,\n      instruction.postStyleProps, updatedTimings, instruction.stretchStartingKeyframe);\n    this.timelines.push(builder);\n    return updatedTimings;\n  }\n\n  incrementTime(time: number) {\n    this.currentTimeline.forwardTime(this.currentTimeline.duration + time);\n  }\n\n  delayNextStep(delay: number) {\n    // negative delays are not yet supported\n    if (delay > 0) {\n      this.currentTimeline.delayNextStep(delay);\n    }\n  }\n\n  invokeQuery(\n    selector: string, originalSelector: string, limit: number, includeSelf: boolean,\n    optional: boolean, errors: any[]): any[] {\n    let results: any[] = [];\n    if (includeSelf) {\n      results.push(this.element);\n    }\n    if (selector.length > 0) {\n      // if :self is only used then the selector is empty\n      selector = selector.replace(ENTER_TOKEN_REGEX, '.' + this._enterClassName);\n      selector = selector.replace(LEAVE_TOKEN_REGEX, '.' + this._leaveClassName);\n      const multi = limit != 1;\n      let elements = this._driver.query(this.element, selector, multi);\n      if (limit !== 0) {\n        elements = limit < 0 ? elements.slice(elements.length + limit, elements.length) : elements.slice(0, limit);\n      }\n      results.push(...elements);\n    }\n    if (!optional && results.length == 0) {\n      errors.push(`\\`query("${originalSelector}")\\` returned zero elements. (Use \\`query("${originalSelector}", { optional: true })\\` if you wish to allow this.)`);\n    }\n    return results;\n  }\n}\n\nexport class TimelineBuilder {\n  public duration: number = 0; // TODO(issue/24571): remove '!'\n  public easing!: string|null;\n  private _previousKeyframe: StyleData = {};\n  private _currentKeyframe: StyleData = {};\n  private _keyframes = new Map<number, StyleData>();\n  private _styleSummary: {[prop: string]: StyleAtTime} = {};\n  private _localTimelineStyles: StyleData;\n  private _globalTimelineStyles: StyleData;\n  private _pendingStyles: StyleData = {};\n  private _backFill: StyleData = {};\n  private _currentEmptyStepKeyframe: StyleData|null = null;\n\n  constructor(\n    private _driver: AnimationDriver, public element: any, public startTime: number,\n    private _elementTimelineStylesLookup?: Map<any, StyleData>) {\n    if (!this._elementTimelineStylesLookup) {\n      this._elementTimelineStylesLookup = new Map<any, StyleData>();\n    }\n    this._localTimelineStyles = Object.create(this._backFill, {});\n    this._globalTimelineStyles = this._elementTimelineStylesLookup.get(element)!;\n    if (!this._globalTimelineStyles) {\n      this._globalTimelineStyles = this._localTimelineStyles;\n      this._elementTimelineStylesLookup.set(element, this._localTimelineStyles);\n    }\n    this._loadKeyframe();\n  }\n\n  containsAnimation(): boolean {\n    switch (this._keyframes.size) {\n      case 0:\n        return false;\n      case 1:\n        return this.getCurrentStyleProperties().length > 0;\n      default:\n        return true;\n    }\n  }\n\n  getCurrentStyleProperties(): string[] {\n    return Object.keys(this._currentKeyframe);\n  }\n\n  get currentTime() {\n    return this.startTime + this.duration;\n  }\n\n  delayNextStep(delay: number) {\n    // in the event that a style() step is placed right before a stagger()\n    // and that style() step is the very first style() value in the animation\n    // then we need to make a copy of the keyframe [0, copy, 1] so that the delay\n    // properly applies the style() values to work with the stagger...\n    const hasPreStyleStep = this._keyframes.size == 1 && Object.keys(this._pendingStyles).length;\n    if (this.duration || hasPreStyleStep) {\n

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    this.forwardTime(this.currentTime + delay);\n    if (hasPreStyleStep) {\n        this.snapshotCurrentStyles();\n    }\n } else {\n    this.startTime += delay;\n }\n }\n\n fork(element: any, currentTime?: number):  
TimelineBuilder {\n    this.applyStylesToKeyframe();\n    return new TimelineBuilder(\n        this._driver, element,  
currentTime || this.currentTime, this._elementTimelineStylesLookup);\n }\n\n private _loadKeyframe() {\n    if  
(this._currentKeyframe) {\n        this._previousKeyframe = this._currentKeyframe;\n    }\n    this._currentKeyframe = this._keyframes.get(this.duration)!;\n    if (!this._currentKeyframe) {\n        this._currentKeyframe = Object.create(this._backFill, {});\n        this._keyframes.set(this.duration,  
this._currentKeyframe);\n    }\n }\n\n forwardFrame() {\n    this.duration +=  
ONE_FRAME_IN_MILLISECONDS;\n    this._loadKeyframe();\n }\n\n forwardTime(time: number) {\n    this.applyStylesToKeyframe();\n    this.duration = time;\n    this._loadKeyframe();\n }\n\n private  
_updateStyle(prop: string, value: string|number) {\n    this._localTimelineStyles[prop] = value;\n    this._globalTimelineStyles[prop] = value;\n    this._styleSummary[prop] = {time: this.currentTime, value};\n }\n\n\n allowOnlyTimelineStyles() {\n    return this._currentEmptyStepKeyframe !== this._currentKeyframe;\n }\n\n\n applyEmptyStep(easing: string|null) {\n    if (easing) {\n        this._previousKeyframe['easing'] = easing;\n    }\n }\n\n\n //  
special case for animate(duration):\n    // all missing styles are filled with a `*` value then\n    // if any destination styles are filled in later on the same\n    // keyframe then they will override the overridden styles\n    // We use `_globalTimelineStyles` here because there  
may be\n    // styles in previous keyframes that are not present in this timeline\n    Object.keys(this._globalTimelineStyles).forEach(prop => {\n        this._backFill[prop] =  
this._globalTimelineStyles[prop] || AUTO_STYLE;\n        this._currentKeyframe[prop] = AUTO_STYLE;\n    });\n    this._currentEmptyStepKeyframe = this._currentKeyframe;\n }\n\n\n setStyles(\n    input: (StyleData|string)[],  
easing: string|null, errors: any[],\n    options?: AnimationOptions) {\n    if (easing) {\n        this._previousKeyframe['easing'] = easing;\n    }\n\n    const params = (options && options.params) || {};\n    const  
styles = flattenStyles(input, this._globalTimelineStyles);\n    Object.keys(styles).forEach(prop => {\n        const val =  
interpolateParams(styles[prop],  
params, errors);\n        this._pendingStyles[prop] = val;\n        if (!this._localTimelineStyles.hasOwnProperty(prop))  
{\n            this._backFill[prop] = this._globalTimelineStyles.hasOwnProperty(prop) ?\nthis._globalTimelineStyles[prop] :  
AUTO_STYLE;\n        }\n        this._updateStyle(prop, val);\n    });\n\n    }\n\n\n applyStylesToKeyframe() {\n    const styles = this._pendingStyles;\n    const props = Object.keys(styles);\n    if (props.length === 0) return;\n    this._pendingStyles = {};\n    props.forEach(prop => {\n        const val =  
styles[prop];\n        this._currentKeyframe[prop] = val;\n    });\n\n    Object.keys(this._localTimelineStyles).forEach(prop => {\n        if (!this._currentKeyframe.hasOwnProperty(prop))  
{\n            this._currentKeyframe[prop] = this._localTimelineStyles[prop];\n        }\n    });\n\n    }\n\n\n snapshotCurrentStyles() {\n    Object.keys(this._localTimelineStyles).forEach(prop => {\n        const val =  
this._localTimelineStyles[prop];\n        this._pendingStyles[prop] = val;\n        this._updateStyle(prop, val);\n    });\n\n    }\n\n\n getFinalKeyframe() {\n    return this._keyframes.get(this.duration);\n }\n\n\n get properties() {\n    const properties: string[] = [];\n    for (let  
prop in this._currentKeyframe) {\n        properties.push(prop);\n    }\n    return properties;\n }\n\n\n mergeTimelineCollectedStyles(timeline: TimelineBuilder) {\n    Object.keys(timeline._styleSummary).forEach(prop  
=> {\n        const details0 = this._styleSummary[prop];\n        const details1 = timeline._styleSummary[prop];\n        if  
(!details0 || details1.time > details0.time) {\n            this._updateStyle(prop, details1.value);\n        }\n    });\n\n    }\n\n\n buildKeyframes(): AnimationTimelineInstruction {\n    this.applyStylesToKeyframe();\n    const preStyleProps =  
new Set<string>();\n    const postStyleProps = new Set<string>();\n    const isEmpty = this._keyframes.size === 1  
&& this.duration === 0;\n    let finalKeyframes: StyleData[]  
= [];\n    this._keyframes.forEach((keyframe, time) => {\n        const finalKeyframe = copyStyles(keyframe, true);\n        Object.keys(finalKeyframe).forEach(prop => {\n            const value = finalKeyframe[prop];\n            if (value ==  
PRE_STYLE) {\n                preStyleProps.add(prop);\n            } else if (value == AUTO_STYLE) {\n                postStyleProps.add(prop);\n            }\n        });\n        if (!isEmpty) {\n            finalKeyframe['offset'] = time /

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this.duration;\n    }\n    finalKeyframes.push(finalKeyframe);\n    });\n\n    const preProps: string[] =
preStyleProps.size ? iteratorToArray(preStyleProps.values()) : [];\n    const postProps: string[] = postStyleProps.size
? iteratorToArray(postStyleProps.values()) : [];\n\n    // special case for a 0-second animation (which is designed just
to place styles onscreen)\n    if (isEmpty) {\n        const kf0 = finalKeyframes[0];\n        const kf1 = copyObj(kf0);\n        kf0['offset'] = 0;\n        kf1['offset'] = 1;\n        finalKeyframes = [kf0,
        kf1];\n    }\n\n    return createTimelineInstruction(\n        this.element, finalKeyframes, preProps, postProps,
this.duration, this.startTime,\n        this.easing, false);\n    }\n}\n\nclass SubTimelineBuilder extends TimelineBuilder
{\n    public timings: AnimateTimings;\n\n    constructor(\n        driver: AnimationDriver, public element: any, public
keyframes: StyleData[],\n        public preStyleProps: string[], public postStyleProps: string[], timings:
AnimateTimings,\n        private _stretchStartingKeyframe: boolean = false) {\n        super(driver, element,
timings.delay);\n        this.timings = {duration: timings.duration, delay: timings.delay, easing: timings.easing};\n    }\n\n    containsAnimation(): boolean {\n        return this.keyframes.length > 1;\n    }\n\n    buildKeyframes():
AnimationTimelineInstruction {\n        let keyframes = this.keyframes;\n        let {delay, duration, easing} =
this.timings;\n        if (this._stretchStartingKeyframe && delay) {\n            const newKeyframes: StyleData[] = [];\n            const totalTime = duration + delay;\n            const startingGap = delay / totalTime;\n\n            // the original starting
keyframe now starts once the delay is done\n            const newFirstKeyframe = copyStyles(keyframes[0], false);\n            newFirstKeyframe['offset'] = 0;\n            newKeyframes.push(newFirstKeyframe);\n\n            const oldFirstKeyframe =
copyStyles(keyframes[0], false);\n            oldFirstKeyframe['offset'] = roundOffset(startingGap);\n            newKeyframes.push(oldFirstKeyframe);\n\n            /*\n            When the keyframe is stretched then it means that the delay
before the animation\n            starts is gone. Instead the first keyframe is placed at the start of the animation\n            and
it is then copied to where it starts when the original delay is over. This basically\n            means nothing animates
during that delay, but the styles are still rendered. For this\n            to work the original offset values that exist in the
original keyframes must be \"warped\" so that they can
take the new keyframe + delay into account.\n            delay=1000, duration=1000, keyframes = 0 .5 1\n            turns
into\n            delay=0, duration=2000, keyframes = 0 .33 .66 1\n            *\n            // offsets between 1 ... n -1 are all
warped by the keyframe stretch\n            const limit = keyframes.length - 1;\n            for (let i = 1; i <= limit; i++) {\n                let kf = copyStyles(keyframes[i], false);\n                const oldOffset = kf['offset'] as number;\n                const timeAtKeyframe
= delay + oldOffset * duration;\n                kf['offset'] = roundOffset(timeAtKeyframe / totalTime);\n                newKeyframes.push(kf);\n            }\n            // the new starting keyframe should be added at the start\n            duration =
totalTime;\n            delay = 0;\n            easing = \"\";\n            keyframes = newKeyframes;\n        }\n\n        return
createTimelineInstruction(\n            this.element, keyframes, this.preStyleProps, this.postStyleProps, duration, delay,
easing,\n            true);\n    }\n}\n\nfunction roundOffset(offset:
number, decimalPoints = 3): number {\n    const mult = Math.pow(10, decimalPoints - 1);\n    return
Math.round(offset * mult) / mult;\n}\n\nfunction flattenStyles(input: (StyleData|string)[], allStyles: StyleData) {\n
const styles: StyleData = {};\n    let allProperties: string[];\n    input.forEach(token => {\n        if (token === '*') {\n            allProperties = allProperties || Object.keys(allStyles);\n            allProperties.forEach(prop => {\n                styles[prop] =
AUTO_STYLE;\n            });\n        } else {\n            copyStyles(token as StyleData, false, styles);\n        }\n    });\n    return
styles;\n}\n\n\"/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { AnimationMetadata, AnimationMetadataType, AnimationOptions, StyleData } from
'@angular/animations';\nimport { AnimationDriver } from '../render/animation_driver';\nimport
{ ENTER_CLASSNAME, LEAVE_CLASSNAME,
normalizeStyles } from './util';\nimport { Ast } from './animation_ast';\nimport { buildAnimationAst } from
'./animation_ast_builder';\nimport { buildAnimationTimelines } from './animation_timeline_builder';\nimport
{ AnimationTimelineInstruction } from './animation_timeline_instruction';\nimport { ElementInstructionMap } from
'./element_instruction_map';\n\nexport class Animation {\n    private _animationAst:
Ast<AnimationMetadataType>;\n    constructor(private _driver: AnimationDriver, input:
AnimationMetadata|AnimationMetadata[]) {\n        const errors: any[] = [];\n        const ast = buildAnimationAst(_driver,

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input, errors);\n    if (errors.length) {\n        const errorMessage = `animation validation
failed:\n\n${errors.join("\n")}`;\n        throw new Error(errorMessage);\n    }\n    this._animationAst = ast;\n    }\n\n    buildTimelines(\n        element: any, startingStyles: StyleData|StyleData[],\n        destinationStyles:
StyleData|StyleData[], options: AnimationOptions,\n        subInstructions?:
ElementInstructionMap): AnimationTimelineInstruction[] {\n        const start = Array.isArray(startingStyles) ?
normalizeStyles(startingStyles) : \n                                <StyleData>startingStyles;\n        const dest =
Array.isArray(destinationStyles) ? normalizeStyles(destinationStyles) : \n
<StyleData>destinationStyles;\n        const errors: any = [];\n        subInstructions = subInstructions || new
ElementInstructionMap();\n        const result = buildAnimationTimelines(\n            this._driver, element,
this._animationAst, ENTER_CLASSNAME, LEAVE_CLASSNAME, start, dest,\n            options, subInstructions,
errors);\n        if (errors.length) {\n            const errorMessage = `animation building failed:\n\n${errors.join("\n")}`;\n
            throw new Error(errorMessage);\n        }\n        return result;\n    }\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\n**\n * @publicApi\n * \n\nexport abstract class AnimationStyleNormalizer {\n    abstract normalizePropertyName(propertyName: string,
errors: string[]): string;\n    abstract normalizeStyleValue(\n        userProvidedProperty: string, normalizedProperty:
string, value: string|number,\n        errors: string[]): string;\n    }\n\n"/**\n * @publicApi\n * \n\nexport class
NoopAnimationStyleNormalizer {\n    normalizePropertyName(propertyName: string, errors: string[]): string {\n        return
propertyName;\n    }\n\n    normalizeStyleValue(\n        userProvidedProperty: string, normalizedProperty: string,
value: string|number,\n        errors: string[]): string {\n        return <any>value;\n    }\n    }\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nimport { dashCaseToCamelCase }
from './../util';\n\nimport { AnimationStyleNormalizer } from './animation_style_normalizer';\n\nexport class
WebAnimationsStyleNormalizer extends AnimationStyleNormalizer {\n    normalizePropertyName(propertyName:
string, errors: string[]): string {\n        return dashCaseToCamelCase(propertyName);\n    }\n\n    normalizeStyleValue(\n        userProvidedProperty: string, normalizedProperty: string, value: string|number,\n        errors: string[]): string {\n
let unit: string = ";\n        const strVal = value.toString().trim();\n\n        if
(DIMENSIONAL_PROP_MAP[normalizedProperty] && value !== 0 && value !== '0') {\n            if (typeof value ===
'number') {\n                unit = 'px';\n            } else {\n                const valAndSuffixMatch = value.match(/^[+-]?[\\d\\.]+([a-z]*)$/);\n
                if (valAndSuffixMatch && valAndSuffixMatch[1].length == 0) {\n                    errors.push(`Please provide
a CSS unit value for ${userProvidedProperty}: ${value}`);\n                }\n            }\n            return strVal + unit;\n        }\n    }\n\nconst
DIMENSIONAL_PROP_MAP =\n    (() => makeBooleanMap(\n        'width,height,minWidth,minHeight,maxWidth,maxHeight,left,top,bottom,right,fontSize,outlineWidth,outlineOffset,
paddingTop,paddingLeft,paddingBottom,paddingRight,marginTop,marginLeft,marginBottom,marginRight,borderR
adius,borderWidth,borderTopWidth,borderLeftWidth,borderRightWidth,borderBottomWidth,textIndent,perspective'
\n        .split(',')\n    ))();\n\nfunction makeBooleanMap(keys: string[]): {[key: string]: boolean} {\n    const map: {[key:
string]: boolean} = {};\n    keys.forEach(key => map[key] = true);\n    return map;\n    }\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nimport { StyleData } from
'@angular/animations';\n\nimport { AnimationEngineInstruction, AnimationTransitionInstructionType } from
'./render/animation_engine_instruction';\n\nimport { AnimationTimelineInstruction }
from './animation_timeline_instruction';\n\nexport interface AnimationTransitionInstruction extends
AnimationEngineInstruction {\n    element: any;\n    triggerName: string;\n    isRemovalTransition: boolean;\n    fromState: string;\n    fromStyles: StyleData;\n    toState: string;\n    toStyles: StyleData;\n    timelines:
AnimationTimelineInstruction[];\n    queriedElements: any[];\n    preStyleProps: Map<any, {[prop: string]:
boolean}>;\n    postStyleProps: Map<any, {[prop: string]: boolean}>;\n    totalTime: number;\n    errors?:
any[];\n    }\n\nexport function createTransitionInstruction(\n    element: any, triggerName: string, fromState: string,

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toState: string,\n  isRemovalTransition: boolean, fromStyles: StyleData, toStyles: StyleData,\n  timelines:
AnimationTimelineInstruction[], queriedElements: any[],\n  preStyleProps: Map<any, {[prop: string]:
boolean}>,\n  postStyleProps: Map<any, {[prop: string]: boolean}>,\n  totalTime: number,\n  errors?: any[]):
AnimationTransitionInstruction

{\n  return {\n    type: AnimationTransitionInstructionType.TransitionAnimation,\n    element,\n    triggerName,\n    isRemovalTransition,\n    fromState,\n    fromStyles,\n    toState,\n    toStyles,\n    timelines,\n    queriedElements,\n    preStyleProps,\n    postStyleProps,\n    totalTime,\n    errors\n  };\n}\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport { AnimationOptions, StyleData } from
'@angular/animations';\n\nimport { AnimationDriver } from '../render/animation_driver';\n\nimport
{ getOrSetAsInMap } from '../render/shared';\n\nimport { copyObj, interpolateParams, iteratorToArray,
mergeAnimationOptions } from '../util';\n\nimport { StyleAst, TransitionAst } from './animation_ast';\n\nimport
{ buildAnimationTimelines } from './animation_timeline_builder';\n\nimport { TransitionMatcherFn } from
'./animation_transition_expr';\n\nimport
{ AnimationTransitionInstruction, createTransitionInstruction } from './animation_transition_instruction';\n\nimport
{ ElementInstructionMap } from './element_instruction_map';\n\n\nconst EMPTY_OBJECT = {};\n\n\nexport class
AnimationTransitionFactory {\n  constructor(\n    private _triggerName: string, public ast: TransitionAst,\n    private _stateStyles: {[stateName: string]: AnimationStateStyles}) {} \n\n  match(currentState: any, nextState: any,
element: any, params: {[key: string]: any}): boolean {\n    return oneOrMoreTransitionsMatch(this.ast.matchers,
currentState, nextState, element, params);\n  }\n\n  buildStyles(stateName: string, params: {[key: string]: any},
errors: any[]) {\n    const backupStateStyler = this._stateStyles['*'];\n    const stateStyler =
this._stateStyles[stateName];\n    const backupStyles = backupStateStyler ? backupStateStyler.buildStyles(params,
errors) : {};\n    return stateStyler ? stateStyler.buildStyles(params, errors) : backupStyles;\n  }\n\n  build(\n    driver: AnimationDriver, element: any, currentState: any, nextState: any,\n    enterClassName: string, leaveClassName: string, currentOptions?: AnimationOptions,\n    nextOptions?: AnimationOptions, subInstructions?: ElementInstructionMap,\n    skipAstBuild?: boolean): AnimationTransitionInstruction {\n    const
errors: any[] = [];\n\n    const transitionAnimationParams = this.ast.options && this.ast.options.params ||
EMPTY_OBJECT;\n    const currentAnimationParams = currentOptions && currentOptions.params ||
EMPTY_OBJECT;\n    const currentStateStyles = this.buildStyles(currentState, currentAnimationParams, errors);\n    const
nextAnimationParams = nextOptions && nextOptions.params || EMPTY_OBJECT;\n    const nextStateStyles
= this.buildStyles(nextState, nextAnimationParams, errors);\n    const queriedElements = new Set<any>();\n    const
preStyleMap = new Map<any, {[prop: string]: boolean}>();\n    const postStyleMap = new Map<any, {[prop:
string]: boolean}>();\n\n    const isRemoval = nextState === 'void';\n\n    const animationOptions = { params: { ...transitionAnimationParams,
...nextAnimationParams } };\n\n    const timelines = skipAstBuild ?\n      [] : buildAnimationTimelines(\n        driver, element, this.ast.animation, enterClassName, leaveClassName, currentStateStyles,\n        nextStateStyles, animationOptions, subInstructions, errors);\n\n    let totalTime = 0;\n    timelines.forEach(tl => {\n      totalTime =
Math.max(tl.duration + tl.delay, totalTime);\n    });\n\n    if (errors.length) {\n      return
createTransitionInstruction(\n        element, this._triggerName, currentState, nextState, isRemoval,
currentStateStyles,\n        nextStateStyles, [], [], preStyleMap, postStyleMap, totalTime, errors);\n    }\n\n    timelines.forEach(tl => {\n      const elm = tl.element;\n      const preProps = getOrSetAsInMap(preStyleMap, elm,
{});\n      tl.preStyleProps.forEach(prop => preProps[prop] = true);\n      const postProps
= getOrSetAsInMap(postStyleMap, elm, {});\n      tl.postStyleProps.forEach(prop => postProps[prop] = true);\n      if (elm !== element) {\n        queriedElements.add(elm);\n      }\n    });\n\n    const queriedElementsList =
iteratorToArray(queriedElements.values());\n    return createTransitionInstruction(\n      element,
this._triggerName, currentState, nextState, isRemoval, currentStateStyles,\n      nextStateStyles, timelines,
queriedElementsList, preStyleMap, postStyleMap, totalTime);\n  }\n\n  \n\n  function oneOrMoreTransitionsMatch(\n    matchFns: TransitionMatcherFn[], currentState: any, nextState: any, element: any,\n    params: {[key: string]: any}):

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boolean {\n return matchFns.some(fn => fn(currentState, nextState, element, params));\n}\n\nexport class
AnimationStateStyles {\n constructor(private styles: StyleAst, private defaultParams: {[key: string]: any}) {\n\n
buildStyles(params: {[key: string]: any}, errors: string[]): StyleData {\n const finalStyles:
StyleData = {};\n const combinedParams = copyObj(this.defaultParams);\n Object.keys(params).forEach(key
=> {\n const value = params[key];\n if (value != null) {\n combinedParams[key] = value;\n }\n });\n
this.styles.styles.forEach(value => {\n if (typeof value !== 'string') {\n const styleObj = value as any;\n
Object.keys(styleObj).forEach(prop => {\n let val = styleObj[prop];\n if (val.length > 1) {\n val =
interpolateParams(val, combinedParams, errors);\n }\n finalStyles[prop] = val;\n });\n }\n });\n
return finalStyles;\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport { AnimationMetadataType, StyleData } from '@angular/animations';\nimport
{ copyStyles, interpolateParams } from './util';\nimport
{ SequenceAst, StyleAst, TransitionAst, TriggerAst } from './animation_ast';\nimport { AnimationStateStyles,
AnimationTransitionFactory } from './animation_transition_factory';\n\n\n/**\n * @publicApi\n */\nexport
function buildTrigger(name: string, ast: TriggerAst): AnimationTrigger {\n return new AnimationTrigger(name,
ast);\n}\n\n\n/**\n * @publicApi\n */\nexport class AnimationTrigger {\n public transitionFactories:
AnimationTransitionFactory[] = [];\n public fallbackTransition: AnimationTransitionFactory;\n public states:
{[stateName: string]: AnimationStateStyles} = {};\n\n constructor(public name: string, public ast: TriggerAst) {\n
ast.states.forEach(ast => {\n const defaultParams = (ast.options && ast.options.params) || {};\n
this.states[ast.name] = new AnimationStateStyles(ast.style, defaultParams);\n });\n\n
balanceProperties(this.states, 'true', '1');\n balanceProperties(this.states, 'false', '0');\n\n ast.transitions.forEach(ast
=> {\n\n
this.transitionFactories.push(new AnimationTransitionFactory(name, ast, this.states));\n });\n\n\n
this.fallbackTransition = createFallbackTransition(name, this.states);\n }\n\n\n get containsQueries() {\n return
this.ast.queryCount > 0;\n }\n\n\n matchTransition(currentState: any, nextState: any, element: any, params: {[key:
string]: any}): AnimationTransitionFactory|null {\n const entry =\n this.transitionFactories.find(f =>
f.match(currentState, nextState, element, params));\n return entry || null;\n }\n\n\n matchStyles(currentState: any,
params: {[key: string]: any}, errors: any[]): StyleData {\n return this.fallbackTransition.buildStyles(currentState,
params, errors);\n }\n}\n\nfunction createFallbackTransition(\n triggerName: string,\n states: {[stateName:
string]: AnimationStateStyles}): AnimationTransitionFactory {\n const matchers = [(fromState: any, toState: any)
=> true];\n const animation: SequenceAst = {type: AnimationMetadataType.Sequence,
steps: [], options: null};\n const transition: TransitionAst = {\n type: AnimationMetadataType.Transition,\n
animation,\n matchers,\n options: null,\n queryCount: 0,\n depCount: 0\n };\n return new
AnimationTransitionFactory(triggerName, transition, states);\n}\n\nfunction balanceProperties(obj: {[key: string]:
any}, key1: string, key2: string) {\n if (obj.hasOwnProperty(key1)) {\n if (!obj.hasOwnProperty(key2)) {\n
obj[key2] = obj[key1];\n }\n } else if (obj.hasOwnProperty(key2)) {\n obj[key1] = obj[key2];\n }\n}\n\n"/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport
{ AnimationMetadata, AnimationMetadataType, AnimationOptions, AnimationPlayer, AUTO_STYLE, StyleData }
from '@angular/animations';\nimport { Ast } from './dsl/animation_ast';\nimport { buildAnimationAst } from
'./dsl/animation_ast_builder';\nimport
{ buildAnimationTimelines } from './dsl/animation_timeline_builder';\nimport { AnimationTimelineInstruction }
from './dsl/animation_timeline_instruction';\nimport { ElementInstructionMap } from
'./dsl/element_instruction_map';\nimport { AnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nimport { ENTER_CLASSNAME,
LEAVE_CLASSNAME } from './util';\nimport { AnimationDriver } from './animation_driver';\nimport
{ getOrSetAsInMap, listenOnPlayer, makeAnimationEvent, normalizeKeyframes, optimizeGroupPlayer } from
'./shared';\n\nconst EMPTY_INSTRUCTION_MAP = new ElementInstructionMap();\n\nexport class

```

```

TimelineAnimationEngine {\n private _animations: {[id: string]: Ast<AnimationMetadataType>} = {};\n private
_playersById: {[id: string]: AnimationPlayer} = {};\n public players: AnimationPlayer[] = [];\n\n constructor(\n
public bodyNode: any, private _driver: AnimationDriver,\n private _normalizer: AnimationStyleNormalizer)
{\n\n register(id: string, metadata: AnimationMetadata|AnimationMetadata[]) {\n const errors: any[] = [];\n
const ast = buildAnimationAst(this._driver, metadata, errors);\n if (errors.length) {\n throw new Error(\n
`Unable to build the animation due to the following errors: ${errors.join("\n")}`);\n } else {\n
this._animations[id] = ast;\n }\n }\n\n private _buildPlayer(\n i: AnimationTimelineInstruction, preStyles:
StyleData,\n postStyles?: StyleData): AnimationPlayer {\n const element = i.element;\n const keyframes =
normalizeKeyframes(\n this._driver, this._normalizer, element, i.keyframes, preStyles, postStyles);\n return
this._driver.animate(element, keyframes, i.duration, i.delay, i.easing, [], true);\n }\n\n create(id: string, element:
any, options: AnimationOptions = {}): AnimationPlayer {\n const errors: any[] = [];\n const ast =
this._animations[id];\n let instructions: AnimationTimelineInstruction[];\n\n const autoStylesMap = new Map<any, StyleData>();\n\n if (ast) {\n instructions =
buildAnimationTimelines(\n this._driver, element, ast, ENTER_CLASSNAME, LEAVE_CLASSNAME, {},
{\n }, options,\n EMPTY_INSTRUCTION_MAP, errors);\n instructions.forEach(inst => {\n const styles
= getOrSetAsInMap(autoStylesMap, inst.element, {});\n inst.postStyleProps.forEach(prop => styles[prop] =
null);\n });\n } else {\n errors.push("The requested animation doesn't exist or has already been
destroyed");\n instructions = [];\n }\n\n if (errors.length) {\n throw new Error(\n `Unable to create the
animation due to the following errors: ${errors.join("\n")}`);\n }\n\n autoStylesMap.forEach((styles, element) =>
{\n Object.keys(styles).forEach(prop => {\n styles[prop] = this._driver.computeStyle(element, prop,
AUTO_STYLE);\n });\n });\n\n const players = instructions.map(i => {\n
const styles = autoStylesMap.get(i.element);\n return this._buildPlayer(i, {}, styles);\n });\n const player =
optimizeGroupPlayer(players);\n this._playersById[id] = player;\n player.onDestroy(() => this.destroy(id));\n\n
this.players.push(player);\n return player;\n }\n\n destroy(id: string) {\n const player = this._getPlayer(id);\n
player.destroy();\n delete this._playersById[id];\n const index = this.players.indexOf(player);\n if (index >= 0)
{\n this.players.splice(index, 1);\n }\n }\n\n private _getPlayer(id: string): AnimationPlayer {\n const player
= this._playersById[id];\n if (!player) {\n throw new Error(`Unable to find the timeline player referenced by
${id}`);\n }\n return player;\n }\n\n listen(id: string, element: string, eventName: string, callback: (event: any)
=> any):\n () => void {\n // triggerName, fromState, toState are all ignored for timeline animations\n const
baseEvent = makeAnimationEvent(element,
", ", ");\n listenOnPlayer(this._getPlayer(id), eventName, baseEvent, callback);\n return () => {};\n }\n\n
command(id: string, element: any, command: string, args: any[]): void {\n if (command == 'register') {\n
this.register(id, args[0] as AnimationMetadata | AnimationMetadata[]);\n return;\n }\n\n if (command ==
'create') {\n const options = (args[0] || {}) as AnimationOptions;\n this.create(id, element, options);\n
return;\n }\n\n const player = this._getPlayer(id);\n switch (command) {\n case 'play':\n player.play();\n
break;\n case 'pause':\n player.pause();\n break;\n case 'reset':\n player.reset();\n break;\n
case 'restart':\n player.restart();\n break;\n case 'finish':\n player.finish();\n break;\n case
'init':\n player.init();\n break;\n case 'setPosition':\n player.setPosition(parseFloat(args[0]
as string));\n break;\n case 'destroy':\n this.destroy(id);\n break;\n }\n }\n\n"/**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AnimationOptions,
AnimationPlayer, AUTO_STYLE, NoopAnimationPlayer, AnimationGroupPlayer as AnimationGroupPlayer,
PRE_STYLE as PRE_STYLE, StyleData } from '@angular/animations';\nimport { AnimationTimelineInstruction }
from './dsl/animation_timeline_instruction';\nimport { AnimationTransitionFactory } from
'./dsl/animation_transition_factory';\nimport { AnimationTransitionInstruction } from
'./dsl/animation_transition_instruction';\nimport { AnimationTrigger } from './dsl/animation_trigger';\nimport
{ ElementInstructionMap } from './dsl/element_instruction_map';\nimport { AnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nimport

```



```

listeners.splice(index, 1);\n    }\n\n    if (!this._triggers[name]) {\n        delete triggersWithStates[name];\n    }\n    });\n    };\n    }\n\n    register(name: string, ast: AnimationTrigger): boolean {\n        if (this._triggers[name])\n        {\n            // throw\n            return false;\n        }\n        else {\n            this._triggers[name] = ast;\n            return true;\n        }\n    }\n\n    private\n    _getTrigger(name: string) {\n        const trigger = this._triggers[name];\n        if (!trigger) {\n            throw new Error(`The\n            provided animation trigger \"${name}\" has not been registered!`);\n        }\n        return trigger;\n    }\n\n    trigger(element:\n    any, triggerName: string, value: any, defaultToFallback: boolean = true):\n    TransitionAnimationPlayer|undefined\n    {\n        const trigger = this._getTrigger(triggerName);\n        const player = new TransitionAnimationPlayer(this.id,\n        triggerName, element);\n\n        let triggersWithStates = this._engine.statesByElement.get(element);\n        if\n        (!triggersWithStates) {\n            addClass(element, NG_TRIGGER_CLASSNAME);\n            addClass(element,\n            NG_TRIGGER_CLASSNAME + '-' + triggerName);\n            this._engine.statesByElement.set(element,\n            triggersWithStates = {});\n        }\n\n        let fromState = triggersWithStates[triggerName];\n        const toState = new\n        StateValue(value, this.id);\n\n        const isObj = value && value.hasOwnProperty('value');\n        if (!isObj &&\n        fromState) {\n            toState.absorbOptions(fromState.options);\n        }\n\n        triggersWithStates[triggerName] =\n        toState;\n\n        if (!fromState) {\n            fromState = DEFAULT_STATE_VALUE;\n        }\n\n        const isRemoval =\n        toState.value === VOID_VALUE;\n\n        // normally this isn't reached by here, however, if an object expression\n        // is passed in then it may be a new object each time. Comparing the value\n        // is important since that will stay the\n        same despite there being a new object.\n        // The removal arc here is special cased because the same element is\n        triggered\n        // twice in the event that it contains animations on the outer/inner portions\n        // of the host container\n        if (!isRemoval && fromState.value === toState.value) {\n            \n            // this means that despite the value not changing, some inner params\n            // have changed which means that the\n            animation final styles need to be applied\n            if (!objEquals(fromState.params, toState.params)) {\n                const\n                errors: any[] = [];\n                const fromStyles = trigger.matchStyles(fromState.value, fromState.params, errors);\n                const toStyles = trigger.matchStyles(toState.value, toState.params, errors);\n                if (errors.length) {\n                    this._engine.reportError(errors);\n                }\n                else {\n                    this._engine.afterFlush() => {\n                        eraseStyles(element,\n                        fromStyles);\n                        setStyles(element, toStyles);\n                    };\n                }\n            }\n\n            const\n            playersOnElement: TransitionAnimationPlayer[] =\n            getOrSetAsInMap(this._engine.playersByElement,\n            element, []);\n            playersOnElement.forEach(player => {\n                // only remove the player if it is queued on the\n                EXACT same trigger/namespace\n                // we only also deal with\n                queued players here because if the animation has\n                // started then we want to keep the player alive until the flush\n                happens\n                // (which is where the previousPlayers are passed into the new palyer)\n                if (player.namespaceId ==\n                this.id && player.triggerName == triggerName && player.queued) {\n                    player.destroy();\n                }\n            });\n\n            let\n            transition =\n            trigger.matchTransition(fromState.value, toState.value, element, toState.params);\n            let\n            isFallbackTransition = false;\n            if (!transition) {\n                if (!defaultToFallback) return;\n                transition =\n                trigger.fallbackTransition;\n                isFallbackTransition = true;\n            }\n\n            this._engine.totalQueuedPlayers++;\n\n            this._queue.push(\n            {\n                element, triggerName, transition, fromState, toState, player, isFallbackTransition\n            });\n\n            if (!isFallbackTransition) {\n                addClass(element, QUEUED_CLASSNAME);\n                player.onStart() => {\n                    removeClass(element, QUEUED_CLASSNAME);\n                };\n            }\n\n            player.onDone() => {\n                let index = this.players.indexOf(player);\n                if (index >= 0) {\n                    this.players.splice(index, 1);\n                }\n\n                const players = this._engine.playersByElement.get(element);\n                if\n                (players) {\n                    let index = players.indexOf(player);\n                    if (index >= 0) {\n                        players.splice(index, 1);\n                    }\n                }\n\n                this.players.push(player);\n                playersOnElement.push(player);\n                return player;\n            }\n\n            deregister(name: string) {\n                delete this._triggers[name];\n\n                this._engine.statesByElement.forEach((stateMap,\n                element) => {\n                    delete stateMap[name];\n                });\n\n                this._elementListeners.forEach((listeners, element) => {\n                    this._elementListeners.set(element, listeners.filter(entry => {\n                        return entry.name != name;\n                    }));\n                });\n            }\n\n            clearElementCache(element: any) {\n                this._engine.statesByElement.delete(element);\n                this._elementListeners.delete(element);\n            }\n\n            const elementPlayers\n            = this._engine.playersByElement.get(element);\n            if (elementPlayers) {\n                elementPlayers.forEach(player =>\n                player.destroy());\n                this._engine.playersByElement.delete(element);\n            }\n        }\n    }\n\n    private

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_signalRemovalForInnerTriggers(rootElement: any, context: any) {\n  const elements =
this._engine.driver.query(rootElement, NG_TRIGGER_SELECTOR, true);\n\n  // emulate a leave animation for all
inner nodes within this node.\n  // If there are no animations found for any of the nodes then clear the cache\n  //
for the element.\n  elements.forEach(elm => {\n    // this means that an inner remove() operation has already
kicked off\n    // the animation on this element...\n    if (elm[REMOVAL_FLAG]) return;\n\n    const
namespaces = this._engine.fetchNamespacesByElement(elm);\n    if (namespaces.size) {\n
namespaces.forEach(ns => ns.triggerLeaveAnimation(elm, context, false, true));\n    } else {\n
this.clearElementCache(elm);\n    }\n
  });\n\n  // If the child elements were removed along with the parent, their animations might not\n  // have
completed. Clear all the elements from the cache so we don't end up with a memory leak.\n
this._engine.afterFlushAnimationsDone(\n    () => elements.forEach(elm => this.clearElementCache(elm)));\n
}\n\n  triggerLeaveAnimation(\n    element: any, context: any, destroyAfterComplete?: boolean,\n
defaultToFallback?: boolean): boolean {\n    const triggerStates = this._engine.statesByElement.get(element);\n    if
(triggerStates) {\n      const players: TransitionAnimationPlayer[] = [];\n
Object.keys(triggerStates).forEach(triggerName => {\n        // this check is here in the event that an element is
removed\n        // twice (both on the host level and the component level)\n        if (this._triggers[triggerName]) {\n
const player = this.trigger(element, triggerName, VOID_VALUE, defaultToFallback);\n        if (player) {\n
players.push(player);\n
        }\n      }\n    });\n    if (players.length) {\n      this._engine.markElementAsRemoved(this.id, element,
true, context);\n      if (destroyAfterComplete) {\n        optimizeGroupPlayer(players).onDone(() =>
this._engine.processLeaveNode(element));\n      }\n      return true;\n    }\n    return false;\n  }\n\n  prepareLeaveAnimationListeners(element: any) {\n    const listeners = this._elementListeners.get(element);\n    if
(listeners) {\n      const visitedTriggers = new Set<string>();\n      listeners.forEach(listener => {\n        const
triggerName = listener.name;\n        if (visitedTriggers.has(triggerName)) return;\n
visitedTriggers.add(triggerName);\n        const trigger = this._triggers[triggerName];\n        const transition =
trigger.fallbackTransition;\n        const elementStates = this._engine.statesByElement.get(element)!;\n        const
fromState = elementStates[triggerName] || DEFAULT_STATE_VALUE;\n        const
toState = new StateValue(VOID_VALUE);\n        const player = new TransitionAnimationPlayer(this.id,
triggerName, element);\n        this._engine.totalQueuedPlayers++;\n        this._queue.push({\n          element,\n
triggerName,\n          transition,\n          fromState,\n          toState,\n          player,\n          isFallbackTransition:
true\n        });\n      });\n    }\n  }\n\n  removeNode(element: any, context: any): void {\n    const engine =
this._engine;\n    if (element.childElementCount) {\n      this._signalRemovalForInnerTriggers(element,
context);\n    }\n    // this means that a * => VOID animation was detected and kicked off\n    if
(this.triggerLeaveAnimation(element, context, true)) return;\n    // find the player that is animating and make sure
that the\n    // removal is delayed until that player has completed\n    let containsPotentialParentTransition = false;\n
if (engine.totalAnimations) {\n      const currentPlayers =\n        engine.players.length
? engine.playersByQueriedElement.get(element) : [];\n      // when this `if statement` does not continue forward it
means that\n      // a previous animation query has selected the current element and\n      // is animating it. In this
situation want to continue forwards and\n      // allow the element to be queued up for animation later.\n      if
(currentPlayers && currentPlayers.length) {\n        containsPotentialParentTransition = true;\n      } else {\n        let
parent = element;\n        while (parent = parent.parentNode) {\n          const triggers =
engine.statesByElement.get(parent);\n          if (triggers) {\n            containsPotentialParentTransition = true;\n
break;\n          }\n        }\n      }\n    }\n    // at this stage we know that the element will either get removed\n    //
during flush or will be picked up by a parent query. Either way\n    // we need to fire the listeners for this element
when it DOES get\n    // removed (once
the query parent animation is done or after flush)\n    this.prepareLeaveAnimationListeners(element);\n    //
whether or not a parent has an animation we need to delay the deferral of the leave\n    // operation until we have
more information (which we do after flush() has been called)\n    if (containsPotentialParentTransition) {\n

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engine.markElementAsRemoved(this.id, element, false, context);\n  } else {\n    const removalFlag =
element[REMOVAL_FLAG];\n    if (!removalFlag || removalFlag === NULL_REMOVAL_STATE) {\n      // we
do this after the flush has occurred such\n      // that the callbacks can be fired\n      engine.afterFlush(() =>
this.clearElementCache(element));\n      engine.destroyInnerAnimations(element);\n
engine._onRemovalComplete(element, context);\n    }\n  }\n}\n\ninsertNode(element: any, parent: any): void
{\n  addClass(element, this._hostClassName);\n}\n\n drainQueuedTransitions(microtaskId: number):
QueueInstruction[] {\n
  const instructions: QueueInstruction[] = [];\n  this._queue.forEach(entry => {\n    const player = entry.player;\n
    if (player.destroyed) return;\n\n    const element = entry.element;\n    const listeners =
this._elementListeners.get(element);\n    if (listeners) {\n      listeners.forEach((listener: TriggerListener) => {\n
        if (listener.name === entry.triggerName) {\n          const baseEvent = makeAnimationEvent(\n            element,
entry.triggerName, entry.fromState.value, entry.toState.value);\n          (baseEvent as any)['_data'] = microtaskId;\n
          listenOnPlayer(entry.player, listener.phase, baseEvent, listener.callback);\n        }\n      });\n    }\n\n    if
(player.markedForDestroy) {\n      this._engine.afterFlush(() => {\n        // now we can destroy the element
properly since the event listeners have\n        // been bound to the player\n        player.destroy();\n      });\n    }
    else {\n      instructions.push(entry);\n    }\n  });\n\n  this._queue = [];\n  return instructions.sort((a, b) => {\n    // if depCount == 0 them move to
front\n    // otherwise if a contains b then move back\n    const d0 = a.transition.ast.depCount;\n    const d1 =
b.transition.ast.depCount;\n    if (d0 == 0 || d1 == 0) {\n      return d0 - d1;\n    }\n    return
this._engine.driver.containsElement(a.element, b.element) ? 1 : -1;\n  });\n}\n\n destroy(context: any) {\n
  this.players.forEach(p => p.destroy());\n  this._signalRemovalForInnerTriggers(this.hostElement, context);\n}\n\n
elementContainsData(element: any): boolean {\n  let containsData = false;\n  if
(this._elementListeners.has(element)) containsData = true;\n  containsData =\n    (this._queue.find(entry =>
entry.element === element) ? true : false) || containsData;\n  return containsData;\n}\n}\n\nexport interface
QueuedTransition {\n  element: any;\n  instruction: AnimationTransitionInstruction;\n
  player: TransitionAnimationPlayer;\n}\n\nexport class TransitionAnimationEngine {\n  public players:
TransitionAnimationPlayer[] = [];\n  public newHostElements = new Map<any,
AnimationTransitionNamespace>();\n  public playersByElement = new Map<any,
TransitionAnimationPlayer[]>();\n  public playersByQueriedElement = new Map<any,
TransitionAnimationPlayer[]>();\n  public statesByElement = new Map<any, {[triggerName: string]:
StateValue}>();\n  public disabledNodes = new Set<any>();\n  public totalAnimations = 0;\n  public
totalQueuedPlayers = 0;\n  private _namespaceLookup: {[id: string]: AnimationTransitionNamespace} = {};\n
  private _namespaceList: AnimationTransitionNamespace[] = [];\n  private _flushFns: (() => any)[] = [];\n  private
_whenQuietFns: (() => any)[] = [];\n  public namespacesByHostElement = new Map<any,
AnimationTransitionNamespace>();\n  public collectedEnterElements: any[] = [];\n  public collectedLeaveElements:
any[] = [];\n  // this method is designed
to be overridden by the code that uses this engine\n  public onRemovalComplete = (element: any, context: any) =>
{};\n  // ** @internal *\n  _onRemovalComplete(element: any, context: any) {\n
    this.onRemovalComplete(element, context);\n  }\n\n  constructor(\n    public bodyNode: any, public driver:
AnimationDriver,\n    private _normalizer: AnimationStyleNormalizer) {\n  }\n\n  get queuedPlayers():
TransitionAnimationPlayer[] {\n    const players: TransitionAnimationPlayer[] = [];\n
    this._namespaceList.forEach(ns => {\n      ns.players.forEach(player => {\n        if (player.queued) {\n
          players.push(player);\n        }\n      });\n    });\n    return players;\n  }\n\n  createNamespace(namespaceId: string,
hostElement: any) {\n    const ns = new AnimationTransitionNamespace(namespaceId, hostElement, this);\n    if
(hostElement.parentNode) {\n      this._balanceNamespaceList(ns, hostElement);\n    } else {\n      // defer this later
until flush during when the host element
has\n      // been inserted so that we know exactly where to place it in\n      // the namespace list\n      this.newHostElements.set(hostElement, ns);\n    }\n    // given that this host element is apart of the animation code, it\n

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    // may or may not be inserted by a parent node that is an of an\n    // animation renderer type. If this happens then
    we can still have\n    // access to this item when we query for :enter nodes. If the parent\n    // is a renderer then
    the set data-structure will normalize the entry\n    this.collectEnterElement(hostElement);\n    }\n    return
    this._namespaceLookup[namespaceId] = ns;\n    }\n\n    private _balanceNamespaceList(ns:
    AnimationTransitionNamespace, hostElement: any) {\n    const limit = this._namespaceList.length - 1;\n    if (limit
    >= 0) {\n    let found = false;\n    for (let i = limit; i >= 0; i--) {\n    const nextNamespace =
    this._namespaceList[i];\n    if (this.driver.containsElement(nextNamespace.hostElement, hostElement))
    {\n    this._namespaceList.splice(i + 1, 0, ns);\n    found = true;\n    break;\n    }\n    }\n    if (!found)
    {\n    this._namespaceList.splice(0, 0, ns);\n    }\n    } else {\n    this._namespaceList.push(ns);\n    }\n\n    this.namespacesByHostElement.set(hostElement, ns);\n    return ns;\n    }\n\n    register(namespaceId: string,
    hostElement: any) {\n    let ns = this._namespaceLookup[namespaceId];\n    if (!ns) {\n    ns =
    this.createNamespace(namespaceId, hostElement);\n    }\n    return ns;\n    }\n\n    registerTrigger(namespaceId: string,
    name: string, trigger: AnimationTrigger) {\n    let ns = this._namespaceLookup[namespaceId];\n    if (ns &&
    ns.register(name, trigger)) {\n    this.totalAnimations++;\n    }\n    }\n\n    destroy(namespaceId: string, context: any)
    {\n    if (!namespaceId) return;\n\n    const ns = this._fetchNamespace(namespaceId);\n\n    this.afterFlush(() => {\n
    this.namespacesByHostElement.delete(ns.hostElement);\n
    delete this._namespaceLookup[namespaceId];\n    const index = this._namespaceList.indexOf(ns);\n    if
    (index >= 0) {\n    this._namespaceList.splice(index, 1);\n    }\n    });\n\n    this.afterFlushAnimationsDone(() =>
    ns.destroy(context));\n    }\n\n    private _fetchNamespace(id: string) {\n    return this._namespaceLookup[id];\n    }\n\n
    fetchNamespacesByElement(element: any): Set<AnimationTransitionNamespace> {\n    // normally there should
    only be one namespace per element, however\n    // if @triggers are placed on both the component element and
    then\n    // its host element (within the component code) then there will be\n    // two namespaces returned. We use a
    set here to simply the dedupe\n    // of namespaces incase there are multiple triggers both the elm and host\n    const
    namespaces = new Set<AnimationTransitionNamespace>();\n    const elementStates =
    this.statesByElement.get(element);\n    if (elementStates) {\n    const keys = Object.keys(elementStates);\n
    for (let i = 0; i < keys.length; i++) {\n    const nsId = elementStates[keys[i]].namespaceId;\n    if (nsId) {\n
    const ns = this._fetchNamespace(nsId);\n    if (ns) {\n    namespaces.add(ns);\n    }\n    }\n    }\n    }\n
    return namespaces;\n    }\n\n    trigger(namespaceId: string, element: any, name: string, value: any): boolean {\n
    if (isElementNode(element)) {\n    const ns = this._fetchNamespace(namespaceId);\n    if (ns) {\n
    ns.trigger(element, name, value);\n    return true;\n    }\n    }\n    return false;\n    }\n\n    insertNode(namespaceId:
    string, element: any, parent: any, insertBefore: boolean): void {\n    if (!isElementNode(element)) return;\n\n    //
    special case for when an element is removed and reinserted (move operation)\n    // when this occurs we do not want
    to use the element for deletion later\n    const details = element[REMOVAL_FLAG] as ElementAnimationState;\n
    if (details && details.setForRemoval)
    {\n    details.setForRemoval = false;\n    details.setForMove = true;\n    const index =
    this.collectedLeaveElements.indexOf(element);\n    if (index >= 0) {\n
    this.collectedLeaveElements.splice(index, 1);\n    }\n    }\n\n    // in the event that the namespaceId is blank then the
    caller\n    // code does not contain any animation code in it, but it is\n    // just being called so that the node is marked
    as being inserted\n    if (namespaceId) {\n    const ns = this._fetchNamespace(namespaceId);\n    // This if-
    statement is a workaround for router issue #21947.\n    // The router sometimes hits a race condition where while a
    route\n    // is being instantiated a new navigation arrives, triggering leave\n    // animation of DOM that has not
    been fully initialized, until this\n    // is resolved, we need to handle the scenario when DOM is not in a\n    //
    consistent state during the animation.\n    if (ns) {\n    ns.insertNode(element, parent);\n
    }\n    }\n\n    // only *directives and host elements are inserted before\n    if (insertBefore) {\n
    this.collectEnterElement(element);\n    }\n    }\n\n    collectEnterElement(element: any) {\n
    this.collectedEnterElements.push(element);\n    }\n\n    markElementAsDisabled(element: any, value: boolean) {\n    if
    (value) {\n    if (!this.disabledNodes.has(element)) {\n    this.disabledNodes.add(element);\n
    addClass(element, DISABLED_CLASSNAME);\n    }\n    } else if (this.disabledNodes.has(element)) {\n

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this.disabledNodes.delete(element);\n    removeClass(element, DISABLED_CLASSNAME);\n    }\n }\n\nremoveNode(namespaceId: string, element: any, isHostElement: boolean, context: any): void {\n    if\n    (isElementNode(element)) {\n        const ns = namespaceId ? this._fetchNamespace(namespaceId) : null;\n        if (ns)\n        {\n            ns.removeNode(element, context);\n        } else {\n            this.markElementAsRemoved(namespaceId, element,\n            false, context);\n        }\n    }\n\n    if (isHostElement) {\n        const hostNS = this.namespacesByHostElement.get(element);\n        if (hostNS &&\n        hostNS.id !== namespaceId) {\n            hostNS.removeNode(element, context);\n        }\n    } else {\n        this._onRemovalComplete(element, context);\n    }\n }\n\nmarkElementAsRemoved(namespaceId: string,\n    element: any, hasAnimation?: boolean, context?: any) {\n    this.collectedLeaveElements.push(element);\n    element[REMOVAL_FLAG] = {\n        namespaceId, setForRemoval: context, hasAnimation,\n        removedBeforeQueried: false};\n }\n\nlisten(\n    namespaceId: string, element: any, name: string, phase:\n    string,\n    callback: (event: any) => boolean): () => any {\n    if (isElementNode(element)) {\n        return\n        this._fetchNamespace(namespaceId).listen(element, name, phase, callback);\n    }\n    return () => {};\n }\n\nprivate _buildInstruction(\n    entry: QueueInstruction, subTimelines: ElementInstructionMap, enterClassName:\n    string,\n    leaveClassName:\n    string, skipBuildAst?: boolean) {\n    return entry.transition.build(\n        this.driver, entry.element,\n        entry.fromState.value, entry.toState.value, enterClassName,\n        leaveClassName, entry.fromState.options,\n        entry.toState.options, subTimelines, skipBuildAst);\n }\n\ndestroyInnerAnimations(containerElement: any) {\n    let elements = this.driver.query(containerElement, NG_TRIGGER_SELECTOR, true);\n    elements.forEach(element => this.destroyActiveAnimationsForElement(element));\n\n    if\n    (this.playersByQueriedElement.size === 0) return;\n\n    elements = this.driver.query(containerElement,\n    NG_ANIMATING_SELECTOR, true);\n    elements.forEach(element =>\n    this.finishActiveQueriedAnimationOnElement(element));\n\n    destroyActiveAnimationsForElement(element:\n    any) {\n        const players = this.playersByElement.get(element);\n        if (players) {\n            players.forEach(player => {\n                // special case for when an element is set for destruction, but hasn't started.\n                // in this situation we want to delay the destruction until the flush occurs\n                // so that any event listeners\n                attached to the player are triggered.\n                if (player.queued) {\n                    player.markedForDestroy = true;\n                } else\n                {\n                    player.destroy();\n                }\n            });\n        }\n\n        finishActiveQueriedAnimationOnElement(element: any)\n        {\n            const players = this.playersByQueriedElement.get(element);\n            if (players) {\n                players.forEach(player =>\n                player.finish());\n            }\n        }\n\n        whenRenderingDone(): Promise<any> {\n            return new Promise(resolve => {\n                if\n                (this.players.length) {\n                    return optimizeGroupPlayer(this.players).onDone(() => resolve());\n                } else {\n                    resolve();\n                }\n            });\n        }\n\n        processLeaveNode(element: any) {\n            const details =\n            element[REMOVAL_FLAG] as ElementAnimationState;\n            if (details && details.setForRemoval) {\n                // this\n                will prevent it from removing it twice\n                element[REMOVAL_FLAG] =\n                NULL_REMOVAL_STATE;\n                if (details.namespaceId) {\n                    this.destroyInnerAnimations(element);\n                }\n                const ns = this._fetchNamespace(details.namespaceId);\n                if (ns) {\n                    ns.clearElementCache(element);\n                }\n            }\n\n            this._onRemovalComplete(element, details.setForRemoval);\n        }\n\n        if\n        (this.driver.matchesElement(element, DISABLED_SELECTOR)) {\n            this.markElementAsDisabled(element,\n            false);\n        }\n\n        this.driver.query(element, DISABLED_SELECTOR, true).forEach(node => {\n            this.markElementAsDisabled(node, false);\n        });\n\n        flush(microtaskId: number = -1) {\n            let players:\n            AnimationPlayer[] = [];\n            if (this.newHostElements.size) {\n                this.newHostElements.forEach((ns, element) =>\n                this._balanceNamespaceList(ns, element));\n                this.newHostElements.clear();\n            }\n\n            if (this.totalAnimations\n            && this.collectedEnterElements.length) {\n                for (let i = 0; i < this.collectedEnterElements.length; i++) {\n                    const elm\n                    = this.collectedEnterElements[i];\n                    addClass(elm, STAR_CLASSNAME);\n                }\n            }\n\n            if\n            (this._namespaceList.length && (\n            this.totalQueuedPlayers || this.collectedLeaveElements.length)) {\n                const\n                cleanupFns: Function[] = [];\n                try {\n                    players = this._flushAnimations(cleanupFns, microtaskId);\n                }\n                finally {\n                    for (let i = 0; i < cleanupFns.length; i++) {\n                        cleanupFns[i]();\n                    }\n                }\n            } else {\n
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for (let i = 0; i < this.collectedLeaveElements.length; i++) {\n    const element = this.collectedLeaveElements[i];\n    this.processLeaveNode(element);\n    }\n    }\n    this.totalQueuedPlayers = 0;\n    this.collectedEnterElements.length = 0;\n    this.collectedLeaveElements.length = 0;\n    this._flushFns.forEach(fn => fn());\n    this._flushFns = [];\n    if (this._whenQuietFns.length) {\n        // we move these over to a variable so that\n        // if any new callbacks are registered in another\n        // flush they do not populate the existing set\n        const quietFns = this._whenQuietFns;\n        this._whenQuietFns = [];\n        if (players.length) {\n            optimizeGroupPlayer(players).onDone(() => {\n                quietFns.forEach(fn => fn());\n            });\n        } else {\n            quietFns.forEach(fn => fn());\n        }\n    }\n    reportError(errors: string[])\n    {\n        throw new Error(\n            `Unable to process animations due to the following failed trigger transitions\n            ${\n                errors.join("\n")\n            }`);\n    }\n    private _flushAnimations(cleanupFns: Function[], microtaskId: number):\n    TransitionAnimationPlayer[] {\n        const subTimelines = new ElementInstructionMap();\n        const skippedPlayers: TransitionAnimationPlayer[] = [];\n        const skippedPlayersMap = new Map<any, AnimationPlayer[]>();\n        const queuedInstructions: QueuedTransition[] = [];\n        const queriedElements = new Map<any, TransitionAnimationPlayer[]>();\n        const allPreStyleElements = new Map<any, Set<string>>());\n        const allPostStyleElements = new Map<any, Set<string>>());\n        const disabledElementsSet = new Set<any>();\n        this.disabledNodes.forEach(node => {\n            disabledElementsSet.add(node);\n            const nodesThatAreDisabled = this.driver.query(node, QUEUED_SELECTOR, true);\n            for (let i = 0; i < nodesThatAreDisabled.length; i++) {\n                disabledElementsSet.add(nodesThatAreDisabled[i]);\n            }\n        });\n        const bodyNode = this.bodyNode;\n        const allTriggerElements = Array.from(this.statesByElement.keys());\n        const enterNodeMap = buildRootMap(allTriggerElements, this.collectedEnterElements);\n        // this must occur before the instructions are built below such that\n        // the :enter queries match the elements (since the timeline queries\n        // are fired during instruction building).\n        const enterNodeMapIds = new Map<any, string>();\n        let i = 0;\n        enterNodeMap.forEach((nodes, root) => {\n            const className = ENTER_CLASSNAME + i++;\n            enterNodeMapIds.set(root, className);\n            nodes.forEach(node => addClass(node, className));\n        });\n        const allLeaveNodes: any[] = [];\n        const mergedLeaveNodes = new Set<any>();\n        const leaveNodesWithoutAnimations = new Set<any>();\n        for (let i = 0; i < this.collectedLeaveElements.length; i++) {\n            const element = this.collectedLeaveElements[i];\n            const details = element[REMOVAL_FLAG] as ElementAnimationState;\n            if (details && details.setForRemoval) {\n                allLeaveNodes.push(element);\n                mergedLeaveNodes.add(element);\n                if (details.hasAnimation) {\n                    this.driver.query(element, STAR_SELECTOR, true).forEach(elm => mergedLeaveNodes.add(elm));\n                } else {\n                    leaveNodesWithoutAnimations.add(element);\n                }\n            }\n        }\n        const leaveNodeMapIds = new Map<any, string>();\n        const leaveNodeMap = buildRootMap(allTriggerElements, Array.from(mergedLeaveNodes));\n        leaveNodeMap.forEach((nodes, root) => {\n            const className = LEAVE_CLASSNAME + i++;\n            leaveNodeMapIds.set(root, className);\n            nodes.forEach(node => addClass(node, className));\n        });\n        cleanupFns.push(() => {\n            enterNodeMap.forEach((nodes, root) => {\n                const className = enterNodeMapIds.get(root);\n                nodes.forEach(node => removeClass(node, className));\n            });\n            leaveNodeMap.forEach((nodes, root) => {\n                const className = leaveNodeMapIds.get(root);\n                nodes.forEach(node => removeClass(node, className));\n            });\n            allLeaveNodes.forEach(element => {\n                this.processLeaveNode(element);\n            });\n        });\n        const allPlayers: TransitionAnimationPlayer[] = [];\n        const erroneousTransitions: AnimationTransitionInstruction[] = [];\n        for (let i = this._namespaceList.length - 1; i >= 0; i--) {\n            const ns = this._namespaceList[i];\n            ns.drainQueuedTransitions(microtaskId).forEach(entry => {\n                const player = entry.player;\n                const element = entry.element;\n                allPlayers.push(player);\n                if (this.collectedEnterElements.length) {\n                    const details = element[REMOVAL_FLAG] as ElementAnimationState;\n                    // move animations are currently not supported...\n                    if (details && details.setForMove) {\n                        player.destroy();\n                        return;\n                    }\n                }\n                const nodeIsOrphaned = !bodyNode || !this.driver.containsElement(bodyNode, element);\n                const leaveClassName = leaveNodeMapIds.get(element);\n                const enterClassName =

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enterNodeMapIds.get(element)!;\n    const instruction = this._buildInstruction(\n        entry, subTimelines,
enterClassName, leaveClassName, nodeIsOrphaned);\n    if (instruction.errors && instruction.errors.length) {\n
        erroneousTransitions.push(instruction);\n        return;\n    }\n    // even though the element may not be
    apart of the DOM, it may\n    // still be added at a later point (due to
    the mechanics of content\n    // projection and/or dynamic component insertion) therefore it's\n    // important
    we still style the element.\n    if (nodeIsOrphaned) {\n        player.onStart(() => eraseStyles(element,
instruction.fromStyles));\n        player.onDestroy(() => setStyles(element, instruction.toStyles));\n
        skippedPlayers.push(player);\n        return;\n    }\n    // if a unmatched transition is queued to go then it
    SHOULD NOT render\n    // an animation and cancel the previously running animations.\n    if
    (entry.isFallbackTransition) {\n        player.onStart(() => eraseStyles(element, instruction.fromStyles));\n
        player.onDestroy(() => setStyles(element, instruction.toStyles));\n        skippedPlayers.push(player);\n
        return;\n    }\n    // this means that if a parent animation uses this animation as a sub trigger\n    // then it
    will instruct the timeline builder to not add a player delay, but\n
    // instead stretch the first keyframe gap up until the animation starts. The\n    // reason this is important is to
    prevent extra initialization styles from being\n    // required by the user in the animation.\n
    instruction.timelines.forEach(tl => tl.stretchStartingKeyframe = true);\n    subTimelines.append(element,
instruction.timelines);\n    const tuple = {instruction, player, element};\n
    queuedInstructions.push(tuple);\n    instruction.queriedElements.forEach(\n        element =>
    getOrSetAsInMap(queriedElements, element, []).push(player));\n
    instruction.preStyleProps.forEach((stringMap, element) => {\n        const props = Object.keys(stringMap);\n
    if (props.length) {\n        let setVal: Set<string> = allPreStyleElements.get(element)!;\n        if (!setVal) {\n
        allPreStyleElements.set(element, setVal = new Set<string>());\n        }\n        props.forEach(prop =>
    setVal.add(prop));\n
        }\n    });\n    instruction.postStyleProps.forEach((stringMap, element) => {\n        const props =
    Object.keys(stringMap);\n        let setVal: Set<string> = allPostStyleElements.get(element)!;\n        if (!setVal) {\n
        allPostStyleElements.set(element, setVal = new Set<string>());\n        }\n        props.forEach(prop =>
    setVal.add(prop));\n    });\n    }\n    if (erroneousTransitions.length) {\n        const errors: string[] = [];\n
    erroneousTransitions.forEach(instruction => {\n        errors.push(`@${instruction.triggerName} has failed due
    to:\\n`);\n        instruction.errors!.forEach(error => errors.push(`- ${error}\\n`));\n    });\n
    allPlayers.forEach(player => player.destroy());\n    this.reportError(errors);\n    }\n    const
    allPreviousPlayersMap = new Map<any, TransitionAnimationPlayer[]>();\n    // this map works to tell which
    element in the DOM tree is contained by\n    // which animation.
    Further down below this map will get populated once\n    // the players are built and in doing so it can efficiently
    figure out\n    // if a sub player is skipped due to a parent player having priority.\n    const animationElementMap =
    new Map<any, any>();\n    queuedInstructions.forEach(entry => {\n        const element = entry.element;\n        if
    (subTimelines.has(element)) {\n        animationElementMap.set(element, element);\n
    this._beforeAnimationBuild(\n        entry.player.namespaceId, entry.instruction, allPreviousPlayersMap);\n    }\n
    });\n    skippedPlayers.forEach(player => {\n        const element = player.element;\n        const previousPlayers =\n
    this._getPreviousPlayers(element, false, player.namespaceId, player.triggerName, null);\n
    previousPlayers.forEach(prevPlayer => {\n        getOrSetAsInMap(allPreviousPlayersMap, element,
    []).push(prevPlayer);\n        prevPlayer.destroy();\n    });\n    });\n    // this is a special case for nodes that
    will be removed (either by)\n    // having their own leave animations or by being queried in a container\n    // that
    will be removed once a parent animation is complete. The idea\n    // here is that * styles must be identical to ! styles
    because of\n    // backwards compatibility (* is also filled in by default in many places).\n    // Otherwise * styles
    will return an empty value or auto since the element\n    // that is being getComputedStyle'd will not be visible (since
    * = destination)\n    const replaceNodes = allLeaveNodes.filter(node => {\n        return replacePostStylesAsPre(node,
    allPreStyleElements, allPostStyleElements);\n    });\n    // POST STAGE: fill the * styles\n    const postStylesMap
    = new Map<any, StyleData>();\n    const allLeaveQueriedNodes = cloakAndComputeStyles(\n        postStylesMap,

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this.driver, leaveNodesWithoutAnimations, allPostStyleElements, AUTO_STYLE);\n\n
allLeaveQueriedNodes.forEach(node => {\n    if (replacePostStylesAsPre(node, allPreStyleElements,
    allPostStyleElements)) {\n        replaceNodes.push(node);\n    }\n});\n\n// PRE STAGE: fill the ! styles\nconst preStylesMap = new Map<any, StyleData>();\nenterNodeMap.forEach((nodes, root) => {\n    cloakAndComputeStyles(\n        preStylesMap, this.driver, new Set(nodes), allPreStyleElements, PRE_STYLE);\n    });\n    replaceNodes.forEach(node => {\n        const post = postStylesMap.get(node);\n        const pre =\n        preStylesMap.get(node);\n        postStylesMap.set(node, {...post, ...pre} as any);\n    });\n\n    const rootPlayers:\n    TransitionAnimationPlayer[] = [];\n    const subPlayers: TransitionAnimationPlayer[] = [];\n    const\n    NO_PARENT_ANIMATION_ELEMENT_DETECTED = {};\n    queuedInstructions.forEach(entry => {\n        const {element, player, instruction} = entry;\n        // this means that it was never consumed by a parent animation\n        which\n        // means that it is independent and therefore should be set for animation\n        if\n        (subTimelines.has(element))\n        {\n            if (disabledElementsSet.has(element)) {\n                player.onDestroy(() => setStyles(element,\n                instruction.toStyles));\n                player.disabled = true;\n                player.overrideTotalTime(instruction.totalTime);\n                skippedPlayers.push(player);\n                return;\n            }\n\n            // this will flow up the DOM and query the map to\n            figure out\n            // if a parent animation has priority over it. In the situation\n            // that a parent is detected then it\n            will cancel the loop. If\n            // nothing is detected, or it takes a few hops to find a parent,\n            // then it will fill in\n            the missing nodes and signal them as having\n            // a detected parent (or a NO_PARENT value via a special\n            constant).\n            let parentWithAnimation: any = NO_PARENT_ANIMATION_ELEMENT_DETECTED;\n            if\n            (animationElementMap.size > 1) {\n                let elm = element;\n                const parentsToAdd: any[] = [];\n                while\n                (elm = elm.parentNode) {\n                    const\n                    detectedParent = animationElementMap.get(elm);\n                    if (detectedParent) {\n                        parentWithAnimation =\n                        detectedParent;\n                        break;\n                    }\n                    parentsToAdd.push(elm);\n                }\n                parentsToAdd.forEach(parent => animationElementMap.set(parent, parentWithAnimation));\n            }\n\n            const\n            innerPlayer = this._buildAnimation(\n                player.namespaceId, instruction, allPreviousPlayersMap,\n                skippedPlayersMap, preStylesMap,\n                postStylesMap);\n            player.setRealPlayer(innerPlayer);\n            if\n            (parentWithAnimation === NO_PARENT_ANIMATION_ELEMENT_DETECTED) {\n                rootPlayers.push(player);\n            } else {\n                const parentPlayers =\n                this.playersByElement.get(parentWithAnimation);\n                if (parentPlayers && parentPlayers.length) {\n                    player.parentPlayer = optimizeGroupPlayer(parentPlayers);\n                }\n                skippedPlayers.push(player);\n            }\n\n            } else {\n                eraseStyles(element,\n                instruction.fromStyles);\n                player.onDestroy(() => setStyles(element, instruction.toStyles));\n                // there still\n                might be a ancestor player animating this\n                // element therefore we will still add it as a sub player\n                // even\n                if its animation may be disabled\n                subPlayers.push(player);\n                if (disabledElementsSet.has(element)) {\n                    skippedPlayers.push(player);\n                }\n            }\n\n            // find all of the sub players' corresponding inner\n            animation player\n            subPlayers.forEach(player => {\n                // even if any players are not found for a sub animation\n                then it\n                // will still complete itself after the next tick since it's Noop\n                const playersForElement =\n                skippedPlayersMap.get(player.element);\n                if (playersForElement && playersForElement.length) {\n                    const\n                    innerPlayer = optimizeGroupPlayer(playersForElement);\n                    player.setRealPlayer(innerPlayer);\n                }\n            });\n\n            // the reason why we don't\n            actually play the animation is\n            // because all that a skipped player is designed to do is to\n            // fire the start/done\n            transition callback events\n            skippedPlayers.forEach(player => {\n                if (player.parentPlayer) {\n                    player.syncPlayerEvents(player.parentPlayer);\n                } else {\n                    player.destroy();\n                }\n            });\n\n            // run\n            through all of the queued removals and see if they\n            // were picked up by a query. If not then perform the\n            removal\n            // operation right away unless a parent animation is ongoing.\n            for (let i = 0; i < allLeaveNodes.length;\n            i++) {\n                const element = allLeaveNodes[i];\n                const details = element[REMOVAL_FLAG] as\n                ElementAnimationState;\n                removeClass(element, LEAVE_CLASSNAME);\n                // this means the element has\n                a removal animation that is being\n                // taken care of and therefore the inner elements will hang around\n                // until

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that animation is over (or the parent queried animation)\n    if (details && details.hasAnimation)
    continue;\n\n    let players: TransitionAnimationPlayer[] = [];\n\n    // if this element is queried or if it contains
    queried children\n    // then we want for the element not to be removed from the page\n    // until the queried
    animations have finished\n    if (queriedElements.size) {\n        let queriedPlayerResults =
    queriedElements.get(element);\n        if (queriedPlayerResults && queriedPlayerResults.length) {\n
    players.push(...queriedPlayerResults);\n        }\n\n        let queriedInnerElements = this.driver.query(element,
    NG_ANIMATING_SELECTOR, true);\n        for (let j = 0; j < queriedInnerElements.length; j++) {\n            let
    queriedPlayers = queriedElements.get(queriedInnerElements[j]);\n            if (queriedPlayers &&
    queriedPlayers.length) {\n                players.push(...queriedPlayers);\n            }\n        }\n\n        const activePlayers
    = players.filter(p => !p.destroyed);\n        if (activePlayers.length) {\n
    removeNodesAfterAnimationDone(this, element, activePlayers);\n        } else {\n
    this.processLeaveNode(element);\n        }\n    }\n\n    // this is required so the cleanup method doesn't remove them\n
    allLeaveNodes.length = 0;\n\n    rootPlayers.forEach(player => {\n        this.players.push(player);\n
    player.onDone(() => {\n        player.destroy();\n\n        const index = this.players.indexOf(player);\n
    this.players.splice(index, 1);\n        });\n        player.play();\n    });\n\n    return rootPlayers;\n }\n\n
    elementContainsData(namespaceId: string, element: any) {\n        let containsData = false;\n        const details =
    element[REMOVAL_FLAG] as ElementAnimationState;\n        if (details && details.setForRemoval) containsData =
    true;\n        if (this.playersByElement.has(element)) containsData = true;\n        if
    (this.playersByQueriedElement.has(element)) containsData = true;\n        if (this.statesByElement.has(element))
    containsData = true;\n        return this._fetchNamespace(namespaceId).elementContainsData(element)
    || containsData;\n    }\n\n    afterFlush(callback: () => any) {\n        this._flushFns.push(callback);\n    }\n\n
    afterFlushAnimationsDone(callback: () => any) {\n        this._whenQuietFns.push(callback);\n    }\n\n    private
    _getPreviousPlayers(\n        element: string, isQueriedElement: boolean, namespaceId?: string, triggerName?:
    string,\n        toStateValue?: any): TransitionAnimationPlayer[] {\n        let players: TransitionAnimationPlayer[] = [];\n
        if (isQueriedElement) {\n            const queriedElementPlayers = this.playersByQueriedElement.get(element);\n            if
    (queriedElementPlayers) {\n                players = queriedElementPlayers;\n            }\n        } else {\n            const elementPlayers =
    this.playersByElement.get(element);\n            if (elementPlayers) {\n                const isRemovalAnimation = !toStateValue ||
    toStateValue == VOID_VALUE;\n                elementPlayers.forEach(player => {\n                    if (player.queued) return;\n
                    if (!isRemovalAnimation && player.triggerName
    != triggerName) return;\n                    players.push(player);\n                });\n            }\n        }\n        if (namespaceId || triggerName) {\n
            players = players.filter(player => {\n                if (namespaceId && namespaceId != player.namespaceId) return false;\n
                if (triggerName && triggerName != player.triggerName) return false;\n                return true;\n            });\n        }\n        return
    players;\n    }\n\n    private _beforeAnimationBuild(\n        namespaceId: string, instruction:
    AnimationTransitionInstruction,\n        allPreviousPlayersMap: Map<any, TransitionAnimationPlayer[]>) {\n        const
    triggerName = instruction.triggerName;\n        const rootElement = instruction.element;\n\n        // when a removal
    animation occurs, ALL previous players are collected\n        // and destroyed (even if they are outside of the current
    namespace)\n        const targetNameSpaceId: string|undefined =\n            instruction.isRemovalTransition ? undefined :
    namespaceId;\n        const targetTriggerName: string|undefined =\n            instruction.isRemovalTransition
    ? undefined : triggerName;\n        for (const timelineInstruction of instruction.timelines) {\n            const element =
    timelineInstruction.element;\n            const isQueriedElement = element !== rootElement;\n            const players =
    getOrSetAsInMap(allPreviousPlayersMap, element, []);\n            const previousPlayers = this._getPreviousPlayers(\n
                element, isQueriedElement, targetNameSpaceId, targetTriggerName, instruction.toState);\n            previousPlayers.forEach(player => {\n                const realPlayer = (player as
    TransitionAnimationPlayer).getRealPlayer() as any;\n                if (realPlayer.beforeDestroy) {\n
                    realPlayer.beforeDestroy();\n                }\n                player.destroy();\n                players.push(player);\n            });\n        }\n\n        // this
    needs to be done so that the PRE/POST styles can be\n        // computed properly without interfering with the previous
    animation\n        eraseStyles(rootElement, instruction.fromStyles);\n    }\n\n    private _buildAnimation(\n
    namespaceId:

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string, instruction: AnimationTransitionInstruction,\n    allPreviousPlayersMap: Map<any,
TransitionAnimationPlayer[]>,\n    skippedPlayersMap: Map<any, AnimationPlayer[]>, preStylesMap: Map<any,
StyleData>,\n    postStylesMap: Map<any, StyleData>): AnimationPlayer {\n    const triggerName =
instruction.triggerName;\n    const rootElement = instruction.element;\n\n    // we first run this so that the previous
animation player\n    // data can be passed into the successive animation players\n    const allQueriedPlayers:
TransitionAnimationPlayer[] = [];\n    const allConsumedElements = new Set<any>();\n    const allSubElements =
new Set<any>();\n    const allNewPlayers = instruction.timelines.map(timelineInstruction => {\n    const element =
timelineInstruction.element;\n    allConsumedElements.add(element);\n\n    // FIXME (matsko): make sure to-be-
removed animations are removed properly\n    const details = element[REMOVAL_FLAG];\n    if (details &&
details.removedBeforeQueried)\n\n        return new NoopAnimationPlayer(timelineInstruction.duration, timelineInstruction.delay);\n\n    const
isQueriedElement = element !== rootElement;\n    const previousPlayers =\nflattenGroupPlayers((allPreviousPlayersMap.get(element) || EMPTY_PLAYER_ARRAY)\n
.map(p => p.getRealPlayer()))\n        .filter(p => {\n            // the `element` is not apart of the AnimationPlayer
definition, but\n            // Mock/WebAnimations\n            // use the element within their implementation. This
will be added in Angular5 to\n            // AnimationPlayer\n            const pp = p as any;\n            return
pp.element ? pp.element === element : false;\n        });\n\n    const preStyles = preStylesMap.get(element);\n    const postStyles = postStylesMap.get(element);\n    const keyframes = normalizeKeyframes(\n        this.driver,
this._normalizer, element, timelineInstruction.keyframes,
preStyles,\n        postStyles);\n    const player = this._buildPlayer(timelineInstruction, keyframes,
previousPlayers);\n\n    // this means that this particular player belongs to a sub trigger. It is\n    // important that
we match this player up with the corresponding (@trigger.listener)\n    if (timelineInstruction.subTimeline &&
skippedPlayersMap) {\n        allSubElements.add(element);\n    }\n\n    if (isQueriedElement) {\n        const
wrappedPlayer = new TransitionAnimationPlayer(namespaceId, triggerName, element);\n        wrappedPlayer.setRealPlayer(player);\n        allQueriedPlayers.push(wrappedPlayer);\n    }\n\n    return player;\n
});\n\n    allQueriedPlayers.forEach(player => {\n        getOrSetAsInMap(this.playersByQueriedElement,
player.element, []).push(player);\n        player.onDone(() => deleteOrUnsetInMap(this.playersByQueriedElement,
player.element, player));\n    });\n\n    allConsumedElements.forEach(element => addClass(element,
NG_ANIMATING_CLASSNAME));\n    const player = optimizeGroupPlayer(allNewPlayers);\n    player.onDestroy(() => {\n        allConsumedElements.forEach(element => removeClass(element,
NG_ANIMATING_CLASSNAME));\n        setStyles(rootElement, instruction.toStyles);\n    });\n\n    // this basically
makes all of the callbacks for sub element animations\n    // be dependent on the upper players for when they
finish\n    allSubElements.forEach(element => {\n        getOrSetAsInMap(skippedPlayersMap, element,
[]).push(player);\n    });\n\n    return player;\n    }\n\n    private _buildPlayer(\n        instruction:
AnimationTimelineInstruction, keyframes: StyleData[],\n        previousPlayers: AnimationPlayer[]): AnimationPlayer
{\n        if (keyframes.length > 0) {\n            return this.driver.animate(\n                instruction.element, keyframes,
instruction.duration, instruction.delay,\n                instruction.easing, previousPlayers);\n        }\n\n        // special case for
when an empty transition|definition is provided\n\n        // ... there is no point in rendering an empty animation\n        return new NoopAnimationPlayer(instruction.duration,
instruction.delay);\n    }\n}\n\nexport class TransitionAnimationPlayer implements AnimationPlayer {\n    private
_player: AnimationPlayer = new NoopAnimationPlayer();\n    private _containsRealPlayer = false;\n\n    private
_queuedCallbacks: {[name: string]: (() => any)[]} = {};\n    public readonly destroyed = false;\n    //
TODO(issue/24571): remove '!'.\n    public parentPlayer!: AnimationPlayer;\n\n    public markedForDestroy: boolean
= false;\n    public disabled = false;\n\n    readonly queued: boolean = true;\n    public readonly totalTime: number =
0;\n\n    constructor(public namespaceId: string, public triggerName: string, public element: any) {\n\n    }\n\n    setRealPlayer(player: AnimationPlayer) {\n        if (this._containsRealPlayer) return;\n\n        this._player = player;\n        Object.keys(this._queuedCallbacks).forEach(phase => {\n            this._queuedCallbacks[phase].forEach(\n

```



```

the Map[@trigger] spot.\n *\nfunction buildRootMap(roots: any[], nodes: any[]): Map<any, any[]> {\n  const
rootMap = new Map<any, any[]>();\n  roots.forEach(root => rootMap.set(root, []));\n  if (nodes.length == 0)
return rootMap;\n  const NULL_NODE = 1;\n  const nodeSet = new Set(nodes);\n  const localRootMap = new
Map<any, any>();\n  function getRoot(node: any): any {\n    if (!node) return NULL_NODE;\n    let root =
localRootMap.get(node);\n    if (root) return root;\n    const parent = node.parentNode;\n    if
(rootMap.has(parent)) { // ngIf inside @trigger\n      root = parent;\n    } else if (nodeSet.has(parent)) { // ngIf
inside ngIf\n      root = NULL_NODE;\n    } else { // recurse upwards\n      root = getRoot(parent);\n    }\n    localRootMap.set(node, root);\n    return root;\n  }\n  nodes.forEach(node => {\n    const root =
getRoot(node);\n    if (root !== NULL_NODE) {\n      rootMap.get(root)!.push(node);\n    }\n  });\n  return
rootMap;\n}\n\nconst CLASSES_CACHE_KEY = '$$classes';\nfunction containsClass(element: any, className:
string): boolean {\n  if (element.classList) {\n    return element.classList.contains(className);\n  } else {\n    const
classes = element[CLASSES_CACHE_KEY];\n    return classes && classes[className];\n  }\n}\n\nfunction
addClass(element: any, className: string) {\n  if (element.classList) {\n    element.classList.add(className);\n  }
else {\n    let classes: {[className: string]: boolean} = element[CLASSES_CACHE_KEY];\n    if (!classes) {\n
classes = element[CLASSES_CACHE_KEY] = {};\n    }\n    classes[className] = true;\n  }\n}\n\nfunction
removeClass(element: any, className: string) {\n  if (element.classList) {\n
element.classList.remove(className);\n  } else
{\n    let classes: {[className: string]: boolean} = element[CLASSES_CACHE_KEY];\n    if (classes) {\n
delete classes[className];\n    }\n  }\n}\n\nfunction removeNodesAfterAnimationDone(\n  engine:
TransitionAnimationEngine, element: any, players: AnimationPlayer[]) {\n
optimizeGroupPlayer(players).onDone(() => engine.processLeaveNode(element));\n}\n\nfunction
flattenGroupPlayers(players: AnimationPlayer[]): AnimationPlayer[] {\n  const finalPlayers: AnimationPlayer[] =
[];\n  _flattenGroupPlayersRecur(players, finalPlayers);\n  return finalPlayers;\n}\n\nfunction
_flattenGroupPlayersRecur(players: AnimationPlayer[], finalPlayers: AnimationPlayer[]) {\n  for (let i = 0; i <
players.length; i++) {\n    const player = players[i];\n    if (player instanceof AnimationGroupPlayer) {\n
_flattenGroupPlayersRecur(player.players, finalPlayers);\n    } else {\n      finalPlayers.push(player);\n    }\n
}\n}\n\nfunction objEquals(a: {[key: string]: any}, b: {[key: string]: any}): boolean
{\n  const k1 = Object.keys(a);\n  const k2 = Object.keys(b);\n  if (k1.length !== k2.length) return false;\n  for (let i =
0; i < k1.length; i++) {\n    const prop = k1[i];\n    if (!b.hasOwnProperty(prop) || a[prop] !== b[prop]) return false;\n
}\n  return true;\n}\n\nfunction replacePostStylesAsPre(\n  element: any, allPreStyleElements: Map<any,
Set<string>>,\n  allPostStyleElements: Map<any, Set<string>>): boolean {\n  const postEntry =
allPostStyleElements.get(element);\n  if (!postEntry) return false;\n  let preEntry =
allPreStyleElements.get(element);\n  if (preEntry) {\n    postEntry.forEach(data => preEntry!.add(data));\n  } else
{\n    allPreStyleElements.set(element, postEntry);\n  }\n  allPostStyleElements.delete(element);\n  return
true;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { AnimationMetadata,
AnimationPlayer, AnimationTriggerMetadata } from '@angular/animations';\nimport { TriggerAst } from
'./dsl/animation_ast';\nimport { buildAnimationAst } from './dsl/animation_ast_builder';\nimport
{ AnimationTrigger, buildTrigger } from './dsl/animation_trigger';\nimport { AnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nimport { AnimationDriver } from
'./animation_driver';\nimport { parseTimelineCommand } from './shared';\nimport { TimelineAnimationEngine } from
'./timeline_animation_engine';\nimport { TransitionAnimationEngine } from
'./transition_animation_engine';\n\nexport class AnimationEngine {\n  private _transitionEngine:
TransitionAnimationEngine;\n  private _timelineEngine: TimelineAnimationEngine;\n\n  private _triggerCache:
{[key: string]: AnimationTrigger} = {};\n  // this method is designed to be overridden by the code that uses this
engine\n  public onRemovalComplete = (element: any, context: any) => {};\n\n  constructor(\n

```

```

private bodyNode: any, private _driver: AnimationDriver,\n    normalizer: AnimationStyleNormalizer) {\n
this._transitionEngine = new TransitionAnimationEngine(bodyNode, _driver, normalizer);\n this._timelineEngine
= new TimelineAnimationEngine(bodyNode, _driver, normalizer);\n\n
this._transitionEngine.onRemovalComplete = (element: any, context: any) =>\n
this.onRemovalComplete(element, context);\n }\n\n registerTrigger(\n    componentId: string, namespaceId:
string, hostElement: any, name: string,\n    metadata: AnimationTriggerMetadata): void {\n    const cacheKey =
componentId + '-' + name;\n    let trigger = this._triggerCache[cacheKey];\n    if (!trigger) {\n        const errors: any[]
= [];\n        const ast =\n            buildAnimationAst(this._driver, metadata as AnimationMetadata, errors) as
TriggerAst;\n        if (errors.length) {\n            throw new Error(`The animation trigger \"${\n                name}\" has failed
to build due to the following errors:\n
- ${errors.join("\n - '")}`);\n        }\n        trigger = buildTrigger(name, ast);\n        this._triggerCache[cacheKey] =
trigger;\n    }\n    this._transitionEngine.registerTrigger(namespaceId, name, trigger);\n }\n\n register(namespaceId:
string, hostElement: any) {\n    this._transitionEngine.register(namespaceId, hostElement);\n }\n\n
destroy(namespaceId: string, context: any) {\n    this._transitionEngine.destroy(namespaceId, context);\n }\n\n
onInsert(namespaceId: string, element: any, parent: any, insertBefore: boolean): void {\n
this._transitionEngine.insertNode(namespaceId, element, parent, insertBefore);\n }\n\n onRemove(namespaceId:
string, element: any, context: any, isHostElement?: boolean): void {\n
this._transitionEngine.removeNode(namespaceId, element, isHostElement || false, context);\n }\n\n
disableAnimations(element: any, disable: boolean) {\n    this._transitionEngine.markElementAsDisabled(element,
disable);\n }\n\n process(namespaceId: string,
    element: any, property: string, value: any) {\n    if (property.charAt(0) == '@') {\n        const [id, action] =
parseTimelineCommand(property);\n        const args = value as any[];\n        this._timelineEngine.command(id,
element, action, args);\n    } else {\n        this._transitionEngine.trigger(namespaceId, element, property, value);\n
    }\n }\n\n listen(\n    namespaceId: string, element: any, eventName: string, eventPhase: string,\n    callback:
(event: any) => any): () => any {\n    // @@listen\n    if (eventName.charAt(0) == '@') {\n        const [id, action] =
parseTimelineCommand(eventName);\n        return this._timelineEngine.listen(id, element, action, callback);\n    }\n
return this._transitionEngine.listen(namespaceId, element, eventName, eventPhase, callback);\n }\n\n
flush(microtaskId: number = -1): void {\n    this._transitionEngine.flush(microtaskId);\n }\n\n get players():
AnimationPlayer[] {\n    return (this._transitionEngine.players as AnimationPlayer[])\n
.concat(this._timelineEngine.players as AnimationPlayer[]);\n }\n\n whenRenderingDone(): Promise<any>
{\n    return this._transitionEngine.whenRenderingDone();\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\nimport {eraseStyles, setStyles} from './util';\n\n/**\n * Returns
an instance of `SpecialCasedStyles` if and when any special (non animateable) styles are\n * detected.\n *\n * In
CSS there exist properties that cannot be animated within a keyframe animation\n * (whether it be via CSS
keyframes or web-animations) and the animation implementation\n * will ignore them. This function is designed to
detect those special cased styles and\n * return a container that will be executed at the start and end of the
animation.\n *\n * @returns an instance of `SpecialCasedStyles` if any special styles are detected
otherwise `null`\n */\nexport function packageNonAnimatableStyles(\n    element: any, styles: {[key: string]:
any} | {[key: string]: any}[]): SpecialCasedStyles | null {\n    let startStyles: {[key: string]: any} | null = null;\n    let
endStyles: {[key: string]: any} | null = null;\n    if (Array.isArray(styles) && styles.length) {\n        startStyles =
filterNonAnimatableStyles(styles[0]);\n        if (styles.length > 1) {\n            endStyles =
filterNonAnimatableStyles(styles[styles.length - 1]);\n        }\n    } else if (styles) {\n        startStyles =
filterNonAnimatableStyles(styles);\n    }\n\n    return (startStyles || endStyles) ? new SpecialCasedStyles(element,
startStyles, endStyles) :\n        null;\n}\n\n/**\n * Designed to be executed during a keyframe-
based animation to apply any special-cased styles.\n *\n * When started (when the `start()` method is run) then the
provided `startStyles`\n * will be applied. When finished (when the `finish()` method is called) the\n * `endStyles`

```

will be applied as well any any starting styles. Finally when ``destroy()` is called then all styles will be removed.

```

export class SpecialCasedStyles {
  static initialStylesByElement = new WeakMap<any, {[key: string]: any}>();
  private _state = SpecialCasedStylesState.Pending;
  private _initialStyles!: {[key: string]: any};
  private _element: any;
  private _startStyles: {[key: string]: any} | null;
  private _endStyles: {[key: string]: any} | null;

  constructor(element: any, startStyles: {[key: string]: any} | null, endStyles: {[key: string]: any} | null) {
    this._element = element;
    this._startStyles = startStyles;
    this._endStyles = endStyles;
    this._initialStyles = SpecialCasedStyles.initialStylesByElement.get(element) || {};
    this._state = SpecialCasedStylesState.Pending;
  }

  start() {
    if (this._state < SpecialCasedStylesState.Started) {
      if (this._startStyles) {
        setStyles(this._element, this._startStyles, this._initialStyles);
      }
      this._state = SpecialCasedStylesState.Started;
    }
  }

  finish() {
    if (this._state < SpecialCasedStylesState.Finished) {
      setStyles(this._element, this._initialStyles, this._endStyles);
      this._endStyles = null;
      this._state = SpecialCasedStylesState.Started;
    }
  }

  destroy() {
    this.finish();
    if (this._state < SpecialCasedStylesState.Destroyed) {
      SpecialCasedStyles.initialStylesByElement.delete(this._element);
      if (this._startStyles) {
        eraseStyles(this._element, this._startStyles);
      }
      if (this._endStyles) {
        eraseStyles(this._element, this._endStyles);
      }
      setStyles(this._element, this._initialStyles);
      this._state = SpecialCasedStylesState.Destroyed;
    }
  }
}

// An enum of states reflective of what the status of `SpecialCasedStyles` is.
// Depending on how `SpecialCasedStyles` is interacted with, the start and end styles may not be applied in the same way. This enum ensures that if and when the ending styles are applied then the starting styles are applied. It is also used to reflect what the current status of the special cased styles are which helps prevent the starting/ending styles not being applied twice. It is also used to cleanup the styles once `SpecialCasedStyles` is destroyed.
export enum SpecialCasedStylesState {
  Pending = 0,
  Started = 1,
  Finished = 2,
  Destroyed = 3,
}

function filterNonAnimatableStyles(styles: {[key: string]: any}) {
  let result: {[key: string]: any} | null = null;
  const props = Object.keys(styles);
  for (let i = 0; i < props.length; i++) {
    const prop = props[i];
    if (isNonAnimatableStyle(prop)) {
      result = result || {};
      result[prop] = styles[prop];
    }
  }
  return result;
}

function isNonAnimatableStyle(prop: string) {
  return prop === 'display' || prop === 'position';
}

/**
 * @license
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 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at
 * https://angular.io/license
 */
const ELAPSED_TIME_MAX_DECIMAL_PLACES = 3;
const ANIMATION_PROP = 'animation';
const ANIMATIONEND_EVENT = 'animationend';
const ONE_SECOND = 1000;

export class ElementAnimationStyleHandler {
  private readonly _eventFn: (e: any) => any;
  private _finished = false;
  private _destroyed = false;
  private _startTime = 0;
  private _position = 0;
  private readonly _element: any;
  private readonly _name: string;
  private readonly _duration: number;
  private readonly _delay: number;
  private readonly _easing: string;
  private readonly _fillMode: string;
  private readonly _onDoneFn: () => any;

  constructor(element: any, name: string, duration: number, delay: number, easing: string, fillMode: string, onDoneFn: () => any) {
    this._element = element;
    this._name = name;
    this._duration = duration;
    this._delay = delay;
    this._easing = easing;
    this._fillMode = fillMode;
    this._onDoneFn = onDoneFn;
    this._eventFn = (e) => {
      this._handleCallback(e);
    };
  }

  apply() {
    applyKeyframeAnimation(this._element, `${this._duration}ms ${this._easing} ${this._delay}ms 1 normal ${this._fillMode} ${this._name}`);
    addRemoveAnimationEvent(this._element, this._eventFn, false);
    this._startTime = Date.now();
  }

  pause() {
    playPauseAnimation(this._element, this._name, 'paused');
  }

  resume() {
    playPauseAnimation(this._element, this._name, 'running');
  }

  setPosition(position: number) {
    const index = findIndexForAnimation(this._element, this._name);
    this._position = position * this._duration;
    setAnimationStyle(this._element, 'Delay', `-${this._position}ms`, index);
  }

  getPosition() {
    return this._position;
  }

  private _handleCallback(event: any) {
    const timestamp = event._ngTestManualTimestamp || Date.now();
    const elapsedTime = parseFloat(event.elapsedTime.toFixed(ELAPSED_TIME_MAX_DECIMAL_PLACES)) * ONE_SECOND;
    if (event.animationName === this._name)

```

```

    &&\n    Math.max(timestamp - this._startTime, 0) >= this._delay && elapsedTime >= this._duration) {\n
this.finish();\n } } \n\n finish() {\n if (this._finished) return;\n this._finished = true;\n this._onDoneFn();\n
addRemoveAnimationEvent(this._element, this._eventFn, true);\n } \n\n destroy() {\n if (this._destroyed)
return;\n this._destroyed = true;\n this.finish();\n removeKeyframeAnimation(this._element, this._name);\n
} } \n\nfunction playPauseAnimation(element: any, name: string, status: 'running'|'paused') {\n const index =
findIndexForAnimation(element, name);\n setAnimationStyle(element, 'PlayState', status, index);\n} \n\nfunction
applyKeyframeAnimation(element: any, value: string): number {\n const anim = getAnimationStyle(element,
").trim();\n let index = 0;\n if (anim.length) {\n index = countChars(anim, ',') + 1;\n value = `${anim},
${value}`;\n } \n\n setAnimationStyle(element, "", value);\n return index;\n} \n\nfunction
removeKeyframeAnimation(element: any, name: string) {\n const anim = getAnimationStyle(element, "");\n const
tokens = anim.split(',');\n const index = findMatchingTokenIndex(tokens, name);\n if (index >= 0) {\n
tokens.splice(index, 1);\n const newValue = tokens.join(',');\n setAnimationStyle(element, "", newValue);\n
} } \n\nfunction findIndexForAnimation(element: any, value: string) {\n const anim = getAnimationStyle(element,
");\n if (anim.indexOf(',') > 0) {\n const tokens = anim.split(',');\n return findMatchingTokenIndex(tokens,
value);\n } \n\n return findMatchingTokenIndex([anim], value);\n} \n\nfunction findMatchingTokenIndex(tokens:
string[], searchToken: string): number {\n for (let i = 0; i < tokens.length; i++) {\n if
(tokens[i].indexOf(searchToken) >= 0) {\n return i;\n } \n\n return -1;\n} \n\nfunction
addRemoveAnimationEvent(element: any, fn: (e: any) => any, doRemove: boolean) {\n doRemove ?
element.removeEventListener(ANIMATIONEND_EVENT,
fn) : \n element.addEventListener(ANIMATIONEND_EVENT, fn);\n} \n\nfunction
setAnimationStyle(element: any, name: string, value: string, index?: number) {\n const prop =
ANIMATION_PROP + name;\n if (index != null) {\n const oldValue = element.style[prop];\n if
(oldValue.length) {\n const tokens = oldValue.split(',');\n tokens[index] = value;\n value =
tokens.join(',');\n } \n\n element.style[prop] = value;\n} \n\nfunction getAnimationStyle(element: any, name:
string) {\n return element.style[ANIMATION_PROP + name];\n} \n\nfunction countChars(value: string, char:
string): number {\n let count = 0;\n for (let i = 0; i < value.length; i++) {\n const c = value.charAt(i);\n if (c ===
char) count++;\n } \n\n return count;\n} \n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport
{ AnimationPlayer } from '@angular/animations';\nimport { computeStyle } from '../util';\nimport
{ SpecialCasedStyles } from '../special_cased_styles';\nimport { ElementAnimationStyleHandler } from
'./element_animation_style_handler';\n\nconst DEFAULT_FILL_MODE = 'forwards';\nconst DEFAULT_EASING
= 'linear';\n\nexport const enum AnimatorControlState {\n INITIALIZED = 1,\n STARTED = 2,\n FINISHED =
3,\n DESTROYED = 4\n}\n\nexport class CssKeyframesPlayer implements AnimationPlayer {\n private
_onDoneFns: Function[] = [];\n private _onStartFns: Function[] = [];\n private _onDestroyFns: Function[] = [];\n
private _started = false;\n // TODO(issue/24571): remove '!'.\n private _styler!:
ElementAnimationStyleHandler;\n\n // TODO(issue/24571): remove '!'.\n public parentPlayer!:
AnimationPlayer;\n\n public readonly totalTime: number;\n\n public readonly easing: string;\n\n public
currentSnapshot: {[key: string]: string} = {};\n\n private _state: AnimatorControlState = 0;\n\n constructor(\n
public readonly element: any, public readonly keyframes: {[key: string]: string|number}[],\n\n public readonly
animationName: string, private readonly _duration: number,\n\n private readonly _delay: number, easing: string,\n\n
private readonly _finalStyles: {[key: string]: any},\n\n private readonly _specialStyles?: SpecialCasedStyles|null)
{\n this.easing = easing || DEFAULT_EASING;\n this.totalTime = _duration + _delay;\n this._buildStyler();\n
} \n\n onStart(fn: () => void): void {\n this._onStartFns.push(fn);\n } \n\n onDone(fn: () => void): void {\n
this._onDoneFns.push(fn);\n } \n\n onDestroy(fn: () => void): void {\n this._onDestroyFns.push(fn);\n } \n\n
destroy() {\n this.init();\n if (this._state >= AnimatorControlState.DESTROYED) return;\n this._state =
AnimatorControlState.DESTROYED;\n this._styler.destroy();\n this._flushStartFns();\n
this._flushDoneFns();\n if (this._specialStyles) {\n this._specialStyles.destroy();\n

```



```

    }
    this._onDestroyFns.forEach(fn => fn());
    this._onDestroyFns = [];
    private _flushDoneFns() {
    this._onDoneFns.forEach(fn => fn());
    this._onDoneFns = [];
    private _flushStartFns() {
    this._onStartFns.forEach(fn => fn());
    this._onStartFns = [];
    finish() {
    this.init();
    if (this._state >=
    AnimatorControlState.FINISHED) return;
    this._state = AnimatorControlState.FINISHED;
    this._styler.finish();
    this._flushStartFns();
    if (this._specialStyles) {
    this._specialStyles.finish();
    }
    this._flushDoneFns();
    }
    setPosition(value: number) {
    this._styler.setPosition(value);
    }
    getPosition(): number {
    return this._styler.getPosition();
    }
    hasStarted(): boolean {
    return this._state
    >= AnimatorControlState.STARTED;
    }
    init(): void {
    if (this._state >=
    AnimatorControlState.INITIALIZED) return;
    this._state = AnimatorControlState.INITIALIZED;
    const elm = this.element;
    this._styler.apply();
    if (this._delay) {
    this._styler.pause();
    }
    play(): void {
    this.init();
    if (!this.hasStarted()) {
    this._flushStartFns();
    this._state =
    AnimatorControlState.STARTED;
    if (this._specialStyles) {
    this._specialStyles.start();
    }
    this._styler.resume();
    }
    pause(): void {
    this.init();
    this._styler.pause();
    }
    restart(): void {
    this.reset();
    this.play();
    }
    reset(): void {
    this._styler.destroy();
    this._buildStyler();
    this._styler.apply();
    }
    private _buildStyler() {
    this._styler = new ElementAnimationStyleHandler(
    this.element, this.animationName, this._duration, this._delay, this.easing,
    DEFAULT_FILL_MODE, () =>
    this.finish());
    }
    /** @internal */
    triggerCallback(phaseName: string): void {
    const methods =
    phaseName == 'start' ? this._onStartFns : this._onDoneFns;
    methods.forEach(fn => fn());
    methods.length = 0;
    beforeDestroy() {
    this.init();
    const styles:
    {[key: string]: string} = {};
    if (this.hasStarted()) {
    const finished = this._state >=
    AnimatorControlState.FINISHED;
    Object.keys(this._finalStyles).forEach(prop => {
    if (prop != 'offset')
    {
    styles[prop] = finished ? this._finalStyles[prop] : computeStyle(this.element, prop);
    }
    });
    this.currentSnapshot = styles;
    }
    }
    "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
    *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
    https://angular.io/license\n */
    import {NoopAnimationPlayer} from '@angular/animations';
    import
    {hypeatePropsObject} from './shared';
    export class DirectStylePlayer extends NoopAnimationPlayer {
    private _startingStyles: {[key: string]: any} | null = { };
    private __initialized = false;
    private _styles: {[key: string]: any};
    constructor(public element: any, styles: {[key: string]: any}) {
    super();
    this._styles = hypeatePropsObject(styles);
    }
    init() {
    if (this.__initialized ||
    !this._startingStyles) return;
    this.__initialized = true;
    Object.keys(this._styles).forEach(prop => {
    this._startingStyles![prop] = this.element.style[prop];
    });
    super.init();
    }
    play() {
    if
    (!this._startingStyles) return;
    this.init();
    Object.keys(this._styles)\n
    .forEach(prop =>
    this.element.style.setProperty(prop, this._styles[prop]));
    super.play();
    }
    destroy() {
    if
    (!this._startingStyles) return;
    Object.keys(this._startingStyles).forEach(prop => {
    const value =
    this._startingStyles![prop];
    if (value) {
    this.element.style.setProperty(prop, value);
    } else {
    this.element.style.removeProperty(prop);
    }
    });
    this._startingStyles = null;
    super.destroy();
    }
    }
    "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
    *\n * Use of this
    source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
    https://angular.io/license\n */
    import {AnimationPlayer, StyleData} from '@angular/animations';
    import
    {allowPreviousPlayerStylesMerge, balancePreviousStylesIntoKeyframes, computeStyle} from './util';
    import
    {AnimationDriver} from './animation_driver';
    import {containsElement, hypeatePropsObject, invokeQuery,
    matchesElement, validateStyleProperty} from './shared';
    import {packageNonAnimatableStyles} from
    './special_cased_styles';
    import {CssKeyframesPlayer} from './css_keyframes_player';
    import
    {DirectStylePlayer} from './direct_style_player';
    const KEYFRAMES_NAME_PREFIX = 'gen_css_kf_';
    const
    TAB_SPACE = ' ';
    export class CssKeyframesDriver implements AnimationDriver {
    private _count = 0;
    private readonly _head: any = document.querySelector('head');
    private _warningIssued = false;
    validateStyleProperty(prop: string): boolean {
    return
    validateStyleProperty(prop);
    }
    matchesElement(element: any, selector: string): boolean {
    return

```

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matchesElement(element, selector);\n }\n\n containsElement(elm1: any, elm2: any): boolean {\n  return
containsElement(elm1, elm2);\n }\n\n query(element: any, selector: string, multi: boolean): any[] {\n  return
invokeQuery(element, selector, multi);\n }\n\n computeStyle(element: any, prop: string, defaultValue?: string):
string {\n  return (window.getComputedStyle(element) as any)[prop] as string;\n }\n\n
buildKeyframeElement(element: any, name: string, keyframes: {[key: string]: any}[]): any {\n  keyframes =
keyframes.map(kf => hyphenatePropsObject(kf));\n  let keyframeStr = `@keyframes ${name} {\n\n`; \n  let tab =
";\n  keyframes.forEach(kf => {\n    tab = TAB_SPACE;\n    const offset = parseFloat(kf['offset']);\n
keyframeStr += `${tab}${offset}
* 100}% {\n\n`; \n    tab += TAB_SPACE;\n    Object.keys(kf).forEach(prop => {\n      const value = kf[prop];\n
switch (prop) {\n        case 'offset':\n          return;\n        case 'easing':\n          if (value) {\n
keyframeStr += `${tab}animation-timing-function: ${value};\n\n`; \n          }\n          return;\n          default:\n
keyframeStr += `${tab}${prop}: ${value};\n\n`; \n          return;\n        }\n      });\n    keyframeStr +=
`${tab} }\n\n`; \n  });\n  keyframeStr += `}\n\n`; \n\n  const kfElm = document.createElement('style');\n
kfElm.textContent = keyframeStr;\n  return kfElm;\n }\n\n animate(\n  element: any, keyframes: StyleData[],
duration: number, delay: number, easing: string,\n  previousPlayers: AnimationPlayer[] = [],
scrubberAccessRequested?: boolean): AnimationPlayer {\n  if (scrubberAccessRequested) {\n
this._notifyFaultyScrubber();\n  }\n\n  const previousCssKeyframePlayers
= <CssKeyframesPlayer[]>previousPlayers.filter(\n    player => player instanceof CssKeyframesPlayer);\n\n
const previousStyles: {[key: string]: any} = {};\n\n  if (allowPreviousPlayerStylesMerge(duration, delay)) {\n
previousCssKeyframePlayers.forEach(player => {\n    let styles = player.currentSnapshot;\n
Object.keys(styles).forEach(prop => previousStyles[prop] = styles[prop]);\n  });\n  }\n\n  keyframes =
balancePreviousStylesIntoKeyframes(element, keyframes, previousStyles);\n  const finalStyles =
flattenKeyframesIntoStyles(keyframes);\n\n  // if there is no animation then there is no point in applying\n  //
styles and waiting for an event to get fired. This causes lag.\n  // It's better to just directly apply the styles to the
element\n  // via the direct styling animation player.\n  if (duration == 0) {\n    return new
DirectStylePlayer(element, finalStyles);\n  }\n\n  const animationName =
`${KEYFRAMES_NAME_PREFIX}${this._count++}`;\n
const kfElm = this.buildKeyframeElement(element, animationName, keyframes);\n
document.querySelector('head')!.appendChild(kfElm);\n\n  const specialStyles =
packageNonAnimatableStyles(element, keyframes);\n  const player = new CssKeyframesPlayer(\n    element,
keyframes, animationName, duration, delay, easing, finalStyles, specialStyles);\n\n  player.onDestroy(() =>
removeElement(kfElm));\n  return player;\n }\n\n private _notifyFaultyScrubber() {\n  if (!this._warningIssued)
{\n    console.warn(\n      '@angular/animations: please load the web-animations.js polyfill to allow
programmatic access...\n',\n      ' visit http://bit.ly/IWukam to learn more about using the web-animation-js
polyfill.);\n    this._warningIssued = true;\n  }\n  }\n\nfunction flattenKeyframesIntoStyles(keyframes:
null|{[key: string]: any}|[]\n                                {[key: string]: any}[]): {[key: string]: any} {\n  let flatKeyframes:
{[key: string]: any}
= {};\n  if (keyframes) {\n    const kfs = Array.isArray(keyframes) ? keyframes : [keyframes];\n    kfs.forEach(kf =>
{\n      Object.keys(kf).forEach(prop => {\n        if (prop == 'offset' || prop == 'easing') return;\n
flatKeyframes[prop] = kf[prop];\n      });\n    });\n  }\n  return flatKeyframes;\n }\n\nfunction removeElement(node:
any) {\n  node.parentNode.removeChild(node);\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { AnimationPlayer } from '@angular/animations';\n\nimport
{ computeStyle } from '../util';\n\nimport { SpecialCasedStyles } from './special_cased_styles';\n\nimport
{ DOMAnimation } from './dom_animation';\n\nexport class WebAnimationsPlayer implements AnimationPlayer {\n
private _onDoneFns: Function[] = [];\n  private _onStartFns: Function[] = [];\n  private _onDestroyFns: Function[] =
[];\n  private _duration: number;\n  private _delay: number;\n  private _initialized = false;\n  private _finished =
false;\n  private _started = false;\n  private _destroyed = false;\n  // TODO(issue/24571): remove '!'.\n  private

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_finalKeyframe!: {[key: string]: string|number};\n\n // TODO(issue/24571): remove '!.\n public readonly
domPlayer!: DOMAnimation;\n public time = 0;\n\n public parentPlayer: AnimationPlayer|null = null;\n public
currentSnapshot: {[styleName: string]: string|number} = {};\n\n constructor(\n public element: any, public
keyframes: {[key: string]: string|number}[],\n public options: {[key: string]: string|number},\n private
_specialStyles?: SpecialCasedStyles|null) {\n this._duration = <number>options['duration'];\n this._delay =
<number>options['delay'] || 0;\n this.time = this._duration + this._delay;\n }\n\n private _onFinish() {\n if
(!this._finished) {\n this._finished = true;\n this._onDoneFns.forEach(fn => fn());\n
this._onDoneFns = [];\n }\n }\n\n init(): void {\n this._buildPlayer();\n
this._preparePlayerBeforeStart();\n }\n\n private _buildPlayer(): void {\n if (this._initialized) return;\n
this._initialized = true;\n\n const keyframes = this.keyframes;\n (this as {domPlayer:
DOMAnimation}).domPlayer =\n this._triggerWebAnimation(this.element, keyframes, this.options);\n
this._finalKeyframe = keyframes.length ? keyframes[keyframes.length - 1] : {};\n
this.domPlayer.addEventListener('finish', () => this._onFinish());\n }\n\n private _preparePlayerBeforeStart() {\n
// this is required so that the player doesn't start to animate right away\n if (this._delay) {\n
this._resetDomPlayerState();\n } else {\n this.domPlayer.pause();\n }\n }\n\n /** @internal */\n
_triggerWebAnimation(element: any, keyframes: any[], options: any): DOMAnimation {\n // jscompiler doesn't
seem to know animate is a native property because it's not
fully\n // supported yet across common browsers (we polyfill it for Edge/Safari) [CL #143630929]\n return
element['animate'](keyframes, options) as DOMAnimation;\n }\n\n onStart(fn: () => void): void {\n
this._onStartFns.push(fn);\n }\n\n onDone(fn: () => void): void {\n this._onDoneFns.push(fn);\n }\n\n
onDestroy(fn: () => void): void {\n this._onDestroyFns.push(fn);\n }\n\n play(): void {\n this._buildPlayer();\n
if (!this.hasStarted()) {\n this._onStartFns.forEach(fn => fn());\n this._onStartFns = [];\n this._started =
true;\n if (this._specialStyles) {\n this._specialStyles.start();\n }\n }\n this.domPlayer.play();\n }\n\n
pause(): void {\n this.init();\n this.domPlayer.pause();\n }\n\n finish(): void {\n this.init();\n if
(this._specialStyles) {\n this._specialStyles.finish();\n }\n this._onFinish();\n this.domPlayer.finish();\n
}\n\n reset(): void {\n this._resetDomPlayerState();\n
this._destroyed = false;\n this._finished = false;\n this._started = false;\n }\n\n private
_resetDomPlayerState() {\n if (this.domPlayer) {\n this.domPlayer.cancel();\n }\n }\n\n restart(): void {\n
this.reset();\n this.play();\n }\n\n hasStarted(): boolean {\n return this._started;\n }\n\n destroy(): void {\n if
(!this._destroyed) {\n this._destroyed = true;\n this._resetDomPlayerState();\n this._onFinish();\n if
(this._specialStyles) {\n this._specialStyles.destroy();\n }\n this._onDestroyFns.forEach(fn => fn());\n
this._onDestroyFns = [];\n }\n }\n\n setPosition(p: number): void {\n this.domPlayer.currentTime = p *
this.time;\n }\n\n getPosition(): number {\n return this.domPlayer.currentTime / this.time;\n }\n\n get
totalTime(): number {\n return this._delay + this._duration;\n }\n\n beforeDestroy() {\n const styles: {[key:
string]: string|number} = {};\n if (this.hasStarted())\n {\n Object.keys(this._finalKeyframe).forEach(prop => {\n if (prop != 'offset') {\n styles[prop] =\n
this._finished ? this._finalKeyframe[prop] : computeStyle(this.element, prop);\n }\n });\n }\n
this.currentSnapshot = styles;\n }\n\n /** @internal */\n triggerCallback(phaseName: string): void {\n const
methods = phaseName == 'start' ? this._onStartFns : this._onDoneFns;\n methods.forEach(fn => fn());\n
methods.length = 0;\n }\n\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { AnimationPlayer, StyleData } from '@angular/animations';\n\nimport
{ allowPreviousPlayerStylesMerge, balancePreviousStylesIntoKeyframes, copyStyles } from '../util';\n\nimport
{ AnimationDriver } from '../animation_driver';\n\nimport { CssKeyframesDriver } from
'../css_keyframes/css_keyframes_driver';\n\nimport
{ containsElement, invokeQuery, isBrowser, matchesElement, validateStyleProperty } from '../shared';\n\nimport
{ packageNonAnimatableStyles } from '../special_cased_styles';\n\nimport { WebAnimationsPlayer } from
'../web_animations_player';\n\nexport class WebAnimationsDriver implements AnimationDriver {\n private

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_isNativeImpl = /\{\s*\[native\|s+code\]\s*\}/.test(getElementAnimateFn().toString());\n private
_cssKeyframesDriver = new CssKeyframesDriver();\n\n validateStyleProperty(prop: string): boolean {\n return
validateStyleProperty(prop);\n }\n\n matchesElement(element: any, selector: string): boolean {\n return
matchesElement(element, selector);\n }\n\n containsElement(elm1: any, elm2: any): boolean {\n return
containsElement(elm1, elm2);\n }\n\n query(element: any, selector: string, multi: boolean): any[] {\n return
invokeQuery(element, selector, multi);\n }\n\n computeStyle(element: any, prop: string, defaultValue?: string):
string

{\n return (window.getComputedStyle(element) as any)[prop] as string;\n }\n\n
overrideWebAnimationsSupport(supported: boolean) {\n this._isNativeImpl = supported;\n }\n\n animate(\n
element: any, keyframes: StyleData[], duration: number, delay: number, easing: string,\n previousPlayers:
AnimationPlayer[] = [], scrubberAccessRequested?: boolean): AnimationPlayer {\n const useKeyframes =
!scrubberAccessRequested && !this._isNativeImpl;\n if (useKeyframes) {\n return
this._cssKeyframesDriver.animate(\n element, keyframes, duration, delay, easing, previousPlayers);\n }\n\n
const fill = delay == 0 ? 'both' : 'forwards';\n const playerOptions: {[key: string]: string|number} = {duration,
delay, fill};\n // we check for this to avoid having a null/undefined value be present\n // for the easing (which
results in an error for certain browsers #9752)\n if (easing) {\n playerOptions['easing'] = easing;\n }\n\n
const previousStyles:
{[key: string]: any} = {};\n const previousWebAnimationPlayers =
<WebAnimationsPlayer[]>previousPlayers.filter(\n player => player instanceof WebAnimationsPlayer);\n\n if
(allowPreviousPlayerStylesMerge(duration, delay)) {\n previousWebAnimationPlayers.forEach(player => {\n
let styles = player.currentSnapshot;\n Object.keys(styles).forEach(prop => previousStyles[prop] =
styles[prop]);\n });\n }\n\n keyframes = keyframes.map(styles => copyStyles(styles, false));\n keyframes =
balancePreviousStylesIntoKeyframes(element, keyframes, previousStyles);\n const specialStyles =
packageNonAnimatableStyles(element, keyframes);\n return new WebAnimationsPlayer(element, keyframes,
playerOptions, specialStyles);\n }\n\n\nexport function supportsWebAnimations() {\n return typeof
getElementAnimateFn() === 'function';\n }\n\nfunction getElementAnimateFn(): any {\n return (isBrowser() &&
(<any>Element).prototype['animate']) || {};\n }\n\n"/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport { Animation as
Animation } from './dsl/animation';\nexport { AnimationStyleNormalizer as AnimationStyleNormalizer,
NoopAnimationStyleNormalizer as NoopAnimationStyleNormalizer } from
'./dsl/style_normalization/animation_style_normalizer';\nexport { WebAnimationsStyleNormalizer as
WebAnimationsStyleNormalizer } from './dsl/style_normalization/web_animations_style_normalizer';\nexport
{ NoopAnimationDriver as NoopAnimationDriver } from './render/animation_driver';\nexport { AnimationEngine as
AnimationEngine } from './render/animation_engine_next';\nexport { CssKeyframesDriver as CssKeyframesDriver }
from './render/css_keyframes/css_keyframes_driver';\nexport { CssKeyframesPlayer as CssKeyframesPlayer } from
'./render/css_keyframes/css_keyframes_player';\nexport { containsElement as
containsElement, invokeQuery as invokeQuery, matchesElement as matchesElement, validateStyleProperty as
validateStyleProperty } from './render/shared';\nexport { supportsWebAnimations as supportsWebAnimations,
WebAnimationsDriver as WebAnimationsDriver } from './render/web_animations/web_animations_driver';\nexport
{ WebAnimationsPlayer as WebAnimationsPlayer } from './render/web_animations/web_animations_player';\nexport
{ allowPreviousPlayerStylesMerge as allowPreviousPlayerStylesMerge } from './util';\n\n"/**\n
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license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\n * @module\n * @description\n
* Entry point for all animation APIs of the animation browser package.\n */\n\nexport { AnimationDriver } from
'./render/animation_driver';\nexport * from './private_export';\n\n"/**\n
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```

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@module
@description
Entry point for all public APIs of this
package.
nexport from './src/browser';
*/
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LICENSE file at https://angular.io/license
n// This file is not used to build this module. It is only used during
editing by the TypeScript language service and during build for verification. `ngc` replaces this file with
production index.ts when it rewrites private symbol names.
nexport from './public_api';
*/
Generated
bundle index. Do not edit.
nexport from './index';
nexport { SpecialCasedStyles as
angular_packages_animations_browser_browser_a } from
'./src/render/special_cased_styles';
}, "names": ["NoopAnimationPlayer", "AnimationGroupPlayer", "PRE_STYLE", "
AUTO_STYLE", "Injectable", "sequence", "style", "AnimationGroupPlayer", "ONE_SECOND"], "mappings": ";;;;;;;;;
;IAAA;;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,UAAa,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAA
C,cAAc;aAChC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAy,KAak,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAA
C,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EAAE,CAAC,IAAI,KAak,IAAI,CA
AC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBAAE,CAAC,CAAC,CAAC,CAAC,
GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CA
AC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC1B,aAAa,CAAC,CAAC,EAAE,C
AAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAak,IAAI,CAAC,WAAW,GAAG,CAAC,CAAC,EAAE;QACvC,C
AAC,CAAC,SAAS,GAAG,CAAC,KAak,IAAI,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAA
E,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE,EAAE,CAAC,CAAC;IACzF,CAAC;IAEM,IAA
I,QAAQ,GAAG;QACIB,QAAQ,GAAG,MAAM,CAAC,MAAM,IAAI,SAAS,QAAQ,CAAC,CAAC;YAC3C,KAA
K,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,C
AAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAak,I
AAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,C
AAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;aAChF;YACD,O
AAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,KAak,CAAC,IAAI,EAAE,SAAS,CAAC,CAA
C;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CAAC,EAAE,CAAC;QACvB,IAAI,CAAC,GAAG,EAAE,CAAC;
QACX,KAak,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,C
AAC,EAAE,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,CAAC;gBAC/E,CAAC,CA
AC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;QACbB,IAAI,CAAC,IAAI,IAAI,OAAO,MA
AM,CAAC,qBAAqB,KAak,UAAU;YAC/D,KAak,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,MAAM,C
AAC,qBAAqB,CAAC,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;g
BACpE,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,MAAM,CA
AC,SAAS,CAAC,oBAAoB,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;oBACIE,CA
AC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAA
C;aACzB;QACL,OAAO,CAAC,CAAC;IACb,CAAC;aAEe,UAAU,CAAC,UAAU,EAAE,MAAM,EAAE,GAAG,E
AAE,IAAI;QACpD,IAAI,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,GAAG,CAAC,GAA
G,MAAM,GAAG,IAAI,KAak,IAAI,GAAG,IAAI,GAAG,MAAM,CAAC,wBAAwB,CAAC,MAAM,EAAE,GAA
G,CAAC,GAAG,IAAI,EAAE,CAAC,CAAC;QAC7H,IAAI,OAAO,OAAO,KAak,QAAQ,IAAI,OAAO,OAAO,C
AAC,QAAQ,KAak,UAAU;YAAE,CAAC,GAAG,OAAO,CAAC,QAAQ,CAAC,UAAU,EAAE,MAAM,EAAE,G
AAG,EAAE,IAAI,CAAC,CAAC;;YACIH,KAak,IAAI,CAAC,GAAG,UAAU,CAAC,MAAM,GAAG,CAAC,EA
AE,CAAC,IAAI,CAAC,EAAE,CAAC,EAAE;gBAAE,IAAI,CAAC,GAAG,UAAU,CAAC,CAAC,CAAC;oBAAE,
CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,G
AAG,CAAC,CAAC,MAAM,EAAE,GAAG,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,GAAG,C
AAC,KAak,CAAC,CAAC;QACIJ,OAAO,CAAC,GAAG,CAAC,IAAI,CAAC,IAAI,MAAM,CAAC,cAAc,CAAC
,MAAM,EAAE,GAAG,EAAE,CAAC,CAAC,EAAE,CAAC,CAAC;IACIE,CAAC;aAEe,OAAO,CAAC,UAAU,EA
AE,SAAS;QACzC,OAAO,UAAU,MAAM,EAAE,GAAG,IAAI,SAAS,CAAC,MAAM,EAAE,GAAG,EAAE,UAA
U,CAAC,CAAC,EAAE,CAAA;IACzE,CAAC;aAEe,UAAU,CAAC,WAAW,EAAE,aAAa;QACjD,IAAI,OAAO,O

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```
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 */
```

Found in path(s):

```
* /animations-11-0-2-tgz/package/fesm2015/browser/testing.js
* /animations-11-0-2-tgz/package/fesm2015/animations.js
* /animations-11-0-2-tgz/package/fesm2015/browser.js
```

MIT

No license file was found, but licenses were detected in source scan.

```
/**
 * @license Angular v11.0.2
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 * License: MIT
 */
/*! *****
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```

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 */
```

Found in path(s):

```
* /animations-11-0-2-tgz/package/bundles/animations-browser-testing.umd.min.js
* /animations-11-0-2-tgz/package/bundles/animations-browser.umd.js
* /animations-11-0-2-tgz/package/bundles/animations-browser-testing.umd.js
```


* /animations-11-0-2-tgz/package/bundles/animations-browser.umd.min.js

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/**

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*/

Found in path(s):

* /animations-11-0-2-tgz/package/browser/browser.d.ts

* /animations-11-0-2-tgz/package/browser/testing.d.ts

* /animations-11-0-2-tgz/package/animations.d.ts

* /animations-11-0-2-tgz/package/browser/testing/testing.d.ts

* /animations-11-0-2-tgz/package/browser.d.ts

1.436 angular-common 11.0.2

1.436.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
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```

```
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n *\nimport { Observable } from 'rxjs';\nimport { HttpRequest } from './request';\nimport { HttpEvent } from './response';\n\n/**\n * Transforms an `HttpRequest` into a stream of `HttpEvent`s, one of which\n * will likely be a\n * `HttpResponse`.\n *\n * `HttpHandler` is injectable. When injected, the handler instance\n * dispatches requests to the\n * first interceptor in the chain, which dispatches to the second, etc, eventually reaching\n * the\n * `HttpBackend`.\n *\n * In an `HttpInterceptor`, the `HttpHandler` parameter is the next interceptor in the\n * chain.\n *\n * @publicApi\n */\nexport abstract class HttpHandler {\n  abstract handle(req: HttpRequest<any>):\n    Observable<HttpEvent<any>>;\n}\n\n/**\n * A final `HttpHandler` which will dispatch the request via browser\n * HTTP APIs to a backend.\n *\n * Interceptors sit between the `HttpClient` interface and the `HttpBackend`.\n *\n * When injected, `HttpBackend` dispatches requests directly to the backend, without going\n * through the\n * interceptor chain.\n *\n * @publicApi\n */\nexport abstract class HttpBackend implements HttpHandler {\n  abstract handle(req: HttpRequest<any>): Observable<HttpEvent<any>>;\n}\n", "/*!
```

```
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```

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```
global Reflect, Promise
var extendStatics = function(d, b) {
  extendStatics =
Object.setPrototypeOf ||
  function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; };
  return extendStatics(d, b);
};
export function __extends(d, b) {
  extendStatics(d, b);
  function __() { this.constructor = d; }
  d.prototype = b === null ? Object.create(b) : (b.prototype, new __());
}
var __assign = function() {
  __assign = Object.assign || function(t) {
    for (var s, i = 1, n = arguments.length; i < n; i++) {
      s = arguments[i];
      for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];
    }
    return t;
  };
  return __assign.apply(this, arguments);
}
export function __rest(s, e) {
  var t = {};
  for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0) t[p] = s[p];
  if (s != null && typeof Object.getOwnPropertySymbols === "function")
    for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {
      if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i])) t[p[i]] = s[p[i]];
    }
  return t;
}
export function __decorate(decorators, target, key, desc) {
  var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;
  if (typeof Reflect === "object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);
  else for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;
  return c > 3 && r && Object.defineProperty(target, key, r, r);
}
export function __param(paramIndex, decorator) {
  return function(target, key) { decorator(target, key, paramIndex); }
}
export function __metadata(metadataKey, metadataValue) {
  if (typeof Reflect === "object" && typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey, metadataValue);
}
export function __awaiter(thisArg, arguments, P, generator) {
  function adopt(value) { return value instanceof P ? value : new P(function(resolve) { resolve(value); }); }
  return new (P || (P = Promise))(function(resolve, reject) {
    function fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }
    function rejected(value) { try { step(generator["throw"](value)); } catch (e) { reject(e); } }
    function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }
    step((generator = generator.apply(thisArg, arguments || [])).next());
  });
}
export function __generator(thisArg, body) {
  var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;
  return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function() { return this; }), g;
  function verb(n) { return function(v) { return step([n, v]); }; }
  function step(op) {
    if (f) throw new TypeError("Generator is already executing.");
    while (1) try {
      if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;
      if (y = 0, t) op = [op[0] & 2, t.value];
      switch (op[0]) {
        case 0: case 1: t = op; break;
        case 4: _label++; return { value: op[1], done: false };
        case 5: _label++; y = op[1]; op = [0]; continue;
        case 7: op = _ops.pop(); _trys.pop(); continue;
        default:
          if (!t = _trys, t = t.length > 0 && t[t.length - 1] && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }
          if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _label = op[1]; break; }
          if (op[0] === 6 && _label < t[1]) { _label = t[1]; t = op; break; }
          if (t && _label < t[2]) { _label = t[2]; _ops.push(op); break; }
          if (t[2]) _ops.pop();
          _trys.pop(); continue;
        default:
          op = body.call(thisArg, _);
          catch (e) { op = [6, e]; y = 0; }
          finally { f = t = 0; }
          if (op[0] & 5) throw op[1]; return { value: op[0] }
      }
    }
  }
}
```

```

? op[1] : void 0, done: true };\r\n  }\r\n\r\n\r\nexport var __createBinding = Object.create ? (function(o, m, k, k2)
{\r\n  if (k2 === undefined) k2 = k;\r\n  Object.defineProperty(o, k2, { enumerable: true, get: function() { return
m[k]; } });\r\n}) : (function(o, m, k, k2) {\r\n  if (k2 === undefined) k2 = k;\r\n  o[k2] = m[k];\r\n});\r\n\r\n\r\nexport
function __exportStar(m, exports) {\r\n  for (var p in m) if (p !== \"default\" && !exports.hasOwnProperty(p))
__createBinding(exports, m, p);\r\n}\r\n\r\n\r\nexport function __values(o) {\r\n  var s = typeof Symbol ===
\"function\" && Symbol.iterator, m = s && o[s], i = 0;\r\n  if (m) return m.call(o);\r\n  if (o && typeof o.length
=== \"number\") return {\r\n    next: function () {\r\n      if (o && i >= o.length) o = void 0;\r\n      return {
value: o && o[i++], done: !o };\r\n    };\r\n  };\r\n  throw new TypeError(s ? \"Object is not iterable.\" :
\"Symbol.iterator is not defined.\");\r\n}\r\n\r\n\r\nexport
function __read(o, n) {\r\n  var m = typeof Symbol === \"function\" && o[Symbol.iterator];\r\n  if (!m) return
o;\r\n  var i = m.call(o), r, ar = [], e;\r\n  try {\r\n    while ((n === void 0 || n-- > 0) && !(r = i.next()).done)
ar.push(r.value);\r\n  }\r\n  catch (error) { e = { error: error }; }\r\n  finally {\r\n    try {\r\n      if (r &&
!r.done && (m = i[\"return\"])) m.call(i);\r\n    }\r\n    finally { if (e) throw e.error; }\r\n  }\r\n  return
ar;\r\n}\r\n\r\n\r\nexport function __spread() {\r\n  for (var ar = [], i = 0; i < arguments.length; i++)\r\n    ar =
ar.concat(__read(arguments[i]));\r\n  return ar;\r\n}\r\n\r\n\r\nexport function __spreadArrays() {\r\n  for (var s = 0, i
= 0, il = arguments.length; i < il; i++) s += arguments[i].length;\r\n  for (var r = Array(s), k = 0, i = 0; i < il;
i++)\r\n    for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\r\n      r[k] = a[j];\r\n  return
r;\r\n}\r\n\r\n\r\nexport
function __await(v) {\r\n  return this instanceof __await ? (this.v = v, this) : new __await(v);\r\n}\r\n\r\n\r\nexport
function __asyncGenerator(thisArg, _arguments, generator) {\r\n  if (!Symbol.asyncIterator) throw new
TypeError(\"Symbol.asyncIterator is not defined.\");\r\n  var g = generator.apply(thisArg, _arguments || []), i, q =
[];\r\n  return i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return
this; }, i;\r\n  function verb(n) { if (g[n]) i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a,
b]) > 1 || resume(n, v); }); }; }\r\n  function resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n
function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);
}\r\n  function fulfill(value) { resume(\"next\", value); }\r\n  function reject(value) { resume(\"throw\", value);
}\r\n  function settle(f,
v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\n\r\nexport function __asyncDelegator(o) {\r\n
var i, p;\r\n  return i = { }, verb(\"next\"), verb(\"throw\", function (e) { throw e; }), verb(\"return\"),
i[Symbol.iterator] = function () { return this; }, i;\r\n  function verb(n, f) { i[n] = o[n] ? function (v) { return (p =
!p) ? { value: __await(o[n](v)), done: n === \"return\" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\n\r\nexport function
__asyncValues(o) {\r\n  if (!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not
defined.\");\r\n  var m = o[Symbol.asyncIterator], i;\r\n  return m ? m.call(o) : (o = typeof __values ===
\"function\" ? __values(o) : o[Symbol.iterator](), i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"),
i[Symbol.asyncIterator] = function () { return this; }, i);\r\n  function verb(n) { i[n] = o[n] && function (v) { return
new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done,
v.value); }); }; }\r\n  function settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) { resolve({ value:
v, done: d }); }, reject); }\r\n}\r\n\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n  if
(Object.defineProperty) { Object.defineProperty(cooked, \"raw\", { value: raw }); } else { cooked.raw = raw; }\r\n
return cooked;\r\n}\r\n\r\n\r\nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n  Object.defineProperty(o,
\"default\", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n  o[\"default\"] = v;\r\n}\r\n\r\n\r\nexport
function __importStar(mod) {\r\n  if (mod && mod.__esModule) return mod;\r\n  var result = {};\r\n  if (mod !==
null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n  __setModuleDefault(result, mod);\r\n  return result;\r\n}\r\n\r\n\r\nexport function __importDefault(mod) {\r\n
return (mod && mod.__esModule) ? mod : { default: mod };\r\n}\r\n\r\n\r\nexport function
__classPrivateFieldGet(receiver, privateMap) {\r\n  if (!privateMap.has(receiver)) {\r\n    throw new
TypeError(\"attempted to get private field on non-instance\");\r\n  }\r\n  return
privateMap.get(receiver);\r\n}\r\n\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n  if

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(!privateMap.has(receiver)) {\r\n      throw new TypeError("\r\n      attempted to set private field on non-instance\r\n");\r\n\r\n    }\r\n    privateMap.set(receiver, value);\r\n    return value;\r\n  }\r\n  ","/*\r\n * @license\r\n * Copyright Google LLC\r\n * All Rights Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found in\r\n * the LICENSE file at https://angular.io/license\r\n */\r\n\r\n  interface Update {\r\n    name: string;\r\n    value?: string|string[];\r\n    op: 'a'|'s'|'d';\r\n  }\r\n\r\n  /**\r\n   * Represents the header configuration options for an HTTP request.\r\n   * Instances are\r\n   * immutable. Modifying methods return a cloned\r\n   * instance with the change. The original object\r\n   * is never changed.\r\n   */\r\n  @publicApi\r\n  export class HttpHeaders {\r\n    /**\r\n     * Internal map of lowercase\r\n     * header names to values.\r\n     */\r\n    // TODO(issue/24571): remove '!'\r\n    private headers!: Map<string, string[]>;\r\n\r\n    /**\r\n     * Internal map of lowercased header names to the normalized\r\n     * form of the name (the form seen first).\r\n     */\r\n    private normalizedNames: Map<string, string> = new Map();\r\n\r\n    /**\r\n     * Complete the lazy initialization of\r\n     * this object (needed before reading).\r\n     */\r\n    private lazyInit!: HttpHeaders|Function|null;\r\n\r\n    /**\r\n     * Queued\r\n     * updates to be materialized the next initialization.\r\n     */\r\n    private lazyUpdate: Update[]|null = null;\r\n\r\n    /**\r\n     * Constructs a new HTTP header object with the given values.\r\n     */\r\n    constructor(headers?: string|{[name: string]:\r\n      string | string[]}) {\r\n      if (!headers) {\r\n        this.headers = new Map<string, string[]>();\r\n      } else if (typeof headers\r\n        === 'string') {\r\n        this.lazyInit = () => {\r\n          this.headers = new\r\n            Map<string, string[]>();\r\n          headers.split("\r\n").forEach(line => {\r\n            const index = line.indexOf(':');\r\n            if\r\n              (index > 0) {\r\n              const name = line.slice(0, index);\r\n              const key = name.toLowerCase();\r\n              const\r\n                value = line.slice(index + 1).trim();\r\n              this.maybeSetNormalizedName(name, key);\r\n              if\r\n                (this.headers.has(key)) {\r\n                  this.headers.get(key)!.push(value);\r\n                } else {\r\n                  this.headers.set(key, [value]);\r\n                }\r\n              }\r\n            } else {\r\n              this.lazyInit = () => {\r\n                this.headers = new Map<string, string[]>();\r\n                Object.keys(headers).forEach(name => {\r\n                  let values:\r\n                    string|string[] = headers[name];\r\n                  const key = name.toLowerCase();\r\n                  if (typeof values === 'string') {\r\n                    values = [values];\r\n                  }\r\n                  if (values.length > 0) {\r\n                    this.headers.set(key, values);\r\n                    this.maybeSetNormalizedName(name,\r\n                      key);\r\n                  }\r\n                });\r\n              }\r\n            }\r\n          }\r\n\r\n          /**\r\n           * Checks for existence of a given header.\r\n           */\r\n          @param\r\n          name The header name to check for existence.\r\n          @returns True if the header exists, false otherwise.\r\n          @/\r\n          has(name: string): boolean {\r\n            this.init();\r\n            return this.headers.has(name.toLowerCase());\r\n          }\r\n\r\n          /**\r\n           * Retrieves the first value of a given header.\r\n           */\r\n          @param\r\n          name The header name.\r\n          @returns The value\r\n          string if the header exists, null otherwise\r\n          @/\r\n          get(name: string): string|null {\r\n            this.init();\r\n            const values =\r\n              this.headers.get(name.toLowerCase());\r\n            return values && values.length > 0 ? values[0] : null;\r\n          }\r\n\r\n          /**\r\n           * Retrieves the names of the headers.\r\n           */\r\n          @returns A list of header names.\r\n          @/\r\n          keys(): string[] {\r\n            this.init();\r\n            return Array.from(this.normalizedNames.values());\r\n          }\r\n\r\n          /**\r\n           * Retrieves a list of values for a\r\n           * given header.\r\n           */\r\n          @param\r\n          name The header name from which to retrieve values.\r\n          @returns A string of values if the\r\n          header exists, null otherwise.\r\n          @/\r\n          getAll(name: string): string[]|null {\r\n            this.init();\r\n            return\r\n              this.headers.get(name.toLowerCase()) || null;\r\n          }\r\n\r\n          /**\r\n           * Appends a new value to the existing set of values for\r\n           * a header\r\n           * and returns them in a clone of the original instance.\r\n           */\r\n          @param\r\n          name The header name for\r\n          which to append the values.\r\n          @param\r\n          value The value to append.\r\n          @returns A clone of the HTTP\r\n          headers object with the value appended to the given header.\r\n          @/\r\n          append(name: string, value: string|string[]):\r\n            HttpHeaders {\r\n              return this.clone({name, value, op: 'a'});\r\n            }\r\n\r\n          /**\r\n           * Sets or modifies a value for a given\r\n           * header in a clone of the original instance.\r\n           * If the header already exists, its value is replaced with the given\r\n           * value\r\n           * in the returned object.\r\n           */\r\n          @param\r\n          name The header\r\n          name.\r\n          @param\r\n          value The value or values to set or override for the given header.\r\n          @returns A clone of\r\n          the HTTP headers object with the newly set header value.\r\n          @/\r\n          set(name: string, value: string|string[]):\r\n            HttpHeaders {\r\n              return this.clone({name, value, op: 's'});\r\n            }\r\n\r\n          /**\r\n           * Deletes values for a given header in a\r\n           * clone of the original instance.\r\n           */\r\n          @param\r\n          name The header name.\r\n          @param\r\n          value The value or values to\r\n          delete for the given header.\r\n          @returns A clone of the HTTP headers object with the given value deleted.\r\n          @/\r\n          delete(name: string, value?: string|string[]): HttpHeaders {\r\n            return this.clone({name, value, op: 'd'});\r\n          }\r\n\r\n

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private maybeSetNormalizedName(name: string, lcName: string): void {\n  if
(!this.normalizedNames.has(lcName)) {\n    this.normalizedNames.set(lcName, name);\n  }\n}\n\n private init():
void {\n  if (!this.lazyInit) {\n    if (this.lazyInit instanceof HttpHeaders) {\n      this.copyFrom(this.lazyInit);\n    } else {\n      this.lazyInit();\n    }\n    this.lazyInit = null;\n    if (!this.lazyUpdate) {\n
this.lazyUpdate.forEach(update => this.applyUpdate(update));\n    this.lazyUpdate = null;\n  }\n}\n\n private copyFrom(other: HttpHeaders) {\n  other.init();\n  Array.from(other.headers.keys()).forEach(key => {\n
this.headers.set(key, other.headers.get(key)!);\n    this.normalizedNames.set(key,
other.normalizedNames.get(key)!);\n  });\n}\n\n private clone(update: Update): HttpHeaders {\n  const clone =
new HttpHeaders();\n  clone.lazyInit =\n    (!this.lazyInit && this.lazyInit instanceof HttpHeaders) ?
this.lazyInit : this;\n  clone.lazyUpdate = (this.lazyUpdate || []).concat([update]);\n  return clone;\n}\n\n private
applyUpdate(update: Update): void {\n  const key = update.name.toLowerCase();\n  switch (update.op) {\n
case 'a':\n    case 's':\n      let value = update.value!;\n
      if (typeof value === 'string') {\n        value = [value];\n      }\n      if (value.length === 0) {\n        return;\n      }\n      this.maybeSetNormalizedName(update.name, key);\n      const base = (update.op === 'a' ?
this.headers.get(key) : undefined) || [];\n      base.push(...value);\n      this.headers.set(key, base);\n      break;\n
case 'd':\n      const toDelete = update.value as string | undefined;\n      if (!toDelete) {\n
this.headers.delete(key);\n        this.normalizedNames.delete(key);\n      } else {\n        let existing =
this.headers.get(key);\n        if (!existing) {\n          return;\n        }\n        existing = existing.filter(value =>
toDelete.indexOf(value) === -1);\n        if (existing.length === 0) {\n          this.headers.delete(key);\n
this.normalizedNames.delete(key);\n        } else {\n          this.headers.set(key, existing);\n        }\n      }\n
      break;\n    }\n  }\n}\n\n /**\n * @internal\n */\n\n forEach(fn: (name: string, values: string[]) => void) {\n  this.init();\n
Array.from(this.normalizedNames.keys()).\n    .forEach(key => fn(this.normalizedNames.get(key)!,
this.headers.get(key)!));\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n * A codec for encoding and decoding parameters in URLs.\n *\n * Used by
`HttpParams`.\n *\n * @publicApi\n */\n\nexport interface HttpParameterCodec {\n  encodeKey(key: string):
string;\n  encodeValue(value: string): string;\n  decodeKey(key: string): string;\n  decodeValue(value: string):
string;\n}\n\n /**\n * Provides encoding and decoding of URL parameter and query-string values.\n *\n * Serializes
and parses URL parameter keys and values to encode and decode them.\n * If you pass URL query parameters
without encoding,\n
* the query parameters can be misinterpreted at the receiving end.\n *\n *\n * @publicApi\n */\n\nexport class
HttpUrlEncodingCodec implements HttpParameterCodec {\n  /**\n * Encodes a key name for a URL parameter or
query-string.\n * @param key The key name.\n * @returns The encoded key name.\n */\n  encodeKey(key:
string): string {\n    return standardEncoding(key);\n  }\n\n  /**\n * Encodes the value of a URL parameter or
query-string.\n * @param value The value.\n * @returns The encoded value.\n */\n  encodeValue(value: string):
string {\n    return standardEncoding(value);\n  }\n\n  /**\n * Decodes an encoded URL parameter or query-string
key.\n * @param key The encoded key name.\n * @returns The decoded key name.\n */\n  decodeKey(key:
string): string {\n    return decodeURIComponent(key);\n  }\n\n  /**\n * Decodes an encoded URL parameter or
query-string value.\n * @param value The encoded value.\n * @returns The decoded value.\n */\n  decodeValue(value:
string) {\n    return decodeURIComponent(value);\n  }\n}\n\n\nfunction paramParser(rawParams: string, codec:
HttpParameterCodec): Map<string, string[]> {\n  const map = new Map<string, string[]>();\n  if (rawParams.length
> 0) {\n    const params: string[] = rawParams.split('&');\n    params.forEach((param: string) => {\n      const eqIdx =
param.indexOf('=');\n      const [key, val]: string[] = eqIdx === -1 ?\n        [codec.decodeKey(param), ""] : \n
[codec.decodeKey(param.slice(0, eqIdx)), codec.decodeValue(param.slice(eqIdx + 1))];\n      const list =
map.get(key) || [];\n      list.push(val);\n      map.set(key, list);\n    });\n  }\n  return map;\n}\n\nfunction
standardEncoding(v: string): string {\n  return encodeURIComponent(v)\n    .replace(/%40/gi, '@')\n

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.replace(/%3A/gi, ':')\n .replace(/%24/gi, '$')\n .replace(/%2C/gi, ',')\n .replace(/%3B/gi, ';')\n
.replace(/%2B/gi, '+')\n .replace(/%3D/gi, '=')\n .replace(/%3F/gi,
'')\n .replace(/%2F/gi, '/');\n}\n\ninterface Update {\n param: string;\n value?: string;\n op:
'a'|'d'|'s';\n}\n\n/**\n * Options used to construct an `HttpParams` instance.\n * @publicApi\n */\nexport
interface HttpParamsOptions {\n /**\n * String representation of the HTTP parameters in URL-query-string
format.\n * Mutually exclusive with `fromObject`.\n */\n fromString?: string;\n /**\n * Object map of the HTTP
parameters. Mutually exclusive with `fromString`.\n */\n fromObject?: {[param: string]:
string|ReadonlyArray<string>};\n\n /**\n * Encoding codec used to parse and serialize the parameters.\n */\n encoder?:
HttpParameterCodec;\n}\n\n/**\n * An HTTP request/response body that represents serialized parameters,\n * per
the MIME type `application/x-www-form-urlencoded`.\n */\n * This class is immutable; all mutation operations
return a new instance.\n */\n * @publicApi\n */\nexport class HttpParams {\n private map: Map<string,
string[]>|null;\n private encoder:
HttpParameterCodec;\n private updates: Update[]|null = null;\n private cloneFrom: HttpParams|null = null;\n\n
constructor(options: HttpParamsOptions = {}) as HttpParamsOptions {\n this.encoder = options.encoder || new
HttpUrlEncodingCodec();\n if (!!options.fromString) {\n if (!!options.fromObject) {\n throw new
Error(`Cannot specify both fromString and fromObject.`);\n }\n this.map = paramParser(options.fromString,
this.encoder);\n } else if (!!options.fromObject) {\n this.map = new Map<string, string[]>();\n
Object.keys(options.fromObject).forEach(key => {\n const value = (options.fromObject as any)[key];\n
this.map!.set(key, Array.isArray(value) ? value : [value]);\n });\n } else {\n this.map = null;\n }\n }\n\n
/**\n * Reports whether the body includes one or more values for a given parameter.\n * @param param The
parameter name.\n * @returns True if the parameter has one or more values,\n * false
if it has no value or is not present.\n */\n has(param: string): boolean {\n this.init();\n return
this.map!.has(param);\n }\n\n /**\n * Retrieves the first value for a parameter.\n * @param param The parameter
name.\n * @returns The first value of the given parameter,\n * or `null` if the parameter is not present.\n */\n
get(param: string): string|null {\n this.init();\n const res = this.map!.get(param);\n return !!res ? res[0] : null;\n
}\n\n /**\n * Retrieves all values for a parameter.\n * @param param The parameter name.\n * @returns All
values in a string array,\n * or `null` if the parameter not present.\n */\n getAll(param: string): string[]|null {\n
this.init();\n return this.map!.get(param) || null;\n }\n\n /**\n * Retrieves all the parameters for this body.\n *
@returns The parameter names in a string array.\n */\n keys(): string[] {\n this.init();\n return
Array.from(this.map!.keys());\n }\n\n /**\n * Appends
a new value to existing values for a parameter.\n * @param param The parameter name.\n * @param value The
new value to add.\n * @return A new body with the appended value.\n */\n append(param: string, value: string):
HttpParams {\n return this.clone({param, value, op: 'a'});\n }\n\n /**\n * Replaces the value for a parameter.\n
* @param param The parameter name.\n * @param value The new value.\n * @return A new body with the new
value.\n */\n set(param: string, value: string): HttpParams {\n return this.clone({param, value, op: 's'});\n }\n\n
/**\n * Removes a given value or all values from a parameter.\n * @param param The parameter name.\n *
@param value The value to remove, if provided.\n * @return A new body with the given value removed, or with
all values\n * removed if no value is specified.\n */\n delete(param: string, value?: string): HttpParams {\n
return this.clone({param, value, op: 'd'});\n }\n\n /**\n * Serializes the
body to an encoded string, where key-value pairs (separated by `=`) are\n * separated by `&`s.\n */\n toString():
string {\n this.init();\n return this.keys().map(key => {\n const eKey =
this.encoder.encodeKey(key);\n // `a: ['1']` produces `a=1`\n // `b: []` produces ``\n // `c: ['1', '2']`
produces `c=1&c=2`\n return this.map!.get(key)!.map(value => eKey + '=' +
this.encoder.encodeValue(value)).join('&');\n }).filter(param
=> param !== '')\n .join('&');\n }\n\n private clone(update: Update): HttpParams {\n const clone = new
HttpParams({encoder: this.encoder} as HttpParamsOptions);\n clone.cloneFrom = this.cloneFrom || this;\n
clone.updates = (this.updates || []).concat([update]);\n return clone;\n }\n\n private init()

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{\n  if (this.map === null) {\n    this.map = new Map<string, string[]>();\n  }\n  if (this.cloneFrom !== null)
{\n    this.cloneFrom.init();\n    this.cloneFrom.keys().forEach(key => this.map!.set(key,
this.cloneFrom!.map!.get(key)!));\n    this.updates!.forEach(update => {\n      switch (update.op) {\n        case
'a':\n          case 's':\n            const base = (update.op === 'a' ? this.map!.get(update.param) : undefined) || [];\n
base.push(update.value!);\n            this.map!.set(update.param, base);\n            break;\n          case 'd':\n            if
(update.value !== undefined) {\n              let base = this.map!.get(update.param) || [];\n              const idx =
base.indexOf(update.value);\n              if (idx !== -1) {\n                base.splice(idx, 1);\n              }\n              if
(base.length > 0) {\n                this.map!.set(update.param, base);\n              } else {\n
this.map!.delete(update.param);\n              }\n            } else {\n              this.map!.delete(update.param);\n              break;\n            }\n          }\n        }\n      });\n    this.cloneFrom = this.updates = null;\n  }\n}\n}\n}\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {HttpHeaders} from './headers';\nimport {HttpParams}
from './params';\n\n/**\n * Construction interface for `HttpRequest`s.\n * All values are optional and will
override default values if provided.\n */\ninterface HttpRequestInit {\n  headers?: HttpHeaders;\n  reportProgress?:
boolean;\n  params?: HttpParams;\n  responseType?: 'arraybuffer'|'blob'|'json'|'text';\n  withCredentials?:
boolean;\n}\n\n/**\n * Determine whether the given HTTP method may include a body.\n */\nfunction
mightHaveBody(method: string): boolean {\n  switch (method) {\n    case 'DELETE':\n      case 'GET':\n      case 'HEAD':\n      case 'OPTIONS':\n      case 'JSONP':\n        return false;\n      default:\n        return
true;\n    }\n  }\n\n/**\n * Safely assert whether the given value is an ArrayBuffer.\n * In some execution
environments ArrayBuffer is not defined.\n */\nfunction isArrayBuffer(value: any): value is ArrayBuffer {\n  return
typeof ArrayBuffer !== 'undefined' && value instanceof ArrayBuffer;\n}\n\n/**\n * Safely assert whether the given
value is a Blob.\n * In some execution environments Blob is not defined.\n */\nfunction isBlob(value: any):
value is Blob {\n  return typeof Blob !== 'undefined' && value instanceof Blob;\n}\n\n/**\n * Safely assert whether
the given value is a FormData instance.\n * In some execution environments FormData is not defined.\n */\nfunction
isFormData(value: any): value is FormData {\n  return typeof FormData !== 'undefined' && value
instanceof FormData;\n}\n\n/**\n * An outgoing HTTP request with an optional typed body.\n */\n
* `HttpRequest` represents an outgoing request, including URL, method,\n * headers, body, and other request
configuration options. Instances should be\n * assumed to be immutable. To modify a `HttpRequest`, the `clone`\n *
method should be used.\n */\n * @publicApi\n */\nexport class HttpRequest<T> {\n  /**\n   * The request body, or
`null` if one isn't set.\n   */\n   * Bodies are not enforced to be immutable, as they can include a reference to any\n   *
user-defined data type. However, interceptors should take care to preserve\n   * idempotence by treating them as
such.\n   */\n   * readonly body: T|null = null;\n\n   /**\n   * Outgoing headers for this request.\n   */\n   //
TODO(issue/24571): remove '!'.\n   * readonly headers!: HttpHeaders;\n\n   /**\n   * Whether this request should be
made in a way that exposes progress events.\n   */\n   * Progress events are expensive (change detection runs on each
event) and so\n   * they should only be requested if the consumer intends to monitor them.\n\n   *\n   * readonly reportProgress: boolean = false;\n\n   /**\n   * Whether this request should be sent with outgoing
credentials (cookies).\n   */\n   * readonly withCredentials: boolean = false;\n\n   /**\n   * The expected response type
of the server.\n   */\n   * This is used to parse the response appropriately before returning it to\n   * the requestee.\n\n   *\n   * readonly responseType: 'arraybuffer'|'blob'|'json'|'text' = 'json';\n\n   /**\n   * The outgoing HTTP request
method.\n   */\n   * readonly method: string;\n\n   /**\n   * Outgoing URL parameters.\n   */\n   // TODO(issue/24571):
remove '!'.\n   * readonly params!: HttpParams;\n\n   /**\n   * The outgoing URL with all URL parameters set.\n   */\n   *
readonly urlWithParams: string;\n\n   constructor(method: 'DELETE'|'GET'|'HEAD'|'JSONP'|'OPTIONS', url: string,
init?: {\n     headers?: HttpHeaders,\n     reportProgress?: boolean,\n     params?: HttpParams,\n     responseType?:
'arraybuffer'|'blob'|'json'|'text',\n     withCredentials?: boolean,\n   });\n   constructor(method: 'POST'|'PUT'|'PATCH', url: string, body: T|null, init?: {\n     headers?: HttpHeaders,\n
reportProgress?: boolean,\n     params?: HttpParams,\n     responseType?: 'arraybuffer'|'blob'|'json'|'text',\n
withCredentials?: boolean,\n   });\n   constructor(method: string, url: string, body: T|null, init?: {\n     headers?:

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HttpHeaders,\n  reportProgress?: boolean,\n  params?: HttpParams,\n  responseType?:
'arraybuffer'|'blob'|'json'|'text',\n  withCredentials?: boolean,\n  });\n  constructor(\n    method: string, readonly url:
string, third?: T|{\n    headers?: HttpHeaders,\n    reportProgress?: boolean,\n    params?: HttpParams,\n    responseType?: 'arraybuffer'|'blob'|'json'|'text',\n    withCredentials?: boolean,\n  }|null,\n    fourth?: {\n    headers?: HttpHeaders,\n    reportProgress?: boolean,\n    params?: HttpParams,\n    responseType?:
'arraybuffer'|'blob'|'json'|'text',\n    withCredentials?: boolean,\n
  }) {\n    this.method = method.toUpperCase();\n    // Next, need to figure out which argument holds the
HttpRequestInit\n    // options, if any.\n    let options: HttpRequestInit|undefined;\n    // Check whether a body
argument is expected. The only valid way to omit\n    // the body argument is to use a known no-body method like
GET.\n    if (mightHaveBody(this.method) || !fourth) {\n      // Body is the third argument, options are the fourth.\n
      this.body = (third !== undefined) ? third as T : null;\n      options = fourth;\n    } else {\n      // No body required,
options are the third argument. The body stays null.\n      options = third as HttpRequestInit;\n    }\n    // If options
have been passed, interpret them.\n    if (options) {\n      // Normalize reportProgress and withCredentials.\n
      this.reportProgress = !!options.reportProgress;\n      this.withCredentials = !!options.withCredentials;\n    }\n    //
Override default response type of 'json' if one
is provided.\n    if (!options.responseType) {\n      this.responseType = options.responseType;\n    }\n    //
Override headers if they're provided.\n    if (!options.headers) {\n      this.headers = options.headers;\n    }\n    //
if (!options.params) {\n      this.params = options.params;\n    }\n    // If no headers have been passed in,
construct a new HttpHeaders instance.\n    if (!this.headers) {\n      this.headers = new HttpHeaders();\n    }\n    // If
no parameters have been passed in, construct a new HttpUrlEncodedParams instance.\n    if (!this.params) {\n
      this.params = new HttpParams();\n      this.urlWithParams = url;\n    } else {\n      // Encode the parameters to a
string in preparation for inclusion in the URL.\n      const params = this.params.toString();\n      if (params.length
=== 0) {\n        // No parameters, the visible URL is just the URL given at creation time.\n        this.urlWithParams =
url;\n      } else {\n
        // Does the URL already have query parameters? Look for '?'.\n        const qIdx = url.indexOf('?');\n        // There
are 3 cases to handle:\n        // 1) No existing parameters -> append '?' followed by params.\n        // 2) '?' exists and
is followed by existing query string ->\n        // append '&' followed by params.\n        // 3) '?' exists at the end of
the url -> append params directly.\n        // This basically amounts to determining the character, if any, with\n        //
which to join the URL and parameters.\n        const sep: string = qIdx === -1 ? '?' : (qIdx < url.length - 1 ? '&' : '');\n
        this.urlWithParams = url + sep + params;\n      }\n    }\n    // **\n    * Transform the free-form body into a
serialized format suitable for\n    * transmission to the server.\n    * ^\n    serializeBody():
ArrayBuffer|Blob|FormData|string|null {\n      // If no body is present, no need to serialize it.\n      if (this.body ===
null) {\n        return null;\n      }\n      // Check
whether the body is already in a serialized form. If so,\n      // it can just be returned directly.\n      if
(isArrayBuffer(this.body) || isBlob(this.body) || isFormData(this.body) ||\n        typeof this.body === 'string') {\n
        return this.body;\n      }\n      // Check whether the body is an instance of HttpUrlEncodedParams.\n      if (this.body
instanceof HttpParams) {\n        return this.body.toString();\n      }\n      // Check whether the body is an object or array,
and serialize with JSON if so.\n      if (typeof this.body === 'object' || typeof this.body === 'boolean' ||\n
        Array.isArray(this.body)) {\n        return JSON.stringify(this.body);\n      }\n      // Fall back on toString() for everything
else.\n      return (this.body as any).toString();\n    }\n    // **\n    * Examine the body and attempt to infer an appropriate
MIME type\n    * for it.\n    * ^\n    * If no such type can be inferred, this method will return `null`.\n    * ^\n
detectContentTypeHeader(): string|null {\n      // An empty body
has no content type.\n      if (this.body === null) {\n        return null;\n      }\n      // FormData bodies rely on the
browser's content type assignment.\n      if (isFormData(this.body)) {\n        return null;\n      }\n      // Blobs usually have
their own content type. If it doesn't, then\n      // no type can be inferred.\n      if (isBlob(this.body)) {\n        return
this.body.type || null;\n      }\n      // Array buffers have unknown contents and thus no type can be inferred.\n      if
(isArrayBuffer(this.body)) {\n        return null;\n      }\n      // Technically, strings could be a form of JSON data, but it's
safe enough\n      // to assume they're plain strings.\n      if (typeof this.body === 'string') {\n        return 'text/plain';\n

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}\n // `HttpUrlEncodedParams` has its own content-type.\n if (this.body instanceof HttpParams) {\n return
'application/x-www-form-urlencoded;charset=UTF-8';\n }\n // Arrays, objects, and numbers will be encoded as
JSON.\n if (typeof this.body === 'object'
  || typeof this.body === 'number' ||\n    Array.isArray(this.body)) {\n return 'application/json';\n }\n // No
type could be inferred.\n return null;\n }\n\n clone(): HttpRequest<T>;\n clone(update: {\n headers?:
HttpHeaders,\n reportProgress?: boolean,\n params?: HttpParams,\n responseType?:
'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n body?: T|null,\n method?: string,\n url?:
string,\n setHeaders?: {[name: string]: string|string[]},\n setParams?: {[param: string]: string},\n }):
HttpRequest<T>;\n clone<V>(update: {\n headers?: HttpHeaders,\n reportProgress?: boolean,\n params?:
HttpParams,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n body?: V|null,\n
method?: string,\n url?: string,\n setHeaders?: {[name: string]: string|string[]},\n setParams?: {[param: string]:
string},\n }): HttpRequest<V>;\n clone(update: {\n headers?: HttpHeaders,\n
  reportProgress?: boolean,\n params?: HttpParams,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n
withCredentials?: boolean,\n body?: any|null,\n method?: string,\n url?: string,\n setHeaders?: {[name:
string]: string|string[]},\n setParams?: {[param: string]: string};\n } = {}): HttpRequest<any> {\n // For method,
url, and responseType, take the current value unless\n // it is overridden in the update hash.\n const method =
update.method || this.method;\n const url = update.url || this.url;\n const responseType = update.responseType ||
this.responseType;\n\n // The body is somewhat special - a `null` value in update.body means\n // whatever
current body is present is being overridden with an empty\n // body, whereas an `undefined` value in update.body
implies no\n // override.\n const body = (update.body !== undefined) ? update.body : this.body;\n\n //
Carefully handle the boolean options to differentiate between\n
  // `false` and `undefined` in the update args.\n const withCredentials =\n (update.withCredentials !==
undefined) ? update.withCredentials : this.withCredentials;\n const reportProgress =\n (update.reportProgress
!== undefined) ? update.reportProgress : this.reportProgress;\n\n // Headers and params may be appended to if
`setHeaders` or\n // `setParams` are used.\n let headers = update.headers || this.headers;\n let params =
update.params || this.params;\n\n // Check whether the caller has asked to add headers.\n if (update.setHeaders
!== undefined) {\n // Set every requested header.\n headers =\n Object.keys(update.setHeaders)\n
.reduce((headers, name) => headers.set(name, update.setHeaders![name]), headers);\n }\n\n // Check whether the
caller has asked to set params.\n if (update.setParams) {\n // Set every requested param.\n params =
Object.keys(update.setParams)\n .reduce((params,
  param) => params.set(param, update.setParams![param]), params);\n }\n\n // Finally, construct the new
HttpRequest using the pieces from above.\n return new HttpRequest(method, url, body, {\n params,\n
headers,\n reportProgress,\n responseType,\n withCredentials,\n });\n }\n}\n\n", /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {HttpHeaders} from
'./headers';\n\n/**\n * Type enumeration for the different kinds of `HttpEvent`.\n *\n * @publicApi\n */\n\nexport
enum HttpEventType {\n /**\n * The request was sent out over the wire.\n */\n Sent,\n\n /**\n * An upload
progress event was received.\n */\n UploadProgress,\n\n /**\n * The response status code and headers were
received.\n */\n ResponseHeader,\n\n /**\n * A download progress event was received.\n */\n
DownloadProgress,\n\n /**\n * The full response including the body was received.\n */\n Response,\n\n
/**\n * A custom event from an interceptor or a backend.\n */\n User,\n}\n\n/**\n * Base interface for progress
events.\n *\n * @publicApi\n */\n\nexport interface HttpProgressEvent {\n /**\n * Progress event type is either
upload or download.\n */\n type: HttpEventType.DownloadProgress|HttpEventType.UploadProgress;\n\n /**\n *
Number of bytes uploaded or downloaded.\n */\n loaded: number;\n\n /**\n * Total number of bytes to upload or
download. Depending on the request or\n * response, this may not be computable and thus may not be present.\n
*/\n total?: number;\n}\n\n/**\n * A download progress event.\n *\n * @publicApi\n */\n\nexport interface
HttpDownloadProgressEvent extends HttpProgressEvent {\n type: HttpEventType.DownloadProgress;\n\n /**\n *
The partial response body as downloaded so far.\n */\n * Only present if the responseType was

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`text`.n */n partialText?: string;n}n/n/**n * An upload progress event.n */n * @publicApi\n */nexport
interface HttpUploadProgressEvent extends HttpProgressEvent {n type:
HttpEventType.UploadProgress;n}n/n/**n * An event indicating that the request was sent to the server. Useful\n *
when a request may be retried multiple times, to distinguish between\n * retries on the final event stream.n */n *
@publicApi\n */nexport interface HttpSentEvent {n type: HttpEventType.Sent;n}n/n/**n * A user-defined
event.n */n * Grouping all custom events under this type ensures they will be handled\n * and forwarded by all
implementations of interceptors.n */n * @publicApi\n */nexport interface HttpUserEvent<T> {n type:
HttpEventType.User;n}n/n/**n * An error that represents a failed attempt to JSON.parse text coming back\n *
from the server.n */n * It bundles the Error object with the actual response body that failed to parse.n */n */n
*/nexport interface HttpJsonParseError
{n error: Error;n text: string;n}n/n/**n * Union type for all possible events on the response stream.n */n *
Typed according to the expected type of the response.n */n * @publicApi\n */nexport type HttpEvent<T> =\n
HttpSentEvent|HttpHeaderResponse|HttpResponse<T>|HttpProgressEvent|HttpUserEvent<T>;n/n/**n * Base
class for both `HttpResponse` and `HttpHeaderResponse`.n */n * @publicApi\n */nexport abstract class
HttpResponseBase {n /**n * All response headers.n */n readonly headers: HttpHeaders;n/n /**n *
Response status code.n */n readonly status: number;n/n /**n * Textual description of response status code.n
*/n * Do not depend on this.n */n readonly statusText: string;n/n /**n * URL of the resource retrieved, or
null if not available.n */n readonly url: string|null;n/n /**n * Whether the status code falls in the 2xx range.n
*/n readonly ok: boolean;n/n /**n * Type of the response, narrowed to either
the full response or the header.n */n // TODO(issue/24571): remove '!'.n readonly type!:
HttpEventType.Response|HttpEventType.ResponseHeader;n/n /**n * Super-constructor for all responses.n */n
* The single parameter accepted is an initialization hash. Any properties\n * of the response passed there will
override the default values.n */n constructor(n init: {n headers?: HttpHeaders,n status?: number,n
statusText?: string,n url?: string,n },n defaultStatus: number = 200, defaultStatusText: string = 'OK')
{n // If the hash has values passed, use them to initialize the response.n // Otherwise use the default values.n
this.headers = init.headers || new HttpHeaders();n this.status = init.status !== undefined ? init.status :
defaultStatus;n this.statusText = init.statusText || defaultStatusText;n this.url = init.url || null;n/n // Cache the
ok value to avoid defining a getter.n this.ok =
this.status >= 200 && this.status < 300;n }n}n/n/**n * A partial HTTP response which only includes the status
and header data,n * but no response body.n */n * `HttpHeaderResponse` is a `HttpEvent` available on the
response\n * event stream, only when progress events are requested.n */n * @publicApi\n */nexport class
HttpHeaderResponse extends HttpResponseBase {n /**n * Create a new `HttpHeaderResponse` with the given
parameters.n */n constructor(init: {n headers?: HttpHeaders,n status?: number,n statusText?: string,n
url?: string,n } = {}) {n super(init);n }n/n readonly type: HttpEventType.ResponseHeader =
HttpEventType.ResponseHeader;n/n /**n * Copy this `HttpHeaderResponse`, overriding its contents with the\n
* given parameter hash.n */n clone(update: {headers?: HttpHeaders; status?: number; statusText?: string; url?:
string;} = {}):n HttpHeaderResponse {n // Perform a straightforward initialization of the new
HttpHeaderResponse,n
// overriding the current parameters with new ones if given.n return new HttpHeaderResponse({n headers:
update.headers || this.headers,n status: update.status !== undefined ? update.status : this.status,n
statusText: update.statusText || this.statusText,n url: update.url || this.url || undefined,n });n }n}n/n/**n * A full HTTP
response, including a typed response body (which may be `null`\n * if one was not returned).n */n * `HttpResponse`
is a `HttpEvent` available on the response event\n * stream.n */n * @publicApi\n */nexport class
HttpResponse<T> extends HttpResponseBase {n /**n * The response body, or `null` if one was not returned.n
*/n readonly body: T|null;n/n /**n * Construct a new `HttpResponse`.n */n constructor(init: {n body?:
T|null,n headers?: HttpHeaders,n status?: number,n statusText?: string,n url?: string,n } = {}) {n
super(init);n this.body = init.body !== undefined

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? init.body : null;\n }\n\n readonly type: HttpEventType.Response = HttpEventType.Response;\n\n clone():
HttpResponse<T>;\n clone(update: {headers?: HttpHeaders; status?: number; statusText?: string; url?: string;});\n
  HttpResponse<T>;\n clone<V>(update: {\n  body?: V|null;\n  headers?: HttpHeaders;\n  status?: number;\n
  statusText?: string;\n  url?: string;\n }): HttpResponse<V>;\n clone(update: {\n  body?: any|null;\n  headers?:
HttpHeaders;\n  status?: number;\n  statusText?: string;\n  url?: string;\n } = {}): HttpResponse<any> {\n
  return new HttpResponse<any>({\n    body: (update.body !== undefined) ? update.body : this.body,\n    headers:
update.headers || this.headers,\n    status: (update.status !== undefined) ? update.status : this.status,\n    statusText:
update.statusText || this.statusText,\n    url: update.url || this.url || undefined,\n  });\n }\n}\n\n/**\n * A response
that represents an error or failure, either from
  a\n * non-successful HTTP status, an error while executing the request,\n * or some other failure which occurred
during the parsing of the response.\n *\n * Any error returned on the `Observable` response stream will be\n *
wrapped in an `HttpErrorResponse` to provide additional context about\n * the state of the HTTP layer when the
error occurred. The error property\n * will contain either a wrapped Error object or the error response returned\n *
from the server.\n *\n * @publicApi\n */\nexport class HttpErrorResponse extends HttpResponseBase implements
Error {\n  readonly name = 'HttpErrorResponse';\n  readonly message: string;\n  readonly error: any|null;\n\n  /**\n
  * Errors are never okay, even when the status code is in the 2xx success range.\n  */\n  readonly ok = false;\n\n
  constructor(init: {\n    error?: any;\n    headers?: HttpHeaders;\n    status?: number;\n    statusText?: string;\n
    url?: string;\n  }) {\n    // Initialize with a default status of 0 / Unknown Error.\n
    super(init, 0, 'Unknown Error');\n\n    // If the response was successful, then this was a parse error. Otherwise, it
was\n    // a protocol-level failure of some sort. Either the request failed in transit\n    // or the server returned an
unsuccessful status code.\n    if (this.status >= 200 && this.status < 300) {\n      this.message = `Http failure during
parsing for ${init.url || '(unknown url)'} `;\n    } else {\n      this.message = `Http failure response for ${init.url ||
'(unknown url)'}: ${init.status} ${init.statusText}`;\n    }\n    this.error = init.error || null;\n  }\n}\n\n"/**\n
*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injectable} from
'@angular/core';\nimport {Observable, of} from 'rxjs';\nimport {concatMap, filter, map} from
'rxjs/operators';\nimport {HttpHandler} from './backend';\nimport
  {HttpHeaders} from './headers';\nimport {HttpParams, HttpParamsOptions} from './params';\nimport
  {HttpRequest} from './request';\nimport {HttpEvent, HttpResponse} from './response';\n\n\n/**\n * Constructs an
instance of `HttpRequestOptions<T>` from a source `HttpMethodOptions` and\n * the given `body`. This function
clones the object and adds the body.\n *\n * Note that the `responseType` *options* value is a String that identifies
the\n * single data type of the response.\n * A single overload version of the method handles each response type.\n *
The value of `responseType` cannot be a union, as the combined signature could imply.\n *\n */\nfunction
  addBody<T>(\n    options: {\n      headers?: HttpHeaders|{\n        [header: string]: string | string[]\n      },\n      observe?:
HttpObserve,\n      params?: HttpParams|{\n        [param: string]: string | string[]\n      },\n      reportProgress?: boolean,\n
      responseType?: 'arraybuffer'|'blob'|'json'|'text',\n      withCredentials?: boolean,\n    },\n    body: T|null): any {\n  return {\n    body,\n    headers: options.headers,\n    observe: options.observe,\n    params:
options.params,\n    reportProgress: options.reportProgress,\n    responseType: options.responseType,\n    withCredentials:
options.withCredentials,\n  };\n }\n\n\nexport type HttpObserve = 'body'|'events'|'response';\n\n\n/**\n *
Performs HTTP requests.\n * This service is available as an injectable class, with methods to perform HTTP
requests.\n * Each request method has multiple signatures, and the return type varies based on\n * the signature that
is called (mainly the values of `observe` and `responseType`).\n *\n * Note that the `responseType` *options* value
is a String that identifies the\n * single data type of the response.\n * A single overload version of the method
handles each response type.\n * The value of `responseType` cannot be a union, as the combined signature could
imply.\n *\n * @usageNotes\n * Sample HTTP requests for the [Tour of Heroes](tutorial/toh-pt0)
  application.\n *\n * ### HTTP Request Example\n *\n * ``\n * // GET heroes whose name contains search term\n
*\n * searchHeroes(term: string): observable<Hero[]>{\n *\n *   const params = new HttpParams({fromString:
'name=term'});\n *\n *   return this.httpClient.request('GET', this.heroesUrl, {responseType: 'json', params});\n * }\n *

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```n * ### JSONP Example\n * ```n * requestJsonp(url, callback = 'callback') {\n * return
this.httpClient.jsonp(this.heroesURL, callback);\n * }\n * ```n * ### PATCH Example\n * ```n * // PATCH one
of the heroes' name\n * patchHero (id: number, heroName: string): Observable<{}> {\n * const url =
`$${this.heroesUrl}/${id}`; // PATCH api/heroes/42\n * return this.httpClient.patch(url, { name: heroName},
httpOptions)\n * .pipe(catchError(this.handleError('patchHero')));\n * }\n * ```n * @see [HTTP
Guide](guide/http)\n * @publicApi\n * /\n * @Injectable()\n * export class HttpClient {\n * constructor(private
handler: HttpHandler) {\n * }\n * }\n * /\n *
* Sends an `HttpRequest` and returns a stream of `HttpEvents`. \n * @return An `Observable` of the
response, with the response body as a stream of `HttpEvents`. \n * request<R>(req: HttpRequest<any>):
Observable<HttpEvent<R>>; \n * /\n * Constructs a request that interprets the body as an `ArrayBuffer` and
returns the response in \n * an `ArrayBuffer`. \n * @param method The HTTP method. \n * @param url
The endpoint URL. \n * @param options The HTTP options to send with the request. \n * @return An
`Observable` of the response, with the response body as an `ArrayBuffer`. \n * request(method: string, url:
string, options: {\n * body?: any, \n * headers?: HttpHeaders|{[header: string]: string | string[]}, \n *
observe?:
'body', \n * params?: HttpParams|{[param: string]: string | string[]}, \n * reportProgress?: boolean, responseType:
'arraybuffer', \n * withCredentials?: boolean, \n * }): Observable<ArrayBuffer>; \n * /\n * Constructs
a request that interprets the body as a blob and returns \n * the response as a blob. \n * @param method The
HTTP method. \n * @param url The endpoint URL. \n * @param options The HTTP options to send with the
request. \n * @return An `Observable` of the response, with the response body of type `Blob`. \n *
request(method: string, url: string, options: {\n * body?: any, \n * headers?: HttpHeaders|{[header: string]:
string |
string[]}, \n * observe?: 'body', \n * params?: HttpParams|{[param: string]: string | string[]}, \n *
reportProgress?:
boolean, responseType: 'blob', \n * withCredentials?: boolean, \n * }): Observable<Blob>; \n * /\n * Constructs a
request that interprets the body as a text string and \n * returns a string value. \n * @param method The
HTTP method. \n * @param url The endpoint URL. \n * @param options The HTTP options to send with the
request. \n * @return An `Observable` of the response, with the response body
of type string. \n * request(method: string, url: string, options: {\n * body?: any, \n * headers?:
HttpHeaders|{[header: string]: string | string[]}, \n * observe?: 'body', \n * params?: HttpParams|{[param:
string]:
string | string[]}, \n * reportProgress?: boolean, responseType: 'text', \n * withCredentials?: boolean, \n *
}):
Observable<string>; \n * /\n * Constructs a request that interprets the body as an `ArrayBuffer` and returns the\n
* the full event stream. \n * @param method The HTTP method. \n * @param url The endpoint URL. \n
* @param options The HTTP options to send with the request. \n * @return An `Observable` of the response,
with the response body as an array of `HttpEvents` for \n * the \n * request. \n * request(method: string,
url: string, options: {\n * body?: any, \n * headers?: HttpHeaders|{[header: string]: string | string[]}, \n *
params?:
HttpParams|{[param: string]: string | string[]}, \n * observe: 'events', \n * reportProgress?:
boolean, responseType: 'arraybuffer', \n * withCredentials?: boolean, \n * }):
Observable<HttpEvent<ArrayBuffer>>; \n * /\n * Constructs a request that interprets the body as a `Blob` and
returns \n * the full event stream. \n * @param method The HTTP method. \n * @param url The endpoint
URL. \n * @param options The HTTP options to send with the request. \n * @return An `Observable` of of
all `HttpEvents` for the request, \n * with the response body of type `Blob`. \n * request(method: string, url:
string, options: {\n * body?: any, \n * headers?: HttpHeaders|{[header: string]: string | string[]}, \n *
observe: 'events', \n *
params?: HttpParams|{[param: string]: string | string[]}, \n * reportProgress?: boolean, responseType: 'blob', \n
withCredentials?: boolean, \n * }): Observable<HttpEvent<Blob>>; \n * /\n * Constructs a request which
interprets the body as a text string and returns the full event \n * stream. \n * @param method The
HTTP method. \n * @param url The endpoint URL. \n * @param options The HTTP options to send with the
request. \n * @return An `Observable` of all `HttpEvents` for the request, \n * with the response body of type
string. \n * request(method: string, url: string, options: {\n * body?: any, \n * headers?: HttpHeaders|{[header:
string]: string | string[]}, \n * observe: 'events', \n * params?: HttpParams|{[param: string]: string |
string[]}, \n *
reportProgress?: boolean, responseType: 'text', \n * withCredentials?: boolean, \n * }):

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Observable<HttpEvent<string>>;\n\n /**\n * Constructs a request which interprets the body as a JSON object and
returns the full event\n * stream.\n * \n * @param method The HTTP method.\n * @param url The endpoint
URL.\n * @param options The HTTP options to send with the request.\n * \n * @return An `Observable` of all
`HttpEvents` for the request,\n * with the response body of type `Object`.\n * \n request(method: string,
url: string, options: {\n body?: any,\n headers?: HttpHeaders|{\n header: string: string | string[]},\n
reportProgress?: boolean, observe: 'events',\n params?: HttpParams|{\n param: string: string | string[]},\n
responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<any>>;\n\n /**\n * Constructs
a request which interprets the body as a JSON object and returns the full event\n * stream.\n * \n * @param
method The HTTP method.\n * @param url The endpoint URL.\n * @param options The HTTP options to
send with the request.\n * \n * @return An `Observable` of all `HttpEvents` for the request,\n * with the response
body of type `R`.\n * \n request<R>(method: string, url: string, options: {\n body?: any,\n headers?:
HttpHeaders|{\n header: string: string | string[]},\n reportProgress?: boolean, observe: 'events',\n
params?:
HttpParams|{\n param: string: string | string[]},\n responseType?: 'json',\n withCredentials?:
boolean,\n }): Observable<HttpEvent<R>>;\n\n /**\n * Constructs a request which interprets the body as an
`ArrayBuffer`\n * and returns the full `HTTPResponse`.\n * \n * @param method The HTTP method.\n *
@param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n * \n *
@return An `Observable` of the `HTTPResponse`, with the response body as an `ArrayBuffer`.\n * \n
request(method: string, url: string, options: {\n body?: any,\n headers?: HttpHeaders|{\n header: string: string |
string[]}, observe: 'response',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?:
boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<ArrayBuffer>>;\n\n /**\n * Constructs a request which interprets the body as a `Blob`
and returns the full `HTTPResponse`.\n * \n * @param method The HTTP method.\n * @param url The
endpoint URL.\n * @param options
The HTTP options to send with the request.\n * \n * @return An `Observable` of the `HTTPResponse`, with the
response body of type `Blob`.\n * \n request(method: string, url: string, options: {\n body?: any,\n
headers?:
HttpHeaders|{\n header: string: string | string[]}, observe: 'response',\n params?: HttpParams|{\n param: string:
string | string[]},\n reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<Blob>>;\n\n /**\n * Constructs a request which interprets the body as a text stream
and returns the full\n * `HTTPResponse`.\n * \n * @param method The HTTP method.\n * @param url The
endpoint URL.\n * @param options The HTTP options to send with the request.\n * \n * @return An
`Observable` of the HTTP response, with the response body of type string.\n * \n request(method: string, url:
string, options: {\n body?: any,\n headers?: HttpHeaders|{\n header: string: string | string[]},
observe: 'response',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,
responseType: 'text',\n withCredentials?: boolean,\n }): Observable<HttpResponse<string>>;\n\n /**\n *
Constructs a request which interprets the body as a JSON object and returns the full\n * `HTTPResponse`.\n *
\n * @param method The HTTP method.\n * @param url The endpoint URL.\n * @param options The HTTP
options to send with the request.\n * \n * @return An `Observable` of the full `HTTPResponse`,\n * with the
response body of type `Object`.\n * \n request(method: string, url: string, options: {\n body?: any,\n
headers?:
HttpHeaders|{\n header: string: string | string[]},\n reportProgress?: boolean, observe: 'response',\n
params?:
HttpParams|{\n param: string: string | string[]},\n responseType?: 'json',\n withCredentials?: boolean,\n
}): Observable<HttpResponse<Object>>;\n\n /**\n * Constructs a request which interprets
the body as a JSON object and returns\n * the full `HTTPResponse` with the response body in the requested
type.\n * \n * @param method The HTTP method.\n * @param url The endpoint URL.\n * @param options
The HTTP options to send with the request.\n * \n * @return An `Observable` of the full `HTTPResponse`, with
the response body of type `R`.\n * \n request<R>(method: string, url: string, options: {\n body?: any,\n
headers?: HttpHeaders|{\n header: string: string | string[]},\n reportProgress?: boolean, observe: 'response',\n
params?: HttpParams|{\n param: string: string | string[]},\n responseType?: 'json',\n withCredentials?: boolean,\n
}): Observable<HttpResponse<R>>;\n\n /**\n * Constructs a request which interprets the body as a JSON object

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and returns the full\n \* `HTTPResponse` as a JSON object.\n \* \n \* @param method The HTTP method.\n \* @param url The endpoint URL.\n \* @param options The HTTP options to send with the request.\n \* \n \* @return An `Observable` of the `HTTPResponse`, with the response body of type `Object`.\n \* \n request(method: string, url: string, options?: {\n body?: any,\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n responseType?: 'json',\n reportProgress?: boolean,\n withCredentials?: boolean,\n }): Observable<Object>;\n\n /\*\*\n \* Constructs a request which interprets the body as a JSON object\n \* with the response body of the requested type.\n \* \n \* @param method The HTTP method.\n \* @param url The endpoint URL.\n \* @param options The HTTP options to send with the request.\n \* \n \* @return An `Observable` of the `HTTPResponse`, with the response body of type `R`.\n \* \n request<R>(method: string, url: string, options?: {\n body?: any,\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n responseType?: 'json',\n reportProgress?: boolean,\n withCredentials?: boolean,\n }): Observable<R>;\n\n /\*\*\n \* Constructs a request where response type and requested observable are not known statically.\n \* \n \* @param method The HTTP method.\n \* @param url The endpoint URL.\n \* @param options The HTTP options to send with the request.\n \* \n \* @return An `Observable` of the requested response, with body of type `any`.\n \* \n request(method: string, url: string, options?: {\n body?: any,\n headers?: HttpHeaders|{[header: string]: string | string[]},\n params?: HttpParams|{[param: string]: string | string[]},\n observe?: HttpObserve,\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n }): Observable<any>;\n\n /\*\*\n \* Constructs an observable for a generic HTTP request that, when subscribed,\n \* fires the request through the chain of registered interceptors and on to the\n \* server.\n \* \n \* You can pass an `HttpRequest` directly as the only parameter. In this case,\n \* the call returns an observable of the raw `HttpEvent` stream.\n \* \n \* Alternatively you can pass an HTTP method as the first parameter,\n \* a URL string as the second, and an options hash containing the request body as the third.\n \* See `addBody()`. In this case, the specified `responseType` and `observe` options determine the\n \* type of returned observable.\n \* \n \* The `responseType` value determines how a successful response body is parsed.\n \* \n \* If `responseType` is the default `json`, you can pass a type interface for the resulting\n \* object as a type parameter to the call.\n \* \n \* The `observe` value determines the return type, according to what you are interested in\n \* observing.\n \* \n \* An `observe` value of events returns an observable of the raw `HttpEvent` stream, including\n \* progress events by default.\n \* \n \* An `observe` value of response returns an observable of `HttpResponse<T>`,\n \* where the `T` parameter depends on the `responseType` and any optionally provided type\n \* parameter.\n \* \n \* An `observe` value of body returns an observable of `<T>` with the same `T` body type.\n \* \n \* \n request(first: string|HttpRequest<any>, url?: string, options: {\n body?: any,\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: HttpObserve,\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n } = {}): Observable<any> {\n let req: HttpRequest<any>;\n // First, check whether the primary argument is an instance of `HttpRequest`\n if (first instanceof HttpRequest) {\n // It is. The other arguments must be undefined (per the signatures) and can be\n // ignored.\n req = first;\n } else {\n // It's a string, so it represents a URL. Construct a request based on it,\n // and incorporate the remaining arguments (assuming `GET` unless a method is\n // provided.\n // Figure out the headers.\n let headers: HttpHeaders|undefined = undefined;\n if (options.headers instanceof HttpHeaders) {\n headers = options.headers;\n } else {\n headers = new HttpHeaders(options.headers);\n }\n\n // Sort out parameters.\n let params: HttpParams|undefined = undefined;\n if (!options.params) {\n if (options.params instanceof HttpParams) {\n params = options.params;\n } else {\n params = new HttpParams({fromObject: options.params} as HttpParamsOptions);\n }\n }\n\n // Construct the request.\n req = new HttpRequest(first, url!, (options.body !== undefined ? options.body : null), {\n headers,\n params,\n reportProgress: options.reportProgress,\n

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 // By default, JSON is assumed to be returned for all calls.\n responseType: options.responseType ||
'json',\n withCredentials: options.withCredentials,\n });\n }\n \n // Start with an Observable.of() the initial
request, and run the handler (which\n // includes all interceptors) inside a concatMap(). This way, the handler
runs\n // inside an Observable chain, which causes interceptors to be re-run on every\n // subscription (this also
makes retries re-run the handler, including interceptors).\n const events$: Observable<HttpEvent<any>> =\n of(req).pipe(concatMap((req: HttpRequest<any>) => this.handler.handle(req)));\n \n // If coming via the API
signature which accepts a previously constructed HttpRequest,\n // the only option is to get the event stream.
Otherwise, return the event stream if\n // that is what was requested.\n if (first instanceof HttpRequest ||
options.observe === 'events') {\n return events$;\n }\n \n // The requested stream contains either the full response or the body. In either\n // case, the first step is to
filter the event stream to extract a stream of\n // responses(s).\n const res$: Observable<HttpResponse<any>> =
<Observable<HttpResponse<any>>>events$.pipe(\n filter((event: HttpEvent<any>) => event instanceof
HttpResponse));\n \n // Decide which stream to return.\n switch (options.observe || 'body') {\n case 'body':\n // The requested stream is the body. Map the response stream to the response\n // body. This could be done
more simply, but a misbehaving interceptor might\n // transform the response body into a different format and
ignore the requested\n // responseType. Guard against this by validating that the response is of the\n //
requested type.\n switch (req.responseType) {\n case 'arraybuffer':\n return res$.pipe(map((res:
HttpResponse<any>) => {\n // Validate
that the body is an ArrayBuffer.\n if (res.body !== null && !(res.body instanceof ArrayBuffer)) {\n
throw new Error('Response is not an ArrayBuffer.);\n }\n return res.body;\n }));\n case
'blob':\n return res$.pipe(map((res: HttpResponse<any>) => {\n // Validate that the body is a Blob.\n
 if (res.body !== null && !(res.body instanceof Blob)) {\n throw new Error('Response is not a
Blob.);\n }\n return res.body;\n }));\n case 'text':\n return res$.pipe(map((res:
HttpResponse<any>) => {\n // Validate that the body is a string.\n if (res.body !== null && typeof
res.body !== 'string') {\n throw new Error('Response is not a string.);\n }\n return
res.body;\n }));\n case 'json':\n default:\n // No validation
needed for JSON responses, as they can be of any type.\n return res$.pipe(map((res: HttpResponse<any>) =>
res.body));\n }\n case 'response':\n // The response stream was requested directly, so return it.\n
return res$;\n default:\n // Guard against new future observe types being added.\n throw new
Error(`Unreachable: unhandled observe type ${options.observe}`);\n }\n }\n }\n \n /**\n * Constructs a `DELETE`
request that interprets the body as an `ArrayBuffer`\n * and returns the response as an `ArrayBuffer`.\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n * @return An `Observable` of the response body as an `ArrayBuffer`.\n */\n delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<ArrayBuffer>;\n \n /**\n * Constructs a
`DELETE` request that interprets the body as a `Blob` and returns\n * the response as a `Blob`.\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n * @return An
`Observable` of the response body as a `Blob`.\n */\n delete(url: string, options: {\n headers?:
HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]:
string | string[]},\n reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }):
Observable<Blob>;\n \n /**\n * Constructs a `DELETE` request that interprets the body as a text string and
returns\n * a string.\n * @param url The endpoint URL.\n * @param options The HTTP options to send
with the request.\n * @return An `Observable` of the response, with the response body
of type string.\n */\n delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,
responseType: 'text',\n withCredentials?: boolean,\n }): Observable<string>;\n \n /**\n * Constructs a
`DELETE` request that interprets the body as an `ArrayBuffer`\n * and returns the full event stream.\n */

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@param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n * \n *
@return An `Observable` of all `HTTPEvents` for the request,\n * with response body as an `ArrayBuffer`.\n * \n
delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'events',\n
params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'arraybuffer',\n
withCredentials?: boolean,\n }): Observable<HttpEvent<ArrayBuffer>>;\n\n
/**\n * Constructs a `DELETE` request that interprets the body as a `Blob`\n * and returns the full event
stream.\n * \n * @param url The endpoint URL.\n * @param options The HTTP options to send with the
request.\n * \n * @return An `Observable` of all the `HTTPEvents` for the request, with the response body as a\n
* `Blob`.\n * \n delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe:
'events',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean, responseType:
'blob',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Blob>>;\n\n /**\n * Constructs a `DELETE`
request that interprets the body as a text string\n * and returns the full event stream.\n * \n * @param url The
endpoint URL.\n * @param options The HTTP options to send with the request.\n * \n * @return An
`Observable` of all `HTTPEvents` for the request, with the response\n
* body of type string.\n * \n delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string |
string[]}, observe: 'events',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?:
boolean, responseType: 'text',\n withCredentials?: boolean,\n }): Observable<HttpEvent<string>>;\n\n /**\n *
Constructs a `DELETE` request that interprets the body as a JSON object\n * and returns the full event stream.\n
* \n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n * \n
* @return An `Observable` of all `HTTPEvents` for the request, with response body of\n * type `Object`.\n * \n
delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'events',\n
params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n
withCredentials?: boolean,\n }): Observable<HttpEvent<Object>>;\n\n
/**\n * Constructs a `DELETE` request that interprets the body as a JSON object\n * and returns the full event
stream.\n * \n * @param url The endpoint URL.\n * @param options The HTTP options to send with the
request.\n * \n * @return An `Observable` of all the `HTTPEvents` for the request, with a response\n * body in
the requested type.\n * \n delete<T>(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string |
string[]}, observe: 'events',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?:
boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<T>>;\n\n /**\n *
Constructs a `DELETE` request that interprets the body as an `ArrayBuffer` and returns\n * the full
`HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param options The HTTP options to send
with the request.\n * \n * @return An `Observable` of the full `HTTPResponse`, with the
response body as an `ArrayBuffer`.\n * \n delete(url: string, options: {\n headers?: HttpHeaders|{[header:
string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n
reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<ArrayBuffer>>;\n\n /**\n * Constructs a `DELETE` request that interprets the body as
a `Blob` and returns the full\n * `HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param
options The HTTP options to send with the request.\n * \n * @return An `Observable` of the `HTTPResponse`,
with the response body of type `Blob`.\n * \n delete(url: string, options: {\n headers?: HttpHeaders|{[header:
string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n
reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<Blob>>;\n\n
/**\n * Constructs a `DELETE` request that interprets the body as a text stream and\n * returns the full
`HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param options The HTTP options to send
with the request.\n * \n * @return An `Observable` of the full `HTTPResponse`, with the response body of type
string.\n * \n delete(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe:
'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean, responseType:
'text',\n withCredentials?: boolean,\n }): Observable<HttpResponse<string>>;\n\n /**\n * Constructs a

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``DELETE`` request interprets the body as a JSON object and returns  
`* the full `HTTPResponse`.`  
`@param url` The endpoint URL.  
`@param options` The HTTP options to send with the request.  
`@return` An ``Observable`` of the ``HTTPResponse``, with the response body of type  
``Object`.`  
`*\n */\n delete(url: string, options: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe: 'response',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Http<Object>>;\n\n /**\n * Constructs a `DELETE` request that interprets the body as a JSON object and returns the full  
`HTTPResponse`.  
*\n * @param url The endpoint URL.  
* @param options The HTTP options to send with the request.  
* @return An `Observable` of the `HTTPResponse`, with the response body of the  
requested type.  
*\n */\n delete<T>(url: string, options: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe: 'response',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Http<T>>;\n\n /**\n * Constructs a `DELETE` request that interprets the body as a JSON object and returns the response  
body as a JSON object.  
*\n * @param url The endpoint URL.  
* @param options The HTTP options to send with the request.  
* @return An `Observable` of the response, with the response body of type  
`Object`.  
*\n */\n delete(url: string, options?: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe?: 'body',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Object>;\n\n /**\n * Constructs a  
DELETE request that interprets the body as a JSON object and returns  
* the response in a given type.  
*\n * @param url The endpoint URL.  
* @param options The HTTP options to send with the request.  
* @return An `Observable` of the `HTTPResponse`, with response body in the requested type.  
*\n */\n delete<T>(url: string, options?: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe?: 'body',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<T>;\n\n /**\n * Constructs an observable  
that, when subscribed, causes the configured  
* `DELETE` request to execute on the server. See the individual  
overloads for  
* details on the return type.  
*\n * @param url The endpoint URL.  
* @param options The  
HTTP options to send with the request.  
*\n */\n delete(url: string, options: {\n headers?:  
HttpHeaders|{\n header: string: string | string[]},\n observe?: Http<Object>,\n params?: HttpParams|{\n param:  
string: string | string[]},\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n  
withCredentials?: boolean,\n } = {}): Observable<any> {\n return this.request<any>('DELETE',  
url, options as any);\n }\n\n /**\n * Constructs a `GET` request that interprets the body as an `ArrayBuffer` and  
returns the  
* response in an `ArrayBuffer`.  
*\n * @param url The endpoint URL.  
* @param options  
The HTTP options to send with the request.  
*\n * @return An `Observable` of the response, with the response  
body as an `ArrayBuffer`.  
*\n */\n get(url: string, options: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe?: 'body',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<ArrayBuffer>;\n\n /**\n * Constructs a `GET` request that interprets the body as a `Blob` and returns the response as a `Blob`.  
*\n * @param url The endpoint URL.  
* @param options The HTTP options to send with the request.  
* @return An `Observable` of the response, with the response  
body as a `Blob`.  
*\n */\n get(url: string, options: {\n headers?: HttpHeaders|{\n header: string: string | string[]},\n observe?: 'body',\n params?: HttpParams|{\n param: string: string | string[]},\n reportProgress?: boolean,\n responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<Blob>;\n\n /**\n * Constructs a `GET`  
request that interprets the body as a text string  
* and returns the response as a string value.  
*\n * @param url  
The endpoint URL.  
* @param options The HTTP options to send with the request.  
* @return An  
`Observable` of the response, with the response body of type string.  
*\n */\n get(url: string, options: {\n headers?:  
HttpHeaders|{\n header: string: string | string[]},\n observe?: 'body',\n params?: HttpParams|{\n param: string:  
string | string[]},\n reportProgress?: boolean,\n responseType: 'text',\n withCredentials?: boolean,\n }):  
Observable<string>;\n\n /**\n * Constructs a `GET` request`

that interprets the body as an `ArrayBuffer` and returns

- \* the full event stream.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of all `HttpEvents` for the request, with the response
- \* body as an `ArrayBuffer`.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'arraybuffer',
 withCredentials?: boolean,
}): Observable<HttpEvent<ArrayBuffer>>;
```

Constructs a `GET` request that interprets the body as a `Blob` and

- \* returns the full event stream.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the response, with the response body as a `Blob`.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'blob',
 withCredentials?: boolean,
}): Observable<HttpEvent<Blob>>;
```

Constructs a `GET` request that interprets the body as a text string and returns

- \* the full event stream.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the response, with the response body of type string.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'text',
 withCredentials?: boolean,
}): Observable<HttpEvent<string>>;
```

Constructs a `GET` request that interprets the body as a JSON object and returns

- \* the full event stream.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the response, with the response body of type `Object`.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'json',
 withCredentials?: boolean,
}): Observable<HttpEvent<Object>>;
```

Constructs a `GET` request that interprets the body as a JSON object and returns the full event

- \* stream.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the response, with a response body in the requested type.

```
get<T>(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'json',
 withCredentials?: boolean,
}): Observable<HttpEvent<T>>;
```

Constructs a `GET` request that interprets the body as an `ArrayBuffer` and

- \* returns the full `HTTPResponse`.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the `HTTPResponse` for the request,
- \* with the response body as an `ArrayBuffer`.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'response',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'arraybuffer',
 withCredentials?: boolean,
}): Observable<HttpResponse<ArrayBuffer>>;
```

Constructs a `GET` request that interprets the body as a `Blob` and

- \* returns the full `HTTPResponse`.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the `HTTPResponse` for the request,
- \* with the response body as a `Blob`.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]], observe: 'response',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean, responseType: 'blob',
 withCredentials?: boolean,
}): Observable<HttpResponse<Blob>>;
```

Constructs a `GET` request that interprets the body as a text stream and

- \* returns the full `HTTPResponse`.
- \* @param url The endpoint URL.
- \* @param options The HTTP options to send with the request.
- \* @return An `Observable` of the `HTTPResponse` for the request,
- \* with the response body of type string.

```
get(url: string, options: {
 headers?: HttpHeaders|[header: string]: string | string[]],
 observe: 'response',
 params?: HttpParams|[param: string]: string | string[]],
 reportProgress?: boolean,
 responseType: 'text',
 withCredentials?: boolean,
}): Observable<HttpResponse<string>>;
```

Constructs a `GET` request that interprets the body as a JSON object and

- \* returns the full `HTTPResponse`.

`*\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the full `HttpResponse`,\n * with the response body of type `Object`.\n */\n get(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Object>>;\n\n /**\n * Constructs a `GET` request that interprets the body as a JSON object and\n * returns the full `HttpResponse`.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the full `HttpResponse` for the request,\n * with a response body in the requested type.\n */\n get<T>(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<T>>;\n\n /**\n * Constructs a `GET` request that interprets the body as a JSON object and\n * returns the response body as a JSON object.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the response body as a JSON object.\n */\n get(url: string, options?: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Object>;\n\n /**\n * Constructs a `GET` request that interprets the body as a JSON object and returns\n * the response body in a given type.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HttpResponse`, with a response body in the requested type.\n */\n get<T>(url: string, options?: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<T>;\n\n /**\n * Constructs an observable that, when subscribed, causes the configured\n * `GET` request to execute on the server. See the individual overloads for\n * details on the return type.\n */\n get(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: HttpObserve,\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n }) = {}): Observable<any> {\n return this.request<any>('GET', url, options as any);\n }\n\n /**\n * Constructs a `HEAD` request that interprets the body as an `ArrayBuffer` and\n * returns the response as an `ArrayBuffer`.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the response, with the response body as an `ArrayBuffer`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<ArrayBuffer>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a `Blob` and returns\n * the response as a `Blob`.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the response, with the response body as a `Blob`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<Blob>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a text string and returns the response\n * as a string value.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the response, with the response body of type string.\n */\n head(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType: 'text',\n withCredentials?: boolean,\n }): Observable<string>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as an `ArrayBuffer` and\n * returns the full event stream.\n */\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of all`

``HttpEvents` for the request,\n * with the response body as an `ArrayBuffer`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<HttpEvent<ArrayBuffer>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a `Blob` and\n * returns the full event stream.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of all `HttpEvents` for the request,\n * with the response body as a `Blob`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Blob>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a text string\n * and returns the full event stream.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of all `HttpEvents` for the request,\n * with the response body of type\n * string.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'text',\n withCredentials?: boolean,\n }): Observable<HttpEvent<string>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object\n * and returns the full HTTP event stream.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of all `HTTPEvents` for the request,\n * with a response body of\n * type `Object`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Object>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object and\n * returns the full event stream.\n *\n * @return An `Observable` of all the `HTTPEvents` for the request\n *, with a response body in the requested type.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n */\n head<T>(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<T>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as an `ArrayBuffer`\n * and returns the full HTTP response.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with the response body as an `ArrayBuffer`.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<HttpResponse<ArrayBuffer>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a `Blob` and returns\n * the full `HTTPResponse`.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with the response body as a blob.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Blob>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as text stream\n * and returns the full `HTTPResponse`.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with the response body of type string.\n */\n head(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'text',\n withCredentials?: boolean,\n }): Observable<HttpResponse<string>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object and\n * returns the full `HTTPResponse`.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n */`

`*\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with the response body of type `Object`.\n * /\n head(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Object>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object\n * and returns the full `HTTPResponse`.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with a response body of the requested type.\n *\n * /\n head<T>(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<T>>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object and returns\n * the response in a given type.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with a response body of the given type.\n *\n * /\n head<T>(url: string, options?: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Object>;\n\n /**\n * Constructs a `HEAD` request that interprets the body as a JSON object and returns\n * the response in a given type.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n * with a response body of the given type.\n *\n * /\n head<T>(url: string, options?: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<T>;\n\n /**\n * Constructs an observable that, when subscribed, causes the configured\n * `HEAD` request to execute on the server. The `HEAD` method returns\n * meta information about the resource without transferring the\n * resource itself. See the individual overloads for\n * details on the return type.\n *\n * /\n head(url: string, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},\n observe?: HttpObserve,\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n } = {}): Observable<any> {\n return this.request<any>('HEAD', url, options as any);\n }\n\n /**\n * Constructs a `JSONP` request for the given URL and name of the callback parameter.\n *\n * @param url The resource URL.\n * @param callbackParam The callback function name.\n *\n * @return An `Observable` of the response object, with response body as an object.\n *\n * /\n jsonp(url: string, callbackParam: string): Observable<Object>;\n\n /**\n * Constructs a `JSONP` request for the given URL and name of the callback parameter.\n *\n * @param url The resource URL.\n * @param callbackParam The callback function name.\n *\n * You must install a suitable interceptor, such as one provided by `HttpClientJsonpModule`.\n * If no such interceptor is reached,\n * then the `JSONP` request can be rejected by the configured backend.\n *\n * @return An `Observable` of the response object, with response body in the requested type.\n *\n * /\n jsonp<T>(url: string, callbackParam: string): Observable<T>;\n\n /**\n * Constructs an `Observable` that, when subscribed, causes a request with the special method\n * `JSONP` to be dispatched via the interceptor pipeline.\n * The [JSONP pattern](https://en.wikipedia.org/wiki/JSONP) works around limitations of certain\n * API endpoints that don't support newer,\n * and preferable [CORS](https://developer.mozilla.org/en-US/docs/Web/HTTP/CORS) protocol.\n * JSONP treats the endpoint API as a JavaScript file and tricks the browser to process the\n * requests even if the API endpoint is not located on the same domain (origin) as the client-side\n * application making the request.\n * The endpoint API must support JSONP callback for JSONP requests to work.\n * The resource API returns the JSON response wrapped in a callback function.\n * You can pass the callback function name as one of the query parameters.\n *\n * Note that JSONP requests can only be used with `GET` requests.\n *\n * @param url The resource URL.\n * @param callbackParam The callback function name.\n *\n * /\n jsonp<T>(url: string, callbackParam: string):`

```

Observable<T> {\n return this.request<any>('JSONP', url, {\n params: new
HttpParams().append(callbackParam, 'JSONP_CALLBACK'),\n observe: 'body',\n responseType: 'json',\n });\n }\n\n /**\n * Constructs an `OPTIONS` request that interprets the body as an\n * `ArrayBuffer` and returns
the response as an `ArrayBuffer`.\n *\n * @param url The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of the response, with the response body as an `ArrayBuffer`.\n */\n options(url:
string, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[];\n },\n observe?: 'body',\n params?:
HttpParams|{\n [param: string]: string | string[];\n },\n reportProgress?: boolean, responseType: 'arraybuffer',\n
 withCredentials?: boolean,\n }): Observable<ArrayBuffer>;\n\n /**\n * Constructs an `OPTIONS` request that
interprets the body as a `Blob` and returns\n * the response as a `Blob`.\n *\n * @param url The endpoint
URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of the response, with the response
body as a `Blob`.\n */\n options(url: string, options: {\n headers?: HttpHeaders|{\n [header: string]: string |
string[];\n },\n observe?: 'body',\n params?: HttpParams|{\n [param: string]: string | string[];\n },\n
 reportProgress?: boolean, responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<Blob>;\n\n /**\n * Constructs an
`OPTIONS` request that interprets the body as a text string and\n * returns a string value.\n *\n * @param url
The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of the response, with
the response body of type string.\n */\n options(url: string, options: {\n
 headers?: HttpHeaders|{\n [header: string]: string | string[];\n },\n observe?: 'body',\n params?: HttpParams|{\n [param:
string]: string | string[];\n },\n reportProgress?: boolean, responseType: 'text',\n withCredentials?: boolean,\n
}): Observable<string>;\n\n /**\n * Constructs an `OPTIONS` request that interprets the body as an `ArrayBuffer`\n
* and returns the full event stream.\n *\n * @param url The endpoint URL.\n * @param options HTTP
options.\n *\n * @return An `Observable` of all `HttpEvents` for the request,\n * with the response body as an
`ArrayBuffer`.\n */\n options(url: string, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[];\n
},\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[];\n },\n reportProgress?: boolean,
responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<HttpEvent<ArrayBuffer>>;\n\n /**\n * Constructs an
`OPTIONS` request that interprets the body as a `Blob`\n
and\n * returns the full event stream.\n *\n * @param url The endpoint URL.\n * @param options HTTP
options.\n *\n * @return An `Observable` of all `HttpEvents` for the request,\n * with the response body as a
`Blob`.\n */\n options(url: string, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[];\n
},\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[];\n },\n reportProgress?: boolean,
responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Blob>>;\n\n /**\n * Constructs an
`OPTIONS` request that interprets the body as a text string\n * and returns the full event stream.\n *\n * @param
url The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of all the
`HttpEvents` for the request,\n * with the response body of type string.\n */\n options(url: string, options: {\n
 headers?: HttpHeaders|{\n [header: string]: string | string[];\n },\n observe: 'events',\n
 params?: HttpParams|{\n [param: string]: string | string[];\n },\n reportProgress?: boolean, responseType: 'text',\n
 withCredentials?: boolean,\n }): Observable<HttpEvent<string>>;\n\n /**\n * Constructs an `OPTIONS` request
that interprets the body as a JSON object\n * and returns the full event stream.\n *\n * @param url The endpoint
URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of all the `HttpEvents` for the
request with the response\n * body of type `Object`.\n */\n options(url: string, options: {\n headers?:
HttpHeaders|{\n [header: string]: string | string[];\n },\n observe: 'events',\n params?: HttpParams|{\n [param:
string]: string | string[];\n },\n reportProgress?: boolean,\n responseType: 'json',\n withCredentials?: boolean,\n
}): Observable<HttpEvent<Object>>;\n\n /**\n * Constructs an `OPTIONS` request that interprets the body as a
JSON object and\n * returns the full event stream.\n *\n * @param url The endpoint
URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of all the `HttpEvents` for the
request,\n * with a response body in the requested type.\n */\n options<T>(url: string, options: {\n headers?:
HttpHeaders|{\n [header: string]: string | string[];\n },\n observe: 'events',\n params?: HttpParams|{\n [param:
string]: string | string[];\n },\n reportProgress?: boolean,\n responseType: 'json',\n withCredentials?: boolean,\n
}): Observable<HttpEvent<T>>;\n\n /**\n * Constructs an `OPTIONS` request that interprets the body as an

```

```

`ArrayBuffer`\n * and returns the full HTTP response.\n *\n * @param url The endpoint URL.\n * @param
options HTTP options.\n *\n * @return An `Observable` of the `HttpResponse` for the request,\n * with the
response body as an `ArrayBuffer`.\n */\n options(url: string, options: {\n headers?: HttpHeaders|[header:
string]: string | string[]], observe: 'response',\n params?: HttpParams|[param: string]: string |
string[]],\n reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<ArrayBuffer>>;\n\n /**\n * Constructs an `OPTIONS` request that interprets the body
as a `Blob`\n * and returns the full `HttpResponse`.\n *\n * @param url The endpoint URL.\n * @param
options HTTP options.\n *\n * @return An `Observable` of the `HttpResponse` for the request,\n * with the
response body as a `Blob`.\n */\n options(url: string, options: {\n headers?: HttpHeaders|[header: string]: string |
string[]], observe: 'response',\n params?: HttpParams|[param: string]: string | string[]],\n reportProgress?:
boolean, responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Blob>>;\n\n /**\n
* Constructs an `OPTIONS` request that interprets the body as text stream\n * and returns the full
`HttpResponse`.\n *\n * @param url The endpoint URL.\n * @param options HTTP options.\n *\n
* @return An `Observable` of the `HttpResponse` for the request,\n * with the response body of type string.\n
*/\n options(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]], observe:
'response',\n params?: HttpParams|[param: string]: string | string[]],\n reportProgress?: boolean, responseType:
'text',\n withCredentials?: boolean,\n }): Observable<HttpResponse<string>>;\n\n /**\n * Constructs an
`OPTIONS` request that interprets the body as a JSON object\n * and returns the full `HttpResponse`.\n *\n
* @param url The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of the
`HttpResponse` for the request,\n * with the response body of type `Object`.\n */\n options(url: string, options:
{\n headers?: HttpHeaders|[header: string]: string | string[]], observe: 'response',\n params?:
HttpParams|[param: string]: string | string[]],\n reportProgress?: boolean,\n responseType?:
'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Object>>;\n\n /**\n * Constructs an
`OPTIONS` request that interprets the body as a JSON object and\n * returns the full `HttpResponse`.\n *\n
* @param url The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of the
`HttpResponse` for the request,\n * with a response body in the requested type.\n */\n options<T>(url: string,
options: {\n headers?: HttpHeaders|[header: string]: string | string[]], observe: 'response',\n params?:
HttpParams|[param: string]: string | string[]],\n reportProgress?: boolean,\n responseType?: 'json',\n
withCredentials?: boolean,\n }): Observable<HttpResponse<T>>;\n\n /**\n * Constructs an `OPTIONS` request
that interprets the body as a JSON object and returns the\n * response body as a JSON object.\n *\n * @param
url The endpoint URL.\n * @param options HTTP options.\n *\n * @return An `Observable` of
the response, with the response body as a JSON object.\n */\n options(url: string, options?: {\n headers?:
HttpHeaders|[header: string]: string | string[]], observe?: 'body',\n params?: HttpParams|[param: string]:
string | string[]],\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }):
Observable<Object>;\n\n /**\n * Constructs an `OPTIONS` request that interprets the body as a JSON object and
returns the\n * response in a given type.\n *\n * @param url The endpoint URL.\n * @param options HTTP
options.\n *\n * @return An `Observable` of the `HttpResponse`, with a response body of the given type.\n
*/\n options<T>(url: string, options?: {\n headers?: HttpHeaders|[header: string]: string | string[]],\n observe?:
'body',\n params?: HttpParams|[param: string]: string | string[]],\n reportProgress?: boolean,\n
responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<T>;\n\n /**\n
* Constructs an `Observable` that, when subscribed, causes the configured\n * `OPTIONS` request to execute on
the server. This method allows the client\n * to determine the supported HTTP methods and other capabilities of an
endpoint,\n * without implying a resource action. See the individual overloads for\n * details on the return type.\n
*/\n options(url: string, options: {\n headers?: HttpHeaders|[header: string]: string | string[]],\n observe?:
HttpObserve,\n params?: HttpParams|[param: string]: string | string[]],\n reportProgress?: boolean,\n
responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n } = {}): Observable<any> {\n
return this.request<any>('OPTIONS', url, options as any);\n }\n\n /**\n * Constructs a `PATCH` request that
interprets the body as an `ArrayBuffer` and returns\n * the response as an `ArrayBuffer`.\n *\n * @param url

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The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of the response, with the response body as an `ArrayBuffer`.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe?: 'body',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'arraybuffer',  
 withCredentials?: boolean,): Observable<ArrayBuffer>;  
 \* Constructs a `PATCH` request that interprets the body as a `Blob` and returns the response  
 \* as a `Blob`.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of the response, with the response body as a `Blob`.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe?: 'body',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'blob',  
 withCredentials?: boolean,): Observable<Blob>;  
 \* Constructs a `PATCH` request that interprets the body as a text string and  
 \* returns the response as a string value.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of the response, with a response body of type string.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe?: 'body',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'text',  
 withCredentials?: boolean,): Observable<string>;  
 \* Constructs a `PATCH` request that interprets the body as an `ArrayBuffer` and  
 \* returns the the full event stream.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of all the `HTTPEvents` for the request,  
 \* with the response body as an `ArrayBuffer`.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe: 'events',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'arraybuffer',  
 withCredentials?: boolean,): Observable<HttpEvent<ArrayBuffer>>;  
 \* Constructs a `PATCH` request that interprets the body as a `Blob`  
 \* and returns the full event stream.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of all the `HTTPEvents` for the request,  
 \* with the response body as `Blob`.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe: 'events',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'blob',  
 withCredentials?: boolean,): Observable<HttpEvent<Blob>>;  
 \* Constructs a `PATCH` request that interprets the body as a text string  
 \* and returns the full event stream.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of all the `HTTPEvents` for the request,  
 \* with a response body of type string.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe: 'events',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'text',  
 withCredentials?: boolean,): Observable<HttpEvent<string>>;  
 \* Constructs a `PATCH` request that interprets the body as a JSON object  
 \* and returns the full event stream.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of all the `HTTPEvents` for the request,  
 \* with a response body of type `Object`.  
 \* patch(url: string, body: any|null, options: {  
 headers?: HttpHeaders|[header: string]: string | string[]},  
 observe: 'events',  
 params?: HttpParams|[param: string]: string | string[]},  
 reportProgress?: boolean, responseType: 'json',  
 withCredentials?: boolean,): Observable<HttpEvent<Object>>;  
 \* Constructs a `PATCH` request that interprets the body as a JSON object  
 \* and returns the full event stream.  
 \* @param url The endpoint URL.  
 \* @param body The resources to edit.  
 \* @param options HTTP options.  
 \* @return An `Observable` of all the `HTTPEvents` for the request,  
 \* with a response body in the requested type.  
 \* patch<T>(url: string, body: any|null, options: {  
 headers?:



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HttpHeaders|{[header: string]: string | string[]}, observe: 'events',\n params?: HttpParams|{[param: string]: string |
string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }):
Observable<HttpEvent<T>>;\n\n /**\n * Constructs a `PATCH` request that interprets the body as an
`ArrayBuffer`\n * and returns the full `HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param
body The resources to edit.\n * @param options HTTP options.\n * \n * @return An `Observable` of the
`HttpResponse` for the request,\n * with the response body as an `ArrayBuffer`.\n */\n patch(url: string, body:
any|null, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?:
HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<HttpResponse<ArrayBuffer>>;\n\n /**\n * Constructs
a `PATCH` request that interprets the body as a `Blob` and returns the full\n * `HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param body The resources to edit.\n * @param options HTTP options.\n * \n * @return An `Observable` of the `HttpResponse` for the request,\n * with the response body as a `Blob`.\n */\n patch(url: string, body: any|null, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},
observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,
responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Blob>>;\n\n /**\n *
Constructs a `PATCH` request that interprets the body as a text stream and returns the\n * full `HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param body The resources to edit.\n * @param options HTTP
options.\n * \n * @return An `Observable` of the `HttpResponse` for the request,\n * with
a response body of type string.\n */\n patch(url: string, body: any|null, options: {\n headers?:
HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?: HttpParams|{[param: string]:
string | string[]},\n reportProgress?: boolean, responseType: 'text',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<string>>;\n\n /**\n * Constructs a `PATCH` request that interprets the body as a
JSON object\n * and returns the full `HTTPResponse`.\n * \n * @param url The endpoint URL.\n * @param
body The resources to edit.\n * @param options HTTP options.\n * \n * @return An `Observable` of the
`HttpResponse` for the request,\n * with a response body in the requested type.\n */\n patch(url: string, body:
any|null, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]}, observe: 'response',\n params?:
HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Object>>;\n\n /**\n * Constructs a `PATCH`
request that interprets the body as a JSON object\n * and returns the full `HTTPResponse`.\n * \n * @param url
The endpoint URL.\n * @param body The resources to edit.\n * @param options HTTP options.\n * \n *
@return An `Observable` of the `HttpResponse` for the request,\n * with a response body in the given type.\n */\n patch<T>(url: string, body: any|null, options: {\n headers?: HttpHeaders|{[header: string]: string | string[]},
observe: 'response',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<T>>;\n\n /**\n *
Constructs a `PATCH` request that interprets the body as a JSON object and\n * returns the response body as a
JSON object.\n * \n * @param url The endpoint URL.\n * @param body The resources to edit.\n *
@param options HTTP options.\n * \n * @return An `Observable` of the response, with the response body as a
JSON object.\n */\n patch(url: string, body: any|null, options?: {\n headers?: HttpHeaders|{[header: string]:
string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param: string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<Object>;\n\n /**\n *
Constructs a `PATCH` request that interprets the body as a JSON object\n * and returns the response in a
given type.\n * \n * @param url The endpoint URL.\n * @param body The resources to edit.\n * @param
options HTTP options.\n * \n * @return An `Observable` of the `HttpResponse` for the request,\n * with a
response body in the given type.\n */\n patch<T>(url: string, body: any|null, options?: {\n headers?:
HttpHeaders|{[header: string]: string | string[]},\n observe?: 'body',\n params?: HttpParams|{[param:
string]: string | string[]},\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<T>;\n\n /**\n * Constructs an observable that, when subscribed, causes the configured\n *
`PATCH` request to execute on the server. See the individual overloads for\n * details on the return type.\n */\n

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patch(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe?: HttpObserve,\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType?: 'arraybuffer'|'blob'|'json'|'text',\n withCredentials?: boolean,\n } = {}): Observable<any> {\n
return this.request<any>('PATCH', url, addBody(options, body));\n }
\n\n /**
 * Constructs a `POST` request that interprets the body as an `ArrayBuffer` and returns
 * an `ArrayBuffer`.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of the response, with the response body as an `ArrayBuffer`.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe?: 'body',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<ArrayBuffer>;
\n\n /**
 * Constructs a `POST` request that interprets the body as a `Blob` and returns the
 * response as a `Blob`.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of the response, with the response body as a `Blob`.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe?: 'body',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<Blob>;
\n\n /**
 * Constructs a `POST` request that interprets the body as a text string and returns the response as a string value.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of the response, with a response body of type string.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe?: 'body',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'text',\n withCredentials?: boolean,\n }): Observable<string>;
\n\n /**
 * Constructs a `POST` request that interprets the body as an `ArrayBuffer` and returns the full event stream.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of all `HttpEvents` for the request, with the response body as an `ArrayBuffer`.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'arraybuffer',\n withCredentials?: boolean,\n }): Observable<HttpEvent<ArrayBuffer>>;
\n\n /**
 * Constructs a `POST` request that interprets the body as a `Blob` and returns the response in an observable of the full event stream.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of all `HttpEvents` for the request, with the response body as `Blob`.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'blob',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Blob>>;
\n\n /**
 * Constructs a `POST` request that interprets the body as a text string and returns the full event stream.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of all `HttpEvents` for the request, with a response body of type string.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'text',\n withCredentials?: boolean,\n }): Observable<HttpEvent<string>>;
\n\n /**
 * Constructs a POST request that interprets the body as a JSON object and returns the full event stream.
 * @param url The endpoint URL.
 * @param body The content to replace with.
 * @param options HTTP options.
 * @return An `Observable` of all `HttpEvents` for the request, with a response body of type `Object`.
 */
\n post(url: string, body: any|null, options: {\n headers?: HttpHeaders|{\n [header: string]: string | string[]\n },\n observe: 'events',\n params?: HttpParams|{\n [param: string]: string | string[]\n },\n reportProgress?: boolean,\n responseType: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Object>>;
\n\n /**
 * Constructs a POST request that interprets the body as a JSON

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object and returns the full event\n * stream.\n * \n * @param url The endpoint URL.\n * @param body The
content to replace with.\n * @param options HTTP options\n * \n * @return An `Observable` of all `HttpEvents`
for the request,\n * with a response body in the requested type.\n * \n * \n * post<T>(url: string, body: any|null,
options: {\n * headers?: HttpHeaders|{\n * header: string]: string | string[]}, observe: 'events',\n * params?:
HttpParams|{\n * param: string]: string | string[]},\n * reportProgress?: boolean,\n * responseType?: 'json',\n *
withCredentials?: boolean,\n * }): Observable<HttpEvent<T>>;\n * \n * \n * Constructs a POST request that
interprets the body as an `ArrayBuffer`\n * and returns the full `HTTPResponse`.\n * \n * \n * @param url The
endpoint URL.\n * @param body The content to replace with.\n * @param options HTTP options\n * \n * \n *
@return An `Observable` of the `HTTPResponse` for the request, with the response body as an\n *
`ArrayBuffer`.\n * \n * \n * \n * post(url: string, body: any|null, options: {\n * headers?: HttpHeaders|{\n *
header: string]: string | string[]}, observe: 'response',\n * params?: HttpParams|{\n * param: string]: string |
string[]},\n * reportProgress?:
boolean, responseType: 'arraybuffer',\n * withCredentials?: boolean,\n * }):
Observable<HttpResponse<ArrayBuffer>>;\n * \n * \n *
/**\n * Constructs a `POST` request that interprets the body as a `Blob` and returns the full\n *
`HTTPResponse`.\n * \n * \n * @param url The endpoint URL.\n * @param body The content to replace with.\n *
@param options HTTP options\n * \n * \n * @return An `Observable` of the `HTTPResponse` for the request,\n *
with the response body as a `Blob`.\n * \n * \n * \n * post(url: string, body: any|null, options: {\n *
headers?:
HttpHeaders|{\n * header: string]: string | string[]}, observe: 'response',\n * params?: HttpParams|{\n * param:
string]:
string | string[]},\n * reportProgress?: boolean, responseType: 'blob',\n * withCredentials?: boolean,\n *
}):
Observable<HttpResponse<Blob>>;\n * \n * \n * Constructs a `POST` request that interprets the body as a text
stream and returns\n * the full `HTTPResponse`.\n * \n * \n * @param url The endpoint URL.\n * @param body
The content to replace with.\n * @param options HTTP options\n * \n * \n * @return An `Observable` of the
`HTTPResponse` for the request,\n * with a response body of type string.\n * \n * \n * \n * post(url: string,
body: any|null,
options: {\n * headers?: HttpHeaders|{\n * header: string]: string | string[]}, observe: 'response',\n *
params?:
HttpParams|{\n * param: string]: string | string[]},\n * reportProgress?: boolean, responseType: 'text',\n *
withCredentials?: boolean,\n * }):
Observable<HttpResponse<string>>;\n * \n * \n * Constructs a `POST` request
that interprets the body as a JSON object\n * and returns the full `HTTPResponse`.\n * \n * \n * @param url The
endpoint URL.\n * @param body The content to replace with.\n * @param options HTTP options\n * \n * \n *
@return An `Observable` of the `HTTPResponse` for the request, with a response body of type\n * `Object`.\n *
\n * \n * \n * \n * post(url: string, body: any|null, options: {\n * headers?: HttpHeaders|{\n *
header: string]: string | string[]},
observe: 'response',\n * params?: HttpParams|{\n * param: string]: string | string[]},\n * reportProgress?:
boolean,\n * responseType?: 'json',\n * withCredentials?: boolean,\n * }):
Observable<HttpResponse<Object>>;\n * \n * \n *
/**\n * Constructs a `POST` request that interprets the body as a JSON object and returns the full\n *
`HTTPResponse`.\n * \n * \n * \n * @param url The endpoint URL.\n * @param body The content to replace with.\n *
@param options HTTP options\n * \n * \n * @return An `Observable` of the `HTTPResponse` for the request, with
a response body in the\n * requested type.\n * \n * \n * \n * post<T>(url: string, body: any|null, options: {\n *
headers?:
HttpHeaders|{\n * header: string]: string | string[]}, observe: 'response',\n * params?: HttpParams|{\n * param:
string]:
string | string[]},\n * reportProgress?: boolean,\n * responseType?: 'json',\n * withCredentials?: boolean,\n *
}):
Observable<HttpResponse<T>>;\n * \n * \n * Constructs a `POST` request that interprets the body as a\n * JSON
object and returns the response body as a JSON object.\n * \n * \n * @param url The endpoint
URL.\n * @param body The content to replace with.\n * @param options HTTP options\n * \n * \n * @return An
`Observable` of the response, with the response body as a JSON object.\n * \n * \n * \n * \n * post(url: string,
body: any|null,
options?: {\n * headers?: HttpHeaders|{\n * header: string]: string | string[]},\n * observe?: 'body',\n *
params?:
HttpParams|{\n * param: string]: string | string[]},\n * reportProgress?: boolean,\n * responseType?: 'json',\n *
withCredentials?: boolean,\n * }):
Observable<Object>;\n * \n * \n * Constructs a `POST` request that interprets the
body as a JSON object\n * and returns an observable of the response.\n * \n * \n * @param url The endpoint URL.\n *
@param body The content to replace with.\n * @param options HTTP options\n * \n * \n * @return An
`Observable` of the `HTTPResponse` for the request, with a response body in the\n * requested type.\n * \n * \n *

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post<T>(url: string, body: any|null, options?: { \n headers?: HttpHeaders|[header: string]:
string | string[]], \n observe?: 'body', \n params?: HttpParams|[param: string]: string | string[]], \n
reportProgress?: boolean, \n responseType?: 'json', \n withCredentials?: boolean, \n }): Observable<T>; \n \n /** \n
 * Constructs an observable that, when subscribed, causes the configured \n * `POST` request to execute on the
server. The server responds with the location of \n * the replaced resource. See the individual overloads for \n *
details on the return type. \n * \n post(url: string, body: any|null, options: { \n headers?: HttpHeaders|[header:
string]: string | string[]], \n observe?: HttpObserve, \n params?: HttpParams|[param: string]: string | string[]], \n
reportProgress?: boolean, \n responseType?: 'arraybuffer'|'blob'|'json'|'text', \n withCredentials?: boolean, \n } =
{}): Observable<any> { \n return this.request<any>('POST', url, addBody(options, body)); \n } \n \n /** \n
 * Constructs a `PUT` request that interprets the body as an
`ArrayBuffer` and returns the \n * response as an `ArrayBuffer`. \n * \n * @param url The endpoint URL. \n *
@param body The resources to add/update. \n * @param options HTTP options \n * \n * @return An
`Observable` of the response, with the response body as an `ArrayBuffer`. \n * \n put(url: string, body: any|null,
options: { \n headers?: HttpHeaders|[header: string]: string | string[]], \n observe?: 'body', \n params?:
HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean, responseType: 'arraybuffer', \n
withCredentials?: boolean, \n }): Observable<ArrayBuffer>; \n \n /** \n
 * Constructs a `PUT` request that interprets
the body as a `Blob` and returns \n * the response as a `Blob`. \n * \n * @param url The endpoint URL. \n *
@param body The resources to add/update. \n * @param options HTTP options \n * \n * @return An
`Observable` of the response, with the response body as a `Blob`. \n * \n put(url: string, body: any|null, options:
{ \n headers?: HttpHeaders|[header: string]: string | string[]], \n observe?: 'body', \n params?:
HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean, responseType: 'blob', \n
withCredentials?: boolean, \n }): Observable<Blob>; \n \n /** \n
 * Constructs a `PUT` request that interprets the
body as a text string and \n * returns the response as a string value. \n * \n * @param url The endpoint URL. \n *
@param body The resources to add/update. \n * @param options HTTP options \n * \n * @return An
`Observable` of the response, with a response body of type string. \n * \n put(url: string, body: any|null, options:
{ \n headers?: HttpHeaders|[header: string]: string | string[]], \n observe?: 'body', \n params?:
HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean, responseType: 'text', \n
withCredentials?: boolean, \n }): Observable<string>; \n \n /** \n
 * Constructs a `PUT` request that interprets the
body as an
`ArrayBuffer` and \n * returns the full event stream. \n * \n * @param url The endpoint URL. \n * @param body
The resources to add/update. \n * @param options HTTP options \n * \n * @return An `Observable` of all
`HttpEvents` for the request, \n * with the response body as an `ArrayBuffer`. \n * \n put(url: string, body:
any|null, options: { \n headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events', \n params?:
HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean, responseType: 'arraybuffer', \n
withCredentials?: boolean, \n }): Observable<HttpEvent<ArrayBuffer>>; \n \n /** \n
 * Constructs a `PUT` request
that interprets the body as a `Blob` and returns the full event \n * stream. \n * \n * @param url The endpoint
URL. \n * @param body The resources to add/update. \n * @param options HTTP options \n * \n * @return An
`Observable` of all `HttpEvents` for the request, \n * with the response body as a `Blob`. \n
 * \n * \n put(url: string, body: any|null, options: { \n headers?: HttpHeaders|[header: string]: string | string[]],
observe: 'events', \n params?: HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean,
responseType: 'blob', \n withCredentials?: boolean, \n }): Observable<HttpEvent<Blob>>; \n \n /** \n
 * Constructs
a `PUT` request that interprets the body as a text string and returns the full event \n * stream. \n * \n * @param url
The endpoint URL. \n * @param body The resources to add/update. \n * @param options HTTP options \n * \n *
@return An `Observable` of all HttpEvents for the request, with a response body \n * of type string. \n * \n put(url:
string, body: any|null, options: { \n headers?: HttpHeaders|[header: string]: string | string[]], observe: 'events', \n
params?: HttpParams|[param: string]: string | string[]], \n reportProgress?: boolean, responseType: 'text', \n
withCredentials?: boolean, \n }): Observable<HttpEvent<string>>; \n \n

```

```

/**\n * Constructs a `PUT` request that interprets the body as a JSON object and returns the full event\n *
stream.\n *\n * @param url The endpoint URL.\n * @param body The resources to add/update.\n * @param
options HTTP options\n *\n * @return An `Observable` of all `HttpEvents` for the request, with a response body
of\n * type `Object`.\n */\n put(url: string, body: any|null, options: {\n headers?: HttpHeaders|[[header: string]:
string | string[]], observe: 'events',\n params?: HttpParams|[[param: string]: string | string[]],\n reportProgress?:
boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpEvent<Object>>;\n\n
/**\n * Constructs a `PUT` request that interprets the body as a JSON object and returns the\n * full event
stream.\n *\n * @param url The endpoint URL.\n * @param body The resources to add/update.\n * @param
options HTTP options\n *\n * @return An `Observable` of all `HttpEvents`
for the request,\n * with a response body in the requested type.\n */\n put<T>(url: string, body: any|null, options:
{\n headers?: HttpHeaders|[[header: string]: string | string[]], observe: 'events',\n params?: HttpParams|[[param:
string]: string | string[]],\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n
}): Observable<HttpEvent<T>>;\n\n
/**\n * Constructs a `PUT` request that interprets the body as an\n *
`ArrayBuffer` and returns an observable of the full HTTP response.\n *\n * @param url The endpoint URL.\n *
@param body The resources to add/update.\n * @param options HTTP options\n *\n * @return An
`Observable` of the `HTTPResponse` for the request, with the response body as an\n *
`ArrayBuffer`.\n */\n put(url: string, body: any|null, options: {\n headers?: HttpHeaders|[[header: string]: string | string[]], observe:
'response',\n params?: HttpParams|[[param: string]: string | string[]],\n
reportProgress?: boolean, responseType: 'arraybuffer',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<ArrayBuffer>>;\n\n
/**\n * Constructs a `PUT` request that interprets the body as a
`Blob` and returns the\n * full HTTP response.\n *\n * @param url The endpoint URL.\n * @param body The
resources to add/update.\n * @param options HTTP options\n *\n * @return An `Observable` of the
`HTTPResponse` for the request,\n * with the response body as a `Blob`.\n */\n put(url: string, body: any|null,
options: {\n headers?: HttpHeaders|[[header: string]: string | string[]], observe: 'response',\n params?:
HttpParams|[[param: string]: string | string[]],\n reportProgress?: boolean, responseType: 'blob',\n
withCredentials?: boolean,\n }): Observable<HttpResponse<Blob>>;\n\n
/**\n * Constructs a `PUT` request that
interprets the body as a text stream and returns the\n * full HTTP response.\n *\n * @param url The endpoint
URL.\n *\n * @param body The resources to add/update.\n * @param options HTTP options\n *\n * @return An
`Observable` of the `HTTPResponse` for the request, with a response body of type\n *
string.\n */\n put(url:
string, body: any|null, options: {\n headers?: HttpHeaders|[[header: string]: string | string[]], observe: 'response',\n
params?: HttpParams|[[param: string]: string | string[]],\n reportProgress?: boolean, responseType: 'text',\n
withCredentials?: boolean,\n }): Observable<HttpResponse<string>>;\n\n
/**\n * Constructs a `PUT` request that
interprets the body as a JSON object and returns the full HTTP\n * response.\n *\n * @param url The endpoint
URL.\n * @param body The resources to add/update.\n * @param options HTTP options\n *\n * @return An
`Observable` of the `HTTPResponse` for the request, with a response body\n * of type `Object`.\n */\n put(url:
string, body: any|null, options: {\n headers?: HttpHeaders|[[header: string]: string
| string[]], observe: 'response',\n params?: HttpParams|[[param: string]: string | string[]],\n reportProgress?:
boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }): Observable<HttpResponse<Object>>;\n\n
/**\n * Constructs a `PUT` request that interprets the body as an instance of the requested type and\n * returns the
full HTTP response.\n *\n * @param url The endpoint URL.\n * @param body The resources to add/update.\n *
@param options HTTP options\n *\n * @return An `Observable` of the `HTTPResponse` for the request,\n *
with a response body in the requested type.\n */\n put<T>(url: string, body: any|null, options: {\n headers?:
HttpHeaders|[[header: string]: string | string[]], observe: 'response',\n params?: HttpParams|[[param: string]:
string | string[]],\n reportProgress?: boolean,\n responseType?: 'json',\n withCredentials?: boolean,\n }):
Observable<HttpResponse<T>>;\n\n
/**\n * Constructs a `PUT` request
that interprets the body as a JSON object\n * and returns an observable of JSON object.\n *\n * @param url The
endpoint URL.\n * @param body The resources to add/update.\n * @param options HTTP options\n *\n *

```

```

@return An `Observable` of the response as a JSON object.\n
*/\n
put(url: string, body: any|null, options?: {\n
 headers?: HttpHeaders|[header: string]: string | string[]],\n
 observe?: 'body',\n
 params?: HttpParams|{\n
 [param: string]: string | string[]],\n
 reportProgress?: boolean,\n
 responseType?: 'json',\n
 withCredentials?: boolean,\n
 }): Observable<Object>;\n
\n
/**\n
 * Constructs a `PUT` request that interprets the body as an instance of the\n
 * requested type\n
 * and returns an observable of the requested type.\n
 */\n
@param url The endpoint URL.\n
@param body The resources to add/update.\n
@param options HTTP options\n
*/\n
@return An\n
`Observable` of the requested type.\n
*/\n
put<T>(url: string, body: any|null, options?:\n
 {\n
 headers?: HttpHeaders|[header: string]: string | string[]],\n
 observe?: 'body',\n
 params?:\n
 HttpParams|{\n
 [param: string]: string | string[]],\n
 reportProgress?: boolean,\n
 responseType?: 'json',\n
 withCredentials?: boolean,\n
 }): Observable<T>;\n
\n
/**\n
 * Constructs an observable that, when subscribed,\n
 * causes the configured\n
 * `PUT` request to execute on the server. The `PUT` method replaces an existing\n
 * resource\n
 * with a new set of values.\n
 * See the individual overloads for details on the return type.\n
 */\n
put(url: string, body: any|null, options: {\n
 headers?: HttpHeaders|[header: string]: string | string[]],\n
 observe?:\n
 HttpObserve,\n
 params?: HttpParams|{\n
 [param: string]: string | string[]],\n
 reportProgress?: boolean,\n
 responseType?: 'arraybuffer'|'blob'|'json'|'text',\n
 withCredentials?: boolean,\n
 } = {}): Observable<any> {\n
 return this.request<any>('PUT', url, addBody(options, body));\n
}\n
}\n
", "/*\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 */\n
 * Use of this source code is governed by an MIT-style license\n
 * that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
\n
import {Injectable, InjectionToken}\n
from '@angular/core';\n
import {Observable} from 'rxjs';\n
import {HttpHandler} from './backend';\n
import\n
 {HttpRequest} from './request';\n
import {HttpEvent} from './response';\n
\n
/**\n
 * Intercepts and handles an\n
 * `HttpRequest` or `HttpResponse`.\n
 */\n
 * Most interceptors transform the outgoing request before passing it to the\n
 * next interceptor in the chain, by calling `next.handle(transformedReq)`.\n
 * An interceptor may transform the\n
 * response event stream as well, by applying additional RxJS operators on the stream\n
 * returned by\n
 * `next.handle()`.\n
 * More rarely, an interceptor may handle the request entirely,\n
 * and compose a new event\n
 * stream instead of invoking `next.handle()`. This is an\n
 * acceptable behavior, but keep in mind that further\n
 * interceptors will be skipped entirely.\n
 * It is also rare but valid for an interceptor to return multiple responses\n
 * on the\n
 * event stream for a single request.\n
 */\n
 * @publicApi\n
 */\n
 * @see [HTTP\n
 * Guide](guide/http#intercepting-requests-and-responses)\n
 */\n
 * @usageNotes\n
 */\n
 * To use the same instance of\n
 * `HttpInterceptors` for the entire app, import the `HttpClientModule`\n
 * only in your `AppModule`, and add the\n
 * interceptors to the root application injector.\n
 * If you import `HttpClientModule` multiple times across different\n
 * modules (for example, in lazy\n
 * loading modules), each import creates a new copy of the `HttpClientModule`,\n
 * which overwrites the\n
 * interceptors provided in the root module.\n
 */\n
 * @export interface HttpInterceptor {\n
\n
 /**\n
 * Identifies and handles a given HTTP request.\n
 */\n
 @param req The outgoing request object to handle.\n
 * @param next The next interceptor in the chain, or the backend\n
 * if no interceptors remain in the chain.\n
 * @returns An observable of the event stream.\n
 */\n
 intercept(req: HttpRequest<any>, next: HttpHandler):\n
 Observable<HttpEvent<any>>;\n
}\n
\n
/**\n
 * `HttpHandler` which applies an `HttpInterceptor` to an\n
 * `HttpRequest`.\n
 */\n
 * @export class HttpInterceptorHandler implements HttpHandler {\n
 constructor(private\n
 next: HttpHandler, private interceptor: HttpInterceptor) {\n
 }\n
 handle(req: HttpRequest<any>):\n
 Observable<HttpEvent<any>> {\n
 return this.interceptor.intercept(req, this.next);\n
 }\n
}\n
\n
/**\n
 * A multi-\n
 * provider token that represents the array of registered\n
 * `HttpInterceptor` objects.\n
 */\n
 * @publicApi\n
 */\n
 * @export\n
const HTTP_INTERCEPTORS = new\n
InjectionToken<HttpInterceptor[]>('HTTP_INTERCEPTORS');\n
\n
@injectable()\n
 * @export class NoopInterceptor\n
implements HttpInterceptor {\n
 intercept(req: HttpRequest<any>, next: HttpHandler):\n
 Observable<HttpEvent<any>> {\n
 return next.handle(req);\n
 }\n
}\n
", "/*\n
 * @license\n
 * Copyright Google\n
 * LLC All Rights Reserved.\n
 */\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at\n
 * https://angular.io/license\n
 */\n
\n
import {DOCUMENT} from '@angular/common';\n
import {Inject, Injectable}\n
from '@angular/core';\n
import {Observable, Observer} from 'rxjs';\n
import {HttpBackend, HttpHandler} from

```

```

'./backend';\nimport {HttpRequest} from './request';\nimport {HttpErrorResponse, HttpEvent, HttpEventType,
HttpResponse} from './response';\n\n// Every request made through JSONP needs a callback name that's unique
across the\n// whole page. Each request is assigned an id and the callback name is constructed\n// from that. The
next id to be assigned is tracked in a global variable here that\n// is shared among all applications on the page.\nlet
nextRequestId: number = 0;\n\n// Error text given when a JSONP script is injected, but doesn't invoke the
callback\n// passed in its URL.\nexport const JSONP_ERR_NO_CALLBACK = 'JSONP injected script did not
invoke callback.';\n\n//
Error text given when a request is passed to the JsonpClientBackend that doesn't\n// have a request method
JSONP.\nexport const JSONP_ERR_WRONG_METHOD = 'JSONP requests must use JSONP request
method.';\nexport const JSONP_ERR_WRONG_RESPONSE_TYPE = 'JSONP requests must use Json response
type.';\n\n/**\n * DI token/abstract type representing a map of JSONP callbacks.\n * In the browser, this should
always be the `window` object.\n * */\nexport abstract class JsonpCallbackContext {\n [key: string]: (data:
any) => void;\n}\n\n/**\n * Processes an `HttpRequest` with the JSONP method,\n * by performing JSONP style
requests.\n * @see `HttpHandler`\n * @see `HttpXHRBackend`\n * */\n * @publicApi\n * @Injectable()\nexport
class JsonpClientBackend implements HttpBackend {\n /**\n * A resolved promise that can be used to schedule
microtasks in the event handlers.\n * */\n private readonly resolvedPromise = Promise.resolve();\n\n
constructor(private callbackMap: JsonpCallbackContext,\n
@Inject(DOCUMENT) private document: any) {\n\n /**\n * Get the name of the next callback method, by
incrementing the global `nextRequestId`.\n * */\n private nextCallback(): string {\n return
`ng_jsonp_callback_${nextRequestId++}`;\n }\n\n /**\n * Processes a JSONP request and returns an event
stream of the results.\n * @param req The request object.\n * @returns An observable of the response events.\n
*/\n */\n handle(req: HttpRequest<never>): Observable<HttpEvent<any>> {\n // Firstly, check both the method
and response type. If either doesn't match\n // then the request was improperly routed here and cannot be
handled.\n if (req.method !== 'JSONP') {\n throw new Error(JSONP_ERR_WRONG_METHOD);\n } else if
(req.responseType !== 'json') {\n throw new Error(JSONP_ERR_WRONG_RESPONSE_TYPE);\n }\n\n //
Everything else happens inside the Observable boundary.\n return new Observable<HttpEvent<any>>((observer:
Observer<HttpEvent<any>>)\n
=> {\n // The first step to make a request is to generate the callback name, and replace the\n // callback
placeholder in the URL with the name. Care has to be taken here to ensure\n // a trailing &, if matched, gets
inserted back into the URL in the correct place.\n const callback = this.nextCallback();\n const url =
req.urlWithParams.replace(/=JSONP_CALLBACK(&{)/, `=${callback}$1`);\n // Construct the <script> tag
and point it at the URL.\n const node = this.document.createElement('script');\n node.src = url;\n\n // A
JSONP request requires waiting for multiple callbacks. These variables\n // are closed over and track state across
those callbacks.\n\n // The response object, if one has been received, or null otherwise.\n let body: any|null =
null;\n\n // Whether the response callback has been called.\n let finished: boolean = false;\n\n // Whether
the request has been cancelled (and thus any other callbacks)\n\n
// should be ignored.\n let cancelled: boolean = false;\n\n // Set the response callback in this.callbackMap
(which will be the window\n // object in the browser. The script being loaded via the <script> tag will\n //
eventually call this callback.\n this.callbackMap[callback] = (data?: any) => {\n // Data has been received
from the JSONP script. Firstly, delete this callback.\n delete this.callbackMap[callback];\n\n // Next, make
sure the request wasn't cancelled in the meantime.\n if (cancelled) {\n return;\n }\n\n // Set state to
indicate data was received.\n body = data;\n finished = true;\n };\n\n // cleanup() is a utility closure
that removes the <script> from the page and\n // the response callback from the window. This logic is used in
both the\n // success, error, and cancellation paths, so it's extracted out for convenience.\n const cleanup = ()\n
=> {\n\n // Remove the <script> tag if it's still on the page.\n if (node.parentNode) {\n
node.parentNode.removeChild(node);\n }\n\n // Remove the response callback from the callbackMap
(window object in the\n // browser).\n delete this.callbackMap[callback];\n }\n\n // onLoad() is the

```

```

success callback which runs after the response callback\n // if the JSONP script loads successfully. The event
itself is unimportant.\n // If something went wrong, onLoad() may run without the response callback\n //
having been invoked.\n const onLoad = (event: Event) => {\n // Do nothing if the request has been
cancelled.\n if (cancelled) {\n return;\n }\n // We wrap it in an extra Promise, to ensure the
microtask\n // is scheduled after the loaded endpoint has executed any potential microtask itself,\n // which
is not guaranteed in Internet Explorer and EdgeHTML. See issue #39496\n
this.resolvedPromise.then(() => {\n // Cleanup the page.\n cleanup();\n // Check whether the
response callback has run.\n if (!finished) {\n // It hasn't, something went wrong with the request.
Return an error via\n // the Observable error path. All JSONP errors have status 0.\n
observer.error(new HttpResponse({\n url,\n status: 0,\n statusText: 'JSONP Error',\n
error: new Error(JSONP_ERR_NO_CALLBACK),\n }));\n return;\n })\n // Success.
body either contains the response body or null if none was\n // returned.\n observer.next(new
HttpResponse({\n body,\n status: 200,\n statusText: 'OK',\n url,\n }));\n //
Complete the stream, the response is over.\n observer.complete();\n });\n // onError() is the
error callback, which runs if the script returned generates\n // a Javascript error. It emits the error via the
Observable error channel as\n // a HttpResponse.\n const onError: any = (error: Error) => {\n // If
the request was already cancelled, no need to emit anything.\n if (cancelled) {\n return;\n }
cleanup();\n // Wrap the error in a HttpResponse.\n observer.error(new HttpResponse({\n
error,\n status: 0,\n statusText: 'JSONP Error',\n url,\n }));\n // Subscribe to both
the success (load) and error events on the <script> tag,\n // and add it to the page.\n
node.addEventListener('load', onLoad);\n node.addEventListener('error', onError);\n
this.document.body.appendChild(node);\n // The request has now been successfully sent.\n
observer.next({ type: EventType.Sent });\n // Cancellation handler.\n
return () => {\n // Track the cancellation so event listeners won't do anything even if already scheduled.\n
cancelled = true;\n // Remove the event listeners so they won't run if the events later fire.\n
node.removeEventListener('load', onLoad);\n node.removeEventListener('error', onError);\n // And
finally, clean up the page.\n cleanup();\n });\n } }\n\n * Identifies requests with the method
JSONP and\n * shifts them to the `JsonpClientBackend`. \n * @see `HttpInterceptor`\n * @publicApi\n
*\n @Injectable()\nexport class JsonpInterceptor {\n constructor(private jsonp: JsonpClientBackend) {} \n\n /**\n
* Identifies and handles a given JSONP request.\n * @param req The outgoing request object to handle.\n *
@param next The next interceptor in the chain, or the backend\n * if no interceptors remain in the chain.\n *
@returns An observable of the event stream.\n */\n intercept(req: HttpRequest<any>,
next: HttpHandler): Observable<HttpEvent<any>> {\n if (req.method === 'JSONP') {\n return
this.jsonp.handle(req as HttpRequest<never>);\n }\n // Fall through for normal HTTP requests.\n return
next.handle(req);\n }}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport { Injectable } from '@angular/core';\nimport { Observable, Observer } from
'rxjs';\nimport { HttpBackend } from './backend';\nimport { HttpHeaders } from './headers';\nimport { HttpRequest }
from './request';\nimport { HttpDownloadProgressEvent, HttpResponse, HttpEvent, EventType,
HttpRequestResponse, HttpJsonParseError, HttpResponse, HttpUploadProgressEvent } from './response';\nconst
XSSI_PREFIX = /^\\|\\\\|\\]|'|?\\|/; \n\n/**\n * Determine an appropriate URL for the response, by checking either\n *
XMLHttpRequest.responseURL or
the X-Request-URL header.\n */\nfunction getResponseUrl(xhr: any): string|null {\n if ('responseURL' in xhr &&
xhr.responseURL) {\n return xhr.responseURL;\n }\n if (/^X-Request-
URL:/m.test(xhr.getAllResponseHeaders())) {\n return xhr.getResponseHeader('X-Request-URL');\n }\n return
null;\n }\n\n/**\n * A wrapper around the `XMLHttpRequest` constructor.\n *\n * @publicApi\n */\nexport abstract
class XhrFactory {\n abstract build(): XMLHttpRequest;\n\n /**\n * A factory for `HttpXhrBackend` that uses
the `XMLHttpRequest` browser API.\n */\n @Injectable()\nexport class BrowserXhr implements XhrFactory {\n

```



```

constructor() {}
build(): any {
 return <any>(new XMLHttpRequest());
}

/**
 * Tracks a response from the server that does not yet have a body.
 */
interface PartialResponse {
 headers: HttpHeaders;
 status: number;
 statusText: string;
 url: string;
}

/**
 * Uses `XMLHttpRequest` to send requests to a backend server.
 * @see `HttpHandler`
 */
* @see `JsonpClientBackend`
* @publicApi
* @Injectable()
export class HttpXhrBackend implements HttpBackend {
 constructor(private xhrFactory: XhrFactory) {}

 /**
 * Processes a request and returns a stream of response events.
 * @param req The request object.
 * @returns An observable of the response events.
 */
 handle(req: HttpRequest<any>): Observable<HttpEvent<any>> {
 // Quick check to give a better error message when a user attempts to use
 // HttpClient.jsonp() without installing the HttpClientJsonpModule
 if (req.method === 'JSONP') {
 throw new Error(
 `Attempted to construct Jsonp request without HttpClientJsonpModule installed.`);
 }

 // Everything happens on Observable subscription.
 return new Observable((observer: Observer<HttpEvent<any>>) => {
 // Start by setting up the XHR object with request method, URL, and withCredentials flag.
 const xhr = this.xhrFactory.build();
 xhr.open(req.method, req.urlWithParams());
 if (!req.withCredentials) {
 xhr.withCredentials = true;
 }

 // Add all the requested headers.
 req.headers.forEach((name, values) => xhr.setRequestHeader(name, values.join(',')));

 // Add an Accept header if one isn't present already.
 if (!req.headers.has('Accept')) {
 xhr.setRequestHeader('Accept', 'application/json, text/plain, */*');
 }

 // Auto-detect the Content-Type header if one isn't present already.
 if (!req.headers.has('Content-Type')) {
 const detectedType = req.detectContentTypeHeader();
 // Sometimes Content-Type detection fails.
 if (detectedType !== null) {
 xhr.setRequestHeader('Content-Type', detectedType);
 }
 }

 // Set the responseType if one was requested.
 if (req.responseType) {
 const responseType = req.responseType.toLowerCase();

 // JSON responses need to be processed as text. This is because if the server
 // returns an XSSI-prefixed JSON response, the browser will fail to parse it,
 // xhr.response will be null, and xhr.responseText cannot be accessed to
 // retrieve the prefixed JSON data in order to strip the prefix. Thus, all JSON
 // is parsed by first requesting text and then applying JSON.parse.
 xhr.responseType = (responseType !== 'json') ? responseType : 'text';
 }

 // Serialize the request body if one is present. If not, this will be set to null.
 const reqBody = req.serializeBody();

 // If progress events are enabled, response headers will be delivered
 // in two events - the HttpHeadersResponse event and the full HttpResponse
 // event. However, since response headers don't change in between these
 // two events, it doesn't make sense to parse them twice. So headerResponse
 // caches the data extracted from the response whenever it's first
 // parsed,
 // to ensure parsing isn't duplicated.
 let headerResponse: HttpHeadersResponse | null = null;

 // partialFromXhr extracts the HttpHeadersResponse from the current XMLHttpRequest
 // state, and memoizes it into headerResponse.
 const partialFromXhr = (): HttpHeadersResponse => {
 if (headerResponse !== null) {
 return headerResponse;
 }

 // Read status and normalize an IE9 bug
 // (http://bugs.jquery.com/ticket/1450).
 const status: number = xhr.status === 1223 ? 204 : xhr.status;
 const statusText = xhr.statusText || 'OK';

 // Parse headers from XMLHttpRequest - this step is lazy.
 const headers = new HttpHeaders(xhr.getAllResponseHeaders());

 // Read the response URL from the XMLHttpRequest instance and fall back on the
 // request URL.
 const url = getResponseUrl(xhr) || req.url;

 // Construct the HttpHeadersResponse and memoize it.
 headerResponse = new HttpHeadersResponse({headers, status, statusText, url});
 return headerResponse;
 };

 // Next, a few closures are defined for the various events which XMLHttpRequest can
 // emit. This allows them to be unregistered as event listeners later.
 // First up is the load event, which represents a response being fully available.
 const onLoad = () => {
 // Read response state from the memoized partial data.
 let {headers, status, statusText, url} = partialFromXhr();

 // The body will be read out if present.
 let body: any | null = null;
 if (status !== 204) {
 // Use XMLHttpRequest.response if set, responseText otherwise.
 body = (typeof xhr.response === 'undefined') ? xhr.responseText : xhr.response;
 }

 // Normalize another potential bug (this one comes from CORS).
 if (status === 0) {
 status

```

```

= !!body ? 200 : 0;\n }\n\n // ok determines whether the response will be transmitted on the event or\n // error channel. Unsuccessful status codes (not 2xx) will always be errors,\n // but a successful status code can still result in an error if the user\n // asked for JSON data and the body cannot be parsed as such.\n let ok = status >= 200 && status < 300;\n\n // Check whether the body needs to be parsed as JSON (in many cases the browser\n // will have done that already).\n if (req.responseType === 'json' && typeof body === 'string') {\n // Save the original body, before attempting XSS prefix stripping.\n const originalBody = body;\n body = body.replace(XSSI_PREFIX, '');\n try {\n // Attempt the parse. If it fails, a parse error should be delivered to the user.\n body = body !== '' ? JSON.parse(body) : null;\n } catch (error) {\n // Since the JSON.parse failed, it's reasonable to assume this might not have been a\n // JSON response. Restore the original body (including any XSS prefix) to deliver\n // a better error response.\n body = originalBody;\n\n // If this was an error request to begin with, leave it as a string, it probably\n // just isn't JSON. Otherwise, deliver the parsing error to the user.\n if (ok) {\n // Even though the response status was 2xx, this is still an error.\n ok = false;\n // The parse error contains the text of the body that failed to parse.\n body = {error, text: body} as HttpJsonParseError;\n }\n\n // A successful response is delivered on the event stream.\n observer.next(new HttpResponse({\n body,\n headers,\n status,\n statusText,\n url: url || undefined,\n }));\n\n // The full body has been received and delivered, no further events\n // are possible. This request is complete.\n observer.complete();\n } else {\n // An unsuccessful request is delivered on the error channel.\n observer.error(new HttpResponse({\n // The error in this case is the response body (error from the server).\n error: body,\n headers,\n status,\n statusText,\n url: url || undefined,\n }));\n\n // The onError callback is called when something goes wrong at the network level.\n // Connection timeout, DNS error, offline, etc. These are actual errors, and are\n // transmitted on the error channel.\n const onError = (error: ProgressEvent) => {\n const {url} = partialFromXhr();\n const res = new HttpResponse({\n error,\n status: xhr.status || 0,\n statusText: xhr.statusText || 'Unknown Error',\n url: url || undefined,\n });\n observer.error(res);\n };\n\n // The sentHeaders flag tracks whether the HttpResponseHeaders event\n // has been sent on the stream. This is necessary to track if progress\n // is enabled since the event will be sent on only the first download\n // progress event.\n let sentHeaders = false;\n\n // The download progress event handler, which is only registered if\n // progress events are enabled.\n const onDownloadProgress = (event: ProgressEvent) => {\n // Send the HttpResponseHeaders event if it hasn't been sent already.\n if (!sentHeaders) {\n observer.next(partialFromXhr());\n sentHeaders = true;\n }\n\n // Start building the download progress event to deliver on the response\n // event stream.\n let progressEvent: HttpDownloadProgressEvent = {\n type: EventType.DownloadProgress,\n loaded: event.loaded,\n };\n\n // Set the total number of bytes in the event if it's available.\n if (event.lengthComputable) {\n progressEvent.total = event.total;\n }\n\n // If the request was for text content and a partial response is\n // available on XMLHttpRequest, include it in the progress event\n // to allow for streaming reads.\n if (req.responseType === 'text' && !!xhr.responseText) {\n progressEvent.partialText = xhr.responseText;\n }\n\n // Finally, fire the event.\n observer.next(progressEvent);\n };\n\n // The upload progress event handler, which is only registered if\n // progress events are enabled.\n const onUploadProgress = (event: ProgressEvent) => {\n // Upload progress events are simpler. Begin building the progress\n // event.\n let progress: HttpUploadProgressEvent = {\n type: EventType.UploadProgress,\n loaded: event.loaded,\n };\n\n // If the total number of bytes being uploaded is available, include\n // it.\n if (event.lengthComputable) {\n progress.total = event.total;\n }\n\n // Send the event.\n observer.next(progress);\n };\n\n // By default, register for load and error events.\n xhr.addEventListener('load', onLoad);\n xhr.addEventListener('error', onError);\n\n // Progress events are only

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enabled if requested.\n if (req.reportProgress) {\n // Download progress is always enabled if requested.\n xhr.addEventListener('progress', onDownProgress);\n // Upload progress depends on whether there is a body\n to upload.\n if (reqBody !== null && xhr.upload) {\n xhr.upload.addEventListener('progress',\n onUpProgress);\n }\n // Fire the request, and notify the event stream that it was fired.\n xhr.send(reqBody!);\n observer.next({ type: HttpEventType.Sent });\n\n // This is the return from the Observable function, which is the\n // request cancellation handler.\n return ()\n => {\n // On a cancellation, remove all registered event listeners.\n xhr.removeEventListener('error',\n onError);\n xhr.removeEventListener('load', onLoad);\n if (req.reportProgress) {\n xhr.removeEventListener('progress', onDownProgress);\n if (reqBody !== null && xhr.upload) {\n xhr.upload.removeEventListener('progress', onUpProgress);\n }\n }\n // Finally, abort the in-flight\n request.\n if (xhr.readyState !== xhr.DONE) {\n xhr.abort();\n }\n };\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-\n * style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {DOCUMENT,\n parseCookieValue as parseCookieValue} from '@angular/common';\nimport {\n Inject, Injectable, InjectionToken, PLATFORM_ID} from '@angular/core';\nimport {Observable} from\n 'rxjs';\nimport {HttpHandler} from './backend';\nimport {HttpInterceptor} from './interceptor';\nimport\n {HttpRequest} from './request';\nimport {HttpEvent} from './response';\n\nexport const XSRF_COOKIE_NAME =\n new InjectionToken<string>('XSRF_COOKIE_NAME');\nexport const XSRF_HEADER_NAME = new\n InjectionToken<string>('XSRF_HEADER_NAME');\n\n/**\n * Retrieves the current XSRF token to use with the\n * next outgoing request.\n */\n@publicApi\nexport abstract class HttpXsrfTokenExtractor {\n /**\n * Get the\n * XSRF token to use with an outgoing request.\n */\n /**\n * Will be called for every request, so the token may change\n * between requests.\n */\n abstract getToken(): string | null;\n}\n\n/**\n * `HttpXsrfTokenExtractor` which retrieves\n * the token from a cookie.\n */\n@Injectable()\nexport class HttpXsrfCookieExtractor implements\n HttpXsrfTokenExtractor {\n private lastCookieString:\n string = '';\n private lastToken: string | null = null;\n\n /**\n * @internal for testing\n */\n parseCount: number =\n 0;\n\n constructor(\n @Inject(DOCUMENT) private doc: any,\n @Inject(PLATFORM_ID) private platform:\n string,\n @Inject(XSRF_COOKIE_NAME) private cookieName: string) {\n }\n\n getToken(): string | null {\n if\n (this.platform === 'server') {\n return null;\n }\n const cookieString = this.doc.cookie || '';\n if (cookieString\n !== this.lastCookieString) {\n this.parseCount++;\n this.lastToken = parseCookieValue(cookieString,\n this.cookieName);\n this.lastCookieString = cookieString;\n }\n return this.lastToken;\n }\n}\n\n/**\n * `HttpInterceptor` which adds an XSRF token to eligible outgoing requests.\n */\n@Injectable()\nexport class\n HttpXsrfInterceptor implements HttpInterceptor {\n constructor(\n private tokenService:\n HttpXsrfTokenExtractor,\n @Inject(XSRF_HEADER_NAME) private headerName: string) {\n }\n\n intercept(req:\n HttpRequest<any>, next: HttpHandler): Observable<HttpEvent<any>> {\n const lcUrl = req.url.toLowerCase();\n // Skip both non-mutating requests and absolute URLs.\n // Non-mutating requests don't require a token, and\n absolute URLs require special handling\n // anyway as the cookie set\n // on our origin is not the same as the\n token expected by another origin.\n if (req.method === 'GET' || req.method === 'HEAD' ||\n lcUrl.startsWith('http://') ||\n lcUrl.startsWith('https://')) {\n return next.handle(req);\n }\n const token =\n this.tokenService.getToken();\n // Be careful not to overwrite an existing header of the same name.\n if (token\n !== null && !req.headers.has(this.headerName)) {\n req = req.clone({headers: req.headers.set(this.headerName,\n token)});\n }\n return next.handle(req);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights\n * Reserved.\n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injectable, Injector,\n ModuleWithProviders, NgModule} from '@angular/core';\nimport {Observable} from 'rxjs';\nimport {\n HttpBackend, HttpHandler} from './backend';\nimport {HttpClient} from './client';\nimport\n {HTTP_INTERCEPTORS, HttpInterceptor, HttpInterceptorHandler, NoopInterceptor} from './interceptor';\nimport {\n JsonpCallbackContext, JsonpClientBackend, JsonpInterceptor} from './jsonp';\nimport {HttpRequest} from

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./request';\nimport {HttpEvent} from './response';\nimport {BrowserXhr, HttpXhrBackend, XhrFactory} from
'./xhr';\nimport {HttpXsrfCookieExtractor, HttpXsrfInterceptor, HttpXsrfTokenExtractor, XSRF_COOKIE_NAME,
XSRF_HEADER_NAME} from './xsrf';\n\n/**\n * An injectable `HttpHandler` that applies multiple interceptors\n
* to a request before passing it to the given `HttpBackend`. \n * \n * The interceptors are loaded lazily from the
injector, to allow\n * interceptors to themselves inject
classes depending indirectly\n * on `HttpInterceptingHandler` itself.\n * @see `HttpInterceptor`\n
*/\n@Injectable()\nexport class HttpInterceptingHandler implements HttpHandler {\n private chain:
HttpHandler|null = null;\n\n constructor(private backend: HttpBackend, private injector: Injector) {} \n\n
handle(req: HttpRequest<any>): Observable<HttpEvent<any>> {\n if (this.chain === null) {\n const
interceptors = this.injector.get(HTTP_INTERCEPTORS, []);\n this.chain = interceptors.reduceRight(\n
(next, interceptor) => new HttpInterceptorHandler(next, interceptor), this.backend);\n }\n return
this.chain.handle(req);\n }\n}\n\n/**\n * Constructs an `HttpHandler` that applies interceptors\n * to a request
before passing it to the given `HttpBackend`. \n * \n * Use as a factory function within `HttpClientModule`. \n * \n * \n
*/\nexport function interceptingHandler(\n backend: HttpBackend, interceptors: HttpInterceptor[]|null = []):
HttpHandler {\n if (!interceptors)\n {\n return backend;\n }\n return interceptors.reduceRight(\n (next, interceptor) => new
HttpInterceptorHandler(next, interceptor), backend);\n }\n\n/**\n * Factory function that determines where to store
JSONP callbacks.\n * \n * Ordinarily JSONP callbacks are stored on the `window` object, but this may not exist\n *
in test environments. In that case, callbacks are stored on an anonymous object instead.\n * \n * \n */\nexport function
jsonpCallbackContext(): Object {\n if (typeof window === 'object') {\n return window;\n }\n return
{};\n}\n\n/**\n * Configures XSRF protection support for outgoing requests.\n * \n * For a server that supports a
cookie-based XSRF protection system,\n * use directly to configure XSRF protection with the correct\n * cookie
and header names.\n * \n * If no names are supplied, the default cookie name is `XSRF-TOKEN`\n * and the default
header name is `X-XSRF-TOKEN`. \n * \n * @publicApi\n */\n@NgModule({\n providers: [\n
HttpXsrfInterceptor,\n
 {provide: HTTP_INTERCEPTORS, useExisting: HttpXsrfInterceptor, multi: true},\n {provide:
HttpXsrfTokenExtractor, useClass: HttpXsrfCookieExtractor},\n {provide: XSRF_COOKIE_NAME, useValue:
'XSRF-TOKEN'},\n {provide: XSRF_HEADER_NAME, useValue: 'X-XSRF-TOKEN'},\n],\n})\nexport class
HttpClientXsrfModule {\n /**\n * Disable the default XSRF protection.\n * \n * static disable():
ModuleWithProviders<HttpClientXsrfModule> {\n return {\n ngModule: HttpClientXsrfModule,\n
providers: [\n {provide: HttpXsrfInterceptor, useClass: NoopInterceptor},\n],\n];\n }\n }\n\n /**\n *
Configure XSRF protection.\n * @param options An object that can specify either or both\n * cookie name or
header name.\n * - Cookie name default is `XSRF-TOKEN`. \n * - Header name default is `X-XSRF-TOKEN`. \n
*/\n * \n * static withOptions(options: {\n cookieName?: string,\n headerName?: string,\n } = {}):
ModuleWithProviders<HttpClientXsrfModule> {\n
 return {\n ngModule: HttpClientXsrfModule,\n providers: [\n options.cookieName ? {provide:
XSRF_COOKIE_NAME, useValue: options.cookieName} : [],\n options.headerName ? {provide:
XSRF_HEADER_NAME, useValue: options.headerName} : [],\n],\n];\n }\n }\n\n /**\n * Configures the
[dependency injector](guide/glossary#injector) for `HttpClient`\n * with supporting services for XSRF.
Automatically imported by `HttpClientModule`. \n * \n * You can add interceptors to the chain behind `HttpClient`
by binding them to the\n * multiprovider for built-in [DI token](guide/glossary#di-token)
`HTTP_INTERCEPTORS`. \n * \n * @publicApi\n */\n * \n * Optional configuration for XSRF
protection.\n * \n * imports: [\n HttpClientXsrfModule.withOptions({\n cookieName: 'XSRF-TOKEN',\n
headerName: 'X-XSRF-TOKEN',\n }),\n],\n],\n /**\n * Configures the [dependency
injector](guide/glossary#injector) where it is imported\n * with supporting services
for HTTP communications.\n * \n * providers: [\n HttpClient,\n {provide: HttpHandler, useClass:
HttpInterceptingHandler},\n HttpXhrBackend,\n {provide: HttpBackend, useExisting: HttpXhrBackend},\n
BrowserXhr,\n {provide: XhrFactory, useExisting: BrowserXhr},\n],\n]))\nexport class HttpClientModule

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{\n}\n\n/**\n * Configures the [dependency injector](guide/glossary#injector) for `HttpClient`\n * with supporting
services for JSONP.\n * Without this module, Jsonp requests reach the backend\n * with method JSONP, where they
are rejected.\n *\n * You can add interceptors to the chain behind `HttpClient` by binding them to the\n *
multiprovider for built-in [DI token](guide/glossary#di-token) `HTTP_INTERCEPTORS`.\n *\n * @publicApi\n
*/\n\n@NgModule({\n providers: [\n JsonpClientBackend,\n {provide: JsonpCallbackContext, useFactory:
jsonpCallbackContext},\n {provide: HTTP_INTERCEPTORS, useClass: JsonpInterceptor, multi: true},\n
],\n})\nexport class HttpClientJsonpModule

{\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nexport {HttpBackend, HttpHandler} from './src/backend';\nexport {HttpClient} from './src/client';\nexport
{HttpHeaders} from './src/headers';\nexport {HTTP_INTERCEPTORS, HttpInterceptor} from
'./src/interceptor';\nexport {JsonpClientBackend, JsonpInterceptor} from './src/jsonp';\nexport
{HttpClientJsonpModule, HttpClientModule, HttpClientXsrfModule, HttpInterceptingHandler as
HttpInterceptingHandler} from './src/module';\nexport {HttpParameterCodec, HttpParams, HttpUrlEncodingCodec}
from './src/params';\nexport {HttpRequest} from './src/request';\nexport {HttpDownloadProgressEvent,
HttpErrorResponse, HttpEvent, HttpEventType, HttpHeadersResponse, HttpProgressEvent, HttpResponse,
HttpResponseBase, HttpSentEvent, HttpUploadProgressEvent, HttpUserEvent} from './src/response';\nexport
{HttpXhrBackend, XhrFactory} from './src/xhr';\nexport {HttpXsrfTokenExtractor} from './src/xsrf';\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n// This file is not used to
build this module. It is only used during editing\n// by the TypeScript language service and during build for
verification. `ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport
* from './public_api';\n\n", "/*\n * Generated bundle index. Do not edit.\n *\n\nexport * from './index';\n\nexport
{NoopInterceptor as angular_packages_common_http_http_a} from './src/interceptor';\nexport
{JsonpCallbackContext as angular_packages_common_http_http_b} from './src/jsonp';\nexport
{jsonpCallbackContext as angular_packages_common_http_http_c} from './src/module';\nexport {BrowserXhr
as angular_packages_common_http_http_d} from './src/xhr';\nexport {HttpXsrfCookieExtractor as
angular_packages_common_http_http_g,HttpXsrfInterceptor as
angular_packages_common_http_http_h,XSRF_COOKIE_NAME as
angular_packages_common_http_http_e,XSRF_HEADER_NAME as angular_packages_common_http_http_f}
from
'./src/xsrf';\n\n,"names":["HttpEventType","of","concatMap","filter","map","Injectable","InjectionToken","Observable
","Inject","DOCUMENT","parseCookieValue","PLATFORM_ID","Injector","NgModule"],"mappings":";;;;;;;;;;I
AAA;;;;;;;;;IAYA;;;;;;;;;;QAYA;SAEC;0BAAA;KAAA,IAAA;IAED;;;;;;;;;;QAUA;SAEC;0BAAA;KAAA;;ICxC
D;;;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cA
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G,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,C
AAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC1B,aAAa,CAAC,CAAC,EAAE,CAAC
,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,WAaw,GAAG,CAAC,CAAC,EAAE;QACvC,CAAC,
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AI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC
,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,
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CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,KAAK,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;IAC  
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\* /common-11-0-2-tgz/package/bundles/common-http.umd.js.map

No license file was found, but licenses were detected in source scan.

/\*\*

\* @license Angular v11.0.2

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\*/

/\*\*

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\*/

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Angular

=====

The sources for this package are in the main [Angular](<https://github.com/angular/angular>) repo. Please file issues and pull requests against that repo.

Usage information and reference details can be found in [Angular documentation](<https://angular.io/docs>).

License: MIT

Found in path(s):

\* /common-11-0-2-tgz/package/README.md

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EAAIE,iBAAiB,eAAgBC,GA17C,GAAlIE,EAAIjC,aAAc,CACIB,IAAIA,EAAeiC,EAAIjC,aAAajF,cAMpCiL,EAAlhG,aAAkC,SAAjBA,EAA2BA,EAAe,OAGnE,IAAIoG,EAAUnE,EAAI3B,gBAOd+F,EAAiB,KAGjBC,EAAiB,WACjB,GAAuB,OAAnBD,EACA,OAAOA,EAGX,IAAIInF,EAAwB,OAAf8E,EAAI9E,OAAkB,IAAM8E,EAAI9E,OACzCC,EAAa6E,EAAI7E,YAAc,KAe/BIH,EAAU,IAAID,EAAyGm,EAAIO,yBAG9B7G,EAhHpB,SAAS8G,EAAeR,GACpB,MAAI,gBAAiBA,GAAOA,EAAIS,YACrBT,EAAIS,YAEX,mBAAMBC,KAAKV,EAAIO,yBACrBP,EAAIW,kBAAkB,iBAE1B,KAYGeH,CAAeR,IAAQ/D,EAAIvC,IAGrC,OADA2G,EAAiB,IAAIItF,EAAmB,CAA9G,QAASA,EAASiH,OAAQA,EAAQC,WAAyA,EAAyZB,IAAKA,KAMzGmF,EAAS,WAET,IAAIvG,EAAKGI,IAAkBrM,EAAUqE,EAGrE,QAASiH,EAAS5C,EAAG4C,OAAQC,EAAa7C,EAAG6C,WAAyZB,EAAmpB,EAAGoB,IAEtGG,EAAO,KACI,MAAXqB,IAEArB,OAAgC,IAAjBmG,EAAIY,SAA4BZ,EAAIa,aAAeb,EAAIY,UAG3D,IAAX1F,IACAA,EAAWrb,EAAO,IAAM,GAM5B,IAAIyB,EAAKJ,GAAU,KAAOA,EAAS,IAGnC,GAAyB,SAArBe,EAAIjC,cAA2C,iBAATH,EAAmB,CAEzD,IAAIiH,EAAejH,EACnBA,EAAOA,EAAKtC,QA AQI,EAAa,IACjC,IAEI5F,EAGb,KAATA,EAACU,KAAKwG,MAAMIH,GAAQ,KAES5C,MAAO9F,GAIH8F,EAAOIH,EAGHXF,IAEAA,GAAK,EAELzB,EAAO,CAA9F,MAAOA,EAAOiN,KAAmNH,KAIrCyB,GAEA4C,EAAsvK,KAAK,IAAI4H,EAAa,CAC3B1B,KAAAMA,EACN5F,QAASA,EACTiH,OAAQA,EACRC,WAAyA,EACZzB,IAAKA,QAAOpD,KAIhB4H,EAASa,YAITb,EAASnK,MAAM,IAAI0H,EAakB,CAEjC1H,MAAO8F,EACP5F,QAASA,EACTiH,OAAQA,EACRC,WAAyA,EACZzB,IAAKA,QAAOpD,MAOpB0I,EAAU,SAAUjL,GACpB,IAAI2F,EAAM4G,IAAiB5G,IACvBhB,EAAM,IAAI+C,EAakB,CAC5B1H,MAAOA,EACPmH,OAAQ8E,EA AI9E,QAAU,EACtBC,WAAy6E,EAAI7E,YAAc,gBAC9BzB,IAAKA,QAAOpD,IAEHb4H,EAASnK,MAAM2E,IAMfuI,GAAC,EAGdC,EAAiB,SAAU1E,GAETByE,IACD/C,EAASvK,KAAK2M,KACdW,GAAC,GAIIb,IAAIE,EAAgB,CACbZG,KAAmVJ,EAAQoI,cAAc6H,iBAC5BC,OAAQ7E,EAAM6E,QAGd7E,EAAM8E,mBACNH,EAACI,MAAQ/E,EAAM+E,OAKP,SAArBtF,EAAIjC,cAA6BgG,EAAIa,eACrCM,EAACk,YAAcxB,EAAIa,cAGpC3C,EAASvK,KAAKwN,IAIdM,EAAe,SAAUjF,GAGzB,IAAIkF,EAAW,CACXhH,KAAmVJ,EAAQoI,cAAcoI,eAC5BN,OAAQ7E,EAAM6E,QAI d7E,EAAM8E,mBACNI,EAASH,MAAQ/E,EAAM+E,OAG3BrD,EAASvK,KAAK+N,IAMBIb,OAhBA1B,EAAIf,iBAAiB,OAAQJ,GAC7BmB,EAAIf,iBAAiB,QAASD,GAElB/C,EAAInC,iBAEJkG,EAAIf,iBAAiB,WAAyIC,GAejB,OAAZd,GAAoBJ,EAAI4B,QACxB5B,EAAI4B,OAAO3C,iBAAiB,WAAywC,IAIhDzB,EAAI6B,KAAKzB,GACTIC,EAASvK,KAAK,CAAe+G,KAAmVJ,EAAQoI,cAAc4F,OAGrC,WAEHa,EAAIZ,oBAAoB,QAASJ,GACjCgB,EAAIZ,oBAAoB,OAAQP,GAC5B5C,EAAInC,iBACJkG,EAAIZ,oBAAoB,WAAy8B,GACpB,OAAZd,GAAoBJ,EAAI4B,QACxB5B,EAAI4B,OAAOxC,oBAAoB,WAAyqC,IAI/CzB,EA AI8B,aAAe9B,EAAI+B,MACvB/B,EAAIgC,aAKblC,EAlPwB,GAOPnCA,EAAe/C,WAAa,CACxB,CAAErC,KAAAM9I,EAAKoL,aAEjB8C,EAAe7C,eAAiB,WAAc,MAAO,CACjD,CAAeVc,KAAmGf;;;;;;AAUZ,IAAIuC,EAAmB,IAAIrQ,EAAK0L,eAAe,oBAC3C4E,EAAmB,IAAIItQ,EAAK0L,eAAe,oBAM3C6E,EACA,SAASA,MAOTC,EAAyC,WACzC,SAASA,EAAwBC,EAAKC,EAAUC,GAC5CxQ,KAAKsQ,IAAMA,EACXtQ,KAAKuQ,SAAWA,EACbVq,KAAKwQ,WAAaA,EACIBxQ,KAAKyQ,iBAAMb,GACxBzQ,KAAK0Q,UAAy,KAIjB1Q,KAAK2Q,WAAa,EActB,OAZAN,EAAwBtP,UAAU6P,SAAW,WACzC,GAASB,WAAIB5Q,KAAKuQ,SACL,OAAO,KAEEX,IAAIM,EAAe7Q,KAAKsQ,IAAIQ,QAAU,GAMtC,OALID,IAAIb7Q,KAAKyQ,mBACtBzQ,KAAK2Q,aACL3Q,KAAK0Q,UAAy/Q,EAAOoR,kBAAkBF,EAAC7Q,KAAKwQ,YAC7DxQ,KAAKyQ,iBAAMBI,GAERb7Q,KAAK0Q,WAETL,EAxBiC,GA0B5CA,EAAwBrF,WAAa,CACjC,CAAERc,KAAm9I,EAAKoL,aAEjBoF,EAAwBnF,eAAiB,WAAc,MAAO,CACID,CAAeVc,UAAmpE,EAAWYG,WAAy,CAAC,CAAERc,KAAm9I,EAAKyN,OAAQC,KAAm,CAAC5N,EAAO6N,aACnE,CAA9E7E,KAAmQI,OAAQhG,WAAy,CAAC,CAAERc,KAAm9I,EAAKyN,OAAQC,KAAm,CAAC1N,EAAKoR,gBAC9D,CAAETI,KAAmQI,OAAQhG,WAAy,CAAC,CAAERc,KAAm9I,EAAKyN,OAAQC,KAAm,CAAC2C,QAK7D,IAAIgB,EAAqC,WACrC,SAASA,EAAoBC,EAAcC,GACvCpR,KAAKmR,aAAeA,EACpBnR,KAAKoR,WAAaA,EAmBtB,OAJBAF,EAAoBnQ,UAAUsK,UAAy,SAAUnB,EAAKtI,GACrD,IAAIyP,EAAQnH,EAAIvC,IAAI3E,cAKpB,GAAmB,QAAfKH,EAAIXC,QAAmC,SAAfwC,EAAIXC,QAAqB2J,EAAmC,WAAW,YACIED,EAAmC,WAAW,YACjB,OAAO1P,EAAK2I,OAAOL,GAEvB,IAAIqhH,EAAQvR,KAAKmR,aAAaP,WAK9B,OAHC,OAaVW,GAAmBrH,EAAIhI,QAAQiB,IAAIInD,KAAKoR,cACxCIH,EAAMA,EAAIrG,MAAM,CAA9E3B,QAASgI,EAAIhI,QAAQmB,IAAIrD,KAAKoR,WAAyG,MAEZD3P,EAAK2I,OAAOL,IAEHBgH,EAtB6B,GAwBxCA,EAAoBIG,WAAa,CAC7B,CAAERc,KAAm9I,EAAKoL,aAEjBiG,EAAoBhG,eAAiB,WAAc,MAAO,CACtD,CAAeVc,KAAmyH,GACR,CAA9EzH,KAAmQI,OAAQhG,WAAy,C

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* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\nrequire('@angular/core'), require('rxjs'), require('rxjs/operators'), require('@angular/common')) :\n typeof define === 'function' && define('@angular/common/http', ['exports', '@angular/core', 'rxjs', 'rxjs/operators',\n '@angular/common'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.common =\nglobal.ng.common || {}, global.ng.common.http = {}), global.ng.core, global.rxs, global.rxs.operators,\nglobal.ng.common));\n}(this, (function (exports, core, rxjs, operators, common) { 'use strict';\n\n
```

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Reserved.\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the\n LICENSE file at https://angular.io/license\n \*\n \* Transforms an `HttpRequest` into a stream of\n `HttpEvent`s, one of which will likely be a\n \* `HttpResponse`.\n \*\n \* `HttpHandler` is injectable. When\n injected, the handler instance dispatches requests to the\n \* first interceptor in the chain, which dispatches to the\n second, etc, eventually reaching the\n \* `HttpBackend`.\n \*\n \* In an `HttpInterceptor`, the `HttpHandler`\n parameter is the next interceptor in the chain.\n \*\n \* @publicApi\n \*\n var HttpHandler = /\*\* @class \*/\n(function () {\n function HttpHandler() {\n }\n return HttpHandler;\n})();\n\n \* A final\n `HttpHandler` which will dispatch the request via browser HTTP APIs to a backend.\n \*\n \* Interceptors sit\n between the `HttpClient` interface and the

```

`HttpBackend`.\\n *\\n * When injected, `HttpBackend` dispatches requests directly to the backend, without
going\\n * through the interceptor chain.\\n *\\n * @publicApi\\n *\\n var HttpBackend = /** @class */
(function () {\\n function HttpBackend() {\\n }\\n return HttpBackend;\\n }());\\n }\\n /*!
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ACTION OF CONTRACT, NEGLIGENCE
OR\\n OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR\\n
PERFORMANCE OF THIS SOFTWARE.\\n
*****\\n /* global
Reflect, Promise */\\n var extendStatics = function (d, b) {\\n extendStatics = Object.setPrototypeOf ||\\n
(({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\\n function (d, b) { for (var p in
b)\\n if (b.hasOwnProperty(p))\\n d[p] = b[p]; };\\n return extendStatics(d, b);\\n };\\n
function __extends(d, b) {\\n extendStatics(d, b);\\n function __() { this.constructor = d; }\\n d.prototype
= b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\\n }\\n var __assign = function () {\\n
__assign = Object.assign || function __assign(t) {\\n for (var s, i = 1, n = arguments.length; i < n; i++) {\\n
 s = arguments[i];\\n
 for (var p in s)\\n if (Object.prototype.hasOwnProperty.call(s, p))\\n t[p] = s[p];\\n
 }\\n return t;\\n };\\n return __assign.apply(this, arguments);\\n };\\n function __rest(s, e) {\\n
var t = {};\\n for (var p in s)\\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\\n
 t[p] = s[p];\\n if (s != null && typeof Object.getOwnPropertySymbols === \"function\")\\n for (var i
= 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\\n if (e.indexOf(p[i]) < 0 &&
Object.prototype.propertyIsEnumerable.call(s, p[i]))\\n t[p[i]] = s[p[i]];\\n }\\n return t;\\n }\\n
function __decorate(decorators, target, key, desc) {\\n var c = arguments.length, r = c < 3 ? target : desc === null
? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\\n if (typeof
Reflect === \"object\" && typeof Reflect.decorate === \"function\")\\n r = Reflect.decorate(decorators,
target, key, desc);\\n else\\n for (var i = decorators.length - 1; i >= 0; i--)\\n if (d = decorators[i])\\n
 r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\\n return c > 3 && r &&
Object.defineProperty(target, key, r, r);\\n }\\n function __param(paramIndex, decorator) {\\n return function
(target, key) { decorator(target, key, paramIndex); };\\n }\\n function __metadata(metadataKey, metadataValue)
{\\n if (typeof Reflect === \"object\" && typeof Reflect.metadata === \"function\")\\n return
Reflect.metadata(metadataKey, metadataValue);\\n }\\n function __awaiter(thisArg, _arguments, P, generator) {\\n
 function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\\n
 return new (P || (P = Promise))(function
 (resolve, reject) {\\n function fulfilled(value) { try {step(generator.next(value));} }\\n
 catch (e) {\\n reject(e);\\n } }\\n function rejected(value) { try {\\n
 step(generator[\"throw\"](value));\\n } }\\n catch (e) {\\n reject(e);\\n } }\\n
 function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\\n
 step((generator = generator.apply(thisArg, _arguments || [])).next());\\n }\\n }\\n function
__generator(thisArg, body) {\\n var _ = { label: 0, sent: function () { if (t[0] & 1)\\n throw t[1]; return
t[1]; }, trys: [], ops: [] }, f, y, t, g;\\n return g = { next: verb(0), \"throw\": verb(1), \"return\": verb(2) }, typeof
Symbol === \"function\" && (g[Symbol.iterator] = function () { return this; }), g;\\n function verb(n) { return
function

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(v) { return step([n, v]); }; } \n function step(op) { \n if (f) \n throw new TypeError("Generator
is already executing."); \n while (\n try { \n if (f = 1, y && (t = op[0] & 2 ?
y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) \n
 return t; \n if (y = 0, t) \n op = [op[0] & 2, t.value]; \n switch (op[0])
{ \n case 0: \n t = op; \n break; \n
 case 4: \n _label++; \n return { value: op[1], done: false }; \n case
5: \n _label++; \n y = op[1]; \n op = [0]; \n
 continue; \n case 7: \n op = _ops.pop(); \n _trys.pop(); \n
 continue; \n default: \n if (! (t = _trys, t = t.length > 0 && t[t.length - 1]) &&
(op[0] === 6 || op[0] === 2)) { \n _ = 0; \n continue; \n } \n
 if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { \n _label = op[1]; \n
 break; \n } \n if (op[0] === 6 && _label < t[1]) { \n
 _label = t[1]; \n t = op; \n break; \n } \n
 if (t
&& _label < t[2]) { \n _label = t[2]; \n
 _ops.push(op); \n break; \n } \n if (t[2]) \n
 _ops.pop(); \n _trys.pop(); \n continue; \n } \n
 op =
body.call(thisArg, _); \n } \n catch (e) { \n op = [6, e]; \n y = 0; \n
 } \n finally { \n f = t = 0; \n } \n if (op[0] & 5) \n
 throw op[1]; \n return { value: op[0] ? op[1] : void 0, done: true }; \n } \n } \n
 var __createBinding = Object.create ? (function
(o, m, k, k2) { \n if (k2 === undefined) \n k2 = k; \n Object.defineProperty(o, k2, { enumerable: true,
get: function () { return m[k]; } }); \n }) : (function (o, m, k, k2) { \n if (k2 === undefined) \n k2 = k; \n
 o[k2] = m[k]; \n }); \n function __exportStar(m, exports) { \n for (var p in m) \n
 if (p !==
"default" && !exports.hasOwnProperty(p)) \n __createBinding(exports, m, p); \n } \n function
__values(o) { \n var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0; \n if
(m) \n return m.call(o); \n if (o && typeof o.length === "number") \n return { \n next:
function () { \n if (o && i >= o.length) \n o = void 0; \n return { value: o &&
o[i++], done: !o }; \n } \n }; \n throw new TypeError(s ? "Object is not iterable." :
"Symbol.iterator is not defined."); \n } \n function __read(o, n) { \n var m = typeof Symbol === "function"
&& o[Symbol.iterator]; \n if (!m) \n return o; \n var i = m.call(o), r, ar = [], e; \n try { \n
 while ((n
=== void 0 || n-- > 0) && !(r = i.next()).done) \n ar.push(r.value); \n } \n catch (error) { \n
 e =
{ error: error }; \n } \n finally { \n try { \n if (r && !r.done && (m = i["return"])) \n
 m.call(i); \n } \n finally { \n if (e) \n
 throw e.error; \n } \n } \n return
ar; \n } \n function __spread() { \n for (var ar = [], i = 0; i < arguments.length; i++) \n
 ar =
ar.concat(__read(arguments[i])); \n return ar; \n } \n function __spreadArrays() { \n for (var s = 0, i = 0, il
= arguments.length; i < il; i++) \n s += arguments[i].length; \n for (var r = Array(s), k = 0, i = 0; i < il;
i++) \n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++) \n r[k] = a[j]; \n return r; \n
 } \n ; \n function __await(v) { \n return this
instanceof __await ? (this.v = v, this) : new __await(v); \n } \n function __asyncGenerator(thisArg, _arguments,
generator) { \n if (!Symbol.asyncIterator) \n throw new TypeError("Symbol.asyncIterator is not
defined."); \n var g = generator.apply(thisArg, _arguments || []), i, q = []; \n return i = { }, verb("next"),
verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i; \n } \n function verb(n) { if
(g[n]) \n i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; \n
 } \n function resume(n, v) { try { \n step(g[n](v)); \n } \n catch (e) { \n
 settle(q[0][3], e); \n } \n } \n function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) :
settle(q[0][2], r); \n } \n function fulfill(value) { resume("next", value); } \n function reject(value) {
resume("throw",

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value); }
function settle(f, v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }
function __asyncDelegator(o) { var i, p; return i = {}, verb("next"), verb("throw", function (e) {
throw e; })), verb("return"), i[Symbol.iterator] = function () { return this; }, i; function verb(n, f) { i[n] = o[n]
? function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }
function __asyncValues(o) { if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator
is not defined."); var m = o[Symbol.asyncIterator], i; return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i); function verb(n) { i[n] = o[n] && function (v) {
return new Promise(function (resolve,
reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; } function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }
function __makeTemplateObject(cooked, raw) { if (Object.defineProperty) { Object.defineProperty(cooked,
"raw", { value: raw }); } else { cooked.raw = raw; } return cooked; }
var __setModuleDefault = Object.create ? (function (o, v) { Object.defineProperty(o, "default", {
enumerable: true, value: v }); }) : function (o, v) { o["default"] = v; }; function
__importStar(mod) { if (mod && mod.__esModule) return mod; var result = {}; if (mod
!= null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);
__setModuleDefault(result, mod); return result; }
function __importDefault(mod) { return (mod && mod.__esModule) ?
mod : { default: mod }; }
function __classPrivateFieldGet(receiver, privateMap) { if
(!privateMap.has(receiver)) throw new TypeError("attempted to get private field on non-instance");
return privateMap.get(receiver); }
function __classPrivateFieldSet(receiver, privateMap, value) { if
(!privateMap.has(receiver)) throw new TypeError("attempted to set private field on non-
instance"); privateMap.set(receiver, value); return value; }
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style
 * license that can be found in the LICENSE file at https://angular.io/license
 * Represents the
header configuration options
for an HTTP request.
 * Instances are immutable. Modifying methods return a cloned
 * instance with the
change. The original object is never changed.
 * @publicApi
 */
var HttpHeaders = /** @class */
(function () {
/** Constructs a new HTTP header object with the given values. */
function
HttpHeaders(headers) {
var _this = this;
/** Internal map of lowercased header names
to the normalized
 * form of the name (the form seen first). */
this.normalizedNames =
new Map();
/** Queued updates to be materialized the next initialization. */
this.lazyUpdate = null;
if (!headers) {
this.headers = new Map();
} else if
(typeof headers === 'string') {
this.lazyInit = function () {
_this.headers = new Map();
headers.split("\n").forEach(function (line) {
var index = line.indexOf(':');
if
(index > 0) {
var name = line.slice(0, index);
var key = name.toLowerCase();
var value = line.slice(index + 1).trim();
_this.maybeSetNormalizedName(name,
key);
if (_this.headers.has(key)) {
_this.headers.get(key).push(value);
}
else {
_this.headers.set(key, [value]);
}
}
});
}
else {
this.lazyInit = function () {
_this.headers = new Map();
Object.keys(headers).forEach(function (name) {
var values = headers[name];
var key = name.toLowerCase();
if (typeof values
=== 'string') {
values = [values];
}
if (values.length > 0) {
_this.headers.set(key, values);
_this.maybeSetNormalizedName(name, key);
}
});
}
}
/** Checks for existence of a given header.
 * @param name The header name to check for existence.
 * @returns True if the header

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exists, false otherwise.\n */\n HttpHeaders.prototype.has = function (name) {\n this.init();\n return this.headers.has(name.toLowerCase());\n }; \n /**\n * Retrieves the first value of a given header.\n *\n * @param name The header name.\n *\n * @returns The value string if the header exists, null otherwise\n */\n HttpHeaders.prototype.get = function (name) {\n this.init();\n var values = this.headers.get(name.toLowerCase());\n return values && values.length > 0 ? values[0] : null;\n }; \n /**\n * Retrieves the names of the headers.\n *\n * @returns A list of header names.\n */\n HttpHeaders.prototype.keys = function () {\n this.init();\n return Array.from(this.normalizedNames.values());\n }; \n /**\n * Retrieves a list of values for a given header.\n *\n * @param name The header name from which to retrieve values.\n *\n * @returns A string of values if the header exists, null otherwise.\n */\n HttpHeaders.prototype.getAll = function (name) {\n this.init();\n return this.headers.get(name.toLowerCase()) || null;\n }; \n /**\n * Appends a new value to the existing set of values for a header\n * and returns them in a clone of the original instance.\n *\n * @param name The header name for which to append the values.\n * @param value The value to append.\n *\n * @returns A clone of the HTTP headers object with the value appended to the given header.\n */\n HttpHeaders.prototype.append = function (name, value) {\n return this.clone({ name: name, value: value, op: 'a' });\n }; \n /**\n * Sets or modifies a value for a given header in a clone of the original instance.\n * If the header already exists, its value is replaced with the given value\n * in the returned object.\n *\n * @param name The header name.\n * @param value The value or values to set or override for the given header.\n *\n * @returns A clone of the HTTP headers object with the newly set header value.\n */\n HttpHeaders.prototype.set = function (name, value) {\n return this.clone({ name: name, value: value, op: 's' });\n }; \n /**\n * Deletes values for a given header in a clone of the original instance.\n *\n * @param name The header name.\n * @param value The value or values to delete for the given header.\n *\n * @returns A clone of the HTTP headers object with the given value deleted.\n */\n HttpHeaders.prototype.delete = function (name, value) {\n return this.clone({ name: name, value: value, op: 'd' });\n }; \n HttpHeaders.prototype.maybeSetNormalizedNames = function (name, lcName) {\n if (!this.normalizedNames.has(lcName)) {\n this.normalizedNames.set(lcName, name);\n }\n }; \n HttpHeaders.prototype.init = function () {\n var _this = this;\n if (!this.lazyInit) {\n if (this.lazyInit instanceof HttpHeaders) {\n this.copyFrom(this.lazyInit);\n } else {\n this.lazyInit();\n }\n this.lazyInit = null;\n if (!this.lazyUpdate) {\n this.lazyUpdate.forEach(function (update) {\n return _this.applyUpdate(update);\n });\n this.lazyUpdate = null;\n }\n }\n }; \n HttpHeaders.prototype.copyFrom = function (other) {\n var _this = this;\n other.init();\n Array.from(other.headers.keys()).forEach(function (key) {\n _this.headers.set(key, other.headers.get(key));\n _this.normalizedNames.set(key, other.normalizedNames.get(key));\n });\n }; \n HttpHeaders.prototype.clone = function (update) {\n var clone = new HttpHeaders();\n clone.lazyInit = (!this.lazyInit && this.lazyInit instanceof HttpHeaders) ? this.lazyInit : this;\n clone.lazyUpdate = (this.lazyUpdate || []).concat([update]);\n return clone;\n }; \n HttpHeaders.prototype.applyUpdate = function (update) {\n var key = update.name.toLowerCase();\n switch (update.op) {\n case 'a':\n case 's':\n var value = update.value;\n if (typeof value === 'string') {\n value = [value];\n }\n if (value.length === 0) {\n return;\n }\n this.maybeSetNormalizedNames(update.name, key);\n var base = (update.op === 'a' ? this.headers.get(key) : undefined) || [];\n base.push.apply(base, _spread(value));\n this.headers.set(key, base);\n break;\n case 'd':\n var toDelete_1 = update.value;\n if (!toDelete_1) {\n this.headers.delete(key);\n this.normalizedNames.delete(key);\n }\n else

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{\n var existing = this.headers.get(key);\n if (!existing) {\n return;\n }\n existing = existing.filter(function (value) { return toDelete_1.indexOf(value) === -1;\n });\n if (existing.length === 0) {\n this.headers.delete(key);\n }\n this.normalizedNames.delete(key);\n }\n else {\n this.headers.set(key,\nexisting);\n }\n }\n break;\n }\n };\n /**\n * @internal\n *\n * HttpHeaders.prototype.forEach = function (fn) {\n * var _this = this;\n * this.init();\n * Array.from(this.normalizedNames.keys()).forEach(function (key) { return\nfn(_this.normalizedNames.get(key), _this.headers.get(key)); });\n * return HttpHeaders;\n * });\n */\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n * governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n * Provides encoding and decoding of URL parameter and query-string values.\n * Serializes and\n * parses URL parameter keys and values to encode and decode them.\n * If you pass URL query parameters\n * without encoding,\n * the query parameters can be misinterpreted at the receiving end.\n *\n *\n *\n * @publicApi\n *\n * var HttpUrlEncodingCodec = /** @class */ (function\n *) {\n * function HttpUrlEncodingCodec() {\n * }\n * /**\n * * Encodes a key name for a URL parameter\n * * or query-string.\n * * @param key The key name.\n * * @returns The encoded key name.\n * *\n * HttpUrlEncodingCodec.prototype.encodeKey = function (key) {\n * return standardEncoding(key);\n * };\n * /**\n * * Encodes the value of a URL parameter or query-string.\n * * @param value The value.\n * *\n * @returns The encoded value.\n * *\n * HttpUrlEncodingCodec.prototype.encodeValue = function (value) {\n * return standardEncoding(value);\n * };\n * /**\n * * Decodes an encoded URL parameter or query-\n * * string key.\n * * @param key The encoded key name.\n * * @returns The decoded key name.\n * *\n * HttpUrlEncodingCodec.prototype.decodeKey = function (key) {\n * return decodeURIComponent(key);\n * };\n * /**\n * * Decodes\n * * an encoded URL parameter or query-string value.\n * * @param value The encoded value.\n * * @returns\n * * The decoded value.\n * *\n * HttpUrlEncodingCodec.prototype.decodeValue = function (value) {\n * return decodeURIComponent(value);\n * };\n * return HttpUrlEncodingCodec;\n * }());\n * function\n * paramParser(rawParams, codec) {\n * var map = new Map();\n * if (rawParams.length > 0) {\n * var\n * params = rawParams.split('&');\n * params.forEach(function (param) {\n * var eqIdx =\n * param.indexOf('=');\n * var _a = __read(eqIdx === -1 ?\n * [codec.decodeKey(param), ''] :\n * [codec.decodeKey(param.slice(0, eqIdx)), codec.decodeValue(param.slice(eqIdx + 1))], 2), key = _a[0], val =\n * _a[1];\n * var list = map.get(key) || [];\n * list.push(val);\n * map.set(key, list);\n * });\n * }\n * return map;\n * }\n * function standardEncoding(v) {\n * return encodeURIComponent(v)\n * .replace(/%40/gi, '@')\n * .replace(/%3A/gi, ':')\n * .replace(/%24/gi, '$')\n * .replace(/%2C/gi, ',')\n * .replace(/%3B/gi, ';')\n * .replace(/%2B/gi, '+')\n * .replace(/%3D/gi, '=')\n * .replace(/%3F/gi, '?')\n * .replace(/%2F/gi,\n * '/');\n * }\n * /**\n * * An HTTP request/response body that represents serialized parameters,\n * * per the MIME\n * * type `application/x-www-form-urlencoded`\n * * This class is immutable; all mutation operations return a\n * * new instance.\n * * @publicApi\n * *\n * var HttpParams = /** @class */ (function () {\n * function\n * HttpParams(options) {\n * var _this = this;\n * if (options === void 0) { options = {}; }\n * this.updates = null;\n * this.cloneFrom = null;\n * this.encoder = options.encoder || new\n * HttpUrlEncodingCodec();\n * if (!!options.fromString) {\n * if (!!options.fromObject) {\n * throw new Error("Cannot\n * specify both fromString and fromObject.");\n * }\n * this.map = paramParser(options.fromString,\n * this.encoder);\n * }\n * else if (!!options.fromObject) {\n * this.map = new Map();\n * Object.keys(options.fromObject).forEach(function (key) {\n * var value = options.fromObject[key];\n * _this.map.set(key, Array.isArray(value) ? value : [value]);\n * });\n * }\n * else {\n * this.map = null;\n * }\n * }\n * /**\n * * Reports whether the body includes one or more values for a\n * * given parameter.\n * * @param param The parameter name.\n * * @returns True if the parameter has one or

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more values,\n * false if it has no value or is not present.\n */\n HttpParams.prototype.has\n = function (param) {\n this.init();\n return this.map.has(param);\n }; \n /**\n * Retrieves\n the first value for a parameter.\n * @param param The parameter name.\n * @returns The first value of\n the given parameter,\n * or `null` if the parameter is not present.\n */\n HttpParams.prototype.get =\n function (param) {\n this.init();\n var res = this.map.get(param);\n return !!res ? res[0] : null;\n }; \n /**\n * Retrieves all values for a parameter.\n * @param param The parameter name.\n * @returns All values in a string array,\n * or `null` if the parameter not present.\n */\n HttpParams.prototype.getAll = function (param) {\n this.init();\n return this.map.get(param) || null;\n }; \n /**\n * Retrieves all the parameters for this body.\n * @returns The parameter\n names in a string array.\n */\n HttpParams.prototype.keys = function () {\n this.init();\n return Array.from(this.map.keys());\n }; \n /**\n * Appends a new value to existing values for a\n parameter.\n * @param param The parameter name.\n * @param value The new value to add.\n * @return A new body with the appended value.\n */\n HttpParams.prototype.append = function (param,\n value) {\n return this.clone({ param: param, value: value, op: 'a' });\n }; \n /**\n * Replaces the\n value for a parameter.\n * @param param The parameter name.\n * @param value The new value.\n * @return A new body with the new value.\n */\n HttpParams.prototype.set = function (param, value) {\n return this.clone({ param: param, value: value, op: 's' });\n }; \n /**\n * Removes a given value or\n all values from a\n parameter.\n * @param param The parameter name.\n * @param value The value to remove, if\n provided.\n * @return A new body with the given value removed, or with all values\n * removed if no\n value is specified.\n */\n HttpParams.prototype.delete = function (param, value) {\n return\n this.clone({ param: param, value: value, op: 'd' });\n }; \n /**\n * Serializes the body to an encoded\n string, where key-value pairs (separated by `=`) are\n * separated by `&`s.\n */\n HttpParams.prototype.toString = function () {\n var _this = this;\n this.init();\n return\n this.keys().\n .map(function (key) {\n var eKey = _this.encoder.encodeKey(key);\n // `a:\n [1]` produces `a=1`\n // `b: []` produces ``\n // `c: [1, 2]` produces `c=1&c=2`\n return _this.map.get(key).map(function\n (value) {\n return eKey + '=' + _this.encoder.encodeValue(value);\n }).join('&');\n }).join('&');\n //\n filter out empty values because `b: []` produces ``\n // which results in `a=1&&c=1&c=2` instead of\n `a=1&c=1&c=2` if we don't\n .filter(function (param) {\n return param !== '';\n }).join('&');\n }; \n HttpParams.prototype.clone = function (update) {\n var clone = new HttpParams({ encoder:\n this.encoder });\n clone.cloneFrom = this.cloneFrom || this;\n clone.updates = (this.updates ||\n []).concat([update]);\n return clone;\n }; \n HttpParams.prototype.init = function () {\n var\n _this = this;\n if (this.map === null) {\n this.map = new Map();\n }\n if\n (this.cloneFrom !== null) {\n this.cloneFrom.init();\n this.cloneFrom.keys().forEach(function\n (key)\n {\n return _this.map.set(key, _this.cloneFrom.map.get(key));\n });\n this.updates.forEach(function (update)\n {\n switch (update.op) {\n case 'a':\n case 's':\n var base =\n (update.op === 'a' ? _this.map.get(update.param) : undefined) || [];\n base.push(update.value);\n _this.map.set(update.param, base);\n break;\n case 'd':\n if (update.value !== undefined) {\n var base_1 = _this.map.get(update.param) || [];\n var idx = base_1.indexOf(update.value);\n if (idx !== -1) {\n base_1.splice(idx, 1);\n }\n if (base_1.length > 0) {\n _this.map.set(update.param,\n base_1);\n }\n }\n else {\n _this.map.delete(update.param);\n }\n _this.map.delete(update.param);\n break;\n }\n });\n this.cloneFrom = this.updates = null;\n }\n }; \n return HttpParams;\n }());\n
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/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
/**\n * Determine whether the given HTTP method may include a body.\n */\n function
mightHaveBody(method) {\n switch (method) {\n case 'DELETE':\n
case 'GET':\n case 'HEAD':\n case 'OPTIONS':\n case 'JSONP':\n return false;\n
default:\n return true;\n }\n }\n /**\n * Safely assert whether the given value is an
ArrayBuffer.\n */\n * In some execution environments ArrayBuffer is not defined.\n */\n function
isArrayBuffer(value) {\n return typeof ArrayBuffer !== 'undefined' && value instanceof ArrayBuffer;\n }\n
/**\n * Safely assert whether the given value is a Blob.\n */\n * In some execution environments Blob is not
defined.\n */\n function isBlob(value) {\n return typeof Blob !== 'undefined' && value instanceof Blob;\n
}\n /**\n * Safely assert whether the given value is a FormData instance.\n */\n * In some execution
environments FormData is not defined.\n */\n function isFormData(value) {\n return typeof FormData !==
'undefined' && value instanceof FormData;\n
}\n /**\n * An outgoing HTTP request with an optional typed body.\n */\n * `HttpRequest` represents an
outgoing request, including URL, method,\n * headers, body, and other request configuration options. Instances
should be\n * assumed to be immutable. To modify a `HttpRequest`, the `clone`\n * method should be used.\n
*\n * @publicApi\n */\n var HttpRequest = /** @class */ (function () {\n function HttpRequest(method,
url, third, fourth) {\n this.url = url;\n /**\n * The request body, or `null` if one isn't set.\n
*\n * Bodies are not enforced to be immutable, as they can include a reference to any\n * user-
defined data type. However, interceptors should take care to preserve\n * idempotence by treating them as
such.\n */\n this.body = null;\n /**\n * Whether this request should be made in a way
that
exposes progress events.\n */\n * Progress events are expensive (change detection runs on each event)
and so\n * they should only be requested if the consumer intends to monitor them.\n */\n
this.reportProgress = false;\n /**\n * Whether this request should be sent with outgoing credentials
(cookies).\n */\n this.withCredentials = false;\n /**\n * The expected response type of
the server.\n */\n * This is used to parse the response appropriately before returning it to\n *
the requestee.\n */\n this.responseType = 'json';\n this.method = method.toUpperCase();\n
// Next, need to figure out which argument holds the HttpRequestInit\n // options, if any.\n var
options;\n // Check whether a body argument is expected. The only valid way to omit\n
// the body argument is to use a known no-body method like GET.\n if (mightHaveBody(this.method) ||
!!fourth) {\n // Body is the third argument, options are the fourth.\n this.body = (third !==
undefined) ? third : null;\n options = fourth;\n }\n else {\n // No body required,
options are the third argument. The body stays null.\n options = third;\n }\n // If options have
been passed, interpret them.\n if (options) {\n // Normalize reportProgress and withCredentials.\n
this.reportProgress = !!options.reportProgress;\n this.withCredentials = !!options.withCredentials;\n
// Override default response type of 'json' if one is provided.\n if (!!options.responseType) {\n
this.responseType = options.responseType;\n }\n // Override
headers if they're provided.\n if (!!options.headers) {\n this.headers = options.headers;\n
}\n if (!!options.params) {\n this.params = options.params;\n }\n }\n //
If no headers have been passed in, construct a new HttpHeaders instance.\n if (!this.headers) {\n
this.headers = new HttpHeaders();\n }\n // If no parameters have been passed in, construct a new
HttpUrlEncodedParams instance.\n if (!this.params) {\n this.params = new HttpParams();\n
this.urlWithParams = url;\n }\n else {\n // Encode the parameters to a string in preparation for
inclusion in the URL.\n var params = this.params.toString();\n if (params.length === 0) {\n
// No parameters, the visible URL is just the URL given at creation
time.\n this.urlWithParams = url;\n }\n else {\n // Does the URL already
have query parameters? Look for '?'.\n var qIdx = url.indexOf('?');\n // There are 3 cases to

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handle:\n // 1) No existing parameters -> append '?' followed by params.\n // 2) '?' exists and
is followed by existing query string ->\n // append '&' followed by params.\n // 3) '?' exists
at the end of the url -> append params directly.\n // This basically amounts to determining the character,
if any, with\n // which to join the URL and parameters.\n var sep = qIdx === -1 ? '?' : (qIdx
< url.length - 1 ? '&' : '');\n this.urlWithParams = url + sep + params;\n }\n }\n }\n
/**\n * Transform the free-form body into a
serialized format suitable for\n * transmission to the server.\n */\n
HttpRequest.prototype.serializeBody = function () {\n // If no body is present, no need to serialize it.\n
if (this.body === null) {\n return null;\n }\n // Check whether the body is already in a
serialized form. If so,\n // it can just be returned directly.\n if (isArrayBuffer(this.body) ||
isBlob(this.body) || isFormData(this.body) ||\n typeof this.body === 'string') {\n return
this.body;\n }\n // Check whether the body is an instance of HttpUrlEncodedParams.\n if
(this.body instanceof HttpParams) {\n return this.body.toString();\n }\n // Check whether the
body is an object or array, and serialize with JSON if so.\n if (typeof this.body === 'object' || typeof this.body
=== 'boolean' ||\n Array.isArray(this.body))\n {\n return JSON.stringify(this.body);\n }\n // Fall back on toString() for everything else.\n
return this.body.toString();\n };\n /**\n * Examine the body and attempt to infer an appropriate
MIME type\n * for it.\n */\n * If no such type can be inferred, this method will return `null`.\n
*/\n HttpRequest.prototype.detectContentTypeHeader = function () {\n // An empty body has no content
type.\n if (this.body === null) {\n return null;\n }\n // FormData bodies rely on the
browser's content type assignment.\n if (isFormData(this.body)) {\n return null;\n }\n
// Blobs usually have their own content type. If it doesn't, then\n // no type can be inferred.\n if
(isBlob(this.body)) {\n return this.body.type || null;\n
 }\n // Array buffers have unknown contents and thus no type can be inferred.\n if
(isArrayBuffer(this.body)) {\n return null;\n }\n // Technically, strings could be a form of
JSON data, but it's safe enough\n // to assume they're plain strings.\n if (typeof this.body === 'string')\n
{\n return 'text/plain';\n }\n // `HttpUrlEncodedParams` has its own content-type.\n if
(this.body instanceof HttpParams) {\n return 'application/x-www-form-urlencoded;charset=UTF-8';\n
 }\n // Arrays, objects, and numbers will be encoded as JSON.\n if (typeof this.body === 'object' ||
typeof this.body === 'number' ||\n Array.isArray(this.body)) {\n return 'application/json';\n
 }\n // No type could be inferred.\n return null;\n };\n HttpRequest.prototype.clone
= function (update) {\n if (update === void 0) { update = {}; }\n // For method, url, and
responseType, take the current value unless\n // it is overridden in the update hash.\n var method =
update.method || this.method;\n var url = update.url || this.url;\n var responseType =
update.responseType || this.responseType;\n // The body is somewhat special - a `null` value in update.body
means\n // whatever current body is present is being overridden with an empty\n // body, whereas an
`undefined` value in update.body implies no\n // override.\n var body = (update.body !== undefined) ?
update.body : this.body;\n // Carefully handle the boolean options to differentiate between\n // `false`
and `undefined` in the update args.\n var withCredentials = (update.withCredentials !== undefined) ?
update.withCredentials : this.withCredentials;\n
 var reportProgress = (update.reportProgress !== undefined) ? update.reportProgress : this.reportProgress;\n
 // Headers and params may be appended to if `setHeaders` or\n // `setParams` are used.\n var
headers = update.headers || this.headers;\n var params = update.params || this.params;\n // Check
whether the caller has asked to add headers.\n if (update.setHeaders !== undefined) {\n // Set every
requested header.\n headers =\n Object.keys(update.setHeaders)\n .reduce(function (headers, name) { return headers.set(name, update.setHeaders[name]); }, headers);\n
 }\n // Check whether the caller has asked to set params.\n if (update.setParams) {\n // Set every
requested param.\n params = Object.keys(update.setParams)\n .reduce(function (params,

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param) { return
 params.set(param, update.setParams[param]); }, params);\n }\n // Finally, construct the new
 HttpRequest using the pieces from above.\n return new HttpRequest(method, url, body, {\n params:
 params,\n headers: headers,\n reportProgress: reportProgress,\n responseType:
 responseType,\n withCredentials: withCredentials,\n });\n }\n return HttpRequest;\n
 }());\n\n (function (HttpEventType) {\n /**\n * The request was sent out over the wire.\n */\n HttpEventType[HttpEventType["Sent"] = 0] = "Sent";\n /**\n * An upload progress event was
 received.\n */\n HttpEventType[HttpEventType["UploadProgress"] = 1] = "UploadProgress";\n
 /**\n * The response status code and headers were received.\n */\n
 HttpEventType[HttpEventType["ResponseHeader"] = 2] = "ResponseHeader";\n
 /**\n * A download progress event was received.\n */\n
 HttpEventType[HttpEventType["DownloadProgress"] = 3] = "DownloadProgress";\n /**\n * The full
 response including the body was received.\n */\n HttpEventType[HttpEventType["Response"] = 4] =
 "Response";\n /**\n * A custom event from an interceptor or a backend.\n */\n
 HttpEventType[HttpEventType["User"] = 5] = "User";\n })(exports.HttpEventType || (exports.HttpEventType =
 {}));\n /**\n * Base class for both `HttpResponse` and `HttpHeaderResponse`.\n */\n * @publicApi\n
 */\n var HttpResponseBase = /** @class */ (function () {\n /**\n * Super-constructor for all responses.\n
 */\n * The single parameter accepted is an initialization hash. Any properties\n * of the response passed
 there will override the default values.\n */\n function HttpResponseBase(init,
 defaultStatus, defaultStatusText) {\n if (defaultStatus === void 0) { defaultStatus = 200; }\n if
 (defaultStatusText === void 0) { defaultStatusText = 'OK'; }\n // If the hash has values passed, use them to
 initialize the response.\n // Otherwise use the default values.\n this.headers = init.headers || new
 HttpHeaders();\n this.status = init.status !== undefined ? init.status : defaultStatus;\n this.statusText =
 init.statusText || defaultStatusText;\n this.url = init.url || null;\n // Cache the ok value to avoid defining
 a getter.\n this.ok = this.status >= 200 && this.status < 300;\n }\n return HttpResponseBase;\n
 }());\n /**\n * A partial HTTP response which only includes the status and header data,\n * but no response
 body.\n */\n * `HttpHeaderResponse` is a `HttpEvent` available on the response\n * event stream, only when
 progress
 events are requested.\n */\n * @publicApi\n */\n var HttpHeaderResponse = /** @class */ (function
 (_super) {\n __extends(HttpHeaderResponse, _super);\n /**\n * Create a new `HttpHeaderResponse`
 with the given parameters.\n */\n function HttpHeaderResponse(init) {\n if (init === void 0) { init =
 {};\n }\n var _this = _super.call(this, init) || this;\n _this.type =
 exports.HttpEventType.ResponseHeader;\n return _this;\n }\n /**\n * Copy this
 `HttpHeaderResponse`, overriding its contents with the\n * given parameter hash.\n */\n
 HttpHeaderResponse.prototype.clone = function (update) {\n if (update === void 0) { update = {};\n }\n // Perform a straightforward initialization of the new HttpHeaderResponse,\n // overriding the current
 parameters with new ones if given.\n return new HttpHeaderResponse({\n headers: update.headers || this.headers,\n status: update.status !== undefined ? update.status :
 this.status,\n statusText: update.statusText || this.statusText,\n url: update.url || this.url ||
 undefined,\n });\n }\n return HttpHeaderResponse;\n })(HttpResponseBase);\n /**\n * A full
 HTTP response, including a typed response body (which may be `null`\n * if one was not returned).\n */\n *
 `HttpResponse` is a `HttpEvent` available on the response event\n * stream.\n */\n * @publicApi\n */\n
 var HttpResponse = /** @class */ (function (_super) {\n __extends(HttpResponse, _super);\n /**\n *
 Construct a new `HttpResponse`.\n */\n function HttpResponse(init) {\n if (init === void 0) { init =
 {};\n }\n var _this = _super.call(this, init) || this;\n _this.type = exports.HttpEventType.Response;\n
 _this.body
 = init.body !== undefined ? init.body : null;\n return _this;\n }\n HttpResponse.prototype.clone =
 function (update) {\n if (update === void 0) { update = {};\n }\n return new HttpResponse({\n

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body: (update.body !== undefined) ? update.body : this.body,\n headers: update.headers || this.headers,\n status: (update.status !== undefined) ? update.status : this.status,\n statusText: update.statusText ||\n this.statusText,\n url: update.url || this.url || undefined,\n });\n }\n return HttpResponse;\n}(HttpResponseBody);\n\n/**\n * A response that represents an error or failure, either from a\n * non-successful HTTP status, an error while executing the request,\n * or some other failure which occurred during the\n * parsing of the response.\n * Any error returned on the `Observable` response stream will be\n * wrapped in an `HttpErrorResponse` to provide additional context about\n * the state of the HTTP layer when the error occurred. The error property\n * will contain either a wrapped Error object or the error response returned\n * from the server.\n *\n * @publicApi\n */\nvar HttpErrorResponse = /** @class */ (function (_super) {\n __extends(HttpErrorResponse, _super);\n function HttpErrorResponse(init) {\n var _this =\n // Initialize with a default status of 0 / Unknown Error.\n _super.call(this, init, 0, 'Unknown Error') || this;\n _this.name = 'HttpErrorResponse';\n /**\n * Errors are never okay, even when the status code is in\n * the 2xx success range.\n */\n _this.ok = false;\n // If the response was successful, then this was\n // a parse error. Otherwise, it was\n // a protocol-level failure of some sort. Either the request failed in transit\n // or the server returned an unsuccessful status code.\n if (_this.status >= 200 && _this.status < 300)\n {\n _this.message = `Http failure during parsing for ` + (init.url || '(unknown url)');\n }\n else {\n _this.message = `Http failure response for ` + (init.url || '(unknown url)') + `: ` + init.status + ` ` + init.statusText;\n }\n _this.error = init.error || null;\n return _this;\n }\n return\n HttpErrorResponse;\n})(HttpResponseBody);\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/**\n * Constructs an instance of `HttpRequestOptions<T>` from a source `HttpMethodOptions` and the given `body`. This function clones the object and adds the body.\n *\n * Note that the `responseType` *options* value is a String that identifies the\n * single data type of the response.\n * A single overload version of the method handles each response type.\n * The value of `responseType` cannot be a union, as the combined signature could imply.\n *\n */\nfunction\naddBody(options, body) {\n return {\n body: body,\n headers: options.headers,\n observe:\n options.observe,\n params: options.params,\n reportProgress: options.reportProgress,\n responseType: options.responseType,\n withCredentials: options.withCredentials,\n }; }\n\n/**\n * Performs HTTP requests.\n * This service is available as an injectable class, with methods to perform HTTP\n * requests.\n * Each request method has multiple signatures, and the return type varies based on\n * the signature that is called (mainly the values of `observe` and `responseType`).\n *\n */\n\n/**\n * Note that the `responseType` *options* value is a String that identifies the\n * single data type of the response.\n * A single overload version of the method handles each response type.\n * The value of `responseType` cannot be a union, as the combined signature could imply.\n *\n */\n\n@usageNotes\n\nSample HTTP requests for the [Tour of Heroes](/tutorial/toh-pt0) application.\n\n#### HTTP Request Example\n\n```\n * // GET heroes whose name contains search term\n * searchHeroes(term: string): observable<Hero[]> {\n * const params = new HttpParams({fromString: 'name=' + term});\n * return\n * this.httpClient.request('GET', this.heroesUrl, {responseType: 'json', params});\n * }\n\n#### JSONP Example\n\n```\n * requestJsonp(url, callback = 'callback') {\n * return\n * this.httpClient.jsonp(this.heroesURL, callback);\n * }\n\n#### PATCH Example\n\n```\n * // PATCH one of the heroes' name\n * patchHero (id: number, heroName: string): Observable<{}> {\n * const url = `${this.heroesUrl}/${id}`; // PATCH api/heroes/42\n * return\n * this.httpClient.patch(url, {name: heroName}, httpOptions)\n * }\n\n.pipe(catchError(this.handleError('patchHero')));\n\n```\n\n@see [HTTP Guide](guide/http)\n\n@publicApi\n\nvar HttpClient = /** @class */ (function () {\n function HttpClient(handler) {\n this.handler = handler;\n }\n /**\n * Constructs an observable for a generic HTTP request that,\n * when subscribed,\n * fires the request through the chain of registered interceptors and on to the\n */

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server.\n *\n * You can pass an `HttpRequest` directly as the only parameter. In this case,\n * the call\n returns an observable of the raw `HttpEvent` stream.\n *\n * Alternatively\n you can pass an HTTP method as the first parameter,\n * a URL string as the second, and an options hash\n containing the request body as the third.\n * See `addBody()`. In this case, the specified `responseType` and\n `observe` options determine the\n * type of returned observable.\n * * The `responseType` value\n determines how a successful response body is parsed.\n * * If `responseType` is the default `json`, you can\n pass a type interface for the resulting\n * object as a type parameter to the call.\n *\n * The `observe`\n value determines the return type, according to what you are interested in\n * observing.\n * * An\n `observe` value of events returns an observable of the raw `HttpEvent` stream, including\n * progress events by\n default.\n * * An `observe` value of response returns an observable of `HttpResponse<T>`,\n * where the\n `T` parameter depends on the `responseType` and any\n optionally provided type\n * parameter.\n * * An `observe` value of body returns an observable of `<T>`\n with the same `T` body type.\n *\n */\n HttpClient.prototype.request = function (first, url, options) {\n var _this = this;\n if (options === void 0) { options = {}; }\n var req;\n // First, check\n whether the primary argument is an instance of `HttpRequest`.\n if (first instanceof HttpRequest) {\n // It is. The other arguments must be undefined (per the signatures) and can be\n // ignored.\n req\n = first;\n } else {\n // It's a string, so it represents a URL. Construct a request based on it,\n // and incorporate the remaining arguments (assuming `GET` unless a method is\n // provided.\n // Figure out the headers.\n var headers = undefined;\n if (options.headers instanceof HttpHeaders) {\n headers = options.headers;\n }\n else {\n headers = new HttpHeaders(options.headers);\n }\n // Sort out parameters.\n var params = undefined;\n if (!!options.params) {\n if (options.params instanceof\n HttpParams) {\n params = options.params;\n }\n else {\n params = new HttpParams({ fromObject: options.params });\n }\n }\n // Construct the\n request.\n req = new HttpRequest(first, url, (options.body !== undefined ? options.body : null), {\n headers: headers,\n params: params,\n reportProgress: options.reportProgress,\n // By default, JSON is assumed to be returned for\n all calls.\n responseType: options.responseType || 'json',\n withCredentials:\n options.withCredentials,\n });\n // Start with an Observable.of() the initial request, and\n run the handler (which\n // includes all interceptors) inside a concatMap(). This way, the handler runs\n // inside an Observable chain, which causes interceptors to be re-run on every\n // subscription (this also\n makes retries re-run the handler, including interceptors).\n var events$ =\n rxjs.of(req).pipe(operators.concatMap(function (req) { return _this.handler.handle(req); }));\n // If coming via\n the API signature which accepts a previously constructed HttpRequest,\n // the only option is to get the event\n stream. Otherwise, return the event stream if\n // that is what was requested.\n if (first instanceof\n HttpRequest || options.observe === 'events') {\n return events$;\n }\n // The requested stream contains either the full response or the body. In\n either\n // case, the first step is to filter the event stream to extract a stream of\n // responses(s).\n var res$ = events$.pipe(operators.filter(function (event) { return event instanceof HttpResponse; }));\n // Decide which stream to return.\n switch (options.observe || 'body') {\n case 'body':\n // The requested stream is the body. Map the response stream to the response\n // body. This could be done\n more simply, but a misbehaving interceptor might\n // transform the response body into a different\n format and ignore the requested\n // responseType. Guard against this by validating that the response is\n of the\n // requested type.\n switch (req.responseType) {\n case 'arraybuffer':\n return res$.pipe(operators.map(function (res) {\n // Validate that the body is an ArrayBuffer.\n if (res.body !== null && !(res.body instanceof\n ArrayBuffer)) {\n throw new Error('Response is not an ArrayBuffer.');
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res$.pipe(operators.map(function (res) {\n // Validate that the body is a Blob.\nif (res.body !== null && !(res.body instanceof Blob)) {\n throw new Error('Response is not a\nBlob.);\n }\n return res.body;\n });\n case\n'text':\n return res$.pipe(operators.map(function (res) {\n // Validate that the body is a\nstring.\n if (res.body !== null && typeof res.body !== 'string') {\n throw\nnew Error('Response is not a string.);\n }\n return res.body;\n });\n case 'json':\n default:\n // No validation needed for JSON\nresponses, as they can be of any type.\n return res$.pipe(operators.map(function (res) { return\nres.body; }));\n }\n case 'response':\n // The response stream was requested directly,\nso return it.\n return res$;\n default:\n // Guard against new future observe types\nbeing added.\n throw new Error(\"Unreachable: unhandled observe type \" + options.observe + "\");\n });\n /**\n * Constructs an observable that, when subscribed, causes the configured\nrequest to execute on the server. See the individual overloads for\n * details on the return type.\n *\n * @param url The endpoint URL.\n * @param options The HTTP options to send with the request.\n *\n */\n HttpClientModule.prototype.delete = function (url, options) {\n if (options === void 0) { options =\n{}; }\n return this.request('DELETE', url, options);\n }; \n /**\n * Constructs an observable that,\nwhen subscribed, causes the configured\n * `GET` request to execute on the server. See the individual\noverloads for\n * details on the return type.\n */\n HttpClientModule.prototype.get = function (url, options)\n{\n if\n (options === void 0) { options = {}; }\n return this.request('GET', url, options);\n }; \n /**\n * Constructs an observable that, when subscribed, causes the configured\n * `HEAD` request to execute on the\nserver. The `HEAD` method returns\n * meta information about the resource without transferring the\nresource itself. See the individual overloads for\n * details on the return type.\n */\n HttpClientModule.prototype.head = function (url, options) {\n if (options === void 0) { options = {}; }\n return this.request('HEAD', url, options);\n }; \n /**\n * Constructs an `Observable` that, when\nsubscribed, causes a request with the special method\n * `JSONP` to be dispatched via the interceptor\npipeline.\n * The [JSONP pattern](https://en.wikipedia.org/wiki/JSONP) works around limitations of certain\n * API endpoints that don't support newer,\n * and preferable [CORS](https://developer.mozilla.org/en-US/docs/Web/HTTP/CORS) protocol.\n *\n * JSONP treats the endpoint API as a JavaScript file and tricks the browser to process the\n * requests even if the\nAPI endpoint is not located on the same domain (origin) as the client-side\n * application making the request.\n *\n * The endpoint API must support JSONP callback for JSONP requests to work.\n * The resource API\nreturns the JSON response wrapped in a callback function.\n * You can pass the callback function name as one\nof the query parameters.\n * Note that JSONP requests can only be used with `GET` requests.\n *\n * @param url The resource URL.\n * @param callbackParam The callback function name.\n */\n HttpClientModule.prototype.jsonp = function (url, callbackParam) {\n return this.request('JSONP', url, {\nparams: new HttpParams().append(callbackParam,\n'JSONP_CALLBACK'),\n observe: 'body',\n responseType: 'json',\n });\n }; \n /**\n * Constructs an `Observable` that, when subscribed, causes the configured\n * `OPTIONS` request\nto execute on the server. This method allows the client\n * to determine the supported HTTP methods and other\ncapabilities of an endpoint,\n * without implying a resource action. See the individual overloads for\n * details on the return type.\n */\n HttpClientModule.prototype.options = function (url, options) {\n if (options\n=== void 0) { options = {}; }\n return this.request('OPTIONS', url, options);\n }; \n /**\n * Constructs an observable that, when subscribed, causes the configured\n * `PATCH` request to execute on the\nserver. See the individual overloads for\n * details on the return type.\n */\n HttpClientModule.prototype.patch = function

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(url, body, options) {\n if (options === void 0) { options = {}; }\n return this.request('PATCH', url,\n addBody(options, body));\n };\n /**\n * Constructs an observable that, when subscribed, causes the\n configured\n * `POST` request to execute on the server. The server responds with the location of\n * the\n replaced resource. See the individual overloads for\n * details on the return type.\n */\n HttpClient.prototype.post = function (url, body, options) {\n if (options === void 0) { options = {}; }\n return this.request('POST', url, addBody(options, body));\n };\n /**\n * Constructs an observable that,\n when subscribed, causes the configured\n * `PUT` request to execute on the server. The `PUT` method replaces\n an existing resource\n * with a new set of values.\n * See the individual overloads for details on the return\n type.\n */\n HttpClient.prototype.put = function (url, body, options) {\n if (options === void 0) { options = {}; }\n return this.request('PUT', url, addBody(options, body));\n };\n return HttpClient;\n }());\n HttpClient.decorators = [\n { type: core.Injectable }\n];\n HttpClient.ctorParameters = function () { return\n [\n { type: HttpHandler }\n];\n };\n /**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n /**\n * `HttpHandler` which applies an `HttpInterceptor` to\n an `HttpRequest`.\n *\n *\n */\n var HttpInterceptorHandler = /** @class */ (function () {\n function\n HttpInterceptorHandler(next, interceptor) {\n this.next = next;\n this.interceptor = interceptor;\n }\n HttpInterceptorHandler.prototype.handle\n = function (req) {\n return this.interceptor.intercept(req, this.next);\n };\n return\n HttpInterceptorHandler;\n }());\n /**\n * A multi-provider token that represents the array of registered\n *\n * `HttpInterceptor` objects.\n *\n * @publicApi\n */\n var HTTP_INTERCEPTORS = new\n core.InjectionToken('HTTP_INTERCEPTORS');\n var NoopInterceptor = /** @class */ (function () {\n function\n NoopInterceptor() {\n }\n NoopInterceptor.prototype.intercept = function (req, next) {\n return\n next.handle(req);\n };\n return\n NoopInterceptor;\n }());\n NoopInterceptor.decorators = [\n {\n type: core.Injectable\n }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n // Every\n request made through JSONP needs a callback name that's unique across the\n // whole page. Each request is\n assigned an id and the callback name is constructed\n // from that. The next id to be assigned is tracked in a global\n variable here that\n // is shared among all applications on the page.\n var nextRequestId = 0;\n // Error text\n given when a JSONP script is injected, but doesn't invoke the callback\n // passed in its URL.\n var\n JSONP_ERR_NO_CALLBACK = 'JSONP injected script did not invoke callback.';\n // Error text given when a\n request is passed to the JsonpClientBackend that doesn't\n // have a request method JSONP.\n var\n JSONP_ERR_WRONG_METHOD = 'JSONP requests must use JSONP request method.';\n var\n JSONP_ERR_WRONG_RESPONSE_TYPE = 'JSONP requests must use Json response type.';\n /**\n * DI\n token/abstract type representing a map of JSONP callbacks.\n *\n * In the browser, this should always be the\n `window` object.\n *\n */\n /**\n */\n var JsonpCallbackContext = /** @class */ (function () {\n function\n JsonpCallbackContext() {\n }\n return\n JsonpCallbackContext;\n }());\n /**\n * Processes an `HttpRequest` with the JSONP method,\n *\n * by performing JSONP style requests.\n * @see `HttpHandler`\n * @see `HttpXhrBackend`\n *\n */\n @publicApi\n /**\n */\n var JsonpClientBackend = /** @class */ (function () {\n function\n JsonpClientBackend(callbackMap, document) {\n this.callbackMap = callbackMap;\n this.document =\n document;\n }\n /**\n * A resolved promise that can be used to schedule microtasks in the event\n handlers.\n */\n this.resolvedPromise = Promise.resolve();\n /**\n * Get the name of\n the next callback method, by incrementing the global `nextRequestId`.\n */\n JsonpClientBackend.prototype.nextCallback = function () {\n return\n `ng_jsonp_callback_${\n + nextRequestId++\n }`;\n };\n /**\n * Processes a JSONP request and returns an event stream of the\n results.\n * @param req The request object.\n * @returns An observable of the response events.\n */\n
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*/\n JsonpClientBackend.prototype.handle = function (req) {\n var _this = this;\n // Firstly, check both the method and response type. If either doesn't match\n // then the request was improperly routed here and cannot be handled.\n if (req.method !== 'JSONP') {\n throw new Error(JSONP_ERR_WRONG_METHOD);\n }\n else if (req.responseType !== 'json') {\n throw new Error(JSONP_ERR_WRONG_RESPONSE_TYPE);\n }\n // Everything else happens inside the Observable boundary.\n return new rxjs.Observable(function (observer) {\n // The first step to make a request is to generate the callback name, and replace the\n // callback placeholder in the URL with the name. Care has to be taken here to ensure\n // a trailing &, if matched, gets inserted back into the URL in the correct place.\n var callback = _this.nextCallback();\n var url = req.urlWithParams.replace(/=JSONP_CALLBACK(&|$/),\n \"=\" + callback + \"%1\");\n // Construct the <script> tag and point it at the URL.\n var node = _this.document.createElement('script');\n node.src = url;\n // A JSONP request requires waiting for multiple callbacks. These variables\n // are closed over and track state across those callbacks.\n // The response object, if one has been received, or null otherwise.\n var body = null;\n // Whether the response callback has been called.\n var finished = false;\n // Whether the request has been cancelled (and thus any other callbacks)\n // should be ignored.\n var cancelled = false;\n // Set the response callback in this.callbackMap (which will be the window\n // object in the browser. The script being loaded via the <script> tag will\n // eventually call this callback.\n _this.callbackMap[callback] = function (data) {\n // Data has been received from the JSONP script. Firstly, delete this callback.\n delete _this.callbackMap[callback];\n // Next, make sure the request wasn't cancelled in the meantime.\n if (cancelled) {\n return;\n }\n // Set state to indicate data was received.\n body = data;\n finished = true;\n };\n // cleanup() is a utility closure that removes the <script> from the page and\n // the response callback from the window. This logic is used in both the\n // success, error, and cancellation paths, so it's extracted out for convenience.\n var cleanup = function () {\n // Remove the <script> tag if it's still on the page.\n if (node.parentNode) {\n node.parentNode.removeChild(node);\n }\n // Remove the response callback from the callbackMap (window object in the\n // browser).\n delete _this.callbackMap[callback];\n };\n // onLoad() is the success callback which runs after the response callback\n // if the JSONP script loads successfully. The event itself is unimportant.\n // If something went wrong, onLoad() may run without the response callback\n // having been invoked.\n var onLoad = function (event) {\n // Do nothing if the request has been cancelled.\n if (cancelled) {\n return;\n }\n // We wrap it in an extra Promise, to ensure the microtask\n // is scheduled after the loaded endpoint has executed any potential microtask itself,\n // which is not guaranteed in Internet Explorer and EdgeHTML. See issue #39496\n _this.resolvedPromise.then(function () {\n // Cleanup the page.\n cleanup();\n // Check whether the response callback has run.\n if (!finished) {\n // It hasn't, something went wrong with the request. Return an error via\n // the Observable error path. All JSONP errors have status 0.\n observer.error(new HttpErrorResponse({\n url: url,\n status: 0,\n statusText: 'JSONP Error',\n error: new Error(JSONP_ERR_NO_CALLBACK),\n }));\n return;\n }\n // Success. body either contains the response body or null if none was\n // returned.\n observer.next(new HttpResponse({\n body: body,\n status: 200,\n statusText: 'OK',\n url: url,\n }));\n // Complete the stream, the response is over.\n observer.complete();\n });\n };\n // onError() is the error callback, which runs if the script returned generates\n // a Javascript error. It emits the error via the Observable error channel as\n // a HttpErrorResponse.\n var onError = function (error) {\n // If the request was already cancelled, no need to emit anything.\n if

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(cancelled) {\n return;\n }\n\n cleanup();\n\n // Wrap the error in a\n HttpErrorResponse.\n observer.error(new HttpResponse({\n status: 0,\n statusText: 'JSONP Error',\n url: url,\n }));\n });\n\n // Subscribe to both the success (load) and error events on the <script> tag,\n // and add it to the\n page.\n node.addEventListener('load', onLoad);\n node.addEventListener('error', onError);\n\n _this.document.body.appendChild(node);\n\n // The request has now been successfully sent.\n observer.next({ type:\nexports.HttpEventType.Sent });\n // Cancellation handler.\n return function () {\n // Track the cancellation so event listeners won't do anything even if already scheduled.\n cancelled = true;\n // Remove the event listeners so they won't run if the events later fire.\n node.removeEventListener('load', onLoad);\n node.removeEventListener('error', onError);\n\n // And finally, clean up the page.\n cleanup();\n }; \n }; \n }; \n return\n\n JsonpClientBackend;\n }());\n JsonpClientBackend.decorators = [\n { type: core.Injectable }\n];\n\n JsonpClientBackend.ctorParameters = function () { return [\n { type: JsonpCallbackContext },\n { type: undefined, decorators:\n\n [{ type: core.Inject, args: [common.DOCUMENT,] }] }\n]; }; \n\n /**\n * Identifies requests with the method JSONP and\n * shifts them to the `JsonpClientBackend`.\n *\n * @see `HttpInterceptor`\n *\n * @publicApi\n */\n var JsonpInterceptor = /** @class */ (function () {\n function JsonpInterceptor(jsonp)\n {\n this.jsonp = jsonp;\n }\n\n /**\n * Identifies and handles a given JSONP request.\n *\n * @param req The outgoing request object to handle.\n * @param next The next interceptor in the chain, or the backend\n * if no interceptors remain in the chain.\n * @returns An observable of the event stream.\n */\n JsonpInterceptor.prototype.intercept = function (req, next) {\n if (req.method === 'JSONP') {\n return this.jsonp.handle(req);\n }\n // Fall through for normal HTTP requests.\n return\n next.handle(req);\n }\n\n ;\n return JsonpInterceptor;\n }());\n\n JsonpInterceptor.decorators = [\n { type: core.Injectable }\n];\n\n JsonpInterceptor.ctorParameters = function () { return [\n { type: JsonpClientBackend }\n]; }; \n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n var XSSI_PREFIX = /^\\(\\|\\|\\|'?,?\\n;/;\n\n /**\n * Determine an appropriate URL for the response, by checking\n * either\n * XMLHttpRequest.responseURL or the X-Request-URL header.\n */\n function\n getResponseUrl(xhr) {\n if ('responseURL' in xhr && xhr.responseURL) {\n return xhr.responseURL;\n }\n if (/^X-Request-URL:/m.test(xhr.getAllResponseHeaders())) {\n return\n xhr.getResponseHeader('X-Request-URL');\n }\n return null;\n }\n\n /**\n * A wrapper around the `XMLHttpRequest` constructor.\n */\n @publicApi\n var XhrFactory =\n /** @class */ (function () {\n function XhrFactory() {\n }\n\n return XhrFactory;\n }());\n\n /**\n * A factory for `HttpXhrBackend` that uses the `XMLHttpRequest` browser API.\n */\n @publicApi\n var BrowserXhr =\n /** @class */ (function () {\n function BrowserXhr() {\n }\n\n BrowserXhr.prototype.build = function ()\n {\n return (new XMLHttpRequest());\n }\n\n return BrowserXhr;\n }());\n\n BrowserXhr.decorators = [\n { type: core.Injectable }\n];\n\n BrowserXhr.ctorParameters = function () { return []; }; \n\n /**\n * Uses `XMLHttpRequest` to send requests to a backend server.\n * @see `Handler`\n * @see\n `JsonpClientBackend`\n *\n * @publicApi\n */\n @publicApi\n var HttpXhrBackend = /** @class */ (function () {\n function HttpXhrBackend(xhrFactory) {\n this.xhrFactory = xhrFactory;\n }\n\n /**\n * Processes a request and returns a stream of response\n * events.\n * @param req The request object.\n * @returns An observable of the response events.\n */\n HttpXhrBackend.prototype.handle = function (req) {\n var _this = this;\n\n // Quick check to give a better error message when a user attempts to use\n // HttpClient.jsonp() without installing the\n HttpClientModule\n if (req.method === 'JSONP') {\n throw new Error("Attempted to construct\n Jsonp request without HttpClientModule installed.");\n }\n\n // Everything happens on
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Observable subscription.\n return new rxjs.Observable(function (observer) {\n // Start by setting up
the XHR object with request method, URL, and withCredentials flag.\n var xhr =
_this.xhrFactory.build();\n xhr.open(req.method,
req.urlWithParams);\n if (!req.withCredentials) {\n xhr.withCredentials = true;\n }\n // Add all the requested headers.\n req.headers.forEach(function (name, values) { return
xhr.setRequestHeader(name, values.join(',')); });\n // Add an Accept header if one isn't present already.\n if (!req.headers.has('Accept')) {\n xhr.setRequestHeader('Accept', 'application/json, text/plain,
/');\n }\n // Auto-detect the Content-Type header if one isn't present already.\n if
(!req.headers.has('Content-Type')) {\n var detectedType = req.detectContentTypeHeader();\n }\n // Sometimes Content-Type detection fails.\n if (detectedType !== null) {\n xhr.setRequestHeader('Content-Type', detectedType);\n }\n // Set the responseType if one was requested.\n if (req.responseType) {\n var responseType =
req.responseType.toLowerCase();\n // JSON responses need to be processed as text. This is because if
the server\n // returns an XSSI-prefixed JSON response, the browser will fail to parse it,\n // retrieve the prefixed JSON
xhr.response will be null, and xhr.responseText cannot be accessed to\n // data in order to strip the prefix. Thus, all JSON\n // is parsed by first requesting text and then applying
JSON.parse.\n xhr.responseType = ((responseType !== 'json') ? responseType : 'text');\n }\n // Serialize the request body if one is present. If not, this will be set to null.\n var reqBody =
req.serializeBody();\n // If progress events are enabled, response headers will be delivered\n // in two events - the HttpHeadersResponse event and the full HttpResponse\n // event. However,
since response headers don't change in between these\n // two events, it doesn't make sense to parse them
twice. So headerResponse\n // caches the data extracted from the response whenever it's first parsed,\n // to ensure parsing isn't duplicated.\n var headerResponse = null;\n // partialFromXhr extracts
the HttpHeadersResponse from the current XMLHttpRequest\n // state, and memoizes it into
headerResponse.\n var partialFromXhr = function () {\n if (headerResponse !== null) {\n return headerResponse;\n }\n // Read status and normalize an IE9 bug
(http://bugs.jquery.com/ticket/1450).\n var status = xhr.status === 1223 ? 204 : xhr.status;\n var statusText
= xhr.statusText || 'OK';\n // Parse headers from XMLHttpRequest - this step is lazy.\n var
headers = new HttpHeaders(xhr.getAllResponseHeaders());\n // Read the response URL from the
XMLHttpRequest instance and fall back on the\n // request URL.\n var url =
getResponseUrl(xhr) || req.url;\n // Construct the HttpHeadersResponse and memoize it.\n headerResponse = new HttpHeadersResponse({ headers: headers, status: status, statusText: statusText, url: url });\n return headerResponse;\n };\n // Next, a few closures are defined for the various events
which XMLHttpRequest can\n // emit. This allows them to be unregistered as event listeners later.\n // First up is the load event, which represents a response being fully available.\n var onLoad = function ()
{\n // Read response state from the memoized partial data.\n var _a = partialFromXhr(), headers =
_a.headers, status = _a.status, statusText = _a.statusText, url = _a.url;\n // The body will be read out if
present.\n var body = null;\n if (status !== 204) {\n // Use
XMLHttpRequest.response if set, responseText otherwise.\n body = (typeof xhr.response ===
'undefined') ? xhr.responseText : xhr.response;\n }\n // Normalize another potential bug (this
one comes from CORS).\n if (status === 0) {\n status = !!body ? 200 : 0;\n }\n // ok determines whether the response will be transmitted on the event or\n // error channel.
Unsuccessful status codes (not 2xx) will always be errors,\n // but a successful status
code can still result in an error if the user\n // asked for JSON data and the body cannot be parsed as
such.\n var ok = status >= 200 && status < 300;\n // Check whether the body needs to be
parsed as JSON (in many cases the browser\n // will have done that already).\n if

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(req.responseType === 'json' && typeof body === 'string') {\n // Save the original body, before
attempting XSSI prefix stripping.\n var originalBody = body;\n body =
body.replace(XSSI_PREFIX, "");\n try {\n // Attempt the parse. If it fails, a parse
error should be delivered to the user.\n body = body !== "" ? JSON.parse(body) : null;\n
}\n catch (error) {\n // Since the JSON.parse failed, it's reasonable to
assume this might not have been a\n // JSON response. Restore the original body (including any
XSSI prefix) to deliver\n // a better error response.\n body = originalBody;\n
 // If this was an error request to begin with, leave it as a string, it probably\n // just isn't
JSON. Otherwise, deliver the parsing error to the user.\n if (ok) {\n // Even
though the response status was 2xx, this is still an error.\n ok = false;\n // The
parse error contains the text of the body that failed to parse.\n body = { error: error, text: body
};\n }\n }\n if (ok) {\n // A successful
response is delivered on
the event stream.\n observer.next(new HttpResponseMessage({\n body: body,\n
 headers: headers,\n status: status,\n statusText: statusText,\n
url: url || undefined,\n }));\n // The full body has been received and delivered, no further
events\n // are possible. This request is complete.\n observer.complete();\n
}\n else {\n // An unsuccessful request is delivered on the error channel.\n
observer.error(new HttpResponseMessage({\n // The error in this case is the response body (error from
the server).\n error: body,\n headers: headers,\n status: status,\n
 statusText: statusText,\n url: url || undefined,\n }));\n }\n
};\n // The onError callback is called when something goes wrong at the network level.\n //
Connection timeout, DNS error, offline, etc. These are actual errors, and are\n // transmitted on the error
channel.\n var onError = function (error) {\n var url = partialFromXhr().url;\n var
res = new HttpResponseMessage({\n error: error,\n status: xhr.status || 0,\n
 statusText: xhr.statusText || 'Unknown Error',\n url: url || undefined,\n });\n
observer.error(res);\n }; \n // The sentHeaders flag tracks whether the HttpResponseMessage
event\n // has been sent on the stream.
This is necessary to track if progress\n // is enabled since the event will be sent on only the first
download\n // progress event.\n var sentHeaders = false;\n // The download progress
event handler, which is only registered if\n // progress events are enabled.\n var onDownloadProgress
= function (event) {\n // Send the HttpResponseMessage event if it hasn't been sent already.\n
if (!sentHeaders) {\n observer.next(partialFromXhr());\n sentHeaders = true;\n
}\n // Start building the download progress event to deliver on the response\n // event
stream.\n var progressEvent = {\n type: exports.HttpEventType.DownloadProgress,\n
 loaded: event.loaded,\n };\n //
Set the total number of bytes in the event if it's available.\n if (event.lengthComputable) {\n
 progressEvent.total = event.total;\n }\n // If the request was for text content and a partial
response is\n // available on XMLHttpRequest, include it in the progress event\n // to allow
for streaming reads.\n if (req.responseType === 'text' && !!xhr.responseText) {\n
 progressEvent.partialText = xhr.responseText;\n }\n // Finally, fire the event.\n
observer.next(progressEvent);\n }; \n // The upload progress event handler, which is only
registered if\n // progress events are enabled.\n var onUpProgress = function (event) {\n
 // Upload progress events are simpler. Begin building the progress\n
 // event.\n var progress = {\n type: exports.HttpEventType.UploadProgress,\n
 loaded: event.loaded,\n };\n // If the total number of bytes being uploaded is
available, include\n // it.\n if (event.lengthComputable) {\n progress.total =

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event.total;\n }\n // Send the event.\n observer.next(progress);\n };\n // By default, register for load and error events.\n xhr.addListener('load', onLoad);\n xhr.addListener('error', onError);\n // Progress events are only enabled if requested.\n if (req.reportProgress) {\n // Download progress is always enabled if requested.\n xhr.addListener('progress', onDownProgress);\n // Upload progress depends on whether there is a body to upload.\n if (reqBody !== null && xhr.upload) {\n xhr.upload.addListener('progress', onUpProgress);\n }\n // Fire the request, and notify the event stream that it was fired.\n xhr.send(reqBody);\n observer.next({ type: exports.HttpEventType.Sent });\n // This is the return from the Observable function,\n which is the\n // request cancellation handler.\n return function () {\n // On a\n // cancellation, remove all registered event listeners.\n xhr.removeListener('error', onError);\n xhr.removeListener('load', onLoad);\n if (req.reportProgress) {\n xhr.removeListener('progress', onDownProgress);\n if (reqBody !== null && xhr.upload) {\n xhr.upload.removeListener('progress', onUpProgress);\n }\n }\n // Finally, abort the in-flight request.\n if (xhr.readyState !== xhr.DONE) {\n xhr.abort();\n }\n }; \n return HttpXhrBackend;\n };\n HttpXhrBackend.decorators = [\n { type: core.Injectable }\n];\n HttpXhrBackend.ctorParameters = function\n () { return [\n { type: XhrFactory }\n]; }; \n /**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n var XSRF_COOKIE_NAME = new\n core.InjectionToken('XSRF_COOKIE_NAME');\n var XSRF_HEADER_NAME = new\n core.InjectionToken('XSRF_HEADER_NAME');\n /**\n * Retrieves the current XSRF token to use with the next outgoing request.\n */\n @publicApi\n var\n HttpXsrfTokenExtractor = /** @class */ (function () {\n function HttpXsrfTokenExtractor() {\n }\n return HttpXsrfTokenExtractor;\n }());\n /**\n * `HttpXsrfTokenExtractor` which retrieves the token from a\n cookie.\n */\n var HttpXsrfCookieExtractor = /** @class */ (function () {\n function\n HttpXsrfCookieExtractor(doc, platform, cookieName) {\n this.doc = doc;\n this.platform = platform;\n this.cookieName = cookieName;\n this.lastCookieString = '';\n this.lastToken = null;\n }\n /**\n * @internal for testing\n */\n this.parseCount = 0;\n }());\n HttpXsrfCookieExtractor.prototype.getToken = function () {\n if (this.platform === 'server') {\n return null;\n }\n var cookieString\n = this.doc.cookie || '';\n if (cookieString !== this.lastCookieString) {\n this.parseCount++;\n this.lastToken = common.parseCookieValue(cookieString, this.cookieName);\n this.lastCookieString =\n cookieString;\n }\n return this.lastToken;\n }; \n return HttpXsrfCookieExtractor;\n }());\n HttpXsrfCookieExtractor.decorators = [\n { type: core.Injectable }\n];\n HttpXsrfCookieExtractor.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type:\n core.Inject, args: [common.DOCUMENT,] }] },\n { type: String, decorators: [{ type: core.Inject, args:\n [core.PLATFORM_ID,] }] },\n { type: String, decorators: [{ type: core.Inject, args: [XSRF_COOKIE_NAME,\n] }] }\n]; }; \n /**\n * `HttpInterceptor` which adds an XSRF token to eligible outgoing requests.\n */\n var\n HttpXsrfInterceptor = /** @class */ (function () {\n function\n HttpXsrfInterceptor(tokenService, headerName) {\n this.tokenService = tokenService;\n this.headerName = headerName;\n }\n HttpXsrfInterceptor.prototype.intercept = function (req, next) {\n var lcUrl = req.url.toLowerCase();\n // Skip both non-mutating requests and absolute URLs.\n // Non-mutating requests don't require a token, and absolute URLs require special handling\n // anyway as the\n // cookie set\n // on our origin is not the same as the token expected by another origin.\n if (req.method\n === 'GET' || req.method === 'HEAD' || lcUrl.startsWith('http://') ||\n lcUrl.startsWith('https://')) {\n return next.handle(req);\n }\n var token = this.tokenService.getToken();\n // Be careful not to\n // overwrite an existing header of the same name.\n if (token !== null && !req.headers.has(this.headerName))

```



```

 { provide: XSRF_HEADER_NAME, useValue: 'X-XSRF-TOKEN' },\n
],\n
 },\n
],\n
 /**\n
 * Configures the [dependency injector](guide/glossary#injector) for `HttpClient` with
 supporting services for XSRF. Automatically imported by `HttpClientModule`. You can add
 interceptors to the chain behind `HttpClient` by binding them to the\n
 * multiprovider for built-in [DI
 token](guide/glossary#di-token) `HTTP_INTERCEPTORS`.\n
 * @publicApi\n
 */\n
 var
 HttpClientModule = /** @class */ (function () {\n
 function HttpClientModule() {\n
 }\n
 return
 HttpClientModule;\n
 }());\n
 HttpClientModule.decorators = [\n
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 args: [{\n
 /**\n
 * Optional configuration for XSRF protection.\n
 */\n
 imports: [\n
 HttpClientModule.withOptions({\n
 cookieName: 'XSRF-
 TOKEN',\n
 headerName: 'X-XSRF-TOKEN',\n
 })],\n
 },\n
],\n
 /**\n
 * Configures the [dependency injector](guide/glossary#injector) where it is imported\n
 * with supporting services for HTTP communications.\n
 */\n
 providers: [\n
 HttpClient,\n
 { provide: HttpHandler, useClass: HttpInterceptingHandler },\n
 HttpXhrBackend,\n
 { provide: HttpBackend, useExisting: HttpXhrBackend },\n
 BrowserXhr,\n
 { provide: XhrFactory, useExisting: BrowserXhr
 },\n
],\n
 },\n
],\n
 },\n
 /**\n
 * Configures the [dependency
 injector](guide/glossary#injector) for `HttpClient` with supporting services for JSONP.\n
 * Without this
 module, Jsonp requests reach the backend\n
 * with method JSONP, where they are rejected.\n
 * You can
 add interceptors to the chain behind `HttpClient` by binding them to the\n
 * multiprovider for built-in [DI
 token](guide/glossary#di-token) `HTTP_INTERCEPTORS`.\n
 * @publicApi\n
 */\n
 var
 HttpClientJsonpModule = /** @class */ (function () {\n
 function HttpClientJsonpModule() {\n
 }\n
 return HttpClientJsonpModule;\n
 }());\n
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 /**\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 * Use of this source code is
 governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
 /**\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 * Use of this source code
 is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
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 * Generated bundle index. Do not edit.\n
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 exports.HttpXsrfTokenExtractor = HttpXsrfTokenExtractor;\n
 exports.JsonpClientBackend =
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 exports.JsonpInterceptor = JsonpInterceptor;\n
 exports.XhrFactory = XhrFactory;\n
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 exports.angular_packages_common_http_http_b = JsonpCallbackContext;\n
 exports.angular_packages_common_http_http_c = jsonpCallbackContext;\n
 exports.angular_packages_common_http_http_d = BrowserXhr;\n
 exports.angular_packages_common_http_http_e
 = XSRF_COOKIE_NAME;\n
 exports.angular_packages_common_http_http_f = XSRF_HEADER_NAME;\n
 exports.angular_packages_common_http_http_g = HttpXsrfCookieExtractor;\n
 exports.angular_packages_common_http_http_h = HttpXsrfInterceptor;\n
 Object.defineProperty(exports,
 '__esModule', { value: true });\n
 })(\n
 /**\n
 * sourceMappingURL=common-http.umd.js.map\n
 */\n
);

```

Found in path(s):

\* /common-11-0-2-tgz/package/bundles/common-http.umd.min.js.map

No license file was found, but licenses were detected in source scan.

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LLC. https://angular.io\n \* License: MIT\n \*/\n\n(function (global, factory) {\n typeof exports === 'object' &&  
 typeof module !== 'undefined' ? factory(exports, require('rxjs'), require('@angular/common'),  
 require('@angular/core'), require('@angular/upgrade/static')) :\n typeof define === 'function' && define.amd ?  
 define('@angular/common/upgrade', ['exports', 'rxjs', '@angular/common', '@angular/core',  
 '@angular/upgrade/static'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}),  
 global.ng.common = global.ng.common || {}, global.ng.common.upgrade = {}), global.rxjs, global.ng.common,  
 global.ng.core, global.ng.upgrade.static));\n})(this, (function (exports, rxjs, common, core, \_static) {\n 'use strict';\n\n /\*! \*\*\*\*\*\n Copyright\n (c) Microsoft Corporation.\n Permission to use, copy, modify, and/or distribute this software for any\n purpose with or without fee is hereby granted.\n THE SOFTWARE IS PROVIDED \"AS IS\" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH\n REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY\n AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,\n INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM\n LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR\n OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR\n PERFORMANCE OF THIS SOFTWARE.\n \*\*\*\*\* \*/\n\n /\* global

Reflect, Promise \*/\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ \_\_proto\_\_: [] } instanceof Array && function (d, b) {\n d.\_\_proto\_\_ = b;\n }) ||\n function (d, b) {\n for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n };\n return extendStatics(d, b);\n };\n function \_\_extends(d, b) {\n extendStatics(d, b);\n function \_\_() {\n this.constructor = d;\n }\n d.prototype = b === null ? Object.create(b) : (\_\_proto\_\_ = b.prototype, new \_\_());\n }\n var \_\_assign = function () {\n \_\_assign = Object.assign || function \_\_assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++)\n s = arguments[i];\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n };\n return \_\_assign.apply(this, arguments);\n };\n function \_\_rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getPrototypeOfSymbols === 'function')\n for (var i = 0, p = Object.getPrototypeOfSymbols(s);

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i < p.length; i++) {\n if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n }\n return t;\n }\n function __decorate(decorators, target, key, desc) {\n var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof Reflect === "object" && typeof Reflect.decorate === "function")\n r = Reflect.decorate(decorators, target, key, desc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n return c > 3 && r && Object.defineProperty(target, key, r, r);\n }\n function __param(paramIndex, decorator) {\n return function (target, key) { decorator(target, key, paramIndex); }\n }\n function __metadata(metadataKey, metadataValue) {\n if (typeof Reflect === "object" && typeof Reflect.metadata === "function")\n return Reflect.metadata(metadataKey, metadataValue);\n }\n function __awaiter(thisArg, _arguments, P, generator) {\n function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\n return new (P || (P = Promise))(function (resolve, reject) {\n function fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); }\n }\n function rejected(value) { try { step(generator["throw"](value)); } catch (e) { reject(e); }\n }\n function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\n step((generator = generator.apply(thisArg, _arguments || [])).next());\n });\n }\n function __generator(thisArg, body) {\n var _ = { label: 0, sent: function () { if (t[0] & 1)\n throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;\n return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function () { return this; }), g;\n function verb(n) { return function (v) { return step([n, v]); }; }\n function step(op) {\n if (f)\n throw new TypeError("Generator is already executing.");\n while (_)\n try {\n if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done)\n return t;\n if (y = 0, t)\n op = [op[0] & 2, t.value];\n switch (op[0]) {\n case 0:\n _label++;\n return { value: op[1], done: false };\n case 1:\n t = op;\n break;\n case 4:\n _label++;\n y = op[1];\n op = [0];\n continue;\n case 7:\n op = _ops.pop();\n _trys.pop();\n continue;\n default:\n if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2))\n _ = 0;\n continue;\n }\n if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3])))\n _label = op[1];\n break;\n }\n if (op[0] === 6 && _label < t[1])\n break;\n _label = t[1];\n t = op;\n break;\n }\n if (t && _label < t[2])\n _label = t[2];\n _ops.push(op);\n break;\n }\n if (t[2])\n _ops.pop();\n _trys.pop();\n continue;\n }\n op = body.call(thisArg, _);\n catch (e) {\n op = [6, e];\n y = 0;\n finally {\n f = t = 0;\n if (op[0] & 5)\n throw op[1];\n return { value: op[0] ? op[1] : void 0, done: true };\n }\n }\n var __createBinding = Object.create ? (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; } });\n }) : (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, exports) {\n for (var p in m)\n if (p !== "default" && !exports.hasOwnProperty(p))\n __createBinding(exports, m, p);\n }\n function __values(o) {\n var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0;\n if (m)\n return m.call(o);\n if (o && typeof o.length === "number")\n return {\n next: function () {\n if (o && i >= o.length)\n o = void 0;\n }

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 return { value: o && o[i++], done: !o };
 }
 throw new TypeError(s ?
 "Object is not iterable." : "Symbol.iterator is not defined.");
}
function __read(o, n) {
 var m =
 typeof Symbol === "function" && o[Symbol.iterator];
 if (!m)
 return o;
 var i = m.call(o), r, ar
 = [], e;
 try {
 while ((n === void 0 || n-- > 0) && !(r = i.next()).done)
 ar.push(r.value);
 }
 catch (error) {
 e = { error: error };
 }
 finally {
 try {
 if (r &&
 !r.done && (m = i["return"]))
 m.call(i);
 }
 finally {
 if (e)
 throw e.error;
 }
 }
 return ar;
}
function __spread() {
 for (var ar = [], i = 0; i <
 arguments.length; i++)
 ar = ar.concat(__read(arguments[i]));
 return ar;
}
function __spreadArrays() {
 for (var s = 0, i = 0, il = arguments.length; i < il; i++)
 s += arguments[i].length;
 for (var r = Array(s), k = 0, i = 0; i < il; i++)
 for (var a = arguments[i], j
 = 0, jl = a.length; j < jl; j++, k++)
 r[k] = a[j];
 return r;
}
function __await(v) {
 return this instanceof __await ? (this.v = v, this) : new __await(v);
}
function __asyncGenerator(thisArg,
 _arguments, generator) {
 if (!Symbol.asyncIterator)
 throw new TypeError("Symbol.asyncIterator is
 not defined.");
 var g = generator.apply(thisArg, _arguments || []), i, q = [];
 return i = {
 verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () {
 return this;
 }, i;
 function verb(n) {
 if (g[n])
 i[n] = function (v) {
 return new Promise(function (a, b) {
 q.push([n, v, a, b])
 > 1 || resume(n, v);
 });
 };
 function resume(n, v) {
 try {
 step(g[n](v));
 }
 catch (e) {
 settle(q[0][3], e);
 }
 }
 function step(r) {
 r.value instanceof __await ?
 Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);
 }
 function fulfill(value) {
 resume("next", value);
 }
 function reject(value) {
 resume("throw", value);
 }
 function settle(f, v) {
 if (f(v), q.shift(),
 q.length)
 resume(q[0][0], q[0][1]);
 }
 }
 function __asyncDelegator(o) {
 var i, p;
 return i
 = {
 verb("next"), verb("throw"), function (e) {
 throw e;
 }, verb("return"), i[Symbol.iterator] = function () {
 return this;
 }, i;
 function verb(n, f) {
 i[n] = o[n] ? function (v) {
 return (p = !p) ? {
 value: __await(o[n](v)),
 done: n === "return"
 } : f ? f(v) : v;
 } : f;
 }
 }
 function __asyncValues(o) {
 if
 (!Symbol.asyncIterator)
 throw
 new TypeError("Symbol.asyncIterator is not defined.");
 var m = o[Symbol.asyncIterator], i;
 return m
 ? m.call(o) : (o = typeof __values === "function" ? __values(o) : o[Symbol.iterator](), i = {
 verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () {
 return this;
 }, i;
 function verb(n) {
 i[n] = o[n] && function (v) {
 return new Promise(function (resolve, reject) {
 v = o[n](v), settle(resolve, reject,
 v.done, v.value);
 });
 };
 }
 function settle(resolve, reject, d, v) {
 Promise.resolve(v).then(function (v) {
 resolve({
 value: v,
 done: d
 });
 }, reject);
 }
 }
 }
 function __makeTemplateObject(cooked, raw) {
 if
 (Object.defineProperty)
 Object.defineProperty(cooked, "raw", {
 value: raw
 });
 else {
 cooked.raw = raw;
 }
 return cooked;
 }
 var __setModuleDefault = Object.create ?
 (function (o, v) {
 Object.defineProperty(o,
 "default", {
 enumerable: true,
 value: v
 });
 }) : function (o, v) {
 o["default"] = v;
 };
 function
 __importStar(mod) {
 if (mod && mod.__esModule)
 return mod;
 var result = {};
 if (mod
 != null)
 for (var k in mod)
 if (Object.hasOwnProperty.call(mod, k))
 __createBinding(result, mod, k);
 __setModuleDefault(result, mod);
 return result;
 }
 function
 __importDefault(mod) {
 return (mod && mod.__esModule) ? mod : {
 default: mod
 };
 }
 function
 __classPrivateFieldGet(receiver, privateMap) {
 if (!privateMap.has(receiver))
 throw new
 TypeError("attempted to get private field on non-instance");
 return privateMap.get(receiver);
 }
 function
 __classPrivateFieldSet(receiver, privateMap, value) {
 if (!privateMap.has(receiver))
 throw new
 TypeError("attempted to set
 private field on non-instance");
 privateMap.set(receiver, value);
 return value;
 }
 /**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by
 an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
 function
 stripPrefix(val, prefix) {
 return val.startsWith(prefix) ? val.substring(prefix.length) : val;
 }
 function
 deepEqual(a, b) {
 if (a === b)
 return true;
 else if (!a || !b)
 return false;
 }

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}\n else {\n try {\n if ((a.prototype !== b.prototype) || (Array.isArray(a) && Array.isArray(b)))\n {\n return false;\n }\n return JSON.stringify(a) === JSON.stringify(b);\n }\n catch (e) {\n return false;\n }\n }\n}\n\nfunction isAnchor(el) {\n return el.href !== undefined;\n}\n\nfunction isPromise(obj) {\n // allow any Promise/A+ compliant thenable.\n // It's up to the caller to ensure that obj.then conforms to the spec\n return !!obj && typeof obj.then === 'function';\n}\n\nvar PATH_MATCH = /^(^?#*)(\|?([^\|]*)?)(#(.*)?)$/;\n\nvar DOUBLE_SLASH_REGEX = /^\\s*[\\|\\|\\|\\|]{2,}/;\n\nvar IGNORE_URI_REGEX =\n/^\\s*(javascript|mailto):/i;\n\nvar DEFAULT_PORTS = {\n 'http:': 80,\n 'https:': 443,\n 'ftp:': 21\n};\n\n/**\n * Location service that provides a drop-in replacement for the $location service\n * provided in\n AngularJS.\n * @see [Using the Angular Unified Location Service](guide/upgrade#using-the-unified-\n angular-location-service)\n * @publicApi\n */\nvar $locationShim = /** @class */ (function () {\n function $locationShim($injector, location, platformLocation, urlCodec, locationStrategy)\n {\n var _this = this;\n this.location = location;\n this.platformLocation = platformLocation;\n this.urlCodec = urlCodec;\n this.locationStrategy = locationStrategy;\n this.initializing = true;\n this.updateBrowser = false;\n this.$$absUrl = '';\n this.$$url = '';\n this.$$host = '';\n this.$$replace = false;\n this.$$path = '';\n this.$$search = '';\n this.$$hash = '';\n this.$$changeListeners = [];\n this.cachedState = null;\n this.urlChanges = new\n rxjs.ReplaySubject(1);\n this.lastBrowserUrl = '';\n // This variable should be used *only* inside the\n cacheState function.\n this.lastCachedState = null;\n var initialUrl = this.browserUrl();\n var\n parsedUrl = this.urlCodec.parse(initialUrl);\n if (typeof parsedUrl === 'string') {\n throw 'Invalid URL';\n }\n this.$$protocol = parsedUrl.protocol;\n this.$$host =\n parsedUrl.hostname;\n this.$$port = parseInt(parsedUrl.port) || DEFAULT_PORTS[parsedUrl.protocol] ||\n null;\n this.$$parseLinkUrl(initialUrl, initialUrl);\n this.cacheState();\n this.$$state =\n this.browserState();\n this.location.onUrlChange(function (newUrl, newState) {\n _this.urlChanges.next({ newUrl: newUrl, newState: newState });\n });\n if (isPromise($injector)) {\n $injector.then(function ($i) { return _this.initialize($i); });\n }\n else {\n this.initialize($injector);\n }\n $locationShim.prototype.initialize = function ($injector) {\n var _this = this;\n var $rootScope = $injector.get('$rootScope');\n var $rootElement =\n $injector.get('$rootElement');\n\n $rootElement.on('click', function (event) {\n if (event.ctrlKey || event.metaKey || event.shiftKey ||\n event.which === 2 ||\n event.button === 2) {\n return;\n }\n var elm =\n event.target;\n // traverse the DOM up to find first A tag\n while (elm &&\n elm.nodeName.toLowerCase() !== 'a') {\n // ignore rewriting if no A tag (reached root element, or no\n parent - removed from document)\n if (elm === $rootElement[0] || !(elm = elm.parentNode)) {\n return;\n }\n }\n if (!isAnchor(elm)) {\n return;\n }\n var absHref = elm.href;\n var relHref = elm.getAttribute('href');\n // Ignore when url is started\n with javascript: or mailto:\n if (IGNORE_URI_REGEX.test(absHref)) {\n return;\n }\n if (absHref && !elm.getAttribute('target') &&\n !event.isDefaultPrevented()) {\n if (_this.$$parseLinkUrl(absHref, relHref)) {\n // We do\n a preventDefault for all urls that are part of the AngularJS application,\n // in html5mode and also\n without, so that we are able to abort navigation without\n // getting double entries in the location\n history.\n event.preventDefault();\n // update location manually\n if\n (_this.absUrl() !== _this.browserUrl()) {\n $rootScope.$apply();\n }\n }\n }\n this.urlChanges.subscribe(function (_a) {\n var newUrl = _a.newUrl,\n newState = _a.newState;\n var oldUrl = _this.absUrl();\n var oldState\n = _this.$$state;\n _this.$$parse(newUrl);\n newUrl = _this.absUrl();\n _this.$$state =\n newState;\n var defaultPrevented = $rootScope.$broadcast('$locationChangeStart', newUrl, oldUrl,\n newState, oldState)\n .defaultPrevented;\n // if the location was changed by a

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`$locationChangeStart` handler then stop\n // processing this location change\n if (_this.absUrl()
!== newUrl)\n return;\n // If default was prevented, set back to old state. This is the state that
was locally\n // cached in the $location service.\n if (defaultPrevented) {\n
_this.$$parse(oldUrl);\n _this.state(oldState);\n _this.setBrowserUrlWithFallback(oldUrl,
false, oldState);\n _this.$$notifyChangeListeners(_this.url(), _this.$$state, oldUrl, oldState);\n
 }\n else {\n _this.initializing = false;\n
$rootScope.$broadcast('$locationChangeSuccess', newUrl, oldUrl, newState, oldState);\n
_this.resetBrowserUpdate();\n }\n if (!$rootScope.$$phase) {\n
$rootScope.$digest();\n }\n });\n // update browser\n $rootScope.$watch(function ()
{\n if (_this.initializing || _this.updateBrowser) {\n _this.updateBrowser = false;\n
var oldUrl_1 = _this.browserUrl();\n var newUrl = _this.absUrl();\n var oldState_1 =
_this.browserState();\n var currentReplace_1 = _this.$$replace;\n var urlOrStateChanged_1
= !_this.urlCodec.areEqual(oldUrl_1, newUrl) || oldState_1 !== _this.$$state;\n // Fire location changes
one time to on initialization.

This must be done on the\n // next tick (thus inside $evalAsync()) in order for listeners to be
registered\n // before the event fires. Mimicing behavior from $locationWatch:\n //
https://github.com/angular/angular.js/blob/master/src/ng/location.js#L983\n if (_this.initializing ||
urlOrStateChanged_1) {\n _this.initializing = false;\n $rootScope.$evalAsync(function
() {\n // Get the new URL again since it could have changed due to async update\n
var newUrl = _this.absUrl();\n var defaultPrevented = $rootScope\n
.$broadcast('$locationChangeStart', newUrl, oldUrl_1, _this.$$state, oldState_1)\n
.defaultPrevented;\n // if the location was changed by a `$locationChangeStart` handler then stop\n

 // processing this location change\n if (_this.absUrl() !== newUrl)\n return;\n if (defaultPrevented) {\n _this.$$parse(oldUrl_1);\n
_this.$$state = oldState_1;\n }\n else {\n // This block doesn't
run when initializing because it's going to perform the update to\n // the URL which shouldn't be
needed when initializing.\n if (urlOrStateChanged_1) {\n
_this.setBrowserUrlWithFallback(newUrl, currentReplace_1, oldState_1 === _this.$$state ? null : _this.$$state);\n
_this.$$replace = false;\n }\n
$rootScope.$broadcast('$locationChangeSuccess', newUrl, oldUrl_1,
_this.$$state, oldState_1);\n if (urlOrStateChanged_1) {\n
_this.$$notifyChangeListeners(_this.url(), _this.$$state, oldUrl_1, oldState_1);\n }\n
 }\n });\n }\n }\n _this.$$replace = false;\n });\n });\n
$locationShim.prototype.resetBrowserUpdate = function () {\n this.$$replace = false;\n this.$$state =
this.browserState();\n this.updateBrowser = false;\n this.lastBrowserUrl = this.browserUrl();\n };\n
$locationShim.prototype.browserUrl = function (url, replace, state) {\n // In modern browsers
`history.state` is `null` by default; treating it separately\n // from `undefined` would cause
`$browser.url('/foo')` to change `history.state`\n // to undefined via `pushState`. Instead,
let's change `undefined` to `null` here.\n if (typeof state === 'undefined') {\n state = null;\n
 }\n // setter\n if (url) {\n var sameState = this.lastHistoryState === state;\n //
Normalize the inputted URL\n url = this.urlCodec.parse(url).href;\n // Don't change anything if
previous and current URLs and states match.\n if (this.lastBrowserUrl === url && sameState) {\n
return this;\n }\n this.lastBrowserUrl = url;\n this.lastHistoryState = state;\n //
Remove server base from URL as the Angular APIs for updating URL require\n // it to be the path+.\n url = this.stripBaseUrl(this.getServerBase(), url) || url;\n // Set the URL\n if (replace) {\n
this.locationStrategy.replaceState(state, "", url, "");\n

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 }\n else {\n this.locationStrategy.pushState(state, "", url, "");\n }\n this.cacheState();\n return this;\n }\n // getter\n }\n else {\n return\n this.platformLocation.href;\n }\n };\n $locationShim.prototype.cacheState = function () {\n //\n This should be the only place in $browser where `history.state` is read.\n this.cachedState =\n this.platformLocation.getState();\n if (typeof this.cachedState === 'undefined') {\n this.cachedState\n = null;\n }\n // Prevent callbacks from firing twice if both hashchange & popstate were fired.\n if\n (deepEqual(this.cachedState, this.lastCachedState)) {\n this.cachedState = this.lastCachedState;\n }\n this.lastCachedState = this.cachedState;\n this.lastHistoryState\n = this.cachedState;\n };\n /**\n * This function emulates the $browser.state() function from\n * AngularJS. It will cause\n * history.state to be cached unless changed with deep equality check.\n */\n $locationShim.prototype.browserState = function () {\n return this.cachedState;\n };\n $locationShim.prototype.stripBaseUrl = function (base, url) {\n if (url.startsWith(base)) {\n return\n url.substr(base.length);\n }\n return undefined;\n };\n $locationShim.prototype.getServerBase\n = function () {\n var _a = this.platformLocation, protocol = _a.protocol, hostname = _a.hostname, port =\n _a.port;\n var baseHref = this.locationStrategy.getBaseHref();\n var url = protocol + "://" + hostname\n + (port ? ':' + port : '') + (baseHref || '/');\n return url.endsWith('/') ? url : url + '/';\n };\n $locationShim.prototype.parseAppUrl\n = function (url) {\n if (DOUBLE_SLASH_REGEX.test(url)) {\n throw new Error("Bad Path -\n URL cannot start with double slashes: '" + url);}\n var prefixed = (url.charAt(0) !== '/');\n if\n (prefixed) {\n url = '/' + url;\n }\n var match = this.urlCodec.parse(url,\n this.getServerBase());\n if (typeof match === 'string') {\n throw new Error("Bad URL - Cannot\n parse URL: '" + url);}\n var path = prefixed && match.pathname.charAt(0) === '/' ?\n match.pathname.substring(1) : match.pathname;\n this.$$path = this.urlCodec.decodePath(path);\n this.$$search = this.urlCodec.decodeSearch(match.search);\n this.$$hash =\n this.urlCodec.decodeHash(match.hash);\n // make sure path starts with '/'\n if (this.$$path &&\n this.$$path.charAt(0) !== '/') {\n this.$$path = '/' + this.$$path;\n }\n };\n /**\n * Registers listeners for URL changes. This API is used to catch updates\n * performed by the\n * AngularJS framework. These changes are a subset of the `$locationChangeStart` and\n * `$locationChangeSuccess` events which fire when AngularJS updates its internally-referenced\n * version\n * of the browser URL.\n * It's possible for `$locationChange` events to happen, but for the browser\n * URL\n * (window.location) to remain unchanged. This `onChange` callback will fire only when AngularJS\n * actually updates the browser URL (window.location).\n * @param fn The callback function that is\n * triggered for the listener when the URL changes.\n * @param err The callback function that is triggered when\n * an error occurs.\n */\n $locationShim.prototype.onChange = function (fn, err) {\n if (err === void 0)\n { err = function (e) { } };\n this.$$changeListeners.push([fn, err]);\n };\n /** @internal */\n $locationShim.prototype.$$notifyChangeListeners = function (url, state, oldUrl, oldState) {\n if (url === void\n 0) { url = ""; }\n if (oldUrl === void 0) { oldUrl = ""; }\n this.$$changeListeners.forEach(function (_a)\n {\n var _b = __read(_a, 2), fn = _b[0], err = _b[1];\n try {\n fn(url, state, oldUrl,\n oldState);\n }\n catch (e) {\n err(e);\n }\n });\n };\n /**\n * Parses the provided URL, and sets the current URL to the parsed result.\n * @param url The URL\n * string.\n */\n $locationShim.prototype.$$parse = function (url) {\n var pathUrl;\n if\n (url.startsWith('/')) {\n pathUrl = url;\n }\n else {\n // Remove protocol\n & hostname if URL starts with it\n pathUrl = this.stripBaseUrl(this.getServerBase(), url);\n }\n if (typeof pathUrl === 'undefined') {\n throw new Error("Invalid url '" + url + "'", missing path\n prefix '" + this.getServerBase() + "'");\n }\n this.parseAppUrl(pathUrl);\n if\n (!this.$$path) {\n this.$$path = '/';\n }\n this.composeUrls();\n };\n /**\n * Parses the provided URL and its relative URL.\n * @param url The full URL string.\n */

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relHref A URL string relative to the full URL string.\n *\n $locationShim.prototype.$$parseLinkUrl =
function (url, relHref) {\n // When relHref is passed, it should be a hash and is handled separately\n if
(relHref && relHref[0] === '#') {\n this.hash(relHref.slice(1));\n return true;\n }\n var rewrittenUrl;\n var appUrl = this.stripBaseUrl(this.getServerBase(), url);\n if
(typeof appUrl !== 'undefined') {\n rewrittenUrl = this.getServerBase() + appUrl;\n }\n else if
(this.getServerBase() === url + '/') {\n rewrittenUrl = this.getServerBase();\n }\n // Set the
URL\n if (rewrittenUrl) {\n this.$$parse(rewrittenUrl);\n }\n return !!rewrittenUrl;\n };\n $locationShim.prototype.setBrowserUrlWithFallback = function (url, replace, state) {\n var oldUrl
= this.url();\n var oldState = this.$$state;\n try {\n this.browserUrl(url, replace, state);\n // Make sure $location.state() returns referentially identical (not just deeply equal)\n // state object; this
makes possible quick checking if the state changed in the digest\n // loop. Checking deep equality would be too expensive.\n this.$$state = this.browserState();\n }\n catch (e) {\n // Restore old values if pushState fails\n this.url(oldUrl);\n this.$$state = oldState;\n throw e;\n }\n };\n $locationShim.prototype.composeUrls =
function () {\n this.$$url = this.urlCodec.normalize(this.$$path, this.$$search, this.$$hash);\n this.$$absUrl = this.getServerBase() + this.$$url.substr(1); // remove '/' from front of URL\n this.updateBrowser = true;\n };\n /**\n * Retrieves the full URL representation with all segments
encoded according to\n * rules specified in\n * [RFC 3986](http://www.ietf.org/rfc/rfc3986.txt).\n *\n *\n * ``js\n * // given URL http://example.com/#/some/path?foo=bar&baz=xoxo\n * let absUrl =
$location.absUrl();\n *\n * // => "http://example.com/#/some/path?foo=bar&baz=xoxo"\n * ``\n *\n $locationShim.prototype.absUrl = function () {\n return this.$$absUrl;\n };\n $locationShim.prototype.url = function (url) {\n if (typeof url === 'string') {\n if (!url.length) {\n url = '/';\n }\n var match = PATH_MATCH.exec(url);\n if (!match)\n return this;\n if (match[1] || url === "")\n this.path(this.urlCodec.decodePath(match[1]));\n if (match[2] || match[1] || url === "")\n this.search(match[3] || "");\n this.hash(match[5] || "");\n // Chainable method\n return this;\n }\n return this.$$url;\n };\n /**\n *
Retrieves the protocol of the current URL.\n *\n *\n ``js\n * // given URL http://example.com/#/some/path?foo=bar&baz=xoxo\n * let protocol =
$location.protocol();\n *\n * // => "http"\n * ``\n *\n $locationShim.prototype.protocol = function
() {\n return this.$$protocol;\n };\n /**\n * Retrieves the protocol of the current URL.\n *\n * In contrast to the non-AngularJS version `location.host` which returns `hostname:port`, this\n * returns
the `hostname` portion only.\n *\n *\n ``js\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let host = $location.host();\n *\n * // =>
"example.com"\n *\n * // given URL
http://user:password@example.com:8080/#/some/path?foo=bar&baz=xoxo\n * host = $location.host();\n *\n * // => "example.com:8080"\n * ``\n *\n $locationShim.prototype.host = function () {\n return this.$$host;\n };\n /**\n * Retrieves the
port of the current URL.\n *\n *\n ``js\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let port = $location.port();\n *\n * // => 80\n * ``\n *\n $locationShim.prototype.port = function () {\n return this.$$port;\n };\n $locationShim.prototype.path = function (path) {\n if (typeof path === 'undefined') {\n return
this.$$path;\n }\n // null path converts to empty string. Prepend with "/" if needed.\n path =
path !== null ? path.toString() : '';\n path = path.charAt(0) === '/' ? path : '/' + path;\n this.$$path =
path;\n this.composeUrls();\n return this;\n };\n $locationShim.prototype.search = function
(search, paramValue) {\n

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switch (arguments.length) {\n case 0:\n return this.$$search;\n case 1:\n
if (typeof search === 'string' || typeof search === 'number') {\n this.$$search =
this.urlCodec.decodeSearch(search.toString());\n }\n else if (typeof search === 'object' &&
search !== null) {\n // Copy the object so it's never mutated\n search =
Object.assign({}, search);\n // remove object undefined or null properties\n for (var key
in search) {\n if (search[key] == null)\n delete search[key];\n }\n this.$$search = search;\n }\n else {\n throw new
Error('LocationProvider.search(): First argument must be a string or an object.);\n
}\n break;\n default:\n if (typeof search === 'string') {\n
var currentSearch = this.search();\n if (typeof paramValue === 'undefined' || paramValue === null)\n
{\n delete currentSearch[search];\n return this.search(currentSearch);\n
}\n else {\n currentSearch[search] = paramValue;\n return
this.search(currentSearch);\n }\n }\n }\n this.composeUrls();\n return
this;\n };\n $locationShim.prototype.hash = function (hash) {\n if (typeof hash === 'undefined') {\n
return this.$$hash;\n }\n this.$$hash = hash !== null ? hash.toString() : '';\n
this.composeUrls();\n return
this;\n };\n /**\n * Changes to `$location` during the current `$digest` will replace the current\n *
history record, instead of adding a new one.\n */\n $locationShim.prototype.replace = function () {\n
this.$$replace = true;\n return this;\n };\n $locationShim.prototype.state = function (state) {\n
if (typeof state === 'undefined') {\n return this.$$state;\n }\n this.$$state = state;\n
return this;\n };\n return $locationShim;\n }());\n /**\n * The factory function used to create an
instance of the `$locationShim` in Angular,\n * and provides an API-compatible `$locationProvider` for
AngularJS.\n */\n * @publicApi\n */\n var $locationShimProvider = /** @class */ (function () {\n
function $locationShimProvider(ngUpgrade, location, platformLocation, urlCodec, locationStrategy) {\n
this.ngUpgrade
= ngUpgrade;\n this.location = location;\n this.platformLocation = platformLocation;\n
this.urlCodec = urlCodec;\n this.locationStrategy = locationStrategy;\n }\n /**\n * Factory
method that returns an instance of the $locationShim\n */\n $locationShimProvider.prototype.$get =
function () {\n return new $locationShim(this.ngUpgrade.$injector, this.location, this.platformLocation,
this.urlCodec, this.locationStrategy);\n };\n /**\n * Stub method used to keep API compatible with
AngularJS. This setting is configured through\n * the LocationUpgradeModule's `config` method in your
Angular app.\n */\n $locationShimProvider.prototype.hashPrefix = function (prefix) {\n throw new
Error('Configure LocationUpgrade through LocationUpgradeModule.config method.);\n };\n /**\n *
Stub method used to keep API compatible with
AngularJS. This setting is configured through\n * the LocationUpgradeModule's `config` method in your
Angular app.\n */\n $locationShimProvider.prototype.html5Mode = function (mode) {\n throw new
Error('Configure LocationUpgrade through LocationUpgradeModule.config method.);\n };\n return
$locationShimProvider;\n }());\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n /**\n * A codec for encoding and decoding URL parts.\n */\n *
@publicApi\n */\n var UrlCodec = /** @class */ (function () {\n function UrlCodec() {\n }\n
return UrlCodec;\n }());\n /**\n * A `UrlCodec` that uses logic from AngularJS to serialize and parse URLs\n
* and URL parameters.\n */\n * @publicApi\n */\n var
AngularJSUrlCodec = /** @class */ (function () {\n function AngularJSUrlCodec() {\n }\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L15\n
AngularJSUrlCodec.prototype.encodePath = function (path) {\n var segments = path.split('/');\n var i =
segments.length;\n while (i--) {\n // decode forward slashes to prevent them from being double
encoded\n segments[i] = encodeURIComponent(segments[i].replace(/%2F/g, '/'));\n }\n path =

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segments.join('/');\n return _stripIndexHtml((path && path[0] !== '/' && '/' || '') + path);\n };\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L42\n
AngularJSUrlCodec.prototype.encodeSearch = function (search) {\n if (typeof search === 'string') {\n search = parseKeyValue(search);\n }\n search = toKeyValue(search);\n return search ? '?' + search : '';\n };\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L44\n
AngularJSUrlCodec.prototype.encodeHash = function (hash) {\n hash = encodeUriSegment(hash);\n return hash ? '#' + hash : '';\n };\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L27\n
AngularJSUrlCodec.prototype.decodePath = function (path, html5Mode) {\n if (html5Mode === void 0) {\n html5Mode = true;\n }\n var segments = path.split('/');\n var i = segments.length;\n while (i--) {\n segments[i] = decodeURIComponent(segments[i]);\n if (html5Mode) {\n // encode forward slashes to prevent them from being mistaken for path separators\n segments[i] = segments[i].replace(/\\/g, '%2F');\n }\n }\n return segments.join('/');\n };\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L72\n
AngularJSUrlCodec.prototype.decodeSearch = function (search) {\n return parseKeyValue(search);\n };\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L73\n
AngularJSUrlCodec.prototype.decodeHash = function (hash) {\n hash = decodeURIComponent(hash);\n return hash[0] === '#' ? hash.substring(1) : hash;\n };\n AngularJSUrlCodec.prototype.normalize = function (pathOrHref, search, hash, baseUrl) {\n if (arguments.length === 1) {\n var parsed = this.parse(pathOrHref, baseUrl);\n if (typeof parsed === 'string') {\n return parsed;\n }\n var serverUrl = parsed.protocol + '://' + parsed.hostname + (parsed.port ? ':' + parsed.port : '');\n return this.normalize(this.decodePath(parsed.pathname), this.decodeSearch(parsed.search), this.decodeHash(parsed.hash), serverUrl);\n } else {\n var encPath = this.encodePath(pathOrHref);\n var encSearch = search && this.encodeSearch(search) || '';\n var encHash = hash && this.encodeHash(hash) || '';\n var joinedPath = (baseUrl || '') + encPath;\n if (!joinedPath.length || joinedPath[0] !== '/') {\n joinedPath = '/' + joinedPath;\n }\n return joinedPath + encSearch + encHash;\n }\n };\n AngularJSUrlCodec.prototype.areEqual = function (valA, valB) {\n return this.normalize(valA) === this.normalize(valB);\n };\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/urlUtils.js#L60\n
AngularJSUrlCodec.prototype.parse = function (url, base) {\n try {\n // Safari 12 throws an error when the URL constructor is called with an undefined base.\n var parsed = !base ? new URL(url) : new URL(url, base);\n return {\n href: parsed.href,\n protocol: parsed.protocol ? parsed.protocol.replace(/:$/, '') : '',\n host: parsed.host,\n search: parsed.search ? parsed.search.replace(/^\\?/, '') : '',\n hash: parsed.hash ? parsed.hash.replace(/^#/, '') : '',\n hostname: parsed.hostname,\n port: parsed.port,\n pathname: (parsed.pathname.charAt(0) === '/') ? parsed.pathname : '/' + parsed.pathname\n };\n } catch (e) {\n throw new Error("Invalid URL (" + url + ") with base (" + base + ")");\n }\n };\n return AngularJSUrlCodec;\n})();\n\nfunction _stripIndexHtml(url) {\n return url.replace(/\\/index.html$/, '');\n}\n\n/**\n * Tries to decode the URI component without throwing an exception.\n * @param str value potential URI component to check.\n * @returns the decoded URI if it can be decoded or else `undefined`.\n */\nfunction tryDecodeURIComponent(value) {\n try {\n return decodeURIComponent(value);\n } catch (e) {\n // Ignore any invalid uri component.\n return undefined;\n }\n}\n\n/**\n * Parses an escaped url query string into key-value pairs. Logic taken from\n */\n\nfunction parseKeyValue(keyValue) {\n var obj = {};\n (keyValue || '').split('&').forEach(function (keyValue) {\n var splitPoint, key, val;\n if (keyValue) {\n key = keyValue = keyValue.replace(/\\/+/g, '%20');\n }\n });\n}

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 splitPoint = keyValue.indexOf('=');\n if (splitPoint !== -1) {\n key = keyValue.substring(0, splitPoint);\n val = keyValue.substring(splitPoint + 1);\n key = tryDecodeURIComponent(key);\n if (typeof key !== 'undefined') {\n val = typeof\nval !== 'undefined' ? tryDecodeURIComponent(val) : true;\n if (!obj.hasOwnProperty(key)) {\n obj[key] = val;\n }\n else if (Array.isArray(obj[key])) {\n obj[key].push(val);\n }\n else {\n obj[key] = [obj[key], val];\n }\n }\n }\n });\n return obj;\n} /**\n * Serializes into key-value pairs. Logic taken\nfrom\n * https://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1409\n */\nfunction\n toKeyValue(obj) {\n var parts = [];\n var _loop_1 = function (key) {\n var value = obj[key];\n if (Array.isArray(value)) {\n value.forEach(function (arrayValue) {\n parts.push(encodeURIComponent(key, true) +\n (arrayValue === true ? " : '=' +\nencodeURIComponent(arrayValue, true)));\n });\n }\n else {\n parts.push(encodeURIComponent(key, true) +\n (value === true ? " : '=' + encodeURIComponent(value, true)));\n }\n };\n for (var key in obj) {\n _loop_1(key);\n }\n return parts.length ? parts.join('&') :\n";\n }\n /**\n * We need our custom method because encodeURIComponent is too aggressive and doesn't\nfollow\n * http://www.ietf.org/rfc/rfc3986.txt with regards to the character set (pchar) allowed in path\n * segments:\n * segment = *pchar\n * pchar = unreserved / pct-encoded / sub-delims / ":" / "@"\n * pct-encoded = \"%"\nHEXDIG HEXDIG\n * unreserved = ALPHA / DIGIT / "-" / "." / "_" / "~"\n * sub-delims = "!"\n / "$" / "&" / "'" / "(" / ")" / "*" / "+" / "," / ";" / "="\n * Logic from\nhttps://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1437\n */\nfunction\n encodeUriSegment(val) {\n return encodeURIComponent(val, true).replace(/%26/g, '&').replace(/%3D/gi,\n'=').replace(/%2B/gi, '+');\n }\n /**\n * This method is intended for encoding *key* or *value* parts of query\ncomponent. We need a custom\n * method because encodeURIComponent is too aggressive and encodes stuff\nthat doesn't have to be\n * encoded per http://tools.ietf.org/html/rfc3986:\n * query = *(pchar / "/" /\n / "?")\n * pchar = unreserved / pct-encoded / sub-delims / ":" / "@"\n * unreserved = ALPHA /\nDIGIT / "-" / "." / "_" / "~"\n * pct-encoded =\n \"%" HEXDIG HEXDIG\n * sub-delims = "!" / "$" / "&" / "'" / "(" / ")" / "*" /\n / "+" / "," / ";" / "="\n * Logic from\nhttps://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1456\n */\nfunction encodeUriQuery(val,\n pctEncodeSpaces) {\n if (pctEncodeSpaces === void 0) {\n pctEncodeSpaces = false;\n }\n return\n encodeURIComponent(val)\n .replace(/%40/g, '@')\n .replace(/%3A/gi, ':')\n .replace(/%24/g,\n'$')\n .replace(/%2C/gi, ',')\n .replace(/%3B/gi, ';')\n .replace(/%20/g, (pctEncodeSpaces ? '%20'\n: '+'));\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this\nsource code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\n /**\n * A provider token used to configure the location upgrade module.\n */\n * @publicApi\n */\n var LOCATION_UPGRADE_CONFIGURATION = new\n core.InjectionToken('LOCATION_UPGRADE_CONFIGURATION');\n var APP_BASE_HREF_RESOLVED =\n new core.InjectionToken('APP_BASE_HREF_RESOLVED');\n /**\n * `NgModule` used for providing and\nconfiguring Angular's Unified Location Service for upgrading.\n */\n * @see [Using the Unified Angular\nLocation Service](guide/upgrade#using-the-unified-angular-location-service)\n */\n * @publicApi\n */\n var LocationUpgradeModule = /** @class */ (function () {\n function LocationUpgradeModule() {\n }\n LocationUpgradeModule.config = function (config) {\n return {\n ngModule:\n LocationUpgradeModule,\n providers: [\n common.Location,\n]\n }\n }\n provide: $locationShim,\n useFactory: provide$location,\n deps:\n [_static.UpgradeModule, common.Location,\n common.PlatformLocation, UrlCodec, common.LocationStrategy]\n },\n {\n provide:\n LOCATION_UPGRADE_CONFIGURATION, useValue: config ? config : {} },\n {\n provide:

```



EventTarget","addEventListener","onHashChange","defineProperty","get","href","enumerable","configurable","protocol","hostname","port","pathname","set","newPath","search","hash","pushState","state","title","url","supportsState","replaceState","forward","back","getState","window","history","createBrowserPlatformLocation","joinWithSlash","start","end","slashes","endsWith","startsWith","substring","stripTrailingSlash","match","pathEndIdx","index","slice","normalizeQueryParams","params","provideLocationStrategy","platformLocation","PathLocationStrategy","origin","ctorParameters","undefined","Inject","APP\_BASE\_HREF","\_platformLocation","Error","\_baseHref","prepareExternalUrl","internal","path","includeHash","queryParams","externalUrl","String","Optional","HashLocationStrategy","Location","platformStrategy","\_subject","EventEmitter","\_urlChangeListener","\_platformStrategy","browserBaseHref","\_stripIndexHtml","ev","emit","pop","normalize","isCurrentPathEqualTo","query","\_stripBaseHref","baseHref","go","\_notifyUrlChangeListener","onUrlChange","\_urlChangeSubscription","subscribe","v","forEach","onNext","onThrow","onReturn","complete","createLocation","replace","NumberFormatStyle","Plural","FormStyle","TranslationWidth","FormatWidth","NumberSymbol","WeekDay","CURRENCIES\_EN","ADP","AFN","ALL","AMD","AOA","ARS","AUD","BAM","BBD","BDT","BHD","BIF","BMD","BND","BOB","BRL","BSD","BWP","BYN","BYR","BZD","CAD","CHF","CLF","CLP","CNY","COP","CRC","CUC","CUP","CZK","DJF","DKK","DOP","EGP","ESP","EUR","FJD","FKP","GBP","GEL","GIP","GNF","GTQ","GYD","HKD","HNL","HRK","HUF","IDR","ILS","INR","IQD","IRR","ISK","ITL","JMD","JOD","JPY","KHR","KMF","KPW","KRW","KWD","KYD","KZT","LAK","LBP","LKR","LRD","LTL","LUF","LVL","LYD","MGA","MGF","MMK","MNT","MRO","MUR","MXN","MYR","NAD","NGN","NIO","NOK","NPR","NZD","OMR","PHP","PKR","PLN","PYG","RON","RSD","RUB","RUR","RWF","SBD","SEK","SGD","SHP","SLL","SOS","SRD","SSP","STD","STN","SYP","THB","TMM","TND","TOP","TRL","TRY","TTD","TWD","TZS","UAH","UGX","USD","UYI","UYU","UYW","UZS","VEF","VND","VUV","XAF","XCD","XOF","XPF","XXX","YER","ZAR","ZMK","ZMW","ZWD","getLocaleId","locale","findLocaleData","LocaleDataIndex","LocaleId","getLocaleDayPeriods","formStyle","width","data","amPm","getLastDefinedValue","DayPeriodsFormat","DayPeriodsStandalone","getLocaleDayNames","days","DaysFormat","DaysStandalone","getLocaleMonthNames","months","MonthsFormat","MonthsStandalone","getLocaleEraNames","Eras","getLocaleDateFormat","DateFormat","getLocaleTimeFormat","TimeFormat","getLocaleDateTimeFormat","DateTimeFormat","getLocaleNumberSymbol","symbol","res","NumberSymbols","CurrencyDecimal","Decimal","CurrencyGroup","Group","getLocaleNumberFormat","NumberFormats","getLocalePluralCase","getLocalePluralCase","checkFullData","ExtraData","getLocaleExtraDayPeriodRules","map","rule","extractTime","getLocaleExtraDayPeriods","dayPeriods","time","\_a","split","hours","minutes","getCurrencySymbol","code","format","currency","getLocaleCurrencies","Currencies","symbolNarrow","getNumberOfCurrencyDigits","digits","ZoneWidth","DateType","TranslationType","ISO8601\_DATE\_REGEX","NAMED\_FORMATS","DATE\_FORMATS\_SPLIT","formatDate","timezone","date","toDate","isDate","isNaN","Date","trim","parsedNb","parseFloat","test","val","isoStringToDate","tzHour","tzMin","dateSetter","setUTCFullYear","setFullYear","timeSetter","setUTCHours","setHours","Number","h","ms","Math","floor","getNamedFormat","localeId","formatValue","Short","Medium","Long","Full","shortTime","shortDate","formatDateTime","mediumTime","mediumDate","longTime","longDate","fullTime","fullDate","parts","exec","part","concat","dateTimezoneOffset","getTimezoneOffset","timezoneToOffset","convertTimezoneToLocal","reverse","reverseValue","addDateMinutes","getTime","setMinutes","getMinutes","text","dateFormatter","getDateFormatter","DATE\_FORMATS","formatter","dateStrGetter","Abbreviated","Wide","Narrow","dateGetter","FullYear","weekNumberingYearGetter","Month","Months","Standalone","weekGetter","Days","DayPeriods","Format","Hours","Minutes","Seconds","FractionalSeconds","timeZoneGetter","Extended","ShortGMT","str","opt\_values","key","padNumber","num","minusSign","negWrap","neg","strNum","substr","name","size","offset","getDatePart","getFullYear","getMonth","getDate","getHours","getSeconds","getMilliseconds","Day","getDay","formatFractionalSeconds","milliseconds","localeMinus","MinusSign","form","extended","getDateTranslation","currentHours\_1","currentMinutes\_1","rules","findIndex","isArray","from","to","afterFrom","beforeTo","zone","ceil","abs","getThursdayThisWeek","datetime","monthBased","result","nbDaysBefore1stDayOfMonth","today","thisThurs","firstThurs","getFirstThursdayOfYear","year","firstDayOfYear","THURSDAY","diff","round","fallback","requestedTimezoneOffset","parse","valueOf","NgLocalization","NUMBER\_FORMAT\_REGEX","formatNumberToLocaleString","pattern","groupSymbol","decimalSymbol","digitsInfo","isPercent","formattedText","isZero","isFinite","parsedN

umber","parseNumber","integerLen","j","zeros","numStr","exponent","indexOf","charAt","splice","MAX\_DIGITS",  
,"toPercent","fractionLen","minInt","minFraction","minFrac","maxFraction","maxFrac","minIntPart","minFractionP  
art","maxFractionPart","parseIntAutoRadix","roundNumber","fractionSize","min","max","roundAt","digit","k","uns  
hift","dropTrailingZeros","minLen","carry","reduceRight","decimals","every","groups","lgSize","join","gSize","Ex  
ponential","Infinity","negPre","negSuf","posPre","posSuf","formatCurrency","currencyCode","parseNumberFormat  
","Currency","formatPercent","Percent","RegExp","PercentSign","formatNumber","patternParts","positive","negati  
ve","positiveParts","lastIndexOf","integer","fraction","ch","trunkLen","pos","parseInt","getPluralCategory","cases",  
,"ngLocalization","NgLocaleLocalization","Zero","One","Two","Few","Many","LOCALE\_ID","NgClass","\_iterable  
Differs","\_keyValueDiffers","\_ngEl","\_renderer","\_iterableDiffer","\_keyValueDiffer","\_initialClasses","\_rawClass  
","\_removeClasses","\_applyClasses","isListLikeIterable","find","ngDoCheck","iterableChanges","\_applyIterableCh  
anges","keyValueChanges","\_applyKeyValueChanges","changes","forEachAddedItem","record","\_toggleClass","cu  
rrentValue","forEachChangedItem","forEachRemovedItem","previousValue","item","stringify","rawClassVal","Set  
","klass","keys","enabled","addClass","nativeElement","removeClass","Directive","selector","IterableDiffers","Key  
ValueDiffers","ElementRef","Renderer2","propDecorators","Input","ngClass","NgComponentOutlet","\_viewContai  
nerRef","\_componentRef","\_moduleRef","ngOnChanges","clear","ngComponentOutlet","elInjector","ngComponent  
OutletInjector","parentInjector","destroy","ngComponentOutletNgModuleFactory","parentModule","NgModuleRef  
","injector","componentFactory","componentFactoryResolver","ComponentFactoryResolver","resolveComponentFa  
ctory","createComponent","ngComponentOutletContent","ngOnDestroy","ViewContainerRef","NgForOfContext","  
\$implicit","ngForOf","count","even","NgForOf","\_viewContainer","\_template","\_differs","\_ngForOf","\_ngForOfDi  
rty","\_differ","\_trackByFn","isDevMode","console","warn","JSON","stringify","ngForTrackBy","getTypeName","\_  
applyChanges","insertTuples","forEachOperation","adjustedPreviousIndex","currentIndex","previousIndex","view",  
,"createEmbeddedView","tuple","RecordViewTuple","remove","move","\_perViewChange","ilen","viewRef","conte  
xt","forEachIdentityChange","ngTemplateContextGuard","dir","ctx","TemplateRef","ngForTemplate","NgIf","temp  
lateRef","\_context","NgIfContext","\_thenTemplateRef","\_elseTemplateRef","\_thenViewRef","\_elseViewRef","con  
dition","ngIf","\_updateView","assertTemplate","ngIfThen","ngIfElse","property","SwitchView","\_templateRef","\_c  
reated","enforceState","created","NgSwitch","\_defaultUsed","\_caseCount","\_lastCaseCheckIndex","\_lastCasesMatc  
hed","newValue","\_ngSwitch","\_updateDefaultCases","\_addCase","\_addDefault","\_defaultViews","\_matchCase","  
matched","useDefault","ngSwitch","NgSwitchDefault","NgSwitchCase","viewContainer","\_view","ngSwitchCase",  
,"Host","NgPluralCase","NgPlural","\_localization","\_caseViews","\_switchValue","addCase","switchView","\_clearV  
iews","\_activateView","\_activeView","ngPlural","template","isANumber","Attribute","NgStyle","\_ngStyle","values  
","\_setStyle","nameAndUnit","unit","setStyle","removeStyle","ngStyle","NgTemplateOutlet","\_viewRef","ngTempl  
ateOutletContext","ngTemplateOutlet","\_shouldRecreateView","viewContainerRef","\_updateExistingContext","ctx  
Change","\_hasContextShapeChanged","e\_1","prevCtxKeys","currCtxKeys","currCtxKeys\_1","currCtxKeys\_1\_1","  
e\_1\_1","return","e\_2","\_b","\_c","propName","e\_2\_1","COMMON\_DIRECTIVES","invalidPipeArgumentError","  
ObservableStrategy","createSubscription","async","updateLatestValue","dispose","subscription","unsubscribe","on  
Destroy","\_promiseStrategy","PromiseStrategy","then","\_observableStrategy","AsyncPipe","\_ref","\_latestValue","\_  
subscription","\_obj","\_strategy","\_dispose","transform","obj","\_subscribe","\_selectStrategy","\_updateLatestValue",  
,"isPromise","isObservable","markForCheck","Pipe","pure","ChangeDetectorRef","LowerCasePipe","toLowerCase"  
,"unicodeWordMatch","TitleCasePipe","txt","toUpperCase","UpperCasePipe","DatePipe","message","\_INTERPOL  
ATION\_REGEXP","I18nPluralPipe","pluralMap","toString","I18nSelectPipe","mapping","JsonPipe","KeyValuePi  
pe","differs","keyValues","input","compareFn","defaultComparator","Map","differ","differChanges","forEachItem"  
,"makeKeyValuePair","sort","keyValueA","keyValueB","a","aString","bString","DecimalPipe","\_locale","isValue",  
,"strToNumber","PercentPipe","CurrencyPipe","\_defaultCurrencyCode","display","DEFAULT\_CURRENCY\_COD  
E","SlicePipe","supports","CommonModule","COMMON\_PIPES","NgModule","declarations","providers","provid  
e","useClass","ViewportScroller","VERSION","Version","BrowserViewportScroller","ErrorHandler","document","  
errorHandler","setOffset","getScrollPosition","supportsScrolling","scrollX","scrollY","scrollToPosition","position",  
,"scrollTo","scrollToAnchor","anchor","elSelected","getElementById","getElementsByName","scrollToElement","s  
etHistoryScrollRestoration","scrollRestoration","supportScrollRestoration","el","rect","getBoundingClientRect","lef

t","pageXOffset","top","pageYOffset","scrollRestorationDescriptor","getScrollRestorationProperty","getPrototypeOf","writable","getOwnPropertyDescriptor","NullViewportScroller","getLocaleCurrencyCode","getLocaleCurrencyCode","getLocaleCurrencyName","CurrencyName","getLocaleCurrencySymbol","CurrencySymbol","getLocaleDirection","Directionality","getLocaleFirstDayOfWeek","FirstDayOfWeek","getLocaleWeekEndRange","WeekendRange","isPlatformBrowser","platformId","isPlatformServer","isPlatformWorkerApp","isPlatformWorkerUi","registerLocaleData","extraData","registerLocaleData","BrowserPlatformLocation","DomAdapter","NullViewportScroller","PLATFORM\_BROWSER\_ID","PLATFORM\_SERVER\_ID","PLATFORM\_WORKER\_APP\_ID","PLATFORM\_WORKER\_UI\_ID","angular\_packages\_common\_common\_a","angular\_packages\_common\_common\_b","angular\_packages\_common\_common\_c","angular\_packages\_common\_common\_d","angular\_packages\_common\_common\_e","angular\_packages\_common\_common\_f","getDOM","parseCookieValue","parseCookieValue","cookieStr","encodeURIComponent","cookie","eqIndex","\_d","cookieValue","decodeURIComponent","setRootDomAdapter","setRootDomAdapter","adapter"],"mappings":":;;;;CAMC,SAAUA,EAAQC,GACI,iBAAZC,SAA0C,oBAAXC,OAAyBF,EAAQC,QAASE,QAAQ,kBACtE,mBAAXC,QAAyBA,OAAOC,IAAMD,OAAO,kBAAmB,CAAC,UAAW,iBAkBJ,GAC3EA,IAAzBD,EAASA,GAAUO,MAAsBC,GAACK,EAAOQ,IAAM,GAAIR,EAAOQ,GAAGC,OAAS,IAAKT,EAAOQ,GAAGE,MAHtG,CAIEC,MAAM,SAAWT,EAASU,GAAM;,,,,,OAS9B,IAAIC,EAAO,KACX,SAASC,IACL,OAAOD,EAIbX,IAAIE,EACA,SAASA,MAoBTC,EAAgB,SAAUC,EAAGC,GAM7B,OALAF,EAAgBG,OAAOC,gBACIB,CAAEC,UAAW,cAAgBC,OAAS,SAAUL,EAAGC,GAACK,EAAEI,UAAyH,IACvE,SAAUD,EAAGC,GAACK,IAAK,IAAIK,KAAKL,EACxBA,EAAEM,eAAeD,KACjBN,EAAEM,GAACKL,EAAEK,MACAN,EAAGC;,,,,,;oFAE5B,SAASO,EAAUR,EAAGC,GAEIB,SAASQ,IAAOOf,KAAKgB,YAAcV,EADnCD,EAAcC,EAAGC,GAEjBD,EAAEW,UAAkB,OAANV,EAAaC,OAAOU,OAAOX,IAAMQ,EAAGE,UAAyV,EAAEU,UAAW,IAAIF,GAiJnF,SAASI,EAASC,GACd,IAAIC,EAAaB,mBAAXC,QAAyBA,OAAOC,SAAUC,EAAlH,GAACK,EAAEC,GAAIL,EAAI,EAC5E,GAAD,EACA,OAAOA,EAAEE,KAAKN,GACIB,GAAIA,GAAyB,iBAAbA,EAAEO,OACd,MAAO,CACHC,KAAM,WAGF,OAFIR,GAACK,GAACKL,EAAEO,SACZP,OAAI,GACD,CAAES,MAAOT,GAACA,EAAEK,KAAAMK,MAAOV,KAGhD,MAAM,IAAIW,UAAUV,EAAI,0BAA4B,mCAExD,SAASW,EAAOZ,EAAGa,GACf,IAAIT,EAAaB,mBAAXF,QAAyBF,EAAEE,OAAOC,UACjD,IAAKC,EACD,OAAOJ,EACX,IAAmBc,EAAyC,EAA3BV,EAAID,EAAEE,KAAKN,GAAOGb,EAAK,GAC3B,IACI,WAAc,IAANH,GAAgBA,KAAM,MAAQC,EAAIT,EAAEG,QAAQE,MACHDM,EAAGC,KAAKH,EAAEL,OAEIB,MAAOS,GACHH,EAAI,CAAEG,MAAOA,GAEjB,QACI,IACQJ,IAAMA,EAAEJ,OAASN,EAAIC,EAAU,SAC/BD,EAAEE,KAAKD,GAef,QACI,GAAIU,EACA,MAAMA,EAAEG,OAGpB,OAAOF;,,,,,AA6GX,IAwBIG,EABAC,EAAW,IAAIvC,EAAGwC,eAAe,iBAqCrC,SAASC,IACL,OAAOzC,EAAG0C,SAASC,IADnBL,EACA,SAASA,OAIIM,MAAQ5C,EAAG6C,mBAAmB,CAExD,QAASoD,EAA4BK,MAAOR,EAAkBS,WAAy,aAC3HT,EAAiBU,WAAa,CAC1B,CAAEC,KAAmJD,EAAGkD,WAAyC,KAAM,CAAC,CACIBJ,WAAy,WAEZK,WAAyX,MAY5B,IAuNIY,EAvNAC,EAAuB,IAAItd,EAAGwC,eAAe,wBAM7CG,EAAyC,SAAUY,GAEnD,SAASZ,EAAwBa,GAC7B,IAAIC,EAAQF,EAAO9B,KAAK1B,OAASA,KAGjC,OAFa0D,EAAMD,KAAOA,EACbC,EAAMC,QACCD,EA8FX,OAnGA5C,EAAU8B,EAAyBY,GASnCZ,EAAwB3B,UAAU0C,MAAQ,WACtC3D,KAAK4D,SAAWzD,IAAS0D,cACzB7D,KAAK8D,SAAW3D,IAAS4D,cAE7BnB,EAAwB3B,UAAU+C,mBAAQb,WACnD,OAAO7D,IAAS8D,YAAyJE,KAAKyD,OAERcb,EAAwB3B,UAAUiD,WAAa,SAAUC,GACrDhE,IAASiE,qBAaqBpE,KAAKyD,KAAM,UAAUY,iBAAiB,WAAyF,GAAL,IAExFvB,EAAwB3B,UAAUqD,aAAe,SAAUH,GACvDhE,IAASiE,qBAaqBpE,KAAKyD,KAAM,UAAUY,iBAAiB,aAAcF,GAAL,IAE1F3D,OAAO+D,eAAe3B,EAAwB3B,UAAW,OAAQ,CAC7DuD,IAAK,WACD,OAAOxE,KAAK4D,SAASa,MAEzBC,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,WAAy,CACjEuD,IAAK,WACD,OAAOxE,KAAK4D,SAASgB,UAEzBF,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,WAAy,CACjEuD,IAAK,WACD,OAAOxE,KAAK4D,SAASiB,UAEzBH,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,OAAQ,CAC7DuD,IAAK,WACD,OAAOxE,KAAK4D,SAASkB,MAEzBJ,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,WAAy,CACjEuD,IAAK,WACD,OAAOxE,KAAK4D,SAASmB,UAEzBC,IAAK,SAAUC,GACXjF,KAAK4D,SAASmB,SAawe,GAE7BP,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,SAAU,CAC/DuD,IAAK,WACD,OAAOxE,KAAK4D,SAASsB,QAEzBR,YAAy,EACZC,cAAc,IAElBnE,OAAO+D,eAAe3B,EAAwB3B,UAAW,OAAQ,CAC7DuD,IAAK,WACD,OAAOxE,KAAK4D,SAASu



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 GAAkBC,GACvB,MATsB,YASfA,GA2SX36B,EAAQ46B,iBArSR,SAASA,GAAiBD,GACtB,MAfqB,WAedA,G  
 AqSX36B,EAAQ66B,oBA/RR,SAASA,GAAoBF,GACzB,MArByB,qBAqBlBA,GA+RX36B,EAAQ86B,mBAzR  
 R,SAASA,GAAMBH,GACxB,MA3BwB,oBA2BjBA,GAyRX36B,EAAQ+6B;,,,,,AAxuFR,SAASA,GAAMb7m  
 B,EAAMwF,EAAUshB,GACxC,OAAOt6B,EAAGu6B,oBAAoB/mB,EAAMwF,EAAUshB;,,,,,QAWuFIDh7B,EA  
 AQk7B,yBAA2B73B,EACnCrD,EAAQm7B,YAAct6B,EACtBb,EAAQo7B,sBAAwBvB,GACHC75B,EAAQq7B,  
 qBA3TkB,UA4T1Br7B,EAAQs7B,oBA3TiB,SA4TzBt7B,EAAQu7B,wBA3TqB,mBA4T7Bv7B,EAAQw7B,uBA  
 3ToB,kBA4T5Bx7B,EAAQy7B,kCAAoCt4B,EAC5CnD,EAAQ07B,kCAAoC11B,EAC5CxG,EAAQ27B,kCAAoC  
 rxB,EAC5CtK,EAAQ47B,kCAAoCr0B,EAC5CvH,EAAQ67B,kCAAoCvJ,GAC5CtyB,EAAQ87B,kCAAoC3E,G  
 AC5Cn3B,EAAQ+7B,QAAUn7B,EACIBZ,EAAQg8B,kBA5uFR,SAASC,GAAiBC,EAAWve,GACjC,IAAI+T,EA  
 AK9a,EACT+G,EAAOwe,mBAAMBxe,GAC1B,IACI,IAAK,IAAIuU,EAACKtwB,EAASs6B,EAAUrlB,MAAM,M



```

AAOsb,EAAKD,EAAG7vB,QAAS8vB,EAAG5vB,KAAM4vB,EAAKD,EAAG7vB,OAAQ,CACpF,IAAI+5B,EA
ASjK,EAAG7vB,MACZ+5B,EAAUD,EAAOta,QAAQ,KACzBwa,EAARK75B,GAAmB,GAAZ45B,EAAGb,CAA
CD,EAAG,IAAM,CAACA,EAAOh1B,MAAM,EAAGi1B,GAAUD,EAAOh1B,MAAMi1B,EAAU,IAAK,GAAwB
E,EAACd,EAAG,GAC/I,GADuHA,EAAG,GAC3GhkB,SAAWqF,EACtB,OAAO6e,mBAAmBD,IAItC,MAAOxK
,GAASL,EAAM,CAAE3uB,MAAOgvB,GAC/B,QACI,IACQI,IAAOA,EAAG5vB,OAASqU,EAAKsb,EAAGF,S
AASpb,EAAGzU,KAAG+vB,GAEPD,QAAU,GAAIR,EAAG,MAAMA,EAAG3uB,OAEjC,OAAO,MAyFX/C,EA
AQy8B,mBAvmLR,SAASC,GAAGkBC,GACIbh8B,IACDA,EAAOg8B,IAumLf17B,OAAO+D,eAAehF,EAAS,aA
Ac,CAAEsC,OAAO","sourcesContent":["/*\n
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io/\n
* License: MIT\n *^\n\n(function (global, factory) {\n typeof exports === 'object' && typeof module !==
'undefined' ? factory(exports, require('@angular/core')) :\n typeof define === 'function' && define.amd ?
define('@angular/common', ['exports', '@angular/core'], factory) :\n (global = global || self, factory((global.ng =
global.ng || {}, global.ng.common = {}), global.ng.core));\n})(this, (function (exports, i0) {\n 'use strict';\n\n /*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n var _DOM
= null;\n function getDOM() {\n return _DOM;\n }\n function setDOM(adapter) {\n _DOM =
adapter;\n }\n function setRootDomAdapter(adapter) {\n if (!_DOM) {\n _DOM = adapter;\n }\n }\n /* tslint:disable:requireParameterType */\n\n * Provides DOM operations in an environment-agnostic way.\n *\n * @security Tread carefully! Interacting
with the DOM directly is dangerous and\n * can introduce XSS risks.\n *\n var DomAdapter = /** @class */
(function () {\n function DomAdapter() {\n }\n return DomAdapter;\n })();\n\n /*!\n
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with or without fee is hereby granted.\n\n THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR
DISCLAIMS ALL WARRANTIES WITH\n REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
WARRANTIES OF MERCHANTABILITY\n AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY SPECIAL, DIRECT,\n INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY
DAMAGES WHATSOEVER RESULTING FROM\n LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE
OR\n OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR\n
PERFORMANCE OF THIS SOFTWARE.\n
*****\n\n /* global
Reflect, Promise\n\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n
(({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\n function (d, b) { for (var p in
b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n });\n return extendStatics(d, b);\n };\n\n function __extends(d, b) {\n extendStatics(d, b);\n function __() { this.constructor = d; }\n d.prototype
= b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\n }\n\n var __assign = function () {\n
__assign = Object.assign || function __assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n
 s = arguments[i];\n\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n\n return __assign.apply(this, arguments);\n };\n\n function __rest(s, e) {\n
var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getOwnPropertySymbols === 'function')\n for (var i
= 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\n if (e.indexOf(p[i]) < 0 &&
Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n }\n return t;\n }\n\n function __decorate(decorators, target, key, desc) {\n var c = arguments.length, r = c < 3 ? target : desc === null
? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof

```

```

Reflect === "object" && typeof Reflect.decorate === "function")\n r = Reflect.decorate(decorators,
target, key, desc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n return c > 3 && r &&
Object.defineProperty(target, key, r, r);\n }\n function __param(paramIndex, decorator) {\n return function
(target, key) { decorator(target, key, paramIndex); }\n }\n function __metadata(metadataKey, metadataValue)
{\n if (typeof Reflect === "object" && typeof Reflect.metadata === "function")\n return
Reflect.metadata(metadataKey, metadataValue);\n }\n function __awaiter(thisArg, _arguments, P, generator) {\n
 function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\n
 return new (P || (P = Promise))(function
 (resolve, reject) {\n function fulfilled(value) { try {\n step(generator.next(value));\n }\n
 catch (e) {\n reject(e);\n }\n }\n function rejected(value) { try {\n
 step(generator["throw"](value));\n }\n catch (e) {\n reject(e);\n }\n }\n
 function
 step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\n
 step((generator = generator.apply(thisArg, _arguments || [])).next());\n });\n }\n function
 __generator(thisArg, body) {\n var _ = { label: 0, sent: function () { if (t[0] & 1)\n throw t[1]; return
t[1]; }, trys: [], ops: [] }, f, y, t, g;\n return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof
Symbol === "function" && (g[Symbol.iterator] = function () { return this; }), g;\n function verb(n) { return
function
 (v) { return step([n, v]); }; }\n function step(op) {\n if (f)\n throw new TypeError("Generator
is already executing.");\n while (_)\n try {\n if (f = 1, y && (t = op[0] & 2 ?
y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done)\n
 return t;\n if (y = 0, t)\n op = [op[0] & 2, t.value];\n switch (op[0])\n {\n case 0:\n t = op;\n break;\n
 case 4:\n _label++;\n return { value: op[1], done: false }; \n case
5:\n _label++;\n y = op[1];\n op = [0];\n continue;\n
 case 7:\n op = _ops.pop();\n _trys.pop();\n continue;\n
 default:\n if (!t = _trys, t = t.length > 0 && t[t.length - 1]) &&
 (op[0] === 6 || op[0] === 2)) {\n _ = 0;\n continue;\n }\n
 if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) {\n _label = op[1];\n break;\n }\n
 if (op[0] === 6 && _label < t[1]) {\n _label = t[1];\n t = op;\n break;\n }\n
 if (t && _label < t[2]) {\n _label = t[2];\n _ops.push(op);\n break;\n }\n
 _ops.pop();\n _trys.pop();\n continue;\n }\n }\n
 body.call(thisArg, _);\n }\n catch (e) {\n op = [6, e];\n y = 0;\n }\n finally {\n f = t = 0;\n }\n if (op[0] & 5)\n throw op[1];\n return { value: op[0] ? op[1] : void 0, done: true }; \n }\n }\n var __createBinding = Object.create ? (function
(o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n Object.defineProperty(o, k2, { enumerable: true,
get: function () { return m[k]; } });\n }) : (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, exports) {\n for (var p in m)\n if (p !==
"default" && !exports.hasOwnProperty(p))\n __createBinding(exports, m, p);\n }\n function
 __values(o) {\n var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0;\n if
(m)\n return m.call(o);\n if (o && typeof o.length === "number")\n return {\n next:
function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o &&
o[i++], done: !o }; \n }\n };\n throw new TypeError(s ? "Object is not iterable." :
"Symbol.iterator is not defined.");\n }\n function __read(o, n) {\n var m = typeof Symbol === "function"
&& o[Symbol.iterator];\n if (!m)\n return o;\n var i = m.call(o), r, ar = [], e;\n try {\n while ((n

```

```

==== void 0 || n-- > 0) && !(r = i.next()).done)\n ar.push(r.value);\n }\n catch (error) {\n e =
{ error: error };\n }\n finally {\n try {\n if (r && !r.done && (m = i[\"return\"]))\n m.call(i);\n }\n finally {\n if (e)\n throw e.error;\n }\n }\n return
ar;\n }\n function __spread() {\n for (var ar = [], i = 0; i < arguments.length; i++)\n ar =
ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for (var s = 0, i = 0, il
= arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0; i < il;
i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return r;\n }\n ;\n function __await(v) {\n return this
instanceof __await ? (this.v = v, this) : new __await(v);\n }\n function __asyncGenerator(thisArg, _arguments,
generator) {\n if (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator is not
defined.\");\n var g = generator.apply(thisArg, _arguments || []), i, q = [];\n return i = {}, verb(\"next\"),
verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i;\n function verb(n) { if
(g[n])\n i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); };\n }\n function resume(n, v) { try {\n step(g[n](v));\n }\n catch (e) {\n settle(q[0][3], e);\n }\n }\n function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) :
settle(q[0][2], r); }\n function fulfill(value) { resume(\"next\", value); }\n function reject(value) {\n resume(\"throw\",
value);\n }\n function settle(f, v) { if (f(v), q.shift(), q.length)\n resume(q[0][0], q[0][1]); }\n }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i = {}, verb(\"next\"), verb(\"throw\"), function (e) {\n throw e; }, verb(\"return\"), i[Symbol.iterator] = function () { return this; }, i;\n function verb(n, f) { i[n] = o[n]
? function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === \"return\" } : f ? f(v) : v; } : f; }\n }\n }\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator
is not defined.\");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values ===
\"function\" ? __values(o) : o[Symbol.iterator](), i = {}, verb(\"next\"), verb(\"throw\"), verb(\"return\"),
i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) {\n return new Promise(function (resolve,
reject) {\n v = o[n](v), settle(resolve, reject, v.done, v.value);\n });\n }\n }\n function settle(resolve, reject, d, v) {\n Promise.resolve(v).then(function (v) {\n resolve({ value: v, done: d });\n }, reject);\n }\n }\n }\n function
__makeTemplateObject(cooked, raw) {\n if (Object.defineProperty)\n Object.defineProperty(cooked,
\"raw\", { value: raw });\n }\n else {\n cooked.raw = raw;\n }\n return cooked;\n }\n ;\n var __setModuleDefault = Object.create ? (function (o, v) {\n Object.defineProperty(o, \"default\", {\n enumerable: true, value: v\n });\n }) : function (o, v) {\n o[\"default\"] = v;\n };\n function
__importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var result = {};\n if (mod
!= null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result,
mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod && mod.__esModule) ?
mod : { default: mod };\n }\n function __classPrivateFieldGet(receiver, privateMap) {\n if
(!privateMap.has(receiver))\n throw new TypeError(\"attempted to get private field on non-instance\");\n }\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver, privateMap, value) {\n if
(!privateMap.has(receiver))\n throw new TypeError(\"attempted to set private field on non-
instance\");\n }\n privateMap.set(receiver, value);\n return value;\n }\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * A DI Token
representing the main rendering context.

```

In a browser this is the DOM Document.\n \* Note: Document might not be available in the Application Context when Application and Rendering\n \* Contexts are not the same (e.g. when running the application in a Web Worker).\n \* @publicApi\n \*/\n var DOCUMENT = new i0.InjectionToken('DocumentToken');\n /\*\*\n \* This class should not be used directly by an application

developer. Instead, use `{ @link Location }`. `PlatformLocation`` encapsulates all calls to DOM APIs, which allows the Router to be platform-agnostic. This means that we can have different implementation of `PlatformLocation`` for the different platforms that Angular supports. For example, `@angular/platform-browser`` provides an implementation specific to the browser environment, while `@angular/platform-server`` provides one suitable for use with server-side rendering. The `PlatformLocation`` class is used directly by all implementations of `{ @link LocationStrategy }` when they need to interact with the DOM APIs like `pushState`, `popState`, etc. `{ @link LocationStrategy }` in turn is used by the `{ @link Location }` service which is used directly by the `{ @link Router }` in order to navigate between routes. Since all interactions between `{ @link Router }` / `{ @link Location }` / `{ @link LocationStrategy }` and DOM APIs flow through the `PlatformLocation`` class, they are all platform-agnostic.

```

@publicApi
var
PlatformLocation = /** @class */ (function () {
 function PlatformLocation() {}
 return PlatformLocation;
})();
PlatformLocation.prototype = i0.defineInjectable({
 factory: useBrowserPlatformLocation,
 token: PlatformLocation,
 providedIn: "platform"
});
PlatformLocation.decorators = [
 { type: i0.Injectable, args: [
 { providedIn: 'platform' }
]
},
];
// See #23917
useFactory: useBrowserPlatformLocation
},]
function
useBrowserPlatformLocation() {
 return i0.inject(BrowserPlatformLocation);
}
/**
 *
 * @description
 * Indicates when a location is initialized.
 * @publicApi
 *
 * @var
 * LOCATION_INITIALIZED = new i0.InjectionToken('Location Initialized');
 *
 * PlatformLocation`
 * encapsulates all of the direct calls to platform APIs.
 * This class should not be used directly by an application
 * developer. Instead, use
 * { @link Location }.
 *
 * @var
 * BrowserPlatformLocation = /** @class */ (function
 * (_super) {
 * __extends(BrowserPlatformLocation, _super);
 * function BrowserPlatformLocation(_doc) {
 * var _this = _super.call(this) || this;
 * _this._doc = _doc;
 * _this._init();
 * return _this;
 * }
 * // This is moved to its own method so that
 * `MockPlatformLocationStrategy` can overwrite it
 * /** @internal */
 * BrowserPlatformLocation.prototype._init = function () {
 * this.location = getDOM().getLocation();
 * this._history = getDOM().getHistory();
 * };
 * BrowserPlatformLocation.prototype.getBaseHrefFromDOM =
 * function () {
 * return getDOM().getBaseHref(this._doc);
 * };
 * BrowserPlatformLocation.prototype.onPopState = function (fn) {
 * getDOM().getGlobalEventTarget(this._doc, 'window').addEventListener('popstate', fn, false);
 * };
 * BrowserPlatformLocation.prototype.onHashChange = function (fn) {
 * getDOM().getGlobalEventTarget(this._doc, 'window').addEventListener('hashchange', fn, false);
 * };
 * Object.defineProperty(BrowserPlatformLocation.prototype, "href", {
 * get: function () {
 * return this.location.href;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "protocol", {
 * get: function () {
 * return this.location.protocol;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "hostname", {
 * get: function () {
 * return this.location.hostname;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "port", {
 * get: function () {
 * return this.location.port;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "pathname", {
 * get: function () {
 * return this.location.pathname;
 * },
 * set: function (newPath) {
 * this.location.pathname = newPath;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "search", {
 * get: function () {
 * return this.location.search;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * Object.defineProperty(BrowserPlatformLocation.prototype, "hash", {
 * get: function () {
 * return this.location.hash;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * BrowserPlatformLocation.prototype.pushState = function (state, title, url) {
 * if (supportsState()) {

```

```

this._history.pushState(state, title, url);\n }\n else {\n this.location.hash = url;\n }\n };\n BrowserPlatformLocation.prototype.replaceState = function\n (state, title, url) {\n if (supportsState()) {\n this._history.replaceState(state, title, url);\n }\n else {\n this.location.hash = url;\n }\n };\n BrowserPlatformLocation.prototype.forward\n = function () {\n this._history.forward();\n };\n BrowserPlatformLocation.prototype.back = function\n () {\n this._history.back();\n };\n BrowserPlatformLocation.prototype.getState = function () {\n return this._history.state;\n };\n return BrowserPlatformLocation;\n }(PlatformLocation));\n BrowserPlatformLocation.prov = i0.defineInjectable({ factory: createBrowserPlatformLocation, token:\n BrowserPlatformLocation, providedIn: "platform" });\n BrowserPlatformLocation.decorators = [\n { type: i0.Injectable, args: [\n { providedIn: 'platform',\n // See #23917\n useFactory: createBrowserPlatformLocation,\n },\n] },\n];\n BrowserPlatformLocation.ctorParameters = function ()\n { return [\n { type: undefined, decorators: [{ type: i0.Inject, args: [DOCUMENT,] }] },\n];\n }; function\n supportsState() {\n return !!window.history.pushState;\n }\n function createBrowserPlatformLocation() {\n return new BrowserPlatformLocation(i0.inject(DOCUMENT));\n }\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\n * be found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\n * be found in the LICENSE file at https://angular.io/license\n */\n /**\n * Joins two parts of a URL with\n * a slash if needed.\n * @param\n * start URL string\n * @param end URL string\n * @returns The joined URL string.\n */\n function joinWithSlash(start, end) {\n if (start.length == 0) {\n return end;\n }\n if (end.length\n == 0) {\n return start;\n }\n var slashes = 0;\n if (start.endsWith('/')) {\n slashes++;\n }\n if (end.startsWith('/')) {\n slashes++;\n }\n if (slashes == 2) {\n return start +\n end.substring(1);\n }\n if (slashes == 1) {\n return start + end;\n }\n return start + '/' + end;\n }\n /**\n * Removes a trailing slash from a URL string if needed.\n * Looks for the first occurrence of either\n * '#', '?', or the end of the\n * line as '^' characters and removes the trailing slash if one exists.\n * @param url URL string.\n * @returns The URL string, modified if needed.\n */\n /**\n * function stripTrailingSlash(url) {\n * var match = url.match(/#\\|\\?|$/);\n * var pathEndIdx = match &&\n * match.index || url.length;\n * var droppedSlashIdx = pathEndIdx - (url[pathEndIdx - 1] === '/' ? 1 : 0);\n * return url.slice(0, droppedSlashIdx) + url.slice(pathEndIdx);\n * }\n */\n /**\n * Normalizes URL parameters by\n * prepending with '?' if needed.\n * @param params String of URL parameters.\n * @returns The\n * normalized URL parameters string.\n */\n /**\n * function normalizeQueryParams(params) {\n * return params &&\n * params[0] !== '?' ? '?' + params : params;\n * }\n */\n /**\n * Enables the `Location` service to read route state\n * from the browser's URL.\n * Angular provides two strategies: `HashLocationStrategy` and\n * `PathLocationStrategy`.\n * Applications should use the `Router` or `Location` services to\n * interact\n * with application route state.\n * For instance, `HashLocationStrategy`\n * produces URLs like\n * <code class="no-auto-link">http://example.com#/foo</code>,\n * and\n * `PathLocationStrategy` produces\n * <code class="no-auto-link">http://example.com/foo</code> as an\n * equivalent URL.\n * See these two classes for more.\n * @publicApi\n */\n var\n LocationStrategy = /** @class */ (function () {\n function LocationStrategy() {\n }\n return\n LocationStrategy;\n })();\n LocationStrategy.prov = i0.defineInjectable({ factory: provideLocationStrategy,\n token: LocationStrategy, providedIn: "root" });\n LocationStrategy.decorators = [\n { type: i0.Injectable,\n args: [{ providedIn: 'root', useFactory: provideLocationStrategy },]\n },\n];\n function\n provideLocationStrategy(platformLocation) {\n // See #23917\n var location =\n i0.inject(DOCUMENT).location;\n return new PathLocationStrategy(i0.inject(PlatformLocation), location &&\n location.origin || ");\n }\n /**\n * A predefined [DI token](guide/glossary#di-token) for the base href\n * to be used with the\n * `PathLocationStrategy`.\n * The base href is the URL prefix that should be preserved when generating\n * and

```

recognizing URLs.\n \* \n \* @usageNotes\n \* \n \* The following example shows how to use this token to configure the root app injector\n \* with a base href value, so that the DI framework can supply the dependency anywhere in the app.\n \* \n \* ```typescript\n \* import { Component, NgModule } from '@angular/core';\n \* import { APP\_BASE\_HREF } from '@angular/common';\n \* \n \* @NgModule({\n \* providers: [{provide: APP\_BASE\_HREF, useValue: '/my/app'}]\n \* })\n \* class AppModule {\n \* \n \* }\n \* \n \* @publicApi\n \* \n \* \n \* var APP\_BASE\_HREF = new i0.InjectionToken('appBaseHref');\n \* /\*\*\n \* \n \* @description\n \* A { @link LocationStrategy } used to configure the { @link Location } service to\n \* represent its state in the\n \* [path](https://en.wikipedia.org/wiki/Uniform\_Resource\_Locator#Syntax) of the\n \* browser's URL.\n \* \n \* If you're using `PathLocationStrategy`, you must provide a { @link APP\_BASE\_HREF }\n \* or add a `<base href>` element to the document.\n \* \n \* For instance, if you provide an `APP\_BASE\_HREF` of `'/my/app/'` and call\n \* `location.go('/foo')`, the browser's URL will become\n \* `example.com/my/app/foo`. To ensure all relative URIs resolve correctly,\n \* the `<base href>` and/or `APP\_BASE\_HREF` should end with a `^`.\n \* \n \* Similarly, if you add `<base href='/my/app/'>` to the document and call\n \* `location.go('/foo')`, the browser's URL will become\n \* `example.com/my/app/foo`.\n \* \n \* Note that when using `PathLocationStrategy`, neither the query nor\n \* the fragment in the `<base href>` will be preserved, as outlined\n \* by the [RFC](https://tools.ietf.org/html/rfc3986#section-5.2.2).\n \* \n

```

 * \n * @usageNotes\n * \n * ### Example\n * \n * { @example
common/location/ts/path_location_component.ts region='LocationComponent'}\n * \n * @publicApi\n * \n
var PathLocationStrategy = /** @class */ (function (_super) {\n __extends(PathLocationStrategy, _super);\n function PathLocationStrategy(_platformLocation, href) {\n var _this = _super.call(this) || this;\n _this._platformLocation = _platformLocation;\n if (href == null) {\n href =\n _this._platformLocation.getBaseHrefFromDOM();\n }\n if (href == null) {\n throw new\n Error(`No base href set. Please provide a value for the APP_BASE_HREF token or add a base element to the\n document.`);\n }\n _this._baseHref = href;\n return _this;\n }\n PathLocationStrategy.prototype.onPopState = function (fn) {\n this._platformLocation.onPopState(fn);\n this._platformLocation.onHashChange(fn);\n }; \n PathLocationStrategy.prototype.getBaseHref =\n function () {\n return this._baseHref;\n }; \n PathLocationStrategy.prototype.prepareExternalUrl =\n function (internal) {\n return joinWithSlash(this._baseHref, internal);\n }; \n PathLocationStrategy.prototype.path = function (includeHash) {\n if (includeHash === void 0) { includeHash\n = false; }\n var pathname = this._platformLocation.pathname +\n normalizeQueryParams(this._platformLocation.search);\n var hash = this._platformLocation.hash;\n return hash && includeHash ? `\" + pathname + hash : pathname;\n }; \n PathLocationStrategy.prototype.pushState = function (state, title, url, queryParams) {\n var externalUrl =\n this.prepareExternalUrl(url + normalizeQueryParams(queryParams));\n this._platformLocation.pushState(state, title, externalUrl);\n }; \n PathLocationStrategy.prototype.replaceState = function (state, title, url, queryParams) {\n var\n externalUrl = this.prepareExternalUrl(url + normalizeQueryParams(queryParams));\n this._platformLocation.replaceState(state, title, externalUrl);\n }; \n PathLocationStrategy.prototype.forward\n = function () {\n this._platformLocation.forward();\n }; \n PathLocationStrategy.prototype.back =\n function () {\n this._platformLocation.back();\n }; \n return PathLocationStrategy;\n})(LocationStrategy));\n PathLocationStrategy.decorators = [\n { type: i0.Injectable }\n]; \n PathLocationStrategy.ctorParameters = function () { return [\n { type: PlatformLocation },\n { type: String,\n decorators: [{ type: i0.Optional }, { type: i0.Inject, args: [APP_BASE_HREF,] }] }\n]; }; \n /**\n * \n * @description\n * A { @link LocationStrategy } used to configure the { @link Location }\n service to\n * represent its state in the\n * [hash\n fragment](https://en.wikipedia.org/wiki/Uniform_Resource_Locator#Syntax)\n * of the browser's URL.\n * \n * For instance, if you call `location.go('/foo')`, the browser's URL will become\n * `example.com/#/foo`.\n * \n * \n * @usageNotes\n * \n * ### Example\n * \n * { @example

```

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common/location/ts/hash_location_component.ts region='LocationComponent'}\n *\n * @publicApi\n *\n var HashLocationStrategy = /** @class */ (function (_super) {\n __extends(HashLocationStrategy, _super);\n function HashLocationStrategy(_platformLocation, _baseHref) {\n var _this = _super.call(this) || this;\n _this._platformLocation = _platformLocation;\n _this._baseHref = _baseHref;\n if (_baseHref != null) {\n _this._baseHref = _baseHref;\n }\n return _this;\n }\n HashLocationStrategy.prototype.onPopState\n = function (fn) {\n this._platformLocation.onPopState(fn);\n }\n this._platformLocation.onHashChange(fn);\n HashLocationStrategy.prototype.getBaseHref = function\n () {\n return this._baseHref;\n }\n HashLocationStrategy.prototype.path = function (includeHash)\n {\n if (includeHash === void 0) { includeHash = false; }\n // the hash value is always prefixed with a\n `#\n // and if it is empty then it will stay empty\n var path = this._platformLocation.hash;\n if\n (path == null)\n path = '#';\n return path.length > 0 ? path.substring(1) : path;\n }\n HashLocationStrategy.prototype.prepareExternalUrl = function (internal) {\n var url =\n joinWithSlash(this._baseHref, internal);\n return url.length > 0 ? ('#' + url) : url;\n }\n HashLocationStrategy.prototype.pushState = function (state, title, path,\n queryParams) {\n var url = this.prepareExternalUrl(path + normalizeQueryParams(queryParams));\n if (url.length == 0) {\n url = this._platformLocation.pathname;\n }\n this._platformLocation.pushState(state, title, url);\n HashLocationStrategy.prototype.replaceState =\n function (state, title, path, queryParams) {\n var url = this.prepareExternalUrl(path +\n normalizeQueryParams(queryParams));\n if (url.length == 0) {\n url =\n this._platformLocation.pathname;\n }\n this._platformLocation.replaceState(state, title, url);\n }\n HashLocationStrategy.prototype.forward = function () {\n this._platformLocation.forward();\n }\n HashLocationStrategy.prototype.back = function () {\n this._platformLocation.back();\n }\n return\n HashLocationStrategy;\n } (LocationStrategy));\n HashLocationStrategy.decorators\n = [\n { type: i0.Injectable }\n];\n HashLocationStrategy.ctorParameters = function () { return [\n {\n type: PlatformLocation\n },\n {\n type: String,\n decorators: [{ type: i0.Optional }, { type: i0.Inject, args:\n [APP_BASE_HREF,] }\n },\n {\n type: String,\n decorators: [{ type: i0.Optional }, { type: i0.Inject, args:\n [APP_BASE_HREF,] }\n }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n * https://angular.io/license\n *\n * @description\n * A service that applications can use to\n * interact with a browser's URL.\n * Depending on the `LocationStrategy` used, `Location` persists\n * to the URL's path or the URL's hash segment.\n * @usageNotes\n * It's better to use the\n * `Router#navigate` service to trigger route changes. Use\n * `Location` only if you need to interact with or create\n * normalized URLs outside of\n * routing.\n *\n * `Location` is responsible for normalizing the URL against the application's base href.\n * A normalized\n * URL is absolute from the URL host, includes the application's base href, and has no\n * trailing slash;\n * -\n * `my/app/user/123` is normalized\n * - `my/app/user/123` is not normalized\n * - `my/app/user/123/` is\n * not normalized\n * ### Example\n * <code-example\n path='common/location/ts/path_location_component.ts'\n region='LocationComponent'\n >\n *\n * @publicApi\n *\n var Location = /** @class */ (function () {\n function\n Location(platformStrategy, platformLocation) {\n var _this = this;\n /** @internal */\n this._subject = new i0.EventEmitter();\n /** @internal */\n this._urlChangeListeners = [];\n this._platformStrategy = platformStrategy;\n var browserBaseHref = this._platformStrategy.getBaseHref();\n this._platformLocation = platformLocation;\n this._baseHref =\n stripTrailingSlash(_stripIndexHtml(browserBaseHref));\n this._platformStrategy.onPopState(function (ev)\n {\n _this._subject.emit({\n 'url': _this.path(true),\n 'pop': true,\n 'state':\n ev.state,\n 'type': ev.type\n });\n });\n }\n /**\n * Normalizes the URL\n path for this location.\n *\n * @param includeHash True to include an anchor fragment in the path.\n *\n * @returns The normalized URL path.\n *\n // TODO: vsavkin. Remove the boolean flag and

```

```

always include hash once the deprecated router is // removed. Location.prototype.path = function
(includeHash) {
 if (includeHash === void 0) { includeHash = false; }
 return this.normalize(this._platformStrategy.path(includeHash));
};
/**
 * Reports the current state of the location history.
 * @returns The current value of the `history.state` object.
 */
Location.prototype.getState = function () {
 return this._platformLocation.getState();
};
/**
 * Normalizes the given path and compares to the current normalized path.
 * @param path The given URL path.
 * @param query Query parameters.
 * @returns True if the given URL path is equal to the current normalized path, false otherwise.
 */
Location.prototype.isCurrentPathEqualTo = function (path, query) {
 if (query === void 0) { query = ""; }
 return this.path() == this.normalize(path + normalizeQueryParams(query));
};
/**
 * Normalizes a URL path by stripping any trailing slashes.
 * @param url String representing a URL.
 * @returns The normalized URL string.
 */
Location.prototype.normalize = function (url) {
 return Location.stripTrailingSlash(_stripBaseHref(this._baseHref, _stripIndexHtml(url)));
};
/**
 * Normalizes an external URL path.
 * If the given URL doesn't begin with a leading slash ('/'), adds one before normalizing. Adds a hash if `HashLocationStrategy` is in use, or the `APP_BASE_HREF` if the `PathLocationStrategy` is in use.
 * @param url String representing a URL.
 * @returns A normalized platform-specific URL.
 */
Location.prototype.prepareExternalUrl = function (url) {
 if (url && url[0] !== '/') { url = '/' + url; }
 return this._platformStrategy.prepareExternalUrl(url);
};
// TODO: rename this method to pushState
/**
 * Changes the browser's URL to a normalized version of a given URL, and pushes a new item onto the platform's history.
 * @param path URL path to normalize.
 * @param query Query parameters.
 * @param state Location history state.
 */
Location.prototype.go = function (path, query, state) {
 if (query === void 0) { query = ""; }
 if (state === void 0) { state = null; }
 this._platformStrategy.pushState(state, "", path, query);
 this._notifyUrlChangeListeners(this.prepareExternalUrl(path + normalizeQueryParams(query)), state);
};
/**
 * Changes the browser's URL to a normalized version of the given URL, and replaces the top item on the platform's history stack.
 * @param path URL path to normalize.
 * @param query Query parameters.
 * @param state Location history state.
 */
Location.prototype.replaceState = function (path, query, state) {
 if (query === void 0) { query = ""; }
 if (state === void 0) { state = null; }
 this._platformStrategy.replaceState(state, "", path, query);
 this._notifyUrlChangeListeners(this.prepareExternalUrl(path + normalizeQueryParams(query)), state);
};
/**
 * Navigates forward in the platform's history.
 */
Location.prototype.forward = function () {
 this._platformStrategy.forward();
};
/**
 * Navigates back in the platform's history.
 */
Location.prototype.back = function () {
 this._platformStrategy.back();
};
/**
 * Registers a URL change listener. Use to catch updates performed by the Angular framework that are not detectable through "popstate" or "hashchange" events.
 * @param fn The change handler function, which take a URL and a location history state.
 */
Location.prototype.onUrlChange = function (fn) {
 var _this = this;
 this._urlChangeListeners.push(fn);
 if (!this._urlChangeSubscription) {
 this._urlChangeSubscription = this.subscribe(function (v) {
 _this._notifyUrlChangeListeners(v.url, v.state);
 });
 }
};
/**
 * @internal
 */
Location.prototype._notifyUrlChangeListeners = function (url, state) {
 if (url === void 0) { url = ""; }
 this._urlChangeListeners.forEach(function (fn) {
 return fn(url, state);
 });
};
/**
 * Subscribes to the platform's `popState` events.
 * @param value Event that is triggered when the state history changes.
 * @param exception The exception to throw.
 * @returns Subscribed events.
 */

```



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 */\n Location.prototype.subscribe = function (onNext, onThrow, onReturn) {\n return
this._subject.subscribe({ next: onNext, error: onThrow, complete: onReturn });\n };\n return Location;\n
})();\n /**\n * Normalizes URL parameters by prepending with `?` if needed.\n *\n * @param params
String of URL parameters.\n *\n * @returns The normalized URL parameters string.\n */\n
Location.normalizeQueryParams = normalizeQueryParams;\n /**\n * Joins two parts of a URL with a slash if
needed.\n *\n * @param start URL string\n * @param end URL string\n *\n * @returns The
joined URL string.\n */\n Location.joinWithSlash = joinWithSlash;\n /**\n * Removes a trailing slash from
a URL string if needed.\n * Looks for the first occurrence of either `#`, `?`, or the end of the\n * line as `^`
characters and removes the trailing slash if one exists.\n *\n * @param url URL
string.\n *\n * @returns The URL string, modified if needed.\n */\n Location.stripTrailingSlash =
stripTrailingSlash;\n Location.prov = i0.defineInjectable({ factory: createLocation, token: Location, providedIn:
\"root\" });\n Location.decorators = [\n { type: i0.Injectable, args: [{\n providedIn: 'root',\n
// See #23917\n useFactory: createLocation,\n },] }\n];\n Location.ctorParameters =
function () { return [\n { type: LocationStrategy },\n { type: PlatformLocation }\n]; };
function createLocation() {\n return new Location(i0.inject(LocationStrategy), i0.inject(PlatformLocation));\n }\n
function _stripBaseHref(baseHref, url) {\n return baseHref && url.startsWith(baseHref) ?
url.substring(baseHref.length) : url;\n }\n function _stripIndexHtml(url) {\n return
url.replace(/\\/index.html$/, "");\n }\n /**\n
 * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
 * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
 @internal */\n var CURRENCIES_EN = {\n 'ADP': [undefined, undefined, 0],\n 'AFN': [undefined,
undefined, 0],\n 'ALL': [undefined, undefined, 0],\n 'AMD': [undefined, undefined, 2],\n 'AOA':
[undefined, 'Kz'],\n 'ARS': [undefined, '$'],\n 'AUD': ['A$', '$'],\n 'BAM': [undefined, 'KM'],\n
 'BBD': [undefined, '$'],\n 'BDT': [undefined, ''],\n 'BHD': [undefined, undefined, 3],\n 'BIF': [undefined,
undefined, 0],\n 'BMD': [undefined,
'$'],\n 'BND': [undefined, '$'],\n 'BOB': [undefined, 'Bs'],\n 'BRL': ['R$'],\n 'BSD': [undefined,
'$'],\n 'BWP': [undefined, 'P'],\n 'BYN': [undefined, ' ', 2],\n 'BYR': [undefined, undefined, 0],\n
 'BZD': [undefined, '$'],\n 'CAD': ['CA$', '$', 2],\n 'CHF': [undefined, undefined, 2],\n 'CLF': [undefined,
undefined, 4],\n 'CLP': [undefined, '$', 0],\n 'CNY': ['CN¥', '¥'],\n 'COP': [undefined, '$', 2],\n
 'CRC': [undefined, ' ', 2],\n 'CUC': [undefined, '$'],\n 'CUP': [undefined, '$'],\n 'CZK': [undefined, 'K',
2],\n 'DJF': [undefined, undefined, 0],\n 'DKK': [undefined, 'kr', 2],\n 'DOP': [undefined, '$'],\n
 'EGP': [undefined, 'E£'],\n 'ESP': [undefined, ' ', 0],\n 'EUR': ['€'],\n 'FJD': [undefined, '$'],\n 'FKP':
[undefined, '£'],\n 'GBP': ['£'],\n 'GEL': [undefined, ''],\n 'GIP': [undefined,
'£'],\n 'GNF': [undefined, 'FG', 0],\n 'GTQ': [undefined, 'Q'],\n 'GYD': [undefined, '$', 2],\n 'HKD':
['HK$', '$'],\n 'HNL': [undefined, 'L'],\n 'HRK': [undefined, 'kn'],\n 'HUF': [undefined, 'Ft', 2],\n
 'IDR': [undefined, 'Rp', 2],\n 'ILS': [''],\n 'INR': [''],\n 'IQD': [undefined, undefined, 0],\n 'IRR':
[undefined, undefined, 0],\n 'ISK': [undefined, 'kr', 0],\n 'ITL': [undefined, undefined, 0],\n 'JMD':
[undefined, '$'],\n 'JOD': [undefined, undefined, 3],\n 'JPY': ['¥', undefined, 0],\n 'KHR': [undefined,
''],\n 'KMF': [undefined, 'CF', 0],\n 'KPW': [undefined, ' ', 0],\n 'KRW': [' ', undefined, 0],\n 'KWD':
[undefined, undefined, 3],\n 'KYD': [undefined, '$'],\n 'KZT': [undefined, ''],\n 'LAK': [undefined, ' ',
0],\n 'LBP': [undefined, 'L£', 0],\n 'LKR': [undefined, 'Rs'],\n
 'LRD': [undefined, '$'],\n 'LTL': [undefined, 'Lt'],\n 'LUF': [undefined, undefined, 0],\n 'LVL':
[undefined, 'Ls'],\n 'LYD': [undefined, undefined, 3],\n 'MGA': [undefined, 'Ar', 0],\n 'MGF':
[undefined, undefined, 0],\n 'MMK': [undefined, 'K', 0],\n 'MNT': [undefined, ' ', 2],\n 'MRO':
[undefined, undefined, 0],\n 'MUR': [undefined, 'Rs', 2],\n 'MXN': ['MX$', '$'],\n 'MYR': [undefined,
'RM'],\n 'NAD': [undefined, '$'],\n 'NGN': [undefined, ''],\n 'NIO': [undefined, 'C$'],\n 'NOK':

```

```

[undefined, 'kr', 2],\n 'NPR': [undefined, 'Rs'],\n 'NZD': ['NZ$', '$'],\n 'OMR': [undefined, undefined, 3],\n 'PHP': [undefined, ''],\n 'PKR': [undefined, 'Rs', 2],\n 'PLN': [undefined, 'z'],\n 'PYG': [undefined, ''],\n 'RON': [undefined, 'lei'],\n 'RSD': [undefined, undefined, 0],\n 'RUB': [undefined, ''],\n 'RUR': [undefined, ''],\n 'RWF': [undefined, 'RF', 0],\n 'SBD': [undefined, '$'],\n 'SEK': [undefined, 'kr', 2],\n 'SGD': [undefined, '$'],\n 'SHP': [undefined, '£'],\n 'SLL': [undefined, undefined, 0],\n 'SOS': [undefined, undefined, 0],\n 'SRD': [undefined, '$'],\n 'SSP': [undefined, '£'],\n 'STD': [undefined, undefined, 0],\n 'STN': [undefined, 'Db'],\n 'SYP': [undefined, '£', 0],\n 'THB': [undefined, ''],\n 'TMM': [undefined, undefined, 0],\n 'TND': [undefined, undefined, 3],\n 'TOP': [undefined, 'T$'],\n 'TRL': [undefined, undefined, 0],\n 'TRY': [undefined, ''],\n 'TTD': [undefined, '$'],\n 'TWD': ['NT$', '$', 2],\n 'TZS': [undefined, undefined, 2],\n 'UAH': [undefined, ''],\n 'UGX': [undefined, undefined, 0],\n 'USD': ['$'],\n 'UYI': [undefined, undefined, 0],\n 'UYU': [undefined, '$'],\n 'UYW': [undefined, undefined, 4],\n 'UZS': [undefined, undefined, 2],\n 'VEF': [undefined, 'Bs', 2],\n 'VND': ['', undefined, 0],\n 'VUV': [undefined, undefined, 0],\n 'XAF': ['FCFA', undefined, 0],\n 'XCD': ['EC$', '$'],\n 'XOF': ['CFA', undefined, 0],\n 'XPF': ['CFPF', undefined, 0],\n 'XXX': ['¤'],\n 'YER': [undefined, undefined, 0],\n 'ZAR': [undefined, 'R'],\n 'ZMK': [undefined, undefined, 0],\n 'ZMW': [undefined, 'ZK'],\n 'ZWD': [undefined, undefined, 0]\n };(function (NumberFormatStyle) {\n NumberFormatStyle[NumberFormatStyle["Decimal"] = 0] = "Decimal";\n NumberFormatStyle[NumberFormatStyle["Percent"] = 1] = "Percent";\n NumberFormatStyle[NumberFormatStyle["Currency"] = 2] = "Currency";\n NumberFormatStyle[NumberFormatStyle["Scientific"] = 3] = "Scientific";\n })(exports.NumberFormatStyle || (exports.NumberFormatStyle = {}));\n\n (function (Plural) {\n Plural[Plural["Zero"] = 0] = "Zero";\n Plural[Plural["One"] = 1] = "One";\n Plural[Plural["Two"] = 2] = "Two";\n Plural[Plural["Few"] = 3] = "Few";\n Plural[Plural["Many"] = 4] = "Many";\n Plural[Plural["Other"] = 5] = "Other";\n })(exports.Plural || (exports.Plural = {}));\n\n (function (FormStyle) {\n FormStyle[FormStyle["Format"] = 0] = "Format";\n FormStyle[FormStyle["Standalone"] = 1] = "Standalone";\n })(exports.FormStyle || (exports.FormStyle = {}));\n\n (function (TranslationWidth) {\n /** 1 character for `en-US`. For example: 'S' */\n TranslationWidth[TranslationWidth["Narrow"] = 0] = "Narrow";\n /** 3 characters for `en-US`. For example: 'Sun' */\n TranslationWidth[TranslationWidth["Abbreviated"] = 1] = "Abbreviated";\n /** Full length for `en-US`. For example: 'Sunday' */\n TranslationWidth[TranslationWidth["Wide"] = 2] = "Wide";\n /** 2 characters for `en-US`, For example: 'Su' */\n TranslationWidth[TranslationWidth["Short"] = 3] = "Short";\n })(exports.TranslationWidth || (exports.TranslationWidth = {}));\n\n (function (FormatWidth) {\n /**\n * For `en-US`, 'M/d/yy, h:mm a'\n * (Example: `6/15/15, 9:03 AM`)\n */\n FormatWidth[FormatWidth["Short"] = 0] = "Short";\n /**\n * For `en-US`, `MMM d, y, h:mm:ss a`\n * (Example: `Jun 15, 2015, 9:03:01 AM`)\n */\n FormatWidth[FormatWidth["Medium"] = 1] = "Medium";\n /**\n * For `en-US`, `MMMM d, y, h:mm:ss a z`\n * (Example: `June 15, 2015 at 9:03:01 AM GMT+1`)\n */\n FormatWidth[FormatWidth["Long"] = 2] = "Long";\n /**\n * For `en-US`, `EEEE, MMMM d, y, h:mm:ss a zzzz`\n * (Example: `Monday, June 15, 2015 at 9:03:01 AM GMT+01:00`)\n */\n FormatWidth[FormatWidth["Full"] = 3] = "Full";\n })(exports.FormatWidth || (exports.FormatWidth = {}));\n\n (function (NumberSymbol) {\n /**\n * Decimal separator.\n * For `en-US`, the dot character.\n * Example: `2,345.67`\n */\n NumberSymbol[NumberSymbol["Decimal"] = 0] = "Decimal";\n /**\n * Grouping separator, typically for thousands.\n * For `en-US`, the comma character.\n * Example: `2,345.67`\n */\n NumberSymbol[NumberSymbol["Group"] = 1] = "Group";\n /**\n * List-item separator.\n * Example: `one, two, and three`\n */\n NumberSymbol[NumberSymbol["List"] = 2] = "List";\n /**\n * Sign for percentage (out of 100).\n * Example: `23.4%`\n */

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NumberSymbol[NumberSymbol["PercentSign"] = 3] = "PercentSign";\n /**\n * Sign for positive
numbers.\n * Example: +23\n */\n
NumberSymbol[NumberSymbol["PlusSign"] = 4] = "PlusSign";\n /**\n * Sign for negative
numbers.\n * Example: -23\n */\n NumberSymbol[NumberSymbol["MinusSign"] = 5] =
"MinusSign";\n /**\n * Computer notation for exponential value (n times a power of 10).\n *
Example: 1.2E3\n */\n NumberSymbol[NumberSymbol["Exponential"] = 6] = "Exponential";\n
/**\n * Human-readable format of exponential.\n * Example: 1.2x103\n */\n
NumberSymbol[NumberSymbol["SuperscriptingExponent"] = 7] = "SuperscriptingExponent";\n /**\n *
Sign for permille (out of 1000).\n * Example: 23.4‰\n */\n
NumberSymbol[NumberSymbol["PerMille"] = 8] = "PerMille";\n /**\n * Infinity, can be used with plus
and minus.\n * Example: , +, -\n */\n NumberSymbol[NumberSymbol["Infinity"] = 9] =
"Infinity";\n
/**\n * Not a number.\n * Example: NaN\n */\n NumberSymbol[NumberSymbol["NaN"] =
10] = "NaN";\n /**\n * Symbol used between time units.\n * Example: 10:52\n */\n
NumberSymbol[NumberSymbol["TimeSeparator"] = 11] = "TimeSeparator";\n /**\n * Decimal
separator for currency values (fallback to `Decimal`).\n * Example: $2,345.67\n */\n
NumberSymbol[NumberSymbol["CurrencyDecimal"] = 12] = "CurrencyDecimal";\n /**\n * Group
separator for currency values (fallback to `Group`).\n * Example: $2,345.67\n */\n
NumberSymbol[NumberSymbol["CurrencyGroup"] = 13] = "CurrencyGroup";\n })(exports.NumberSymbol ||
(exports.NumberSymbol = {}));\n (function (WeekDay) {\n WeekDay[WeekDay["Sunday"] = 0] =
"Sunday";\n WeekDay[WeekDay["Monday"] = 1] = "Monday";\n WeekDay[WeekDay["Tuesday"] =
2] = "Tuesday";\n
 WeekDay[WeekDay["Wednesday"] = 3] = "Wednesday";\n WeekDay[WeekDay["Thursday"] = 4] =
"Thursday";\n WeekDay[WeekDay["Friday"] = 5] = "Friday";\n WeekDay[WeekDay["Saturday"] =
6] = "Saturday";\n })(exports.WeekDay || (exports.WeekDay = {}));\n /**\n * Retrieves the locale ID from
the currently loaded locale.\n * The loaded locale could be, for example, a global one rather than a regional one.\n
 * @param locale A locale code, such as `fr-FR`.\n * @returns The locale code. For example, `fr`.\n * @see
[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * @publicApi\n */\n function
getLocaleId(locale) {\n return i0.findLocaleData(locale)[i0.LocaleDataIndex.LocaleId];\n }\n /**\n *
Retrieves day period strings for the given locale.\n * @param locale A locale code for the locale format
rules to use.\n * @param formStyle The required grammatical form.\n * @param
width The required character width.\n * @returns An array of localized period strings. For example, `[AM, PM]`
for `en-US`.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *
@publicApi\n */\n function getLocaleDayPeriods(locale, formStyle, width) {\n var data =
i0.findLocaleData(locale);\n var amPmData = [\n data[i0.LocaleDataIndex.DayPeriodsFormat],
data[i0.LocaleDataIndex.DayPeriodsStandalone]\n];\n var amPm = getLastDefinedValue(amPmData,
formStyle);\n return getLastDefinedValue(amPm, width);\n }\n /**\n * Retrieves days of the week for the
given locale, using the Gregorian calendar.\n * @param locale A locale code for the locale format rules to
use.\n * @param formStyle The required grammatical form.\n * @param width The required character width.\n
 * @returns An array of localized name strings.\n * For example, `[Sunday, Monday, ... Saturday]`
for `en-US`.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *
@publicApi\n */\n function getLocaleDayNames(locale, formStyle, width) {\n var data =
i0.findLocaleData(locale);\n var daysData = [data[i0.LocaleDataIndex.DaysFormat],
data[i0.LocaleDataIndex.DaysStandalone]];\n var days = getLastDefinedValue(daysData, formStyle);\n
 return getLastDefinedValue(days, width);\n }\n /**\n * Retrieves months of the year for the given locale,
using the Gregorian calendar.\n * @param locale A locale code for the locale format rules to use.\n *
@param formStyle The required grammatical form.\n * @param width The required character width.\n *
@returns An array of localized name strings.\n * For example, `[January, February, ...]` for `en-US`.\n * @see

```

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[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function\n getLocaleMonthNames(locale, formStyle, width) {\n var data = i0.findLocaleData(locale);\n var\n monthsData = [data[i0.LocaleDataIndex.MonthsFormat], data[i0.LocaleDataIndex.MonthsStandalone]];\n var\n months = getLastDefinedValue(monthsData, formStyle);\n return getLastDefinedValue(months, width);\n }\n /**\n * Retrieves Gregorian-calendar eras for the given locale.\n * @param locale A locale code for the locale\n format rules to use.\n * @param width The required character width.\n * @returns An array of localized era\n strings.\n * For example, `[AD, BC]` for `en-US`.\n * @see [Internationalization (i18n)\n Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleEraNames(locale,\n width) {\n var data = i0.findLocaleData(locale);\n var erasData = data[i0.LocaleDataIndex.Eras];\n return getLastDefinedValue(erasData, width);\n }\n /**\n * Retrieves the first day\n of the week for the given locale.\n *\n * @param locale A locale code for the locale format rules to use.\n * @returns A day index number, using the 0-based week-day index for `en-US`\n (Sunday = 0, Monday = 1,\n ...).\n * For example, for `fr-FR`, returns 1 to indicate that the first day is Monday.\n * @see\n [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function\n getLocaleFirstDayOfWeek(locale) {\n var data = i0.findLocaleData(locale);\n return\n data[i0.LocaleDataIndex.FirstDayOfWeek];\n }\n /**\n * Range of week days that are considered the week-\n end for the given locale.\n *\n * @param locale A locale code for the locale format rules to use.\n * @returns\n The range of day values, `[startDay, endDay]`.\n * @see [Internationalization (i18n)\n Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleWeekEndRange(locale)\n {\n\n var data = i0.findLocaleData(locale);\n return data[i0.LocaleDataIndex.WeekendRange];\n }\n /**\n * Retrieves a localized date-value formatting string.\n *\n * @param locale A locale code for the locale format\n rules to use.\n * @param width The format type.\n * @returns The localized formatting string.\n * @see\n `FormatWidth`\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleDateFormat(locale, width) {\n var data = i0.findLocaleData(locale);\n return\n getLastDefinedValue(data[i0.LocaleDataIndex.DateFormat], width);\n }\n /**\n * Retrieves a\n localized time-value formatting string.\n *\n * @param locale A locale code for the locale format rules to use.\n * @param width The format type.\n * @returns The localized formatting string.\n * @see `FormatWidth`\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleTimeFormat(locale, width) {\n var data =\n i0.findLocaleData(locale);\n return\n getLastDefinedValue(data[i0.LocaleDataIndex.TimeFormat], width);\n }\n /**\n * Retrieves a localized date-time formatting string.\n *\n * @param locale A locale code for the\n locale format rules to use.\n * @param width The format type.\n * @returns The localized formatting string.\n * @see `FormatWidth`\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleDateTimeFormat(locale, width) {\n var data =\n i0.findLocaleData(locale);\n var dateTimeFormatData = data[i0.LocaleDataIndex.DateTimeFormat];\n return\n getLastDefinedValue(dateTimeFormatData, width);\n }\n /**\n * Retrieves a localized number symbol\n that can be used to replace placeholders in number formats.\n *\n * @param locale The\n locale code.\n * @param symbol The symbol to localize.\n * @returns The character for the localized\n symbol.\n * @see `NumberSymbol`\n * @see [Internationalization (i18n)\n Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n function getLocaleNumberSymbol(locale,\n symbol) {\n var data = i0.findLocaleData(locale);\n var res =\n data[i0.LocaleDataIndex.NumberSymbols][symbol];\n if (typeof res === 'undefined') {\n if (symbol ===\n exports.NumberSymbol.CurrencyDecimal) {\n return\n data[i0.LocaleDataIndex.NumberSymbols][exports.NumberSymbol.Decimal];\n }\n else if (symbol\n === exports.NumberSymbol.CurrencyGroup) {\n return\n data[i0.LocaleDataIndex.NumberSymbols][exports.NumberSymbol.Group];\n }\n }\n return res;\n }\n /**\n * Retrieves a number format for a given locale.\n *\n * Numbers are formatted using patterns,

```



to the first day period and so on.

- \* Fall back to AM/PM when no rules are available.
- \* A rule can specify a period as time range, or as a single time value.
- \* This functionality is only available when you have loaded the full locale data.
- \* See the ["I18n guide"]([guide/i18n#i18n-pipes](https://angular.io/guide/i18n)).
- \* @param locale A locale code for the locale format rules to use.
- \* @returns The rules for the locale, a single time value or array of \*from-time, to-time\*, or null if no periods are available.
- \* @see `getLocaleExtraDayPeriods()`
- \* @see [Internationalization (i18n) Guide](<https://angular.io/guide/i18n>)
- \* @publicApi

```
function getLocaleExtraDayPeriodRules(locale) {
 var data = i0.findLocaleData(locale);
 checkFullData(data);
 var rules = data[i0.LocaleDataIndex.ExtraData][2 /* ExtraDayPeriodsRules */] || [];
 return rules.map(function (rule) {
 if (typeof rule === 'string') {
 return extractTime(rule);
 }
 return [extractTime(rule[0]), extractTime(rule[1])];
 });
}

/**
 * Retrieves locale-specific day periods,
 * which indicate roughly how a day is broken up
 * in different languages.
 * For example, for `en-US`,
 * periods are morning, noon, afternoon, evening, and midnight.
 * This functionality is only available when
 * you have loaded the full locale data.
 * See the ["I18n guide"](guide/i18n#i18n-pipes).
- @param locale A locale code for the locale format rules to use.
- @param formStyle The required grammatical form.
- @param width The required character width.
- @returns The translated day-period strings.
- @see `getLocaleExtraDayPeriodRules()`
- @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)
- @publicApi


```
function getLocaleExtraDayPeriods(locale,
  formStyle, width) {
  var data = i0.findLocaleData(locale);
  checkFullData(data);
  var dayPeriodsData = [
    data[i0.LocaleDataIndex.ExtraData][0 /* ExtraDayPeriodFormats */],
    data[i0.LocaleDataIndex.ExtraData][1 /* ExtraDayPeriodStandalone */]
  ];
  var dayPeriods =
    getLastDefinedValue(dayPeriodsData, formStyle) || [];
  return getLastDefinedValue(dayPeriods, width) || [];
}

/**
 * Retrieves the writing direction of a specified locale
 * @param locale A locale code for the
 * locale format rules to use.
 * @publicApi
 * @returns 'rtl' or 'ltr'
 * @see [Internationalization (i18n)
 * Guide](https://angular.io/guide/i18n)
- @publicApi


```
function getLocaleDirection(locale) {
 var data =
 i0.findLocaleData(locale);
 return data[i0.LocaleDataIndex.Directionality];
}

/**
 * Retrieves the
 * first value that is defined in an array, going backwards from an
 * index position.
 * To avoid repeating the same data (as when the `format` and `standalone` forms are
 * the same)
 * add the first value to the locale data arrays, and add other values only if they are different.
 * @param data The data array to retrieve from.
 * @param index A 0-based index into the array to start from.
 * @returns The value immediately before the given index position.
 * @see [Internationalization (i18n)
 * Guide](https://angular.io/guide/i18n)
- @publicApi


```
function getLastDefinedValue(data,
  index) {
  for (var i = index; i > -1; i--) {
    if (typeof data[i] !== 'undefined') {
      return data[i];
    }
  }
  throw new Error('Locale data API: locale data undefined');
}

/**
 * Extracts the hours and minutes from a string like `15:45`
 * @param time
 * @returns
 * function extractTime(time) {
  var _a =
    __read(time.split(':', 2), 2), h = _a[0],
    m = _a[1];
  return { hours: +h, minutes: +m };
}

/**
 * Retrieves the currency symbol for a given
 * currency code.
 * For example, for the default `en-US` locale, the code `USD` can
 * be represented by
 * the narrow symbol `$` or the wide symbol `US$`.
 * @param code The currency code.
 * @param format The format, `wide` or `narrow`.
 * @param locale A locale code for the locale format rules to use.
 * @returns The symbol, or the currency code if no symbol is available.
 * @see [Internationalization
 * (i18n) Guide](https://angular.io/guide/i18n)
- @publicApi


```
function getCurrencySymbol(code,
 format, locale) {
 if (locale === void 0) { locale = 'en'; }
 var currency =
 getLocaleCurrencies(locale)[code] || CURRENCIES_EN[code] || [];
 var symbolNarrow = currency[1 /*
 SymbolNarrow */];
 if (format === 'narrow' && typeof symbolNarrow === 'string') {
 return symbolNarrow;
 }
 return currency[0 /* Symbol */] || code;
}

// Most currencies have
cents, that's why the default is 2
var DEFAULT_NB_OF_CURRENCY_DIGITS = 2;

/**
 * Reports the
 * number of decimal digits for a given currency.
 * The value depends upon the presence of cents in that particular
```


```


```


```


```

```

currency.\n * \n * @param code The currency code.\n * @returns The number of decimal digits, typically 0
or 2.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n * @publicApi\n *\n
function getNumberOfCurrencyDigits(code) {\n var digits;\n var currency = CURRENCIES_EN[code];\n if (currency) {\n digits = currency[2 /* NbOfDigits */];\n }\n return typeof digits === 'number' ?
digits : DEFAULT_NB_OF_CURRENCY_DIGITS;\n } \n\n var ISO8601_DATE_REGEX = /^(\\d{4})-
?(\\d\\d)-?(\\d\\d)(?:T(?:\\d\\d)(?:?:?(\\d\\d)(?:?:?(\\d\\d)(?:\\d+)?))?(Z|([+-])(\\d\\d):?(\\d\\d))?)?$/;\n
// 1 2 3 4 5 6 7 8 9 10 11\n var NAMED_FORMATS = {};\n var
DATE_FORMATS_SPLIT =
/((?:[GyYMLwWdEabBhHmsSzZO']+)|(?:'?:[^\"]')*)|(?:G{1,5}|y{1,4}|Y{1,4}|M{1,5}|L{1,5}|w{1,2}|W{1}|d{1,
2}|E{1,6}|a{1,5}|b{1,5}|B{1,5}|h{1,2}|H{1,2}|m{1,2}|s{1,2}|S{1,3}|z{1,4}|Z{1,5}|O{1,4}))/([\\s\\S]*)/;\n var
ZoneWidth;\n (function (ZoneWidth) {\n ZoneWidth[ZoneWidth["Short"] = 0] = "Short";\n
ZoneWidth[ZoneWidth["ShortGMT"] = 1] = "ShortGMT";\n ZoneWidth[ZoneWidth["Long"] = 2] =
"Long";\n ZoneWidth[ZoneWidth["Extended"] = 3] = "Extended";\n })(ZoneWidth || (ZoneWidth =
{}));\n var DatePipe;\n (function (DatePipe) {\n DatePipe[DatePipe["FullYear"] = 0] = "FullYear";\n
DatePipe[DatePipe["Month"] = 1] = "Month";\n DatePipe[DatePipe["Date"] = 2] = "Date";\n
DatePipe[DatePipe["Hours"] = 3] =
"Hours";\n DatePipe[DatePipe["Minutes"] = 4] = "Minutes";\n DatePipe[DatePipe["Seconds"] =
5] = "Seconds";\n DatePipe[DatePipe["FractionalSeconds"] = 6] = "FractionalSeconds";\n
DatePipe[DatePipe["Day"] = 7] = "Day";\n })(DatePipe || (DatePipe = {}));\n var TranslationType;\n
(function (TranslationType) {\n TranslationType[TranslationType["DayPeriods"] = 0] = "DayPeriods";\n
TranslationType[TranslationType["Days"] = 1] = "Days";\n TranslationType[TranslationType["Months"] =
2] = "Months";\n TranslationType[TranslationType["Eras"] = 3] = "Eras";\n })(TranslationType ||
(TranslationType = {}));\n /**\n * @ngModule CommonModule\n * @description\n * \n * Formats a
date according to locale rules.\n * \n * @param value The date to format, as a Date, or a number (milliseconds
since UTC epoch)\n * or an [ISO date-time string](https://www.w3.org/TR/NOTE-datetime).\n
* @param format The date-time components to include. See `DatePipe` for details.\n * @param locale A
locale code for the locale format rules to use.\n * @param timezone The time zone. A time zone offset from GMT
(such as `+0430`),\n * or a standard UTC/GMT or continental US time zone abbreviation.\n * If not specified,
uses host system settings.\n * \n * @returns The formatted date string.\n * \n * @see `DatePipe`\n *
@see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n * @publicApi\n */\n
function
formatDate(value, format, locale, timezone) {\n var date = toDate(value);\n var namedFormat =
getNamedFormat(locale, format);\n format = namedFormat || format;\n var parts = [];\n var match;\n
while (format) {\n match = DATE_FORMATS_SPLIT.exec(format);\n if (match) {\n parts
= parts.concat(match.slice(1));\n var part =
parts.pop();\n if (!part) {\n break;\n }\n format = part;\n }\n
else {\n parts.push(format);\n break;\n }\n }\n var date timezoneOffset =
date.getTimezoneOffset();\n if (timezone) {\n date timezoneOffset = timezoneToOffset(timezone,
date timezoneOffset);\n date = convertTimezoneToLocal(date, timezone, true);\n }\n var text = "";\n
parts.forEach(function (value) {\n var dateFormatter = getDateFormatter(value);\n text +=
dateFormatter ?\n dateFormatter(date, locale, date timezoneOffset) :\n value === "\\\"\\\" ? \\\"\\\" :
value.replace(/(^|\"$)/g, ").replace(/\"/g, "\\");\n });\n return text;\n }\n
function getNamedFormat(locale,
format) {\n var localeId = getLocaleId(locale);\n NAMED_FORMATS[localeId] =
NAMED_FORMATS[localeId]
|| {};\n if (NAMED_FORMATS[localeId][format]) {\n return
NAMED_FORMATS[localeId][format];\n }\n var formatValue = "";\n switch (format) {\n case
'shortDate':\n formatValue = getLocaleDateFormat(locale, exports.FormatWidth.Short);\n break;\n
case 'mediumDate':\n formatValue = getLocaleDateFormat(locale,
exports.FormatWidth.Medium);\n break;\n case 'longDate':\n formatValue =

```

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getLocaleDateFormat(locale, exports.FormatWidth.Long);\n break;\n case 'fullDate':\nformatValue = getLocaleDateFormat(locale, exports.FormatWidth.Full);\n break;\n case\n'shortTime':\n formatValue = getLocaleTimeFormat(locale, exports.FormatWidth.Short);\nbreak;\n case 'mediumTime':\n formatValue = getLocaleTimeFormat(locale,\nexports.FormatWidth.Medium);\n\n break;\n case 'longTime':\n formatValue = getLocaleTimeFormat(locale,\nexports.FormatWidth.Long);\n break;\n case 'fullTime':\n formatValue =\ngetLocaleTimeFormat(locale, exports.FormatWidth.Full);\n break;\n case 'short':\n var\nshortTime = getNamedFormat(locale, 'shortTime');\n var shortDate = getNamedFormat(locale,\n'shortDate');\n formatValue = formatDate(getLocaleDateTimeFormat(locale,\nexports.FormatWidth.Short), [shortTime, shortDate]);\n break;\n case 'medium':\n var\nmediumTime = getNamedFormat(locale, 'mediumTime');\n var mediumDate = getNamedFormat(locale,\n'mediumDate');\n formatValue = formatDate(getLocaleDateTimeFormat(locale,\nexports.FormatWidth.Medium), [mediumTime, mediumDate]);\n break;\n case 'long':\n var longTime = getNamedFormat(locale, 'longTime');\n var longDate = getNamedFormat(locale,\n'longDate');\n formatValue =\n formatDate(getLocaleDateTimeFormat(locale,\nexports.FormatWidth.Long), [longTime, longDate]);\n break;\n case 'full':\n var fullTime =\ngetNamedFormat(locale, 'fullTime');\n var fullDate = getNamedFormat(locale, 'fullDate');\nformatValue =\n formatDate(getLocaleDateTimeFormat(locale, exports.FormatWidth.Full),\n[fullTime, fullDate]);\n break;\n }\n if (formatValue) {\nNAMED_FORMATS[localeId][format] = formatValue;\n }\n return formatValue;\n}\n\nfunction\nformatDateTime(str, opt_values) {\n if (opt_values) {\n str = str.replace(/\{([^\}]+\})/g, function (match,\nkey) {\n return (opt_values != null && key in opt_values) ? opt_values[key]\n: match;\n });\n }\n return str;\n}\n\nfunction padNumber(num, digits, minusSign, trim,\nnegWrap) {\n if (minusSign === void 0) { minusSign = '-'; }\n var neg = '';\n if (num < 0 || (negWrap\n&& num <= 0)) {\n if (negWrap) {\n num = -num + 1;\n }\n else {\n num = -\nnum;\n neg = minusSign;\n }\n }\n var strNum = String(num);\n while (strNum.length\n< digits) {\n strNum = '0' + strNum;\n }\n if (trim) {\n strNum = strNum.substr(strNum.length\n- digits);\n }\n return neg + strNum;\n}\n\nfunction formatFractionalSeconds(milliseconds, digits) {\n var strMs = padNumber(milliseconds, 3);\n return strMs.substr(0, digits);\n}\n\n/**\n * Returns a date\nformatter that transforms a date into its locale digit representation\n */\nfunction dateGetter(name,\nsize, offset, trim, negWrap) {\n if (offset === void 0) { offset = 0; }\n if (trim === void 0) { trim = false;\n}\n if (negWrap === void 0) { negWrap = false; }\n return function (date, locale) {\n var part =\ngetDatePart(name, date);\n if (offset > 0 || part > -offset) {\n part += offset;\n }\n if\n(name === DateType.Hours) {\n if (part === 0 && offset === -12) {\n part = 12;\n }\n }\n else if (name === DateType.FractionalSeconds) {\n return\nformatFractionalSeconds(part, size);\n }\n var localeMinus = getLocaleNumberSymbol(locale,\nexports.NumberSymbol.MinusSign);\n return padNumber(part, size, localeMinus, trim, negWrap);\n };\n}\n\nfunction getDatePart(part, date) {\n switch (part) {\n case DateType.FullYear:\n return\ndate.getFullYear();\n\n case DateType.Month:\n return date.getMonth();\n\n case DateType.Date:\n return\ndate.getDate();\n\n case DateType.Hours:\n return date.getHours();\n\n case\nDateType.Minutes:\n return date.getMinutes();\n\n case DateType.Seconds:\n return\ndate.getSeconds();\n\n case DateType.FractionalSeconds:\n return date.getMilliseconds();\n\n case DateType.Day:\n return date.getDay();\n\n default:\n throw new Error('\\'Unknown\nDateType value '\\\"' + part + '\\\"');\n }\n}\n\n/**\n * Returns a date formatter that transforms a date\ninto its locale string representation\n */\nfunction dateStrGetter(name, width, form, extended) {\n if (form\n=== void 0) { form = exports.FormStyle.Format; }\n if (extended === void 0) { extended = false; }\n return

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function
(date, locale) {\n return getDateTranslation(date, locale, name, width, form, extended);\n };\n }\n /**\n * Returns the locale translation of a date for a given form, type and width\n */\n function\n getDateTranslation(date, locale, name, width, form, extended) {\n switch (name) {\n case\n TranslationType.Months:\n return getLocaleMonthNames(locale, form, width)[date.getMonth()];\n case TranslationType.Days:\n return getLocaleDayNames(locale, form, width)[date.getDay()];\n case TranslationType.DayPeriods:\n var currentHours_1 = date.getHours();\n var\n currentMinutes_1 = date.getMinutes();\n if (extended) {\n var rules =\n getLocaleExtraDayPeriodRules(locale);\n var dayPeriods = getLocaleExtraDayPeriods(locale, form,\n width);\n var index = rules.findIndex(function (rule) {\n if (Array.isArray(rule)) {\n // morning, afternoon, evening, night\n var _a =\n __read(rule, 2), from = _a[0], to = _a[1];\n var afterFrom = currentHours_1 >= from.hours &&\n currentMinutes_1 >= from.minutes;\n var beforeTo = (currentHours_1 < to.hours ||\n (currentHours_1 === to.hours && currentMinutes_1 < to.minutes));\n // We must account for\n normal rules that span a period during the day (e.g. 6am-9am)\n // where `from` is less (earlier) than\n `to`. But also rules that span midnight (e.g.\n // 10pm - 5am) where `from` is greater (later!) than\n `to`.\n // In the first case the current time must be BOTH after `from` AND\n before `to`\n // (e.g. 8am is after 6am AND before 10am).\n // In the second case the current time must be EITHER after `from` OR before\n `to`\n // (e.g. 4am is before 5am but not after 10pm; and 11pm is not before 5am but it is\n // after 10pm).\n if (from.hours < to.hours) {\n if (afterFrom &&\n beforeTo) {\n return true;\n } else if\n (afterFrom || beforeTo) {\n return true;\n } else {\n // noon or midnight\n if (rule.hours === currentHours_1 && rule.minutes ===\n currentMinutes_1) {\n return true;\n }\n }\n }\n } else {\n if (index !== -1) {\n return dayPeriods[index];\n }\n }\n }\n // if no rules for the day periods, we use am/pm by default\n return\n getLocaleDayPeriods(locale, form, width)[currentHours_1 < 12 ? 0 : 1];\n case TranslationType.Eras:\n return getLocaleEraNames(locale, width)[date.getFullYear() <= 0 ? 0 : 1];\n default:\n // This\n default case is not needed by TypeScript compiler, as the switch is exhaustive.\n // However Closure\n Compiler does not understand that and reports an error in typed mode.\n // The `throw new Error` below\n works around the problem, and the unexpected: never variable\n // makes sure tsc still checks this code is\n unreachable.\n var unexpected = name;\n throw new Error(`unexpected translation type ` +\n unexpected);\n }\n }\n }\n /**\n * Returns a date formatter that transforms a date and an offset into a timezone with\n * ISO8601 or\n * GMT format depending on the width (eg: short = +0430, short:GMT = GMT+4, long =\n * GMT+04:30,\n * extended = +04:30)\n */\n function timeZoneGetter(width) {\n return function (date,\n locale, offset) {\n var zone = -1 * offset;\n var minusSign = getLocaleNumberSymbol(locale,\n exports.NumberSymbol.MinusSign);\n var hours = zone > 0 ? Math.floor(zone / 60) : Math.ceil(zone / 60);\n switch (width) {\n case ZoneWidth.Short:\n return ((zone >= 0) ? '+' : '-') +\n padNumber(hours, 2, minusSign) +\n padNumber(Math.abs(zone % 60), 2, minusSign);\n case ZoneWidth.ShortGMT:\n return 'GMT' + ((zone >= 0) ? '+' : '-') + padNumber(hours, 1,\n minusSign);\n case ZoneWidth.Long:\n return 'GMT' +\n ((zone >= 0) ? '+' : '-') + padNumber(hours, 2, minusSign) + ':' +\n padNumber(Math.abs(zone % 60),\n 2, minusSign);\n case ZoneWidth.Extended:\n if (offset === 0) {\n return 'Z';\n }\n else {\n return ((zone >= 0) ? '+' : '-') + padNumber(hours, 2, minusSign) + ':' +\n padNumber(Math.abs(zone % 60), 2, minusSign);\n }\n default:\n }

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 throw new Error("Unknown zone width \\\\" + width + "\\\"");\n }\n }\n var JANUARY =
0;\n var THURSDAY = 4;\n function getFirstThursdayOfYear(year) {\n var firstDayOfYear = (new
Date(year, JANUARY, 1)).getDay();\n return new Date(year, 0, 1 + ((firstDayOfYear <= THURSDAY) ?
THURSDAY : THURSDAY + 7) - firstDayOfYear);\n }\n function getThursdayThisWeek(datetime) {\n
return new Date(datetime.getFullYear(),
datetime.getMonth(), datetime.getDate() + (THURSDAY - datetime.getDay()));\n }\n function weekGetter(size,
monthBased) {\n if (monthBased === void 0) { monthBased = false; }\n return function (date, locale) {\n
var result;\n if (monthBased) {\n var nbDaysBefore1stDayOfMonth = new
Date(date.getFullYear(), date.getMonth(), 1).getDay() - 1;\n var today = date.getDate();\n result =
1 + Math.floor((today + nbDaysBefore1stDayOfMonth) / 7);\n }\n else {\n var thisThurs =
getThursdayThisWeek(date);\n // Some days of a year are part of next year according to ISO 8601.\n
// Compute the firstThurs from the year of this week's Thursday\n var firstThurs =
getFirstThursdayOfYear(thisThurs.getFullYear());\n var diff = thisThurs.getTime() -
firstThurs.getTime();\n result = 1 + Math.round(diff
/ 6.048e8); // 6.048e8 ms per week\n }\n return padNumber(result, size,
getLocaleNumberSymbol(locale, exports.NumberSymbol.MinusSign));\n }\n }\n /**\n * Returns a date
formatter that provides the week-numbering year for the input date.\n */\n function
weekNumberingYearGetter(size, trim) {\n if (trim === void 0) { trim = false; }\n return function (date,
locale) {\n var thisThurs = getThursdayThisWeek(date);\n var weekNumberingYear =
thisThurs.getFullYear();\n return padNumber(weekNumberingYear, size, getLocaleNumberSymbol(locale,
exports.NumberSymbol.MinusSign), trim);\n }\n }\n var DATE_FORMATS = {};\n // Based on CLDR
formats:\n // See complete list: http://www.unicode.org/reports/tr35/tr35-dates.html#Date_Field_Symbol_Table\n
// See also explanations: http://cldr.unicode.org/translation/date-time\n // TODO(ocombe): support all missing cldr
formats: Y,
 U, Q, D, F, e, c, j, J, C, A, v, V, X, x\n function getDateFormatter(format) {\n if
(DATE_FORMATS[format]) {\n return DATE_FORMATS[format];\n }\n var formatter;\n
switch (format) {\n // Era name (AD/BC)\n case 'G':\n case 'GG':\n case 'GGG':\n
formatter = dateStrGetter(TranslationType.Eras, exports.TranslationWidth.Abbreviated);\n break;\n
case 'GGGG':\n formatter = dateStrGetter(TranslationType.Eras, exports.TranslationWidth.Wide);\n
 break;\n case 'GGGGG':\n formatter = dateStrGetter(TranslationType.Eras,
exports.TranslationWidth.Narrow);\n break;\n // 1 digit representation of the year, e.g. (AD 1 => 1,
AD 199 => 199)\n case 'y':\n formatter = dateGetter(DateType.FullYear, 1, 0, false, true);\n
 break;\n // 2 digit representation
of the year, padded (00-99). (e.g. AD 2001 => 01, AD 2010 => 10)\n case 'yy':\n formatter =
dateGetter(DateType.FullYear, 2, 0, true, true);\n break;\n // 3 digit representation of the year,
padded (000-999). (e.g. AD 2001 => 001, AD 2010 => 010)\n case 'yyy':\n formatter =
dateGetter(DateType.FullYear, 3, 0, false, true);\n break;\n // 4 digit representation of the year (e.g.
AD 1 => 0001, AD 2010 => 2010)\n case 'yyyy':\n formatter = dateGetter(DateType.FullYear, 4, 0,
false, true);\n break;\n // 1 digit representation of the week-numbering year, e.g. (AD 1 => 1, AD
199 => 199)\n case 'Y':\n formatter = weekNumberingYearGetter(1);\n break;\n // 2
digit representation of the week-numbering year, padded (00-99). (e.g. AD 2001 => 01, AD\n // 2010 =>
10)\n case
'YY':\n formatter = weekNumberingYearGetter(2, true);\n break;\n // 3 digit
representation of the week-numbering year, padded (000-999). (e.g. AD 1 => 001, AD\n // 2010 => 2010)\n
 case 'YYY':\n formatter = weekNumberingYearGetter(3);\n break;\n // 4 digit
representation of the week-numbering year (e.g. AD 1 => 0001, AD 2010 => 2010)\n case 'YYYY':\n
formatter = weekNumberingYearGetter(4);\n break;\n // Month of the year (1-12), numeric\n
case 'M':\n case 'L':\n formatter = dateGetter(DateType.Month, 1, 1);\n break;\n

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case 'MM':\n case 'LL':\n formatter = dateGetter(DateType.Month, 2, 1);\n break;\n// Month of the year (January, ...), string, format\n case 'MMM':\n formatter =\n dateStrGetter(TranslationType.Months,\n exports.TranslationWidth.Abbreviated);\n break;\n case 'MMMM':\n formatter =\n dateStrGetter(TranslationType.Months, exports.TranslationWidth.Wide);\n break;\n case\n 'MMMMM':\n formatter = dateStrGetter(TranslationType.Months, exports.TranslationWidth.Narrow);\n break;\n // Month of the year (January, ...), string, standalone\n case 'LLL':\n formatter\n =\n dateStrGetter(TranslationType.Months, exports.TranslationWidth.Abbreviated,\n exports.FormStyle.Standalone);\n break;\n case 'LLLL':\n formatter =\n dateStrGetter(TranslationType.Months, exports.TranslationWidth.Wide, exports.FormStyle.Standalone);\n break;\n case 'LLLLL':\n formatter =\n dateStrGetter(TranslationType.Months,\n exports.TranslationWidth.Narrow,\n exports.FormStyle.Standalone);\n break;\n // Week of the year (1, ... 52)\n case 'w':\n formatter = weekGetter(1);\n break;\n case 'ww':\n formatter = weekGetter(2);\n break;\n // Week of the month (1, ...)\n case 'W':\n formatter = weekGetter(1, true);\n break;\n // Day of the month (1-31)\n case 'd':\n formatter = dateGetter(DateType.Date, 1);\n break;\n case 'dd':\n formatter = dateGetter(DateType.Date, 2);\n break;\n //\n Day of the Week\n case 'E':\n case 'EE':\n case 'EEE':\n formatter =\n dateStrGetter(TranslationType.Days, exports.TranslationWidth.Abbreviated);\n break;\n case\n 'EEEE':\n formatter = dateStrGetter(TranslationType.Days,\n exports.TranslationWidth.Wide);\n break;\n case 'EEEEEE':\n formatter =\n dateStrGetter(TranslationType.Days, exports.TranslationWidth.Narrow);\n break;\n case\n 'EEEEEEE':\n formatter = dateStrGetter(TranslationType.Days, exports.TranslationWidth.Short);\n break;\n // Generic period of the day (am-pm)\n case 'a':\n case 'aa':\n case 'aaa':\n formatter = dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Abbreviated);\n break;\n case 'aaaa':\n formatter = dateStrGetter(TranslationType.DayPeriods,\n exports.TranslationWidth.Wide);\n break;\n case 'aaaaa':\n formatter =\n dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Narrow);\n break;\n //\n Extended period of the day (midnight, at night, ...), standalone\n case 'b':\n case 'bb':\n case 'bbb':\n formatter =\n dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Abbreviated, exports.FormStyle.Standalone,\n true);\n break;\n case 'bbbb':\n formatter = dateStrGetter(TranslationType.DayPeriods,\n exports.TranslationWidth.Wide, exports.FormStyle.Standalone, true);\n break;\n case 'bbbbb':\n formatter = dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Narrow,\n exports.FormStyle.Standalone, true);\n break;\n // Extended period of the day (midnight, night, ...),\n standalone\n case 'B':\n case 'BB':\n case 'BBB':\n formatter =\n dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Abbreviated, exports.FormStyle.Format,\n true);\n break;\n case 'BBBB':\n formatter\n =\n dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Wide,\n exports.FormStyle.Format, true);\n break;\n case 'BBBBB':\n formatter =\n dateStrGetter(TranslationType.DayPeriods, exports.TranslationWidth.Narrow, exports.FormStyle.Format, true);\n break;\n // Hour in AM/PM, (1-12)\n case 'h':\n formatter =\n dateGetter(DateType.Hours, 1, -12);\n break;\n case 'hh':\n formatter =\n dateGetter(DateType.Hours, 2, -12);\n break;\n // Hour of the day (0-23)\n case 'H':\n formatter = dateGetter(DateType.Hours, 1);\n break;\n // Hour in day, padded (00-23)\n case\n 'HH':\n formatter = dateGetter(DateType.Hours, 2);\n break;\n // Minute of the hour (0-\n 59)\n case 'm':\n formatter = dateGetter(DateType.Minutes,

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1);\n break;\n case 'mm':\n formatter = dateGetter(DateType.Minutes, 2);\nbreak;\n // Second of the minute (0-59)\n case 's':\n formatter =\ndateGetter(DateType.Seconds, 1);\n break;\n case 'ss':\n formatter =\ndateGetter(DateType.Seconds, 2);\n break;\n // Fractional second\n case 'S':\n formatter =\ndateGetter(DateType.FractionalSeconds, 1);\n break;\n case 'SS':\n formatter =\ndateGetter(DateType.FractionalSeconds, 2);\n break;\n case 'SSS':\n formatter =\ndateGetter(DateType.FractionalSeconds, 3);\n break;\n // Timezone ISO8601 short format (-0430)\n case 'Z':\n case 'ZZ':\n case 'ZZZ':\n formatter = timeZoneGetter(ZoneWidth.Short);\n break;\n // Timezone ISO8601 extended format (-04:30)\n case 'ZZZZ':\n formatter = timeZoneGetter(ZoneWidth.Extended);\n break;\n // Timezone GMT short format\n (GMT+4)\n case 'O':\n case 'OO':\n case 'OOO':\n // Should be location, but fallback to\n format O instead because we don't have the data yet\n case 'z':\n case 'zz':\n case 'zzz':\n formatter = timeZoneGetter(ZoneWidth.ShortGMT);\n break;\n // Timezone GMT long format\n (GMT+0430)\n case 'OOOO':\n case 'ZZZZ':\n // Should be location, but fallback to format O\n instead because we don't have the data yet\n case 'zzzz':\n formatter =\ntimeZoneGetter(ZoneWidth.Long);\n break;\n default:\n return null;\n }\n DATE_FORMATS[format]\n = formatter;\n return formatter;\n}\nfunction timeZoneToOffset(timezone, fallback) {\n // Support: IE\n 11 only, Edge 13-15+\n // IE/Edge do not \"understand\" colon (':') in timezone\n timezone =\ntimezone.replace(/:/g, \"\");\n var requestedTimezoneOffset = Date.parse('Jan 01, 1970 00:00:00 ' + timezone) /\n 60000;\n return isNaN(requestedTimezoneOffset) ? fallback : requestedTimezoneOffset;\n}\nfunction\naddDateMinutes(date, minutes) {\n date = new Date(date.getTime());\n date.setMinutes(date.getMinutes()\n + minutes);\n return date;\n}\nfunction convertTimezoneToLocal(date, timezone, reverse) {\n var\n reverseValue = reverse ? -1 : 1;\n var dateTimezoneOffset = date.getTimezoneOffset();\n var\n timezoneOffset = timeZoneToOffset(timezone, dateTimezoneOffset);\n return addDateMinutes(date,\n reverseValue * (timezoneOffset - dateTimezoneOffset));\n}\n/**\n * Converts a\n value to date.\n *\n * Supported input formats:\n * - `Date`\n * - number: timestamp\n * - string:\n numeric (e.g. `1234`), ISO and date strings in a format supported by\n [Date.parse()](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date/parse).\n *\n * Note: ISO strings without time return a date without timeoffset.\n *\n * Throws if unable to convert to a\n date.\n */\nfunction toDate(value) {\n if (isDate(value)) {\n return value;\n }\n if (typeof\n value === 'number' && !isNaN(value)) {\n return new Date(value);\n }\n if (typeof value ===\n 'string') {\n value = value.trim();\n var parsedNb = parseFloat(value);\n // any string that only\n contains numbers, like `1234` but not like `1234hello`\n if (!isNaN(value - parsedNb)) {\n return\n new Date(parsedNb);\n }\n if (/^\\d{4}-\\d{1,2}-\\d{1,2}$/.test(value))\n {\n /* For ISO Strings without time the day, month and year must be extracted from the ISO String\n before Date creation to avoid time offset and errors in the new Date.\n If we only replace '-' with ',' in\n the ISO String (`2015,01,01`), and try to create a new\n date, some browsers (e.g. IE 9) will throw an\n invalid Date error.\n If we leave the '-' (`2015-01-01`) and try to create a new Date(`2015-01-01`) the\n timeoffset\n is applied.\n Note: ISO months are 0 for January, 1 for February, ... */\n var\n _a = __read(value.split(',').map(function (val) { return +val; }, 3), 3), y = _a[0], m = _a[1], d = _a[2];\n return\n new Date(y, m - 1, d);\n }\n var match = void 0;\n if (match =\n value.match(ISO8601_DATE_REGEX)) {\n return isoStringToDate(match);\n }\n }\n var date = new Date(value);\n if (!isDate(date)) {\n throw new Error(`Unable to convert \"${value}\n + value + \"\" into a date`);\n }\n return date;\n }\n /**\n * Converts a date in ISO8601 to a Date.\n *\n * Used instead of `Date.parse` because of browser discrepancies.\n */\n function isoStringToDate(match) {\n var date = new Date(0);\n var tzHour = 0;\n var tzMin = 0;\n // match[8] means that the string\n contains `Z` (UTC) or a timezone like `+01:00` or `+0100`\n var dateSetter = match[8] ?

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date.setUTCFullYear : date.setFullYear;\n var timeSetter = match[8] ? date.setUTCHours : date.setHours;\n
// if there is a timezone defined like "+01:00" or "+0100"\n if (match[9]) {\n tzHour =
Number(match[9] + match[10]);\n tzMin = Number(match[9] + match[11]);\n }\n
dateSetter.call(date, Number(match[1]), Number(match[2]) - 1, Number(match[3]));\n
 var h = Number(match[4] || 0) - tzHour;\n var m = Number(match[5] || 0) - tzMin;\n var s =
Number(match[6] || 0);\n // The ECMAScript specification (https://www.ecma-international.org/ecma-
262/5.1/#sec-15.9.1.11)\n // defines that `DateTime` milliseconds should always be rounded down, so that
`999.9ms`\n // becomes `999ms`.\n var ms = Math.floor(parseFloat("0." + (match[7] || 0)) * 1000);\n
timeSetter.call(date, h, m, s, ms);\n return date;\n } \n function isDate(value) {\n return value instanceof
Date && !isNaN(value.valueOf());\n } \n \n /** \n * @license \n * Copyright Google LLC All Rights
Reserved. \n * \n * Use of this source code is governed by an MIT-style license that can be \n * found in the
LICENSE file at https://angular.io/license \n * \n var NUMBER_FORMAT_REGEXP = /^(\d+)?\.(\\d+)(-
(\\d+))?)?$/;\n var MAX_DIGITS = 22;\n var DECIMAL_SEP = '.';\n var
ZERO_CHAR = '0';\n var PATTERN_SEP = ',';\n var GROUP_SEP = ',';\n var DIGIT_CHAR = '#';\n var
CURRENCY_CHAR = '¤';\n var PERCENT_CHAR = '%';\n /** \n * Transforms a number to a locale string
based on a style and a format. \n * \n function formatNumberToLocaleString(value, pattern, locale,
groupSymbol, decimalSymbol, digitsInfo, isPercent) {\n if (isPercent === void 0) { isPercent = false; }\n
var formattedText = "";\n var isZero = false;\n if (!isFinite(value)) {\n formattedText =
getLocaleNumberSymbol(locale, exports.NumberSymbol.Infinity);\n } \n else {\n var parsedNumber
= parseNumber(value);\n if (isPercent) {\n parsedNumber = toPercent(parsedNumber);\n } \n
 var minInt = pattern.minInt;\n var minFraction = pattern.minFrac;\n var maxFraction =
pattern.maxFrac;\n if (digitsInfo) {\n var parts =
digitsInfo.match(NUMBER_FORMAT_REGEXP);\n
 if (parts === null) {\n throw new Error(digitsInfo + " is not a valid digit info");\n
 } \n var minIntPart = parts[1];\n var minFractionPart = parts[3];\n var maxFractionPart =
parts[5];\n if (minIntPart !== null) {\n minInt = parseIntAutoRadix(minIntPart);\n } \n
 if (minFractionPart !== null) {\n minFraction = parseIntAutoRadix(minFractionPart);\n
 } \n if (maxFractionPart !== null) {\n maxFraction = parseIntAutoRadix(maxFractionPart);\n
 } \n else if (minFractionPart !== null && minFraction > maxFraction) {\n maxFraction =
minFraction;\n } \n } \n roundNumber(parsedNumber, minFraction, maxFraction);\n
var digits = parsedNumber.digits;\n
 var integerLen = parsedNumber.integerLen;\n var exponent = parsedNumber.exponent;\n var
decimals = [];\n isZero = digits.every(function (d) { return !d; });\n // pad zeros for small numbers\n
 for (; integerLen < minInt; integerLen++) {\n digits.unshift(0);\n } \n // pad zeros for small
numbers\n for (; integerLen < 0; integerLen++) {\n digits.unshift(0);\n } \n // extract
decimals\n digits\n if (integerLen > 0) {\n decimals = digits.splice(integerLen, digits.length);\n
 } \n else {\n decimals = digits;\n digits = [0];\n } \n // format the integer digits
with grouping separators\n var groups = [];\n if (digits.length >= pattern.lgSize) {\n
 groups.unshift(digits.splice(-pattern.lgSize, digits.length).join("));\n
 } \n while (digits.length > pattern.gSize) {\n groups.unshift(digits.splice(-pattern.gSize,
digits.length).join("));\n } \n if (digits.length) {\n groups.unshift(digits.join("));\n } \n
 formattedText = groups.join(getLocaleNumberSymbol(locale, groupSymbol));\n // append the decimal
digits\n if (decimals.length) {\n formattedText += getLocaleNumberSymbol(locale,
decimalSymbol) + decimals.join("");\n } \n if (exponent) {\n formattedText +=
getLocaleNumberSymbol(locale, exports.NumberSymbol.Exponential) + '+' + exponent;\n } \n } \n if
(value < 0 && !isZero) {\n formattedText = pattern.negPre + formattedText + pattern.negSuf;\n } \n
 else {\n formattedText = pattern.posPre + formattedText + pattern.posSuf;\n } \n return
formattedText;\n } \n } \n /** \n

```

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* @ngModule CommonModule\n * @description\n *\n * Formats a number as currency using locale
rules.\n *\n * @param value The number to format.\n * @param locale A locale code for the locale format
rules to use.\n * @param currency A string containing the currency symbol or its name,\n * such as \"$" or
\"Canadian Dollar\". Used in output string, but does not affect the operation\n * of the function.\n * @param
currencyCode The [ISO 4217](https://en.wikipedia.org/wiki/ISO_4217)\n * currency code, such as `USD` for the
US dollar and `EUR` for the euro.\n * Used to determine the number of digits in the decimal part.\n * @param
digitInfo Decimal representation options, specified by a string in the following format:\n *
`{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}`. See `DecimalPipe` for more details.\n *\n *
@returns The formatted currency value.\n *\n * @see `formatNumber()`\n * @see `DecimalPipe`\n
* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n *\n
function formatCurrency(value, locale, currency, currencyCode, digitsInfo) {\n var format =
getLocaleNumberFormat(locale, exports.NumberFormatStyle.Currency);\n var pattern =
parseNumberFormat(format, getLocaleNumberSymbol(locale, exports.NumberSymbol.MinusSign));\n
pattern.minFrac = getNumberOfCurrencyDigits(currencyCode);\n pattern.maxFrac = pattern.minFrac;\n var
res = formatNumberToLocaleString(value, pattern, locale, exports.NumberSymbol.CurrencyGroup,
exports.NumberSymbol.CurrencyDecimal, digitsInfo);\n return res\n .replace(CURRENCY_CHAR,
currency)\n // if we have 2 time the currency character, the second one is ignored\n
.replace(CURRENCY_CHAR, "")\n // If there is a spacing between currency character and the value and\n
// the currency character is suppressed by passing
an empty string, the\n // spacing character would remain as part of the string. Then we\n // should
remove it.\n .trim();\n }\n /**\n * @ngModule CommonModule\n * @description\n *\n *
Formats a number as a percentage according to locale rules.\n *\n * @param value The number to format.\n
* @param locale A locale code for the locale format rules to use.\n * @param digitInfo Decimal representation
options, specified by a string in the following format:\n * `{minIntegerDigits}.{minFractionDigits}-
{maxFractionDigits}`. See `DecimalPipe` for more details.\n *\n * @returns The formatted percentage value.\n
*\n * @see `formatNumber()`\n * @see `DecimalPipe`\n * @see [Internationalization (i18n)
Guide](https://angular.io/guide/i18n)\n * @publicApi\n *\n */\n function formatPercent(value, locale,
digitsInfo) {\n var format = getLocaleNumberFormat(locale, exports.NumberFormatStyle.Percent);\n
 var pattern = parseNumberFormat(format, getLocaleNumberSymbol(locale,
exports.NumberSymbol.MinusSign));\n var res = formatNumberToLocaleString(value, pattern, locale,
exports.NumberSymbol.Group, exports.NumberSymbol.Decimal, digitsInfo, true);\n return res.replace(new
RegExp(PERCENT_CHAR, 'g'), getLocaleNumberSymbol(locale, exports.NumberSymbol.PercentSign));\n }\n
/**\n * @ngModule CommonModule\n * @description\n *\n * Formats a number as text, with group
sizing, separator, and other\n * parameters based on the locale.\n *\n * @param value The number to
format.\n * @param locale A locale code for the locale format rules to use.\n * @param digitInfo Decimal
representation options, specified by a string in the following format:\n *
`{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}`. See `DecimalPipe` for more details.\n *\n *
@returns The formatted text string.\n * @see [Internationalization
(i18n) Guide](https://angular.io/guide/i18n)\n *\n * @publicApi\n */\n function formatNumber(value,
locale, digitsInfo) {\n var format = getLocaleNumberFormat(locale, exports.NumberFormatStyle.Decimal);\n
 var pattern = parseNumberFormat(format, getLocaleNumberSymbol(locale,
exports.NumberSymbol.MinusSign));\n return formatNumberToLocaleString(value, pattern, locale,
exports.NumberSymbol.Group, exports.NumberSymbol.Decimal, digitsInfo);\n }\n function
parseNumberFormat(format, minusSign) {\n if (minusSign === void 0) { minusSign = '-'; }\n var p = {\n
 minInt: 1,\n minFrac: 0,\n maxFrac: 0,\n posPre: ",\n posSuf: ",\n negPre: ",\n
 negSuf: ",\n gSize: 0,\n lgSize: 0\n };\n var patternParts =
format.split(PATTERN_SEP);\n var positive = patternParts[0];\n var negative = patternParts[1];\n

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var positiveParts = positive.indexOf(DECIMAL_SEP) !== -1 ?\n positive.split(DECIMAL_SEP) :\n [\n positive.substr(0, positive.lastIndexOf(ZERO_CHAR) + 1),\n positive.substr(positive.lastIndexOf(ZERO_CHAR) + 1)\n], integer = positiveParts[0], fraction =\n positiveParts[1] || "";\n p.posPre = integer.substr(0, integer.indexOf(DIGIT_CHAR));\n for (var i = 0; i <\n fraction.length; i++) {\n var ch = fraction.charAt(i);\n if (ch === ZERO_CHAR) {\n p.minFrac = p.maxFrac = i + 1;\n }\n else if (ch === DIGIT_CHAR) {\n p.maxFrac = i +\n 1;\n }\n else {\n p.posSuf += ch;\n }\n }\n var groups =\n integer.split(GROUP_SEP);\n p.gSize = groups[1] ? groups[1].length : 0;\n p.lgSize = (groups[2] ||\n groups[1]) ? (groups[2] || groups[1]).length : 0;\n if (negative) {\n var trunkLen = positive.length - p.posPre.length - p.posSuf.length, pos = negative.indexOf(DIGIT_CHAR);\n p.negPre = negative.substr(0, pos).replace(/g, "");\n p.negSuf = negative.substr(pos +\n trunkLen).replace(/g, "");\n }\n else {\n p.negPre = minusSign + p.posPre;\n p.negSuf =\n p.posSuf;\n }\n return p;\n}\n\n// Transforms a parsed number into a percentage by multiplying it by\n100\nfunction toPercent(parsedNumber) {\n // if the number is 0, don't do anything\n if\n (parsedNumber.digits[0] === 0) {\n return parsedNumber;\n }\n // Getting the current number of\n decimals\n var fractionLen = parsedNumber.digits.length - parsedNumber.integerLen;\n if\n (parsedNumber.exponent) {\n parsedNumber.exponent += 2;\n }\n else {\n if (fractionLen\n === 0) {\n parsedNumber.digits.push(0, 0);\n }\n else if (fractionLen === 1) {\n parsedNumber.digits.push(0);\n }\n }\n parsedNumber.integerLen += 2;\n return parsedNumber;\n}\n\n/**\n * Parses a number.\n *\n * Significant bits of this parse algorithm came from https://github.com/MikeMcI/big.js\n */\nfunction\n parseNumber(num) {\n var numStr = Math.abs(num) + ";\n var exponent = 0, digits, integerLen;\n var\n i, j, zeros;\n // Decimal point?\n if ((integerLen = numStr.indexOf(DECIMAL_SEP)) > -1) {\n numStr = numStr.replace(DECIMAL_SEP, "");\n }\n // Exponential form?\n if ((i = numStr.search(/e/i))\n > 0) {\n // Work out the exponent.\n if (integerLen < 0)\n integerLen = i;\n integerLen\n += +numStr.slice(i + 1);\n numStr = numStr.substr(0, i);\n }\n else if (integerLen < 0) {\n // There was no decimal point\n or exponent so it is an integer.\n integerLen = numStr.length;\n }\n // Count the number of leading\n zeros.\n for (i = 0; numStr.charAt(i) === ZERO_CHAR; i++) { /* empty */\n }\n if (i === (zeros =\n numStr.length)) {\n // The digits are all zero.\n digits = [0];\n integerLen = 1;\n }\n else\n {\n // Count the number of trailing zeros\n zeros--;\n while (numStr.charAt(zeros) ===\n ZERO_CHAR)\n zeros--;\n // Trailing zeros are insignificant so ignore them\n integerLen -=\n i;\n digits = [];\n // Convert string to array of digits without leading/trailing zeros.\n for (j = 0; i\n <= zeros; i++, j++) {\n digits[j] = Number(numStr.charAt(i));\n }\n }\n // If the number\n overflows the maximum allowed digits then use an exponent.\n if (integerLen > MAX_DIGITS) {\n digits = digits.splice(0, MAX_DIGITS - 1);\n exponent = integerLen - 1;\n integerLen = 1;\n }\n return { digits: digits, exponent: exponent, integerLen: integerLen };\n }\n\n/**\n * Round the parsed\n number to the specified number of decimal places\n * This function changes the parsedNumber in-place\n */\nfunction roundNumber(parsedNumber, minFrac, maxFrac) {\n if (minFrac > maxFrac) {\n throw new\n Error("The minimum number of digits after fraction (" + minFrac + ") is higher than the maximum (" + maxFrac\n + ").");\n }\n var digits = parsedNumber.digits;\n var fractionLen = digits.length -\n parsedNumber.integerLen;\n var fractionSize = Math.min(Math.max(minFrac, fractionLen), maxFrac);\n //\n The index of the digit to where rounding is to occur\n var roundAt = fractionSize + parsedNumber.integerLen;\n var digit = digits[roundAt];\n if (roundAt >\n 0) {\n // Drop fractional digits beyond `roundAt`\n digits.splice(Math.max(parsedNumber.integerLen,\n roundAt));\n // Set non-fractional digits beyond `roundAt` to 0\n for (var j = roundAt; j < digits.length;\n j++) {\n digits[j] = 0;\n }\n }\n else {\n // We rounded to zero so reset the\n parsedNumber\n fractionLen = Math.max(0, fractionLen);\n parsedNumber.integerLen = 1;\n }\n}

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digits.length = Math.max(1, roundAt = fractionSize + 1);\n digits[0] = 0;\n for (var i = 1; i < roundAt;\n i++)\n digits[i] = 0;\n }\n if (digit >= 5) {\n if (roundAt - 1 < 0) {\n for (var k = 0;\n k > roundAt; k--) {\n digits.unshift(0);\n parsedNumber.integerLen++;\n }\n digits.unshift(1);\n parsedNumber.integerLen++;\n }\n else {\n digits[roundAt - 1]++;\n }\n }\n // Pad out with zeros to get the required\n fraction length\n for (; fractionLen < Math.max(0, fractionSize); fractionLen++)\n digits.push(0);\n var dropTrailingZeros = fractionSize !== 0;\n // Minimal length = nb of decimals required + current nb of\n integers\n // Any number besides that is optional and can be removed if it's a trailing 0\n var minLen =\n minFrac + parsedNumber.integerLen;\n // Do any carrying, e.g. a digit was rounded up to 10\n var carry =\n digits.reduceRight(function (carry, d, i, digits) {\n d = d + carry;\n digits[i] = d < 10 ? d : d - 10; // d %\n 10\n if (dropTrailingZeros) {\n // Do not keep meaningless fractional trailing zeros (e.g. 15.52000 --\n > 15.52)\n if (digits[i] === 0 && i >= minLen) {\n digits.pop();\n }\n else {\n dropTrailingZeros = false;\n }\n }\n return d >= 10 ? 1 : 0; //\n Math.floor(d / 10);\n }, 0);\n if (carry) {\n digits.unshift(carry);\n parsedNumber.integerLen++;\n }\n }\n function parseIntAutoRadix(text) {\n var result =\n parseInt(text);\n if (isNaN(result)) {\n throw new Error('Invalid integer literal when parsing ' + text);\n }\n return result;\n }\n /**\n * @publicApi\n */\n var NgLocalization = /** @class */ (function ()\n {\n function NgLocalization() {\n }\n return NgLocalization;\n }());\n /**\n * Returns the plural\n * category for a given value.\n * * - "="value" when the case exists,\n * * - the plural category otherwise\n */\n function getPluralCategory(value, cases, ngLocalization, locale) {\n var key = "=" + value;\n if\n (cases.indexOf(key) > -1) {\n return key;\n }\n key = ngLocalization.getPluralCategory(value, locale);\n if\n (cases.indexOf(key) > -1) {\n return key;\n }\n if (cases.indexOf('other') > -1) {\n return\n 'other';\n }\n throw new Error("No plural message found for value '" + value + "'");\n }\n /**\n * Returns the plural case based on the locale\n */\n * @publicApi\n */\n var NgLocaleLocalization = /**\n @class */ (function (_super) {\n __extends(NgLocaleLocalization, _super);\n function\n NgLocaleLocalization(locale) {\n var _this = _super.call(this) || this;\n _this.locale = locale;\n return _this;\n }\n NgLocaleLocalization.prototype.getPluralCategory = function (value, locale) {\n }\n var plural = getLocalePluralCase(locale || this.locale)(value);\n switch (plural) {\n case\n exports.Plural.Zero:\n return 'zero';\n case exports.Plural.One:\n return 'one';\n case exports.Plural.Two:\n return 'two';\n case exports.Plural.Few:\n return 'few';\n case\n exports.Plural.Many:\n return 'many';\n default:\n return 'other';\n }\n })(NgLocalization);\n NgLocaleLocalization.decorators = [\n {\n type: i0.Injectable\n }];\n NgLocaleLocalization.ctorParameters = function () { return [\n {\n type: String,\n decorators: [\n {\n type: i0.Inject,\n args: [i0.LOCALE_ID,\n]\n }\n]\n }];\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\n * be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Register global data\n * to be used internally by Angular. See the\n * ["I18n guide"](https://angular.io/guide/i18n) to know how to import\n * additional locale data.\n * The signature registerLocaleData(data: any, extraData?: any) is deprecated since\n * v5.1\n */\n * @publicApi\n */\n function registerLocaleData(data, localeId, extraData) {\n return\n i0.registerLocaleData(data, localeId, extraData);\n }\n /**\n * @license\n * Copyright Google LLC All\n * Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n * in the LICENSE file at https://angular.io/license\n */\n function parseCookieValue(cookieStr, name) {\n var\n e_1, _a;\n name = encodeURIComponent(name);\n try {\n for (var _b =\n __values(cookieStr.split(';')), _c = _b.next(); !_c.done; _c = _b.next()) {\n var cookie = _c.value;\n var eqIndex = cookie.indexOf('=');\n var _d =

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__read(eqIndex === -1 ? [cookie, "]: [cookie.slice(0, eqIndex), cookie.slice(eqIndex + 1)], 2), cookieName = _d[0],
cookieValue = _d[1];\n if (cookieName.trim() === name) {\n return
decodeURIComponent(cookieValue);\n }\n }\n }\n catch (e_1_1) { e_1 = { error: e_1_1 };
}\n finally {\n try {\n if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n }\n }\n finally { if (e_1) throw e_1.error; }\n }\n return null;\n }\n /\n /\n @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n * /\n /\n @ngModule
CommonModule\n *\n @usageNotes\n * ```\n * <some-element [ngClass]="first
second">...</some-element>\n * \n * <some-element [ngClass]="['first',
'second']">...</some-element>\n * \n * <some-element [ngClass]="{'first': true, 'second': true, 'third':
false}">...</some-element>\n * \n * <some-element [ngClass]="stringExp|arrayExp|objExp">...</some-
element>\n * \n * <some-element [ngClass]="{'class1 class2 class3': true}">...</some-element>\n * ```\n
*\n * @description\n * \n * Adds and removes CSS classes on an HTML element.\n * \n * The CSS
classes are updated as follows, depending on the type of the expression evaluation:\n * - `string` - the CSS classes
listed in the string (space delimited) are added,\n * - `Array` - the CSS classes declared as Array elements are
added,\n * - `Object` - keys are CSS classes that get added when the expression given in the value\n *
evaluates to a truthy value, otherwise they are removed.\n * \n * @publicApi\n * /\n var NgClass = /**
@class */ (function () {\n function NgClass(_iterableDiffers,
_keyValueDiffers, _ngEl, _renderer) {\n this._iterableDiffers = _iterableDiffers;\n
this._keyValueDiffers = _keyValueDiffers;\n this._ngEl = _ngEl;\n this._renderer = _renderer;\n
this._iterableDiffer = null;\n this._keyValueDiffer = null;\n this._initialClasses = [];\n
this._rawClass = null;\n }\n Object.defineProperty(NgClass.prototype, "klass", {\n set: function
(value) {\n this._removeClasses(this._initialClasses);\n this._initialClasses = typeof value ===
'string' ? value.split(/\s+/) : [];\n this._applyClasses(this._initialClasses);\n
this._applyClasses(this._rawClass);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(NgClass.prototype, "ngClass", {\n set: function (value) {\n
this._removeClasses(this._rawClass);\n
 this._applyClasses(this._initialClasses);\n this._iterableDiffer = null;\n
this._keyValueDiffer = null;\n this._rawClass = typeof value === 'string' ? value.split(/\s+/) : value;\n
 if (this._rawClass) {\n if (i0.isListLikeIterable(this._rawClass)) {\n this._iterableDiffer
= this._iterableDiffers.find(this._rawClass).create();\n }\n else {\n this._keyValueDiffer = this._keyValueDiffers.find(this._rawClass).create();\n }\n }\n },\n enumerable: false,\n configurable: true\n });\n NgClass.prototype.ngDoCheck = function
() {\n if (this._iterableDiffer) {\n var iterableChanges = this._iterableDiffer.diff(this._rawClass);\n
 if (iterableChanges) {\n this._applyIterableChanges(iterableChanges);\n }\n }\n else if (this._keyValueDiffer) {\n var keyValueChangeds = this._keyValueDiffer.diff(this._rawClass);\n if (keyValueChangeds) {\n this._applyKeyValueChangeds(keyValueChangeds);\n }\n }\n }\n NgClass.prototype._applyKeyValueChangeds = function (changes) {\n var _this = this;\n
changes.forEachAddedItem(function (record) { return _this._toggleClass(record.key, record.currentValue); });\n
changes.forEachChangedItem(function (record) { return _this._toggleClass(record.key, record.currentValue);
});\n changes.forEachRemovedItem(function (record) {\n if (record.previousValue) {\n _this._toggleClass(record.key, false);\n }\n });\n }\n NgClass.prototype._applyIterableChanges = function (changes) {\n var _this = this;\n
changes.forEachAddedItem(function (record) {\n if (typeof record.item
=== 'string') {\n _this._toggleClass(record.item, true);\n }\n }\n else {\n throw
new Error("NgClass can only toggle CSS classes expressed as strings, got '" + i0.stringify(record.item));\n }\n });\n changes.forEachRemovedItem(function (record) { return _this._toggleClass(record.item,

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false); });\n }\n /**\n * Applies a collection of CSS classes to the DOM element.\n *\n * For argument of type Set and Array CSS class names contained in those collections are always\n * added.\n * For argument of type Map CSS class name in the map's key is toggled based on the value (added\n * for truthy and removed for falsy).\n */\n NgClass.prototype._applyClasses = function (rawClassVal) {\n var _this = this;\n if (rawClassVal) {\n if (Array.isArray(rawClassVal) || rawClassVal instanceof Set) {\n rawClassVal.forEach(function (klass) { return _this._toggleClass(klass, true); });\n }\n else {\n Object.keys(rawClassVal).forEach(function (klass) { return _this._toggleClass(klass, !!rawClassVal[klass]); });\n }\n }\n };\n /**\n * Removes a collection of CSS classes from the DOM element. This is mostly useful for cleanup\n * purposes.\n */\n NgClass.prototype._removeClasses = function (rawClassVal) {\n var _this = this;\n if (rawClassVal) {\n if (Array.isArray(rawClassVal) || rawClassVal instanceof Set) {\n rawClassVal.forEach(function (klass) { return _this._toggleClass(klass, false); });\n }\n else {\n Object.keys(rawClassVal).forEach(function (klass) { return _this._toggleClass(klass, false); });\n }\n }\n };\n NgClass.prototype._toggleClass = function (klass, enabled) {\n var _this = this;\n klass = klass.trim();\n if (klass) {\n klass.split(/\s+/g).forEach(function (klass) {\n if (enabled)\n _this._renderer.addClass(_this._ngEl.nativeElement, klass);\n else {\n _this._renderer.removeClass(_this._ngEl.nativeElement, klass);\n }\n });\n }\n return NgClass;\n };\n NgClass.decorators = [\n { type: i0.Directive, args: [{ selector: '[ngClass]' },] }\n];\n NgClass.ctorParameters = function () { return [\n { type: i0.IterableDiffers },\n { type: i0.KeyValueDiffers },\n { type: i0.ElementRef },\n { type: i0.Renderer2 }\n]; };\n NgClass.propDecorators = [\n { klass: [{ type: i0.Input, args: ['class'], }],\n ngClass: [{ type: i0.Input, args: ['ngClass'], }] }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Instantiates a single { @link Component } type and inserts its Host View into current View.\n * `NgComponentOutlet` provides a declarative approach for dynamic component creation.\n * `NgComponentOutlet` requires a component type, if a falsy value is set the view will clear and\n * any existing component will get destroyed.\n * @usageNotes\n * ### Fine tune control\n * You can control the component creation process by using the following optional attributes:\n * `ngComponentOutletInjector`: Optional custom { @link Injector } that will be used as parent for\n * the Component. Defaults to the injector of the current view container.\n * `ngComponentOutletContent`: Optional list of projectable nodes to insert into the content\n * section of the component, if exists.\n * `ngComponentOutletNgModuleFactory`: Optional module factory to allow dynamically loading other\n * module, then load a component from that module.\n * ### Syntax\n * Simple\n * <ng-container *ngComponentOutlet="componentTypeExpression"></ng-container>\n * Customized injector/content\n * <ng-container *ngComponentOutlet="componentTypeExpression;\n * injector: injectorExpression;\n * content: contentNodesExpression;"></ng-container>\n * Customized ngModuleFactory\n * <ng-container *ngComponentOutlet="componentTypeExpression;\n * ngModuleFactory: moduleFactory;"></ng-container>\n * ### A simple example\n * { @example common/ngComponentOutlet/ts/module.ts region='SimpleExample' }\n * A more complete example with additional options:\n * { @example common/ngComponentOutlet/ts/module.ts region='CompleteExample' }\n * @publicApi\n * @ngModule CommonModule\n */\n var NgComponentOutlet = /** @class */ (function () {\n function NgComponentOutlet(_viewContainerRef) {\n this._viewContainerRef = _viewContainerRef;\n this._componentRef = null;\n this._moduleRef = null;\n }\n NgComponentOutlet.prototype.ngOnChanges = function (changes) {\n this._viewContainerRef.clear();\n this._componentRef = null;\n if (this.ngComponentOutlet) {\n
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 var elInjector = this.ngComponentOutletInjector || this._viewContainerRef.parentInjector;\n
 (changes['ngComponentOutletNgModuleFactory']) {\n
 this._moduleRef.destroy();\n
 parentModule = elInjector.get(i0 NgModuleRef);\n
 this.ngComponentOutletNgModuleFactory.create(parentModule.injector);\n
 this._moduleRef = null;\n
 this._moduleRef ? this._moduleRef.componentFactoryResolver :\n
 elInjector.get(i0.ComponentFactoryResolver);\n
 componentFactoryResolver.resolveComponentFactory(this.ngComponentOutlet);\n
 this._viewContainerRef.createComponent(componentFactory,\n
 this._viewContainerRef.length, elInjector, this.ngComponentOutletContent);\n
 NgComponentOutlet.prototype.ngOnDestroy = function () {\n
 this._moduleRef.destroy();\n
 = [\n
 { type: i0.Directive, args: [{ selector: '[ngComponentOutlet]' },] }\n
 NgComponentOutlet.ctorParameters = function () { return [\n
 NgComponentOutlet.propDecorators = {\n
 ngComponentOutletInjector: [{ type: i0.Input }],\n
 ngComponentOutletContent: [{ type: i0.Input }],\n
 ngComponentOutletNgModuleFactory: [{ type: i0.Input }]\n
 /**\n
 * @license\n
 * Copyright Google\n
 LLC All Rights Reserved.\n
 * Use of this source code is governed by an\n
 MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
 @publicApi\n
 var NgForOfContext = /** @class */ (function () {\n
 NgForOfContext($implicit, ngForOf, index, count) {\n
 ngForOf;\n
 Object.defineProperty(NgForOfContext.prototype, "first", {\n
 === 0;\n
 Object.defineProperty(NgForOfContext.prototype, "last", {\n
 === this.count - 1;\n
 Object.defineProperty(NgForOfContext.prototype, "even", {\n
 () {\n
 });\n
 Object.defineProperty(NgForOfContext.prototype, "odd", {\n
 !this.even;\n
 NgForOfContext;\n
 })\n
 /**\n
 * A [structural directive](guide/structural-directives) that renders\n
 * a template for each item in a collection.\n
 * The directive is placed on an element, which becomes the parent\n
 * of the cloned templates.\n
 * The `ngForOf` directive is generally used in the\n
 * [shorthand form](guide/structural-directives#the-asterisk--prefix) `*ngFor`\n
 * In this form, the template to be rendered for each iteration is the content\n
 * of an anchor element containing the directive.\n
 * The following example shows the shorthand\n
 * syntax with some options,\n
 * contained in an `- ` element.\n
 * ```\n
 * <li *ngFor="let item of items; index as i; trackBy: trackByFn">...\n
 * ```\n
 * The shorthand form expands into a long form that uses the `ngForOf` selector\n
 * on an `` element.\n
 * The content of the `` element is the `- ` element that held the\n
 * short-form directive.\n
 * Here is the expanded version of the short-form example.\n
 * ```\n
 * <ng-template ngFor let-item [ngForOf]="items" let-i="index"\n
 [ngForTrackBy]="trackByFn">\n
 * ...\n
 * </ng-template>\n
 * ```\n
 * Angular automatically expands the shorthand syntax as it compiles the template.\n
 * The context for each embedded view is logically merged to the current component\n
 * context according to its lexical position.\n
 * When using the shorthand syntax, Angular allows only [one structural\n
 directive\n
 * on an element](guide/structural-directives#one-structural-directive-per-host-element).\n
 * If you want to iterate conditionally, for example,\n
 * put the `*ngIf` on a container element that wraps the `*ngFor`

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element.\n \* For further discussion, see\n \* [Structural Directives](guide/structural-directives#one-per-element).\n \* \n \* @usageNotes\n \* \n \* ### Local variables\n \* \n \* `NgForOf` provides exported values that can be aliased to local variables.\n \* For example:\n \* \n \* ``\n \* <li \*ngForOf=\"let user of users; index as i; first as isFirst\">\n \* {{i}}/{{users.length}}. {{user}} <span \*ngIf=\"isFirst\">default</span>\n \* </li>\n \* ``\n \* \n \* The following exported values can be aliased to local variables:\n \* \n \* - `\$.implicit: T`: The value of the individual items in the iterable (`ngForOf`).\n \* - `ngForOf: NgIterable<T>`: The value of the iterable expression. Useful when the expression is\n \* more complex than a property access, for example when using the async pipe (`userStreams | async`).\n \* - `index: number`: The index of the current item in the iterable.\n \* - `count: number`: The length of the iterable.\n \* - `first: boolean`: True when the item is the first item in the iterable.\n \* - `last: boolean`: True when the item is the last item in the iterable.\n \* - `even: boolean`: True when the item has an even index in the iterable.\n \* - `odd: boolean`: True when the item has an odd index in the iterable.\n \* \n \* ### Change propagation\n \* \n \* When the contents of the iterator changes, `NgForOf` makes the corresponding changes to the DOM:\n \* \n \* \* When an item is added, a new instance of the template is added to the DOM.\n \* \* When an item is removed, its template instance is removed from the DOM.\n \* \* When items are reordered, their respective templates are reordered in the DOM.\n \* \n \* Angular uses object identity to track insertions and deletions within the iterator and reproduce\n \* those changes in the DOM. This has important implications for animations and any stateful\n \* controls that are present, such as `` elements that accept user input. Inserted rows can\n \* be animated in, deleted rows can be animated out, and unchanged rows retain any unsaved state\n \* such as user input.\n \* For more on animations, see [Transitions and Triggers](guide/transition-and-triggers).\n \* \n \* The identities of elements in the iterator can change while the data does not.\n \* This can happen, for example, if the iterator is produced from an RPC to the server, and that\n \* RPC is re-run. Even if the data hasn't changed, the second response produces objects with\n \* different identities, and Angular must tear down the entire DOM and rebuild it (as if all old\n \* elements were deleted and all new elements inserted).\n \* \n \* To avoid this expensive operation, you can customize the default tracking algorithm.\n \* by supplying the `trackBy` option to `NgForOf`. `trackBy` takes a function that has two arguments: `index` and `item`.\n \* If `trackBy` is given, Angular tracks changes by the return value of the function.\n \* \n \* @see [Structural Directives](guide/structural-directives)\n \* \n \* @ngModule CommonModule\n \* \n \* @publicApi\n \* \n \* var NgForOf = /\*\* @class \*/ (function () {\n \* function NgForOf(\_viewContainer, \_template, \_differs) {\n \* this.\_viewContainer = \_viewContainer;\n \* this.\_template = \_template;\n \* this.\_differs = \_differs;\n \* this.\_ngForOf = null;\n \* this.\_ngForOfDirty = true;\n \* this.\_differ = null;\n \* }\n \* Object.defineProperty(NgForOf.prototype, \"ngForOf\", {\n \* /\*\*\n \* \* The value of the iterable expression, which can be used as a\n \* \* [template input variable](guide/structural-directives#template-input-variable).\n \* \*/\n \* set: function (ngForOf) {\n \* this.\_ngForOf = ngForOf;\n \* this.\_ngForOfDirty = true;\n \* },\n \* enumerable: false,\n \* configurable: true\n \* });\n \* Object.defineProperty(NgForOf.prototype, \"ngForTrackBy\", {\n \* get: function () {\n \* return this.\_trackByFn;\n \* },\n \* /\*\*\n \* \* A function that defines how to track changes for items in the iterable.\n \* \* When items are added, moved, or removed in the iterable,\n \* \* the directive must re-render the appropriate DOM nodes.\n \* \* To minimize churn in the DOM, only nodes that have changed\n \* \* are re-rendered.\n \* \*/\n \* By default, the change detector assumes that\n \* the object instance identifies the node in the iterable.\n \* When this function is supplied, the directive uses\n \* the result of calling this function to identify the item node,\n \* rather than the identity of the object itself.\n \* The function receives two inputs,\n \* the iteration index and the associated node data.\n \* \*/\n \* set: function (fn) {\n \* if (i0.isDevMode() && fn != null && typeof fn !== 'function') {\n \* // TODO(vicb): use a log service once there is a public one available\n \* if (console && console.warn) {\n \* console.warn(\"trackBy must be a function, but received \" + JSON.stringify(fn) + \". \" +\n \* \"See\n

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https://angular.io/api/common/NgForOf#change-propagation for more information.\n");\n\n\n this._trackByFn = fn;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(NgForOf.prototype, \"ngForTemplate\", {\n /**\n * A reference to the template that is stamped out for each item in the iterable.\n * @see [template reference variable](guide/template-reference-variables)\n */\n set: function (value) {\n // TODO(TS2.1): make TemplateRef<Partial<NgForRowOf<T>>> once we move to TS v2.1\n // The current type is too restrictive; a template that just uses index, for example,\n // should be acceptable.\n if (value) {\n this._template = value;\n }\n },\n enumerable: false,\n configurable: true\n });\n /**\n * Applies the changes when needed.\n */\n NgForOf.prototype.ngDoCheck = function () {\n if (this._ngForOfDirty) {\n this._ngForOfDirty = false;\n\n // React on ngForOf changes only once all inputs have been initialized\n var value = this._ngForOf;\n if (!this._differ && value) {\n try {\n this._differ = this._differs.find(value).create(this.ngForTrackBy);\n } catch (_a) {\n throw new Error(\"Cannot find a differ supporting object \"" + value + "\" of type \"" + getTypeName(value) + "\". NgFor only supports binding to Iterables such as Arrays.\");\n }\n }\n if (this._differ) {\n var changes = this._differ.diff(this._ngForOf);\n if (changes) {\n this._applyChanges(changes);\n }\n }\n NgForOf.prototype._applyChanges = function (changes) {\n var _this = this;\n var insertTuples = [];\n changes.forEachOperation(function (item, adjustedPreviousIndex, currentIndex) {\n if (item.previousIndex == null) {\n // NgForOf is never \"null\" or \"undefined\" here because the differ detected\n // that a new item needs to be inserted from the iterable. This implies that\n // there is an iterable value for \"_ngForOf\".\n var view = _this._viewContainer.createEmbeddedView(_this._template, new NgForOfContext(null, _this._ngForOf, -1, -1), currentIndex === null ? undefined : currentIndex);\n var tuple = new RecordViewTuple(item, view);\n insertTuples.push(tuple);\n } else if (currentIndex == null) {\n _this._viewContainer.remove(adjustedPreviousIndex === null ? undefined : adjustedPreviousIndex);\n } else if (adjustedPreviousIndex !== null) {\n var view = _this._viewContainer.get(adjustedPreviousIndex);\n _this._viewContainer.move(view, currentIndex);\n var tuple = new RecordViewTuple(item, view);\n insertTuples.push(tuple);\n }\n },\n for (var i = 0; i < insertTuples.length; i++) {\n this._perViewChange(insertTuples[i].view, insertTuples[i].record);\n }\n for (var i = 0, ilen = this._viewContainer.length; i < ilen; i++) {\n var viewRef = this._viewContainer.get(i);\n viewRef.context.index = i;\n viewRef.context.count = ilen;\n viewRef.context.ngForOf = this._ngForOf;\n changes.forEachIdentityChange(function (record) {\n var viewRef = _this._viewContainer.get(record.currentIndex);\n viewRef.context.$implicit = record.item;\n });\n }\n NgForOf.prototype._perViewChange = function (view, record) {\n view.context.$implicit = record.item;\n };\n /**\n * Asserts the correct type of the context for the template that `NgForOf` will render.\n *\n * The presence of this method is a signal to the Ivy template type-check compiler that the\n * `NgForOf` structural directive renders its template with a specific context type.\n */\n NgForOf.ngTemplateContextGuard = function (dir, ctx) {\n return true;\n };\n return NgForOf;\n }());\n NgForOf.decorators = [\n { type: i0.Directive, args: [{ selector: '[ngFor][ngForOf]', }] }\n];\n NgForOf.ctorParameters = function () { return [\n { type: i0.ViewContainerRef },\n { type: i0.TemplateRef },\n { type: i0.IterableDiffers }\n]; };\n NgForOf.propDecorators = [\n ngForOf: [{ type: i0.Input }],\n ngForTrackBy: [{ type: i0.Input }],\n ngForTemplate: [{ type: i0.Input }]\n];\n var RecordViewTuple = /** @class

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*/ (function () {\n function RecordViewTuple(record, view) {\n this.record = record;\n this.view = view;\n }\n return RecordViewTuple;\n }());\n function getTypeName(type) {\n return\n type['name'] || typeof type;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n * https://angular.io/license\n */\n\n A structural directive that conditionally includes a template based on\n the value of\n * an expression coerced to Boolean.\n * When the expression evaluates to true, Angular renders\n the template\n * provided in a `then` clause, and when false or null,\n * Angular renders the template provided\n in an optional `else` clause. The default\n * template for the `else` clause is blank.\n *\n * A [shorthand\n form](guide/structural-directives#the-asterisk--prefix)\n of the directive,\n * `*ngIf="condition"`, is generally used, provided\n * as an attribute of the anchor element\n for the inserted template.\n * Angular expands this into a more explicit version, in which the anchor element\n * is contained in an `` element.\n *\n * Simple form with shorthand syntax:\n *\n * ```\n * <div *ngIf="condition">Content to render when condition is true.</div>\n * ```\n *\n * Simple form with\n expanded syntax:\n *\n * ```\n * <ng-template [ngIf]="condition"><div>Content to render when condition\n is\n * true.</div></ng-template>\n * ```\n *\n * Form with an `else` block:\n *\n * ```\n * <div\n *ngIf="condition; else elseBlock">Content to render when condition is true.</div>\n * <ng-template\n #elseBlock>Content to render when condition is false.</ng-template>\n * ```\n *\n * Shorthand form with\n `then` and `else` blocks:\n *\n * ```\n * <div *ngIf="condition; then thenBlock else elseBlock"></div>\n * <ng-template\n #thenBlock>Content to render when condition is true.</ng-template>\n * <ng-template #elseBlock>Content to\n render when condition is false.</ng-template>\n * ```\n *\n * Form with storing the value locally:\n *\n * ```\n * <div *ngIf="condition as value; else elseBlock">{{ value }}</div>\n * <ng-template\n #elseBlock>Content to render when value is null.</ng-template>\n * ```\n *\n * @usageNotes\n *\n * The `*ngIf` directive is most commonly used to conditionally show an inline template,\n * as seen in the\n following example.\n * The default `else` template is blank.\n *\n * { @example common/ngIf/ts/module.ts\n region='NgIfSimple' }\n *\n * ### Showing an alternative template using `else`\n *\n * To display a\n template when `expression` evaluates to false, use an `else` template\n * binding as\n shown in the following example.\n * The `else` binding points to an `` element labeled\n `#elseBlock`.\n * The template can be defined anywhere in the component view, but is typically placed right\n after\n * `*ngIf` for readability.\n *\n * { @example common/ngIf/ts/module.ts\n region='NgIfElse' }\n *\n * ### Using an external `then` template\n *\n * In the previous example, the then-clause template is specified\n inline, as the content of the\n * tag that contains the `*ngIf` directive. You can also specify a template that is\n defined\n * externally, by referencing a labeled `` element. When you do this, you can\n * change which template to use at runtime, as shown in the following example.\n *\n * { @example\n common/ngIf/ts/module.ts\n region='NgIfThenElse' }\n *\n * ### Storing a conditional result in a variable\n *\n * You might want to show a set of properties from the same object. If you are waiting\n *\n * for asynchronous data, the object can be undefined.\n * In this case, you can use `*ngIf` and store the result of\n the condition in a local\n * variable as shown in the the following example.\n *\n * { @example\n common/ngIf/ts/module.ts\n region='NgIfAs' }\n *\n * This code uses only one `AsyncPipe`, so only one\n subscription is created.\n * The conditional statement stores the result of `userStream|async` in the local variable\n `user`.\n * You can then bind the local `user` repeatedly.\n *\n * The conditional displays the data only if\n `userStream` returns a value,\n * so you don't need to use the\n * [safe-navigation-operator](guide/template-expression-operators#safe-navigation-operator) (`?.`) to guard against null values when accessing\n properties.\n * You can display an alternative template while waiting for the data.\n *\n * ### Shorthand\n syntax\n *\n * The shorthand syntax `*ngIf` expands into two separate\n template specifications\n * for the `then` and `else` clauses. For example, consider the following shorthand\n statement,\n * that is meant to show a loading page while waiting for data to be loaded.\n *\n * ```\n * <div class="hero-list" *ngIf="heroes else loading">\n * ...</div>\n * <ng-template

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#loading>\n * <div>Loading...</div>\n * </ng-template>\n * ```\n * \n * You can see that the \"else\"
clause references the `<ng-template>` \n * with the `#loading` label, and the template for the \"then\" clause \n *
is provided as the content of the anchor element. \n * \n * However, when Angular expands the shorthand
syntax, it creates \n * another `<ng-template>` tag, with `ngIf` and `ngIfElse` directives. \n * The anchor element
containing the template for the \"then\" clause becomes \n * the content of this unlabeled `<ng-template>` tag. \n
*\n * ```\n * <ng-template [ngIf]="heroes"
[ngIfElse]="loading">\n * <div class="hero-list">\n * ... \n * </div>\n * </ng-template> \n * \n *
<ng-template #loading>\n * <div>Loading...</div>\n * </ng-template> \n * ```\n * \n * The presence of
the implicit template object has implications for the nesting of \n * structural directives. For more on this subject,
see \n * [Structural Directives](https://angular.io/guide/structural-directives#one-per-element). \n * \n *
@Module CommonModule \n * @publicApi \n * /\n var NgIf = /** @class */ (function () {\n function
NgIf(_viewController, templateRef) {\n this._viewController = _viewController;\n this._context = new
NgIfContext();\n this._thenTemplateRef = null;\n this._elseTemplateRef = null;\n
this._thenViewRef = null;\n this._elseViewRef = null;\n this._thenTemplateRef = templateRef;\n
}\n Object.defineProperty(NgIf.prototype,
\"ngIf\", {\n /**\n * The Boolean expression to evaluate as the condition for showing a template. \n
 */\n set: function (condition) {\n this._context.$implicit = this._context.ngIf = condition;\n
this._updateView();\n },\n enumerable: false,\n configurable: true\n });\n
Object.defineProperty(NgIf.prototype, \"ngIfThen\", {\n /**\n * A template to show if the condition
expression evaluates to true. \n
 */\n set: function (templateRef) {\n
assertTemplate('ngIfThen', templateRef);\n this._thenTemplateRef = templateRef;\n
this._thenViewRef = null; // clear previous view if any.\n this._updateView();\n },\n
enumerable: false,\n configurable: true\n });\n Object.defineProperty(NgIf.prototype, \"ngIfElse\",
{\n /**\n * A template to show if the condition expression evaluates to false. \n
 */\n set:
function (templateRef) {\n assertTemplate('ngIfElse', templateRef);\n this._elseTemplateRef =
templateRef;\n this._elseViewRef = null; // clear previous view if any.\n this._updateView();\n
 },\n enumerable: false,\n configurable: true\n });\n NgIf.prototype._updateView = function
()\n {\n if (this._context.$implicit) {\n if (!this._thenViewRef) {\n
this._viewController.clear();\n this._elseViewRef = null;\n if (this._thenTemplateRef) {\n
this._thenViewRef =\n
this._viewController.createEmbeddedView(this._thenTemplateRef, this._context);\n }\n }\n
 else {\n if (!this._elseViewRef) {\n this._viewController.clear();\n
 this._thenViewRef = null;\n if (this._elseTemplateRef) {\n
this._elseViewRef =\n
this._viewController.createEmbeddedView(this._elseTemplateRef, this._context);\n }\n }\n
 }\n }\n /**\n * Asserts the correct type of the context for the template that `NgIf` will render. \n
 */\n * \n * The presence of this method is a signal to the Ivy template type-check compiler that the \n
 * `NgIf`
structural directive renders its template with a specific context type. \n
 */\n NgIf.ngTemplateContextGuard
= function (dir, ctx) {\n return true;\n }; \n return NgIf;\n }());\n NgIf.decorators = [\n { type:
i0.Directive, args: [{ selector: '[ngIf]' },] }\n]; \n NgIf.ctorParameters = function () { return
[\n { type: i0.ViewContainerRef },\n { type: i0.TemplateRef }\n]; \n }; \n NgIf.propDecorators = {\n
ngIf: [{ type: i0.Input }],\n ngIfThen: [{ type: i0.Input }],\n ngIfElse: [{ type: i0.Input }]\n }; \n /**\n * @publicApi \n */\n var NgIfContext = /** @class */ (function () {\n function NgIfContext() {\n
this.$implicit = null;\n this.ngIf = null;\n }\n return NgIfContext;\n }());\n function
assertTemplate(property, templateRef) {\n var isTemplateRefOrNull = !(!templateRef ||
templateRef.createEmbeddedView);\n if (!isTemplateRefOrNull) {\n throw new Error(property + \" must
be a TemplateRef, but received \" + i0.stringify(templateRef) + \"\");\n }\n }\n /**\n * @license \n *

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at https://angular.io/license\n \*/\n var SwitchView = /\*\* @class \*/ (function () {\n function SwitchView(\_viewControllerRef, \_templateRef) {\n this.\_viewControllerRef = \_viewControllerRef;\n this.\_templateRef = \_templateRef;\n this.\_created = false;\n }\n SwitchView.prototype.create = function () {\n this.\_created = true;\n this.\_viewControllerRef.createEmbeddedView(this.\_templateRef);\n }\n SwitchView.prototype.destroy = function () {\n this.\_created = false;\n this.\_viewControllerRef.clear();\n };\n SwitchView.prototype.enforceState = function (created) {\n if (created && !this.\_created) {\n this.create();\n }\n else if (!created && this.\_created) {\n this.destroy();\n }\n };\n return SwitchView;\n }());\n /\*\*\n \* @ngModule CommonModule\n \* \n \* @description\n \* The `[ngSwitch]` directive on a container specifies an expression to match against.\n \* The expressions to match are provided by `ngSwitchCase` directives on views within the container.\n \* - Every view that matches is rendered.\n \* - If there are no matches, a view with the `ngSwitchDefault` directive is rendered.\n \* - Elements within the `[NgSwitch]` statement but outside of any `NgSwitchCase` or `ngSwitchDefault` directive are preserved at the location.\n \* \n \* @usageNotes\n \* Define a container element for the directive, and specify the switch expression\n \* to match against as an attribute:\n \* \n \* <container-element [ngSwitch]="switch\_expression">\n \* \n \* Within the container, `ngSwitchCase` statements specify the match expressions\n \* as attributes. Include `ngSwitchDefault` as the final case.\n \* \n \* <container-element [ngSwitch]="switch\_expression">\n \* \n \* <some-element \*ngSwitchCase="match\_expression\_1">...</some-element>\n \* ...<some-element \*ngSwitchDefault>...</some-element>\n \* </container-element>\n \* \n \* ### Usage Examples\n \* \n \* The following example shows how to use more than one case to display the same view:\n \* \n \* <container-element [ngSwitch]="switch\_expression">\n \* <!-- the same view can be shown in more than one case -->\n \* <some-element \*ngSwitchCase="match\_expression\_1">...</some-element>\n \* <some-element \*ngSwitchCase="match\_expression\_2">...</some-element>\n \* <some-other-element \*ngSwitchCase="match\_expression\_3">...</some-other-element>\n \* <!-- default case when there are no matches -->\n \* <some-element \*ngSwitchDefault>...</some-element>\n \* </container-element>\n \* \n \* The following example shows how cases can be nested:\n \* \n \* <container-element [ngSwitch]="switch\_expression">\n \* \n \* <some-element \*ngSwitchCase="match\_expression\_1">...</some-element>\n \* <some-element \*ngSwitchCase="match\_expression\_2">...</some-element>\n \* <some-other-element \*ngSwitchCase="match\_expression\_3">...</some-other-element>\n \* <ng-container \*ngSwitchCase="match\_expression\_3">\n \* <!-- use a ng-container to group multiple root nodes -->\n \* <inner-element></inner-element>\n \* <inner-other-element></inner-other-element>\n \* </ng-container>\n \* <some-element \*ngSwitchDefault>...</some-element>\n \* </container-element>\n \* \n \* \n \* @publicApi\n \* @see `NgSwitchCase`\n \* @see `NgSwitchDefault`\n \* @see [Structural Directives](guide/structural-directives)\n \*/\n var NgSwitch = /\*\* @class \*/ (function () {\n function NgSwitch() {\n this.\_defaultUsed = false;\n this.\_caseCount = 0;\n this.\_lastCaseCheckIndex = 0;\n this.\_lastCasesMatched = false;\n }\n Object.defineProperty(NgSwitch.prototype, "ngSwitch", {\n set: function (newValue) {\n this.\_ngSwitch = newValue;\n if (this.\_caseCount === 0) {\n this.\_updateDefaultCases(true);\n }\n },\n enumerable: false,\n configurable: true\n });\n /\*\* @internal \*/\n NgSwitch.prototype.\_addCase = function () {\n return this.\_caseCount++;\n };\n /\*\* @internal \*/\n NgSwitch.prototype.\_addDefault = function (view) {\n if (!this.\_defaultViews) {\n this.\_defaultViews = [];\n }\n this.\_defaultViews.push(view);\n }\n /\*\* @internal \*/\n NgSwitch.prototype.\_matchCase = function (value) {\n var matched = value === this.\_ngSwitch;\n this.\_lastCasesMatched



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= this._lastCasesMatched || matched;\n this._lastCaseCheckIndex++;\n if (this._lastCaseCheckIndex
=== this._caseCount) {\n this._updateDefaultCases(!this._lastCasesMatched);\n
this._lastCaseCheckIndex = 0;\n this._lastCasesMatched = false;\n }\n return matched;\n
};\n NgSwitch.prototype._updateDefaultCases = function (useDefault) {\n if (this._defaultViews &&
useDefault !== this._defaultUsed) {\n this._defaultUsed = useDefault;\n for (var i = 0; i <
this._defaultViews.length; i++) {\n var defaultView = this._defaultViews[i];\n
defaultView.enforceState(useDefault);\n }\n }\n }; \n return NgSwitch;\n }());\n
NgSwitch.decorators = [\n { type: i0.Directive, args: [{ selector: '[ngSwitch]' },] }\n];\n
NgSwitch.propDecorators = {\n ngSwitch: [{\n type: i0.Input }\n];\n /**\n * @ngModule CommonModule\n *\n * @description\n * Provides a
switch case expression to match against an enclosing `ngSwitch` expression.\n * When the expressions match, the
given `NgSwitchCase` template is rendered.\n * If multiple match expressions match the switch expression value,
all of them are displayed.\n *\n * @usageNotes\n *\n * Within a switch container, `*ngSwitchCase`
statements specify the match expressions\n * as attributes. Include `*ngSwitchDefault` as the final case.\n *\n
* ```\n * <container-element [ngSwitch]="switch_expression">\n * <some-element
*ngSwitchCase="match_expression_1">...</some-element>\n * ...</some-element>
*ngSwitchDefault>...</some-element>\n * </container-element>\n * ```\n *\n * Each switch-case
statement contains an in-line HTML template or template reference\n * that defines the subtree to be selected if
the
value of the match expression\n * matches the value of the switch expression.\n *\n * Unlike JavaScript,
which uses strict equality, Angular uses loose equality.\n * This means that the empty string, `""` matches 0.\n
*\n * @publicApi\n * @see `NgSwitch`\n * @see `NgSwitchDefault`\n *\n */\n var NgSwitchCase =
/** @class */ (function () {\n function NgSwitchCase(viewContainer, templateRef, ngSwitch) {\n
this.ngSwitch = ngSwitch;\n }\n NgSwitchCase.prototype._addCase();\n this._view = new SwitchView(viewContainer,
templateRef);\n });\n /**\n * Performs case matching. For internal use only.\n */\n NgSwitchCase.prototype.ngDoCheck = function () {\n
this._view.enforceState(this.ngSwitch._matchCase(this.ngSwitchCase));\n }; \n return NgSwitchCase;\n }());\n
NgSwitchCase.decorators = [\n { type: i0.Directive, args: [{ selector: '[ngSwitchCase]' },] }\n];\n
NgSwitchCase.ctorParameters = function () { return [\n { type: i0.ViewContainerRef },\n { type:
i0.TemplateRef },\n { type: NgSwitch, decorators: [{ type: i0.Host }] }\n]; }; \n
NgSwitchCase.propDecorators = {\n ngSwitchCase: [{ type: i0.Input }\n];\n /**\n * @ngModule
CommonModule\n *\n * @description\n *\n * Creates a view that is rendered when no `NgSwitchCase`
expressions\n * match the `NgSwitch` expression.\n * This statement should be the final case in an
`NgSwitch`.\n *\n * @publicApi\n * @see `NgSwitch`\n * @see `NgSwitchCase`\n *\n */\n var
NgSwitchDefault = /** @class */ (function () {\n function NgSwitchDefault(viewContainer, templateRef,
ngSwitch) {\n ngSwitch._addDefault(new SwitchView(viewContainer, templateRef));\n }\n return
NgSwitchDefault;\n }());\n NgSwitchDefault.decorators = [\n { type: i0.Directive, args: [{ selector:
'[ngSwitchDefault]' },] }\n]; \n NgSwitchDefault.ctorParameters = function () { return [\n { type:
i0.ViewContainerRef },\n { type: i0.TemplateRef },\n { type: NgSwitch, decorators: [{ type: i0.Host }] }\n
]; }; \n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n */\n /**\n * @ngModule CommonModule\n *\n * @usageNotes\n * ```\n * <some-element
[ngPlural]="value">\n * <ng-template ngPluralCase="=0">there is nothing</ng-template>\n * <ng-
template ngPluralCase="=1">there is one</ng-template>\n * <ng-template ngPluralCase="few">there are a
few</ng-template>\n * </some-element>\n * ```\n *\n * @description\n *\n * Adds / removes DOM
sub-trees based on a numeric value. Tailored for pluralization.\n *\n
* Displays DOM sub-trees that match the switch expression value, or failing that, DOM sub-trees\n * that
match the switch expression's pluralization category.\n *\n * To use this directive you must provide a container

```

element that sets the `[ngPlural]` attribute to a switch expression. Inner elements with a `[ngPluralCase]` will display based on their expression: - if `[ngPluralCase]` is set to a value starting with ``=`, it will only display if the value matches the switch expression exactly, - otherwise, the view will be treated as a "category match", and will only display if exact value matches aren't found and the value maps to its category for the defined locale. See <http://cldr.unicode.org/index/cldr-spec/plural-rules>

```

@publicApi
var NgPlural = /** @class */ (function () {
 function NgPlural(_localization) {
 this._localization = _localization;

 this._caseViews = {};
 Object.defineProperty(NgPlural.prototype, '[ngPlural]', {
 set: function (value) {
 this._switchValue = value;
 this._updateView();
 },
 enumerable: false,
 configurable: true
 });
 NgPlural.prototype.addCase = function (value, switchView) {
 this._caseViews[value] = switchView;
 };
 NgPlural.prototype._updateView = function () {
 this._clearViews();
 var cases = Object.keys(this._caseViews);
 var key = getPluralCategory(this._switchValue, cases, this._localization);
 this._activateView(this._caseViews[key]);
 };
 NgPlural.prototype._clearViews = function () {
 if (this._activeView)
 this._activeView.destroy();
 };
 NgPlural.prototype._activateView = function (view) {
 if (view) {
 this._activeView = view;
 this._activeView.create();
 }
 return NgPlural;
 }();
 NgPlural.decorators = [{ type: i0.Directive, args: [{ selector: '[ngPlural]' }] }];
 NgPlural.ctorParameters = function () { return [{ type: NgLocalization }]; };
 NgPlural.propDecorators = { ngPlural: [{ type: i0.Input }] };
 /**
 * @ngModule CommonModule
 * @description
 * Creates a view that will be added/removed from the parent
 * { @link NgPlural } when the given expression matches the plural expression according to CLDR rules.
 * @usageNotes
 * ```
 * <some-element [ngPlural]="value">
 * <ng-template
 * ngPluralCase="=0">...</ng-template>
 * <ng-template ngPluralCase="other">...</ng-template>
 * </some-element>
 * ```
 * See { @link NgPlural } for more details and example.
 */
 @publicApi
 var NgPluralCase = /** @class */ (function () {
 function NgPluralCase(value, template, viewContainer, ngPlural) {
 this.value = value;
 var isANumber = !isNaN(Number(value));
 ngPlural.addCase(isANumber ? '=' + value : value, new SwitchView(viewContainer, template));
 }
 return NgPluralCase;
 }());
 NgPluralCase.decorators = [{ type: i0.Directive, args: [{ selector: '[ngPluralCase]' }] }];
 NgPluralCase.ctorParameters = function () { return [{ type: String, decorators: [{ type: i0.Attribute, args: ['ngPluralCase'] }] }, { type: i0.TemplateRef }, { type: i0.ViewContainerRef }, { type: NgPlural, decorators: [{ type: i0.Host }] }]; };
 /**
 * @ngModule CommonModule
 * @usageNotes
 * Set the font of the containing element to the result of an expression.
 * ```
 * <some-element [ngStyle]="{'font-style': styleExp}">...</some-element>
 * ```
 * Set the width of the containing element to a pixel value returned by an expression.
 * ```
 * <some-element [ngStyle]="{'max-width.px': widthExp}">...</some-element>
 * ```
 * Set a collection of style values using an expression that returns key-value pairs.
 * ```
 * <some-element [ngStyle]="objExp">...</some-element>
 * ```
 * @description
 * An attribute directive that updates styles for the containing HTML element.
 * Sets one or more style properties, specified as colon-separated key-value pairs.
 * The key is a style name, with an optional <unit> suffix (such as 'top.px', 'font-style.em').
 * The value is an expression to be evaluated.
 * The resulting non-null value, expressed in the given unit, is assigned to the given style property.
 * If the result of evaluation is null, the corresponding style is removed.
 */
 @publicApi
 var NgStyle = /** @class */ (function () {
 function NgStyle(_ngEl, _differs, _renderer) {
 this._ngEl = _ngEl;
 this._differs = _differs;
 this._renderer = _renderer;
 this._ngStyle = null;
 this._differ = null;
 }
 Object.defineProperty(NgStyle.prototype, '[ngStyle]', {
 set: function (values) {
 this._ngStyle = values;
 if (!this._differ && values)
 this._differ =

```

```

this._differs.find(values).create();\n }\n },\n enumerable: false,\n configurable: true\n });\n NgStyle.prototype.ngDoCheck = function () {\n if (this._differ) {\n var changes =\n this._differ.diff(this._ngStyle);\n if (changes) {\n this._applyChanges(changes);\n }\n }\n };\n NgStyle.prototype._setStyle = function (nameAndUnit, value) {\n var _a =\n __read(nameAndUnit.split('.'), 2), name = _a[0], unit = _a[1];\n value = value != null && unit ? "\"" + value +\n unit : value;\n if (value != null) {\n this._renderer.setStyle(this._ngEl.nativeElement, name,\n value);\n } else {\n this._renderer.removeStyle(this._ngEl.nativeElement, name);\n }\n };\n NgStyle.prototype._applyChanges = function (changes) {\n var _this = this;\n changes.forEachRemovedItem(function (record) { return _this._setStyle(record.key, null); });\n changes.forEachAddedItem(function (record) { return _this._setStyle(record.key, record.currentValue); });\n changes.forEachChangedItem(function (record) { return _this._setStyle(record.key, record.currentValue); });\n };\n return NgStyle;\n }());\n NgStyle.decorators = [\n { type: i0.Directive, args: [{ selector: '[ngStyle]' },] }\n];\n NgStyle.ctorParameters = function () { return [\n { type: i0.ElementRef },\n { type: i0.KeyValueDiffers },\n { type: i0.Renderer2 }\n]; }; \n NgStyle.propDecorators = [\n ngStyle: [{ type: i0.Input, args: ['ngStyle',]\n }]\n];\n\n /**\n * @ngModule CommonModule\n * \n * @description\n * \n * Inserts an embedded\n * view from a prepared `TemplateRef`.\n * \n * You can attach a context object to the `EmbeddedViewRef` by\n * setting `[ngTemplateOutletContext]`.\n * \n * `[ngTemplateOutletContext]` should be an object, the object's keys will\n * be available for binding\n * \n * by the local template `let` declarations.\n * \n * @usageNotes\n * ```\n * <ng-container *ngTemplateOutlet="templateRefExp; context: contextExp"></ng-container>\n * ```\n * \n * Using the key `$implicit` in the context object\n * will set its value as default.\n * \n * ### Example\n * \n * {@example\n * common/ngTemplateOutlet/ts/module.ts region='NgTemplateOutlet'}\n * \n * @publicApi\n * \n * var\n * NgTemplateOutlet = /** @class */ (function () {\n * function NgTemplateOutlet(_viewContainerRef) {\n * this._viewContainerRef = _viewContainerRef;\n * this._viewRef = null;\n * /**\n * * A context\n * * object to attach to the {@link EmbeddedViewRef}. This should be an\n * * object, the object's keys will be\n * * available for binding by the local template `let` declarations.\n * * Using the key `$implicit` in the\n * * context object will set its value as default.\n * * \n * * @\n * * this.ngTemplateOutletContext = null;\n * * \n * * A string defining the template reference and optionally the context object for the template.\n * * \n * *\n * }\n * this.ngTemplateOutlet = null;\n * }\n * NgTemplateOutlet.prototype.ngOnChanges = function (changes) {\n * var recreateView =\n * this._shouldRecreateView(changes);\n * if (recreateView) {\n * var viewContainerRef =\n * this._viewContainerRef;\n * if (this._viewRef) {\n * viewContainerRef.remove(viewContainerRef.indexOf(this._viewRef));\n * }\n * this._viewRef =\n * this.ngTemplateOutlet ?\n * viewContainerRef.createEmbeddedView(this.ngTemplateOutlet,\n * this.ngTemplateOutletContext) :\n * null;\n * } else if (this._viewRef &&\n * this.ngTemplateOutletContext) {\n * this._updateExistingContext(this.ngTemplateOutletContext);\n * }\n * };\n * /**\n * * We need to re-create existing embedded view if:\n * * \n * * - templateRef has changed\n * * \n * * - context has changes\n * * \n * * We mark context object as changed when the corresponding object\n * * \n * * shape changes (new properties are added or existing properties are removed).\n * * \n * * In other words we\n * * consider context with the same properties as \"the same\" even\n * * \n * * if object reference changes (see\n * * \n * * https://github.com/angular/angular/issues/13407).\n * * \n * *\n * }\n * NgTemplateOutlet.prototype._shouldRecreateView = function (changes) {\n * var ctxChange =\n * changes['ngTemplateOutletContext'];\n * return !!changes['ngTemplateOutlet'] || (ctxChange &&\n * this._hasContextShapeChanged(ctxChange));\n * };\n * NgTemplateOutlet.prototype._hasContextShapeChanged = function (ctxChange) {\n * var e_1, _a;\n * var\n * prevCtxKeys = Object.keys(ctxChange.previousValue || {});\n * var currCtxKeys =

```

```

Object.keys(ctxChange.currentValue || {});\n if (prevCtxKeys.length === currCtxKeys.length) {\n
try {\n for (var currCtxKeys_1 = __values(currCtxKeys), currCtxKeys_1_1 = currCtxKeys_1.next();\n
!currCtxKeys_1_1.done; currCtxKeys_1_1 = currCtxKeys_1.next()) {\n var propName =\n
currCtxKeys_1_1.value;\n if (prevCtxKeys.indexOf(propName) === -1) {\n return\n
true;\n }\n }\n catch (e_1_1) { e_1 = { error: e_1_1 }; }\n
finally {\n try {\n if (currCtxKeys_1_1 && !currCtxKeys_1_1.done && (_a =\n
currCtxKeys_1.return)) _a.call(currCtxKeys_1);\n }\n finally { if (e_1) throw e_1.error; }\n
 }\n return false;\n }\n return true;\n };\n
NgTemplateOutlet.prototype._updateExistingContext = function (ctx) {\n var e_2, _a;\n try {\n
for (var _b = __values(Object.keys(ctx)), _c = _b.next(); !_c.done; _c = _b.next()) {\n var propName =\n
_c.value;\n
 this._viewRef.context[propName] = this.ngTemplateOutletContext[propName];\n }\n
 catch (e_2_1) { e_2 = { error: e_2_1 }; }\n finally {\n try {\n if (_c &&\n
!_c.done && (_a = _b.return)) _a.call(_b);\n }\n finally { if (e_2) throw e_2.error; }\n }\n
 };\n return NgTemplateOutlet;\n }();\n NgTemplateOutlet.decorators = [\n { type: i0.Directive, args:\n
[{\n selector: '[ngTemplateOutlet]',\n }]\n }];\n NgTemplateOutlet.ctorParameters = function () { return [\n {\n
type: i0.ViewContainerRef\n }]\n };\n NgTemplateOutlet.propDecorators = {\n ngTemplateOutletContext:\n
[{\n type: i0.Input\n }],\n ngTemplateOutlet: [\n {\n type: i0.Input\n }]\n };\n\n /**\n * @license\n * Copyright\n
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that\n
can be\n * found in the LICENSE file at https://angular.io/license\n *\n /**\n * A collection of Angular\n
directives that are likely to be used in each and every Angular\n * application.\n *\n var\n
COMMON_DIRECTIVES = [\n NgClass,\n NgComponentOutlet,\n NgForOf,\n NgIf,\n Ng\n
TemplateOutlet,\n NgStyle,\n NgSwitch,\n NgSwitchCase,\n NgSwitchDefault,\n Ng\n
Plural,\n NgPluralCase,\n];\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file\n
at https://angular.io/license\n *\n function invalidPipeArgumentError(type, value) {\n return\n
Error(\n "InvalidPipeArgument: '" + value + "' for pipe '" + i0.stringify(type) + "'");\n }\n\n /**\n *\n
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this\n
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n
https://angular.io/license\n *\n var ObservableStrategy = /** @class */ (function () {\n function\n
ObservableStrategy() {\n }\n ObservableStrategy.prototype.createSubscription = function (async,\n
updateLatestValue) {\n return async.subscribe({\n next: updateLatestValue,\n error:\n
function (e) {\n throw e;\n };\n });\n }\n ObservableStrategy.prototype.dispose\n
= function (subscription) {\n subscription.unsubscribe();\n };\n
ObservableStrategy.prototype.onDestroy = function (subscription) {\n subscription.unsubscribe();\n };\n
return ObservableStrategy;\n }());\n var PromiseStrategy = /** @class */ (function () {\n function\n
PromiseStrategy() {\n }\n PromiseStrategy.prototype.createSubscription\n
= function (async, updateLatestValue) {\n return async.then(updateLatestValue, function (e) {\n throw e;\n });\n }\n PromiseStrategy.prototype.dispose = function (subscription) {\n }\n
PromiseStrategy.prototype.onDestroy = function (subscription) {\n }\n return PromiseStrategy;\n }());\n var\n
_promiseStrategy = new PromiseStrategy();\n var _observableStrategy = new ObservableStrategy();\n\n /**\n *\n
@ngModule CommonModule\n * @description\n *\n * Unwraps a value from an asynchronous primitive.\n *\n * The `async` pipe subscribes to an `Observable` or `Promise` and returns the latest value it has\n * emitted. When a new value is emitted, the `async` pipe marks the component to be checked for\n * changes. When the component gets destroyed, the `async` pipe unsubscribes automatically to avoid\n * potential memory\n
leaks.\n *\n * @usageNotes\n *\n * ### Examples\n *\n * This example binds a `Promise` to the view. Clicking the `Resolve` button resolves the\n * promise.\n *\n * {\n * @example common/pipes/ts/async_pipe.ts\n * region='AsyncPipePromise'\n * }\n *\n * It's also possible to

```

use `async` with Observables. The example below binds the `time` Observable to the view. The Observable continuously updates the view with the current time.

```

 * { @example common/pipes/ts/async_pipe.ts
 region='AsyncPipeObservable' }
 * @publicApi
 * /
 var AsyncPipe = /** @class */ (function () {
 function AsyncPipe(_ref) {
 this._ref = _ref;
 this._latestValue = null;
 this._subscription = null;
 this._obj = null;
 this._strategy = null;
 }
 AsyncPipe.prototype.ngOnDestroy = function () {
 if (this._subscription) {
 this._dispose();
 }
 };
 AsyncPipe.prototype.transform = function (obj) {
 if (!this._obj) {
 if (obj) {
 this._subscribe(obj);
 }
 return this._latestValue;
 }
 if (obj !== this._obj) {
 this._dispose();
 return this.transform(obj);
 }
 return this._latestValue;
 };
 AsyncPipe.prototype._subscribe = function (obj) {
 var _this = this;
 this._obj = obj;
 this._strategy = this._selectStrategy(obj);
 this._subscription = this._strategy.createSubscription(obj, function (value) {
 return _this._updateLatestValue(obj, value);
 });
 AsyncPipe.prototype._selectStrategy = function (obj) {
 if (i0.isPromise(obj)) {
 return _promiseStrategy;
 }
 if (i0.isObservable(obj)) {
 return _observableStrategy;
 }
 throw invalidPipeArgumentError(AsyncPipe, obj);
 };
 AsyncPipe.prototype._dispose = function () {
 this._strategy.dispose(this._subscription);
 this._latestValue = null;
 this._subscription = null;
 this._obj = null;
 };
 AsyncPipe.prototype._updateLatestValue = function (async, value) {
 if (async === this._obj) {
 this._latestValue = value;
 this._ref.markForCheck();
 }
 };
 return AsyncPipe;
 }());
 AsyncPipe.decorators = [
 { type: i0.Pipe, args: [{ name: 'async', pure: false },]]
];
 AsyncPipe.ctorParameters = function () { return [
 { type: i0.ChangeDetectorRef }
]; };
 /**
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 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
 })();

```

\* Transforms text to all lower case.

\* @see `UpperCasePipe`

\* @see `TitleCasePipe`

@usageNotes

\* The following example defines a view that allows the user to enter text, and then uses the pipe to convert the input text to all lower case.

```

path="common/pipes/ts/lowerupper_pipe.ts" region='LowerUpperCasePipe'></code-example>
 *
 @NgModule CommonModule
 * @publicApi
 * /
 var LowerCasePipe = /** @class */ (function () {
 function LowerCasePipe() {
 }
 LowerCasePipe.prototype.transform = function (value) {
 if (value == null) {
 return null;
 }
 if (typeof value !== 'string') {
 throw invalidPipeArgumentError(LowerCasePipe, value);
 }
 return value.toLowerCase();
 };
 return LowerCasePipe;
 }());
 LowerCasePipe.decorators = [
 { type: i0.Pipe, args: [{ name: 'lowercase' },]]
];
 // Regex below matches any Unicode word and compatible with ES5. In ES2018 the same result can be achieved by using /\p{L}\S*/gu and also known as Unicode Property Escapes (http://2ality.com/2017/07/regexp-unicode-property-escapes.html). Since there is no transpilation of this functionality down to ES5 without external tool, the only solution is to use already transpiled form. Example can be found here -
 //
 https://mothereff.in/regexpu#input=var+regex+%3D+%5Cp%7B%7D%u%3B&unicodePropertyEscape=1
 //
 var unicodeWordMatch = /(?:[A-Za-z]\xAA\xB5\xBA\xC0-\xD6\xD8-\xF6\xF8-\u02C1\u02C6-\u02D1\u02E0-\u02E4\u02EC\u02EE\u0370-\u0374\u0376\u0377\u037A-\u037D\u037F\u0386\u0388-\u038A\u038C\u038E-\u03A1\u03A3-\u03F5\u03F7-\u0481\u048A-\u052F\u0531-\u0556\u0559\u0561-\u0587\u05D0-\u05EA\u05F0-\u05F2\u0620-\u064A\u066E\u066F\u0671-\u06D3\u06D5\u06E5\u06E6\u06EE\u06EF\u06FA-\u06FC\u06FF\u0710\u0712-\u072F\u074D-\u07A5\u07B1\u07CA-\u07EA\u07F4\u07F5\u07FA\u0800-\u0815\u081A\u0824\u0828\u0840-\u0858\u0860-\u086A\u08A0-\u08B4\u08B6-\u08BD\u0904-\u0939\u093D\u0950\u0958-\u0961\u0971-\u0980\u0985-\u098C\u098F\u0990\u0993-\u09A8\u09AA-\u09B0\u09B2\u09B6-\u09B9\u09BD\u09CE\u09DC\u09DD\u09DF\u09E1\u09F0\u09F1\u09FC\u0A05-

```

\\u0A0A\\u0A0F\\u0A10\\u0A13-\\u0A28\\u0A2A-  
\\u0A30\\u0A32\\u0A33\\u0A35\\u0A36\\u0A38\\u0A39\\u0A59-\\u0A5C\\u0A5E\\u0A72-\\u0A74\\u0A85-  
\\u0A8D\\u0A8F-\\u0A91\\u0A93-\\u0AA8\\u0AAA-\\u0AB0\\u0AB2\\u0AB3\\u0AB5-  
\\u0AB9\\u0ABD\\u0AD0\\u0AE0\\u0AE1\\u0AF9\\u0B05-\\u0B0C\\u0B0F\\u0B10\\u0B13-\\u0B28\\u0B2A-  
\\u0B30\\u0B32\\u0B33\\u0B35-\\u0B39\\u0B3D\\u0B5C\\u0B5D\\u0B5F-\\u0B61\\u0B71\\u0B83\\u0B85-  
\\u0B8A\\u0B8E-\\u0B90\\u0B92-\\u0B95\\u0B99\\u0B9A\\u0B9C\\u0B9E\\u0B9F\\u0BA3\\u0BA4\\u0BA8-  
\\u0BAA\\u0BAE-\\u0BB9\\u0BD0\\u0C05-\\u0C0C\\u0C0E-\\u0C10\\u0C12-\\u0C28\\u0C2A-  
\\u0C39\\u0C3D\\u0C58-\\u0C5A\\u0C60\\u0C61\\u0C80\\u0C85-\\u0C8C\\u0C8E-\\u0C90\\u0C92-  
\\u0CA8\\u0CAA-\\u0CB3\\u0CB5-\\u0CB9\\u0CBD\\u0CDE\\u0CE0\\u0CE1\\u0CF1\\u0CF2\\u0D05-  
\\u0D0C\\u0D0E-\\u0D10\\u0D12-\\u0D3A\\u0D3D\\u0D4E\\u0D54-\\u0D56\\u0D5F-\\u0D61\\u0D7A-  
\\u0D7F\\u0D85-\\u0D96\\u0D9A-\\u0DB1\\u0DB3-\\u0DBB\\u0DBD\\u0DC0-\\u0DC6\\u0E01-  
\\u0E30\\u0E32\\u0E33\\u0E40-\\u0E46\\u0E81\\u0E82\\u0E84\\u0E87\\u0E88\\u0E8A\\u0E8D\\u0E94-  
\\u0E97\\u0E99-\\u0E9F\\u0EA1-\\u0EA3\\u0EA5\\u0EA7\\u0EAA\\u0EAB\\u0EAD-  
\\u0EB0\\u0EB2\\u0EB3\\u0EBD\\u0EC0-\\u0EC4\\u0EC6\\u0EDC-\\u0EDF\\u0F00\\u0F40-\\u0F47\\u0F49-  
\\u0F6C\\u0F88-\\u0F8C\\u1000-\\u102A\\u103F\\u1050-\\u1055\\u105A-\\u105D\\u1061\\u1065\\u1066\\u106E-  
\\u1070\\u1075-\\u1081\\u108E\\u10A0-\\u10C5\\u10C7\\u10CD\\u10D0-\\u10FA\\u10FC-\\u1248\\u124A-  
\\u124D\\u1250-\\u1256\\u1258\\u125A-\\u125D\\u1260-\\u1288\\u128A-\\u128D\\u1290-\\u12B0\\u12B2-  
\\u12B5\\u12B8-\\u12BE\\u12C0\\u12C2-\\u12C5\\u12C8-\\u12D6\\u12D8-\\u1310\\u1312-\\u1315\\u1318-  
\\u135A\\u1380-\\u138F\\u13A0-\\u13F5\\u13F8-\\u13FD\\u1401-\\u166C\\u166F-\\u167F\\u1681-\\u169A\\u16A0-  
\\u16EA\\u16F1-\\u16F8\\u1700-\\u170C\\u170E-\\u1711\\u1720-\\u1731\\u1740-\\u1751\\u1760-\\u176C\\u176E-  
\\u1770\\u1780-\\u17B3\\u17D7\\u17DC\\u1820-\\u1877\\u1880-\\u1884\\u1887-\\u18A8\\u18AA\\u18B0-  
\\u18F5\\u1900-\\u191E\\u1950-\\u196D\\u1970-\\u1974\\u1980-\\u19AB\\u19B0-\\u19C9\\u1A00-  
\\u1A16\\u1A20-\\u1A54\\u1AA7\\u1B05-\\u1B33\\u1B45-\\u1B4B\\u1B83-\\u1BA0\\u1BAE\\u1BAF\\u1BBA-  
\\u1BE5\\u1C00-\\u1C23\\u1C4D-\\u1C4F\\u1C5A-\\u1C7D\\u1C80-\\u1C88\\u1CE9-\\u1CEC\\u1CEE-  
\\u1CF1\\u1CF5\\u1CF6\\u1D00-\\u1DBF\\u1E00-\\u1F15\\u1F18-\\u1F1D\\u1F20-\\u1F45\\u1F48-  
\\u1F4D\\u1F50-\\u1F57\\u1F59\\u1F5B\\u1F5D\\u1F5F-\\u1F7D\\u1F80-\\u1FB4\\u1FB6-  
\\u1FBC\\u1FBE\\u1FC2-\\u1FC4\\u1FC6-\\u1FCC\\u1FD0-\\u1FD3\\u1FD6-\\u1FDB\\u1FE0-\\u1FEC\\u1FF2-  
\\u1FF4\\u1FF6-\\u1FFC\\u2071\\u207F\\u2090-\\u209C\\u2102\\u2107\\u210A-\\u2113\\u2115\\u2119-  
\\u211D\\u2124\\u2126\\u2128\\u212A-\\u212D\\u212F-\\u2139\\u213C-\\u213F\\u2145-  
\\u2149\\u214E\\u2183\\u2184\\u2C00-\\u2C2E\\u2C30-\\u2C5E\\u2C60-\\u2CE4\\u2CEB-  
\\u2CEE\\u2CF2\\u2CF3\\u2D00-\\u2D25\\u2D27\\u2D2D\\u2D30-\\u2D67\\u2D6F\\u2D80-\\u2D96\\u2DA0-  
\\u2DA6\\u2DA8-\\u2DAE\\u2DB0-\\u2DB6\\u2DB8-\\u2DBE\\u2DC0-\\u2DC6\\u2DC8-\\u2DCE\\u2DD0-  
\\u2DD6\\u2DD8-\\u2DDE\\u2E2F\\u3005\\u3006\\u3031-\\u3035\\u303B\\u303C\\u3041-\\u3096\\u309D-  
\\u309F\\u30A1-\\u30FA\\u30FC-\\u30FF\\u3105-\\u312E\\u3131-\\u318E\\u31A0-\\u31BA\\u31F0-  
\\u31FF\\u3400-\\u4DB5\\u4E00-\\u9FEA\\uA000-\\uA48C\\uA4D0-\\uA4FD\\uA500-\\uA60C\\uA610-  
\\uA61F\\uA62A\\uA62B\\uA640-\\uA66E\\uA67F-\\uA69D\\uA6A0-\\uA6E5\\uA717-\\uA71F\\uA722-  
\\uA788\\uA78B-\\uA7AE\\uA7B0-\\uA7B7\\uA7F7-\\uA801\\uA803-\\uA805\\uA807-\\uA80A\\uA80C-  
\\uA822\\uA840-\\uA873\\uA882-\\uA8B3\\uA8F2-\\uA8F7\\uA8FB\\uA8FD\\uA90A-\\uA925\\uA930-  
\\uA946\\uA960-\\uA97C\\uA984-\\uA9B2\\uA9CF\\uA9E0-\\uA9E4\\uA9E6-\\uA9EF\\uA9FA-\\uA9FE\\uAA00-  
\\uAA28\\uAA40-\\uAA42\\uAA44-\\uAA4B\\uAA60-\\uAA76\\uAA7A\\uAA7E-  
\\uAAAF\\uAABI\\uAAB5\\uAAB6\\uAAB9-\\uAABD\\uAAC0\\uAAC2\\uAADB-\\uAADD\\uAAE0-  
\\uAAEA\\uAAF2-\\uAAF4\\uAB01-\\uAB06\\uAB09-\\uAB0E\\uAB11-\\uAB16\\uAB20-\\uAB26\\uAB28-  
\\uAB2E\\uAB30-\\uAB5A\\uAB5C-\\uAB65\\uAB70-\\uABE2\\uAC00-\\uD7A3\\uD7B0-\\uD7C6\\uD7CB-  
\\uD7FB\\uF900-\\uFA6D\\uFA70-\\uFAD9\\uFB00-\\uFB06\\uFB13-\\uFB17\\uFB1D\\uFB1F-\\uFB28\\uFB2A-  
\\uFB36\\uFB38-\\uFB3C\\uFB3E\\uFB40\\uFB41\\uFB43\\uFB44\\uFB46-\\uFBB1\\uFBD3-\\uFD3D\\uFD50-  
\\uFD8F\\uFD92-\\uFDC7\\uFDF0-\\uFDFB\\uFE70-\\uFE74\\uFE76-\\uFEFC\\uFF21-\\uFF3A\\uFF41-  
\\uFF5A\\uFF66-\\uFFBE\\uFFC2-\\uFFC7\\uFFCA-\\uFFCF\\uFFD2-\\uFFD7\\uFFDA-  
\\uFFDCJ\\uD800[\\uDC00-\\uDC0B\\uDC0D-\\uDC26\\uDC28-\\uDC3A\\uDC3C\\uDC3D\\uDC3F-

\uDC4D\uDC50-\uDC5D\uDC80-\uDCFA\uDE80-\uDE9C\uDEA0-\uDED0\uDF00-\uDF1F\uDF2D-  
 \uDF40\uDF42-\uDF49\uDF50-\uDF75\uDF80-\uDF9D\uDFA0-\uDFC3\uDFC8-  
 \uDFCF]\u801[\uDC00-\uDC9D\uDCB0-\uDCD3\uDCD8-\uDCFB\uDD00-\uDD27\uDD30-  
 \uDD63\uDE00-\uDF36\uDF40-\uDF55\uDF60-\uDF67]\u802[\uDC00-\uDC05\uDC08\uDC0A-  
 \uDC35\uDC37\uDC38\uDC3C\uDC3F-\uDC55\uDC60-\uDC76\uDC80-\uDC9E\uDCE0-  
 \uDCF2\uDCF4\uDCF5\uDD00-\uDD15\uDD20-\uDD39\uDD80-  
 \uDDb7\uDDbE\uDDbF\uDE00\uDE10-\uDE13\uDE15-\uDE17\uDE19-\uDE33\uDE60-  
 \uDE7C\uDE80-\uDE9C\uDEC0-\uDEC7\uDEC9-\uDEE4\uDF00-\uDF35\uDF40-\uDF55\uDF60-  
 \uDF72\uDF80-\uDF91]\u803[\uDC00-\uDC48\uDC80-\uDCB2\uDCC0-\uDCF2]\u804[\uDC03-  
 \uDC37\uDC83-\uDCAF\uDCD0-\uDCE8\uDD03-\uDD26\uDD50-\uDD72\uDD76\uDD83-  
 \uDDb2\uDDc1-\uDDc4\uDDdA\uDDdC\uDE00-\uDE11\uDE13-\uDE2B\uDE80-  
 \uDE86\uDE88\uDE8A-\uDE8D\uDE8F-\uDE9D\uDE9F-\uDEA8\uDEB0-\uDEDE\uDF05-  
 \uDF0C\uDF0F\uDF10\uDF13-\uDF28\uDF2A-\uDF30\uDF32\uDF33\uDF35-  
 \uDF39\uDF3D\uDF50\uDF5D-\uDF61]\u805[\uDC00-\uDC34\uDC47-\uDC4A\uDC80-  
 \uDCAF\uDCC4\uDCC5\uDCC7\uDD80-\uDDAE\uDDd8-\uDDDB\uDE00-\uDE2F\uDE44\uDE80-  
 \uDEAA\uDF00-\uDF19]\u806[\uDCA0-\uDCDF\uDCFF\uDE00\uDE0B-  
 \uDE32\uDE3A\uDE50\uDE5C-\uDE83\uDE86-\uDE89\uDEC0-\uDEF8]\u807[\uDC00-  
 \uDC08\uDC0A-\uDC2E\uDC40\uDC72-\uDC8F\uDD00-\uDD06\uDD08\uDD09\uDD0B-  
 \uDD30\uDD46]\u808[\uDC00-\uDF99]\u809[\uDC80-\uDD43][\u80C\u81C-\u820\u840-  
 \u868\u86A-\u86C\u86F-\u872\u874-\u879][\uDC00-\uDFFF]\u80D[\uDC00-  
 \uDC2E]\u811[\uDC00-\uDE46]\u81A[\uDC00-\uDE38\uDE40-\uDE5E\uDED0-\uDEED\uDF00-  
 \uDF2F\uDF40-\uDF43\uDF63-\uDF77\uDF7D-\uDF8F]\u81B[\uDF00-\uDF44\uDF50\uDF93-  
 \uDF9F\uDFE0\uDFE1]\u821[\uDC00-\uDFEC]\u822[\uDC00-\uDEF2]\u82C[\uDC00-  
 \uDD1E\uDD70-\uDEFB]\u82F[\uDC00-\uDC6A\uDC70-\uDC7C\uDC80-\uDC88\uDC90-  
 \uDC99]\u835[\uDC00-\uDC54\uDC56-\uDC9C\uDC9E\uDC9F\uDCA2\uDCA5\uDCA6\uDCA9-  
 \uDCAC\uDCAE-\uDCB9\uDCBB\uDCBD-\uDCC3\uDCC5-\uDD05\uDD07-\uDD0A\uDD0D-  
 \uDD14\uDD16-\uDD1C\uDD1E-\uDD39\uDD3B-\uDD3E\uDD40-\uDD44\uDD46\uDD4A-  
 \uDD50\uDD52-\uDEA5\uDEA8-\uDEC0\uDEC2-\uDEDA\uDEDC-\uDEFA\uDEFC-\uDF14\uDF16-  
 \uDF34\uDF36-\uDF4E\uDF50-\uDF6E\uDF70-\uDF88\uDF8A-\uDFA8\uDFAA-\uDFC2\uDFC4-  
 \uDFCB]\u83A[\uDC00-\uDCC4\uDD00-\uDD43]\u83B[\uDE00-\uDE03\uDE05-  
 \uDE1F\uDE21\uDE22\uDE24\uDE27\uDE29-\uDE32\uDE34-  
 \uDE37\uDE39\uDE3B\uDE42\uDE47\uDE49\uDE4B\uDE4D-  
 \uDE4F\uDE51\uDE52\uDE54\uDE57\uDE59\uDE5B\uDE5D\uDE5F\uDE61\uDE62\uDE64\uDE67-  
 \uDE6A\uDE6C-\uDE72\uDE74-\uDE77\uDE79-\uDE7C\uDE7E\uDE80-\uDE89\uDE8B-  
 \uDE9B\uDEA1-\uDEA3\uDEA5-\uDEA9\uDEAB-\uDEBB]\u869[\uDC00-\uDED6\uDF00-  
 \uDFFF]\u86D[\uDC00-\uDF34\uDF40-\uDFFF]\u86E[\uDC00-\uDC1D\uDC20-  
 \uDFFF]\u873[\uDC00-\uDEA1\uDEB0-\uDFFF]\u87A[\uDC00-\uDFE0]\u87E[\uDC00-  
 \uDE1D)]\S\*/g;\n

/\*\*\n \* Transforms text to title case.\n \* Capitalizes the first letter of each word and transforms the\n \* rest of the word to lower case.\n \* Words are delimited by any whitespace character, such as a space, tab, or line-feed character.\n \* @see `LowerCasePipe`\n \* @see `UpperCasePipe`\n \* @usageNotes\n \* The following example shows the result of transforming various strings into title case.\n \*  
 <code-example path=\"common/pipes/ts/titlecase\_pipe.ts\" region=\"TitleCasePipe\"></code-example>\n \*  
 @NgModule CommonModule\n \* @publicApi\n \*/\n var TitleCasePipe = /\*\* @class \*/ (function () {\n function TitleCasePipe() {\n } \n TitleCasePipe.prototype.transform = function (value) {\n if (value == null)\n return null;\n if (typeof value !== 'string') {\n throw\n invalidPipeArgumentError(TitleCasePipe, value);\n } \n return value.replace(unicodeWordMatch, (function (txt) { return txt[0].toUpperCase() + txt.substr(1).toLowerCase(); }));\n };\n return

```

TitleCasePipe;\n }());\n TitleCasePipe.decorators = [\n
 { type: i0.Pipe, args: [{ name: 'titlecase' },]]\n];\n /**\n * Transforms text to all upper case.\n * @see
`LowerCasePipe`\n * @see `TitleCasePipe`\n * \n * @ngModule CommonModule\n * @publicApi\n
*\n var UpperCasePipe = /** @class */ (function () {\n function UpperCasePipe() {\n }\n
UpperCasePipe.prototype.transform = function (value) {\n if (value == null)\n return null;\n
if (typeof value !== 'string') {\n throw invalidPipeArgumentError(UpperCasePipe, value);\n }\n
return value.toUpperCase();\n };\n return UpperCasePipe;\n }());\n UpperCasePipe.decorators = [\n
{ type: i0.Pipe, args: [{ name: 'uppercase' },]]\n];\n\n /**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n
*\n // clang-format off\n /**\n * @ngModule CommonModule\n * @description\n * \n * Formats a
date value according to locale rules.\n * \n * Only the `en-US` locale data comes with Angular. To localize
dates\n * in another language, you must import the corresponding locale data.\n * See the [I18n
guide](guide/i18n#i18n-pipes) for more information.\n * \n * @see `formatDate()`\n * \n * \n *
@usageNotes\n * \n * The result of this pipe is not reevaluated when the input is mutated. To avoid the need
to\n * reformat the date on every change-detection cycle, treat the date as an immutable object\n * and change
the reference when the pipe needs to run again.\n * \n * ### Pre-defined format options\n * \n * Examples
are given in `en-US` locale.\n * \n * - `short`: equivalent to `M/d/yy, h:mm a` (`6/15/15, 9:03 AM`).\n * -
`medium`: equivalent to `MMM d, y, h:mm:ss a`\n
(`Jun 15, 2015, 9:03:01 AM`).\n * - `long`: equivalent to `MMMM d, y, h:mm:ss a z` (`June 15, 2015 at
9:03:01 AM\n * GMT+1`).\n * - `full`: equivalent to `EEEE, MMMM d, y, h:mm:ss a zzzz` (`Monday, June
15, 2015 at\n * 9:03:01 AM GMT+01:00`).\n * - `shortDate`: equivalent to `M/d/yy` (`6/15/15`).\n * -
`mediumDate`: equivalent to `MMM d, y` (`Jun 15, 2015`).\n * - `longDate`: equivalent to `MMMM d, y`\n
(`June 15, 2015`).\n * - `fullDate`: equivalent to `EEEE, MMMM d, y` (`Monday, June 15, 2015`).\n * -
`shortTime`: equivalent to `h:mm a` (`9:03 AM`).\n * - `mediumTime`: equivalent to `h:mm:ss a` (`9:03:01
AM`).\n * - `longTime`: equivalent to `h:mm:ss a z` (`9:03:01 AM GMT+1`).\n * - `fullTime`: equivalent to
`h:mm:ss a zzzz` (`9:03:01 AM GMT+01:00`).\n * \n * ### Custom format options\n * \n * You can
construct a format string using symbols to specify the components\n * of a date-time
value, as described in the following table.\n * Format details depend on the locale.\n * Fields marked with (*)
are only available in the extra data set for the given locale.\n * \n * | Field type | Format | Description
\n * |-----|-----|-----|
\n * | Example Value\n * |-----|-----|-----|
\n * | Era\n * |-----|-----|-----|
\n * | G, GG & GGG | Abbreviated\n * | AD\n * | \n * |
\n * | GGGG | Wide\n * | Anno Domini\n * | \n * |
\n * | GGGGG | Narrow\n * | A\n * | \n * |
\n * | Year\n * | y | Numeric: minimum digits\n * | \n * |
\n * | 2, 20, 201, 2017, 20173\n * | yy | Numeric: 2 digits + zero padded\n * | \n * |
\n * | 02, 20, 01, 17, 73\n * | yyy | Numeric: 3 digits + zero
padded\n * | \n * |
\n * | 002, 020, 201, 2017, 20173\n * | yyyy | \n * |
\n * | Numeric: 4 digits or more + zero padded\n * | 0002, 0020, 0201, 2017, 20173\n * | \n * |
\n * | Week-numbering year| Y | Numeric: minimum digits\n * | 2, 20, 201, 2017, 20173\n * | \n * |
\n * | YY | Numeric: 2 digits + zero padded\n * | \n * |
\n * | 02, 20, 01, 17, 73\n * | YYY | Numeric: 3 digits + zero
padded\n * | \n * |
\n * | 002, 020, 201, 2017, 20173\n * | YYYY | \n * |
\n * | Numeric: 4 digits or more + zero padded\n * | 0002, 0020, 0201, 2017, 20173\n * | \n * |
\n * | Month\n * | M | Numeric: 1 digit\n * | 9, 12\n * | \n * |
\n * | MM | Numeric: 2 digits + zero padded\n * | 09, 12\n * | \n * |
\n * | MMM | Abbreviated\n * | Sep

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\n *		MMMM   Wide		\n *		MMMMM   Narrow	
		September		\n *		Month standalone   L	
		S		\n *		LL	
Numeric: 1 digit		9, 12		\n *			
Numeric: 2 digits + zero padded		09, 12		\n *			
LLL   Abbreviated		Sep		\n *			
LLLL   Wide		September		\n *			
LLLLL				\n *			
Narrow		S		\n *		Week of year   w	
Numeric: minimum digits		1... 53		\n *			
ww   Numeric: 2 digits + zero padded		01... 53		\n *			
Week of month   W		Numeric: 1 digit		1... 5			
\n *   Day of month   d		Numeric: minimum digits		1			
\n *		dd   Numeric: 2 digits + zero padded		01			
\n *   Week							
day   E, EE & EEE   Abbreviated		Tue		\n			
*		EEEE   Wide		Tuesday		\n	
*		EEEEE   Narrow		T		\n	
*		EEEEEEE   Short		Tu		\n	
*   Period		a, aa & aaa   Abbreviated		am/pm or AM/PM			
\n *		aaaa   Wide (fallback to `a` when missing)		ante meridiem/post			
meridiem							
\n *		aaaaa   Narrow		a/p			
\n *   Period*		B, BB & BBB   Abbreviated		mid.			
\n *		BBBB   Wide		am, pm, midnight, noon,			
morning, afternoon, evening, night		\n *		BBBBB   Narrow			
md		\n *   Period standalone*		b, bb & bbb   Abbreviated			
mid.		\n *		bbbb   Wide			
am, pm, midnight, noon,							
morning, afternoon, evening, night		\n *		bbbbbb   Narrow			
md		\n *   Hour 1-12		h   Numeric: minimum digits			
1, 12		\n *		hh   Numeric: 2 digits + zero padded			
01, 12		\n *   Hour 0-23		H   Numeric: minimum digits			
0, 23		\n *		HH   Numeric: 2 digits +			
zero padded		00, 23		\n *   Minute		m	
Numeric: minimum digits							
8, 59		\n *		mm   Numeric: 2 digits + zero padded			
08, 59		\n *   Second		s   Numeric: minimum digits			
0... 59		\n *		ss   Numeric: 2 digits + zero			
padded		00... 59		\n *   Fractional seconds		S   Numeric:	
1 digit		0... 9		\n *		SS   Numeric:	
2 digits + zero padded		00... 99		\n *		SSS	
Numeric: 3 digits + zero padded (= milliseconds)							
000... 999		\n *   Zone		z, zz & zzz   Short specific non location			
format (fallback to O)		GMT-8		\n *		zzzz   Long	
specific non location format (fallback to OOOO)		GMT-08:00		\n *			
Z, ZZ & ZZZ   ISO8601 basic format		-0800		\n *			
ZZZZ   Long localized GMT format		GMT-8:00					

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\n * | | ZZZZZ | ISO8601 extended format + Z indicator for offset 0 (= XXXXX) | -08:00
\n * | | O, OO & OOO | Short localized
GMT format | GMT-8 |\n * | | OOOO |
Long localized GMT format | GMT-08:00 |\n * \n * Note
that timezone correction is not applied to an ISO string that has no time component, such as `2016-09-19` \n * \n
* ### Format examples \n * \n * These examples transform a date into various formats, \n * assuming that
`dateObj` is a JavaScript `Date` object for \n * year: 2015, month: 6, day: 15, hour: 21, minute: 43, second: 11, \n
* given in the local time for the `en-US` locale. \n * \n * `` \n * {{ dateObj | date }} // output is 'Jun
15, 2015' \n * {{ dateObj | date:'medium' }} // output is 'Jun 15, 2015, 9:43:11 PM' \n * {{ dateObj |
date:'shortTime' }} // output is '9:43 PM' \n * {{ dateObj | date:'mm:ss' }} //
output is '43:11' \n * `` \n * \n * ### Usage example \n * \n * The following component uses a date pipe
to display the current date in different formats. \n * \n * `` \n * @Component({ \n * selector: 'date-pipe', \n
* template: `<div>\n * <p>Today is {{today | date}}</p>\n * <p>Or if you prefer, {{today |
date:'fullDate'}}</p>\n * <p>The time is {{today | date:'h:mm a z'}}</p>\n * </div>` \n * }) \n * // Get
the current date and time as a date-time value. \n * export class DatePipeComponent { \n * today: number =
Date.now(); \n * } \n * `` \n * \n * @publicApi \n * \n * // clang-format on \n * var DatePipe = /** @class
*/ (function () { \n * function DatePipe(locale) { \n * this.locale = locale; \n * } \n
DatePipe.prototype.transform = function (value, format, timezone, locale) { \n * if (format === void 0) { format
= 'mediumDate'; \n * if (value == null
|| value === '' || value !== value) \n * return null; \n * try { \n * return formatDate(value, format,
locale || this.locale, timezone); \n * } \n * catch (error) { \n * throw
invalidPipeArgumentError(DatePipe, error.message); \n * } \n * }; \n * return DatePipe; \n * }()); \n
DatePipe.decorators = [\n * { type: i0.Pipe, args: [{ name: 'date', pure: true },] } \n *]; \n
DatePipe.ctorParameters = function () { return [\n * { type: String, decorators: [{ type: i0.Inject, args:
[i0.LOCALE_ID,] }] } \n *]; \n * }; \n * /** \n * @license \n * Copyright Google LLC All Rights Reserved. \n
* \n * Use of this source code is governed by an MIT-style license that can be \n * found in the LICENSE file at
https://angular.io/license \n * \n * var _INTERPOLATION_REGEXP = /#/g; \n * /** \n * @ngModule
CommonModule \n * @description \n * \n * Maps a value to a string that pluralizes
the value according to locale rules. \n * \n * @usageNotes \n * \n * ### Example \n * \n * {@example
common/pipes/ts/i18n_pipe.ts region='I18nPluralPipeComponent'} \n * \n * @publicApi \n * \n * var
I18nPluralPipe = /** @class */ (function () { \n * function I18nPluralPipe(_localization) { \n
this._localization = _localization; \n * } \n * /** \n * @param value the number to be formatted \n *
@param pluralMap an object that mimics the ICU format, see \n * http://userguide.icu-
project.org/formatparse/messages. \n * @param locale a `string` defining the locale to use (uses the current
{@link LOCALE_ID} by \n * default). \n * \n * I18nPluralPipe.prototype.transform = function (value,
pluralMap, locale) { \n * if (value == null) \n * return ''; \n * if (typeof pluralMap !== 'object' ||
pluralMap === null) { \n * throw invalidPipeArgumentError(I18nPluralPipe,
pluralMap); \n * } \n * var key = getPluralCategory(value, Object.keys(pluralMap), this._localization,
locale); \n * return pluralMap[key].replace(_INTERPOLATION_REGEXP, value.toString()); \n * }; \n
return I18nPluralPipe; \n * }()); \n * I18nPluralPipe.decorators = [\n * { type: i0.Pipe, args: [{ name: 'i18nPlural',
pure: true },] } \n *]; \n * I18nPluralPipe.ctorParameters = function () { return [\n * { type: NgLocalization } \n *];
}; \n * \n * /** \n * @license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code
is governed by an MIT-style license that can be \n * found in the LICENSE file at https://angular.io/license \n
* \n * \n * @ngModule CommonModule \n * @description \n * \n * Generic selector that displays the
string that matches the current value. \n * \n * If none of the keys of the `mapping` match the `value`, then the
content \n * of the `other` key is
returned when present, otherwise an empty string is returned. \n * \n * @usageNotes \n * \n * ###
Example \n * \n * {@example common/pipes/ts/i18n_pipe.ts region='I18nSelectPipeComponent'} \n * \n *

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@publicApi\n */\n var I18nSelectPipe = /** @class */ (function () {\n function I18nSelectPipe() {\n }\n /**\n * @param value a string to be internationalized.\n * @param mapping an object that indicates the text that should be displayed\n * for different values of the provided `value`.\n */\n I18nSelectPipe.prototype.transform = function (value, mapping) {\n if (value == null)\n return '';\n if (typeof mapping !== 'object' || typeof value !== 'string') {\n throw\n invalidPipeArgumentError(I18nSelectPipe, mapping);\n }\n if (mapping.hasOwnProperty(value)) {\n return mapping[value];\n }\n if (mapping.hasOwnProperty('other')) {\n return mapping['other'];\n }\n return '';\n };\n return I18nSelectPipe;\n }());\n I18nSelectPipe.decorators = [\n { type: i0.Pipe, args: [{ name: 'i18nSelect', pure: true },] }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @ngModule CommonModule\n * @description\n * Converts a value into its JSON-format representation. Useful for debugging.\n * @usageNotes\n * The following component uses a JSON pipe to convert an object\n * to JSON format, and displays the string in both formats for comparison.\n * {\n * @example common/pipes/ts/json_pipe.ts region='JsonPipe'\n * }\n * @publicApi\n */\n var\n JsonPipe = /** @class\n */ (function () {\n function JsonPipe() {\n }\n /**\n * @param value A value of any type to convert into a JSON-format string.\n */\n JsonPipe.prototype.transform = function (value) {\n return\n JSON.stringify(value, null, 2);\n };\n return JsonPipe;\n }());\n JsonPipe.decorators = [\n { type:\n i0.Pipe, args: [{ name: 'json', pure: false },] }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n * in the LICENSE file at https://angular.io/license\n */\n function makeKeyValuePair(key, value) {\n return {\n key: key, value: value\n };\n }\n /**\n * @ngModule CommonModule\n * @description\n * Transforms Object or Map into an array of key value pairs.\n * The output array will be ordered by keys.\n * By default the comparator\n * will be by Unicode point value.\n * You can optionally pass a compareFn if your keys are complex types.\n */\n * @usageNotes\n * ### Examples\n * This examples show how an Object or a Map can be iterated\n * by ngFor with the use of this\n * keyvalue pipe.\n * {\n * @example common/pipes/ts/keyvalue_pipe.ts\n * region='KeyValuePipe'\n * }\n * @publicApi\n */\n var KeyValuePipe = /** @class */ (function () {\n function KeyValuePipe(differ) {\n this.differ = differ;\n this.keyValues = [];\n }\n KeyValuePipe.prototype.transform = function (input, compareFn) {\n var _this = this;\n if (compareFn\n === void 0) { compareFn = defaultComparator; }\n if (!input || (!input instanceof Map) && typeof input !==\n 'object')) {\n return null;\n }\n if (!this.differ) {\n // make a differ for whatever type\n we've been passed in\n this.differ = this.differ.find(input).create();\n }\n var differChanges = this.differ.diff(input);\n if (differChanges) {\n this.keyValues = [];\n differChanges.forEachItem(function (r) {\n _this.keyValues.push(makeKeyValuePair(r.key, r.currentValue));\n });\n }\n this.keyValues.sort(compareFn);\n return this.keyValues;\n };\n return KeyValuePipe;\n }());\n KeyValuePipe.decorators = [\n { type: i0.Pipe, args: [{ name: 'keyvalue', pure: false },] }\n];\n KeyValuePipe.ctorParameters = function () { return [\n { type: i0.KeyValueDiffer }\n]; }\n function\n defaultComparator(keyValueA, keyValueB) {\n var a = keyValueA.key;\n var b = keyValueB.key;\n //\n if same exit with 0;\n if (a === b)\n return 0;\n // make sure that undefined are at the end of the\n sort.\n if (a === undefined)\n return 1;\n if (b === undefined)\n return -1;\n // make sure that\n nulls are at the end of the sort.\n if (a === null)\n return 1;\n if (b === null)\n return -1;\n if (typeof a === 'string' && typeof b === 'string') {\n return a < b ? -1 : 1;\n }\n if (typeof a === 'number'\n && typeof b === 'number') {\n return a - b;\n }\n if (typeof a === 'boolean' && typeof b === 'boolean') {\n return a < b ? -1 : 1;\n }\n // `a` and `b` are of different types. Compare their string values.\n }\n
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var aString = String(a);\n var bString = String(b);\n return aString === bString ? 0 : aString < bString ? -1 :
1;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE
file at https://angular.io/license\n * \n */\n * @ngModule CommonModule\n * @description\n * \n *
Transforms a number into a string,\n * formatted according to locale rules that determine group sizing and\n *
separator, decimal-point character, and other locale-specific\n * configurations.\n * \n * If no parameters are
specified, the function rounds off to the nearest value using this\n * [rounding
method](https://en.wikibooks.org/wiki/Arithmetic/Rounding).\n * The behavior differs from that of the JavaScript
``Math.round()`` function.\n * In the following case for example, the pipe rounds down where\n *
``Math.round()`` rounds up:\n * \n * ``html\n * -2.5 | number:'1.0-0'\n * > -3\n * Math.round(-2.5)\n * > -2\n * ``\n * \n * @see `formatNumber()`\n * \n * @usageNotes\n * The following code shows
how the pipe transforms numbers\n * into text strings, according to various format
specifications,\n * where the caller's default locale is `en-US`.\n * \n * ### Example\n * \n * <code-
example path=\"common/pipes/ts/number_pipe.ts\" region='NumberPipe'></code-example>\n * \n *
@publicApi\n * \n var DecimalPipe = /** @class */ (function () {\n function DecimalPipe(_locale) {\n
this._locale = _locale;\n }\n DecimalPipe.prototype.transform = function (value, digitsInfo, locale) {\n
if (!isValue(value))\n return null;\n locale = locale || this._locale;\n try {\n var
num = strToNumber(value);\n return formatNumber(num, locale, digitsInfo);\n }\n catch
(error) {\n throw invalidPipeArgumentError(DecimalPipe, error.message);\n }\n };\n return
DecimalPipe;\n})();\n DecimalPipe.decorators = [\n { type: i0.Pipe, args: [{ name: 'number' },] }\n];\n
DecimalPipe.ctorParameters
= function () { return [\n { type: String, decorators: [{ type: i0.Inject, args: [i0.LOCALE_ID,] }] }\n]; };\n
/**\n * @ngModule CommonModule\n * @description\n * \n * Transforms a number to a percentage\n
* string, formatted according to locale rules that determine group sizing and\n * separator, decimal-point
character, and other locale-specific\n * configurations.\n * \n * @see `formatPercent()`\n * \n *
@usageNotes\n * The following code shows how the pipe transforms numbers\n * into text strings, according
to various format specifications,\n * where the caller's default locale is `en-US`.\n * \n * <code-example
path=\"common/pipes/ts/percent_pipe.ts\" region='PercentPipe'></code-example>\n * \n * @publicApi\n * \n
var PercentPipe = /** @class */ (function () {\n function PercentPipe(_locale) {\n this._locale =
_locale;\n }\n PercentPipe.prototype.transform
= function (value, digitsInfo, locale) {\n if (!isValue(value))\n return null;\n locale = locale ||
this._locale;\n try {\n var num = strToNumber(value);\n return formatPercent(num, locale,
digitsInfo);\n }\n catch (error) {\n throw invalidPipeArgumentError(PercentPipe,
error.message);\n }\n };\n return PercentPipe;\n });\n PercentPipe.decorators = [\n { type:
i0.Pipe, args: [{ name: 'percent' },] }\n];\n PercentPipe.ctorParameters = function () { return [\n { type:
String, decorators: [{ type: i0.Inject, args: [i0.LOCALE_ID,] }] }\n]; };\n /**\n * @ngModule
CommonModule\n * @description\n * \n * Transforms a number to a currency string, formatted according to
locale rules\n * that determine group sizing and separator, decimal-point character,\n * and other locale-specific
configurations.\n * \n * { @a currency-code-deprecation }\n * <div class=\"alert is-helpful\">\n * \n *
Deprecation notice:\n * \n * The default currency code is currently always `USD` but this is deprecated
from v9.\n * \n * **In v11 the default currency code will be taken from the current locale identified by\n *
the `LOCAL_ID` token. See the [i18n guide](guide/i18n#setting-up-the-locale-of-your-app) for\n * more
information.**\n * \n * If you need the previous behavior then set it by creating a
`DEFAULT_CURRENCY_CODE` provider in\n * your application `NgModule`:\n * \n * ``ts\n *
{provide: DEFAULT_CURRENCY_CODE, useValue: 'USD'}\n * ``\n * \n * </div>\n * \n * @see
`getCurrencySymbol()`\n * @see `formatCurrency()`\n * \n * @usageNotes\n * The following code shows
how the pipe transforms numbers\n * into text strings, according to various format specifications,\n * where the
caller's

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default locale is `en-US`.\n *\n <code-example path=\"common/pipes/ts/currency_pipe.ts\"
region='CurrencyPipe'></code-example>\n *\n * @publicApi\n *\n var CurrencyPipe = /** @class */
(function () {\n function CurrencyPipe(_locale, _defaultCurrencyCode) {\n if (_defaultCurrencyCode
=== void 0) { _defaultCurrencyCode = 'USD'; }\n this._locale = _locale;\n this._defaultCurrencyCode
= _defaultCurrencyCode;\n }\n CurrencyPipe.prototype.transform = function (value, currencyCode,
display, digitsInfo, locale) {\n if (display === void 0) { display = 'symbol'; }\n if (!isValue(value))\n return null;\n locale = locale || this._locale;\n if (typeof display === 'boolean') {\n if
(console && console.warn) {\n console.warn(\"Warning: the currency pipe has been changed in Angular
v5. The symbolDisplay option (third parameter)
is now a string instead of a boolean. The accepted values are \"code\", \"symbol\" or \"symbol-
narrow\".\");\n }\n display = display ? 'symbol' : 'code';\n }\n var currency =
currencyCode || this._defaultCurrencyCode;\n if (display !== 'code') {\n if (display === 'symbol' ||
display === 'symbol-narrow') {\n currency = getCurrencySymbol(currency, display === 'symbol' ?
'wide' : 'narrow', locale);\n }\n else {\n currency = display;\n }\n }\n try {\n var num = strToNumber(value);\n return formatCurrency(num, locale, currency,
currencyCode, digitsInfo);\n }\n catch (error) {\n throw
invalidPipeArgumentError(CurrencyPipe, error.message);\n }\n };\n return CurrencyPipe;\n }());\n
CurrencyPipe.decorators
= [\n { type: i0.Pipe, args: [{ name: 'currency' },] }\n];\n
CurrencyPipe.ctorParameters = function () {\n return [\n { type: String, decorators: [{ type: i0.Inject, args: [i0.LOCALE_ID,] }] },\n { type: String,
decorators: [{ type: i0.Inject, args: [i0.DEFAULT_CURRENCY_CODE,] }] }\n];\n function isValue(value) {\n return !(value == null || value === \"\" || value !== value);\n }\n /**\n * Transforms a string into a
number (if needed).\n */\n function strToNumber(value) {\n // Convert strings to numbers\n if (typeof
value === 'string' && !isNaN(Number(value) - parseFloat(value))) {\n return Number(value);\n }\n if (typeof value !== 'number') {\n throw new Error(value + \" is not a number\");\n }\n return
value;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this
source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n *\n * @ngModule
CommonModule\n * @description\n *\n * Creates a new `Array` or `String` containing a subset (slice) of
the elements.\n *\n * @usageNotes\n *\n * All behavior is based on the expected behavior of the
JavaScript API `Array.prototype.slice()`\n * and `String.prototype.slice()`.\n *\n * When operating on an
`Array`, the returned `Array` is always a copy even when all\n * the elements are being returned.\n *\n *
When operating on a blank value, the pipe returns the blank value.\n *\n * ### List Example\n *\n * This
`ngFor` example:\n *\n * {@example common/pipes/ts/slice_pipe.ts region='SlicePipe_list'}\n *\n *
produces the following:\n *\n * ```html\n * b\n * c\n * ```\n *\n * ### String
Examples\n *\n * {@example common/pipes/ts/slice_pipe.ts
region='SlicePipe_string'}\n *\n * @publicApi\n *\n var SlicePipe = /** @class */ (function () {\n
function SlicePipe() {\n }\n SlicePipe.prototype.transform = function (value, start, end) {\n if (value
=== null)\n return null;\n if (!this.supports(value)) {\n throw
invalidPipeArgumentError(SlicePipe, value);\n }\n return value.slice(start, end);\n };\n SlicePipe.prototype.supports = function (obj) {\n return typeof obj === 'string' || Array.isArray(obj);\n };\n return SlicePipe;\n }());\n
SlicePipe.decorators = [\n { type: i0.Pipe, args: [{ name: 'slice', pure:
false },] }\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n *\n * A collection of Angular pipes that are likely to be used in each and every application.\n */\n var
COMMON_PIPES = [\n AsyncPipe,\n UpperCasePipe,\n LowerCasePipe,\n JsonPipe,\n SlicePipe,\n DecimalPipe,\n PercentPipe,\n TitleCasePipe,\n CurrencyPipe,\n DatePipe,\n

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I18nPluralPipe,\n I18nSelectPipe,\n KeyValuePipe,\n];\n\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n */\n // Note: This does not contain the
location providers,\n // as they need some platform specific implementations to work.\n /**\n * Exports all the
basic Angular directives and pipes,\n * such as `NgIf`, `NgForOf`, `DecimalPipe`, and so on.\n * Re-exported
by `BrowserModule`, which is included automatically
in the root\n * `AppModule` when you create a new app with the CLI `new` command.\n *\n * The
`providers` options configure the NgModule's injector to provide\n * localization dependencies to members.\n *
The `exports` options make the declared directives and pipes available for import\n * by other NgModules.\n
*\n * @publicApi\n */\n var CommonModule = /** @class */ (function () {\n function
CommonModule() {\n }\n return CommonModule;\n })();\n CommonModule.decorators = [{\n {\n
type: i0 NgModule, args: [{\n declarations: [COMMON_DIRECTIVES, COMMON_PIPES],\n
 exports: [COMMON_DIRECTIVES, COMMON_PIPES],\n providers: [\n {\n provide:
NgLocalization, useClass: NgLocaleLocalization },\n],\n },\n },\n];\n\n /**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n var PLATFORM_BROWSER_ID = 'browser';\n var
PLATFORM_SERVER_ID = 'server';\n var PLATFORM_WORKER_APP_ID = 'browserWorkerApp';\n var
PLATFORM_WORKER_UI_ID = 'browserWorkerUi';\n /**\n * Returns whether a platform id represents a
browser platform.\n * @publicApi\n */\n function isPlatformBrowser(platformId) {\n return platformId
=== PLATFORM_BROWSER_ID;\n }\n /**\n * Returns whether a platform id represents a server
platform.\n * @publicApi\n */\n function isPlatformServer(platformId) {\n return platformId ===
PLATFORM_SERVER_ID;\n }\n /**\n * Returns whether a platform id represents a web worker app
platform.\n * @publicApi\n */\n function isPlatformWorkerApp(platformId) {\n return platformId ===
PLATFORM_WORKER_APP_ID;\n }\n /**\n * Returns whether
a platform id represents a web worker UI platform.\n * @publicApi\n */\n function
isPlatformWorkerUi(platformId) {\n return platformId === PLATFORM_WORKER_UI_ID;\n }\n\n /**\n
 * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n
 * @publicApi\n */\n var VERSION = new i0.Version('11.0.2');\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Defines a scroll position manager.
Implemented by `BrowserViewportScroller`.\n *\n * @publicApi\n */\n var ViewportScroller = /** @class
*/ (function () {\n function ViewportScroller() {\n }\n return
ViewportScroller;\n })();\n // De-sugared tree-shakable injection\n // See #23917\n /** @nocollapse */\n
ViewportScroller.prototype = i0.defineInjectable({\n token: ViewportScroller,\n providedIn: 'root',\n
factory: function () { return new BrowserViewportScroller(i0.inject(DOCUMENT), window,
i0.inject(i0.ErrorHandler)); }\n });\n\n /**\n * Manages the scroll position for a browser window.\n */\n var
BrowserViewportScroller = /** @class */ (function () {\n function BrowserViewportScroller(document,
window, errorHandler) {\n this.document = document;\n this.window = window;\n
 this.errorHandler = errorHandler;\n this.offset = function () { return [0, 0]; }\n }\n\n /**
 * Configures the top offset used when scrolling to an anchor.\n * @param offset A position in screen coordinates
(a tuple with x and y values)\n * or a function that returns the
top offset position.\n */\n BrowserViewportScroller.prototype.setOffset = function (offset) {\n
 if (Array.isArray(offset)) {\n this.offset = function () { return offset; }\n } else {\n
 this.offset = offset;\n }\n }\n\n /**\n * Retrieves the current scroll position.\n * @returns
The position in screen coordinates.\n */\n BrowserViewportScroller.prototype.getScrollPosition = function
() {\n if (this.supportsScrolling()) {\n return [this.window.scrollX, this.window.scrollY];\n }\n }\n });\n

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}\n else {\n return [0, 0];\n }\n });\n /**\n * Sets the scroll position.\n *\n * @param position The new position in screen coordinates.\n */\n BrowserViewportScroller.prototype.scrollToPosition = function (position) {\n if (this.supportsScrolling()) {\n this.window.scrollTo(position[0], position[1]);\n }\n });\n /**\n * Scrolls to an anchor element.\n * @param anchor The ID of the anchor element.\n */\n BrowserViewportScroller.prototype.scrollToAnchor = function (anchor) {\n if (this.supportsScrolling()) {\n var elSelected = this.document.getElementById(anchor) || this.document.getElementsByName(anchor)[0];\n if (elSelected) {\n this.scrollToElement(elSelected);\n }\n }\n });\n /**\n * Disables automatic scroll restoration provided by the browser.\n */\n BrowserViewportScroller.prototype.setHistoryScrollRestoration = function (scrollRestoration) {\n if (this.supportScrollRestoration()) {\n var history = this.window.history;\n if (history && history.scrollRestoration) {\n history.scrollRestoration = scrollRestoration;\n }\n }\n });\n BrowserViewportScroller.prototype.scrollToElement = function (el) {\n var rect = el.getBoundingClientRect();\n var left = rect.left + this.window.pageXOffset;\n var top = rect.top + this.window.pageYOffset;\n var offset = this.offset();\n this.window.scrollTo(left - offset[0], top - offset[1]);\n });\n /**\n * We only support scroll restoration when we can get a hold of window.\n * This means that we do not support this behavior when running in a web worker.\n * Lifting this restriction right now would require more changes in the dom adapter.\n * Since webworkers aren't widely used, we will lift it once RouterScroller is\n * battle-tested.\n */\n BrowserViewportScroller.prototype.supportScrollRestoration = function () {\n try {\n if (!this.window || !this.window.scrollTo) {\n return false;\n }\n // The `scrollRestoration` property could be on the `history` instance or its prototype.\n var scrollRestorationDescriptor = getScrollRestorationProperty(this.window.history) || getScrollRestorationProperty(Object.getPrototypeOf(this.window.history));\n // We can write to the `scrollRestoration` property if it is a writable data field or it has a\n // setter function.\n return !!scrollRestorationDescriptor && !(scrollRestorationDescriptor.writable || scrollRestorationDescriptor.set);\n } catch (_a) {\n return false;\n }\n });\n BrowserViewportScroller.prototype.supportsScrolling = function () {\n try {\n return !!this.window.scrollTo;\n } catch (_a) {\n return false;\n }\n });\n return BrowserViewportScroller; }();\n function getScrollRestorationProperty(obj) {\n return Object.getOwnPropertyDescriptor(obj, 'scrollRestoration');\n }\n /**\n * Provides an empty implementation of the viewport scroller.\n */\n var NullViewportScroller = /**\n * Empty implementation\n */\n NullViewportScroller.prototype.setOffset = function (offset) {\n // Empty implementation\n }\n NullViewportScroller.prototype.getScrollPosition = function () {\n return [0, 0];\n }; \n /**\n * Empty implementation\n */\n NullViewportScroller.prototype.scrollToPosition = function (position) {\n // Empty implementation\n }\n NullViewportScroller.prototype.scrollToAnchor = function (anchor) {\n // Empty implementation\n }\n NullViewportScroller.prototype.setHistoryScrollRestoration = function (scrollRestoration) {\n return NullViewportScroller; }();\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at\n * https://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at\n * https://angular.io/license\n */\n // This file only reexports content of the `src` folder. Keep it that way.\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */

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Found in path(s):

\* /common-11-0-2-tgz/package/bundles/common.umd.min.js.map

No license file was found, but licenses were detected in source scan.

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{ "version": 3, "file": "upgrade.js", "sources": ["../../../../packages/common/upgrade/src/utlils.ts", "../../../../packages/common/upgrade/src/location_shim.ts", "../../../../packages/common/upgrade/src/params.ts", "../../../../packages/common/upgrade/src/location_upgrade_module.ts", "../../../../packages/common/upgrade/src/index.ts", "../../../../packages/common/upgrade/public_api.ts", "../../../../packages/common/upgrade/index.ts", "../../../../packages/common/upgrade/upgrade.ts"], "sourcesContent": ["/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nexport function stripPrefix(val: string, prefix: string): string {\n return val.startsWith(prefix) ? val.substring(prefix.length) : val;\n}\n\nexport function deepEqual(a: any, b: any): boolean {\n if (a === b) {\n return true;\n } else if (!a || !b) {\n return false;\n } else {\n try {\n if ((a.prototype !== b.prototype) || (Array.isArray(a) && Array.isArray(b))) {\n return false;\n }\n return JSON.stringify(a) === JSON.stringify(b);\n } catch (e) {\n return false;\n }\n }\n}\n\nexport function isAnchor(el: (Node & ParentNode) | Element | null): el is HTMLAnchorElement {\n return (<HTMLAnchorElement>el).href !== undefined;\n}\n\nexport function isPromise<T> = any>(obj: any): obj is Promise<T> {\n // allow any Promise/A+ compliant thenable.\n // It's up to the caller to ensure that obj.then conforms to the spec\n return !!obj && typeof obj.then === 'function';\n}\n\n", "/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport { Location, LocationStrategy, PlatformLocation }\n\nfrom '@angular/common';\nimport { UpgradeModule } from '@angular/upgrade/static';\nimport { ReplaySubject }\nfrom 'rxjs';\nimport { UrlCodec } from './params';\nimport { deepEqual, isAnchor, isPromise } from './utlils';\n\nconst PATH_MATCH = /^(?[#]*)\\/(?!(^#*))?(#.*)?$/;\nconst DOUBLE_SLASH_REGEX = /^\\s*[\\/\\\\]{2,}/;\nconst IGNORE_URI_REGEXP = /^\\s*(javascript|mailto):/i;\nconst DEFAULT_PORTS: { [key: string]: number } = {\n 'http:': 80,\n 'https:': 443,\n 'ftp:': 21\n};\n\n/**\n * Location service that provides a drop-in replacement for the $location service\n * provided in AngularJS.\n * @see [Using the Angular Unified Location Service](guide/upgrade#using-the-unified-angular-location-service)\n */\n * @publicApi\n */\nexport class $locationShim {\n private initializing = true;\n private updateBrowser = false;\n private $$absUrl: string = '';\n private $$url: string = '';\n private $$protocol: string;\n private $$host: string = '';\n private $$port: number | null;\n private $$replace: boolean = false;\n private $$path: string = '';\n private $$search: any = '';\n private $$hash: string = '';\n private $$state: unknown;\n private $$changeListeners: [(url: string, state: unknown, oldUrl: string, oldState: unknown, err?: (e: Error) => void) => void] = [];\n private cachedState: unknown = null;\n private urlChanges = new ReplaySubject<{ newUrl: string, newState: unknown }>(1);\n\n constructor(\n $injector: any,\n private location: Location,\n private platformLocation: PlatformLocation,\n private urlCodec: UrlCodec,\n private locationStrategy: LocationStrategy\n) {\n const\n initialUrl = this.browserUrl();\n let parsedUrl = this.urlCodec.parse(initialUrl);\n if (typeof parsedUrl === 'string') {\n throw 'Invalid URL';\n }\n this.$$protocol = parsedUrl.protocol;\n this.$$host = parsedUrl.hostname;\n this.$$port = parseInt(parsedUrl.port) || DEFAULT_PORTS[parsedUrl.protocol] || null;\n this.$$parseLinkUrl(initialUrl, initialUrl);\n this.cacheState();\n this.$$state = this.browserState();\n this.location.onUrlChange((newUrl, newState) => {\n this.urlChanges.next({ newUrl, newState });\n });\n if (isPromise($injector)) {\n $injector.then($i => this.initialize($i));\n } else {\n this.initialize($injector);\n }\n\n private initialize($injector: any) {\n const $rootScope = $injector.get('$rootScope');\n const $rootElement = $injector.get('$rootElement');\n $rootElement.on('click', (event: any) => {\n if (event.ctrlKey || event.metaKey || event.shiftKey || event.which === 2 || event.button === 2) {\n return;\n }\n let elm: (Node & ParentNode) | null = event.target;\n // traverse
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the DOM up to find first A tag\n while (elm && elm.nodeName.toLowerCase() !== 'a') {\n // ignore
rewriting if no A tag (reached root element, or no parent - removed
from document)\n if (elm === $rootElement[0] || !(elm = elm.parentNode)) {\n return;\n }\n if (!isAnchor(elm)) {\n return;\n }\n const absHref = elm.href;\n const relHref =
elm.getAttribute('href');\n // Ignore when url is started with javascript: or mailto:\n if
(IGNORE_URI_REGEX.test(absHref)) {\n return;\n }\n if (absHref && !elm.getAttribute('target')
&& !event.isDefaultPrevented()) {\n if (this.$$parseLinkUrl(absHref, relHref)) {\n // We do a
preventDefault for all urls that are part of the AngularJS application,\n // in html5mode and also without, so
that we are able to abort navigation without\n // getting double entries in the location history.\n event.preventDefault();\n // update location manually\n if (this.absUrl() !== this.browserUrl()) {\n
$rootScope.$apply();\n }\n }\n });\n }\n this.urlChanges.subscribe(({ newUrl, newState }) => {\n const oldUrl = this.absUrl();\n const oldState =
this.$$state;\n this.$$parse(newUrl);\n newUrl = this.absUrl();\n this.$$state = newState;\n const
defaultPrevented =\n $rootScope.$broadcast('$locationChangeStart', newUrl, oldUrl, newState, oldState)\n .defaultPrevented;\n // if the location was changed by a '$locationChangeStart' handler then stop\n //
processing this location change\n if (this.absUrl() !== newUrl) return;\n // If default was prevented, set back
to old state. This is the state that was locally\n // cached in the $location service.\n if (defaultPrevented) {\n
this.$$parse(oldUrl);\n this.state(oldState);\n this.setBrowserUrlWithFallback(oldUrl, false, oldState);\n
this.$$notifyChangeListeners(this.url(), this.$$state, oldUrl, oldState);\n } else {\n this.initializing = false;\n
 $rootScope.$broadcast('$locationChangeSuccess',
newUrl, oldUrl, newState, oldState);\n this.resetBrowserUpdate();\n }\n if (!$rootScope.$$phase) {\n
$rootScope.$digest();\n }\n });\n }\n // update browser\n $rootScope.$watch(() => {\n if (this.initializing ||
this.updateBrowser) {\n this.updateBrowser = false;\n }\n const oldUrl = this.browserUrl();\n const
newUrl = this.absUrl();\n const oldState = this.browserState();\n let currentReplace = this.$$replace;\n const urlOrStateChanged =\n !this.urlCodec.areEqual(oldUrl, newUrl) || oldState !== this.$$state;\n //
Fire location changes one time to on initialization. This must be done on the\n // next tick (thus inside
$evalAsync()) in order for listeners to be registered\n // before the event fires. Mimicing behavior from
$locationWatch:\n // https://github.com/angular/angular.js/blob/master/src/ng/location.js#L983\n
if (this.initializing || urlOrStateChanged) {\n this.initializing = false;\n $rootScope.$evalAsync(() => {\n
 // Get the new URL again since it could have changed due to async update\n const newUrl =
this.absUrl();\n const defaultPrevented =\n $rootScope\n .broadcast('$locationChangeStart', newUrl, oldUrl, this.$$state, oldState)\n .defaultPrevented;\n // if the location was changed by a '$locationChangeStart' handler then stop\n // processing this location
change\n if (this.absUrl() !== newUrl) return;\n if (defaultPrevented) {\n
this.$$parse(oldUrl);\n this.$$state = oldState;\n } else {\n // This block doesn't run when
initializing because it's going to perform the update to\n // the URL which shouldn't be needed when
initializing.\n if (urlOrStateChanged) {\n
 this.setBrowserUrlWithFallback(\n newUrl, currentReplace, oldState === this.$$state ? null :
this.$$state);\n this.$$replace = false;\n }\n $rootScope.$broadcast(\n
'$locationChangeSuccess', newUrl, oldUrl, this.$$state, oldState);\n if (urlOrStateChanged) {\n
this.$$notifyChangeListeners(this.url(), this.$$state, oldUrl, oldState);\n }\n });\n }\n this.$$replace = false;\n });\n }\n }\n private resetBrowserUpdate() {\n this.$$replace = false;\n
this.$$state = this.browserState();\n this.updateBrowser = false;\n this.lastBrowserUrl = this.browserUrl();\n
 }\n private lastHistoryState: unknown;\n private lastBrowserUrl: string = '';\n private browserUrl(): string;\n
 private browserUrl(url: string, replace?: boolean, state?: unknown): this;\n private browserUrl(url?: string, replace?:
boolean,
state?: unknown) {\n // In modern browsers `history.state` is `null` by default; treating it separately\n // from
`undefined` would cause `$browser.url('/foo')` to change `history.state`\n // to undefined via `pushState`. Instead,

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let's change `undefined` to `null` here.\n if (typeof state === 'undefined') {\n state = null;\n }\n\n // setter\n if (url) {\n let sameState = this.lastHistoryState === state;\n\n // Normalize the inputted URL\n url =\n this.urlCodec.parse(url).href;\n\n // Don't change anything if previous and current URLs and states match.\n if\n (this.lastBrowserUrl === url && sameState) {\n return this;\n }\n\n this.lastBrowserUrl = url;\n this.lastHistoryState = state;\n\n // Remove server base from URL as the Angular APIs for updating URL\n require\n // it to be the path+.\n url = this.stripBaseUrl(this.getServerBase(), url) || url;\n\n // Set the URL\n if (replace) {\n this.locationStrategy.replaceState(state, "", url, "");\n } else {\n this.locationStrategy.pushState(state, "", url,\n "");\n }\n\n this.cacheState();\n\n return this;\n } // getter\n } else {\n return\n this.platformLocation.href;\n }\n}\n\n// This variable should be used *only* inside the cacheState function.\nprivate lastCachedState: unknown = null;\nprivate cacheState() {\n // This should be the only place in $browser\n where `history.state` is read.\n this.cachedState = this.platformLocation.getState();\n if (typeof this.cachedState\n === 'undefined') {\n this.cachedState = null;\n }\n\n // Prevent callbacks fo fire twice if both hashchange &\n popstate were fired.\n if (deepEqual(this.cachedState, this.lastCachedState)) {\n this.cachedState =\n this.lastCachedState;\n }\n\n this.lastCachedState = this.cachedState;\n this.lastHistoryState =\n this.cachedState;\n}\n\n/**\n * This function emulates the $browser.state()\n function from AngularJS. It will cause\n * history.state to be cached unless changed with deep equality check.\n */\nprivate browserState(): unknown {\n return this.cachedState;\n}\n\nprivate stripBaseUrl(base: string, url:\n string) {\n if (url.startsWith(base)) {\n return url.substr(base.length);\n }\n return undefined;\n}\n\nprivate getServerBase() {\n const {protocol, hostname, port} = this.platformLocation;\n const baseHref =\n this.locationStrategy.getBaseHref();\n let url = `${protocol}/${hostname}${port ? ':' + port : ''}${baseHref ||\n '/'}`;\n return url.endsWith('/') ? url : url + '/';\n}\n\nprivate parseAppUrl(url: string) {\n if\n (DOUBLE_SLASH_REGEX.test(url)) {\n throw new Error(`Bad Path - URL cannot start with double slashes:\n ${url}`);\n }\n\n let prefixed = (url.charAt(0) !== '/');\n if (prefixed) {\n url = '/' + url;\n }\n\n let match =\n this.urlCodec.parse(url, this.getServerBase());\n\n if (typeof match === 'string') {\n throw new Error(`Bad URL - Cannot parse URL: ${url}`);\n }\n\n let path\n =\n prefixed && match.pathname.charAt(0) === '/' ? match.pathname.substring(1) : match.pathname;\n this.$$path = this.urlCodec.decodePath(path);\n this.$$search = this.urlCodec.decodeSearch(match.search);\n this.$$hash = this.urlCodec.decodeHash(match.hash);\n\n // make sure path starts with '/';\n if (this.$$path &&\n this.$$path.charAt(0) !== '/') {\n this.$$path = '/' + this.$$path;\n }\n}\n\n/**\n * Registers listeners for\n URL changes. This API is used to catch updates performed by the\n * AngularJS framework. These changes are a\n subset of the `$locationChangeStart` and\n * `$locationChangeSuccess` events which fire when AngularJS updates\n its internally-referenced\n * version of the browser URL.\n *\n * It's possible for `$locationChange` events to\n happen, but for the browser URL\n * (window.location) to remain unchanged.\n\n This `onChange` callback will fire only when AngularJS\n * actually updates the browser URL\n (window.location).\n *\n * @param fn The callback function that is triggered for the listener when the URL\n changes.\n * @param err The callback function that is triggered when an error occurs.\n */\n onChange(\n fn:\n (url: string, state: unknown, oldUrl: string, oldState: unknown) => void,\n err: (e: Error) => void = (e: Error) =>\n {})\n {\n this.$$changeListeners.push([fn, err]);\n }\n\n /**\n * @internal\n */\n $notifyChangeListeners(\n url:\n string = "", state: unknown, oldUrl: string = "", oldState: unknown)\n {\n this.$$changeListeners.forEach(([fn, err]) =>\n {\n try {\n fn(url, state, oldUrl, oldState);\n } catch (e) {\n err(e);\n }\n });\n }\n\n /**\n *\n * Parses the provided URL, and sets the current URL to the parsed result.\n *\n * @param url The URL string.\n */\n $parse(url: string) {\n let pathUrl: string|undefined;\n\n if (url.startsWith('/')) {\n pathUrl = url;\n } else {\n // Remove protocol & hostname if URL starts with\n it\n pathUrl = this.stripBaseUrl(this.getServerBase(), url);\n }\n\n if (typeof pathUrl === 'undefined') {\n throw new Error(`Invalid url "${url}", missing path prefix "${this.getServerBase()}".`);\n }\n\n this.parseAppUrl(pathUrl);\n\n if (!this.$$path) {\n this.$$path = '/';\n }\n\n this.composeUrls();\n }\n\n /**\n *\n * Parses the provided URL and its relative URL.\n *\n * @param url The full URL string.\n * @param

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relHref A URL string relative to the full URL string.\n */\n $$parseLinkUrl(url: string, relHref?: string|null):
boolean {\n // When relHref is passed, it should be a hash and is handled separately\n if (relHref && relHref[0]
=== '#') {\n this.hash(relHref.slice(1));\n return true;\n }\n let rewrittenUrl;\n let appUrl =
this.stripBaseUrl(this.getServerBase(), url);\n if (typeof
appUrl !== 'undefined') {\n rewrittenUrl = this.getServerBase() + appUrl;\n } else if (this.getServerBase() ===
url + '/') {\n rewrittenUrl = this.getServerBase();\n }\n // Set the URL\n if (rewrittenUrl) {\n
this.$$parse(rewrittenUrl);\n }\n return !!rewrittenUrl;\n }\n\n private setBrowserUrlWithFallback(url: string,
replace: boolean, state: unknown) {\n const oldUrl = this.url();\n const oldState = this.$$state;\n try {\n
this.browserUrl(url, replace, state);\n\n // Make sure $location.state() returns referentially identical (not just
deeply equal)\n // state object; this makes possible quick checking if the state changed in the digest\n // loop.
Checking deep equality would be too expensive.\n this.$$state = this.browserState();\n } catch (e) {\n //
Restore old values if pushState fails\n this.url(oldUrl);\n this.$$state = oldState;\n\n throw e;\n }\n }\n\n
private composeUrls() {\n
this.$$url = this.urlCodec.normalize(this.$$path, this.$$search, this.$$hash);\n this.$absUrl =
this.getServerBase() + this.$$url.substr(1); // remove '/' from front of URL\n this.updateBrowser = true;\n }\n\n
/**\n * Retrieves the full URL representation with all segments encoded according to\n * rules specified in\n *
[RFC 3986](http://www.ietf.org/rfc/rfc3986.txt).\n *\n *```\njs\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let absUrl = $location.absUrl();\n * // =>
"http://example.com/#/some/path?foo=bar&baz=xoxo"\n * ```\n */\n absUrl(): string {\n return
this.$absUrl;\n }\n\n /**\n * Retrieves the current URL, or sets a new URL. When setting a URL,\n * changes
the path, search, and hash, and returns a reference to its own instance.\n *\n *```\njs\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let url = $location.url();\n * // =>
"/some/path?foo=bar&baz=xoxo"\n * ```\n */\n
url(): string;\n url(url: string): this;\n url(url?: string): string|this {\n if (typeof url === 'string') {\n if
(!url.length) {\n url = '/';\n }\n\n const match = PATH_MATCH.exec(url);\n if (!match) return this;\n
if (match[1] || url === "") this.path(this.urlCodec.decodePath(match[1]));\n if (match[2] || match[1] || url === "")
this.search(match[3] || "");\n this.hash(match[5] || "");\n\n // Chainable method\n return this;\n }\n\n return
this.$$url;\n }\n\n /**\n * Retrieves the protocol of the current URL.\n *\n *```\njs\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let protocol = $location.protocol();\n * // => "http"\n
* ```\n */\n protocol(): string {\n return this.$$protocol;\n }\n\n /**\n * Retrieves the protocol of the current
URL.\n *\n * In contrast to the non-AngularJS version `location.host` which returns `hostname:port`, this\n *
returns the `hostname`
portion only.\n *\n *```\njs\n * // given URL http://example.com/#/some/path?foo=bar&baz=xoxo\n * let
host = $location.host();\n * // => "example.com"\n * ```\n */\n given URL
http://user:password@example.com:8080/#/some/path?foo=bar&baz=xoxo\n * host = $location.host();\n * // =>
"example.com"\n * host = location.host;\n * // => "example.com:8080"\n * ```\n */\n host(): string {\n
return this.$$host;\n }\n\n /**\n * Retrieves the port of the current URL.\n *\n *```\njs\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n * let port = $location.port();\n * // => 80\n * ```\n */\n
port(): number|null {\n return this.$$port;\n }\n\n /**\n * Retrieves the path of the current URL, or changes the
path and returns a reference to its own\n * instance.\n *\n * Paths should always begin with forward slash (/).
This method adds the forward slash\n * if it is missing.\n *\n *```\njs\n * // given URL
http://example.com/#/some/path?foo=bar&baz=xoxo\n
* let path = $location.path();\n * // => "/some/path"\n * ```\n */\n path(): string;\n path(path:
string|number|null): this;\n path(path?: string|number|null): string|this {\n if (typeof path === 'undefined') {\n
return this.$$path;\n }\n\n // null path converts to empty string. Prepend with "/" if needed.\n path = path !==
null ? path.toString() : "";\n path = path.charAt(0) === '/' ? path : '/' + path;\n\n this.$$path = path;\n
this.composeUrls();\n return this;\n }\n\n /**\n * Retrieves a map of the search parameters of the current URL,
or changes a search\n * part and returns a reference to its own instance.\n *\n *```\njs\n * // given URL
```

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http://example.com/#/some/path?foo=bar&baz=xoxo\n * let searchObject = $location.search();\n * // => {foo:
'bar', baz: 'xoxo'}\n * \n * // set foo to 'yipee'\n * $location.search('foo', 'yipee');\n * // $location.search() =>
{foo:
'yipee', baz: 'xoxo'}\n * ```\n * \n * @param {string|Object.<string>|Object.<Array.<string>>}} search New
search params - string or\n * hash object.\n * \n * When called with a single argument the method acts as a setter,
setting the `search` component\n * of `$location` to the specified value.\n * \n * If the argument is a hash object
containing an array of values, these values will be encoded\n * as duplicate search parameters in the URL.\n * \n
* @param {(string|Number|Array.<string>|boolean)=} paramValue If `search` is a string or number,\n * then
`paramValue`\n * will override only a single search property.\n * \n * If `paramValue` is an array, it will override
the property of the `search` component of\n * `$location` specified via the first argument.\n * \n * If
`paramValue` is `null`, the property specified via the first argument will be deleted.\n * \n * If `paramValue` is
`true`, the property specified via the first argument will be added
with no\n * value nor trailing equal sign.\n * \n * @return {Object} The parsed `search` object of the current
URL, or the changed `search` object.\n * /\n search(): {[key: string]: unknown};\n search(search:
string|number|{[key: string]: unknown}): this;\n search(\n search: string|number|{[key: string]: unknown},\n
paramValue: null|undefined|string|number|boolean|string[]): this;\n search(\n search?: string|number|{[key:
string]: unknown},\n paramValue?: null|undefined|string|number|boolean|string[]): {[key: string]: unknown}|this
{\n switch (arguments.length) {\n case 0:\n return this.$$search;\n case 1:\n if (typeof search ===
'string' || typeof search === 'number') {\n this.$$search = this.urlCodec.decodeSearch(search.toString());\n
} else if (typeof search === 'object' && search !== null) {\n // Copy the object so it's never mutated\n
search = {...search};\n // remove object undefined
or null properties\n for (const key in search) {\n if (search[key] === null) delete search[key];\n
}\n\n this.$$search = search;\n } else {\n throw new Error(\n 'LocationProvider.search():
First argument must be a string or an object.');

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this.urlCodec,\n this.locationStrategy);\n }\n\n /**\n * Stub method used to keep API compatible with AngularJS. This setting is configured through\n * the LocationUpgradeModule's `config` method in your Angular app.\n */\n hashPrefix(prefix?: string) {\n throw new Error('Configure LocationUpgrade through LocationUpgradeModule.config method.');
```

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decodeHash(hash: string) {\n hash = decodeURIComponent(hash);\n return hash[0] === '#' ? hash.substring(1)
: hash;\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L149\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L142\n normalize(href: string): string;\n
normalize(path: string, search: {[k: string]: unknown}, hash: string, baseUrl?: string): string;\n
normalize(pathOrHref: string, search?: {[k: string]: unknown}, hash?: string, baseUrl?: string):\n string {\n if
(arguments.length === 1) {\n const parsed = this.parse(pathOrHref, baseUrl);\n if (typeof parsed ===
'string') {\n return parsed;\n }\n const serverUrl =\n`$${parsed.protocol}://${parsed.hostname}${parsed.port ? ':' + parsed.port : ''}`;\n return this.normalize(\n
this.decodePath(parsed.pathname), this.decodeSearch(parsed.search),\n this.decodeHash(parsed.hash),
serverUrl);\n } else {\n const encPath = this.encodePath(pathOrHref);\n const encSearch = search &&
this.encodeSearch(search) || '';\n const encHash = hash && this.encodeHash(hash) || '';\n let joinedPath =
(baseUrl || '') + encPath;\n if (!joinedPath.length || joinedPath[0] !== '/') {\n joinedPath = '/' + joinedPath;\n
}\n return joinedPath + encSearch + encHash;\n }\n }\n\n areEqual(valA: string, valB: string) {\n return
this.normalize(valA) === this.normalize(valB);\n }\n\n //
https://github.com/angular/angular.js/blob/864c7f0/src/ng/urlUtils.js#L60\n parse(url: string, base?: string) {\n try
{\n // Safari 12 throws an error when the URL constructor is called with an undefined base.\n const parsed =
!base ? new URL(url) : new URL(url, base);\n return {\n href: parsed.href,\n protocol: parsed.protocol ?
parsed.protocol.replace(/:$/, '') : '',\n host: parsed.host,\n
 search: parsed.search ? parsed.search.replace(/^\\?/, '') : '',\n hash: parsed.hash ? parsed.hash.replace(/^#/, '')
: '',\n hostname: parsed.hostname,\n port: parsed.port,\n pathname: (parsed.pathname.charAt(0) === '/')
? parsed.pathname : '/' + parsed.pathname\n };\n } catch (e) {\n throw new Error(`Invalid URL (${url}) with
base (${base})`);\n }\n }\n\n\nfunction _stripIndexHtml(url: string): string {\n return
url.replace(/\\/index.html$/, '');\n}\n\n\n/**\n * Tries to decode the URI component without throwing an exception.\n
*\n * @param str value potential URI component to check.\n * @returns the decoded URI if it can be decoded or
else `undefined`.\n */\nfunction tryDecodeURIComponent(value: string): string|undefined {\n try {\n return
decodeURIComponent(value);\n } catch (e) {\n // Ignore any invalid uri component.\n return undefined;\n
}\n}\n\n\n/**\n * Parses an escaped url query string into key-value pairs. Logic
taken from\n * https://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1382\n */\nfunction
parseKeyValue(keyValue: string): {[k: string]: unknown} {\n const obj: {[k: string]: unknown} = {};\n (keyValue
|| '').split('&').forEach((keyValue) => {\n let splitPoint, key, val;\n if (keyValue) {\n key = keyValue =
keyValue.replace(/\\+/g, '%20');\n splitPoint = keyValue.indexOf('=');\n if (splitPoint !== -1) {\n key =
keyValue.substring(0, splitPoint);\n val = keyValue.substring(splitPoint + 1);\n }\n key =
tryDecodeURIComponent(key);\n if (typeof key !== 'undefined') {\n val = typeof val !== 'undefined' ?
tryDecodeURIComponent(val) : true;\n if (!obj.hasOwnProperty(key)) {\n obj[key] = val;\n } else if
(Array.isArray(obj[key])) {\n (obj[key] as unknown[]).push(val);\n } else {\n obj[key] = [obj[key],
val];\n }\n }\n }\n });\n return obj;\n}\n\n\n/**\n * Serializes
into key-value pairs. Logic taken from\n */\nhttps://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1409\n */\nfunction toKeyValue(obj: {[k:
string]: unknown}) {\n const parts: unknown[] = [];\n for (const key in obj) {\n let value = obj[key];\n if
(Array.isArray(value)) {\n value.forEach((arrayValue) => {\n parts.push(\n encodeUriQuery(key,
true) +\n (arrayValue === true ? '' : '=' + encodeUriQuery(arrayValue, true));\n });\n } else {\n
parts.push(\n encodeUriQuery(key, true) +\n (value === true ? '' : '=' + encodeUriQuery(value as any,
true));\n);\n }\n }\n }\n return parts.length ? parts.join('&') : '';\n}\n\n\n/**\n * We need our custom method because
encodeURIComponent is too aggressive and doesn't follow\n * http://www.ietf.org/rfc/rfc3986.txt with regards to
the character set (pchar) allowed in path\n * segments:\n * segment = *pchar\n * pchar = unreserved /
pct-encoded /
sub-delims / \"\n * pct-encoded = \"%\" HEXDIG HEXDIG\n * unreserved = ALPHA / DIGIT /
\"-\" / \"_\" / \".\" / \"~\" \n * sub-delims = \"!\" / \"$\" / \"%\" / \"&\" / \"'\" / \"(\" / \")\" / \"^\" / \"`\" / \"|\" / \"~\" \n

```

```
" / " / " / "=" \n * Logic from https://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1437\n
*\nfunction encodeUriSegment(val: string) {\n return encodeUriQuery(val, true).replace(/%26/g,\n
'&').replace(/%3D/gi, '=').replace(/%2B/gi, '+');\n}\n\n/**\n * This method is intended for encoding *key* or\n
value parts of query component. We need a custom\n
* method because encodeURIComponent is too aggressive\n
and encodes stuff that doesn't have to be\n
* encoded per http://tools.ietf.org/html/rfc3986:\n
* query = *\n
pchar / "\" / \"?\")\n
* pchar = unreserved / pct-encoded / sub-delims / \":\" / \"%\" @\n
unreserved =\n
ALPHA / DIGIT / \"-\" / \"_\" / \".\" / \"~\" \n
* pct-encoded = \"%\"\n
HEXDIG HEXDIG\n
* sub-delims = \"!\" / \"$\" / \"%\" / \"&\" / \"'\" / \"(\" / \")\" / \"^\" / \"`\" / \"{|}\" / \"+\" / \"=\", \" / \"\n
/ \" / \" / \"=\"\n
*\n * Logic from https://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1456\n
*\nfunction encodeUriQuery(val: string, pctEncodeSpaces: boolean = false) {\n return\n
encodeURIComponent(val)\n
.replace(/%40/g, '@')\n
.replace(/%3A/gi, ':')\n
.replace(/%24/g, '$')\n
.replace(/%2C/gi, ',')\n
.replace(/%3B/gi, ';')\n
.replace(/%20/g, (pctEncodeSpaces ? '%20' : '+'));\n}\n\n"/**\n
* @license\n
* Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-\n
style license that can be\n
* found in the LICENSE file at https://angular.io/license\n
*\n\nimport\n
{ APP_BASE_HREF, CommonModule, HashLocationStrategy, Location, LocationStrategy, PathLocationStrategy,\n
PlatformLocation } from '@angular/common';\nimport { Inject, InjectionToken, ModuleWithProviders, NgModule,\n
Optional }\n
from '@angular/core';\nimport { UpgradeModule } from '@angular/upgrade/static';\n\nimport { $locationShim,\n
$locationShimProvider } from './location_shim';\nimport { AngularJSUrlCodec, UrlCodec } from\n
'/params';\n\n\n/**\n
* Configuration options for LocationUpgrade.\n
*\n * @publicApi\n
*\n\nexport interface\n
LocationUpgradeConfig {\n /**\n
* Configures whether the location upgrade module should use the\n
`HashLocationStrategy`\n
* or the `PathLocationStrategy`\n
* /\n useHash?: boolean;\n /**\n
* Configures the\n
hash prefix used in the URL when using the `HashLocationStrategy`\n
* /\n hashPrefix?: string;\n /**\n
* Configures the\n
URL codec for encoding and decoding URLs. Default is the `AngularJSCodec`\n
* /\n urlCodec?:\n
typeof UrlCodec;\n /**\n
* Configures the base href when used in server-side rendered applications\n
* /\n\nserverBaseHref?: string;\n /**\n
* Configures the base href when used in client-side rendered applications\n
* /\n\nappBaseHref?: string;\n}\n\n\n/**\n
* A provider token used to configure the location upgrade module.\n
*\n * @publicApi\n
*\n\nexport const\n
LOCATION_UPGRADE_CONFIGURATION =\n
new\n
InjectionToken<LocationUpgradeConfig>('LOCATION_UPGRADE_CONFIGURATION');\n\nconst\n
APP_BASE_HREF_RESOLVED = new InjectionToken<string>('APP_BASE_HREF_RESOLVED');\n\n\n/**\n
*\n * NgModule` used for providing and configuring Angular's Unified Location Service for upgrading.\n
*\n * @see\n
[Using the Unified Angular Location Service](guide/upgrade#using-the-unified-angular-location-service)\n
*\n * @publicApi\n
*\n\n@NgModule({ imports: [CommonModule] })\n\nexport class LocationUpgradeModule {\n static\n
config(config?: LocationUpgradeConfig): ModuleWithProviders<LocationUpgradeModule> {\n return {\n
ngModule: LocationUpgradeModule,\n
providers: [\n
Location,\n
{\n
provide: $locationShim,\n
useFactory: provide$location,\n
deps: [UpgradeModule, Location, PlatformLocation, UrlCodec,\n
LocationStrategy]\n
},\n
{\n
provide: LOCATION_UPGRADE_CONFIGURATION, useValue: config ? config : {},\n
},\n
{\n
provide: UrlCodec, useFactory: provideUrlCodec, deps: [LOCATION_UPGRADE_CONFIGURATION]},\n
{\n
provide: APP_BASE_HREF_RESOLVED,\n
useFactory: provideAppBaseHref,\n
deps: [LOCATION_UPGRADE_CONFIGURATION, [new Inject(APP_BASE_HREF), new Optional()]]\n
},\n
{\n
provide: LocationStrategy,\n
useFactory: provideLocationStrategy,\n
deps: [\n
PlatformLocation,\n
APP_BASE_HREF_RESOLVED,\n
LOCATION_UPGRADE_CONFIGURATION,\n
],\n
},\n
],\n
};\n}\n}\n\n\nexport function\n
provideAppBaseHref(config: LocationUpgradeConfig, appBaseHref?: string) {\n if (config &&\n
config.appBaseHref != null) {\n return config.appBaseHref;\n } else if (appBaseHref != null) {\n return\n
appBaseHref;\n }\n}\n\nreturn \";\n}\n}\n\nexport function provideUrlCodec(config: LocationUpgradeConfig)
```



```

{\n const codec = config && config.urlCodec || AngularJSUrlCodec;\n return new (codec as any)();\n}\n\n\nexport
function provideLocationStrategy(\n platformLocation: PlatformLocation, baseHref: string, options:
LocationUpgradeConfig = { }) {\n return options.useHash ? new HashLocationStrategy(platformLocation,
baseHref) :\n new PathLocationStrategy(platformLocation, baseHref);\n}\n\n\nexport function
provide$location(\n ngUpgrade: UpgradeModule, location: Location, platformLocation: PlatformLocation,\n urlCodec: UrlCodec, locationStrategy: LocationStrategy) {\n const $locationProvider =\n new
$locationShimProvider(ngUpgrade, location, platformLocation, urlCodec, locationStrategy);\n return
$locationProvider.$get();\n}\n\n","/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport { $locationShim,
$locationShimProvider } from './location_shim';\nexport { LOCATION_UPGRADE_CONFIGURATION,
LocationUpgradeConfig, LocationUpgradeModule } from './location_upgrade_module';\nexport
{ AngularJSUrlCodec, UrlCodec } from './params';\n\n","/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n\n * @module\n * @description\n * Entry point for all public
APIs of this package.\n */\nexport * from './src/index';\n\n\n// This file only reexports content of the `src` folder. Keep
it that way.\n\n","/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\n//
This file is not used to build this module. It is only used during editing\n// by the TypeScript language service and
during build for verification.

`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n\n","/**\n * Generated bundle index. Do not edit.\n */\n\nexport * from './index';\n\n\nexport
{ provide$location as angular_packages_common_upgrade_upgrade_d,provideAppBaseHref as
angular_packages_common_upgrade_upgrade_a,provideLocationStrategy as
angular_packages_common_upgrade_upgrade_c,provideUrlCodec as
angular_packages_common_upgrade_upgrade_b } from
'./src/location_upgrade_module';\n\n\n], "names": [], "mappings": ";;;;;;;;;AAAA;;;;;;;;;SAQgB,WAAW,CAAC,GAAG,EA
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kB;QAC9E,aAAQ,GAAR,QAAQ,CAAU;QAAU,qBAAGb,GAAhB,gBAAGb,CAAKB;QAxBlE,gBAAW,GAAG,I
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No license file was found, but licenses were detected in source scan.

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\*/

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- \* /common-11-0-2-tgz/package/locales/so.js



- \* /common-11-0-2-tgz/package/locales/extra/gsw-FR.js
- \* /common-11-0-2-tgz/package/locales/global/jv.js
- \* /common-11-0-2-tgz/package/locales/extra/ar-IQ.js
- \* /common-11-0-2-tgz/package/locales/pt-GW.js
- \* /common-11-0-2-tgz/package/locales/dsb.d.ts
- \* /common-11-0-2-tgz/package/locales/en-ER.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/pt-AO.js
- \*
- /common-11-0-2-tgz/package/locales/ps-PK.js
- \* /common-11-0-2-tgz/package/locales/global/en-AU.js
- \* /common-11-0-2-tgz/package/locales/extra/jgo.d.ts
- \* /common-11-0-2-tgz/package/locales/global/en-MP.js
- \* /common-11-0-2-tgz/package/locales/global/es-CU.js
- \* /common-11-0-2-tgz/package/locales/mzn.d.ts
- \* /common-11-0-2-tgz/package/locales/ar-SO.d.ts
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- \* /common-11-0-2-tgz/package/locales/en-FI.js
- \* /common-11-0-2-tgz/package/locales/extra/ne-IN.d.ts
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- \* /common-11-0-2-tgz/package/locales/extra/ak.js
- \* /common-11-0-2-tgz/package/locales/ka.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/ru-BY.js
- \* /common-11-0-2-tgz/package/locales/extra/so-DJ.js
- \* /common-11-0-2-tgz/package/locales/global/fr-TD.js
- \* /common-11-0-2-tgz/package/locales/es-GT.d.ts
- \* /common-11-0-2-tgz/package/locales/en-JM.d.ts
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- \* /common-11-0-2-tgz/package/locales/global/fr-BJ.js
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- \* /common-11-0-2-tgz/package/locales/so-DJ.d.ts
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- \* /common-11-0-2-tgz/package/locales/global/my.js
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- \* /common-11-0-2-tgz/package/locales/extra/ar.js
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- /common-11-0-2-tgz/package/locales/en-MO.d.ts
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- \* /common-11-0-2-tgz/package/locales/en-SI.d.ts
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- \* /common-11-0-2-tgz/package/locales/extra/mas.d.ts
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- \* /common-11-0-2-tgz/package/locales/extra/en-CY.js
- \* /common-11-0-2-tgz/package/locales/extra/kab.js

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- \* /common-11-0-2-tgz/package/locales/extra/ewo.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/ccp-IN.js
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- \* /common-11-0-2-tgz/package/locales/extra/gv.js
- \* /common-11-0-2-tgz/package/locales/os.d.ts
- \* /common-11-0-2-tgz/package/locales/global/ksh.js
- \* /common-11-0-2-tgz/package/locales/global/pt-MO.js
- \* /common-11-0-2-tgz/package/locales/extra/mi.js
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- \* /common-11-0-2-tgz/package/esm2015/testing/src/mock\_location\_strategy.js
- \* /common-11-0-2-tgz/package/locales/global/es-BR.js
- \*
- /common-11-0-2-tgz/package/locales/extra/ha-NE.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/en-TV.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/khq.d.ts
- \* /common-11-0-2-tgz/package/locales/extra/nmg.js
- \* /common-11-0-2-tgz/package/locales/global/ksf.js
- \* /common-11-0-2-tgz/package/locales/extra/ug.js
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- \* /common-11-0-2-tgz/package/locales/extra/tt.d.ts
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- \* /common-11-0-2-tgz/package/locales/en-PH.d.ts
- \* /common-11-0-2-tgz/package/locales/hi.d.ts

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- \* /common-11-0-2-tgz/package/locales/global/ha-NE.js
- \* /common-11-0-2-tgz/package/locales/mer.js
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- \* /common-11-0-2-tgz/package/locales/extra/nds-NL.js
- \* /common-11-0-2-tgz/package/locales/extra/ar-LY.js
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- \* /common-11-0-2-tgz/package/locales/global/mfe.js
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- \* /common-11-0-2-tgz/package/locales/extra/ff-GN.d.ts

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- \* /common-11-0-2-tgz/package/locales/pt-CH.d.ts
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- \* /common-11-0-2-tgz/package/locales/extra/br.js
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- \* /common-11-0-2-tgz/package/esm2015/src/dom\_tokens.js
- \* /common-11-0-2-tgz/package/locales/extra/ceb.d.ts
- \* /common-11-0-2-tgz/package/locales/gu.d.ts
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- \* /common-11-0-2-tgz/package/locales/global/af.js



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- \* /common-11-0-2-tgz/package/locales/global/pa-Arab.js
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- \*
- /common-11-0-2-tgz/package/locales/extra/ru-MD.d.ts
- \* /common-11-0-2-tgz/package/locales/uz.d.ts
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- \* /common-11-0-2-tgz/package/locales/en-ZM.js

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* /common-11-0-2-tgz/package/locales/en-VU.d.ts
* /common-11-0-2-tgz/package/locales/extra/nds.d.ts
* /common-11-0-2-tgz/package/locales/global/ce.js
* /common-11-0-2-tgz/package/locales/extra/es-CO.js
* /common-11-0-2-tgz/package/locales/shi.js
* /common-11-0-2-tgz/package/locales/global/en-MO.js
* /common-11-0-2-tgz/package/locales/extra/uz-Cyrl.js
* /common-11-0-2-tgz/package/locales/yue-Hant.js
* /common-11-0-2-tgz/package/locales/extra/sv-AX.js

```

No license file was found, but licenses were detected in source scan.

```

{"version":3,"file":"testing.js","sources":["../../../../../packages/common/testing/src/location_mock.ts","../../../../../packages/common/testing/src/mock_location_strategy.ts","../../../../../packages/common/testing/src/mock_platform_location.ts","../../../../../packages/common/testing/src/testing.ts","../../../../../packages/common/testing/public_api.ts","../../../../../packages/common/testing/index.ts","../../../../../packages/common/testing/testing.ts"],"sourcesContent":["/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed

```

```

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 * found in the LICENSE file at https://angular.io/license
 *
import
{Location, LocationStrategy, PlatformLocation} from '@angular/common';
import {EventEmitter, Injectable}
from '@angular/core';
import {SubscriptionLike} from 'rxjs';

/**
 * A spy for { @link Location } that
 * allows tests to fire simulated location events.
 */
 * @publicApi
 * @Injectable()
export class SpyLocation
implements Location {
 urlChanges: string[] = [];
 private _history: LocationState[] = [new LocationState("", "",
 null)];
 private _historyIndex: number = 0;
 /** @internal */
 _subject: EventEmitter<any> = new
 EventEmitter();
 /** @internal */
 _baseHref: string = "";
 /** @internal */
 _platformStrategy:
 LocationStrategy = null!;
 /** @internal */
 _platformLocation: PlatformLocation = null!;
 /** @internal */
 _urlChangeListeners: ((url: string, state: unknown) => void)[] = [];
 /** @internal */
 _urlChangeSubscription?:
 SubscriptionLike;

 setInitialPath(url: string) {
 this._history[this._historyIndex].path = url;
 }

 setBaseHref(url: string) {
 this._baseHref = url;
 }

 path(): string {
 return
 this._history[this._historyIndex].path;
 }

 getState(): unknown {
 return
 this._history[this._historyIndex].state;
 }

 isCurrentPathEqualTo(path: string, query: string = ""): boolean {
 const givenPath = path.endsWith('/') ?
 path.substring(0, path.length - 1) : path;
 const currPath =
 this.path().endsWith('/') ? this.path().substring(0,
 this.path().length - 1) : this.path();
 return currPath === givenPath + (query.length > 0 ? ('?' + query) : "");
 }

 simulateUrlPop(pathname: string) {
 this._subject.emit({'url': pathname, 'pop': true, 'type': 'popstate'});
 }

 simulateHashChange(pathname: string) {
 // Because we don't prevent the native event, the browser will
 independently update the path
 this.setInitialPath(pathname);
 this.urlChanges.push('hash: ' + pathname);
 this._subject.emit({'url': pathname, 'pop': true, 'type': 'hashchange'});
 }

 prepareExternalUrl(url: string): string {
 if (url.length > 0 && !url.startsWith('/')) {
 url = '/' + url;
 }
 return this._baseHref + url;
 }

 go(path: string, query:
 string = "", state: any = null) {
 path = this.prepareExternalUrl(path);
 if (this._historyIndex > 0) {
 this._history.splice(this._historyIndex + 1);
 this._history.push(new LocationState(path, query, state));
 this._historyIndex = this._history.length - 1;
 const locationState = this._history[this._historyIndex - 1];
 if
 (locationState.path === path && locationState.query === query) {
 return;
 }
 const url = path +
 (query.length > 0 ? ('?' + query) : "");
 this.urlChanges.push(url);
 this._subject.emit({'url': url, 'pop': false});
 }

 replaceState(path: string, query: string = "", state: any = null) {
 path = this.prepareExternalUrl(path);
 const history = this._history[this._historyIndex];
 if (history.path === path && history.query === query) {
 return;
 }
 history.path = path;
 history.query = query;
 history.state = state;
 const url = path +
 (query.length > 0 ? ('?'
 + query) : "");
 this.urlChanges.push('replace: ' + url);
 }

 forward() {
 if (this._historyIndex <
 (this._history.length - 1)) {
 this._historyIndex++;
 this._subject.emit({'url': this.path(), 'state':
 this.getState(), 'pop': true});
 }
 }

 back() {
 if (this._historyIndex > 0) {
 this._historyIndex--;
 this._subject.emit({'url': this.path(), 'state': this.getState(), 'pop': true});
 }
 }

 onUrlChange(fn: (url: string,
 state: unknown) => void) {
 this._urlChangeListeners.push(fn);
 if (!this._urlChangeSubscription) {
 this._urlChangeSubscription = this.subscribe(v => {
 this._notifyUrlChangeListeners(v.url, v.state);
 });
 }
 }

 /** @internal */
 _notifyUrlChangeListeners(url: string = "", state: unknown) {
 this._urlChangeListeners.forEach(fn => fn(url, state));
 }

 subscribe(
 onNext: (value: any) => void,
 onThrow?: ((error: any) => void) | null,
 onReturn?: (()
 => void) | null): SubscriptionLike {
 return this._subject.subscribe({
 next: onNext,
 error: onThrow,
 complete:
 onReturn
 });
 }

 normalize(url: string): string {
 return null!;
 }
 }

 class LocationState {
 constructor(public path: string, public query: string, public state: any) {}
 }

 /**
 * @license
 * Copyright
 * Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
import {LocationStrategy} from
 '@angular/common';
import {EventEmitter, Injectable} from '@angular/core';

/**
 * A mock
 * implementation of { @link LocationStrategy } that allows tests to fire simulated
 * location events.
 */
 * @publicApi
 * @Injectable()
export class MockLocationStrategy extends LocationStrategy {

```

```
internalBaseHref: string = '/';\n internalPath: string = '/';\n internalTitle: string = '';\n urlChanges: string[] = [];\n\n/** @internal */\n\n _subject: EventEmitter<any> = new EventEmitter();\n private stateChanges: any[] = [];\n constructor() {\n super();\n }\n\n simulatePopState(url: string): void {\n this.internalPath = url;\n this._subject.emit(new\n _MockPopStateEvent(this.path()));\n }\n\n path(includeHash: boolean = false): string {\n return\n this.internalPath;\n }\n\n prepareExternalUrl(internal: string): string {\n if (internal.startsWith('/') &&\n this.internalBaseHref.endsWith('/')) {\n return this.internalBaseHref + internal.substring(1);\n }\n return\n this.internalBaseHref + internal;\n }\n\n pushState(ctx: any, title: string, path: string, query: string): void {\n // Add state change to changes array\n this.stateChanges.push(ctx);\n\n this.internalTitle = title;\n\n const url =\n path + (query.length > 0 ? ('?' + query) : '');\n this.internalPath = url;\n\n const externalUrl =\n this.prepareExternalUrl(url);\n this.urlChanges.push(externalUrl);\n }\n\n replaceState(ctx:\n any, title: string, path: string, query: string): void {\n // Reset the last index of stateChanges to the ctx (state)\n object\n this.stateChanges[(this.stateChanges.length || 1) - 1] = ctx;\n\n this.internalTitle = title;\n\n const url =\n path + (query.length > 0 ? ('?' + query) : '');\n this.internalPath = url;\n\n const externalUrl =\n this.prepareExternalUrl(url);\n this.urlChanges.push('replace: ' + externalUrl);\n }\n\n onPopState(fn: (value:\n any) => void): void {\n this._subject.subscribe({next: fn});\n }\n\n getBaseHref(): string {\n return\n this.internalBaseHref;\n }\n\n back(): void {\n if (this.urlChanges.length > 0) {\n this.urlChanges.pop();\n this.stateChanges.pop();\n\n const nextUrl = this.urlChanges.length > 0 ? this.urlChanges[this.urlChanges.length -\n 1] : '';\n this.simulatePopState(nextUrl);\n }\n }\n\n forward(): void {\n throw 'not implemented';\n }\n\n getState(): unknown {\n return this.stateChanges[(this.stateChanges.length\n || 1) - 1];\n }\n}\n\n nclass _MockPopStateEvent {\n pop: boolean = true;\n type: string = 'popstate';\n\n constructor(public newUrl: string) {}\n}\n\n /***\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\n import {LocationChangeEvent, LocationChangeListener, PlatformLocation} from\n '@angular/common';\n import {Inject, Injectable, InjectionToken, Optional} from '@angular/core';\n import {Subject} from 'rxjs';\n\n /***\n * Parser from https://tools.ietf.org/html/rfc3986#appendix-B\n *\n ^((([^\:/?#\]]+)?(?:\\/|\\/(?:[^\:/?#\]]*)?(\\[[^\:/?#\]]*(.*)?)?)*12 3 4 5 6 7 8 9)\n *\n Example:\n http://www.ics.uci.edu/pub/ietf/uri/#Related\n *\n Results in:\n *\n $1 = http\n *\n $2 = http\n *\n $3 =\n /\n www.ics.uci.edu\n *\n $4 = www.ics.uci.edu\n *\n $5 = /pub/ietf/uri/\n *\n $6 = <undefined>\n *\n $7 = <undefined>\n *\n $8 = #Related\n *\n $9 = Related\n *\n\nconst urlParse =\n\n/^(([^\:/?#\]]+)?(?:\\/|\\/(?:[^\:/?#\]]*)?(\\[[^\:/?#\]]*(.*)?)?);$/;\n\nfunction parseUrl(urlStr: string, baseHref: string)\n{\n const verifyProtocol = /^(http[s]?|ftp):\\/\\//;\n let serverBase: string | undefined;\n\n // URL class requires full\n URL. If the URL string doesn't start with protocol, we need to add\n // an arbitrary base URL which can be\n removed afterward.\n if (!verifyProtocol.test(urlStr)) {\n serverBase = 'http://empty.com/';\n }\n\n let parsedUrl:\n {\n protocol: string,\n hostname: string,\n port: string,\n pathname: string,\n search: string,\n hash:\n string\n };\n try {\n parsedUrl = new URL(urlStr, serverBase);\n } catch (e) {\n const result =\n urlParse.exec(serverBase || "" + urlStr);\n\n if (!result) {\n throw new Error(`Invalid URL: ${urlStr} with base:\n ${baseHref}`);\n }\n\n const hostSplit = result[4].split(':');\n parsedUrl = {\n protocol:\n result[1],\n hostname: hostSplit[0],\n port: hostSplit[1] || "",\n pathname: result[5],\n search: result[6],\n hash: result[8],\n }; \n }\n\n if (parsedUrl.pathname && parsedUrl.pathname.indexOf(baseHref) === 0) {\n parsedUrl.pathname = parsedUrl.pathname.substr(baseHref.length);\n }\n\n return {\n hostname: !serverBase\n && parsedUrl.hostname || "",\n protocol: !serverBase && parsedUrl.protocol || "",\n port: !serverBase &&\n parsedUrl.port || "",\n pathname: parsedUrl.pathname || '/',\n search: parsedUrl.search || "",\n hash: parsedUrl.hash\n || "",\n };\n }\n\n /***\n * Mock platform location config\n */\n\n @publicApi\n export interface\n MockPlatformLocationConfig {\n startUrl?: string;\n appBaseHref?: string;\n }\n\n /***\n * Provider for mock\n platform location config\n */\n\n @publicApi\n export const MOCK_PLATFORM_LOCATION_CONFIG =\n new InjectionToken<MockPlatformLocationConfig>('MOCK_PLATFORM_LOCATION_CONFIG');
```

```

* Mock implementation of URL state.\n *\n * @publicApi\n *\n@Injectable()\nexport class
MockPlatformLocation implements PlatformLocation {\n private baseHref: string = ";\n private hashUpdate = new
Subject<LocationChangeEvent>();\n private urlChanges: {\n hostname: string,\n protocol: string,\n port:
string,\n pathname: string,\n search: string,\n hash: string,\n state: unknown\n }[] = [{hostname: "", protocol:
"", port: "", pathname: "/", search: "", hash: "", state: null}];\n\n
constructor(@Inject(MOCK_PLATFORM_LOCATION_CONFIG) @Optional() config?:\n
MockPlatformLocationConfig) {\n if (config) {\n this.baseHref = config.appBaseHref || ";\n\n const
parsedChanges =\n this.parseChanges(null, config.startUrl || 'http://<empty>', this.baseHref);\n
this.urlChanges[0] = { ...parsedChanges};\n }\n }\n\n get hostname() {\n return this.urlChanges[0].hostname;\n
}\n\n get protocol() {\n return this.urlChanges[0].protocol;\n
}\n\n get port() {\n return this.urlChanges[0].port;\n }\n\n get pathname() {\n return
this.urlChanges[0].pathname;\n }\n\n get search() {\n return this.urlChanges[0].search;\n }\n\n get hash() {\n
return this.urlChanges[0].hash;\n }\n\n get state() {\n return this.urlChanges[0].state;\n }\n\n\n
getBaseHrefFromDOM(): string {\n return this.baseHref;\n }\n\n\n onPopState(fn: LocationChangeListener): void
{\n // No-op: a state stack is not implemented, so\n // no events will ever come.\n }\n\n\n onHashChange(fn:
LocationChangeListener): void {\n this.hashUpdate.subscribe(fn);\n }\n\n\n get href(): string {\n let url =
`${this.protocol}/${this.hostname}${this.port ? ':' + this.port : ''};\n url += `${this.pathname === '/' ? '' :
this.pathname}${this.search}${this.hash}`;\n return url;\n }\n\n\n get url(): string {\n return
`${this.pathname}${this.search}${this.hash}`;\n }\n\n\n private parseChanges(state: unknown, url: string, baseHref:
string = "") {\n // When the `history.state` value is stored, it is always copied.\n state =
JSON.parse(JSON.stringify(state));\n return { ...parseUrl(url, baseHref), state};\n }\n\n\n replaceState(state: any,
title: string, newUrl: string): void {\n const {pathname, search, state: parsedState, hash} = this.parseChanges(state,
newUrl);\n\n this.urlChanges[0] = { ...this.urlChanges[0], pathname, search, hash, state: parsedState};\n }\n\n\n
pushState(state: any, title: string, newUrl: string): void {\n const {pathname, search, state: parsedState, hash} =
this.parseChanges(state, newUrl);\n this.urlChanges.unshift({ ...this.urlChanges[0], pathname, search, hash, state:
parsedState});\n }\n\n\n forward(): void {\n throw new Error('Not implemented');\n }\n\n\n back(): void {\n const
oldUrl = this.url;\n const oldHash = this.hash;\n this.urlChanges.shift();\n const newHash = this.hash;\n\n if
(oldHash !== newHash) {\n scheduleMicroTask(\n
() => this.hashUpdate.next(\n {type: 'hashchange', state: null, oldUrl, newUrl: this.url} as
LocationChangeEvent));\n }\n }\n\n\n getState(): unknown {\n return this.state;\n }\n }\n\n\nexport function
scheduleMicroTask(cb: () => any) {\n Promise.resolve(null).then(cb);\n }\n\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n *\n\n/**\n * @module\n * @description\n * Entry point
for all public APIs of the common/testing package.\n *\n\nexport { SpyLocation } from './location_mock';\nexport
{ MockLocationStrategy } from './mock_location_strategy';\nexport { MOCK_PLATFORM_LOCATION_CONFIG,
MockPlatformLocation, MockPlatformLocationConfig } from './mock_platform_location';\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\n/**\n * @module\n * @description\n * Entry point for all
public APIs of this package.\n *\n\nexport * from './src/testing';\n\n// This file only reexports content of the `src`
folder. Keep it that way.\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\n// This file is not used to build this module. It is only used during editing\n// by the
TypeScript language service and during build for verification. `ngc`\n// replaces this file with production index.ts
when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n\n"/**\n * Generated bundle index. Do
not edit.\n *\n\nexport * from
'/index';\n\n"],"names":[],"mappings":":;,,,,,;AAAA;,,,,;AAYA;,,,,;MAMa,WAAW;IADxB;QAEE,eAAU,GAAa,E
AAE,CAAC;QACIB,aAAQ,GAAoB,CAAC,IAAI,aAAa,CAAC,EAAE,EAAE,EAAE,EAAE,IAAI,CAAC,CAAC,

```

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No license file was found, but licenses were detected in source scan.

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/packages/common/http/testing/index.ts";"../../../../../packages/common/http/testing/testing.ts"];
"sourcesContent":[
"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport
{HttpRequest} from '@angular/common/http';\n\nimport {TestRequest} from './request';\n\n/**\n * Defines a
matcher for requests based on URL, method, or both.\n *\n * @publicApi\n */\nexport interface RequestMatch
{\n method?: string;\n url?: string;\n}\n\n/**\n * Controller to be injected into tests, that allows for mocking and
flushing\n * of requests.\n *\n * @publicApi\n */\nexport abstract class HttpTestingController {\n /**\n * Search
for requests that match the given parameter, without any expectations.\n */\n abstract match(match:
string|RequestMatch|((req: HttpRequest<any>) => boolean)): TestRequest[];\n\n /**\n * Expect that a single
request has been made which matches the given URL, and return its\n * mock.\n */\n * If no such request has
been made, or more than one such request has been made, fail with an\n * error message including the given
request description, if any.\n */\n abstract expectOne(url: string, description?: string): TestRequest;\n\n /**\n *
Expect that a single request has been made which matches the given parameters, and return\n * its mock.\n */\n *
If no such request has been made, or more than one such request has been made, fail with
an\n * error message including the given request description, if any.\n */\n abstract expectOne(params:
RequestMatch, description?: string): TestRequest;\n\n /**\n * Expect that a single request has been made which
matches the given predicate function, and\n * return its mock.\n */\n * If no such request has been made, or more
than one such request has been made, fail with an\n * error message including the given request description, if
any.\n */\n abstract expectOne(matchFn: ((req: HttpRequest<any>) => boolean), description?: string):\n
TestRequest;\n\n /**\n * Expect that a single request has been made which matches the given condition, and
return\n * its mock.\n */\n * If no such request has been made, or more than one such request has been made, fail
with an\n * error message including the given request description, if any.\n */\n abstract expectOne(\n match:
string|RequestMatch|((req: HttpRequest<any>) => boolean),\n description?: string):
TestRequest;\n\n /**\n * Expect that no requests have been made which match the given URL.\n */\n * If a
matching request has been made, fail with an error message including the given request\n * description, if any.\n */\n
 abstract expectNone(url: string, description?: string): void;\n\n /**\n * Expect that no requests have been
made which match the given parameters.\n */\n * If a matching request has been made, fail with an error message
including the given request\n * description, if any.\n */\n abstract expectNone(params: RequestMatch,
description?: string): void;\n\n /**\n * Expect that no requests have been made which match the given predicate
function.\n */\n * If a matching request has been made, fail with an error message including the given request\n *
description, if any.\n */\n abstract expectNone(matchFn: ((req: HttpRequest<any>) => boolean), description?:
string): void;\n\n /**\n * Expect that no requests have been made which match
the given condition.\n */\n * If a matching request has been made, fail with an error message including the given
request\n * description, if any.\n */\n abstract expectNone(\n match: string|RequestMatch|((req:
HttpRequest<any>) => boolean), description?: string): void;\n\n /**\n * Verify that no unmatched requests are
outstanding.\n */\n * If any requests are outstanding, fail with an error message indicating which requests were
not\n * handled.\n */\n * If `ignoreCancelled` is not set (the default), `verify()` will also fail if cancelled
requests\n * were not explicitly matched.\n */\n abstract verify(opts?: {ignoreCancelled?: boolean}):
void;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {HttpErrorResponse, HttpEvent, HttpHeaders, HttpRequest, HttpResponse} from
'@angular/common/http';\n\nimport
{Observer} from 'rxjs';\n\n/**\n * A mock requests that was received and is ready to be answered.\n *\n * This
interface allows access to the underlying `HttpRequest`, and allows\n * responding with `HttpEvent`s or
`HttpErrorResponse`s.\n *\n * @publicApi\n */\nexport class TestRequest {\n /**\n * Whether the request was
cancelled after it was sent.\n */\n get cancelled(): boolean {\n return this._cancelled;\n }\n\n /**\n * @internal

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set by `HttpClientTestingBackend` \n */ \n _cancelled = false; \n \n constructor(public request: HttpRequest<any>,
private observer: Observer<HttpEvent<any>>) {} \n \n /** \n * Resolve the request by returning a body plus
additional HTTP information (such as response \n * headers) if provided. \n * If the request specifies an expected
body type, the body is converted into the requested type. \n * Otherwise, the body is converted to `JSON` by
default. \n * \n * Both successful and unsuccessful responses can be delivered
via `flush()`. \n */ \n flush(\n body:
ArrayBuffer|Blob|boolean|string|number|Object|(boolean|string|number|Object|null)[] \n null, \n opts: {\n
headers?: HttpHeaders|{[name: string]: string | string[]}, \n status?: number, \n statusText?: string, \n } =
{}): void {\n if (this.cancelled) {\n throw new Error(`Cannot flush a cancelled request.`); \n } \n const url =
this.request.urlWithParams; \n const headers = \n (opts.headers instanceof HttpHeaders) ? opts.headers : new
HttpHeaders(opts.headers); \n body = _maybeConvertBody(this.request.responseType, body); \n let statusText:
string|undefined = opts.statusText; \n let status: number = opts.status !== undefined ? opts.status : 200; \n if
(opts.status === undefined) {\n if (body === null) {\n status = 204; \n statusText = statusText || 'No
Content'; \n } else {\n statusText = statusText || 'OK'; \n } \n } \n if (statusText === undefined)
{\n throw new Error('statusText is required when setting a custom status.');

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'undefined' && body instanceof ArrayBuffer) {\n throw new Error('Automatic conversion to text is not supported
for ArrayBuffers.');
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\n } \n if (typeof Blob !== 'undefined' && body instanceof
Blob) {\n throw new Error('Automatic conversion to text is not supported for Blobs.');
```

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\n } \n return
JSON.stringify(_toJsonBody(body, 'text'));\n}\n\n/**\n * Convert a response body to the requested type.\n
*/\nfunction _maybeConvertBody(\n responseType: string,\n body:
ArrayBuffer|Blob|string|number|Object|(string | number | Object | null)[]\n null):
ArrayBuffer|Blob|string|number|Object|(string | number | Object | null)[]|null {\n if (body === null) {\n return
null;\n }\n switch (responseType) {\n case 'arraybuffer':\n return _toArrayBufferBody(body);\n case 'blob':\n return
_toBlob(body);\n case 'json':\n return _toJsonBody(body);\n case 'text':\n return
_toTextBody(body);\n default:\n throw new Error(`Unsupported responseType: ${responseType}`);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE
file at https://angular.io/license\n */\n\nimport {HttpBackend, HttpEvent, HttpEventType, HttpRequest} from
'@angular/common/http';\nimport {Injectable} from '@angular/core';\nimport {Observable, Observer} from
'rxjs';\nimport {HttpTestingController, RequestMatch} from './api';\nimport {TestRequest} from
'./request';\n\n/**\n * A testing backend for `HttpClient` which both acts as an `HttpBackend`\n * and as the
`HttpTestingController`.\n * \n * `HttpClientTestingBackend` works by keeping a list of all open requests.\n * As
requests come in, they're added to the list. Users can assert that specific\n * requests were made and then flush them.
In the end, a verify() method asserts\n * that no unexpected requests were made.\n * \n * \n * \n * @Injectable()\n * export
class HttpClientTestingBackend implements HttpBackend, HttpTestingController {\n /**\n * List of pending
requests which have not yet been expected.\n * \n * \n * private open: TestRequest[] = [];\n /**\n * Handle an
incoming
request by queueing it in the list of open requests.\n * \n * \n * handle(req: HttpRequest<any>):
Observable<HttpEvent<any>> {\n return new Observable((observer: Observer<any>) => {\n const testReq =
new TestRequest(req, observer);\n this.open.push(testReq);\n observer.next({type: HttpEventType.Sent} as
HttpEvent<any>);\n return () => {\n testReq._cancelled = true;\n }; \n }); \n } \n\n /**\n * Helper
function to search for requests in the list of open requests.\n * \n * \n * private _match(match: string|RequestMatch|((req:
HttpRequest<any>) => boolean)): TestRequest[] {\n if (typeof match === 'string') {\n return
this.open.filter(testReq => testReq.request.urlWithParams === match);\n } else if (typeof match === 'function')
{\n return this.open.filter(testReq => match(testReq.request));\n } else {\n return this.open.filter(\n
testReq => (!match.method || testReq.request.method === match.method.toUpperCase()) &&\n
(!match.url || testReq.request.urlWithParams === match.url));\n } \n } \n\n /**\n * Search for requests in the
list of open requests, and return all that match\n * without asserting anything about the number of matches.\n * \n * \n *
match(match: string|RequestMatch|((req: HttpRequest<any>) => boolean)): TestRequest[] {\n const results =
this._match(match);\n results.forEach(result => {\n const index = this.open.indexOf(result);\n if (index !== -
1) {\n this.open.splice(index, 1);\n } \n }); \n return results;\n } \n\n /**\n * Expect that a single
outstanding request matches the given matcher, and return\n * it.\n * \n * \n * Requests returned through this API will
no longer be in the list of open requests,\n * and thus will not match twice.\n * \n * \n * expectOne(match:
string|RequestMatch|((req: HttpRequest<any>) => boolean), description?: string):\n TestRequest {\n \n
description = description || this.descriptionFromMatcher(match);\n \n
const matches = this.match(match);\n if (matches.length > 1) {\n throw new Error(`Expected one matching
request for criteria "${description}", found ${\n matches.length} requests.`);\n } \n if (matches.length ===
0) {\n let message = `Expected one matching request for criteria "${description}", found none.`;\n if
(this.open.length > 0) {\n // Show the methods and URLs of open requests in the error, for convenience.\n
const requests = this.open\n .map(testReq => {\n const url =
testReq.request.urlWithParams;\n const method = testReq.request.method;\n return `${method} ${url}`;\n })\n .join(', '); \n message += `Requests
received are: ${requests}`;\n } \n throw new Error(message);\n } \n return matches[0];\n } \n\n /**\n *

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requests match the given matcher, and throw an error\n * if any do.\n */\n expectNone(match:\nstring|RequestMatch)((req: HttpRequest<any>) => boolean), description?: string);\n void {\n description =\ndescription || this.descriptionFromMatcher(match);\n const matches = this.match(match);\n if (matches.length >\n0) {\n throw new Error('Expected zero matching requests for criteria \''${description}\'', found ${\nmatches.length}.');\n }\n }\n /**\n * Validate that there are no outstanding requests.\n */\n verify(opts:\n{ignoreCancelled?: boolean} = {}): void {\n let open = this.open;\n // It's possible that some requests may be\ncancelled, and this is expected.\n // The user can ask to ignore open requests which have been cancelled.\n if\n(opts.ignoreCancelled) {\n open = open.filter(testReq => !testReq.cancelled);\n }\n if (open.length > 0) {\n// Show the methods and URLs of open requests in the error, for convenience.\n\nconst requests = open.map(testReq => {\nconst url =\ntestReq.request.urlWithParams.split('?')[0];\nconst method = testReq.request.method;\nreturn `${method} ${url}`;\n});\njoin(', '); \nthrow new Error('Expected\nno open requests, found ${open.length}: ${requests}');\n}\n}\nprivate descriptionFromMatcher(matcher:\nstring|RequestMatch)\n((req: HttpRequest<any>) => boolean): string {\n if (typeof matcher\n=== 'string') {\n return `Match URL: ${matcher}`;\n } else if (typeof matcher === 'object') {\n const method\n= matcher.method || '(any)';\n const url = matcher.url || '(any)';\n return `Match method: ${method}, URL:\n${url}`;\n } else {\n return `Match by function: ${matcher.name}`;\n }\n }\n }\n"/**\n * @license\n *\nCopyright Google LLC All Rights Reserved.\n\n*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\nimport {HttpBackend, HttpClientModule} from '@angular/common/http';\nimport\n{NgModule} from '@angular/core';\nimport {HttpClientTestingModule} from './api';\nimport\n{HttpClientTestingBackend} from './backend';\n/**\n * Configures `HttpClientTestingModule` as the\n`HttpBackend` used by `HttpClient`. \n *\n * Inject `HttpClientTestingModule` to expect and flush requests in your\ntests.\n *\n * @publicApi\n */\n@NgModule({\n imports: [\n HttpClientModule,\n],\n providers: [\n\nHttpClientTestingModule,\n {provide: HttpBackend, useExisting: HttpClientTestingModule},\n {provide:\nHttpClientTestingModule, useExisting: HttpClientTestingModule},\n],\n})\nexport class HttpClientTestingModule\n{\n}\n"/**\n * @license\n *\nCopyright Google LLC All Rights Reserved.\n\n*\n * Use of this source code is\ngoverned by an MIT-style license\n\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\nexport {HttpClientTestingModule,\nRequestMatch} from './src/api';\nexport {HttpClientTestingModule} from './src/module';\nexport {TestRequest}\nfrom './src/request';\n"/**\n * @license\n *\nCopyright Google LLC All Rights Reserved.\n\n*\n * Use of this source\ncode is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n\n*/\nexport * from './public_api';\n"/**\n * Generated bundle index. Do not edit.\n */\nexport * from\n'./index';\nexport {HttpClientTestingModule as angular_packages_common_http_testing_testing_a} from\n'./src/backend';\n], \"names\": [], \"mappings\": \";;;;;;;;;;AAAA;;;;;;;;;AAsBA;;;;;;;;MAMsB,qBAaQb;;;AC5B3C;;;;;;;;;AAWA\n;;;;;;;;;MAQa,WAAW;IAatB,YAAmB,OAAyB,EAAU,QAAkC;QAAR,E,YAAO,GAAP,OAAO,CAAkB;QAAU,aA\nAQ,GAAR,QAAQ,CAA0B;;;QAFxF,eAAU,GAAG,KAAK,CAAC;KAeyE;;;IAT5F,IAAI,SAAS;QACX,OAAO,\nIAAI,CAAC,UAAU,CAAC;KACxB;;;;;;;;;IAiBD,KAAK,CACD,IACI,EACJ,OAIL,EAAE;QACR,IAAI,IAAI,CAA\nC,SAAS,EAAE;YACIB,MAAM,IAAI,KAAK,CAAC,mCAAmC,CAAC,CAAC;SACtD;QACD,MAAM,GAAG,G\nAAG,IAAI,CAAC,OAAO,CAAC,aAAa,CAAC;QACvC,MAAM,OAAO,GACT,CAAC,IAAI,CAAC,OAAO,YAA\nY,WAAW,IAAI,IAAI,CAAC,OAAO,GAAG,IAAI,WAAW,CAAC,IAAI,CAAC,OAAO,CAAC,CAAC;QACzF,IA\nAI,GAAG,iBAaiB,CAAC,IAAI,CAAC,OAAO,CAAC,YAAY,EAAE,IAAI,CAAC,CAAC;QACID,IAAI,UAAU,\nGAAqB,IAAI,CAAC,UAAU,CAAC;QACnD,IAAI,MAAM,GAAW,IAAI,CAAC,MAAM,KAAK,SAAS,GAAG,I\nAAI,CAAC,MAAM,GAAG,GAAG,CAAC;QACnE,IAAI,IAAI,CAAC,MAAM,KAAK,SAAS,EAAE;YAC7B,IAA\nI,IAAI,KAAK,IAAI,EAAE;gBACjB,MAAM,GAAG,GAAG,CAAC;gBACb,UAAU,GAAG,UAAU,IAAI,YAAY,\nCAAC;aAcZc;iBAAM;gBACL,UAAU,GAAG,UAAU,IAAI,IAAI,CAAC;aAcJc;SACf;QACD,IAAI,UAAU,KA\nAK,SAAS,EAAE;YAC5B,MAAM,IAAI,KAAK,CAAC,sDAAsD,CAAC,CAAC;SACzE;QACD,IAAI,MAAM,IA
```

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Found

in path(s):

\* /common-11-0-2-tgz/package/fesm2015/http/testing.js.map

No license file was found, but licenses were detected in source scan.

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index.ts", "../..../packages/common/http/testing/testing.ts"], "sourcesContent": ["/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {HttpRequest} from
```



```
'@angular/common/http';\n\nimport { TestRequest } from './request';\n\n/**\n * Defines a matcher for requests based\n * on URL, method, or both.\n */\n * @publicApi\n */\nexport interface RequestMatch {\n method?:\n string;\n url?: string;\n}\n\n/**\n * Controller to be injected into tests, that allows for mocking and flushing\n * of requests.\n */\n * @publicApi\n */\nexport abstract class HttpTestingController {\n /**\n * Search for requests that\n * match the given parameter, without any expectations.\n */\n abstract match(match: string|RequestMatch)((req:\n HttpRequest<any>) => boolean): TestRequest[];\n\n /**\n * Expect that a single request has been made which\n * matches the given URL, and return its\n * mock.\n */\n * If no such request has been made, or more than one\n such request has been made, fail with an\n * error message including the given request description, if any.\n */\n abstract expectOne(url: string, description?: string): TestRequest;\n\n /**\n * Expect that a single request has been\n * made which matches the given parameters, and return\n * its mock.\n */\n * If no such request has been made, or\n more than one such request has been made, fail with an\n * error message including the given request description, if any.\n */\n abstract expectOne(params: RequestMatch,\n description?: string): TestRequest;\n\n /**\n * Expect that a single request has been made which matches the given\n * predicate function, and\n * return its mock.\n */\n * If no such request has been made, or more than one such\n request has been made, fail with an\n * error message including the given request description, if any.\n */\n abstract expectOne(matchFn: ((req: HttpRequest<any>) => boolean),\n description?: string): TestRequest;\n\n /**\n * Expect that a single request has been made which matches the given condition, and return\n * its mock.\n */\n * If no such request has been made, or more than one such request has been made, fail with an\n * error\n message including the given request description, if any.\n */\n abstract expectOne(\n match:\n string|RequestMatch)((req: HttpRequest<any>) => boolean),\n description?: string): TestRequest;\n\n /**\n * Expect that no requests have been made which match the given URL.\n */\n * If a matching request has\n been made, fail with an error message including the given request\n * description, if any.\n */\n abstract expectNone(url: string, description?: string): void;\n\n /**\n * Expect that no requests have been made which\n * match the given parameters.\n */\n * If a matching request has been made, fail with an error message including the\n given request\n * description, if any.\n */\n abstract expectNone(params: RequestMatch, description?: string):\n void;\n\n /**\n * Expect that no requests have been made which match the given predicate function.\n */\n * If a\n matching request has been made, fail with an error message including the given request\n * description, if any.\n */\n abstract expectNone(matchFn: ((req: HttpRequest<any>) => boolean),\n description?: string): void;\n\n /**\n * Expect that no requests have been made which match the given\n condition.\n */\n * If a matching request has been made, fail with an error message including the given request\n * description, if any.\n */\n abstract expectNone(\n match: string|RequestMatch)((req: HttpRequest<any>) =>\n boolean),\n description?: string): void;\n\n /**\n * Verify that no unmatched requests are outstanding.\n */\n * If\n any requests are outstanding, fail with an error message indicating which requests were not\n * handled.\n */\n * If `ignoreCancelled` is not set (the default), `verify()` will also fail if cancelled requests\n * were not explicitly\n matched.\n */\n abstract verify(opts?: { ignoreCancelled?: boolean }): void;\n}\n\n"/**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { HttpErrorResponse, HttpEvent,\n HttpHeaders, HttpRequest, HttpResponse } from '@angular/common/http';\n\nimport\n { Observer } from 'rxjs';\n\n/**\n * A mock requests that was received and is ready to be answered.\n */\n * This\n interface allows access to the underlying `HttpRequest`, and allows\n * responding with `HttpEvent`s or\n `HttpErrorResponse`s.\n */\n * @publicApi\n */\nexport class TestRequest {\n /**\n * Whether the request was\n cancelled after it was sent.\n */\n get cancelled(): boolean {\n return this._cancelled;\n }\n\n /**\n * @internal\n set by `HttpClientTestingModule`\n */\n _cancelled = false;\n\n constructor(public request: HttpRequest<any>,\n private observer: Observer<HttpEvent<any>>) {\n }\n\n /**\n * Resolve the request by returning a body plus\n additional HTTP information (such as response\n * headers) if provided.\n */\n * If the request specifies an expected\n body type, the body is converted into the requested type.\n * Otherwise, the body is converted to `JSON` by\n default.\n */\n * Both successful and unsuccessful responses can be delivered via `flush()`.

```

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 */\n flush(\n body: ArrayBuffer|Blob|boolean|string|number|Object|(boolean|string|number|Object|null)[]|\n null,\n opts: {\n headers?: HttpHeaders|{[name: string]: string | string[]},\n status?: number,\n statusText?: string,\n } = {}): void {\n if (this.cancelled) {\n throw new Error(`Cannot flush a cancelled request.`);\n }\n const url = this.request.urlWithParams;\n const headers =\n (opts.headers instanceof\n HttpHeaders) ? opts.headers : new HttpHeaders(opts.headers);\n body =\n _maybeConvertBody(this.request.responseType, body);\n let statusText: string|undefined = opts.statusText;\n let\n status: number = opts.status !== undefined ? opts.status : 200;\n if (opts.status === undefined) {\n if (body ===\n null) {\n status = 204;\n statusText = statusText || 'No Content';\n } else {\n statusText = statusText ||\n 'OK';\n }\n }\n if (statusText === undefined) {\n throw new Error(`statusText is required when setting a custom status.`);\n }\n if (status >= 200 && status <\n 300) {\n this.observer.next(new HttpResponse<any>({body, headers, status, statusText, url}));\n this.observer.complete();\n } else {\n this.observer.error(new HttpErrorResponse({error: body, headers, status,\n statusText, url}));\n }\n }\n\n /**\n * Resolve the request by returning an `ErrorEvent` (e.g. simulating a\n network failure).\n */\n error(error: ErrorEvent, opts: {\n headers?: HttpHeaders|{[name: string]: string |\n string[]},\n status?: number,\n statusText?: string,\n } = {}): void {\n if (this.cancelled) {\n throw new Error(`Cannot return an error for a cancelled request.`);\n }\n if (opts.status && opts.status >= 200 &&\n opts.status < 300) {\n throw new Error(`error() called with a successful status.`);\n }\n const headers =\n (opts.headers instanceof HttpHeaders) ? opts.headers : new HttpHeaders(opts.headers);\n this.observer.error(new HttpErrorResponse({\n error,\n headers,\n status: opts.status || 0,\n statusText:\n opts.statusText || '',\n url: this.request.urlWithParams,\n }));\n }\n\n /**\n * Deliver an arbitrary `HttpEvent`\n (such as a progress event) on the response stream for this\n * request.\n */\n event(event: HttpEvent<any>): void\n {\n if (this.cancelled) {\n throw new Error(`Cannot send events to a cancelled request.`);\n }\n this.observer.next(event);\n }\n\n /**\n * Helper function to convert a response body to an ArrayBuffer.\n */\n function _toArrayBufferBody(body: ArrayBuffer|Blob|string|number|Object|\n (string | number\n | Object | null)[]): ArrayBuffer {\n if (typeof ArrayBuffer === 'undefined') {\n throw new Error('ArrayBuffer\n responses are not supported on this platform.`);\n }\n if (body instanceof ArrayBuffer) {\n return body;\n }\n throw new Error('Automatic conversion\n to ArrayBuffer is not supported for response type.`);\n }\n\n /**\n * Helper function to convert a response body to a\n Blob.\n */\n function _toBlob(body: ArrayBuffer|Blob|string|number|Object|\n (string | number | Object |\n null)[]): Blob {\n if (typeof Blob === 'undefined') {\n throw new Error('Blob responses are not supported on this\n platform.`);\n }\n if (body instanceof Blob) {\n return body;\n }\n if (ArrayBuffer && body instanceof\n ArrayBuffer) {\n return new Blob([body]);\n }\n throw new Error('Automatic conversion to Blob is not supported\n for response type.`);\n }\n\n /**\n * Helper function to convert a response body to JSON data.\n */\n function\n _toJsonBody(\n body: ArrayBuffer|Blob|boolean|string|number|Object|\n (boolean | string | number | Object |\n null)[],\n format: string = 'JSON'): Object|string|number|(Object | string | number)[] {\n if (typeof ArrayBuffer !==\n 'undefined' && body instanceof ArrayBuffer) {\n throw new Error(`Automatic\n conversion to ${format} is not supported for ArrayBuffers.`);\n }\n if (typeof Blob !== 'undefined' && body\n instanceof Blob) {\n throw new Error(`Automatic conversion to ${format} is not supported for Blobs.`);\n }\n if\n (typeof body === 'string' || typeof body === 'number' || typeof body === 'object' ||\n typeof body === 'boolean' ||\n Array.isArray(body)) {\n return body;\n }\n throw new Error(`Automatic conversion to ${format} is not\n supported for response type.`);\n }\n\n /**\n * Helper function to convert a response body to a string.\n */\n function\n _toTextBody(body: ArrayBuffer|Blob|string|number|Object|\n (string | number | Object | null)[]): string\n {\n if (typeof body === 'string') {\n return body;\n }\n if (typeof ArrayBuffer !== 'undefined' && body\n instanceof ArrayBuffer) {\n throw new Error('Automatic conversion to text is not supported for ArrayBuffers.`);\n }\n if (typeof Blob !== 'undefined' && body instanceof Blob) {\n throw new Error('Automatic conversion to text is not supported for Blobs.`);\n }\n return\n JSON.stringify(_toJsonBody(body, 'text'));\n }\n\n /**\n * Convert a response body to the requested type.\n */\n function _maybeConvertBody(\n responseType: string,\n body:

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ArrayBuffer|Blob|string|number|Object|(string | number | Object | null)[]|null):
ArrayBuffer|Blob|string|number|Object|(string | number | Object | null)[]|null {\n if (body === null) {\n return
null;\n }\n switch (responseType) {\n case 'arraybuffer':\n return _toArrayBufferBody(body);\n case 'blob':\n
return _toBlob(body);\n case 'json':\n return _toJsonBody(body);\n case 'text':\n return
_toTextBody(body);\n default:\n throw new Error(`Unsupported responseType: ${responseType}`);\n
}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {HttpBackend, HttpEvent, HttpEventType, HttpRequest} from '@angular/common/http';\nimport
{Injectable} from '@angular/core';\nimport {Observable, Observer} from 'rxjs';\nimport {HttpTestingController,
RequestMatch} from './api';\nimport {TestRequest} from './request';\n\n\n/**\n * A testing backend for `HttpClient`
which both acts as an `HttpBackend`\n * and as the `HttpTestingController`.\n *\n * `HttpClientTestingBackend`
works by keeping a list of all open requests.\n * As requests come in, they're added to the list. Users can assert that
specific\n * requests were made and then flush them. In the end, a verify() method asserts\n * that no unexpected
requests were made.\n *\n *\n *\n @Injectable()\n export class HttpClientTestingBackend implements HttpBackend,
HttpTestingController {\n /**\n * List of pending requests which have not yet been expected.\n *\n private
open: TestRequest[] = [];\n /**\n * Handle an incoming request by
queueing it in the list of open requests.\n *\n handle(req: HttpRequest<any>): Observable<HttpEvent<any>> {\n
return new Observable((observer: Observer<any>) => {\n const testReq = new TestRequest(req, observer);\n
this.open.push(testReq);\n observer.next({type: HttpEventType.Sent} as HttpEvent<any>);\n return () => {\n
testReq._cancelled = true;\n }; \n }); \n }\n\n /**\n * Helper function to search for requests in the list of
open requests.\n *\n private _match(match: string|RequestMatch|((req: HttpRequest<any>) => boolean)):
TestRequest[] {\n if (typeof match === 'string') {\n return this.open.filter(testReq =>
testReq.request.urlWithParams === match);\n } else if (typeof match === 'function') {\n return
this.open.filter(testReq => match(testReq.request));\n } else {\n return this.open.filter(\n testReq =>
(!match.method || testReq.request.method === match.method.toUpperCase()) &&\n (!match.url
|| testReq.request.urlWithParams === match.url));\n }\n }\n\n /**\n * Search for requests in the list of open
requests, and return all that match\n * without asserting anything about the number of matches.\n *\n
match(match: string|RequestMatch|((req: HttpRequest<any>) => boolean)): TestRequest[] {\n const results =
this._match(match);\n results.forEach(result => {\n const index = this.open.indexOf(result);\n if (index !== -
1) {\n this.open.splice(index, 1);\n }\n });\n return results;\n }\n\n /**\n * Expect that a single
outstanding request matches the given matcher, and return\n * it.\n *\n * Requests returned through this API will
no longer be in the list of open requests,\n * and thus will not match twice.\n *\n expectOne(match:
string|RequestMatch|((req: HttpRequest<any>) => boolean), description?: string):\n TestRequest {\n
description = description || this.descriptionFromMatcher(match);\n const matches
= this.match(match);\n if (matches.length > 1) {\n throw new Error(`Expected one matching request for criteria
`${description}`, found ${\n matches.length} requests.`);\n }\n if (matches.length === 0) {\n let
message = `Expected one matching request for criteria `${description}`, found none.`;\n if (this.open.length >
0) {\n // Show the methods and URLs of open requests in the error, for convenience.\n const requests =
this.open\n .map(testReq => {\n const url = testReq.request.urlWithParams;\n
const method = testReq.request.method;\n return `${method} ${url}`;\n })\n .join(', '); \n message += `
Requests received are: ${requests}.`; \n }\n throw
new Error(message);\n }\n return matches[0]; \n }\n\n /**\n * Expect that no outstanding requests
match the given matcher, and throw an error\n * if any do.\n *\n expectNone(match: string|RequestMatch|((req:
HttpRequest<any>) => boolean), description?: string): \n void {\n description = description ||
this.descriptionFromMatcher(match);\n const matches = this.match(match);\n if (matches.length > 0) {\n
throw new Error(`Expected zero matching requests for criteria `${description}`, found ${\n
matches.length}.`);\n }\n }\n\n /**\n * Validate that there are no outstanding requests.\n *\n verify(opts:
{ignoreCancelled?: boolean} = {}): void {\n let open = this.open;\n // It's possible that some requests may be

```

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cancelled, and this is expected.\n // The user can ask to ignore open requests which have been cancelled.\n if
(opts.ignoreCancelled) {\n open = open.filter(testReq => !testReq.cancelled);\n } \n if (open.length > 0) {\n
// Show the methods and URLs of open requests in the error, for convenience.\n
 const requests = open.map(testReq => {\n const url =
testReq.request.urlWithParams.split('?')[0];\n const method = testReq.request.method;\n
 return `${method} ${url}`;\n })\n .join(', ');\n throw new Error(`Expected
no open requests, found ${open.length}: ${requests}`);\n }\n }\n\n private descriptionFromMatcher(matcher:
string|RequestMatch|\n ((req: HttpRequest<any>) => boolean)): string {\n if (typeof matcher
=== 'string') {\n return `Match URL: ${matcher}`;\n } else if (typeof matcher === 'object') {\n const method
= matcher.method || '(any)';\n const url = matcher.url || '(any)';\n return `Match method: ${method}, URL:
${url}`;\n } else {\n return `Match by function: ${matcher.name}`;\n }\n }\n }\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n *

```

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```

import {HttpBackend, HttpClientModule} from '@angular/common/http';
import {NgModule} from '@angular/core';
import {HttpTestingController} from './api';
import {HttpClientTestingModule} from './backend';

@NgModule({
 imports: [HttpClientTestingModule],
 providers: [
 HttpClientTestingModule,
 {provide: HttpBackend, useExisting: HttpClientTestingModule},
 {provide: HttpTestingController, useExisting: HttpClientTestingModule},
],
})
export class HttpClientTestingModule {
}

/*
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```

```

found in the LICENSE file at https://angular.io/license
export {HttpTestingController, RequestMatch}
from './src/api';
export {HttpClientTestingModule} from './src/module';
export {TestRequest} from
'./src/request';
/*
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code
is governed by an MIT-style license that can be
found in the LICENSE file at https://angular.io/license
export * from './public_api';
/*
 * Generated bundle index. Do not edit.
export * from
'./index';
export {HttpClientTestingModule as angular_packages_common_http_testing_testing_a} from
'./src/backend';
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in path(s):

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No license file was found, but licenses were detected in source scan.

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SOFTWARE.

```

*/ global Reflect, Promise
/*
var extendStatics = function(d, b) {
 extendStatics =
Object.setPrototypeOf ||
 ({ __proto__: [] } instanceof Array && function(d, b) { d.__proto__ = b; }) ||
 function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; };
 return extendStatics(d, b);
};

export function __extends(d, b) {
 extendStatics(d, b);
 function __() { this.constructor = d; }
 d.prototype = b === null
 ? Object.create(b) : (__proto__ = b.prototype, new __());
 export var __assign = function() {
 __assign = Object.assign || function __assign(t) {
 for (var s, i = 1, n = arguments.length; i < n; i++) {
 s = arguments[i];
 for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];
 }
 return t;
 };
 return __assign.apply(this, arguments);
 };
 export function __rest(s, e) {
 var t = {};
 for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0) t[p] = s[p];
 if (s != null && typeof Object.getPrototypeOf === "function")
 for (var i = 0, p = Object.getPrototypeOf(s); i < p.length; i++)
 if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))
 t[p[i]] = s[p[i]];
 return t;
 };
 export function __decorate(decorators, target, key, desc) {
 var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;
 if (typeof Reflect === "object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);
 else for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;
 return c > 3 && r && Object.defineProperty(target, key, r, r);
 };
 export function __param(paramIndex, decorator) {
 return function (target, key) { decorator(target, key, paramIndex); };
 };
 export function __metadata(metadataKey, metadataValue) {
 if (typeof Reflect === "object" && typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey, metadataValue);
 };
 export function __awaiter(thisArg, _arguments, P, generator) {
 function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }
 return new (P || (P = Promise))(function (resolve, reject) {
 function fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }
 function rejected(value) { try { step(generator["throw"](value)); } catch (e) { reject(e); } }
 function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }
 step((generator = generator.apply(thisArg, _arguments || [])).next());
 });
 };
 export function __generator(thisArg, body) {
 var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;
 return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function() { return this; }), g;
 function verb(n) { return function (v) { return step([n, v]); }; }
 function step(op) {
 if (f) throw new TypeError("Generator is already executing.");
 while (_) try {
 if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;
 if (y = 0, t) op = [op[0] & 2, t.value];
 switch (op[0]) {
 case 0: case 1: t = op; break;
 case 4: _.label++; return { value: op[1], done: false };
 case 5: _.label++; y = op[1]; op = [0]; continue;
 case 7: op = _.ops.pop(); _.trys.pop(); continue;
 default:
 if (!(t = _.trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }
 if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _.label = op[1]; break; }
 if (op[0] === 6 && _.label < t[1]) { _.label = t[1]; t = op; break; }
 }
 } catch (e) {
 op[2] = true;
 if (t) op[1] = t;
 t = new Error(e);
 op[0] = 6;
 if (op[1] < 0) op[1] = 0;
 op[1] = t;
 continue;
 }
 }
 };
}

```

```

 if (t && _label < t[2]) { _label = t[2]; _ops.push(op); break; }\r\n if (t[2]) _ops.pop();\r\n
 _trys.pop(); continue;\r\n }\r\n op = body.call(thisArg, _);\r\n } catch (e) { op = [6, e];
y = 0; } finally { f = t = 0; }\r\n if (op[0] & 5) throw op[1]; return { value: op[0] ? op[1] : void 0, done: true
};\r\n }\r\n}\r\n\r\nexport var __createBinding = Object.create ? (function(o, m, k, k2) {\r\n if (k2 ===
undefined) k2 = k;\r\n Object.defineProperty(o, k2, { enumerable: true, get: function() { return m[k]; } });\r\n}) :
(function(o, m, k, k2) {\r\n if (k2 === undefined) k2 = k;\r\n o[k2] = m[k];\r\n});\r\n\r\nexport function
__exportStar(m, exports) {\r\n for (var p in m) if (p !== "default" && !exports.hasOwnProperty(p))
__createBinding(exports, m, p);\r\n}\r\n\r\nexport function __values(o) {\r\n var s = typeof Symbol ===
"function" && Symbol.iterator, m = s && o[s],
i = 0;\r\n if (m) return m.call(o);\r\n if (o && typeof o.length === "number") return {\r\n next: function ()
{\r\n if (o && i >= o.length) o = void 0;\r\n return { value: o && o[i++], done: !o };\r\n }\r\n
};\r\n throw new TypeError(s ? "Object is not iterable." : "Symbol.iterator is not defined.");\r\n}\r\n\r\nexport
function __read(o, n) {\r\n var m = typeof Symbol === "function" && o[Symbol.iterator];\r\n if (!m) return
o;\r\n var i = m.call(o), r, ar = [], e;\r\n try {\r\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done)
ar.push(r.value);\r\n }\r\n catch (error) { e = { error: error }; }\r\n finally {\r\n try {\r\n if (r &&
!r.done && (m = i["return"])) m.call(i);\r\n }\r\n finally { if (e) throw e.error; }\r\n }\r\n return
ar;\r\n}\r\n\r\nexport function __spread() {\r\n for (var ar = [], i = 0; i < arguments.length; i++)\r\n ar =
ar.concat(__read(arguments[i]));\r\n
 return ar;\r\n}\r\n\r\nexport function __spreadArrays() {\r\n for (var s = 0, i = 0, il = arguments.length; i < il;
i++) s += arguments[i].length;\r\n for (var r = Array(s), k = 0, i = 0; i < il; i++)\r\n for (var a = arguments[i], j
= 0, jl = a.length; j < jl; j++, k++)\r\n r[k] = a[j];\r\n return r;\r\n}\r\n\r\nexport function __await(v) {\r\n
return this instanceof __await ? (this.v = v, this) : new __await(v);\r\n}\r\n\r\nexport function
__asyncGenerator(thisArg, _arguments, generator) {\r\n if (!Symbol.asyncIterator) throw new
TypeError("Symbol.asyncIterator is not defined.");\r\n var g = generator.apply(thisArg, _arguments || []), i, q =
[];\r\n return i = { }, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return
this; }, i;\r\n function verb(n) { if (g[n]) i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a,
b]) > 1 || resume(n, v);
}); }; }\r\n function resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n function step(r) {
r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\r\n function
fulfill(value) { resume("next", value); }\r\n function reject(value) { resume("throw", value); }\r\n function
settle(f, v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\nexport function __asyncDelegator(o)
{\r\n var i, p;\r\n return i = { }, verb("next"), verb("throw"), function (e) { throw e; }, verb("return"),
i[Symbol.iterator] = function () { return this; }, i;\r\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p =
!p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\nexport function
__asyncValues(o) {\r\n if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n var m = o[Symbol.asyncIterator], i;\r\n
 return m ? m.call(o) : (o = typeof __values === "function" ? __values(o) : o[Symbol.iterator](), i = { },
verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i);\r\n function
verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),
settle(resolve, reject, v.done, v.value); }); }; }\r\n function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject); }\r\n}\r\n\r\nexport function
__makeTemplateObject(cooked, raw) {\r\n if (Object.defineProperty) { Object.defineProperty(cooked, "raw", {
value: raw }); } else { cooked.raw = raw; }\r\n return cooked;\r\n}\r\n\r\nvar __setModuleDefault = Object.create
? (function(o, v) {\r\n Object.defineProperty(o, "default", { enumerable: true, value: v });\r\n}) : function(o, v)
{\r\n o["default"] = v;\r\n};\r\n\r\nexport function __importStar(mod) {\r\n if (mod && mod.__esModule)
return mod;\r\n var result = {};\r\n if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k))
__createBinding(result, mod, k);\r\n __setModuleDefault(result, mod);\r\n return result;\r\n}\r\n\r\nexport
function __importDefault(mod) {\r\n return (mod && mod.__esModule) ? mod : { default: mod

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};\r\n}\r\n\r\nexport function __classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver))\r\n throw new TypeError("attempted to get private field on non-instance");\r\n }\r\n return\r\n privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if\r\n (!privateMap.has(receiver)) {\r\n throw new TypeError("attempted to set private field on non-instance");\r\n }\r\n privateMap.set(receiver, value);\r\n return value;\r\n}\r\n", "/**\n * @license\n * Copyright Google LLC\n All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style\n license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport function\r\nstripPrefix(val: string, prefix: string): string {\n return val.startsWith(prefix) ? val.substring(prefix.length) :\r\n val;\n}\n\nexport function deepEqual(a: any, b: any): boolean {\n if (a === b) {\n return true;\n } else if (!a || !b)\r\n {\n return false;\n } else {\n try {\n if ((a.prototype !== b.prototype) || (Array.isArray(a) &&\r\n Array.isArray(b))) {\n return false;\n }\n return JSON.stringify(a) === JSON.stringify(b);\n } catch (e)\r\n {\n return false;\n }\n }\n}\n\nexport function isAnchor(el: (Node&ParentNode)|Element|null): el is\r\nHTMLAnchorElement {\n return (<HTMLAnchorElement>el).href !== undefined;\n}\n\nexport function\r\nisPromise<T = any>(obj: any): obj is Promise<T> {\n // allow any Promise/A+ compliant thenable.\n // It's up to\r\n the caller to ensure that obj.then conforms to the spec\n return !!obj && typeof obj.then === 'function';\n}\n", "/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an\r\n MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Location,\r\n LocationStrategy, PlatformLocation} from '@angular/common';\nimport {UpgradeModule} from\r\n '@angular/upgrade/static';\nimport {ReplaySubject} from 'rxjs';\nimport {UrlCodec} from './params';\nimport\r\n {deepEqual, isAnchor, isPromise} from './utils';\n\nconst PATH_MATCH = /^(^?#*)(\|)?(^#*)?#(.*?)?$/;\nconst\r\n DOUBLE_SLASH_REGEX = /^\\s*[\\|\\|\\|]{2,}/;\nconst IGNORE_URI_REGEX =\r\n /^\\s*(javascript|mailto):/i;\nconst DEFAULT_PORTS: {[key: string]: number} = {\n 'http': 80,\n 'https': 443,\n 'ftp': 21\n};\n\n/**\n * Location service that provides a drop-in replacement for the $location service\n * provided\r\n in AngularJS.\n *\n * @see [Using the Angular Unified Location Service](guide/upgrade#using-the-unified-angular-\r\n location-service)\n *\n * @publicApi\n *\n */\nexport class $locationShim {\n private initializing = true;\n private updateBrowser = false;\n private $$absUrl:\r\n string = '';\n private $$url: string = '';\n private $$protocol: string;\n private $$host: string = '';\n private $$port:\r\n number|null;\n private $$replace: boolean = false;\n private $$path: string = '';\n private $$search: any = '';\n private\r\n $$hash: string = '';\n private $$state: unknown;\n private $$changeListeners: [\n (url: string, state:\r\n unknown, oldUrl: string, oldState: unknown, err?: (e: Error) => void) => void,\n (e: Error) => void\n][] =\r\n [];\n\n private cachedState: unknown = null;\n private urlChanges = new ReplaySubject<{newUrl: string,\r\n newState: unknown}>(1);\n\n constructor(\n $injector: any, private location: Location, private platformLocation:\r\n PlatformLocation,\n private urlCodec: UrlCodec, private locationStrategy: LocationStrategy) {\n const\r\n initialUrl = this.browserUrl();\n let parsedUrl\r\n = this.urlCodec.parse(initialUrl);\n if (typeof parsedUrl === 'string') {\n throw 'Invalid URL';\n }\n\n this.$$protocol = parsedUrl.protocol;\n this.$$host = parsedUrl.hostname;\n this.$$port =\r\n parseInt(parsedUrl.port) || DEFAULT_PORTS[parsedUrl.protocol] || null;\n\n this.$$parseLinkUrl(initialUrl,\r\n initialUrl);\n this.cacheState();\n this.$$state = this.browserState();\n\n this.location.onUrlChange((newUrl,\r\n newState) => {\n this.urlChanges.next({newUrl, newState});\n });\n\n if (isPromise($injector)) {\n $injector.then($i => this.initialize($i));\n } else {\n this.initialize($injector);\n }\n }\n\n private\r\n initialize($injector: any) {\n const $rootScope = $injector.get('$rootScope');\n const $rootElement =\r\n $injector.get('$rootElement');\n\n $rootElement.on('click', (event: any) => {\n if (event.ctrlKey ||\r\n event.metaKey || event.shiftKey || event.which === 2 ||\n event.button === 2) {\n return;\n }\n\n let elm: (Node&ParentNode)|null = event.target;\n // traverse the DOM up to find first A tag\n while (elm && elm.nodeName.toLowerCase() !== 'a') {\n // ignore rewriting if no A tag (reached root element,\r\n or no parent - removed from document)\n if (elm === $rootElement[0] || !(elm = elm.parentNode)) {\n return;\n }\n }\n\n if (!isAnchor(elm)) {\n return;\n }\n\n const absHref = elm.href;\n const\r\n relHref = elm.getAttribute('href');\n // Ignore when url is started with javascript: or mailto:\n if

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(IGNORE_URI_REGEX.test(absHref)) {\n return;\n }\n\n if (absHref && !elm.getAttribute('target')
&& !event.isDefaultPrevented()) {\n if (this.$$parseLinkUrl(absHref, relHref)) {\n // We do a
preventDefault for all urls that are part of the AngularJS application,\n // in html5mode and also without, so
that we are able to abort navigation without\n
 // getting double entries in the location history.\n event.preventDefault();\n // update location
manually\n if (this.absUrl() !== this.browserUrl()) {\n $rootScope.$apply();\n }\n }\n });\n\n this.urlChanges.subscribe(({newUrl, newState}) => {\n const oldUrl = this.absUrl();\n const oldState
= this.$$state;\n this.$$parse(newUrl);\n newUrl = this.absUrl();\n this.$$state = newState;\n const
defaultPrevented =\n $rootScope.$broadcast('$locationChangeStart', newUrl, oldUrl, newState, oldState)\n .defaultPrevented;\n // if the location was changed by a '$locationChangeStart' handler then stop\n //
processing this location change\n if (this.absUrl() !== newUrl) return;\n // If default was prevented, set back
to old state. This is the state that was locally\n // cached in the $location service.\n if (defaultPrevented) {\n this.$$parse(oldUrl);\n
 this.state(oldState);\n this.setBrowserUrlWithFallback(oldUrl, false, oldState);\n
this.$$notifyChangeListeners(this.url(), this.$$state, oldUrl, oldState);\n } else {\n this.initializing = false;\n
 $rootScope.$broadcast('$locationChangeSuccess', newUrl, oldUrl, newState, oldState);\n
this.resetBrowserUpdate();\n }\n if (!$rootScope.$$phase) {\n $rootScope.$digest();\n }\n });\n\n //
update browser\n $rootScope.$watch(() => {\n if (this.initializing || this.updateBrowser) {\n
this.updateBrowser = false;\n const oldUrl = this.browserUrl();\n const newUrl = this.absUrl();\n
const oldState = this.browserState();\n let currentReplace = this.$$replace;\n const urlOrStateChanged =\n !this.urlCodec.areEqual(oldUrl, newUrl) || oldState !== this.$$state;\n // Fire location changes one time
to on initialization. This must be done
on the\n // next tick (thus inside $evalAsync()) in order for listeners to be registered\n // before the event
fires. Mimicing behavior from $locationWatch:\n //
https://github.com/angular/angular.js/blob/master/src/ng/location.js#L983\n if (this.initializing ||
urlOrStateChanged) {\n this.initializing = false;\n $rootScope.$evalAsync(() => {\n // Get the
new URL again since it could have changed due to async update\n const newUrl = this.absUrl();\n
const defaultPrevented =\n $rootScope\n .broadcast('$locationChangeStart', newUrl, oldUrl,
this.$$state, oldState)\n .defaultPrevented;\n // if the location was changed by a
'$locationChangeStart' handler then stop\n // processing this location change\n if (this.absUrl() !==
newUrl) return;\n if (defaultPrevented) {\n this.$$parse(oldUrl);\n
 this.$$state = oldState;\n } else {\n // This block doesn't run when initializing because it's going to
perform the update to\n // the URL which shouldn't be needed when initializing.\n if
(urlOrStateChanged) {\n this.setBrowserUrlWithFallback(\n newUrl, currentReplace, oldState
=== this.$$state ? null : this.$$state);\n this.$$replace = false;\n }\n
$rootScope.$broadcast(\n '$locationChangeSuccess', newUrl, oldUrl, this.$$state, oldState);\n if
(urlOrStateChanged) {\n this.$$notifyChangeListeners(this.url(), this.$$state, oldUrl, oldState);\n
 }\n }\n });\n this.$$replace = false;\n }\n }\n });\n\n private resetBrowserUpdate() {\n
this.$$replace = false;\n this.$$state = this.browserState();\n this.updateBrowser = false;\n this.lastBrowserUrl
=
this.browserUrl();\n }\n\n private lastHistoryState: unknown;\n private lastBrowserUrl: string = '';\n private
browserUrl(): string;\n private browserUrl(url: string, replace?: boolean, state?: unknown): this;\n private
browserUrl(url?: string, replace?: boolean, state?: unknown) {\n // In modern browsers `history.state` is `null` by
default; treating it separately\n // from `undefined` would cause `$browser.url('/foo')` to change `history.state`\n
// to undefined via `pushState`. Instead, let's change `undefined` to `null` here.\n if (typeof state === 'undefined')
{\n state = null;\n }\n // setter\n if (url) {\n let sameState = this.lastHistoryState === state;\n //
Normalize the inputted URL\n url = this.urlCodec.parse(url).href;\n // Don't change anything if previous and
current URLs and states match.\n if (this.lastBrowserUrl === url && sameState) {\n return this;\n }\n

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this.lastBrowserUrl = url;\n
this.lastHistoryState = state;\n\n // Remove server base from URL as the Angular APIs for updating URL
require\n // it to be the path+.\n url = this.stripBaseUrl(this.getServerBase(), url) || url;\n\n // Set the URL\n if (replace) {\n this.locationStrategy.replaceState(state, "", url, "");\n } else {\n
this.locationStrategy.pushState(state, "", url, "");\n }\n\n this.cacheState();\n\n return this;\n // getter\n }
else {\n return this.platformLocation.href;\n }\n }\n\n // This variable should be used *only* inside the
cacheState function.\n private lastCachedState: unknown = null;\n private cacheState() {\n // This should be the
only place in $browser where `history.state` is read.\n this.cachedState = this.platformLocation.getState();\n if
(typeof this.cachedState === 'undefined') {\n this.cachedState = null;\n }\n\n // Prevent callbacks fo fire twice
if both hashchange & popstate were fired.\n
if (deepEqual(this.cachedState, this.lastCachedState)) {\n this.cachedState = this.lastCachedState;\n }\n\n
this.lastCachedState = this.cachedState;\n this.lastHistoryState = this.cachedState;\n }\n\n /**\n * This function
emulates the $browser.state() function from AngularJS. It will cause\n * history.state to be cached unless changed
with deep equality check.\n */\n private browserState(): unknown {\n return this.cachedState;\n }\n\n private
stripBaseUrl(base: string, url: string) {\n if (url.startsWith(base)) {\n return url.substr(base.length);\n }\n
return undefined;\n }\n\n private getServerBase() {\n const {protocol, hostname, port} = this.platformLocation;\n
const baseHref = this.locationStrategy.getBaseHref();\n let url = `${protocol}/${hostname}${port ? ':' + port :
""}${baseHref || '/'}`;\n return url.endsWith('/') ? url : url + '/';\n }\n\n private parseAppUrl(url: string) {\n if
(DOUBLE_SLASH_REGEX.test(url))\n {\n throw new Error(`Bad Path - URL cannot start with double slashes: ${url}`);\n }\n\n let prefixed =
(url.charAt(0) !== '/');\n if (prefixed) {\n url = '/' + url;\n }\n let match = this.urlCodec.parse(url,
this.getServerBase());\n if (typeof match === 'string') {\n throw new Error(`Bad URL - Cannot parse URL:
${url}`);\n }\n let path =\n prefixed && match.pathname.charAt(0) === '/' ? match.pathname.substring(1) :
match.pathname;\n this.$$path = this.urlCodec.decodePath(path);\n this.$$search =
this.urlCodec.decodeSearch(match.search);\n this.$$hash = this.urlCodec.decodeHash(match.hash);\n\n // make
sure path starts with '/';\n if (this.$$path && this.$$path.charAt(0) !== '/') {\n this.$$path = '/' + this.$$path;\n
}\n }\n\n /**\n * Registers listeners for URL changes. This API is used to catch updates performed by the\n *
AngularJS framework. These changes are a subset of the `locationChangeStart` and\n
* `locationChangeSuccess` events which fire when AngularJS updates its internally-referenced\n * version of
the browser URL.\n *\n * It's possible for `locationChange` events to happen, but for the browser URL\n *
(window.location) to remain unchanged. This `onChange` callback will fire only when AngularJS\n * actually
updates the browser URL (window.location).\n *\n * @param fn The callback function that is triggered for the
listener when the URL changes.\n * @param err The callback function that is triggered when an error occurs.\n
*/\n onChange(\n fn: (url: string, state: unknown, oldUrl: string, oldState: unknown) => void,\n err: (e: Error)
=> void = (e: Error) => {}) {\n this.$$changeListeners.push([fn, err]);\n }\n\n /** @internal */\n
$$notifyChangeListeners(\n url: string = "", state: unknown, oldUrl: string = "", oldState: unknown) {\n
this.$$changeListeners.forEach(([fn, err]) => {\n try {\n fn(url, state, oldUrl,
oldState);\n } catch (e) {\n err(e);\n }\n });\n }\n\n /**\n * Parses the provided URL, and sets the
current URL to the parsed result.\n *\n * @param url The URL string.\n */\n $$parse(url: string) {\n let
pathUrl: string|undefined;\n if (url.startsWith('/')) {\n pathUrl = url;\n } else {\n // Remove protocol &
hostname if URL starts with it\n pathUrl = this.stripBaseUrl(this.getServerBase(), url);\n }\n if (typeof
pathUrl === 'undefined') {\n throw new Error(`Invalid url "${url}", missing path prefix
"${this.getServerBase()}"`);\n }\n\n this.parseAppUrl(pathUrl);\n\n if (!this.$$path) {\n this.$$path =
'/';\n }\n this.composeUrls();\n }\n\n /**\n * Parses the provided URL and its relative URL.\n *\n * @param
url The full URL string.\n * @param relHref A URL string relative to the full URL string.\n */\n
$$parseLinkUrl(url: string, relHref?: string|null): boolean {\n // When relHref
is passed, it should be a hash and is handled separately\n if (relHref && relHref[0] === '#') {\n
this.hash(relHref.slice(1));\n return true;\n }\n let rewrittenUrl;\n let appUrl =

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this.stripBase(this.getServerBase(), url); if (typeof appUrl !== 'undefined') {\n rewrittenUrl =\nthis.getServerBase() + appUrl;\n} else if (this.getServerBase() === url + '/') {\n rewrittenUrl =\nthis.getServerBase();\n}\n// Set the URL\nif (rewrittenUrl) {\n this.$$parse(rewrittenUrl);\n}\nreturn\n!!rewrittenUrl;\n}\nprivate setBrowserUrlWithFallback(url: string, replace: boolean, state: unknown) {\nconst oldUrl = this.url();\nconst oldState = this.$$state;\ntry {\n this.browserUrl(url, replace, state);\n\n //\nMake sure $location.state() returns referentially identical (not just deeply equal)\n // state object; this makes\npossible quick checking if the state changed in the digest\n // loop. Checking deep\nequality would be too expensive.\n this.$$state = this.browserState();\n} catch (e) {\n // Restore old values\nif pushState fails\n this.url(oldUrl);\n this.$$state = oldState;\n throw e;\n}\n}\nprivate\ncomposeUrls() {\n this.$url = this.urlCodec.normalize(this.$path, this.$search, this.$hash);\n this.$absUrl\n= this.getServerBase() + this.$url.substr(1); // remove '/' from front of URL\n this.updateBrowser = true;\n}\n\n/**\n * Retrieves the full URL representation with all segments encoded according to\n * rules specified in\n * [RFC 3986](http://www.ietf.org/rfc/rfc3986.txt).\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let absUrl = $location.absUrl();\n * // =>\n\"http://example.com/#/some/path?foo=bar&baz=xoxo\"\n *\n * ```\n */\nabsUrl(): string {\n return\nthis.$absUrl;\n}\n\n/**\n * Retrieves the current URL, or sets a new URL. When setting a URL,\n *\n * changes the path, search, and hash, and returns a reference to its own instance.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let url = $location.url();\n * // =>\n\"/some/path?foo=bar&baz=xoxo\"\n *\n * ```\n */\nurl(): string;\nurl(url: string): this;\nurl(url?: string):\nstring|this {\n if (typeof url === 'string') {\n if (!url.length) {\n url = '/';\n }\n const match =\nPATH_MATCH.exec(url);\n if (!match) return this;\n if (match[1] || url === '')\nthis.path(this.urlCodec.decodePath(match[1]));\n if (match[2] || match[1] || url === '') this.search(match[3] || '');\n this.hash(match[5] || '');\n // Chainable method\n return this;\n }\n return this.$url;\n}\n\n/**\n * Retrieves the protocol of the current URL.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let protocol = $location.protocol();\n * // => \"http\"\n *\n * ```\n */\nprotocol(): string {\n return this.$$protocol;\n}\n\n/**\n * Retrieves the protocol of the current\nURL.\n *\n * In contrast to the non-AngularJS version `location.host` which returns `hostname:port`, this\n *\n * returns the `hostname` portion only.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let host = $location.host();\n * // => \"example.com\"\n *\n * ```\n */\nhost(): string {\n return this.$host;\n}\n\n/**\n * Retrieves the port of the current URL.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let port = $location.port();\n * // => 80\n *\n * ```\n */\nport(): number|null {\n return this.$$port;\n}\n\n/**\n * Retrieves\nthe path of the current URL, or changes the path and returns a reference to its own\n *\n * instance.\n *\n * Paths\nshould always begin with forward slash (/). This method adds the forward slash\n *\n * if it is missing.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let path = $location.path();\n * // =>\n\"/some/path\"\n *\n * ```\n */\npath(): string;\npath(path: string|number|null): this;\npath(path?:\nstring|number|null): string|this {\n if (typeof path === 'undefined') {\n return this.$path;\n }\n // null path\nconverts to empty string. Prepend with \"/\n\" if needed.\n path = path !== null ? path.toString() : '';\n path =\npath.charAt(0) === '/' ? path : '/' + path;\n this.$path = path;\n this.composeUrls();\n return this;\n}\n\n/**\n * Retrieves a map of the search parameters of the current URL, or changes a search\n *\n * part and returns a\nreference to its own instance.\n *\n * ```\njs\n * // given URL\nhttp://example.com/#/some/path?foo=bar&baz=xoxo\n * let searchObject =\n$location.search();\n * // => {foo: 'bar', baz: 'xoxo'}\n *\n * // set foo to 'yipee'\n * $location.search('foo',\n'yipee');\n * // $location.search() => {foo: 'yipee', baz: 'xoxo'}\n *\n * ```\n */\n@param\n{string|Object.<string>|Object.<Array.<string>>} search New search params - string or\n *\n * hash object.\n *\n * When called with a single argument the method acts as a setter, setting the `search` component\n *\n * of `$location` to
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the specified value.

- \* If the argument is a hash object containing an array of values, these values will be encoded as duplicate search parameters in the URL.
- \* @param {(string|Number|Array<string>|boolean)=} paramValue If `search` is a string or number, then `paramValue` will override only a single search property. If `paramValue` is an array, it will override the property of the `search` component of `\$location` specified via the first argument.
- \* If `paramValue` is `null`, the property specified via the first argument will be deleted.
- \* If `paramValue` is `true`, the property specified via the first argument will be added with no value nor trailing equal sign.
- \* @return {Object} The parsed `search` object of the current URL, or the changed `search` object.

```

search(): {[key: string]: unknown};
search(search: string|number|{[key: string]: unknown}): this;
search(search: string|number|{[key: string]: unknown}, paramValue: null|undefined|string|number|boolean|string[]): this;
search(search?: string|number|{[key: string]: unknown}, paramValue?: null|undefined|string|number|boolean|string[]): {[key: string]: unknown}|this {
 switch (arguments.length) {
 case 0:
 return this.$search;
 case 1:
 if (typeof search === 'string' || typeof search === 'number') {
 this.$search = this.urlCodec.decodeSearch(search.toString());
 } else if (typeof search === 'object' && search !== null) {
 // Copy the object so it's never mutated
 search = {...search};
 // remove object undefined or null properties
 for (const key in search) {
 if (search[key] == null) delete search[key];
 }
 this.$search = search;
 } else {
 throw new Error('LocationProvider.search(): First argument must be a string or an object.');
```

break;
default:
if (typeof search === 'string') {
 const currentSearch = this.search();
 if (typeof paramValue === 'undefined' || paramValue === null) {
 delete currentSearch[search];
 return this.search(currentSearch);
 } else {
 currentSearch[search] = paramValue;
 return this.search(currentSearch);
 }
}
}
}
this.composeUrls();
return this;
}

/\*\*
 \* Retrieves the current hash fragment, or changes the hash fragment and returns a reference to its own instance.
 \* @param {string} url Given URL
 \* @example http://example.com/#/some/path?foo=bar&baz=xoxo#hashValue
 \* let hash = \$location.hash();
 \* // => "#hashValue"
 \* @param {string} hash hash
 \* hash(): string;
 \* hash(hash: string|number|null): this;
 \* hash(hash?: string|number|null): string|this {
 if (typeof hash === 'undefined') {
 return this.\$hash;
 }
 this.\$hash = hash !== null ? hash.toString() : "";
 this.composeUrls();
 return this;
}

/\*\*
 \* Changes to `\$location` during the current `\$digest` will replace the current history record, instead of adding a new one.
 \* @param {boolean} replace
 \* replace(): this {
 this.\$\$replace = true;
 return this;
}

/\*\*
 \* Retrieves the history state object when called without any parameter.
 \* @param {Object} state
 \* Change the history state object when called with one parameter and return `\$location`.
 \* The state object is later passed to `pushState` or `replaceState`.
 \* This method is supported only in HTML5 mode and only in browsers supporting the HTML5 History API methods such as `pushState` and `replaceState`. If you need to support older browsers (like Android < 4.0), don't use this method.
 \* state(): unknown;
 \* state(state: unknown): this;
 \* state(state?: unknown): unknown|this {
 if (typeof state === 'undefined') {
 return this.\$\$state;
 }
 this.\$\$state = state;
 return this;
}

/\*\*
 \* The factory function used to create an instance of the `\$locationShim` in Angular, and provides an API-compatible `\$locationProvider` for AngularJS.
 \* @publicApi
 \* @ngexport class \$locationShimProvider {
 constructor(private ngUpgrade: UpgradeModule, private location: Location, private platformLocation: PlatformLocation, private urlCodec: UrlCodec, private locationStrategy: LocationStrategy) {}

 /\*\*
 \* Factory method that returns an instance of the \$locationShim
 \* @param {Object} \$get
 \* return new \$locationShim(this.ngUpgrade.\$injector, this.location, this.platformLocation, this.urlCodec, this.locationStrategy);
 }

 /\*\*
 \* Stub method used to keep API compatible with AngularJS. This setting is configured through the LocationUpgradeModule's `config` method in your Angular app.
 \* @param {string} prefix
 \* hashPrefix(prefix?: string) {
 throw new Error('Configure LocationUpgrade through LocationUpgradeModule.config method.');

}

/\*\*
 \* Stub method used to keep API compatible with AngularJS. This setting is configured through the

```

LocationUpgradeModule's `config` method in your Angular app.\n */\n\nhtml5Mode(mode?: any) {\n throw new\n Error('Configure LocationUpgrade through LocationUpgradeModule.config method.');
```

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Google LLC All Rights Reserved.\n \*/\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \*/\n\n \* A codec for encoding and decoding URL parts.\n \*/\n \* @publicApi\n \*/\n\nexport abstract class UrlCodec {\n /\*\*\n \* Encodes the path from the provided string\n \*/\n \* @param path The path string\n \*/\n abstract encodePath(path: string): string;\n\n /\*\*\n \* Decodes the path from the provided string\n \*/\n \* @param path The path string\n \*/\n abstract decodePath(path: string): string;\n\n /\*\*\n \* Encodes the search string from the provided string or object\n \*/\n \* @param path The path string or object\n \*/\n abstract encodeSearch(search: string | {[k: string]: unknown}): string;\n\n /\*\*\n \* Decodes the search objects from the provided string\n \*/\n \* @param path The path string\n \*/\n abstract decodeSearch(search: string): {[k: string]: unknown};\n\n /\*\*\n \* Encodes the hash from the provided string\n \*/\n \* @param path The hash string\n \*/\n abstract encodeHash(hash: string): string;\n\n /\*\*\n \* Decodes the hash from the provided string\n \*/\n \* @param path The hash string\n \*/\n abstract decodeHash(hash: string): string;\n\n /\*\*\n \* Normalizes the URL from the provided string\n \*/\n \* @param path The URL string\n \*/\n abstract normalize(href: string): string;\n\n /\*\*\n \* Normalizes the URL from the provided string, search, hash, and base URL parameters\n \*/\n \* @param path The URL path\n \*/\n \* @param search The search object\n \*/\n \* @param hash The hash string\n \*/\n \* @param baseUrl The base URL for the URL\n \*/\n abstract normalize(path: string, search: {[k: string]: unknown}, hash: string, baseUrl?: string): string;\n\n /\*\*\n \* Checks whether the two strings are equal\n \*/\n \* @param valA First string for comparison\n \*/\n \* @param valB Second string for comparison\n \*/\n abstract areEqual(valA: string, valB: string): boolean;\n\n /\*\*\n \* Parses the URL string based on the base URL\n \*/\n \* @param url The full URL string\n \*/\n \* @param base The base for the URL\n \*/\n abstract parse(url: string, base?: string): {\n href: string,\n protocol: string,\n host: string,\n search: string,\n hash: string,\n hostname: string,\n port: string,\n pathname: string\n };\n\n /\*\*\n \* A `UrlCodec` that uses logic from AngularJS to serialize and parse URLs\n \* and URL parameters.\n \*/\n \* @publicApi\n \*/\n \nexport class AngularJSUrlCodec implements UrlCodec {\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L15\n encodePath(path: string): string {\n const segments = path.split('/');\n let i = segments.length;\n while (i--) {\n // decode forward slashes to prevent them from being double encoded\n segments[i] = encodeUriSegment(segments[i].replace(/%2F/g, '/'));\n }\n path = segments.join('/');\n return \_stripIndexHtml((path && path[0] !== '/' && ' ' || ') + path);\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L42\n encodeSearch(search: string | {[k: string]: unknown}): string {\n if (typeof search === 'string') {\n search = parseKeyValue(search);\n }\n search = toKeyValue(search);\n return search ? '?' + search : '';\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L44\n encodeHash(hash: string) {\n hash = encodeUriSegment(hash);\n return hash ? '#' + hash : '';\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L27\n decodePath(path: string, html5Mode = true): string {\n const segments = path.split('/');\n let i = segments.length;\n while (i--) {\n segments[i] = decodeURIComponent(segments[i]);\n if (html5Mode) {\n // encode forward slashes to prevent them from being mistaken for path separators\n segments[i] = segments[i].replace(/\\/g, '%2F');\n }\n }\n return segments.join('/');\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L72\n decodeSearch(search: string) {\n return parseKeyValue(search);\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L73\n decodeHash(hash: string) {\n hash = decodeURIComponent(hash);\n return hash[0] === '#' ? hash.substring(1) : hash;\n }\n\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L149\n // https://github.com/angular/angular.js/blob/864c7f0/src/ng/location.js#L42\n normalize(href: string): string;\n normalize(path: string, search: {[k: string]: unknown}, hash: string, baseUrl?: string): string;\n

```

normalize(pathOrHref: string, search?: {[k: string]: unknown}, hash?: string, baseUrl?: string): string {
 if (arguments.length === 1) {
 const parsed = this.parse(pathOrHref, baseUrl);
 if (typeof parsed === 'string') {
 return
 parsed;
 }
 const serverUrl = `${parsed.protocol}://${parsed.hostname}${parsed.port ? ':' +
 parsed.port : ''}`;
 return this.normalize(
 this.decodePath(parsed.pathname),
 this.decodeSearch(parsed.search),
 this.decodeHash(parsed.hash),
 serverUrl);
 } else {
 const encPath = this.encodePath(pathOrHref);
 const encSearch = search && this.encodeSearch(search) || '';
 const encHash = hash && this.encodeHash(hash) || '';
 let joinedPath = (baseUrl || '') + encPath;
 if (!joinedPath.length || joinedPath[0] !== '/') {
 joinedPath = '/' + joinedPath;
 }
 return joinedPath +
 encSearch + encHash;
 }
}

areEqual(valA: string, valB: string) {
 return this.normalize(valA) ===
 this.normalize(valB);
}

// https://github.com/angular/angular.js/blob/864c7f0/src/ng/urlUtils.js#L60
parse(url: string, base?: string) {
 try {
 // Safari 12 throws an error when the
 // URL constructor is called with an undefined base.
 const parsed = !base ? new URL(url) : new URL(url,
 base);
 return {
 href: parsed.href,
 protocol: parsed.protocol ? parsed.protocol.replace(/:$/, '') : '',
 host: parsed.host,
 search: parsed.search ? parsed.search.replace(/^\?/, '') : '',
 hash: parsed.hash ?
 parsed.hash.replace(/^#/, '') : '',
 hostname: parsed.hostname,
 port: parsed.port,
 pathname:
 (parsed.pathname.charAt(0) === '/') ? parsed.pathname : '/' + parsed.pathname;
 };
 } catch (e) {
 throw
 new Error('Invalid URL (' + url + ') with base (' + base + ')');
 }
}

function _stripIndexHtml(url: string):
 string {
 return url.replace(/\/index.html$/, '');
}

function _decodeURIComponent(value:
 string): string | undefined {
 try {
 return decodeURIComponent(value);
 } catch (e) {
 // Ignore any invalid
 // uri component.
 return undefined;
 }
}

function _parseQuery(query: string): {[k: string]: unknown} {
 const obj: {[k: string]: unknown} = {};
 (keyValue || '').split('&').forEach((keyValue) => {
 let splitPoint = keyValue.indexOf('=');
 if (splitPoint !== -1) {
 key =
 keyValue.substring(0, splitPoint);
 val = keyValue.substring(splitPoint + 1);
 key =
 tryDecodeURIComponent(key);
 if (typeof key !== 'undefined') {
 val = typeof val !== 'undefined' ?
 tryDecodeURIComponent(val) : true;
 if (!obj.hasOwnProperty(key)) {
 obj[key] = val;
 } else if (Array.isArray(obj[key])) {
 (obj[key] as unknown[]).push(val);
 } else {
 obj[key] = [obj[key], val];
 }
 }
 }
 });
 return obj;
}

function _serialize(obj: {[k: string]: unknown}): string {
 const parts: unknown[] = [];
 for (const key in obj) {
 let value = obj[key];
 if (Array.isArray(value)) {
 value.forEach((arrayValue) => {
 parts.push(
 encodeUriQuery(key, true) +
 (arrayValue === true ? '=' : encodeUriQuery(arrayValue, true));
 });
 } else {
 parts.push(
 encodeUriQuery(key, true) +
 (value === true ? '=' : encodeUriQuery(value as any, true));
 }
 }
 return parts.length ? parts.join('&') : '';
}

function _encodeUriSegment(val:
 string): string {
 return encodeUriQuery(val, true).replace(/%26/g, '&').replace(/%3D/gi, '=').replace(/%2B/gi,
 '+');
}

function _encodeUriQuery(key: string, value: unknown): string {
 // This method is intended for encoding *key* or *value* parts of query component. We need a
 // custom method because encodeURIComponent is too aggressive and encodes stuff that doesn't have to be

```

encoded

per <http://tools.ietf.org/html/rfc3986>:  
query = \*(pchar / "\" / "?" )  
pchar = unreserved / pct-  
encoded / sub-delims / ":" / "@" / "  
unreserved = ALPHA / DIGIT / "-" / "." / "\_" / "~"  
pct-  
encoded = "%" HEXDIG HEXDIG  
sub-delims = "!" / "\$" / "&" / "'" / "(" / ")" /  
"\*" / "+" / "," / ";" / "="  
Logic from

<https://github.com/angular/angular.js/blob/864c7f0/src/Angular.js#L1456>  
function encodeUriQuery(val:  
string, pctEncodeSpaces: boolean = false) {  
return encodeURIComponent(val).replace(/%40/g, '@').  
replace(/%3A/g, ':').replace(/%24/g, '\$').replace(/%2C/g, ',').  
replace(/%3B/g, ';').replace(/%20/g, (pctEncodeSpaces ? '%20' : '+'));  
}  
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at <https://angular.io/license>  
import {APP\_BASE\_HREF, CommonModule, HashLocationStrategy,  
Location, LocationStrategy, PathLocationStrategy, PlatformLocation} from '@angular/common';  
import {Inject, InjectionToken, ModuleWithProviders, NgModule, Optional} from '@angular/core';  
import {UpgradeModule} from '@angular/upgrade/static';  
import {\$locationShim, \$locationShimProvider} from './location\_shim';  
import {AngularJSUrlCodec, UrlCodec} from './params';  
Configuration options for LocationUpgrade.  
@publicApi  
export interface LocationUpgradeConfig {  
/\*\*  
 \* Configures whether the location upgrade module should use the `HashLocationStrategy` or the `PathLocationStrategy`  
 \* useHash?: boolean;  
 /\*\*  
 \* Configures the hash prefix used in the URL when using the `HashLocationStrategy`  
 \* hashPrefix?: string;  
 /\*\*  
 \* Configures the URL codec for encoding and decoding URLs. Default is the `AngularJSCodec`  
 \* urlCodec?:

typeof UrlCodec;  
 /\*\*  
 \* Configures the base href when used in server-side rendered applications  
 \* serverBaseHref?: string;  
 /\*\*  
 \* Configures the base href when used in client-side rendered applications  
 \* appBaseHref?: string;  
 }  
 A provider token used to configure the location upgrade module.  
@publicApi  
export const LOCATION\_UPGRADE\_CONFIGURATION = new  
InjectionToken<LocationUpgradeConfig>('LOCATION\_UPGRADE\_CONFIGURATION');  
const  
APP\_BASE\_HREF\_RESOLVED = new InjectionToken<string>('APP\_BASE\_HREF\_RESOLVED');  
/\*\*  
 \* `NgModule` used for providing and configuring Angular's Unified Location Service for upgrading.  
 \* @see [Using the Unified Angular Location Service](guide/upgrade#using-the-unified-angular-location-service)  
 \* @publicApi  
 \* @NgModule({ imports: [CommonModule] })  
 \* export class LocationUpgradeModule {  
 \* static  
 \* config(config?: LocationUpgradeConfig): ModuleWithProviders<LocationUpgradeModule> {  
 \* return {  
 \* ngModule: LocationUpgradeModule,  
 \* providers: [  
 \* Location,  
 \* {  
 \* provide: \$locationShim,  
 \* useFactory: provide\$location,  
 \* deps: [UpgradeModule, Location, PlatformLocation, UrlCodec, LocationStrategy]  
 \* },  
 \* {  
 \* provide: LOCATION\_UPGRADE\_CONFIGURATION, useValue: config ? config : {}  
 \* },  
 \* {  
 \* provide: UrlCodec, useFactory: provideUrlCodec, deps: [LOCATION\_UPGRADE\_CONFIGURATION]  
 \* },  
 \* {  
 \* provide: APP\_BASE\_HREF\_RESOLVED,  
 \* useFactory: provideAppBaseHref,  
 \* deps: [LOCATION\_UPGRADE\_CONFIGURATION, new Inject(APP\_BASE\_HREF), new Optional()]  
 \* },  
 \* {  
 \* provide: LocationStrategy,  
 \* useFactory: provideLocationStrategy,  
 \* deps: [  
 \* PlatformLocation,  
 \* APP\_BASE\_HREF\_RESOLVED,  
 \* LOCATION\_UPGRADE\_CONFIGURATION  
 \* ]  
 \* },  
 \* ],  
 \* };  
 \* }  
 \* }  
 \* export function provideAppBaseHref(config: LocationUpgradeConfig, appBaseHref?: string) {  
 \* if (config && config.appBaseHref != null) {  
 \* return config.appBaseHref;  
 \* } else if (appBaseHref != null) {  
 \* return appBaseHref;  
 \* }  
 \* return '';  
 \* }  
 \* export function provideUrlCodec(config: LocationUpgradeConfig) {  
 \* const codec = config && config.urlCodec || AngularJSUrlCodec;  
 \* return new (codec as any)();  
 \* }  
 \* export function provideLocationStrategy(platformLocation: PlatformLocation, baseHref: string, options: LocationUpgradeConfig = {}) {  
 \* return options.useHash ? new HashLocationStrategy(platformLocation, baseHref) : new PathLocationStrategy(platformLocation, baseHref);  
 \* }  
 \* }  
 \* export function provide\$location(ngUpgrade:



```

UpgradeModule, location: Location, platformLocation: PlatformLocation,\n urlCodec: UrlCodec,
locationStrategy: LocationStrategy) {\n const $locationProvider =\n new $locationShimProvider(ngUpgrade,
location, platformLocation, urlCodec, locationStrategy);\n\n return $locationProvider.$get();\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport { $locationShim, $locationShimProvider } from './location_shim';\nexport
{ LOCATION_UPGRADE_CONFIGURATION, LocationUpgradeConfig, LocationUpgradeModule } from
'./location_upgrade_module';\nexport { AngularJSUrlCodec, UrlCodec } from './params';\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/*\n * @module\n * @description\n
* Entry point for all public APIs of this package.\n */\nexport * from './src/index';\n\n// This file only reexports
content of the `src` folder. Keep it that way.\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n// This file is not used to build this module. It is only used during editing\n// by the
TypeScript language service and during build for verification. `ngc`\n// replaces this file with production index.ts
when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n", "/*\n * Generated bundle index. Do
not edit.\n */\n\nexport * from './index';\n\nexport { provide$location as
angular_packages_common_upgrade_upgrade_d, provideAppBaseHref as
angular_packages_common_upgrade_upgrade_a, provideLocationStrategy as
angular_packages_common_upgrade_upgrade_c, provideUrlCodec as
angular_packages_common_upgrade_upgrade_b } from
'./src/location_upgrade_module';\n}, { "names": ["ReplaySubject", "InjectionToken", "Location", "UpgradeModule", "Platf
ormLocation", "LocationStrategy", "Inject", "APP_BASE_HREF", "Optional", "NgModule", "CommonModule", "Hash
LocationStrategy", "PathLocationStrategy"], "mappings": ";;;;;;;;;;IAAA;;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,U
AAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aAChC,EAAE,SAAS,EAAE,EAAE,EAA
E,YAAY,KAAK,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CA
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GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EA
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AE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CA
AC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,
CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAA
C,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;aAChF;YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO
,QAAQ,CAAC,KAAK,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CA
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AAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;oBACIE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,G

```

AAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;aAczB;QACL,OAAO,CAAC,CAAC;IACb,CAA  
C;aAEe,UAAU,CAAC,UAAU,EAAE,MAAM,EAAE,GAAG,EAAE,IAAI;QACpD,IAAI,CAAC,GAAG,SAAS,CA  
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AE,IAAI,CAAC,GAAG,UAAU,CAAC,CAAC,CAAC;oBAAE,CAAC,GAAG,CAAC,CAAC,GAAG,CAAC,GAA  
G,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,GAAG,EAA  
E,CAAC,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,GAAG,CAAC,KAAK,CAAC,CAAC;QACIJ,OAAO,CAA  
C,GAAG,CAAC,IAAI,CAAC,IAAI,MAAM,CAAC,cAAc,CAAC,MAAM,EAAE,GAAG,EAAE,CAAC,CAAC,EA  
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AEe,UAAU,CAAC,WAAW,EAAE,aAAa;QACjD,IAAI,OAAO,OAAO,KAAK,QAAQ,IAAI,OAAO,OAAO,CAA  
C,QAAQ,KAAK,UAAU;YAAE,OAAO,OAAO,CAAC,QAAQ,CAAC,WAAW,EAAE,aAAa,CAAC,CAAC;IACnI  
,CAAC;aAEe,SAAS,CAAC,OAAO,EAAE,UAAU,EAAE,CAAC,EAAE,SAAS;QACvD,SAAS,KAAK,CAAC,KA  
AK,IAAI,OAAO,KAAK,YAAY,CAAC,GAAG,KAAK,GAAG,IAAI,CAAC,CAAC,UAAU,OAAO,IAAI,OAAO,C  
AAC,KAAK,CAAC,CAAC,EAAE,CAAC,CAAC,EAAE;QAC5G,OAAO,KAAK,CAAC,KAAK,CAAC,GAAG,O  
AAO,CAAC,EAAE,UAAU,OAAO,EAAE,MAAM;YACrD,SAAS,SAAS,CAAC,KAAK,IAAI,IAAI;gBAAE,IAAI  
,CAAC,SAAS,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,CAAC;aAAE;YAAC,OAAO,CAAC,EAAE;gBAAE,M  
AAM,CAAC,CAAC,CAAC,CAAC;aAAE,EAAE;YAC3F,SAAS,QAAQ,CAAC,KAAK,IAAI,IAAI;gBAAE,IAAI  
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EAAE;IAEHf,IAAM,sBAAsB,GAAG,IAAIA,mBAAC,CAAS,wBAAwB,CAAC,CAAC;IAEpF;;;;;QAQA;;QAC  
S,4BAAM,GAAb,UAAc,MAA8B;YAC1C,OAAO;gBACL,QAAQ,EAAE,qBAaB;gBAC/B,SAAS,EAAE;oBAC  
TC,eAAQ;oBACR;wBACE,OAAO,EAAE,aAAa;wBACtB,UAAU,EAAE,gBAAGB;wBAC5B,IAAI,EAAE,CAAC  
C,qBAaA,EAAED,eAAQ,EAAEE,uBAAGB,EAAE,QAAQ,EAAEC,uBAAGB,CAAC;qBAC9E;oBACD,EAAC,O  
AAO,EAAE,8BAA8B,EAAE,QAAQ,EAAE,MAAM,GAAG,MAAM,GAAG,EAAE,EAAC;oBACzE,EAAC,OAA  
O,EAAE,QAAQ,EAAE,UAAU,EAAE,eAAe,EAAE,IAAI,EAAE,CAAC,8BAA8B,CAAC,EAAC;oBACxF;wBAC  
E,OAAO,EAAE,sBAAsB;wBAC/B,UAAU,EAAE,kBAaKB;wBAC9B,IAAI,EAAE,CAAC,8BAA8B,EAAE,CAA  
C,IAAIC,WAAW,CAACC,oBAaA,CAAC,EAAE,IAAIC,aAAQ,EAAE,CAAC,CAAC;qBACpF;oBACD;wBACE,  
OAAO,EAAEH,uBAAGB;wBACzB,UAAU,EAAE,uBAAuB;wBACnC,IAAI,EAAE;4BACJD,uBAAGB;4BACHb,  
sBAAsB;4BACtB,8BAA8B;yBAC/B;qBACF;iBACF;aACF,CAAC;SACH;;;;;gBA9BfK,aAAQ,SAAC,EAAC,OA  
AO,EAAE,CAACC,mBAAY,CAAC,EAAC;;aAiCnB,kBAaKB,CAAC,MAA6B,EAAE,WAAoB;QACpF,IAAI,M  
AAM,IAAI,MAAM,CAAC,WAAW,IAAI,IAAI,EAAE;YACxC,OAAO,MAAM,CAAC,WAAW,CAAC;SAC3B;a  
AAM,IAAI,WAAW,IAAI,IAAI,EAAE;YAC9B,OAAO,WAAW,CAAC;SACpB;QACD,OAAO,EAAE,CAAC;IAC

Z,CAAC;aAEe,eAAe,CAAC,MAA6B;QAC3D,IAAM,KAAK,GAAG,MAAM,IAAI,MAAM,CAAC,QAAQ,IAAI,i  
BAAiB,CAAC;QAC7D,OAAO,IAAK,KAAa,EAAE,CAAC;IAC9B,CAAC;aAEe,uBAAuB,CACnC,gBAAkC,EA  
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AAC,CAAC;IACbF,CAAC;aAEe,gBAAgB,CAC5B,SAAwB,EAAE,QAAkC,EAAE,gBAAkC,EACbF,QAAkC,EA  
AE,gBAAkC;QACxD,IAAM,iBAAiB,GACnB,IAAI,qBAAqB,CAAC,SAAS,EAAE,QAAQ,EAAE,gBAAgB,EAA  
E,QAAQ,EAAE,gBAAgB,CAAC,CAAC;QAEjG,OAAO,iBAAiB,CAAC,IAAI,EAAE,CAAC;IACIC;;IC1HA;;;;;  
;ICAA;;;;;;IAeA;;ICfA;;;;;;ICAA;;;;;;;" }

Found

in path(s):

\* /common-11-0-2-tgz/package/bundles/common-upgrade.umd.js.map

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\*/

Found in path(s):

\* /common-11-0-2-tgz/package/bundles/common-upgrade.umd.js

\* /common-11-0-2-tgz/package/bundles/common-upgrade.umd.min.js

No license file was found, but licenses were detected in source scan.

```

{"version":3,"file":"common.umd.js","sources":["../.././packages/common/src/dom_adapter.ts","../.././extern
al/npm/node_modules/tslib/tslib.es6.js","../.././packages/common/src/dom_tokens.ts","../.././packages/comm
on/src/location/platform_location.ts","../.././packages/common/src/private_export.ts","../.././packages/comm
on/src/location/util.ts","../.././packages/common/src/location/location_strategy.ts","../.././packages/common/
src/location/hash_location_strategy.ts","../.././packages/common/src/location/location.ts","../.././packages/co
mmon/src/location/index.ts","../.././packages/common/src/i18n/currencies.ts","../.././packages/common/src/i
18n/locale_data_api.ts","../.././packages/common/src/i18n/format_date.ts","../.././packages/common/src/i18n
/format_number.ts","../.././packages/common/src/i18n/localization.ts","../.././packages/common/src/i18n/loc
ale_data.ts","../.././packages/common/src/cookie.ts","../.././packages/common/src/directives/ng_class.ts","..
../.././packages/common/src/directives/ng_component_outlet.ts","../.././packages/common/src/directives/ng_for
_of.ts","../.././packages/common/src/directives/ng_if.ts","../.././packages/common/src/directives/ng_switch.t
s","../.././packages/common/src/directives/ng_plural.ts","../.././packages/common/src/directives/ng_style.ts",
"../.././packages/common/src/directives/ng_template_outlet.ts","../.././packages/common/src/directives/index
.ts","../.././packages/common/src/pipes/invalid_pipe_argument_error.ts","../.././packages/common/src/pipes/
async_pipe.ts","../.././packages/common/src/pipes/case_conversion_pipes.ts","../.././packages/common/src/p
ipes/date_pipe.ts","../.././packages/common/src/pipes/i18n_plural_pipe.ts","../.././packages/common/src/pipe
s/i18n_select_pipe.ts","../.././packages/common/src/pipes/json_pipe.ts","../.././packages/common/src/pipes/k
eyvalue_pipe.ts","../.././packages/common/src/pipes/number_pipe.ts","../.././packages/common/src/pipes/sli
ce_pipe.ts","../.././packages/common/src/pipes/index.ts","../.././packages/common/src/common_module.ts","
../.././packages/common/src/platform_id.ts","../.././packages/common/src/version.ts","../.././packages/co
mmon/src/viewport_scroller.ts","../.././packages/common/src/common.ts","../.././packages/common/public_
api.ts","../.././packages/common/index.ts","../.././packages/common/common.ts"],"sourcesContent":["/**\n
 * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nlet _DOM:
DomAdapter = null!;\n\nexport function getDOM():
DomAdapter {\n return _DOM;\n}\n\nexport function setDOM(adapter: DomAdapter) {\n _DOM =
adapter;\n}\n\nexport function setRootDomAdapter(adapter: DomAdapter) {\n if (!_DOM) {\n _DOM =
adapter;\n }\n}\n\n/** tslint:disable:requireParameterType */\n\n * Provides DOM operations in an environment-
agnostic way.\n * \n * @security Tread carefully! Interacting with the DOM directly is dangerous and\n * can
introduce XSS risks.\n *\nexport abstract class DomAdapter {\n // Needs Domino-friendly test utility\n abstract
getProperty(el: Element, name: string): any;\n abstract dispatchEvent(el: any, evt: any): any;\n\n // Used by
router\n abstract log(error: any): any;\n abstract logGroup(error: any): any;\n abstract logGroupEnd(): any;\n\n //
Used by Meta\n abstract remove(el: any): Node;\n abstract createElement(tagName: any, doc?: any):
HTMLElement;\n abstract createHtmlDocument(): HTMLDocument;\n abstract getDefaultDocument():
Document;\n\n // Used by By.css\n abstract
isElementNode(node: any): boolean;\n\n // Used by Testability\n abstract isShadowRoot(node: any): boolean;\n\n
// Used by KeyEventsPlugin\n abstract onCancel(el: any, evt: any, listener: any): Function;\n abstract
supportsDOMEvents(): boolean;\n\n // Used by PlatformLocation and ServerEventManagerPlugin\n abstract
getGlobalEventTarget(doc: Document, target: string): any;\n\n // Used by PlatformLocation\n abstract getHistory():
History;\n abstract getLocation():\n any; /** This is the ambient Location definition, NOT Location from
@angular/common. */\n abstract getBaseHref(doc: Document): string|null;\n abstract resetBaseElement():
void;\n\n // TODO: remove dependency in DefaultValueAccessor\n abstract getUserAgent(): string;\n\n // Used by
AngularProfiler\n abstract performanceNow(): number;\n\n // Used by CookieXSRFStrategy\n abstract
supportsCookies(): boolean;\n abstract getCookie(name: string): string|null;\n}\n\n",/*!
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```
global Reflect, Promise
var extendStatics = function(d, b) {
 extendStatics =
Object.setPrototypeOf ||
 ({__proto__: []}) instanceof Array && function
(d, b) { d.__proto__ = b; } || function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; };
return extendStatics(d, b);
}
export function __extends(d, b) {
 extendStatics(d, b);
 function __() {
 this.constructor = d;
 }
 d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new
 __());
}
export var __assign = function() {
 __assign = Object.assign || function __assign(t) {
 for (var s, i = 1, n = arguments.length; i < n; i++) {
 s = arguments[i];
 for (var p in s) if
 (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];
 }
 return t;
 }
 __assign.apply(this, arguments);
}
export function __rest(s, e) {
 var t = {};
 for (var p in s) if
 (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0) t[p] = s[p];
 if (s != null && typeof
 Object.getOwnPropertySymbols === "function")
 for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {
 if (e.indexOf(p[i]) < 0 &&
 Object.prototype.propertyIsEnumerable.call(s, p[i])) t[p[i]] = s[p[i]];
 }
}
export function __decorate(decorators, target, key, desc) {
 var c = arguments.length, r = c < 3 ?
 target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;
 if (typeof Reflect ===
 "object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);
 else
 for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target,
 key)) || r;
 return c > 3 && r && Object.defineProperty(target, key, r), r;
}
export function __param(paramIndex, decorator) {
 return function(target, key) { decorator(target, key, paramIndex);
 }
}
export function __metadata(metadataKey,
 metadataValue) {
 if (typeof Reflect === "object" && typeof Reflect.metadata === "function") return
 Reflect.metadata(metadataKey, metadataValue);
}
export function __awaiter(thisArg, _arguments, P,
 generator) {
 function adopt(value) { return value instanceof P ? value : new P(function (resolve) {
 resolve(value);
 }); }
 return new (P || (P = Promise))(function (resolve, reject) {
 function fulfilled(value) { try {
 step(generator.next(value));
 } catch (e) { reject(e); } }
 function rejected(value) { try {
 step(generator["throw"](value));
 } catch (e) { reject(e); } }
 function step(result) { result.done ?
 resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }
 step((generator =
 generator.apply(thisArg, _arguments || [])).next());
 });
}
export function __generator(thisArg, body) {
 var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1];
 }, trys: [], ops: [] }, f, y, t, g;
 return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol
 === "function" && (g[Symbol.iterator] = function() { return this; }), g;
 function verb(n) { return function (v) {
 return step([n, v]);
 }; }
 function step(op) {
 if (f) throw new TypeError("Generator is already
 executing.");
 while (1) try {
 if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] ||
 ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;
 if (y = 0, t) op =
 [op[0] & 2, t.value];
 switch (op[0]) {
 case 0: case 1: t = op; break;
 case 4:
 _label++; return { value: op[1], done: false };
 case 5: _label++; y = op[1]; op = [0]; continue;
 case 7: op = _ops.pop(); _trys.pop(); continue;
 default:
 if (!(t =
 _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }
 if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _label = op[1]; break; }
 if (op[0] === 6 &&
 _label < t[1]) { _label = t[1]; t = op; break; }
 if (t && _label < t[2]) { _label = t[2]; _ops.push(op);
 break; }
 if (t[2]) _ops.pop();
 _trys.pop(); continue;
 }
 op =
 body.call(thisArg, _);
 } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }
 if (op[0] & 5) throw
 }
}
```

```

op[1]; return { value: op[0] ? op[1] : void 0, done: true };
}
}
export var __createBinding =
Object.create ? (function(o, m, k, k2) {
 if (k2 === undefined) k2 = k;
 Object.defineProperty(o, k2, {
 enumerable: true, get: function() { return m[k]; }
 });
}) : (function(o, m, k, k2) {
 if (k2 === undefined) k2 =
k;

 o[k2] = m[k];
});
export function __exportStar(m, exports) {
 for (var p in m) if (p !== "default"
 && !exports.hasOwnProperty(p)) __createBinding(exports, m, p);
}
export function __values(o) {
 var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0;
 if (m) return m.call(o);
 if (o && typeof o.length === "number") return {
 next: function () {
 if (o && i >= o.length) o =
void 0;
 return { value: o && o[i++], done: !o };
 }
 };
 throw new TypeError(s ? "Object
is not iterable." : "Symbol.iterator is not defined.");
}
export function __read(o, n) {
 var m = typeof
Symbol === "function" && o[Symbol.iterator];
 if (!m) return o;
 var i = m.call(o), r, ar = [], e;
 try {
 while ((n === void 0 || n-- > 0) && !(r = i.next()).done) ar.push(r.value);
 } catch (error) { e = {
error: error }; }
 finally {
 try {
 if (r && !r.done && (m = i["return"])) m.call(i);
 } finally { if (e)
throw e.error; }
 }
 return ar;
}
export function __spread() {
 for (var ar = [], i = 0; i <
arguments.length; i++)
 ar = ar.concat(__read(arguments[i]));
 return ar;
}
export function
__spreadArrays() {
 for (var s = 0, i = 0, il = arguments.length; i < il; i++) s += arguments[i].length;
 for (var r = Array(s), k = 0, i = 0; i < il; i++)
 for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)
 r[k] = a[j];
 return r;
}
export function __await(v) {
 return this instanceof __await ? (this.v =
v, this) : new __await(v);
}
export function __asyncGenerator(thisArg, _arguments, generator) {
 if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not defined.");
 var g =
generator.apply(thisArg,
_arguments || []), i, q = [];
 return i = {
 verb("next"), verb("throw"), verb("return"),
 i[Symbol.asyncIterator] = function () { return this; },
 i,
 function verb(n) {
 if (g[n]) i[n] = function (v) { return
new Promise(function (a, b) {
 q.push([n, v, a, b]) > 1 || resume(n, v);
 });
 }
 };
 function resume(n, v) {
 try {
 step(g[n](v));
 } catch (e) {
 settle(q[0][3], e);
 }
 }
 function step(r) {
 r.value instanceof __await ?
Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);
 }
 function fulfill(value) { resume("next", value); }
 function reject(value) { resume("throw", value); }
 function settle(f, v) {
 if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]);
 }
 }
 };
 return i;
}
function verb(n, f) {
 i[n] =
o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f;
}
export function __asyncValues(o) {
 if (!Symbol.asyncIterator) throw new
TypeError("Symbol.asyncIterator is not defined.");
 var m = o[Symbol.asyncIterator], i;
 return m ?
m.call(o) : (o = typeof __values === "function" ? __values(o) : o[Symbol.iterator](), i = {
 verb("next"), verb("throw"), verb("return"),
 i[Symbol.asyncIterator] = function () { return this; },
 i,
 function verb(n) {
 if (n = o[n] && function (v) { return new Promise(function (resolve, reject) {
 v = o[n](v), settle(resolve, reject, v.done, v.value);
 });
 };
 function settle(resolve, reject, d, v) {
 Promise.resolve(v).then(function(v) { resolve({
value: v, done: d }); }, reject);
 }
 }
 };
 return i;
}
export function __makeTemplateObject(cooked, raw) {
 if (Object.defineProperty) {
 Object.defineProperty(cooked, "raw", { value: raw });
 } else {
 cooked.raw =
raw;
 }
 return cooked;
}
export var __setModuleDefault = Object.create ? (function(o, v) {
 Object.defineProperty(o, "default", { enumerable: true, value: v });
}) : function(o, v) {
 o["default"] =
v;
}
export function __importStar(mod) {
 if (mod && mod.__esModule) return mod;
 var result =
{};
 if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);
 __setModuleDefault(result, mod);
 return result;
}
export function __importDefault(mod) {
 return (mod && mod.__esModule) ? mod : { default: mod };
}
export function __classPrivateFieldGet(receiver, privateMap) {
 if (!privateMap.has(receiver)) {
 throw new
TypeError("attempted to get private field on non-instance");
 }
 return
}

```

```

privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver))
 {\r\n throw new TypeError(\r\n "attempted to set private field on non-instance\r\n ");\r\n }\r\n
privateMap.set(receiver, value);\r\n return value;\r\n}\r\n"/**\r\n * @license\r\n * Copyright Google LLC All
Rights Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found in the
LICENSE file at https://angular.io/license\r\n */\r\n\r\nimport { InjectionToken } from '@angular/core';\r\n\r\n/**\r\n * A DI
Token representing the main rendering context. In a browser this is the DOM Document.\r\n * Note: Document
might not be available in the Application Context when Application and Rendering\r\n * Contexts are not the same
(e.g. when running the application in a Web Worker).\r\n * @publicApi\r\n */\r\nexport const DOCUMENT = new
InjectionToken<Document>('DocumentToken');\r\n"/**\r\n * @license\r\n * Copyright Google LLC All Rights
Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found in the
LICENSE file
at https://angular.io/license\r\n */\r\n\r\nimport { Inject, Injectable, InjectionToken, inject } from
'@angular/core';\r\n\r\nimport { getDOM } from '../dom_adapter';\r\n\r\nimport { DOCUMENT } from '../dom_tokens';\r\n\r\n/**\r\n * This class should not be used directly by an application developer. Instead, use\r\n * { @link Location }.\r\n * `PlatformLocation` encapsulates all calls to DOM APIs, which allows the Router to be\r\n * platform-agnostic.\r\n * This means that we can have different implementation of `PlatformLocation` for the different\r\n * platforms that
Angular supports. For example, `@angular/platform-browser` provides an\r\n * implementation specific to the
browser environment, while `@angular/platform-server` provides\r\n * one suitable for use with server-side
rendering.\r\n * The `PlatformLocation` class is used directly by all implementations of { @link
LocationStrategy }\r\n * when they need to interact with the DOM APIs like pushState, popState, etc.\r\n * { @link
LocationStrategy } in turn is used
by the { @link Location } service which is used directly\r\n * by the { @link Router } in order to navigate between
routes. Since all interactions between { @link Router } /\r\n * { @link Location } / { @link LocationStrategy } and
DOM APIs flow through the `PlatformLocation`\r\n * class, they are all platform-agnostic.\r\n * @publicApi\r\n */\r\n\r\n@Injectable({\r\n providedIn: 'platform',\r\n // See #23917\r\n useFactory:
useBrowserPlatformLocation\r\n})\r\nexport abstract class PlatformLocation {\r\n abstract getBaseHrefFromDOM():
string;\r\n abstract getState(): unknown;\r\n abstract onPopState(fn: LocationChangeListener): void;\r\n abstract
onHashChange(fn: LocationChangeListener): void;\r\n abstract get href(): string;\r\n abstract get protocol():
string;\r\n abstract get hostname(): string;\r\n abstract get port(): string;\r\n abstract get pathname(): string;\r\n abstract
get search(): string;\r\n abstract get hash(): string;\r\n abstract replaceState(state: any, title: string, url: string):
void;\r\n abstract
pushState(state: any, title: string, url: string): void;\r\n abstract forward(): void;\r\n abstract back():
void;\r\n}\r\n\r\nexport function useBrowserPlatformLocation() {\r\n return
inject(BrowserPlatformLocation);\r\n}\r\n\r\n/**\r\n * @description\r\n * Indicates when a location is initialized.\r\n * @publicApi\r\n */\r\n\r\nexport const LOCATION_INITIALIZED = new InjectionToken<Promise<any>>>('Location
Initialized');\r\n\r\n/**\r\n * @description\r\n * A serializable version of the event from `onPopState` or
`onHashChange`\r\n * @publicApi\r\n */\r\n\r\nexport interface LocationChangeEvent {\r\n type: string;\r\n state:
any;\r\n}\r\n\r\n/**\r\n * @publicApi\r\n */\r\n\r\nexport interface LocationChangeListener {\r\n (event: LocationChangeEvent):
any;\r\n}\r\n\r\n\r\n`PlatformLocation` encapsulates all of the direct calls to platform APIs.\r\n * This class should
not be used directly by an application developer. Instead, use\r\n * { @link Location }.\r\n * @Injectable({\r\n providedIn: 'platform',\r\n // See #23917\r\n useFactory: createBrowserPlatformLocation,\r\n})\r\n\r\nexport
class BrowserPlatformLocation extends PlatformLocation {\r\n public readonly location!: Location;\r\n private
_history!: History;\r\n constructor(@Inject(DOCUMENT) private _doc: any) {\r\n super();\r\n this._init();\r\n }\r\n // This is moved to its own method so that `MockPlatformLocationStrategy` can overwrite it\r\n /** @internal */\r\n _init() {\r\n (this as { location: Location }).location = getDOM().getLocation();\r\n this._history =
getDOM().getHistory();\r\n }\r\n getBaseHrefFromDOM(): string {\r\n return getDOM().getBaseHref(this._doc)!;\r\n }\r\n onPopState(fn: LocationChangeListener): void {\r\n getDOM().addEventListener(this._doc,

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'window').addEventListener('popstate', fn, false);\n }\n\n onHashChange(fn: LocationChangeListener): void {\n getDOM().getGlobalEventTarget(this._doc, 'window').addEventListener('hashchange', fn, false);\n }\n\n get href():\n string {\n return this.location.href;\n }\n\n get protocol(): string {\n\n return this.location.protocol;\n }\n\n get hostname(): string {\n return this.location.hostname;\n }\n\n get port():\n string {\n return this.location.port;\n }\n\n get pathname(): string {\n return this.location.pathname;\n }\n\n get\n search(): string {\n return this.location.search;\n }\n\n get hash(): string {\n return this.location.hash;\n }\n\n set\n pathname(newPath: string) {\n this.location.pathname = newPath;\n }\n\n pushState(state: any, title: string, url:\n string): void {\n if (supportsState()) {\n this._history.pushState(state, title, url);\n } else {\n this.location.hash = url;\n }\n }\n\n replaceState(state: any, title: string, url: string): void {\n if (supportsState())\n {\n this._history.replaceState(state, title, url);\n } else {\n this.location.hash = url;\n }\n }\n\n forward():\n void {\n this._history.forward();\n }\n\n back(): void {\n this._history.back();\n }\n\n getState(): unknown {\n return\n this._history.state;\n }\n}\n\nexport function supportsState(): boolean {\n return\n !!window.history.pushState;\n}\n\nexport function createBrowserPlatformLocation() {\n return new\n BrowserPlatformLocation(inject(DOCUMENT));\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\nexport {DomAdapter as DomAdapter, getDOM as getDOM,\n setRootDomAdapter as setRootDomAdapter} from './dom_adapter';\nexport {BrowserPlatformLocation as\n BrowserPlatformLocation} from './location/platform_location';\n\n"/**\n * @license\n * Copyright Google LLC All\n Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\n/**\n * Joins two parts of a URL with a slash if needed.\n *\n * @param start URL string\n * @param end URL string\n *\n * @returns The joined URL string.\n */\nexport function joinWithSlash(start: string, end: string): string {\n if\n (start.length == 0) {\n return end;\n }\n if\n (end.length == 0) {\n return start;\n }\n let slashes = 0;\n if\n (start.endsWith('/')) {\n slashes++;\n }\n if\n (end.startsWith('/')) {\n slashes++;\n }\n if\n (slashes == 2) {\n return start + end.substring(1);\n }\n if\n (slashes == 1) {\n return start + end;\n }\n return start + '/' +\n end;\n}\n\n/**\n * Removes a trailing slash from a URL string if needed.\n * Looks for the first occurrence of either\n * `#`, `?`, or the end of the\n * line as `^` characters and removes the trailing slash if one exists.\n *\n * @param url\n URL string.\n *\n * @returns The URL string, modified if needed.\n */\nexport function stripTrailingSlash(url:\n string): string {\n const match = url.match(/#\\|\\|?$/);\n const pathEndIdx = match && match.index || url.length;\n const droppedSlashIdx = pathEndIdx - (url[pathEndIdx -\n 1] === '/' ? 1 : 0);\n return url.slice(0, droppedSlashIdx) + url.slice(pathEndIdx);\n}\n\n/**\n * Normalizes URL\n parameters by prepending with `?` if needed.\n *\n * @param params String of URL parameters.\n *\n * @returns\n The normalized URL parameters string.\n */\nexport function normalizeQueryParams(params: string): string {\n return params && params[0] !== '?' ? '?' + params : params;\n}\n\n"/**\n * @license\n * Copyright Google LLC All\n Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\nimport {Inject, Injectable, InjectionToken, Optional, inject} from\n '@angular/core';\nimport {DOCUMENT} from './dom_tokens';\nimport {LocationChangeListener,\n PlatformLocation} from './platform_location';\nimport {joinWithSlash, normalizeQueryParams} from\n './util';\n\n/**\n * Enables the `Location` service to read route state from the browser's URL.\n * Angular provides\n two strategies:\n\n * `HashLocationStrategy` and `PathLocationStrategy`.\n *\n * Applications should use the `Router` or `Location`\n services to\n * interact with application route state.\n *\n * For instance, `HashLocationStrategy` produces URLs\n like\n * http://example.com#/foo,\n * and `PathLocationStrategy` produces\n * http://example.com/foo as an equivalent URL.\n *\n * See these two classes\n for more.\n *\n * @publicApi\n */\n@Injectable({providedIn: 'root', useFactory: provideLocationStrategy})\nexport\n abstract class LocationStrategy {\n abstract path(includeHash?: boolean): string;\n abstract\n prepareExternalUrl(internal: string): string;\n abstract\n pushState(state: any, title: string, url: string, queryParams:
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string): void;\n\n abstract replaceState(state: any, title: string, url: string, queryParams: string): void;\n\n abstract forward(): void;\n\n abstract back(): void;\n\n abstract onPopState(fn: LocationChangeListener):\n\nvoid;\n\n abstract getBaseHref(): string;\n}\n\nexport function provideLocationStrategy(platformLocation:\nPlatformLocation) {\n // See #23917\n const location = inject(DOCUMENT).location;\n return new\nPathLocationStrategy(\n inject(PlatformLocation as any), location && location.origin || '');\n}\n\n/**\n * A predefined [DI token](guide/glossary#di-token) for the base href\n * to be used with the `PathLocationStrategy`. \n * The base href is the URL prefix that should be preserved when generating\n * and recognizing URLs.\n *\n * @usageNotes\n *\n * The following example shows how to use this token to configure the root app injector\n * with a base href value, so that the DI framework can supply the dependency anywhere in the app.\n *\n ```typescript\n import {Component, NgModule} from '@angular/core';\n import {APP_BASE_HREF} from\n '@angular/common';\n *\n @NgModule({\n providers: [{provide: APP_BASE_HREF, useValue: '/my/app'}] \n })\n class AppModule {}\n\n *\n * @publicApi\n */\n export const APP_BASE_HREF = new\nInjectionToken<string>('appBaseHref');\n\n /**\n * @description\n * A {@link LocationStrategy} used to configure the {\n * @link Location} service to represent its state in the\n *\n [path](https://en.wikipedia.org/wiki/Uniform_Resource_Locator#Syntax) of the\n * browser's URL.\n *\n * If you're using `PathLocationStrategy`, you must provide a {\n * @link APP_BASE_HREF}\n * or add a `` element to the document.\n *\n * For instance, if you provide an `APP_BASE_HREF` of `/my/app/` and call\n *\n `location.go('/foo')`, the browser's URL will become\n * `example.com/my/app/foo`. To ensure all relative URIs resolve correctly,\n * the `` and/or `APP_BASE_HREF` should end with a `.`.\n *\n * Similarly, if you add `` will be preserved, as outlined\n * by the [RFC](https://tools.ietf.org/html/rfc3986#section-5.2.2).\n *\n * @usageNotes\n *\n * ### Example\n *\n *\n @example common/location/ts/path_location_component.ts\n region='LocationComponent'\n }\n *\n * @publicApi\n *\n @Injectable()\n export class PathLocationStrategy extends LocationStrategy {\n private _baseHref: string;\n\n constructor(\n private _platformLocation: PlatformLocation,\n @Optional() @Inject(APP_BASE_HREF)\n href?: string) {\n super();\n\n if (href == null) {\n href = this._platformLocation.getBaseHrefFromDOM();\n }\n\n if (href == null) {\n throw new Error(`No base href set. Please provide a value for the\nAPP_BASE_HREF token or add a base element to the document.`);\n }\n\n this._baseHref = href;\n }\n\n onPopState(fn: LocationChangeListener): void {\n this._platformLocation.onPopState(fn);\n\n this._platformLocation.onHashChange(fn);\n\n }\n\n getBaseHref(): string {\n return this._baseHref;\n }\n\n prepareExternalUrl(internal: string): string {\n return joinWithSlash(this._baseHref, internal);\n }\n\n path(includeHash: boolean = false): string {\n const pathname =\n this._platformLocation.pathname + normalizeQueryParams(this._platformLocation.search);\n const hash = this._platformLocation.hash;\n return hash && includeHash ? `${pathname}${hash}` : pathname;\n }\n\n pushState(state: any, title: string, url: string, queryParams: string) {\n const externalUrl =\nthis.prepareExternalUrl(url + normalizeQueryParams(queryParams));\n this._platformLocation.pushState(state,\ntitle, externalUrl);\n }\n\n replaceState(state: any, title: string, url: string, queryParams: string) {\n const\nexternalUrl = this.prepareExternalUrl(url + normalizeQueryParams(queryParams));\n this._platformLocation.replaceState(state, title, externalUrl);\n }\n\n forward(): void {\n this._platformLocation.forward();\n\n }\n\n back(): void {\n this._platformLocation.back();\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Inject, Injectable, Optional} from\n '@angular/core';\nimport {APP_BASE_HREF, LocationStrategy} from './location_strategy';\nimport {\nLocationChangeListener, PlatformLocation} from './platform_location';\nimport {joinWithSlash,\nnormalizeQueryParams} from './util';\n\n\n /**\n * @description\n * A {@link LocationStrategy} used to
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configure the {@link Location} service to\n \* represent its state in the\n \* [hash fragment](https://en.wikipedia.org/wiki/Uniform\_Resource\_Locator#Syntax)\n \* of the browser's URL.\n \* For instance, if you call `location.go('/foo')`, the browser's URL will become\n \* `example.com/#/foo`.\n \* @usageNotes\n \* ### Example\n \* {@example common/location/ts/hash\_location\_component.ts region='LocationComponent'}\n \* @publicApi\n \* @Injectable()\n \* export class HashLocationStrategy extends LocationStrategy {\n \* private \_baseHref: string = '';\n \* constructor(\n \* private \_platformLocation: PlatformLocation,\n \* @Optional() @Inject(APP\_BASE\_HREF) \_baseHref?: string) {\n \* super();\n \* if (\_baseHref != null) {\n \* this.\_baseHref = \_baseHref;\n \* }\n \* onPopState(fn: LocationChangeListener): void {\n \* this.\_platformLocation.onPopState(fn);\n \* this.\_platformLocation.onHashChange(fn);\n \* }\n \* getBaseHref(): string {\n \* return this.\_baseHref;\n \* }\n \* path(includeHash: boolean = false): string {\n \* // the hash value is always prefixed with a `#`\n \* // and if it is empty then it will stay empty\n \* let path = this.\_platformLocation.hash;\n \* if (path == null) path = '#';\n \* return path.length > 0 ? path.substring(1) : path;\n \* }\n \* prepareExternalUrl(internal: string): string {\n \* const url = joinWithSlash(this.\_baseHref, internal);\n \* return url.length > 0 ? ('#' + url) : url;\n \* }\n \* pushState(state: any, title: string, path: string, queryParams: string) {\n \* let url: string|null = this.prepareExternalUrl(path + normalizeQueryParams(queryParams));\n \* if (url.length == 0) {\n \* url = this.\_platformLocation.pathname;\n \* }\n \* this.\_platformLocation.pushState(state, title, url);\n \* }\n \* replaceState(state: any, title: string, path: string, queryParams: string) {\n \* let url = this.prepareExternalUrl(path + normalizeQueryParams(queryParams));\n \* if (url.length == 0) {\n \* url = this.\_platformLocation.pathname;\n \* }\n \* this.\_platformLocation.replaceState(state, title, url);\n \* }\n \* forward(): void {\n \* this.\_platformLocation.forward();\n \* }\n \* back(): void {\n \* this.\_platformLocation.back();\n \* }\n \* }\n \* }\n \*", "/\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \*/\n \* @import {EventEmitter, Injectable, inject} from '@angular/core';\n \* @import {SubscriptionLike} from 'rxjs';\n \* @import {LocationStrategy} from './location\_strategy';\n \* @import {PlatformLocation} from './platform\_location';\n \* @import {joinWithSlash, normalizeQueryParams, stripTrailingSlash} from './util';\n \* @publicApi\n \* @interface PopStateEvent {\n \* pop?: boolean;\n \* state?: any;\n \* type?: string;\n \* url?: string;\n \* }\n \* @description\n \* A service that applications can use to interact with a browser's URL.\n \* Depending on the `LocationStrategy` used, `Location` persists\n \* to the URL's path or the URL's hash segment.\n \* @usageNotes\n \* It's better to use the `Router#navigate` service to trigger route changes. Use\n \* `Location` only if you need to interact with or create normalized URLs outside of\n \* routing.\n \* `Location` is responsible for normalizing the URL against the application's base href.\n \* A normalized URL is absolute from the URL host, includes the application's base href, and has no\n \* trailing slash:\n \* - `/my/app/user/123` is normalized\n \* - `my/app/user/123` is not normalized\n \* - `/my/app/user/123/` is not normalized\n \* ### Example\n \* <code-example\n \* path='common/location/ts/path\_location\_component.ts'\n \* region='LocationComponent'\n \* ></code-example>\n \* @publicApi\n \* @Injectable({\n \* providedIn: 'root',\n \* // See #23917\n \* useFactory: createLocation,\n \* })\n \* export class Location {\n \* /\*\* @internal \*/\n \* \_subject: EventEmitter<any> = new EventEmitter();\n \* /\*\* @internal \*/\n \* \_baseHref: string;\n \* /\*\* @internal \*/\n \* \_platformStrategy: LocationStrategy;\n \* /\*\* @internal \*/\n \* \_platformLocation: PlatformLocation;\n \* /\*\* @internal \*/\n \* \_urlChangeListeners: ((url: string, state: unknown) => void)[] = [];\n \* /\*\* @internal \*/\n \* \_urlChangeSubscription?: SubscriptionLike;\n \* constructor(platformStrategy: LocationStrategy, platformLocation: PlatformLocation) {\n \* this.\_platformStrategy = platformStrategy;\n \* const browserBaseHref = this.\_platformStrategy.getBaseHref();\n \* this.\_platformLocation = platformLocation;\n \* this.\_baseHref = stripTrailingSlash(\_stripIndexHtml(browserBaseHref));\n \* this.\_platformStrategy.onPopState((ev) => {\n \* this.\_subject.emit({\n \* 'url': this.path(true),\n \* 'pop': true,\n \* 'state': ev.state,\n \* 'type': ev.type,\n \* });\n \* });\n \* }\n \* /\*\*\n \* \* Normalizes the URL path for this location.\n \* \* @param includeHash True to include an anchor fragment in the path.\n \* \* @returns The normalized URL path.\n \* \* // TODO: vsavkin.\n \*/\n

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Remove the boolean flag and always include hash once the deprecated router is // removed.\n path(includeHash:
boolean = false): string {\n return this.normalize(this._platformStrategy.path(includeHash));\n }\n\n /**\n *
Reports the current state of the location history.\n * @returns The current value
of the `history.state` object.\n */\n getState(): unknown {\n return this._platformLocation.getState();\n }\n\n /**\n * Normalizes the given path and compares to the current normalized path.\n */\n * @param path The given
URL path.\n * @param query Query parameters.\n */\n * @returns True if the given URL path is equal to the
current normalized path, false\n * otherwise.\n */\n * @param path string, query: string = "): boolean
{\n return this.path() == this.normalize(path + normalizeQueryParams(query));\n }\n\n /**\n * Normalizes a
URL path by stripping any trailing slashes.\n */\n * @param url String representing a URL.\n */\n * @returns
The normalized URL string.\n */\n * @param url string): string {\n return
Location.stripTrailingSlash(_stripBaseHref(this._baseHref, _stripIndexHtml(url));\n }\n\n /**\n * Normalizes an
external URL path.\n * If the given URL doesn't begin with a leading slash ('/'), adds one\n *
before normalizing. Adds a hash if `HashLocationStrategy` is\n * in use, or the `APP_BASE_HREF` if the
`PathLocationStrategy` is in use.\n */\n * @param url String representing a URL.\n */\n * @returns A
normalized platform-specific URL.\n */\n * @param url string): string {\n if (url && url[0] !== '/') {\n
url = '/' + url;\n }\n return this._platformStrategy.prepareExternalUrl(url);\n }\n\n // TODO: rename this
method to pushState\n /**\n * Changes the browser's URL to a normalized version of a given URL, and pushes a\n
* new item onto the platform's history.\n */\n * @param path URL path to normalize.\n * @param query Query
parameters.\n * @param state Location history state.\n */\n * @param go(path: string, query: string = "", state: any =
null): void {\n this._platformStrategy.pushState(state, "", path, query);\n this._notifyUrlChangeListeners(\n
this.prepareExternalUrl(path + normalizeQueryParams(query)), state);\n
}\n\n /**\n * Changes the browser's URL to a normalized version of the given URL, and replaces\n * the top
item on the platform's history stack.\n */\n * @param path URL path to normalize.\n * @param query Query
parameters.\n * @param state Location history state.\n */\n * @param replaceState(path: string, query: string = "", state: any
= null): void {\n this._platformStrategy.replaceState(state, "", path, query);\n this._notifyUrlChangeListeners(\n
this.prepareExternalUrl(path + normalizeQueryParams(query)), state);\n }\n\n /**\n * Navigates forward in the
platform's history.\n */\n * @param forward(): void {\n this._platformStrategy.forward();\n }\n\n /**\n * Navigates back
in the platform's history.\n */\n * @param back(): void {\n this._platformStrategy.back();\n }\n\n /**\n * Registers a
URL change listener. Use to catch updates performed by the Angular\n * framework that are not detectible through
`popstate` or `hashchange` events.\n */\n * @param
fn The change handler function, which take a URL and a location history state.\n */\n * @param onUrlChange(fn: (url:
string, state: unknown) => void) {\n this._urlChangeListeners.push(fn);\n\n if (!this._urlChangeSubscription) {\n
this._urlChangeSubscription = this.subscribe(v => {\n this._notifyUrlChangeListeners(v.url, v.state);\n
});\n }\n }\n\n /**\n * @internal\n */\n * @param _notifyUrlChangeListeners(url: string = "", state: unknown) {\n
this._urlChangeListeners.forEach(fn => fn(url, state));\n }\n\n /**\n * Subscribes to the platform's `popState`
events.\n */\n * @param value Event that is triggered when the state history changes.\n * @param exception The
exception to throw.\n */\n * @returns Subscribed events.\n */\n * @param onNext: (value: PopStateEvent)
=> void, onThrow?: ((exception: any) => void)|null,\n * @param onReturn?: (() => void)|null): SubscriptionLike {\n
return this._subject.subscribe({next: onNext, error: onThrow, complete:
onReturn});\n }\n\n /**\n * Normalizes URL parameters by prepending with `?` if needed.\n */\n * @param
params String of URL parameters.\n */\n * @returns The normalized URL parameters string.\n */\n * @param public static
normalizeQueryParams: (params: string) => string = normalizeQueryParams;\n\n /**\n * Joins two parts of a URL
with a slash if needed.\n */\n * @param start URL string\n * @param end URL string\n */\n * @returns
The joined URL string.\n */\n * @param public static joinWithSlash: (start: string, end: string) => string = joinWithSlash;\n\n /**\n * Removes a trailing slash from a URL string if needed.\n * Looks for the first occurrence of either `#`, `?`,
or the end of the\n * line as `^` characters and removes the trailing slash if one exists.\n */\n * @param url URL
string.\n */\n * @returns The URL string, modified if needed.\n */\n * @param public static stripTrailingSlash: (url: string)
=> string = stripTrailingSlash;\n }\n\n\nexport function

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createLocation() {\n return new Location(inject(LocationStrategy as any), inject(PlatformLocation as
any));\n}\n\nfunction _stripBaseHref(baseHref: string, url: string): string {\n return baseHref &&
url.startsWith(baseHref) ? url.substring(baseHref.length) : url;\n}\n\nfunction _stripIndexHtml(url: string): string
{\n return url.replace(/\\/index.html$/, "");\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nexport {HashLocationStrategy} from
'./hash_location_strategy';\nexport {Location, PopStateEvent} from './location';\nexport {APP_BASE_HREF,
LocationStrategy, PathLocationStrategy} from './location_strategy';\nexport {LOCATION_INITIALIZED,
LocationChangeEvent, LocationChangeListener, PlatformLocation} from './platform_location';\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n// THIS CODE IS GENERATED - DO NOT MODIFY\n// See angular/tools/gulp-
tasks/cldr/extract.js\n\nexport type CurrenciesSymbols = [string][string | undefined, string];\n\n/** @internal
*\nexport const CURRENCIES_EN:\n {[code: string]: CurrenciesSymbols[string | undefined, string | undefined,
number]} = {\n 'ADP': [undefined, undefined, 0],\n 'AFN': [undefined, undefined, 0],\n 'ALL': [undefined,
undefined, 0],\n 'AMD': [undefined, undefined, 2],\n 'AOA': [undefined, 'Kz'],\n 'ARS': [undefined, '$'],\n
 'AUD': ['A$', '$'],\n 'BAM': [undefined, 'KM'],\n 'BBD': [undefined, '$'],\n 'BDT': [undefined, ""],\n
 'BHD': [undefined, undefined, 3],\n 'BIF': [undefined, undefined, 0],\n 'BMD': [undefined, '$'],\n 'BND':
[undefined, '$'],\n 'BOB': [undefined, 'Bs'],\n 'BRL': ['R$'],\n
 'BSD': [undefined, '$'],\n 'BWP': [undefined, 'P'],\n 'BYN': [undefined, ' ', 2],\n 'BYR': [undefined,
undefined, 0],\n 'BZD': [undefined, '$'],\n 'CAD': ['CA$', '$', 2],\n 'CHF': [undefined, undefined, 2],\n
 'CLF': [undefined, undefined, 4],\n 'CLP': [undefined, '$', 0],\n 'CNY': ['CN¥', '¥'],\n 'COP': [undefined, '$',
2],\n 'CRC': [undefined, " ", 2],\n 'CUC': [undefined, '$'],\n 'CUP': [undefined, '$'],\n 'CZK': [undefined,
'K', 2],\n 'DJF': [undefined, undefined, 0],\n 'DKK': [undefined, 'kr', 2],\n 'DOP': [undefined, '$'],\n
 'EGP': [undefined, 'E£'],\n 'ESP': [undefined, " ", 0],\n 'EUR': ['€'],\n 'FJD': [undefined, '$'],\n 'FKP':
[undefined, '£'],\n 'GBP': ['£'],\n 'GEL': [undefined, " "],\n 'GIP': [undefined, '£'],\n 'GNF': [undefined,
'FG', 0],\n 'GTQ': [undefined, 'Q'],\n 'GYD': [undefined, '$', 2],\n 'HKD': ['HK$', '$'],\n
 'HNL': [undefined, 'L'],\n 'HRK': [undefined, 'kn'],\n 'HUF': [undefined, 'Ft', 2],\n 'IDR': [undefined, 'Rp',
2],\n 'ILS': [" "],\n 'INR': [" "],\n 'IQD': [undefined, undefined, 0],\n 'IRR': [undefined, undefined, 0],\n
 'ISK': [undefined, 'kr', 0],\n 'ITL': [undefined, undefined, 0],\n 'JMD': [undefined, '$'],\n 'JOD': [undefined,
undefined, 3],\n 'JPY': ['¥', undefined, 0],\n 'KHR': [undefined, " "],\n 'KMF': [undefined, 'CF', 0],\n
 'KPW': [undefined, " ", 0],\n 'KRW': [" ", undefined, 0],\n 'KWD': [undefined, undefined, 3],\n 'KYD':
[undefined, '$'],\n 'KZT': [undefined, " "],\n 'LAK': [undefined, " ", 0],\n 'LBP': [undefined, 'L£', 0],\n
 'LKR': [undefined, 'Rs'],\n 'LRD': [undefined, '$'],\n 'LTL': [undefined, 'Lt'],\n 'LUF': [undefined,
undefined, 0],\n 'LVL': [undefined, 'Ls'],\n 'LYD': [undefined, undefined, 3],\n 'MGA': [undefined, 'Ar',
0],\n
 'MGF': [undefined, undefined, 0],\n 'MMK': [undefined, 'K', 0],\n 'MNT': [undefined, " ", 2],\n 'MRO':
[undefined, undefined, 0],\n 'MUR': [undefined, 'Rs', 2],\n 'MXN': ['MX$', '$'],\n 'MYR': [undefined,
'RM'],\n 'NAD': [undefined, '$'],\n 'NGN': [undefined, " "],\n 'NIO': [undefined, 'CS'],\n 'NOK':
[undefined, 'kr', 2],\n 'NPR': [undefined, 'Rs'],\n 'NZD': ['NZ$', '$'],\n 'OMR': [undefined, undefined, 3],\n
 'PHP': [undefined, " "],\n 'PKR': [undefined, 'Rs', 2],\n 'PLN': [undefined, 'z'],\n 'PYG': [undefined, " ", 0],\n
 'RON': [undefined, 'lei'],\n 'RSD': [undefined, undefined, 0],\n 'RUB': [undefined, " "],\n 'RUR': [undefined,
' '],\n 'RWF': [undefined, 'RF', 0],\n 'SBD': [undefined, '$'],\n 'SEK': [undefined, 'kr', 2],\n 'SGD':
[undefined, '$'],\n 'SHP': [undefined, '£'],\n 'SLL': [undefined, undefined, 0],\n 'SOS': [undefined,
undefined,
 0],\n 'SRD': [undefined, '$'],\n 'SSP': [undefined, '£'],\n 'STD': [undefined, undefined, 0],\n 'STN':
[undefined, 'Db'],\n 'SYP': [undefined, '£', 0],\n 'THB': [undefined, " "],\n 'TMM': [undefined, undefined,
0],\n 'TND': [undefined, undefined, 3],\n 'TOP': [undefined, 'T$'],\n 'TRL': [undefined, undefined, 0],\n

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'TRY': [undefined, ''],\n 'TTD': [undefined, '\$'],\n 'TWD': ['NT\$', '\$', 2],\n 'TZS': [undefined, undefined, 2],\n 'UAH': [undefined, ''],\n 'UGX': [undefined, undefined, 0],\n 'USD': ['\$'],\n 'UYI': [undefined, undefined, 0],\n 'UYU': [undefined, '\$'],\n 'UYW': [undefined, undefined, 4],\n 'UZS': [undefined, undefined, 2],\n 'VEF': [undefined, 'Bs', 2],\n 'VND': ['', undefined, 0],\n 'VUV': [undefined, undefined, 0],\n 'XAF': ['FCFA', undefined, 0],\n 'XCD': ['EC\$', '\$'],\n 'XOF': ['CFA', undefined, 0],\n 'XPF': ['CFPF', undefined, 0],\n 'XXX': ['x'],\n 'YER': [undefined, undefined, 0],\n 'ZAR': [undefined, 'R'],\n 'ZMK': [undefined, undefined, 0],\n 'ZMW': [undefined, 'ZK'],\n 'ZWD': [undefined, undefined, 0]\n };\n", "/\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \*/\nimport {CurrencyIndex, ExtraLocaleDataIndex, findLocaleData, getLocaleCurrencyCode, getLocalePluralCase, LocaleDataIndex} from '@angular/core';\nimport {CURRENCIES\_EN, CurrenciesSymbols} from './currencies';\n\n/\*\*\n \* Format styles that can be used to represent numbers.\n \* @see `getLocaleNumberFormat()`. \n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport enum NumberFormatStyle {\n Decimal,\n Percent,\n Currency,\n Scientific\n}\n\n/\*\*\n \* Plurality cases used for translating plurals to different languages.\n \* @see `NgPlural`\n \* @see `NgPluralCase`\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport enum Plural {\n Zero = 0,\n One = 1,\n Two = 2,\n Few = 3,\n Many = 4,\n Other = 5\n}\n\n/\*\*\n \* Context-dependant translation forms for strings.\n \* Typically the standalone version is for the nominative form of the word, \n \* and the format version is used for the genitive case.\n \* @see [CLDR website](http://cldr.unicode.org/translation/date-time-1/date-time#TOC-Standalone-vs.-Format-Styles)\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport enum FormStyle {\n Format,\n Standalone\n}\n\n/\*\*\n \* String widths available for translations.\n \* The specific character widths are locale-specific.\n \* Examples are given for the word "Sunday" in English.\n \* @publicApi\n \*/\nexport enum TranslationWidth {\n /\*\* 1 character for `en-US`. For example: 'S' \*/\n Narrow,\n /\*\* 3 characters for `en-US`. For example: 'Sun' \*/\n Abbreviated,\n /\*\* Full length for `en-US`. For example: 'Sunday' \*/\n Wide,\n /\*\* 2 characters for `en-US`. For example: 'Su' \*/\n Short\n}\n\n/\*\*\n \* String widths available for date-time formats.\n \* The specific character widths are locale-specific.\n \* Examples are given for `en-US`. \n \* @see `getLocaleDateFormat()`. \n \* @see `getLocaleTimeFormat()`. \n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport enum FormatWidth {\n /\*\* For `en-US`, 'M/d/yy, h:mm a' (Example: `6/15/15, 9:03 AM`) \*/\n Short,\n /\*\* For `en-US`, 'MMM d, y, h:mm:ss a' (Example: `Jun 15, 2015, 9:03:01 AM`) \*/\n Medium,\n /\*\* For `en-US`, 'MMMM d, y, h:mm:ss a z' (Example: `June 15, 2015 at 9:03:01 AM GMT+1`) \*/\n Long,\n /\*\* For `en-US`, 'EEEE, MMMM d, y, h:mm:ss a zzzz' (Example: `Monday, June 15, 2015 at 9:03:01 AM GMT+01:00`) \*/\n Full\n}\n\n/\*\*\n \* Symbols that can be used to replace placeholders in number patterns.\n \* Examples are based on `en-US` values.\n \* @see `getLocaleNumberSymbol()`. \n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport enum NumberSymbol {\n /\*\* Decimal separator. For `en-US`, the dot character. Example: `2,345` \*/\n Decimal,\n /\*\* Grouping separator, typically for thousands. For `en-US`, the comma character. Example: `2,345.67` \*/\n Group,\n /\*\* List-item separator. Example: `one, two, and three` \*/\n List,\n /\*\* Sign for percentage (out of 100). Example: `23.4%` \*/\n PercentSign,\n /\*\* Sign for positive numbers. Example: `+23` \*/\n PlusSign,\n /\*\* Sign for negative numbers. Example: `-23` \*/\n MinusSign,\n /\*\* Computer notation for exponential value (n times a power of 10). Example: `1.2E3` \*/\n Exponential,\n /\*\* Human-readable format of exponential. Example: `1.2x103` \*/\n SuperscriptingExponent,\n /\*\* Sign for permille (out of 1000). Example: `23.4‰` \*/\n PerMille,\n /\*\* Infinity, can be used with plus and minus. Example: `+, -` \*/\n Infinity,\n /\*\* Not a number. Example: `NaN` \*/\n NaN,\n /\*\* Symbol used between time units. Example: `10:52` \*/\n TimeSeparator,\n /\*\* Decimal separator for

currency values (fallback to `Decimal`).  
 \* Example: \$2,345.67  
 \* CurrencyDecimal, / \*\*  
 \* Group separator for currency values (fallback to `Group`).  
 \* Example: \$2,345.67  
 \* CurrencyGroup } }  
 \* The value for each day of the week, based on the `en-US` locale  
 \* @publicApi  
 \* @next export enum WeekDay {  
 \* Sunday = 0,  
 \* Monday,  
 \* Tuesday,  
 \* Wednesday,  
 \* Thursday,  
 \* Friday,  
 \* Saturday }  
 \* Retrieves the locale ID from the currently loaded locale.  
 \* The loaded locale could be, for example, a global one rather than a regional one.  
 \* @param locale A locale code, such as `fr-FR`.  
 \* @returns The locale code. For example, `fr`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleId(locale: string): string {  
 \* return  
 \* findLocaleData(locale)[LocaleDataIndex.LocaleId];  
 \* }  
 \* Retrieves day period strings for the given locale.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @param formStyle The required grammatical form.  
 \* @param width The required character width.  
 \* @returns An array of localized period strings. For example, `[AM, PM]` for `en-US`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleDayPeriods(locale: string, formStyle: FormStyle, width: TranslationWidth):  
 \* ReadonlyArray<string> {  
 \* const data = findLocaleData(locale);  
 \* const amPmData = <[string, string][][]>[  
 \* data[LocaleDataIndex.DayPeriodsFormat], data[LocaleDataIndex.DayPeriodsStandalone]  
 \* ];  
 \* const amPm = getLastDefinedValue(amPmData, formStyle);  
 \* return getLastDefinedValue(amPm, width);  
 \* }  
 \* Retrieves days of the week for the given locale, using the Gregorian calendar.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @param formStyle The required grammatical form.  
 \* @param width The required character width.  
 \* @returns An array of localized name strings. For example, `[Sunday, Monday, ... Saturday]` for `en-US`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleDayNames(locale: string, formStyle: FormStyle, width: TranslationWidth): ReadonlyArray<string> {  
 \* const data = findLocaleData(locale);  
 \* const daysData = <string[][]>[data[LocaleDataIndex.DaysFormat],  
 \* data[LocaleDataIndex.DaysStandalone]];  
 \* const days = getLastDefinedValue(daysData, formStyle);  
 \* return getLastDefinedValue(days, width);  
 \* }  
 \* Retrieves months of the year for the given locale, using the Gregorian calendar.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @param formStyle The required grammatical form.  
 \* @param width The required character width.  
 \* @returns An array of localized name strings. For example, `[January, February, ...]` for `en-US`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleMonthNames(locale: string, formStyle: FormStyle, width: TranslationWidth): ReadonlyArray<string> {  
 \* const data = findLocaleData(locale);  
 \* const monthsData = <string[][]>[data[LocaleDataIndex.MonthsFormat],  
 \* data[LocaleDataIndex.MonthsStandalone]];  
 \* const months = getLastDefinedValue(monthsData, formStyle);  
 \* return getLastDefinedValue(months, width);  
 \* }  
 \* Retrieves Gregorian-calendar eras for the given locale.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @param width The required character width.  
 \* @returns An array of localized era strings. For example, `[AD, BC]` for `en-US`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleEraNames(locale: string, width: TranslationWidth): ReadonlyArray<string> {  
 \* const data = findLocaleData(locale);  
 \* const erasData = <[string, string][][]>data[LocaleDataIndex.Eras];  
 \* return getLastDefinedValue(erasData, width);  
 \* }  
 \* Retrieves the first day of the week for the given locale.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @returns A day index number, using the 0-based week-day index for `en-US` (Sunday = 0, Monday = 1, ...).  
 \* For example, for `fr-FR`, returns 1 to indicate that the first day is Monday.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)  
 \* @publicApi  
 \* @next export function getLocaleFirstDayOfWeek(locale: string): WeekDay {  
 \* const data = findLocaleData(locale);  
 \* return data[LocaleDataIndex.FirstDayOfWeek];  
 \* }  
 \* Range of week days that are considered the week-end for the given locale.  
 \* @param locale A locale code for the locale format rules to use.  
 \* @returns The range of day values, `[startDay, endDay]`.  
 \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)

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@publicApi\n * \nexport function getLocaleWeekEndRange(locale: string): [WeekDay, WeekDay] {\n const data =
findLocaleData(locale);\n return data[LocaleDataIndex.WeekendRange];\n}\n\n/**\n * Retrieves a localized date-
value forming string.\n * \n * @param locale A locale code for the locale format rules to use.\n * @param width
The format type.\n * @returns The localized forming string.\n
* @see `FormatWidth`\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n
* \n\n@publicApi\n * \nexport function getLocaleDateFormat(locale: string, width: FormatWidth): string {\n const data
= findLocaleData(locale);\n return getLastDefinedValue(data[LocaleDataIndex.DateFormat], width);\n}\n\n/**\n *
Retrieves a localized time-value formatting string.\n * \n * @param locale A locale code for the locale format rules
to use.\n * @param width The format type.\n * @returns The localized formatting string.\n * @see `FormatWidth`\n
* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n\n@publicApi\n * \nexport function
getLocaleTimeFormat(locale: string, width: FormatWidth): string {\n const data = findLocaleData(locale);\n return
getLastDefinedValue(data[LocaleDataIndex.TimeFormat], width);\n}\n\n/**\n * Retrieves a localized date-time
formatting string.\n * \n * @param locale A locale code for the locale format rules to use.\n
* @param width The format type.\n * @returns The localized formatting string.\n * @see `FormatWidth`\n * @see
[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n\n@publicApi\n * \nexport function
getLocaleDateTimeFormat(locale: string, width: FormatWidth): string {\n const data = findLocaleData(locale);\n
const dateTimeFormatData = <string[]>data[LocaleDataIndex.DateTimeFormat];\n return
getLastDefinedValue(dateTimeFormatData, width);\n}\n\n/**\n * Retrieves a localized number symbol that can be
used to replace placeholders in number formats.\n * @param locale The locale code.\n * @param symbol The
symbol to localize.\n * @returns The character for the localized symbol.\n * @see `NumberSymbol`\n * @see
[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n\n@publicApi\n * \nexport function
getLocaleNumberSymbol(locale: string, symbol: NumberSymbol): string {\n const data = findLocaleData(locale);\n
const res = data[LocaleDataIndex.NumberSymbols][symbol];\n
 if (typeof res === 'undefined') {\n if (symbol === NumberSymbol.CurrencyDecimal) {\n return
data[LocaleDataIndex.NumberSymbols][NumberSymbol.Decimal];\n } else if (symbol ===
NumberSymbol.CurrencyGroup) {\n return data[LocaleDataIndex.NumberSymbols][NumberSymbol.Group];\n }\n
 }\n return res;\n}\n\n/**\n * Retrieves a number format for a given locale.\n * \n * Numbers are formatted using
patterns, like `#,###.00`. For example, the pattern `#,###.00`\n * when used to format the number 12345.678 could
result in `"12'345,678"`. That would happen if the\n * grouping separator for your language is an apostrophe, and the
decimal separator is a comma.\n * \n * Important: The characters `.` `, `0` `#` (and others below) are special
placeholders\n * that stand for the decimal separator, and so on, and are NOT real characters.\n * You must NOT
`translate` the placeholders. For example, don't change `.` to `,` even though in\n * your language
the decimal point is written with a comma. The symbols should be replaced by the\n * local equivalents, using the
appropriate `NumberSymbol` for your language.\n * \n * Here are the special characters used in number patterns:\n
* \n * | Symbol | Meaning |\n * |-----|-----|\n * | . | Replaced automatically by the character used for the decimal
point. |\n * | , | Replaced by the "grouping" (thousands) separator. |\n * | 0 | Replaced by a digit (or zero if there
aren't enough digits). |\n * | # | Replaced by a digit (or nothing if there aren't enough). |\n * | ¤ | Replaced by a
currency symbol, such as $ or USD. |\n * | % | Marks a percent format. The % symbol may change position, but
must be retained. |\n * | E | Marks a scientific format. The E symbol may change position, but must be retained. |\n
* | ' | Special characters used as literal characters are quoted with ASCII single quotes. |\n * \n * @param locale A
locale code for the locale format rules to use.\n * @param type The
type of numeric value to be formatted (such as `Decimal` or `Currency`.)\n * @returns The localized format
string.\n * @see `NumberFormatStyle`\n * @see [CLDR website](http://cldr.unicode.org/translation/number-
patterns)\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n\n@publicApi\n
* \nexport function getLocaleNumberFormat(locale: string, type: NumberFormatStyle): string {\n const data =
findLocaleData(locale);\n return data[LocaleDataIndex.NumberFormats][type];\n}\n\n/**\n * Retrieves the symbol
used to represent the currency for the main country\n * corresponding to a given locale. For example, '$' for `en-
US`.\n * \n * @param locale A locale code for the locale format rules to use.\n * @returns The localized symbol

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character,\n \* or `null` if the main country cannot be determined.\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport function getLocaleCurrencySymbol(locale: string): string|null

{\n const data = findLocaleData(locale);\n return data[LocaleDataIndex.CurrencySymbol] || null;\n}\n\n/\*\*\n \* Retrieves the name of the currency for the main country corresponding\n \* to a given locale. For example, 'US Dollar' for `en-US`.\n \* @param locale A locale code for the locale format rules to use.\n \* @returns The currency name,\n \* or `null` if the main country cannot be determined.\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport function getLocaleCurrencyName(locale: string): string|null {\n const data = findLocaleData(locale);\n return data[LocaleDataIndex.CurrencyName] || null;\n}\n\n/\*\*\n \* Retrieves the default currency code for the given locale.\n \* The default is defined as the first currency which is still in use.\n \* @param locale The code of the locale whose currency code we want.\n \* @returns The code of the default currency for the given locale.\n \* @publicApi\n \*/\nexport function getLocaleCurrencyCode(locale: string): string|null {\n return getLocaleCurrencyCode(locale);\n}\n\n/\*\*\n \* Retrieves the currency values for a given locale.\n \* @param locale A locale code for the locale format rules to use.\n \* @returns The currency values.\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \*/\nfunction getLocaleCurrencies(locale: string): {[code: string]: CurrenciesSymbols} {\n const data = findLocaleData(locale);\n return data[LocaleDataIndex.Currencies];\n}\n\n/\*\*\n \* @alias core/getLocalePluralCase\n \* @publicApi\n \*/\nexport const getLocalePluralCase: (locale: string) => ((value: number) => Plural) =\n getLocalePluralCase;\n\nfunction checkFullData(data: any) {\n if (!data[LocaleDataIndex.ExtraData]) {\n throw new Error(`Missing extra locale data for the locale "\${\n data[LocaleDataIndex.LocaleId]}". Use "registerLocaleData" to load new data. See the "I18n guide" on angular.io to know more.`);\n }\n}\n\n/\*\*\n \* Retrieves locale-specific rules used to determine which day period to use\n \* when more than one period is defined for a locale.\n \* There is a rule for each defined day period. The\n \* first rule is applied to the first day period and so on.\n \* Fall back to AM/PM when no rules are available.\n \* A rule can specify a period as time range, or as a single time value.\n \* This functionality is only available when you have loaded the full locale data.\n \* See the ["I18n guide"](guide/i18n#i18n-pipes).\n \* @param locale A locale code for the locale format rules to use.\n \* @returns The rules for the locale, a single time value or array of \*from-time, to-time\*,\n \* or null if no periods are available.\n \* @see `getLocaleExtraDayPeriods()`\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport function getLocaleExtraDayPeriodRules(locale: string): (Time|[Time, Time])[] {\n const data = findLocaleData(locale);\n checkFullData(data);\n const rules = data[LocaleDataIndex.ExtraData][ExtraLocaleDataIndex.ExtraDayPeriodsRules] || [];\n return rules.map((rule: string|[string, string]) => {\n if (typeof rule === 'string') {\n return extractTime(rule);\n }\n return [extractTime(rule[0]), extractTime(rule[1])];\n });\n}\n\n/\*\*\n \* Retrieves locale-specific day periods, which indicate roughly how a day is broken up\n \* in different languages.\n \* For example, for `en-US`, periods are morning, noon, afternoon, evening, and midnight.\n \* This functionality is only available when you have loaded the full locale data.\n \* See the ["I18n guide"](guide/i18n#i18n-pipes).\n \* @param locale A locale code for the locale format rules to use.\n \* @param formStyle The required grammatical form.\n \* @param width The required character width.\n \* @returns The translated day-period strings.\n \* @see `getLocaleExtraDayPeriodRules()`\n \* @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n \* @publicApi\n \*/\nexport function getLocaleExtraDayPeriods(locale: string, formStyle: FormStyle, width: TranslationWidth): string[] {\n const data = findLocaleData(locale);\n checkFullData(data);\n const dayPeriodsData = <string[][]>[\n data[LocaleDataIndex.ExtraData][ExtraLocaleDataIndex.ExtraDayPeriodFormats],\n data[LocaleDataIndex.ExtraData][ExtraLocaleDataIndex.ExtraDayPeriodStandalone]\n ];\n const dayPeriods = getLastDefinedValue(dayPeriodsData, formStyle) || [];\n return getLastDefinedValue(dayPeriods, width) || [];\n}\n\n/\*\*\n \* Retrieves the writing direction of a specified locale\n \* @param locale A locale code for the locale



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format rules to use.\n * @publicApi\n * @returns 'rtl' or 'ltr'\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n\n * \nexport function getLocaleDirection(locale: string): 'ltr'|'rtl' {\n const data = findLocaleData(locale);\n return data[LocaleDataIndex.Directionality];\n}\n\n/**\n * Retrieves the first value that is defined in an array, going backwards from an index position.\n * \n * To avoid repeating the same data (as when the \"format\" and \"standalone\" forms are the same)\n * add the first value to the locale data arrays, and add other values only if they are different.\n * \n * @param data The data array to retrieve from.\n * @param index A 0-based index into the array to start from.\n * @returns The value immediately before the given index position.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n\n * \n * @publicApi\n */\nfunction getLastDefinedValue<T>(data: T[], index: number): T {\n for (let i = index; i > -1; i--) {\n if (typeof data[i] !== 'undefined') {\n return data[i];\n }\n }\n throw new Error('Locale data API: locale data undefined');\n}\n\n/**\n * Represents a time value with hours and minutes.\n * \n * @publicApi\n */\nexport type Time = {\n hours: number,\n minutes: number\n};\n\n/**\n * Extracts the hours and minutes from a string like \"15:45\"\n * \n * @function extractTime(time: string): Time {\n const [h, m] = time.split(':');\n return {hours: +h, minutes: +m};\n}\n\n * Retrieves the currency symbol for a given currency code.\n * \n * For example, for the default `en-US` locale, the code `USD` can be represented by the narrow symbol `$` or the wide symbol `US$`.\n * \n * @param code The currency code.\n * @param format The format, `wide` or `narrow`.\n * @param locale A locale code for the locale format rules to use.\n * @returns The symbol, or the currency code if no symbol is available.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n\n * \n * @publicApi\n */\nexport function getCurrencySymbol(code: string, format: 'wide'|'narrow', locale = 'en'): string {\n const currency = getLocaleCurrencies(locale)[code] || CURRENCIES_EN[code] || [];\n const symbolNarrow = currency[CurrencyIndex.SymbolNarrow];\n if (format === 'narrow' && typeof symbolNarrow === 'string') {\n return symbolNarrow;\n }\n return currency[CurrencyIndex.Symbol] || code;\n}\n\n// Most currencies have cents, that's why the default is 2\nconst DEFAULT_NB_OF_CURRENCY_DIGITS = 2;\n\n/**\n * Reports the number of decimal digits for a given currency.\n * \n * The value depends upon the presence of cents in that particular currency.\n * \n * @param code The currency code.\n * @returns The number of decimal digits, typically 0 or 2.\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n\n * \n * @publicApi\n */\nexport function getNumberOfCurrencyDigits(code: string): number {\n let digits;\n const currency = CURRENCIES_EN[code];\n if (currency) {\n digits = currency[CurrencyIndex.NbOfDigits];\n }\n return typeof digits === 'number' ? digits : DEFAULT_NB_OF_CURRENCY_DIGITS;\n}\n\n\"\", \"\"/\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n\nimport {FormatWidth, FormStyle, getLocaleDateFormat, getLocaleDateTimeFormat, getLocaleDayNames, getLocaleDayPeriods, getLocaleEraNames, getLocaleExtraDayPeriodRules, getLocaleExtraDayPeriods, getLocaleId, getLocaleMonthNames, getLocaleNumberSymbol, getLocaleTimeFormat, NumberSymbol, Time, TranslationWidth} from './locale_data_api';\n\nexport const ISO8601_DATE_REGEX = /\n ^((\\d{4})-?(\\d\\d\\d)-?(\\d\\d\\d)(?:T(\\d\\d\\d)(?::(\\d\\d\\d)(?::(\\d\\d\\d)(?:.(\\d+))?)?)?(Z|([+-])(\\d\\d\\d)?|(\\d\\d\\d)?)?$);\n 1 2 3 4 5 6 7 8 9 10 11\n \nconst NAMED_FORMATS: {[localeId: string]: {[format: string]: string}} = {};\n\nconst DATE_FORMATS_SPLIT = /\n ((?![^GyYMLwWdEabBhHmsSzZO]+)((?:'(?![^\"])*')|(?:G{1,5}|y{1,4}|Y{1,4}|M{1,5}|L{1,5}|w{1,2}|W{1}|d{1,2}|E{1,6}|a{1,5}|b{1,5}|B{1,5}|h{1,2}|H{1,2}|m{1,2}|s{1,2}|S{1,3}|z{1,4}|Z{1,5}|O{1,4})))([\\s\\\\S]*);\n \nenum ZoneWidth {\n Short,\n ShortGMT,\n Long,\n Extended\n }\n\nenum DateType {\n FullYear,\n Month,\n Date,\n Hours,\n Minutes,\n Seconds,\n FractionalSeconds,\n Day\n }\n\nenum TranslationType {\n DayPeriods,\n Days,\n Months,\n Eras\n }\n\n * \n * @ngModule CommonModule\n * \n * @description\n * \n * Formats a date according to locale rules.\n * \n * @param value The date to format, as a Date, or a number (milliseconds since UTC epoch)\n * or an [ISO date-time string](https://www.w3.org/TR/NOTE-datetime).\n * \n * @param format The date-time components to include. See `DatePipe` for details.\n * \n * @param locale A locale code for the locale format rules to use.\n * \n * @param timezone The time zone. A time zone offset from GMT (such as
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 '+0430'),\n * or a standard UTC/GMT or continental US time zone abbreviation.\n * If not specified, uses host
system settings.\n *\n * @returns The formatted date string.\n *\n * @see `DatePipe`\n * @see [Internationalization
(i18n) Guide](https://angular.io/guide/i18n)\n
*\n * @publicApi\n */\nexport function formatDate(\n value: string|number|Date, format: string, locale: string,
timezone?: string): string {\n let date = toDate(value);\n const namedFormat = getNamedFormat(locale, format);\n format = namedFormat || format;\n\n let parts: string[] = [];\n let match;\n while (format) {\n match =
DATE_FORMATS_SPLIT.exec(format);\n if (match) {\n parts = parts.concat(match.slice(1));\n const part
= parts.pop();\n if (!part) {\n break;\n }\n format = part;\n } else {\n parts.push(format);\n
break;\n }\n }\n\n let dateTzOffset = date.getTimezoneOffset();\n if (timezone) {\n dateTzOffset
= timezoneToOffset(timezone, dateTzOffset);\n date = convertTzToLocal(date, timezone, true);\n }\n\n let text = '';\n parts.forEach(value => {\n const dateFormatter = getDateFormatter(value);\n text +=
dateFormatter ?\n dateFormatter(date,\n locale, dateTzOffset) : value === '\\\\' ? '\\\\' : value.replace(/(^'|$)/g, '').replace(/"/g, '\\');\n });\n return text;\n}\n\nfunction getNamedFormat(locale: string, format: string): string {\n const localeId =
getLocaleId(locale);\n NAMED_FORMATS[localeId] = NAMED_FORMATS[localeId] || {};\n if
(NAMED_FORMATS[localeId][format]) {\n return NAMED_FORMATS[localeId][format];\n }\n\n let
formatValue = '';\n switch (format) {\n case 'shortDate':\n formatValue = getLocaleDateFormat(locale,
FormatWidth.Short);\n break;\n case 'mediumDate':\n formatValue = getLocaleDateFormat(locale,
FormatWidth.Medium);\n break;\n case 'longDate':\n formatValue = getLocaleDateFormat(locale,
FormatWidth.Long);\n break;\n case 'fullDate':\n formatValue = getLocaleDateFormat(locale,
FormatWidth.Full);\n break;\n case 'shortTime':\n formatValue = getLocaleTimeFormat(locale,
FormatWidth.Short);\n break;\n case
'mediumTime':\n formatValue = getLocaleTimeFormat(locale, FormatWidth.Medium);\n break;\n case
'longTime':\n formatValue = getLocaleTimeFormat(locale, FormatWidth.Long);\n break;\n case
'fullTime':\n formatValue = getLocaleTimeFormat(locale, FormatWidth.Full);\n break;\n case 'short':\n const shortTime = getNamedFormat(locale, 'shortTime');\n const shortDate = getNamedFormat(locale,
'shortDate');\n formatValue = formatDate(\n getLocaleDateTimeFormat(locale, FormatWidth.Short),
[shortTime, shortDate]);\n break;\n case 'medium':\n const mediumTime = getNamedFormat(locale,
'mediumTime');\n const mediumDate = getNamedFormat(locale, 'mediumDate');\n formatValue =
formatDate(\n getLocaleDateTimeFormat(locale, FormatWidth.Medium), [mediumTime,
mediumDate]);\n break;\n case 'long':\n const longTime = getNamedFormat(locale, 'longTime');\n const
longDate = getNamedFormat(locale,
'longDate');\n formatValue =\n formatDate(getLocaleDateTimeFormat(locale, FormatWidth.Long),
[longTime, longDate]);\n break;\n case 'full':\n const fullTime = getNamedFormat(locale, 'fullTime');\n const
fullDate = getNamedFormat(locale, 'fullDate');\n formatValue =\n formatDate(getLocaleDateTimeFormat(locale, FormatWidth.Full), [fullTime, fullDate]);\n break;\n }\n if
(formatValue) {\n NAMED_FORMATS[localeId][format] = formatValue;\n }\n return
formatValue;\n}\n\nfunction formatDate(str: string, opt_values: string[]) {\n if (opt_values) {\n str =
str.replace(/\\{([^\}]+)\\}/g, function(match, key) {\n return (opt_values != null && key in opt_values) ?
opt_values[key] : match;\n });\n }\n return str;\n}\n\nfunction padNumber(\n num: number, digits: number,
minusSign = '-', trim?: boolean, negWrap?: boolean): string {\n let neg = '';\n if (num < 0 || (negWrap && num <=
0)) {\n if (negWrap) {\n num = -num + 1;\n } else {\n num = -num;\n neg = minusSign;\n }\n }\n let strNum = String(num);\n while (strNum.length < digits) {\n strNum = '0' + strNum;\n }\n if (trim) {\n strNum =
strNum.substr(strNum.length - digits);\n }\n return neg + strNum;\n}\n\nfunction
formatFractionalSeconds(milliseconds: number, digits: number): string {\n const strMs = padNumber(milliseconds,
3);\n return strMs.substr(0, digits);\n}\n\n/**\n * Returns a date formatter that transforms a date into its locale digit
representation\n */\nfunction dateGetter(\n name: DateType, size: number, offset: number = 0, trim = false,\n

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negWrap = false): DateFormatter {\n return function(date: Date, locale: string): string {\n let part =
getDatePart(name, date);\n if (offset > 0 || part > -offset) {\n part += offset;\n }\n if (name ===
DateType.Hours) {\n if (part === 0 && offset === -12) {\n part = 12;\n }\n } else if (name ===
DateType.FractionalSeconds)
{\n return formatFractionalSeconds(part, size);\n }\n const localeMinus = getLocaleNumberSymbol(locale,
NumberSymbol.MinusSign);\n return padNumber(part, size, localeMinus, trim, negWrap);\n };}\n\nfunction
getDatePart(part: DateType, date: Date): number {\n switch (part) {\n case DateType.FullYear:\n return
date.getFullYear();\n case DateType.Month:\n return date.getMonth();\n case DateType.Date:\n return
date.getDate();\n case DateType.Hours:\n return date.getHours();\n case DateType.Minutes:\n return
date.getMinutes();\n case DateType.Seconds:\n return date.getSeconds();\n case
DateType.FractionalSeconds:\n return date.getMilliseconds();\n case DateType.Day:\n return
date.getDay();\n default:\n throw new Error(`Unknown DateType value \"${part}\"`);\n }}\n\n/**\n *
Returns a date formatter that transforms a date into its locale string representation\n */\nfunction dateStrGetter(\n
name: TranslationType, width: TranslationWidth, form: FormStyle = FormStyle.Format,\n extended = false):
DateFormatter {\n return function(date: Date, locale: string): string {\n return getDateTranslation(date, locale,
name, width, form, extended);\n };}\n\n/**\n * Returns the locale translation of a date for a given form, type and
width\n */\nfunction getDateTranslation(\n date: Date, locale: string, name: TranslationType, width:
TranslationWidth, form: FormStyle,\n extended: boolean) {\n switch (name) {\n case
TranslationType.Months:\n return getLocaleMonthNames(locale, form, width)[date.getMonth()];\n case
TranslationType.Days:\n return getLocaleDayNames(locale, form, width)[date.getDay()];\n case
TranslationType.DayPeriods:\n const currentHours = date.getHours();\n const currentMinutes =
date.getMinutes();\n if (extended) {\n const rules = getLocaleExtraDayPeriodRules(locale);\n const
dayPeriods = getLocaleExtraDayPeriods(locale,
form, width);\n const index = rules.findIndex(rule => {\n if (Array.isArray(rule)) {\n // morning,
afternoon, evening, night\n const [from, to] = rule;\n const afterFrom = currentHours >= from.hours
&& currentMinutes >= from.minutes;\n const beforeTo =\n (currentHours < to.hours ||\n (currentHours === to.hours && currentMinutes < to.minutes));\n // We must account for normal rules that
span a period during the day (e.g. 6am-9am)\n // where `from` is less (earlier) than `to`. But also rules that
span midnight (e.g.\n // 10pm - 5am) where `from` is greater (later!) than `to`.\n //\n // In the
first case the current time must be BOTH after `from` AND before `to`\n // (e.g. 8am is after 6am AND
before 10am).\n //\n // In the second case the current time must be EITHER after `from` OR before
`to`\n // (e.g. 4am is before 5am but not after 10pm; and 11pm is not before 5am but it is\n // after
10pm).\n if (from.hours < to.hours) {\n if (afterFrom && beforeTo) {\n return true;\n }\n } else if (afterFrom || beforeTo) {\n return true;\n }\n } else { // noon or midnight\n if (rule.hours === currentHours && rule.minutes === currentMinutes) {\n return true;\n }\n }\n return false;\n });\n if (index !== -1) {\n return dayPeriods[index];\n }\n }\n // if
no rules for the day periods, we use am/pm by default\n return getLocaleDayPeriods(locale, form,
<TranslationWidth>width)[currentHours < 12 ? 0 : 1];\n case TranslationType.Eras:\n return
getLocaleEraNames(locale, <TranslationWidth>width)[date.getFullYear() <= 0 ? 0 : 1];\n default:\n // This
default
case is not needed by TypeScript compiler, as the switch is exhaustive.\n // However Closure Compiler does not
understand that and reports an error in typed mode.\n // The `throw new Error` below works around the problem,
and the unexpected: never variable\n // makes sure tsc still checks this code is unreachable.\n const
unexpected: never = name;\n throw new Error(`unexpected translation type ${unexpected}`);\n }}\n\n/**\n *
Returns a date formatter that transforms a date and an offset into a timezone with ISO8601 or\n * GMT format
depending on the width (eg: short = +0430, short:GMT = GMT+4, long = GMT+04:30,\n * extended = +04:30)\n */\nfunction timeZoneGetter(width: ZoneWidth): DateFormatter {\n return function(date: Date, locale: string,
offset: number) {\n const zone = -1 * offset;\n const minusSign = getLocaleNumberSymbol(locale,

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NumberSymbol.MinusSign);\n const hours = zone > 0 ? Math.floor(zone / 60) : Math.ceil(zone / 60);\n switch
(width)
 {\n case ZoneWidth.Short:\n return ((zone >= 0) ? '+' : '-') + padNumber(hours, 2, minusSign) +\n padNumber(Math.abs(zone % 60), 2, minusSign);\n case ZoneWidth.ShortGMT:\n return 'GMT' + ((zone >=
0) ? '+' : '-') + padNumber(hours, 1, minusSign);\n case ZoneWidth.Long:\n return 'GMT' + ((zone >= 0) ? '+'
: '-') + padNumber(hours, 2, minusSign) + ':' +\n padNumber(Math.abs(zone % 60), 2, minusSign);\n case
ZoneWidth.Extended:\n if (offset === 0) {\n return 'Z';\n } else {\n return ((zone >= 0) ? '+' : '-')
+ padNumber(hours, 2, minusSign) + ':' +\n padNumber(Math.abs(zone % 60), 2, minusSign);\n }\n default:\n throw new Error('Unknown zone width \'' + width + '\');\n }\n};\n\nconst JANUARY =
0;\nconst THURSDAY = 4;\nfunction getFirstThursdayOfYear(year: number) {\n const firstDayOfYear = (new
Date(year, JANUARY, 1)).getDay();\n return new Date(\n year,
 0, 1 + ((firstDayOfYear <= THURSDAY) ? THURSDAY : THURSDAY + 7) - firstDayOfYear);\n}\n\nfunction
getThursdayThisWeek(datetime: Date) {\n return new Date(\n datetime.getFullYear(), datetime.getMonth(),\n datetime.getDate() + (THURSDAY - datetime.getDay()));\n}\n\nfunction weekGetter(size: number, monthBased =
false): DateFormatter {\n return function(date: Date, locale: string) {\n let result;\n if (monthBased) {\n const
nbDaysBefore1stDayOfMonth =\n new Date(date.getFullYear(), date.getMonth(), 1).getDay() - 1;\n const
today = date.getDate();\n result = 1 + Math.floor((today + nbDaysBefore1stDayOfMonth) / 7);\n } else {\n const
thisThurs = getThursdayThisWeek(date);\n // Some days of a year are part of next year according to ISO
8601.\n // Compute the firstThurs from the year of this week's Thursday\n const firstThurs =
getFirstThursdayOfYear(thisThurs.getFullYear());\n const diff = thisThurs.getTime() - firstThurs.getTime();\n result = 1 + Math.round(diff / 6.048e8); // 6.048e8 ms per week\n }\n return padNumber(result, size,
getLocaleNumberSymbol(locale, NumberSymbol.MinusSign));\n };\n}\n\n/**\n * Returns a date formatter that
provides the week-numbering year for the input date.\n */\nfunction weekNumberingYearGetter(size: number, trim
= false): DateFormatter {\n return function(date: Date, locale: string) {\n const thisThurs =
getThursdayThisWeek(date);\n const weekNumberingYear = thisThurs.getFullYear();\n return padNumber(\n weekNumberingYear, size, getLocaleNumberSymbol(locale, NumberSymbol.MinusSign), trim);\n };\n}\n\nntype
DateFormatter = (date: Date, locale: string, offset: number) => string;\n\nconst DATE_FORMATS: {[format:
string]: DateFormatter} = {};\n\n// Based on CLDR formats:\n// See complete list:
http://www.unicode.org/reports/tr35/tr35-dates.html#Date_Field_Symbol_Table\n// See also explanations:
http://cldr.unicode.org/translation/date-time\n\n
TODO(ocombe): support all missing cldr formats: Y, U, Q, D, F, e, c, j, J, C, A, v, V, X, x\nfunction
getDateFormatter(format: string): DateFormatter | null {\n if (DATE_FORMATS[format]) {\n return
DATE_FORMATS[format];\n }\n let formatter;\n switch (format) {\n // Era name (AD/BC)\n case 'G':\n case 'GG':\n case 'GGG':\n formatter = dateStrGetter(TranslationType.Eras, TranslationWidth.Abbreviated);\n break;\n case 'GGGG':\n formatter = dateStrGetter(TranslationType.Eras, TranslationWidth.Wide);\n break;\n case 'GGGGG':\n formatter = dateStrGetter(TranslationType.Eras, TranslationWidth.Narrow);\n break;\n // 1 digit representation of the year, e.g. (AD 1 => 1, AD 199 => 199)\n case 'y':\n formatter =
dateGetter(DateType.FullYear, 1, 0, false, true);\n break;\n // 2 digit representation of the year, padded (00-99).
(e.g. AD 2001 => 01, AD 2010 => 10)\n case 'yy':\n formatter = dateGetter(DateType.FullYear,
2, 0, true, true);\n break;\n // 3 digit representation of the year, padded (000-999). (e.g. AD 2001 => 01, AD
2010 => 10)\n case 'yyy':\n formatter = dateGetter(DateType.FullYear, 3, 0, false, true);\n break;\n // 4
digit representation of the year (e.g. AD 1 => 0001, AD 2010 => 2010)\n case 'yyyy':\n formatter =
dateGetter(DateType.FullYear, 4, 0, false, true);\n break;\n // 1 digit representation of the week-numbering
year, e.g. (AD 1 => 1, AD 199 => 199)\n case 'Y':\n formatter = weekNumberingYearGetter(1);\n break;\n // 2
digit representation of the week-numbering year, padded (00-99). (e.g. AD 2001 => 01, AD\n // 2010 => 10)\n case 'YY':\n formatter = weekNumberingYearGetter(2, true);\n break;\n // 3 digit representation of the
week-numbering year, padded (000-999). (e.g. AD 1 => 001, AD\n // 2010 => 2010)\n case 'YYY':\n formatter = weekNumberingYearGetter(3);\n break;\n // 4 digit

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representation of the week-numbering year (e.g. AD 1 => 0001, AD 2010 => 2010)\n case 'YYYY':\n
formatter = weekNumberingYearGetter(4);\n break;\n\n // Month of the year (1-12), numeric\n case 'M':\n
case 'L':\n formatter = dateGetter(DateType.Month, 1, 1);\n break;\n case 'MM':\n case 'LL':\n
formatter = dateGetter(DateType.Month, 2, 1);\n break;\n\n // Month of the year (January, ...), string, format\n
case 'MMM':\n formatter = dateStrGetter(TranslationType.Months, TranslationWidth.Abbreviated);\n
break;\n case 'MMMM':\n formatter = dateStrGetter(TranslationType.Months, TranslationWidth.Wide);\n
break;\n case 'MMMMM':\n formatter = dateStrGetter(TranslationType.Months, TranslationWidth.Narrow);\n
break;\n\n // Month of the year (January, ...), string, standalone\n case 'LLL':\n formatter =\n
dateStrGetter(TranslationType.Months, TranslationWidth.Abbreviated, FormStyle.Standalone);\n
break;\n case 'LLLL':\n formatter =\n
dateStrGetter(TranslationType.Months, TranslationWidth.Wide, FormStyle.Standalone);\n break;\n case 'LLLLL':\n
formatter =\n
dateStrGetter(TranslationType.Months, TranslationWidth.Narrow, FormStyle.Standalone);\n break;\n\n //
Week of the year (1, ... 52)\n case 'w':\n formatter = weekGetter(1);\n break;\n case 'ww':\n
formatter = weekGetter(2);\n break;\n\n // Week of the month (1, ...)\n case 'W':\n formatter = weekGetter(1, true);\n
break;\n\n // Day of the month (1-31)\n case 'd':\n formatter = dateGetter(DateType.Date, 1);\n break;\n
case 'dd':\n formatter = dateGetter(DateType.Date, 2);\n break;\n\n // Day of the Week\n case 'E':\n case
'EE':\n case 'EEE':\n formatter = dateStrGetter(TranslationType.Days, TranslationWidth.Abbreviated);\n
break;\n case 'EEEE':\n formatter = dateStrGetter(TranslationType.Days,
TranslationWidth.Wide);\n break;\n case 'EEEEE':\n formatter = dateStrGetter(TranslationType.Days,
TranslationWidth.Narrow);\n break;\n case 'EEEEEE':\n formatter = dateStrGetter(TranslationType.Days,
TranslationWidth.Short);\n break;\n\n // Generic period of the day (am-pm)\n case 'a':\n case 'aa':\n case
'aaa':\n formatter = dateStrGetter(TranslationType.DayPeriods, TranslationWidth.Abbreviated);\n break;\n
case 'aaaa':\n formatter = dateStrGetter(TranslationType.DayPeriods, TranslationWidth.Wide);\n break;\n
case 'aaaaa':\n formatter = dateStrGetter(TranslationType.DayPeriods, TranslationWidth.Narrow);\n
break;\n\n // Extended period of the day (midnight, at night, ...), standalone\n case 'b':\n case 'bb':\n case
'bbb':\n formatter = dateStrGetter(\n TranslationType.DayPeriods, TranslationWidth.Abbreviated,
FormStyle.Standalone, true);\n break;\n
case 'bbbb':\n formatter = dateStrGetter(\n TranslationType.DayPeriods, TranslationWidth.Wide,
FormStyle.Standalone, true);\n break;\n case 'bbbbb':\n formatter = dateStrGetter(\n
TranslationType.DayPeriods, TranslationWidth.Narrow, FormStyle.Standalone, true);\n break;\n\n // Extended
period of the day (midnight, night, ...), standalone\n case 'B':\n case 'BB':\n case 'BBB':\n formatter =
dateStrGetter(\n TranslationType.DayPeriods, TranslationWidth.Abbreviated, FormStyle.Format, true);\n
break;\n case 'BBBB':\n formatter =\n
dateStrGetter(TranslationType.DayPeriods,
TranslationWidth.Wide, FormStyle.Format, true);\n break;\n case 'BBBBB':\n formatter = dateStrGetter(\n
TranslationType.DayPeriods, TranslationWidth.Narrow, FormStyle.Format, true);\n break;\n\n // Hour in
AM/PM, (1-12)\n case 'h':\n formatter = dateGetter(DateType.Hours, 1, -12);\n break;\n
case 'hh':\n formatter = dateGetter(DateType.Hours, 2, -12);\n break;\n\n // Hour of the day (0-23)\n
case 'H':\n formatter = dateGetter(DateType.Hours, 1);\n break;\n // Hour in day, padded (00-23)\n case
'HH':\n formatter = dateGetter(DateType.Hours, 2);\n break;\n\n // Minute of the hour (0-59)\n case 'm':\n
formatter = dateGetter(DateType.Minutes, 1);\n break;\n case 'mm':\n formatter =
dateGetter(DateType.Minutes, 2);\n break;\n\n // Second of the minute (0-59)\n case 's':\n formatter =
dateGetter(DateType.Seconds, 1);\n break;\n case 'ss':\n formatter = dateGetter(DateType.Seconds, 2);\n
break;\n\n // Fractional second\n case 'S':\n formatter = dateGetter(DateType.FractionalSeconds, 1);\n
break;\n case 'SS':\n formatter = dateGetter(DateType.FractionalSeconds, 2);\n break;\n case 'SSS':\n
formatter = dateGetter(DateType.FractionalSeconds,
3);\n break;\n\n // Timezone ISO8601 short format (-0430)\n case 'Z':\n case 'ZZ':\n case 'ZZZ':\n
formatter = timeZoneGetter(ZoneWidth.Short);\n break;\n // Timezone ISO8601 extended format (-04:30)\n
case 'ZZZZ':\n formatter = timeZoneGetter(ZoneWidth.Extended);\n break;\n\n // Timezone GMT short

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format (GMT+4)\n case 'O':\n case 'OO':\n case 'OOO':\n // Should be location, but fallback to format O
instead because we don't have the data yet\n case 'z':\n case 'zz':\n case 'zzz':\n formatter =
timeZoneGetter(ZoneWidth.ShortGMT);\n break;\n // Timezone GMT long format (GMT+0430)\n case
'OOOO':\n case 'ZZZZ':\n // Should be location, but fallback to format O instead because we don't have the data
yet\n case 'zzzz':\n formatter = timeZoneGetter(ZoneWidth.Long);\n break;\n default:\n return null;\n
}\n DATE_FORMATS[format] = formatter;\n return formatter;\n}\n\nfunction timezoneToOffset(timezone:
string, fallback: number): number {\n // Support: IE 11 only, Edge 13-15+\n // IE/Edge do not \"understand\"
colon (':') in timezone\n timezone = timezone.replace(/:/g, \"\");\n const requestedTimezoneOffset = Date.parse('Jan
01, 1970 00:00:00 ' + timezone) / 60000;\n return isNaN(requestedTimezoneOffset) ? fallback :
requestedTimezoneOffset;\n}\n\nfunction addDateMinutes(date: Date, minutes: number) {\n date = new
Date(date.getTime());\n date.setMinutes(date.getMinutes() + minutes);\n return date;\n}\n\nfunction
convertTimezoneToLocal(date: Date, timezone: string, reverse: boolean): Date {\n const reverseValue = reverse ? -
1 : 1;\n const dateTzOffset = date.getTimezoneOffset();\n const timezoneOffset =
timezoneToOffset(timezone, dateTzOffset);\n return addDateMinutes(date, reverseValue * (timezoneOffset
- dateTzOffset));\n}\n\n/**\n * Converts a value to date.\n * Supported input formats:\n * - `Date`\n * -
number: timestamp\n *
- string: numeric (e.g. `1234`), ISO and date strings in a format supported by\n *
[Date.parse()](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date/parse).\n *
Note: ISO strings without time return a date without timeoffset.\n * Throws if unable to convert to a date.\n
*/\nexport function toDate(value: string|number|Date): Date {\n if (isDate(value)) {\n return value;\n }\n\n if
(typeof value === 'number' && !isNaN(value)) {\n return new Date(value);\n }\n\n if (typeof value === 'string')
{\n value = value.trim();\n\n const parsedNb = parseFloat(value);\n // any string that only contains numbers,
like `1234` but not like `1234hello`\n if (!isNaN(value as any - parsedNb)) {\n return new
Date(parsedNb);\n }\n\n if (/^\\d{4}-\\d{1,2}-\\d{1,2}$/.test(value)) {\n /* For ISO Strings without time the
day, month and year must be extracted from the ISO String\n before Date creation to avoid time offset
and errors in the new Date.\n If we only replace '-' with ',' in the ISO String (`2015,01,01`), and try to create a
new\n date, some browsers (e.g. IE 9) will throw an invalid Date error.\n If we leave the '-' (`2015-01-01`)
and try to create a new Date(`2015-01-01`) the timeoffset\n is applied.\n Note: ISO months are 0 for
January, 1 for February, ... */\n const [y, m, d] = value.split(',').map((val: string) => +val);\n return new
Date(y, m - 1, d);\n }\n\n let match: RegExpMatchArray|null;\n if (match =
value.match(ISO8601_DATE_REGEX)) {\n return isoStringToDate(match);\n }\n }\n\n const date = new
Date(value as any);\n if (!isDate(date)) {\n throw new Error(`Unable to convert \"${value}\" into a date`);\n }\n
return date;\n}\n\n/**\n * Converts a date in ISO8601 to a Date.\n * Used instead of `Date.parse` because of
browser discrepancies.\n */\nexport function isoStringToDate(match: RegExpMatchArray): Date {\n
const date = new Date(0);\n let tzHour = 0;\n let tzMin = 0;\n // match[8] means that the string contains `Z`
(UTC) or a timezone like `+01:00` or `+0100`\n const dateSetter = match[8] ? date.setUTCFullYear :
date.setFullYear;\n const timeSetter = match[8] ? date.setUTCHours : date.setHours;\n\n // if there is a timezone
defined like `+01:00` or `+0100`\n if (match[9]) {\n tzHour = Number(match[9] + match[10]);\n tzMin =
Number(match[9] + match[11]);\n }\n dateSetter.call(date, Number(match[1]), Number(match[2]) - 1,
Number(match[3]));\n const h = Number(match[4] || 0) - tzHour;\n const m = Number(match[5] || 0) - tzMin;\n
const s = Number(match[6] || 0);\n // The ECMAScript specification (https://www.ecma-international.org/ecma-
262/5.1/#sec-15.9.1.11)\n // defines that `DateTime` milliseconds should always be rounded down, so that
`999.9ms`\n // becomes `999ms`\n const ms = Math.floor(parseFloat('0.' + (match[7] || 0)) * 1000);\n
timeSetter.call(date,
h, m, s, ms);\n return date;\n}\n\nexport function isDate(value: any): value is Date {\n return value instanceof Date
&& !isNaN(value.valueOf());\n}\n\n\", \"/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {getLocaleNumberFormat, getLocaleNumberSymbol,

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getNumberOfCurrencyDigits, NumberFormatStyle, NumberSymbol} from './locale_data_api';\n\nexport const
NUMBER_FORMAT_REGEX = /^(\\d+)?\\.?(\\d+)(-?(\\d+))?$;/\n\nconst MAX_DIGITS = 22;\nconst
DECIMAL_SEP = '.';\nconst ZERO_CHAR = '0';\nconst PATTERN_SEP = ',';\nconst GROUP_SEP = ',';\nconst
DIGIT_CHAR = '#';\nconst CURRENCY_CHAR = '¤';\nconst PERCENT_CHAR = '%';\n\n/**\n * Transforms a
number to a locale string based on a style and a format.\n */\nfunction formatNumberToLocaleString(\n value:
number, pattern: ParsedNumberFormat, locale: string, groupSymbol: NumberSymbol,\n
 decimalSymbol: NumberSymbol, digitsInfo?: string, isPercent = false): string {\n let formattedText = '';\n let
isZero = false;\n\n if (!isFinite(value)) {\n formattedText = getLocaleNumberSymbol(locale,
NumberSymbol.Infinity);\n } else {\n let parsedNumber = parseNumber(value);\n\n if (isPercent) {\n
parsedNumber = toPercent(parsedNumber);\n }\n\n let minInt = pattern.minInt;\n let minFraction =
pattern.minFrac;\n let maxFraction = pattern.maxFrac;\n\n if (digitsInfo) {\n const parts =
digitsInfo.match(NUMBER_FORMAT_REGEX);\n if (parts === null) {\n throw new Error(`${digitsInfo}
is not a valid digit info`);\n }\n const minIntPart = parts[1];\n const minFractionPart = parts[3];\n const
maxFractionPart = parts[5];\n if (minIntPart !== null) {\n minInt = parseIntAutoRadix(minIntPart);\n }\n if (minFractionPart !== null) {\n minFraction = parseIntAutoRadix(minFractionPart);\n }\n if (maxFractionPart !== null) {\n maxFraction = parseIntAutoRadix(maxFractionPart);\n } else if
(minFractionPart !== null && minFraction > maxFraction) {\n maxFraction = minFraction;\n }\n }\n\n roundNumber(parsedNumber, minFraction, maxFraction);\n\n let digits = parsedNumber.digits;\n let integerLen
= parsedNumber.integerLen;\n const exponent = parsedNumber.exponent;\n let decimals = [];\n isZero =
digits.every(d => !d);\n\n // pad zeros for small numbers\n for (; integerLen < minInt; integerLen++) {\n
digits.unshift(0);\n }\n\n // pad zeros for small numbers\n for (; integerLen < 0; integerLen++) {\n
digits.unshift(0);\n }\n\n // extract decimals digits\n if (integerLen > 0) {\n decimals =
digits.splice(integerLen, digits.length);\n } else {\n decimals = digits;\n digits = [0];\n }\n\n // format the
integer digits with grouping separators\n const groups = [];\n if (digits.length
>= pattern.lgSize) {\n groups.unshift(digits.splice(-pattern.lgSize, digits.length).join(''));\n }\n\n while
(digits.length > pattern.gSize) {\n groups.unshift(digits.splice(-pattern.gSize, digits.length).join(''));\n }\n\n if
(digits.length) {\n groups.unshift(digits.join(''));\n }\n\n formattedText =
groups.join(getLocaleNumberSymbol(locale, groupSymbol));\n\n // append the decimal digits\n if
(decimals.length) {\n formattedText += getLocaleNumberSymbol(locale, decimalSymbol) + decimals.join('');\n }\n\n if (exponent) {\n formattedText += getLocaleNumberSymbol(locale, NumberSymbol.Exponential) + '+' +
exponent;\n }\n }\n\n if (value < 0 && !isZero) {\n formattedText = pattern.negPre + formattedText +
pattern.negSuf;\n } else {\n formattedText = pattern.posPre + formattedText + pattern.posSuf;\n }\n\n return
formattedText;\n}\n\n/**\n * @ngModule CommonModule\n * @description\n * Formats a number as currency
using locale rules.\n * @param value The number to format.\n * @param locale A locale code for the locale
format rules to use.\n * @param currency A string containing the currency symbol or its name,\n * such as \"$" or
"Canadian Dollar". Used in output string, but does not affect the operation\n * of the function.\n * @param
currencyCode The [ISO 4217](https://en.wikipedia.org/wiki/ISO_4217)\n * currency code, such as `USD` for the
US dollar and `EUR` for the euro.\n * Used to determine the number of digits in the decimal part.\n * @param
digitInfo Decimal representation options, specified by a string in the following format:\n *
`{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}`. See `DecimalPipe` for more details.\n * @returns The formatted currency value.\n * @see `formatNumber`\n * @see `DecimalPipe`\n * @see
[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * @publicApi\n */\nexport function
formatCurrency(\n value: number,\n locale: string, currency: string, currencyCode?: string,\n digitsInfo?: string): string {\n const format =
getLocaleNumberFormat(locale, NumberFormatStyle.Currency);\n const pattern = parseNumberFormat(format,
getLocaleNumberSymbol(locale, NumberSymbol.MinusSign));\n pattern.minFrac =
getNumberOfCurrencyDigits(currencyCode!);\n pattern.maxFrac = pattern.minFrac;\n\n const res =
formatNumberToLocaleString(\n value, pattern, locale, NumberSymbol.CurrencyGroup,

```

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NumberSymbol.CurrencyDecimal, digitsInfo);\n return res\n .replace(CURRENCY_CHAR, currency)\n // if
we have 2 time the currency character, the second one is ignored\n .replace(CURRENCY_CHAR, "")\n // If
there is a spacing between currency character and the value and\n // the currency character is suppressed by
passing an empty string, the\n // spacing character would remain as part of the string. Then we\n // should
remove it.\n .trim();\n}\n\n/**\n * @ngModule CommonModule\n * @description\n * \n * Formats a number as a percentage according to locale rules.\n * \n * @param value The
number to format.\n * @param locale A locale code for the locale format rules to use.\n * @param digitInfo
Decimal representation options, specified by a string in the following format:\n *
`{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}`. See `DecimalPipe` for more details.\n * \n *
@returns The formatted percentage value.\n * \n * @see `formatNumber()`\n * @see `DecimalPipe`\n * @see
[Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * @publicApi\n * \n */\nexport function
formatPercent(value: number, locale: string, digitsInfo?: string): string {\n const format =
getLocaleNumberFormat(locale, NumberFormatStyle.Percent);\n const pattern = parseNumberFormat(format,
getLocaleNumberSymbol(locale, NumberSymbol.MinusSign));\n const res = formatNumberToLocaleString(\n
value, pattern, locale, NumberSymbol.Group, NumberSymbol.Decimal, digitsInfo, true);\n
 return res.replace(\n new RegExp(PERCENT_CHAR, 'g'), getLocaleNumberSymbol(locale,
NumberSymbol.PercentSign));\n}\n\n/**\n * @ngModule CommonModule\n * @description\n * \n * Formats a
number as text, with group sizing, separator, and other\n * parameters based on the locale.\n * \n * @param value
The number to format.\n * @param locale A locale code for the locale format rules to use.\n * @param digitInfo
Decimal representation options, specified by a string in the following format:\n *
`{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}`. See `DecimalPipe` for more details.\n * \n *
@returns The formatted text string.\n * \n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n * \n *
@publicApi\n * \n */\nexport function formatNumber(value: number, locale: string, digitsInfo?: string): string {\n
 const format = getLocaleNumberFormat(locale, NumberFormatStyle.Decimal);\n const pattern =
parseNumberFormat(format, getLocaleNumberSymbol(locale, NumberSymbol.MinusSign));\n
 return formatNumberToLocaleString(\n value, pattern, locale, NumberSymbol.Group, NumberSymbol.Decimal,
digitsInfo);\n}\n\ninterface ParsedNumberFormat {\n minInt: number;\n // the minimum number of digits required
in the fraction part of the number\n minFrac: number;\n // the maximum number of digits required in the fraction
part of the number\n maxFrac: number;\n // the prefix for a positive number\n posPre: string;\n // the suffix for a
positive number\n posSuf: string;\n // the prefix for a negative number (e.g. `` or `(`))\n negPre: string;\n // the
suffix for a negative number (e.g. `)`)\n negSuf: string;\n // number of digits in each group of separated digits\n
 gSize: number;\n // number of digits in the last group of digits before the decimal separator\n lgSize:
number;\n}\n\nfunction parseNumberFormat(format: string, minusSign = '-'): ParsedNumberFormat {\n const p =
{\n minInt: 1,\n minFrac: 0,\n maxFrac: 0,\n posPre: "",\n posSuf: "",\n negPre: "",\n negSuf: "",\n gSize: 0,\n lgSize: 0\n };\n const patternParts =
format.split(PATTERN_SEP);\n const positive = patternParts[0];\n const negative = patternParts[1];\n const
positiveParts = positive.indexOf(DECIMAL_SEP) !== -1 ?\n positive.split(DECIMAL_SEP) :\n [\n positive.substring(0, positive.lastIndexOf(ZERO_CHAR) + 1),\n positive.substring(positive.lastIndexOf(ZERO_CHAR) + 1)\n],\n integer = positiveParts[0], fraction =
positiveParts[1] || "";\n p.posPre = integer.substr(0, integer.indexOf(DIGIT_CHAR));\n for (let i = 0; i <
fraction.length; i++) {\n const ch = fraction.charAt(i);\n if (ch === ZERO_CHAR) {\n p.minFrac =
p.maxFrac = i + 1;\n } else if (ch === DIGIT_CHAR) {\n p.maxFrac = i + 1;\n } else {\n p.posSuf +=
ch;\n }\n }\n const groups = integer.split(GROUP_SEP);\n p.gSize = groups[1] ? groups[1].length : 0;\n
 p.lgSize = (groups[2] || groups[1]) ?\n (groups[2] || groups[1]).length : 0;\n if (negative) {\n const trunkLen = positive.length - p.posPre.length -
p.posSuf.length,\n pos = negative.indexOf(DIGIT_CHAR);\n p.negPre = negative.substr(0,
pos).replace(/`g, ");\n p.negSuf = negative.substr(pos + trunkLen).replace(/`g, ");\n } else {\n p.negPre =
minusSign + p.posPre;\n p.negSuf = p.posSuf;\n }\n return p;\n}\n\ninterface ParsedNumber {\n // an array of

```



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digits containing leading zeros as necessary\n digits: number[];\n // the exponent for numbers that would need more
than `MAX_DIGITS` digits in `d`\n exponent: number;\n // the number of the digits in `d` that are to the left of the
decimal point\n integerLen: number;\n}\n\n// Transforms a parsed number into a percentage by multiplying it by
100\nfunction toPercent(parsedNumber: ParsedNumber): ParsedNumber {\n // if the number is 0, don't do
anything\n if (parsedNumber.digits[0] === 0) {\n return parsedNumber;\n }\n\n // Getting
the current number of decimals\n const fractionLen = parsedNumber.digits.length - parsedNumber.integerLen;\n if
(parsedNumber.exponent) {\n parsedNumber.exponent += 2;\n } else {\n if (fractionLen === 0) {\n
parsedNumber.digits.push(0, 0);\n } else if (fractionLen === 1) {\n parsedNumber.digits.push(0);\n }\n
parsedNumber.integerLen += 2;\n }\n\n return parsedNumber;\n}\n\n/**\n * Parses a number.\n * Significant bits
of this parse algorithm came from https://github.com/MikeMcI/big.js\n */\nfunction parseNumber(num: number):
ParsedNumber {\n let numStr = Math.abs(num) + ";\n let exponent = 0, digits, integerLen;\n let i, j, zeros;\n\n //
Decimal point?\n if ((integerLen = numStr.indexOf(DECIMAL_SEP)) > -1) {\n numStr =
numStr.replace(DECIMAL_SEP, ");\n }\n\n // Exponential form?\n if ((i = numStr.search(/e/i)) > 0) {\n // Work
out the exponent.\n if (integerLen < 0) integerLen = i;\n integerLen += +numStr.slice(i + 1);\n numStr =
numStr.substring(0, i);\n } else if (integerLen < 0) {\n // There was no decimal point or exponent so it is an
integer.\n integerLen = numStr.length;\n }\n\n // Count the number of leading zeros.\n for (i = 0;
numStr.charAt(i) === ZERO_CHAR; i++) { /* empty */\n }\n\n if (i === (zeros = numStr.length)) {\n // The
digits are all zero.\n digits = [0];\n integerLen = 1;\n } else {\n // Count the number of trailing zeros\n zeros-
;\n while (numStr.charAt(zeros) === ZERO_CHAR) zeros--;\n\n // Trailing zeros are insignificant so ignore
them\n integerLen -= i;\n digits = [];\n // Convert string to array of digits without leading/trailing zeros.\n for
(j = 0; i <= zeros; i++, j++) {\n digits[j] = Number(numStr.charAt(i));\n }\n }\n\n // If the number overflows
the maximum allowed digits then use an exponent.\n if (integerLen > MAX_DIGITS) {\n digits = digits.splice(0,
MAX_DIGITS - 1);\n exponent = integerLen - 1;\n integerLen =
1;\n }\n\n return {digits, exponent, integerLen};\n}\n\n/**\n * Round the parsed number to the specified number
of decimal places\n * This function changes the parsedNumber in-place\n */\nfunction
roundNumber(parsedNumber: ParsedNumber, minFrac: number, maxFrac: number) {\n if (minFrac > maxFrac) {\n
throw new Error(`The minimum number of digits after fraction (${minFrac}) is higher than the maximum
(${maxFrac}).`);\n }\n\n let digits = parsedNumber.digits;\n let fractionLen = digits.length -
parsedNumber.integerLen;\n const fractionSize = Math.min(Math.max(minFrac, fractionLen), maxFrac);\n\n //
The index of the digit to where rounding is to occur\n let roundAt = fractionSize + parsedNumber.integerLen;\n let
digit = digits[roundAt];\n\n if (roundAt > 0) {\n // Drop fractional digits beyond `roundAt`\n
digits.splice(Math.max(parsedNumber.integerLen, roundAt));\n\n // Set non-fractional digits beyond `roundAt` to
0\n for (let j = roundAt; j < digits.length;
j++) {\n digits[j] = 0;\n }\n } else {\n // We rounded to zero so reset the parsedNumber\n fractionLen =
Math.max(0, fractionLen);\n parsedNumber.integerLen = 1;\n digits.length = Math.max(1, roundAt =
fractionSize + 1);\n digits[0] = 0;\n for (let i = 1; i < roundAt; i++) digits[i] = 0;\n }\n\n if (digit >= 5) {\n if
(roundAt - 1 < 0) {\n for (let k = 0; k > roundAt; k--) {\n digits.unshift(0);\n
parsedNumber.integerLen++;\n }\n digits.unshift(1);\n parsedNumber.integerLen++;\n } else {\n
digits[roundAt - 1]++;\n }\n }\n\n // Pad out with zeros to get the required fraction length\n for (; fractionLen <
Math.max(0, fractionSize); fractionLen++) digits.push(0);\n\n let dropTrailingZeros = fractionSize !== 0;\n //
Minimal length = nb of decimals required + current nb of integers\n // Any number besides that is optional and can
be removed if it's a trailing 0\n const minLen = minFrac + parsedNumber.integerLen;\n\n // Do any carrying, e.g. a digit was rounded up to 10\n const carry = digits.reduceRight(function(carry, d, i, digits)
{\n d = d + carry;\n digits[i] = d < 10 ? d : d - 10; // d % 10\n if (dropTrailingZeros) {\n // Do not keep
meaningless fractional trailing zeros (e.g. 15.52000 --> 15.52)\n if (digits[i] === 0 && i >= minLen) {\n
digits.pop();\n } else {\n dropTrailingZeros = false;\n }\n }\n return d >= 10 ? 1 : 0; // Math.floor(d /
10);\n }, 0);\n if (carry) {\n digits.unshift(carry);\n parsedNumber.integerLen++;\n }\n}\n\nexport function
parseIntAutoRadix(text: string): number {\n const result: number = parseInt(text);\n if (isNaN(result)) {\n throw

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new Error('Invalid integer literal when parsing ' + text);\n } \n return result;\n}\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE
file at https://angular.io/license\n *\n\nimport {Inject, Injectable, LOCALE_ID} from '@angular/core';\n\nimport
{getLocalePluralCase, Plural} from './locale_data_api';\n\n\n/*\n * @publicApi\n *\n\nexport abstract class
NgLocalization {\n abstract getPluralCategory(value: any, locale?: string): string;\n}\n\n\n/*\n * Returns the plural
category for a given value.\n * - "="value" when the case exists,\n * - the plural category otherwise\n *\n\nexport
function getPluralCategory(\n value: number, cases: string[], ngLocalization: NgLocalization, locale?: string):
string {\n let key = `=${value}`;\n if (cases.indexOf(key) > -1) {\n return key;\n }\n key =
ngLocalization.getPluralCategory(value, locale);\n if (cases.indexOf(key) > -1) {\n return key;\n }\n if
(cases.indexOf('other') > -1) {\n return 'other';\n }\n throw new Error('No plural message found for value
`${value}`');\n}\n\n\n/*\n * Returns the plural case based on the locale\n *\n * @publicApi\n
*\n\n@Injectable()\nexport class NgLocaleLocalization extends NgLocalization {\n
constructor(@Inject(LOCALE_ID) protected locale: string) {\n super();\n }\n\n getPluralCategory(value: any,
locale?: string): string {\n const plural = getLocalePluralCase(locale || this.locale)(value);\n switch (plural) {\n
 case Plural.Zero:\n return 'zero';\n case Plural.One:\n return 'one';\n case Plural.Two:\n return
'two';\n case Plural.Few:\n return 'few';\n case Plural.Many:\n return 'many';\n default:\n
 return 'other';\n }\n }\n}\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport {registerLocaleData} from '@angular/core';\n\n\n/*\n * Register global data
to be used internally by Angular. See the\n * ["I18n guide"](/guide/i18n#i18n-pipes) to
know how to import additional locale data.\n *\n * The signature registerLocaleData(data: any, extraData?: any) is
deprecated since v5.1\n *\n * @publicApi\n *\n\nexport function registerLocaleData(data: any, localeId?: string|any,
extraData?: any): void {\n return registerLocaleData(data, localeId, extraData);\n}\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nexport function
parseCookieValue(cookieStr: string, name: string): string|null {\n name = encodeURIComponent(name);\n for
(const cookie of cookieStr.split(';')) {\n const eqIndex = cookie.indexOf('=');\n const [cookieName,
cookieValue]: string[] =\n eqIndex == -1 ? [cookie, ''] : [cookie.slice(0, eqIndex), cookie.slice(eqIndex + 1)];\n if
(cookieName.trim() === name) {\n return decodeURIComponent(cookieValue);\n }\n }\n return
null;\n}\n}\n", "/*\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {Directive,
DoCheck, ElementRef, Input, IterableChanges, IterableDiffer, IterableDiffers, KeyValueChanges, KeyValueDiffer,
KeyValueDiffers, Renderer2, isListLikeIterable as isListLikeIterable, stringify as stringify} from
'@angular/core';\n\n\nexport type NgClassSupportedTypes = string[]|Set<string>|{\n [klass: string]:
any }|null|undefined;\n\n\n/*\n * @ngModule CommonModule\n *\n * @usageNotes\n *\n * <some-element
[ngClass]="\"first second\">...</some-element>\n *\n * <some-element [ngClass]="['first', 'second']>...</some-
element>\n *\n * <some-element [ngClass]="{'first': true, 'second': true, 'third': false}>...</some-element>\n *\n
* <some-element [ngClass]="stringExp|arrayExp|objExp">...</some-element>\n *\n * <some-element
[ngClass]="{'class1
class2 class3': true}>...</some-element>\n *\n\n * @description\n *\n * Adds and removes CSS classes on
an HTML element.\n *\n * The CSS classes are updated as follows, depending on the type of the expression
evaluation:\n * - `string` - the CSS classes listed in the string (space delimited) are added,\n * - `Array` - the CSS
classes declared as Array elements are added,\n * - `Object` - keys are CSS classes that get added when the
expression given in the value\n * evaluates to a truthy value, otherwise they are removed.\n *\n *
@publicApi\n *\n\n@Injectable({ selector: '[ngClass]' })\nexport class NgClass implements DoCheck {\n private
_iterableDiffer: IterableDiffer<string>|null = null;\n private _keyValueDiffer: KeyValueDiffer<string, any>|null =

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null;\n private _initialClasses: string[] = [];\n private _rawClass: NgClassSupportedTypes = null;\n\nconstructor(\n private _iterableDiffers: IterableDiffers, private _keyValueDiffers: KeyValueDiffers,\n private _ngEl: ElementRef, private _renderer: Renderer2) {\n\n @Input('class')\n set klass(value: string) {\n this._removeClasses(this._initialClasses);\n this._initialClasses = typeof value === 'string' ? value.split(/\s+/) :\n [];\n this._applyClasses(this._initialClasses);\n this._applyClasses(this._rawClass);\n }\n\n @Input('ngClass')\n set ngClass(value: string|string[]|Set<string>|{[klass: string]: any}) {\n this._removeClasses(this._rawClass);\n this._applyClasses(this._initialClasses);\n this._iterableDiffer = null;\n this._keyValueDiffer = null;\n this._rawClass = typeof value === 'string' ? value.split(/\s+/) : value;\n if (this._rawClass) {\n if\n (isListLikeIterable(this._rawClass)) {\n this._iterableDiffer =\n this._iterableDiffers.find(this._rawClass).create();\n } else {\n this._keyValueDiffer =\n this._keyValueDiffers.find(this._rawClass).create();\n }\n }\n }\n\n ngDoCheck() {\n if (this._iterableDiffer)\n {\n const iterableChanges = this._iterableDiffer.diff(this._rawClass as string[]);\n if (iterableChanges) {\n this._applyIterableChanges(iterableChanges);\n }\n } else if (this._keyValueDiffer) {\n const\n keyValueChanges = this._keyValueDiffer.diff(this._rawClass as {[k: string]: any});\n if (keyValueChanges) {\n this._applyKeyValueChanges(keyValueChanges);\n }\n }\n }\n\n private\n _applyKeyValueChanges(changes: KeyValueChanges<string, any>): void {\n changes.forEachAddedItem((record) => this._toggleClass(record.key, record.currentValue));\n changes.forEachChangedItem((record) => this._toggleClass(record.key, record.currentValue));\n changes.forEachRemovedItem((record) => {\n if (record.previousValue) {\n this._toggleClass(record.key,\n false);\n }\n });\n }\n\n private _applyIterableChanges(changes: IterableChanges<string>): void {\n changes.forEachAddedItem((record) => {\n if (typeof record.item\n === 'string') {\n this._toggleClass(record.item, true);\n } else {\n throw new Error(`NgClass can only\n toggle CSS classes expressed as strings, got ${\n stringify(record.item)}`);\n }\n });\n changes.forEachRemovedItem((record) => this._toggleClass(record.item, false));\n }\n\n /**\n * Applies a\n collection of CSS classes to the DOM element.\n *\n * For argument of type Set and Array CSS class names\n contained in those collections are always\n * added.\n * For argument of type Map CSS class name in the map's\n key is toggled based on the value (added\n * for truthy and removed for falsy).\n */\n private\n _applyClasses(rawClassVal: NgClassSupportedTypes) {\n if (rawClassVal) {\n if (Array.isArray(rawClassVal)\n || rawClassVal instanceof Set) {\n (<any>rawClassVal).forEach((klass: string) => this._toggleClass(klass,\n true));\n } else {\n Object.keys(rawClassVal).forEach(klass => this._toggleClass(klass,\n !!rawClassVal[klass]));\n }\n }\n }\n\n /**\n * Removes a collection of CSS classes from the DOM element.\n This is mostly useful for cleanup\n * purposes.\n */\n private _removeClasses(rawClassVal:\n NgClassSupportedTypes) {\n if (rawClassVal) {\n if (Array.isArray(rawClassVal) || rawClassVal instanceof\n Set) {\n (<any>rawClassVal).forEach((klass: string) => this._toggleClass(klass, false));\n } else {\n Object.keys(rawClassVal).forEach(klass => this._toggleClass(klass, false));\n }\n }\n }\n\n private\n _toggleClass(klass: string, enabled: boolean): void {\n klass = klass.trim();\n if (klass) {\n klass.split(/\s+/g).forEach(klass => {\n if (enabled) {\n this._renderer.addClass(this._ngEl.nativeElement,\n klass);\n } else {\n this._renderer.removeClass(this._ngEl.nativeElement, klass);\n }\n });\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\n import {ComponentFactoryResolver, ComponentRef, Directive, Injector, Input,\n NgModuleFactory, NgModuleRef, OnChanges, OnDestroy, SimpleChanges, StaticProvider, Type,\n ViewContainerRef} from '@angular/core';\n\n /**\n * Instantiates a single {@link Component} type and inserts its\n Host View into current View.\n *\n * `NgComponentOutlet` provides a declarative approach for dynamic component\n creation.\n *\n * `NgComponentOutlet` requires a component type, if a falsy value is set the view will clear and\n * any existing component will get destroyed.\n *\n * @usageNotes\n * ### Fine tune control\n *\n * You can\n control the component creation process by using the following optional attributes:\n *\n * `ngComponentOutletInjector`: Optional custom {@link Injector} that will be used as parent for\n the Component.

```

Defaults to the injector of the current

view container.  
Optional list of projectable nodes to insert into the content section of the component, if exists.  
Optional module factory to allow dynamically loading other module, then load a component from that module.  
Syntax  
Simple  
Customized injector/content  
componentTypeExpression; injector: injectorExpression; content: contentNodesExpression;  
Customized ngModuleFactory  
componentTypeExpression; ngModuleFactory: moduleFactory;  
A simple example  
@example common/ngComponentOutlet/ts/module.ts  
region='SimpleExample'  
A more complete example with additional options:  
@example common/ngComponentOutlet/ts/module.ts region='CompleteExample'  
@publicApi  
@NgModule CommonModule  
@Directive({ selector: '[ngComponentOutlet]' })  
export class NgComponentOutlet implements OnChanges, OnDestroy {  
 // TODO(issue/24571): remove '!'.  
 @Input() ngComponentOutlet!: Type<any>;  
 // TODO(issue/24571): remove '!'.  
 @Input() ngComponentOutletInjector!: Injector;  
 // TODO(issue/24571): remove '!'.  
 @Input() ngComponentOutletContent!: any[];  
 // TODO(issue/24571): remove '!'.  
 @Input() ngComponentOutletNgModuleFactory!: NgModuleFactory<any>;  
 private \_componentRef: ComponentRef<any> | null = null;  
 private \_moduleRef: NgModuleRef<any> | null = null;  
 constructor(private \_viewContainerRef: ViewContainerRef) {}  
 ngOnChanges(changes: SimpleChanges) {  
 this.\_viewContainerRef.clear();  
 this.\_componentRef = null;  
 if (this.ngComponentOutlet) {  
 const elInjector = this.ngComponentOutletInjector || this.\_viewContainerRef.parentInjector;  
 if (changes['ngComponentOutletNgModuleFactory']) {  
 if (this.\_moduleRef) this.\_moduleRef.destroy();  
 if (this.ngComponentOutletNgModuleFactory) {  
 const parentModule = elInjector.get(NgModuleRef);  
 this.\_moduleRef = this.ngComponentOutletNgModuleFactory.create(parentModule.injector);  
 } else {  
 this.\_moduleRef = null;  
 }  
 const componentFactoryResolver = this.\_moduleRef ? this.\_moduleRef.componentFactoryResolver : elInjector.get(ComponentFactoryResolver);  
 const componentFactory = componentFactoryResolver.resolveComponentFactory(this.ngComponentOutlet);  
 this.\_componentRef = this.\_viewContainerRef.createComponent(componentFactory, this.\_viewContainerRef.length, elInjector, this.ngComponentOutletContent);  
 }  
 if (this.\_moduleRef) this.\_moduleRef.destroy();  
 }  
 }  
 ngOnDestroy() {  
 if (this.\_moduleRef) this.\_moduleRef.destroy();  
 }  
}  
/\*\*  
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 \*/  
import { Directive, DoCheck, EmbeddedViewRef, Input, isDevMode, IterableChangeRecord, IterableChanges, IterableDiffer, IterableDiffers, NgIterable, TemplateRef, TrackByFunction, ViewContainerRef } from '@angular/core';  
@publicApi  
export class NgForOfContext<T, U> extends NgIterable<T> {  
 constructor(public \$implicit: T, public ngForOf: U, public index: number, public count: number) {}  
 get first(): boolean {  
 return this.index === 0;  
 }  
 get last(): boolean {  
 return this.index === this.count - 1;  
 }  
 get even(): boolean {  
 return this.index % 2 === 0;  
 }  
 get odd(): boolean {  
 return !this.even;  
 }  
}  
/\*\*  
 \* A [structural directive](guide/structural-directives) that renders a template for each item in a collection.  
 \* The directive is placed on an element, which becomes the parent of the cloned templates.  
 \* The `ngForOf` directive is generally used in the [shorthand form](guide/structural-directives#the-asterisk-prefix) `\*ngFor`.  
 \* In this form, the template to be rendered for each iteration is the content of an anchor element containing the directive.  
 \* The following example shows the shorthand syntax with some options, contained in an `- ` element.  
 \* `<li *ngFor="let item of items; index as i; trackBy: trackByFn">...</li>`  
 \* The shorthand form expands into a long form that uses the `ngForOf`

selector\n \* on an `<ng-template>` element.\n \* The content of the `<ng-template>` element is the `<li>` element that held the\n \* short-form directive.\n \* \n \* Here is the expanded version of the short-form example.\n \* \n \* ``\n \* <ng-template ngFor let-item [ngForOf]="items" let-i="index" [ngForTrackBy]="trackByFn">\n \* <li>...</li>\n \* </ng-template>\n \* ``\n \* \n \* Angular automatically expands the shorthand syntax as it compiles the template.\n \* The context for each embedded view is logically merged to the current component\n \* context according to its lexical position.\n \* \n \* When using the shorthand syntax, Angular allows only [one structural directive\n \* on an element](guide/structural-directives#one-structural-directive-per-host-element).\n \* If you want to iterate conditionally, for example,\n \* put the `*ngIf` on a container element that wraps the `*ngFor` element.\n \* For further discussion, see\n \* [Structural Directives](guide/structural-directives#one-per-element).\n \* \n \* @usageNotes\n \* \n \* ### Local variables\n \* \n \* `*NgForOf` provides exported values that can be aliased to local variables.\n \* For example:\n \* \n \* ``\n \* <li \*ngFor="let user of users; index as i; first as isFirst">\n \* {{i}}/{{users.length}}. {{user}} <span \*ngIf="isFirst">default</span>\n \* </li>\n \* ``\n \* \n \* The following exported values can be aliased to local variables:\n \* \n \* - `$implicit: T`: The value of the individual items in the iterable (`*ngForOf`).\n \* - `*ngForOf: NgIterable<T>`: The value of the iterable expression. Useful when the expression is\n \* more complex than a property access, for example when using the async pipe (`*userStreams | async`).\n \* - `*index: number`: The index of the current item in the iterable.\n \* - `*count: number`: The length of the iterable.\n \* - `*first: boolean`: True when the item is the first item in the iterable.\n \* - `*last: boolean`: True when the item is the last item in the iterable.\n \* - `*even: boolean`: True when the item has an even index in the iterable.\n \* - `*odd: boolean`: True when the item has an odd index in the iterable.\n \* \n \* ### Change propagation\n \* \n \* When the contents of the iterator changes, `*NgForOf` makes the corresponding changes to the DOM:\n \* \n \* \* When an item is added, a new instance of the template is added to the DOM.\n \* \* When an item is removed, its template instance is removed from the DOM.\n \* \* When items are reordered, their respective templates are reordered in the DOM.\n \* \n \* Angular uses object identity to track insertions and deletions within the iterator and reproduce\n \* those changes in the DOM. This has important implications for animations and any stateful\n \* controls that are present, such as `<input>` elements that accept user input. Inserted rows can\n \* be animated in, deleted rows can be animated out, and unchanged rows retain any unsaved state\n \* such as user input.\n \* For more on animations, see [Transitions and Triggers](guide/transition-and-triggers).\n \* \n \* The identities of elements in the iterator can change while the data does not.\n \* This can happen, for example, if the iterator is produced from an RPC to the server, and that\n \* RPC is re-run. Even if the data hasn't changed, the second response produces objects with\n \* different identities, and Angular must tear down the entire DOM and rebuild it (as if all old\n \* elements were deleted and all new elements inserted).\n \* \n \* To avoid this expensive operation, you can customize the default tracking algorithm.\n \* by supplying the `*trackBy` option to `*NgForOf`.  
`*trackBy` takes a function that has two arguments: `*index` and `*item`.  
If `*trackBy` is given, Angular tracks changes by the return value of the function.  
@see [Structural Directives](guide/structural-directives)  
@ngModule CommonModule  
@publicApi  
@Directive({ selector: '[ngFor][ngForOf]' })\nexport class NgForOf<T, U extends NgIterable<T> = NgIterable<T>> implements DoCheck {\n /\*\*\n \* The value of the iterable expression, which can be used as a\n \* [template input variable](guide/structural-directives#template-input-variable).\n \*/\n @Input()\n set ngForOf(ngForOf: U & NgIterable<T> | undefined | null) {\n this.\_ngForOf = ngForOf;\n this.\_ngForOfDirty = true;\n }\n /\*\*\n \* A function that defines how to track changes for items in the iterable.\n \* \n \* When items are added, moved, or removed in the iterable,\n \* the directive must re-render the appropriate DOM nodes.\n \* To minimize churn in the DOM, only nodes that have changed\n \* are re-rendered.\n \* \n \* By default, the change detector assumes that\n \* the object instance identifies the node in the iterable.\n \* When this function is supplied, the directive uses\n \* the result of calling this function to identify the item node,\n \* rather than the identity of the object itself.\n \* \n \* The function receives two inputs,\n \* the iteration index and the associated node data.\n \*/\n @Input()\n set ngForTrackBy(fn: TrackByFunction<T>) {\n if (isDevMode() && fn !== null && typeof fn !== 'function') {\n // TODO(vicb): use a log service once

```

there is a public one available\n if (<any>console && <any>console.warn) {\n console.warn(\n
`trackBy must be a function, but received ${JSON.stringify(fn)}.` +\n `See
https://angular.io/api/common/NgForOf#change-propagation for more information.`);\n }\n}\n
this._trackByFn = fn;\n}\n\n get ngForTrackBy(): TrackByFunction<T> {\n return this._trackByFn;\n}\n\n
private _ngForOf: U|undefined|null = null;\n private _ngForOfDirty: boolean = true;\n private _differ:
IterableDiffer<T>|null = null;\n // TODO(issue/24571): remove '!'\n private _trackByFn!:
TrackByFunction<T>;\n\n constructor(\n private _viewContainer: ViewContainerRef,\n private _template:
TemplateRef<NgForOfContext<T, U>>, private _differs: IterableDiffers) {\n}\n\n /**\n * A reference to the
template that is stamped out for each item in the iterable.\n * @see [template reference variable](guide/template-
reference-variables)\n */\n @Input()\n set
ngForTemplate(value: TemplateRef<NgForOfContext<T, U>>) {\n // TODO(TS2.1): make
TemplateRef<Partial<NgForRowOf<T>>> once we move to TS v2.1\n // The current type is too restrictive; a
template that just uses index, for example,\n // should be acceptable.\n if (value) {\n this._template = value;\n
 }\n}\n\n /**\n * Applies the changes when needed.\n */\n ngDoCheck(): void {\n if (this._ngForOfDirty) {\n
 this._ngForOfDirty = false;\n // React on ngForOf changes only once all inputs have been initialized\n const
value = this._ngForOf;\n if (!this._differ && value) {\n try {\n this._differ =
this._differs.find(value).create(this.ngForTrackBy);\n } catch {\n throw new Error(`Cannot find a differ
supporting object '${value}' of type '${\n getTypeName(value)}'. NgFor only supports binding to Iterables
such as Arrays.`);\n }\n }\n if (this._differ) {\n const changes = this._differ.diff(this._ngForOf);\n
 if (changes) this._applyChanges(changes);\n }\n private _applyChanges(changes: IterableChanges<T>)\n
{\n const insertTuples: RecordViewTuple<T, U>[] = [];\n changes.forEachOperation(\n (item:
IterableChangeRecord<any>, adjustedPreviousIndex: number|null,\n currentIndex: number|null) => {\n if
(item.previousIndex == null) {\n // NgForOf is never \"null\" or \"undefined\" here because the differ
detected\n // that a new item needs to be inserted from the iterable. This implies that\n // there is an
iterable value for \"_ngForOf\".\n const view = this._viewContainer.createEmbeddedView(\n
this._template, new NgForOfContext<T, U>(null!, this._ngForOf!, -1, -1),\n currentIndex === null ?
undefined : currentIndex);\n const tuple = new RecordViewTuple<T, U>(item, view);\n
insertTuples.push(tuple);\n } else if (currentIndex
=== null) {\n this._viewContainer.remove(\n adjustedPreviousIndex === null ? undefined :
adjustedPreviousIndex);\n } else if (adjustedPreviousIndex !== null) {\n const view =
this._viewContainer.get(adjustedPreviousIndex);\n this._viewContainer.move(view, currentIndex);\n
 const tuple = new RecordViewTuple(item, <EmbeddedViewRef<NgForOfContext<T, U>>>view);\n
insertTuples.push(tuple);\n }\n });\n for (let i = 0; i < insertTuples.length; i++) {\n
 this._perViewChange(insertTuples[i].view, insertTuples[i].record);\n }\n for (let i = 0, ilen =
this._viewContainer.length; i < ilen; i++) {\n const viewRef = <EmbeddedViewRef<NgForOfContext<T,
U>>>this._viewContainer.get(i);\n viewRef.context.index = i;\n viewRef.context.count = ilen;\n
 viewRef.context.ngForOf = this._ngForOf!;\n }\n changes.forEachIdentityChange((record: any) => {\n
 const viewRef
= <EmbeddedViewRef<NgForOfContext<T, U>>>this._viewContainer.get(record.currentIndex);\n
 viewRef.context.$implicit = record.item;\n });\n }\n private _perViewChange(\n view:
EmbeddedViewRef<NgForOfContext<T, U>>, record: IterableChangeRecord<any>) {\n view.context.$implicit =
record.item;\n }\n\n /**\n * Asserts the correct type of the context for the template that `NgForOf` will render.\n
*\n * The presence of this method is a signal to the Ivy template type-check compiler that the\n * `NgForOf`
structural directive renders its template with a specific context type.\n */\n static ngTemplateContextGuard<T, U
extends NgIterable<T>>(dir: NgForOf<T, U>, ctx: any):\n ctx is NgForOfContext<T, U> {\n return true;\n
 }\n}\n\nclass RecordViewTuple<T, U extends NgIterable<T>> {\n constructor(public record: any, public view:
EmbeddedViewRef<NgForOfContext<T, U>>) {\n}\n\nfunction getTypeName(type: any): string {\n return
type['name'] ||

```

typeof type;}\n"/>\*\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \*\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at <https://angular.io/license>\n \*\nimport {Directive, EmbeddedViewRef, Input, TemplateRef, ViewContainerRef, stringify as stringify} from '@angular/core';\n\n/\*\*\n \* A structural directive that conditionally includes a template based on the value of\n \* an expression coerced to Boolean.\n \* When the expression evaluates to true, Angular renders the template\n \* provided in a `then` clause, and when false or null,\n \* Angular renders the template provided in an optional `else` clause. The default\n \* template for the `else` clause is blank.\n \* A [shorthand form](guide/structural-directives#the-asterisk--prefix) of the directive,\n \* `\*ngIf="condition"`, is generally used, provided\n \* as an attribute of the anchor element for the inserted template.\n \* Angular expands this into a more explicit version, in which the anchor element\n \* is contained in an `` element.\n \* Simple form with shorthand syntax:\n \*\n \* <div \*ngIf="condition">Content to render when condition is true.</div>\n \*\n \* Simple form with expanded syntax:\n \*\n \* <ng-template [ngIf]="condition"><div>Content to render when condition is\n \* true.</div></ng-template>\n \*\n \* Form with an `else` block:\n \*\n \* <div \*ngIf="condition; else elseBlock">Content to render when condition is true.</div>\n \* <ng-template #elseBlock>Content to render when condition is false.</ng-template>\n \*\n \* Shorthand form with `then` and `else` blocks:\n \*\n \* <div \*ngIf="condition; then thenBlock else elseBlock"></div>\n \* <ng-template #thenBlock>Content to render when condition is true.</ng-template>\n \* <ng-template #elseBlock>Content to render when condition is false.</ng-template>\n \*\n \* Form with storing the value locally:\n \*\n \* <div \*ngIf="condition as value; else elseBlock">{{ value }}</div>\n \* <ng-template #elseBlock>Content to render when value is null.</ng-template>\n \*\n \* @usageNotes\n \*\n \* The `\*ngIf` directive is most commonly used to conditionally show an inline template,\n \* as seen in the following example.\n \*\n \* The default `else` template is blank.\n \*\n \* { @example common/ngIf/ts/module.ts region='NgIfSimple' }\n \*\n \* ### Showing an alternative template using `else`\n \*\n \* To display a template when `expression` evaluates to false, use an `else` template\n \* binding as shown in the following example. The `else` binding points to an ``\n \* element labeled `#elseBlock`.\n \* The template can be defined anywhere in the component view, but is typically placed right after\n \* `\*ngIf` for readability.\n \*\n \* { @example common/ngIf/ts/module.ts region='NgIfElse' }\n \*\n \* ### Using an external `then` template\n \*\n \* In the previous example, the then-clause template is specified inline, as the content of the\n \* tag that contains the `\*ngIf` directive. You can also specify a template that is defined\n \* externally, by referencing a labeled `` element. When you do this, you can\n \* change which template to use at runtime, as shown in the following example.\n \*\n \* { @example common/ngIf/ts/module.ts region='NgIfThenElse' }\n \*\n \* ### Storing a conditional result in a variable\n \*\n \* You might want to show a set of properties from the same object. If you are waiting\n \* for asynchronous data, the object can be undefined. In this case, you can use `\*ngIf` and store the result of the condition in a local\n \* variable as shown in the the following example.\n \*\n \* { @example common/ngIf/ts/module.ts region='NgIfAs' }\n \*\n \* This code uses only one `AsyncPipe`, so only one subscription is created. The conditional statement stores the result of `userStream|async` in the local variable `user`. You can then bind the local `user` repeatedly.\n \*\n \* The conditional displays the data only if `userStream` returns a value, so you don't need to use the\n \* [safe-navigation-operator](guide/template-expression-operators#safe-navigation-operator) `?.` to guard against null values when accessing properties. You can display an alternative template while waiting for the data.\n \*\n \* ### Shorthand syntax\n \*\n \* The shorthand syntax `\*ngIf` expands into two separate template specifications\n \* for the `then` and `else` clauses. For example, consider the following shorthand statement,\n \* that is meant to show a loading page while waiting for data to be loaded.\n \*\n \* <div class="hero-list" \*ngIf="heroes else loading">\n \* ...</div>\n \* <ng-template #loading>\n \* <div>Loading...</div>\n \* </ng-template>\n \*\n \* You can see that the `else` clause references the `` with the `#loading` label, and the template for the `then` clause\n \* is provided as the content of the anchor element.\n \*\n \* However, when Angular expands the shorthand syntax, it creates\n \* another `` tag, with `\*ngIf` and `\*ngIfElse` directives. The anchor element containing the template for the `then`

clause becomes

```

<ng-template>` tag.
<ng-template [ngIf]="heroes"
[ngIfElse]="loading">
<div class="hero-list">
...
</div>
</ng-template>
<ng-template #loading>
<div>Loading...</div>
</ng-template>

```

The presence of the implicit template object has implications for the nesting of structural directives. For more on this subject, see [Structural Directives](https://angular.io/guide/structural-directives#one-per-element).

```

@ngModule CommonModule
* @publicApi
* /@Directive({selector: '[ngIf]'})
export class NgIf<T = unknown> {
 private _context: NgIfContext<T> = new NgIfContext<T>();
 private _thenTemplateRef: TemplateRef<NgIfContext<T>> | null = null;
 private _elseTemplateRef: TemplateRef<NgIfContext<T>> | null = null;
 private _thenViewRef: EmbeddedViewRef<NgIfContext<T>> | null = null;
 private _elseViewRef: EmbeddedViewRef<NgIfContext<T>> | null = null;
 constructor(private _viewContainer: ViewContainerRef,
 templateRef: TemplateRef<NgIfContext<T>>) {
 this._thenTemplateRef = templateRef;
 }
 /**
 * The Boolean expression to evaluate as the condition for showing a template.
 */
 @Input() set ngIf(condition: T) {
 this._context.$implicit = this._context.ngIf = condition;
 this._updateView();
 }
 /**
 * A template to show if the condition expression evaluates to true.
 */
 @Input() set ngIfThen(templateRef: TemplateRef<NgIfContext<T>> | null) {
 assertTemplate('ngIfThen', templateRef);
 this._thenTemplateRef = templateRef;
 this._thenViewRef = null; // clear previous view if any.
 this._updateView();
 }
 /**
 * A template to show if the condition expression evaluates to false.
 */
 @Input() set ngIfElse(templateRef: TemplateRef<NgIfContext<T>> | null) {
 assertTemplate('ngIfElse', templateRef);
 this._elseTemplateRef = templateRef;
 this._elseViewRef = null; // clear previous view if any.
 this._updateView();
 }
 private _updateView() {
 if (this._context.$implicit) {
 if (!this._thenViewRef) {
 this._viewContainer.clear();
 this._elseViewRef = null;
 if (this._thenTemplateRef) {
 this._thenViewRef = this._viewContainer.createEmbeddedView(
 this._thenTemplateRef, this._context);
 }
 }
 } else {
 if (!this._elseViewRef) {
 this._viewContainer.clear();
 this._thenViewRef = null;
 if (this._elseTemplateRef) {
 this._elseViewRef = this._viewContainer.createEmbeddedView(
 this._elseTemplateRef, this._context);
 }
 }
 }
 }
}

```

@internal

```

public static ngIfUseIfTypeGuard: void;
/**
 * Assert the correct type of the expression bound to the `ngIf` input
 * within the template.
 * The presence of this static field is a signal to the Ivy template type
 * check compiler that when the `NgIf` structural directive renders its
 * template, the type of the expression bound to `ngIf` should be
 * narrowed in some way. For `NgIf`, the binding expression itself is
 * used to narrow its type, which allows the strictNullChecks feature
 * of TypeScript to work with `NgIf`.
 */
static ngTemplateGuard_ngIf: 'binding';
/**
 * Asserts the correct type of the context for the template that `NgIf`
 * will render.
 * The presence of this method is a signal to the Ivy template type-check
 * compiler that the `NgIf` structural directive renders its template
 * with a specific context type.
 */
static ngTemplateContextGuard<T>(dir: NgIf<T>, ctx: any): ctx is
 NgIfContext<Exclude<T, false|0|""|null|undefined>> {
 return true;
 }
}

```

```

* @publicApi
* /@ngModule CommonModule
* /@Directive({selector: '[ngIf]'})
export class NgIfContext<T = unknown> {
 public $implicit: T = null;
 public ngIf: T = null;
}
function assertTemplate(property: string, templateRef: TemplateRef<any> | null): void {
 const isTemplateRefOrNull = !!(templateRef || templateRef.createEmbeddedView());
 if (!isTemplateRefOrNull) {
 throw new Error(`{property} must be a TemplateRef, but received '${stringify(templateRef)}'`);
 }
}

```

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```

import {Directive, DoCheck, Host, Input, TemplateRef, ViewContainerRef} from '@angular/core';
export class SwitchView {
 private _created = false;
 constructor(private _viewContainerRef: ViewContainerRef, private _templateRef: TemplateRef<Object>) {}
 create(): void {
 this._created = true;
 this._viewContainerRef.createEmbeddedView(this._templateRef);
 }
 destroy(): void {
 this._created = false;
 this._viewContainerRef.clear();
 }
 enforceState(created: boolean) {
 if (created

```



```

 && !this._created) {\n this.create();\n } else if (!created && this._created) {\n this.destroy();\n }\n}\n}\n\n/n/**\n * @ngModule CommonModule\n * @description\n * The `[ngSwitch]` directive on a container specifies an expression to match against.\n * The expressions to match are provided by `ngSwitchCase` directives on views within the container.\n * - Every view that matches is rendered.\n * - If there are no matches, a view with the `ngSwitchDefault` directive is rendered.\n * - Elements within the `[NgSwitch]` statement but outside of any `NgSwitchCase` or `ngSwitchDefault` directive are preserved at the location.\n * @usageNotes\n * Define a container element for the directive, and specify the switch expression to match against as an attribute:\n * <container-element [ngSwitch]="switch_expression">\n * Within the container, `ngSwitchCase` statements specify the match expressions as attributes. Include `ngSwitchDefault` as the final case.\n * <container-element [ngSwitch]="switch_expression">\n * <some-element *ngSwitchCase="match_expression_1">...</some-element>\n * ...<some-element *ngSwitchDefault>...</some-element>\n * </container-element>\n * ### Usage Examples\n * The following example shows how to use more than one case to display the same view:\n * <container-element [ngSwitch]="switch_expression">\n * <!-- the same view can be shown in more than one case -->\n * <some-element *ngSwitchCase="match_expression_1">...</some-element>\n * <some-element *ngSwitchCase="match_expression_2">...</some-element>\n * <some-other-element *ngSwitchCase="match_expression_3">...</some-other-element>\n * <!--default case when there are no matches -->\n * <some-element *ngSwitchDefault>...</some-element>\n * </container-element>\n * The following example shows how cases can be nested:\n * <container-element [ngSwitch]="switch_expression">\n * <some-element *ngSwitchCase="match_expression_1">...</some-element>\n * <some-other-element *ngSwitchCase="match_expression_2">...</some-element>\n * <some-other-element *ngSwitchCase="match_expression_3">...</some-other-element>\n * <ng-container *ngSwitchCase="match_expression_3">\n * <!-- use a ng-container to group multiple root nodes -->\n * <inner-element></inner-element>\n * <inner-other-element></inner-other-element>\n * </ng-container>\n * <some-element *ngSwitchDefault>...</some-element>\n * </container-element>\n * @publicApi\n * @see `NgSwitchCase`\n * @see `NgSwitchDefault`\n * @see [Structural Directives](guide/structural-directives)\n */\n\n@Directive({selector: '[ngSwitch]'})\nexport class NgSwitch {\n // TODO(issue/24571): remove '!'.\n private _defaultViews!: SwitchView[];\n private _defaultUsed = false;\n private _caseCount = 0;\n private _lastCaseCheckIndex = 0;\n private _lastCasesMatched = false;\n private _ngSwitch: any;\n\n @Input()\n set ngSwitch(newValue: any) {\n this._ngSwitch = newValue;\n if (this._caseCount === 0) {\n this._updateDefaultCases(true);\n }\n }\n\n /** @internal */\n _addCase(): number {\n return this._caseCount++;\n }\n\n /** @internal */\n _addDefault(view: SwitchView) {\n if (!this._defaultViews) {\n this._defaultViews = [];\n }\n this._defaultViews.push(view);\n }\n\n /** @internal */\n _matchCase(value: any): boolean {\n const matched = value == this._ngSwitch;\n this._lastCasesMatched = this._lastCasesMatched || matched;\n this._lastCaseCheckIndex++;\n if (this._lastCaseCheckIndex === this._caseCount) {\n this._updateDefaultCases(!this._lastCasesMatched);\n this._lastCaseCheckIndex = 0;\n this._lastCasesMatched = false;\n }\n return matched;\n }\n\n private _updateDefaultCases(useDefault: boolean) {\n if (this._defaultViews && useDefault !== this._defaultUsed) {\n this._defaultUsed = useDefault;\n for (let i = 0; i < this._defaultViews.length; i++) {\n const defaultView = this._defaultViews[i];\n defaultView.enforceState(useDefault);\n }\n }\n }\n\n /n/**\n * @ngModule CommonModule\n * @description\n * Provides a switch case expression to match against an enclosing `ngSwitch` expression.\n * When the expressions match, the given `NgSwitchCase` template is rendered.\n * If multiple match expressions match the switch expression value, all of them are displayed.\n * @usageNotes\n * Within a switch container, `ngSwitchCase` statements specify the match expressions as attributes. Include `ngSwitchDefault` as the final case.\n * <container-element [ngSwitch]="switch_expression">\n * <some-element *ngSwitchCase="match_expression_1">...</some-element>\n * ...<some-element

```

\*ngSwitchDefault>...</some-element>\n \* </container-element>\n \* ```\n \*\n \* Each switch-case statement contains an in-line HTML template or template reference\n \* that defines the subtree to be selected if the value of the match expression\n \* matches the value of the switch expression.\n \*\n \* Unlike JavaScript, which uses strict equality, Angular uses loose equality.\n \* This means that the empty string, ```\n \* matches 0.\n \*\n \* @publicApi\n \* @see `NgSwitch`\n \* @see `NgSwitchDefault`\n \*\n \* /\n \* @Directive({selector: '[ngSwitchCase]'})\n \* export class NgSwitchCase implements DoCheck {\n \* private \_view: SwitchView;\n \* /\n \* Stores the HTML template to be selected on match.\n \* /\n \* @Input() ngSwitchCase: any;\n \*\n \* constructor(\n \* viewContainer: ViewContainerRef, templateRef: TemplateRef<Object>,\n \* @Host()\n \* private ngSwitch: NgSwitch) {\n \* ngSwitch.\_addCase();\n \* this.\_view = new SwitchView(viewContainer, templateRef);\n \* }\n \*\n \* /\n \* Performs case matching. For internal use only.\n \* /\n \* ngDoCheck() {\n \* this.\_view.enforceState(this.ngSwitch.\_matchCase(this.ngSwitchCase));\n \* }\n \*\n \* /\n \* @ngModule CommonModule\n \*\n \* @description\n \*\n \* Creates a view that is rendered when no `NgSwitchCase` expressions\n \* match the `NgSwitch` expression.\n \* This statement should be the final case in an `NgSwitch`.\n \*\n \* @publicApi\n \* @see `NgSwitch`\n \* @see `NgSwitchCase`\n \*\n \* /\n \* @Directive({selector: '[ngSwitchDefault]'})\n \* export class NgSwitchDefault {\n \* constructor(\n \* viewContainer: ViewContainerRef, templateRef: TemplateRef<Object>,\n \* @Host() ngSwitch: NgSwitch) {\n \* ngSwitch.\_addDefault(new SwitchView(viewContainer, templateRef));\n \* }\n \* }\n \*```\n \*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \*\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at <https://angular.io/license>\n \*\n \* /\n \* import { Attribute, Directive, Host, Input, TemplateRef, ViewContainerRef } from '@angular/core';\n \* import { getPluralCategory, NgLocalization } from '../i18n/localization';\n \* import { SwitchView } from './ng\_switch';\n \*\n \* @ngModule CommonModule\n \*\n \* @usageNotes\n \* ```\n \* <some-element [ngPlural]="value">\n \* <ng-template ngPluralCase="=0">there is nothing</ng-template>\n \* <ng-template ngPluralCase="=1">there is one</ng-template>\n \* <ng-template ngPluralCase="few">there are a few</ng-template>\n \* </some-element>\n \* ```\n \*\n \* @description\n \*\n \* Adds / removes DOM sub-trees based on a numeric value. Tailored for pluralization.\n \*\n \* Displays DOM sub-trees that match the switch expression value, or failing that, DOM sub-trees\n \* that match the switch expression's pluralization category.\n \*\n \* To use this directive you must provide a container element that sets the\n \* `[ngPlural]` attribute\n \* to a switch expression. Inner elements with a `[ngPluralCase]` will display based on their\n \* expression:\n \* - if `[ngPluralCase]` is set to a value starting with `=`, it will only display if the value\n \* matches the switch expression exactly,\n \* - otherwise, the view will be treated as a "category match", and will only display if exact\n \* value matches aren't found and the value maps to its category for the defined locale.\n \*\n \* See <http://cldr.unicode.org/index/cldr-spec/plural-rules>\n \*\n \* @publicApi\n \* /\n \* @Directive({selector: '[ngPlural]'})\n \* export class NgPlural {\n \* // TODO(issue/24571): remove '!'\n \* private \_switchValue!: number;\n \* // TODO(issue/24571): remove '!'\n \* private \_activeView!: SwitchView;\n \* private \_caseViews: {[k: string]: SwitchView} = {};\n \*\n \* constructor(private \_localization: NgLocalization) {\n \* }\n \*\n \* @Input()\n \* set ngPlural(value: number) {\n \* this.\_switchValue = value;\n \* this.\_updateView();\n \* }\n \*\n \* addCase(value: string, switchView: SwitchView): void {\n \* this.\_caseViews[value] = switchView;\n \* }\n \*\n \* private \_updateView(): void {\n \* this.\_clearViews();\n \*\n \* const cases = Object.keys(this.\_caseViews);\n \* const key = getPluralCategory(this.\_switchValue, cases, this.\_localization);\n \* this.\_activateView(this.\_caseViews[key]);\n \* }\n \*\n \* private \_clearViews() {\n \* if (this.\_activeView) this.\_activeView.destroy();\n \* }\n \*\n \* private \_activateView(view: SwitchView) {\n \* if (view) {\n \* this.\_activeView = view;\n \* this.\_activeView.create();\n \* }\n \* }\n \*}\n \*\n \* /\n \* @ngModule CommonModule\n \*\n \* @description\n \*\n \* Creates a view that will be added/removed from the parent { @link NgPlural } when the\n \* given expression matches the plural expression according to CLDR rules.\n \*\n \* @usageNotes\n \* ```\n \* <some-element [ngPlural]="value">\n \* <ng-template ngPluralCase="=0">...</ng-template>\n \* <ng-template ngPluralCase="other">...</ng-template>\n \* </some-element>\n \*```\n

```

*``\n *\n * See { @link NgPlural } for more details and example.\n *\n * @publicApi\n *\n@Directive({ selector:
'[ngPluralCase]'})\nexport class NgPluralCase {\n constructor(\n @Attribute('ngPluralCase') public value: string,
 template: TemplateRef<Object>,\n viewContainer: ViewContainerRef, @Host() ngPlural: NgPlural) {\n const
isANumber: boolean = !isNaN(Number(value));\n ngPlural.addCase(isANumber ? `=${value}` : value, new
SwitchView(viewContainer, template));\n }\n}\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\nimport { Directive, DoCheck, ElementRef, Input,
KeyValueChanges, KeyValueDiffer, KeyValueDiffers, Renderer2 } from '@angular/core';\n\n/**\n * @ngModule
CommonModule\n *\n * @usageNotes\n *\n * Set the font of the containing element to the result of an
expression.\n *\n * ``\n * <some-element
[ngStyle]='{'font-style': styleExp}'>...</some-element>\n * ``\n *\n * Set the width of the containing element to
a pixel value returned by an expression.\n *\n * ``\n * <some-element [ngStyle]='{'max-width.px':
widthExp}'>...</some-element>\n * ``\n *\n * Set a collection of style values using an expression that returns key-
value pairs.\n *\n * ``\n * <some-element [ngStyle]='{objExp}'>...</some-element>\n * ``\n *\n * @description\n
*\n * An attribute directive that updates styles for the containing HTML element.\n * Sets one or more style
properties, specified as colon-separated key-value pairs.\n * The key is a style name, with an optional `<unit>`
suffix\n * (such as 'top.px', 'font-style.em').\n * The value is an expression to be evaluated.\n * The resulting non-
null value, expressed in the given unit,\n * is assigned to the given style property.\n * If the result of evaluation is
null, the corresponding style is removed.\n *\n * @publicApi\n *\n@Directive({ selector:
'[ngStyle]'})\nexport class NgStyle implements DoCheck {\n private _ngStyle: {[key: string]: string}|null = null;\n private _differ: KeyValueDiffer<string, string|number>|null = null;\n private _ngEl:
ElementRef, private _differs: KeyValueDiffers, private _renderer: Renderer2) {} \n @Input('ngStyle')\n set
ngStyle(values: {[klass: string]: any}|null) {\n this._ngStyle = values;\n if (!this._differ && values) {\n
this._differ = this._differs.find(values).create();\n }\n }\n ngDoCheck() {\n if (this._differ) {\n const
changes = this._differ.diff(this._ngStyle!);\n if (changes) {\n this._applyChanges(changes);\n }\n }\n
}\n private _setStyle(nameAndUnit: string, value: string|number|null|undefined): void {\n const [name, unit] =
nameAndUnit.split('.');\n value = value != null && unit ? `${value}${unit}` : value;\n if (value != null) {\n
this._renderer.setStyle(this._ngEl.nativeElement, name, value
as string);\n } else {\n this._renderer.removeStyle(this._ngEl.nativeElement, name);\n }\n }\n private
_applyChanges(changes: KeyValueChanges<string, string|number>): void {\n
changes.forEachRemovedItem((record) => this._setStyle(record.key, null));\n
changes.forEachAddedItem((record) => this._setStyle(record.key, record.currentValue));\n
changes.forEachChangedItem((record) => this._setStyle(record.key, record.currentValue));\n }\n}\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\nimport { Directive,
EmbeddedViewRef, Input, OnChanges, SimpleChange, SimpleChanges, TemplateRef, ViewContainerRef } from
'@angular/core';\n\n/**\n * @ngModule CommonModule\n *\n * @description\n *\n * Inserts an embedded view
from a prepared `TemplateRef`.\n *\n * You can attach a context object to the `EmbeddedViewRef`
by setting `[ngTemplateOutletContext]`.\n * `[ngTemplateOutletContext]` should be an object, the object's keys
will be available for binding\n * by the local template `let` declarations.\n *\n * @usageNotes\n * ``\n * <ng-
container *ngTemplateOutlet="templateRefExp; context: contextExp"></ng-container>\n * ``\n *\n * Using the
key `$_implicit` in the context object will set its value as default.\n *\n * ### Example\n *\n * { @example
common/ngTemplateOutlet/ts/module.ts region='NgTemplateOutlet'}\n *\n * @publicApi\n
*\n@Directive({ selector: '[ngTemplateOutlet]'})\nexport class NgTemplateOutlet implements OnChanges {\n
private _viewRef: EmbeddedViewRef<any>|null = null;\n\n /**\n * A context object to attach to the { @link
EmbeddedViewRef}. This should be an\n * object, the object's keys will be available for binding by the local
template `let`\n * declarations.\n * Using the key `$_implicit` in the context object will set its value as default.\n
*\n * @Input() public ngTemplateOutletContext:

```



```

async.subscribe({\n next: updateLatestValue,\n error: (e: any) => {\n throw e;\n }\n});\n}\n\n\ndispose(subscription: SubscriptionLike): void {\n subscription.unsubscribe();\n}\n\nonDestroy(subscription: SubscriptionLike): void {\n subscription.unsubscribe();\n}\n\n\nclass PromiseStrategy implements SubscriptionStrategy {\n createSubscription(async: Promise<any>, updateLatestValue: (v: any) => any): Promise<any> {\n return\n async.then(updateLatestValue, e => {\n throw e;\n });\n }\n\n dispose(subscription: Promise<any>): void {\n }\n\n onDestroy(subscription: Promise<any>): void {\n }\n\n \nconst _promiseStrategy = new\n PromiseStrategy();\nconst _observableStrategy = new ObservableStrategy();\n\n\n/**\n * @ngModule\n CommonModule\n * @description\n *\n * Unwraps a value from an asynchronous primitive.\n *\n * The `async`\n pipe subscribes to an `Observable` or `Promise` and returns the latest value it has\n *\n emitted. When a new value is emitted, the `async` pipe marks the component to be checked for\n *\n changes. When the component gets destroyed, the `async` pipe unsubscribes automatically\n to avoid\n *\n potential memory leaks.\n *\n *\n @usageNotes\n *\n * ### Examples\n *\n * This example binds a\n `Promise` to the view. Clicking the `Resolve` button resolves the\n *\n promise.\n *\n *\n {\n @example\n common/pipes/ts/async_pipe.ts\n region='AsyncPipePromise'\n }\n *\n * It's also possible to use `async` with Observables. The example below binds the `time` Observable\n *\n to the view. The Observable continuously updates the view with the current time.\n *\n *\n {\n @example\n common/pipes/ts/async_pipe.ts\n region='AsyncPipeObservable'\n }\n *\n * @publicApi\n *\n *\n @Pipe({name: 'async', pure: false})\n \nexport class\n AsyncPipe implements OnDestroy, PipeTransform {\n private _latestValue: any = null;\n private _subscription:\n SubscriptionLike|Promise<any>|null = null;\n private _obj:\n Observable<any>|Promise<any>|EventEmitter<any>|null = null;\n private _strategy: SubscriptionStrategy =\n null!;\n\n constructor(private _ref: ChangeDetectorRef) {\n\n }\n\n ngOnDestroy(): void {\n if (this._subscription)\n {\n this._dispose();\n }\n }\n\n transform<T>(obj: Observable<T>|Promise<T>): T|null;\n transform<T>(obj:\n null|undefined): null;\n transform<T>(obj: Observable<T>|Promise<T>|null|undefined): T|null;\n transform<T>(obj: Observable<T>|Promise<T>|null|undefined): T|null {\n if (!this._obj)\n {\n if (obj)\n {\n this._subscribe(obj);\n }\n return this._latestValue;\n }\n if (obj !== this._obj)\n {\n this._dispose();\n return this.transform(obj);\n }\n return this._latestValue;\n }\n private _subscribe(obj:\n Observable<any>|Promise<any>|EventEmitter<any>): void {\n this._obj = obj;\n this._strategy =\n this._selectStrategy(obj);\n this._subscription = this._strategy.createSubscription(\n obj, (value: Object) =>\n this._updateLatestValue(obj, value));\n }\n private _selectStrategy(obj:\n Observable<any>|Promise<any>|EventEmitter<any>): any {\n if (isPromise(obj))\n {\n return\n _promiseStrategy;\n }\n if\n (isObservable(obj))\n {\n return _observableStrategy;\n }\n throw invalidPipeArgumentError(AsyncPipe,\n obj);\n }\n private _dispose(): void {\n this._strategy.dispose(this._subscription!);\n this._latestValue =\n null;\n this._subscription = null;\n this._obj = null;\n }\n private _updateLatestValue(async: any, value:\n Object): void {\n if (async === this._obj)\n {\n this._latestValue = value;\n this._ref.markForCheck();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\n *\n * @param value The string to transform to lower case.\n *\n *\n transform(value: string):\n string;\n transform(value: null|undefined): null;\n transform(value: string|null|undefined): string|null;\n transform(value: string|null|undefined): string|null {\n if (value == null)\n return null;\n if (typeof value !==\n 'string')\n {\n throw invalidPipeArgumentError(LowerCasePipe, value);\n }\n return value.toLowerCase();\n }\n }\n }\n\n \"\", \"**\n *\n @license\n *\n Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n *\n found in the LICENSE file at https://angular.io/license\n *\n *\n \nimport {Pipe, PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from\n './invalid_pipe_argument_error';\n\n\n/**\n * Transforms text to all lower case.\n *\n *\n @see `UpperCasePipe`\n *\n @see `TitleCasePipe`\n *\n @usageNotes\n *\n * The following example defines a view that allows the user to enter\n *\n text, and then uses the pipe to convert the input text to all lower case.\n *\n *\n <code-example\n path='\"common/pipes/ts/lowerupper_pipe.ts\"'\n region='LowerUpperPipe'\n ></code-example>\n *\n *\n @ngModule\n CommonModule\n *\n @publicApi\n *\n *\n @Pipe({name: 'lowercase'})\n \nexport class LowerCasePipe implements\n PipeTransform {\n /**\
```

}\\n}\\n\\n// Regex below matches any Unicode word and compatible with ES5. In ES2018 the same result\\n// can be achieved by using /\\p{L}\\S\*/gu and also known as Unicode Property Escapes\\n// (<http://2ality.com/2017/07/regexp-unicode-property-escapes.html>).

Since there is no\\n// transpilation of this functionality down to ES5 without external tool, the only solution is\\n// to use already transpiled form. Example can be found here -\\n//

```
https://mothereff.in/regexpu#input=var+regex+%3D+%5Cp%7B%7D%u%3B&unicodePropertyEscape=1\\n//\\n\\nconst unicodeWordMatch =\\n /(?:[A-Za-z\\xAA\\xB5\\xBA\\xC0-\\xD6\\xD8-\\xF6\\xF8-\\u02C1\\u02C6-\\u02D1\\u02E0-\\u02E4\\u02EC\\u02EE\\u0370-\\u0374\\u0376\\u0377\\u037A-\\u037D\\u037F\\u0386\\u0388-\\u038A\\u038C\\u038E-\\u03A1\\u03A3-\\u03F5\\u03F7-\\u0481\\u048A-\\u052F\\u0531-\\u0556\\u0559\\u0561-\\u0587\\u05D0-\\u05EA\\u05F0-\\u05F2\\u0620-\\u064A\\u066E\\u066F\\u0671-\\u06D3\\u06D5\\u06E5\\u06E6\\u06EE\\u06EF\\u06FA-\\u06FC\\u06FF\\u0710\\u0712-\\u072F\\u074D-\\u07A5\\u07B1\\u07CA-\\u07EA\\u07F4\\u07F5\\u07FA\\u0800-\\u0815\\u081A\\u0824\\u0828\\u0840-\\u0858\\u0860-\\u086A\\u08A0-\\u08B4\\u08B6-\\u08BD\\u0904-\\u0939\\u093D\\u0950\\u0958-\\u0961\\u0971-\\u0980\\u0985-\\u098C\\u098F\\u0990\\u0993-\\u09A8\\u09AA-\\u09B0\\u09B2\\u09B6-\\u09B9\\u09BD\\u09CE\\u09DC\\u09DD\\u09DF-\\u09E1\\u09F0\\u09F1\\u09FC\\u0A05-\\u0A0A\\u0A0F\\u0A10\\u0A13-\\u0A28\\u0A2A-\\u0A30\\u0A32\\u0A33\\u0A35\\u0A36\\u0A38\\u0A39\\u0A59-\\u0A5C\\u0A5E\\u0A72-\\u0A74\\u0A85-\\u0A8D\\u0A8F-\\u0A91\\u0A93-\\u0AA8\\u0AAA-\\u0AB0\\u0AB2\\u0AB3\\u0AB5-\\u0AB9\\u0ABD\\u0AD0\\u0AE0\\u0AE1\\u0AF9\\u0B05-\\u0B0C\\u0B0F\\u0B10\\u0B13-\\u0B28\\u0B2A-\\u0B30\\u0B32\\u0B33\\u0B35-\\u0B39\\u0B3D\\u0B5C\\u0B5D\\u0B5F-\\u0B61\\u0B71\\u0B83\\u0B85-\\u0B8A\\u0B8E-\\u0B90\\u0B92-\\u0B95\\u0B99\\u0B9A\\u0B9C\\u0B9E\\u0B9F\\u0BA3\\u0BA4\\u0BA8-\\u0BAA\\u0BAE-\\u0BB9\\u0BD0\\u0C05-\\u0C0C\\u0C0E-\\u0C10\\u0C12-\\u0C28\\u0C2A-\\u0C39\\u0C3D\\u0C58-\\u0C5A\\u0C60\\u0C61\\u0C80\\u0C85-\\u0C8C\\u0C8E-\\u0C90\\u0C92-\\u0CA8\\u0CAA-\\u0CB3\\u0CB5-\\u0CB9\\u0CBD\\u0CDE\\u0CE0\\u0CE1\\u0CF1\\u0CF2\\u0D05-\\u0D0C\\u0D0E-\\u0D10\\u0D12-\\u0D3A\\u0D3D\\u0D4E\\u0D54-\\u0D56\\u0D5F-\\u0D61\\u0D7A-\\u0D7F\\u0D85-\\u0D96\\u0D9A-\\u0DB1\\u0DB3-\\u0DBB\\u0DBD\\u0DC0-\\u0DC6\\u0E01-\\u0E30\\u0E32\\u0E33\\u0E40-\\u0E46\\u0E81\\u0E82\\u0E84\\u0E87\\u0E88\\u0E8A\\u0E8D\\u0E94-\\u0E97\\u0E99-\\u0E9F\\u0EA1-\\u0EA3\\u0EA5\\u0EA7\\u0EAA\\u0EAB\\u0EAD-\\u0EB0\\u0EB2\\u0EB3\\u0EBD\\u0EC0-\\u0EC4\\u0EC6\\u0EDC-\\u0EDF\\u0F00\\u0F40-\\u0F47\\u0F49-\\u0F6C\\u0F88-\\u0F8C\\u1000-\\u102A\\u103F\\u1050-\\u1055\\u105A-\\u105D\\u1061\\u1065\\u1066\\u106E-\\u1070\\u1075-\\u1081\\u108E\\u10A0-\\u10C5\\u10C7\\u10CD\\u10D0-\\u10FA\\u10FC-\\u1248\\u124A-\\u124D\\u1250-\\u1256\\u1258\\u125A-\\u125D\\u1260-\\u1288\\u128A-\\u128D\\u1290-\\u12B0\\u12B2-\\u12B5\\u12B8-\\u12BE\\u12C0\\u12C2-\\u12C5\\u12C8-\\u12D6\\u12D8-\\u1310\\u1312-\\u1315\\u1318-\\u135A\\u1380-\\u138F\\u13A0-\\u13F5\\u13F8-\\u13FD\\u1401-\\u166C\\u166F-\\u167F\\u1681-\\u169A\\u16A0-\\u16EA\\u16F1-\\u16F8\\u1700-\\u170C\\u170E-\\u1711\\u1720-\\u1731\\u1740-\\u1751\\u1760-\\u176C\\u176E-\\u1770\\u1780-\\u17B3\\u17D7\\u17DC\\u1820-\\u1877\\u1880-\\u1884\\u1887-\\u18A8\\u18AA\\u18B0-\\u18F5\\u1900-\\u191E\\u1950-\\u196D\\u1970-\\u1974\\u1980-\\u19AB\\u19B0-\\u19C9\\u1A00-\\u1A16\\u1A20-\\u1A54\\u1AA7\\u1B05-\\u1B33\\u1B45-\\u1B4B\\u1B83-\\u1BA0\\u1BAE\\u1BAF\\u1BBA-\\u1BE5\\u1C00-\\u1C23\\u1C4D-\\u1C4F\\u1C5A-\\u1C7D\\u1C80-\\u1C88\\u1CE9-\\u1CEC\\u1CEE-\\u1CF1\\u1CF5\\u1CF6\\u1D00-\\u1DBF\\u1E00-\\u1F15\\u1F18-\\u1F1D\\u1F20-\\u1F45\\u1F48-\\u1F4D\\u1F50-\\u1F57\\u1F59\\u1F5B\\u1F5D\\u1F5F-\\u1F7D\\u1F80-\\u1FB4\\u1FB6-\\u1FBC\\u1FBE\\u1FC2-\\u1FC4\\u1FC6-\\u1FCC\\u1FD0-\\u1FD3\\u1FD6-\\u1FDB\\u1FE0-\\u1FEC\\u1FF2-\\u1FF4\\u1FF6-\\u1FFC\\u2071\\u207F\\u2090-\\u209C\\u2102\\u2107\\u210A-\\u2113\\u2115\\u2119-\\u211D\\u2124\\u2126\\u2128\\u212A-\\u212D\\u212F-\\u2139\\u213C-\\u213F\\u2145-\\u2149\\u214E\\u2183\\u2184\\u2C00-\\u2C2E\\u2C30-\\u2C5E\\u2C60-\\u2CE4\\u2CEB-\\u2CEE\\u2CF2\\u2CF3\\u2D00-\\u2D25\\u2D27\\u2D2D\\u2D30-\\u2D67\\u2D6F\\u2D80-\\u2D96\\u2DA0-\\u2DA6\\u2DA8-\\u2DAE\\u2DB0-\\u2DB6\\u2DB8-\\u2DBE\\u2DC0-\\u2DC6\\u2DC8-\\u2DCE\\u2DD0-\\u2DD6\\u2DD8-\\u2DDE\\u2E2F\\u3005\\u3006\\u3031-\\u3035\\u303B\\u303C\\u3041-\\u3096\\u309D-
```

\\u309F\\u30A1-\\u30FA\\u30FC-\\u30FF\\u3105-\\u312E\\u3131-\\u318E\\u31A0-\\u31BA\\u31F0-  
\\u31FF\\u3400-\\u4DB5\\u4E00-\\u9FEA\\uA000-\\uA48C\\uA4D0-\\uA4FD\\uA500-\\uA60C\\uA610-  
\\uA61F\\uA62A\\uA62B\\uA640-\\uA66E\\uA67F-\\uA69D\\uA6A0-\\uA6E5\\uA717-\\uA71F\\uA722-  
\\uA788\\uA78B-\\uA7AE\\uA7B0-\\uA7B7\\uA7F7-\\uA801\\uA803-\\uA805\\uA807-\\uA80A\\uA80C-  
\\uA822\\uA840-\\uA873\\uA882-\\uA8B3\\uA8F2-\\uA8F7\\uA8FB\\uA8FD\\uA90A-\\uA925\\uA930-  
\\uA946\\uA960-\\uA97C\\uA984-\\uA9B2\\uA9CF\\uA9E0-\\uA9E4\\uA9E6-\\uA9EF\\uA9FA-\\uA9FE\\uAA00-  
\\uAA28\\uAA40-\\uAA42\\uAA44-\\uAA4B\\uAA60-\\uAA76\\uAA7A\\uAA7E-  
\\uAAAF\\uAAB1\\uAAB5\\uAAB6\\uAAB9-\\uAABD\\uAAC0\\uAAC2\\uAADB-\\uAADD\\uAAE0-  
\\uAAEA\\uAAF2-\\uAAF4\\uAB01-\\uAB06\\uAB09-\\uAB0E\\uAB11-\\uAB16\\uAB20-\\uAB26\\uAB28-  
\\uAB2E\\uAB30-\\uAB5A\\uAB5C-\\uAB65\\uAB70-\\uABE2\\uAC00-\\uD7A3\\uD7B0-\\uD7C6\\uD7CB-  
\\uD7FB\\uF900-\\uFA6D\\uFA70-\\uFAD9\\uFB00-\\uFB06\\uFB13-\\uFB17\\uFB1D\\uFB1F-\\uFB28\\uFB2A-  
\\uFB36\\uFB38-\\uFB3C\\uFB3E\\uFB40\\uFB41\\uFB43\\uFB44\\uFB46-\\uFBB1\\uFBD3-\\uFD3D\\uFD50-  
\\uFD8F\\uFD92-\\uFDC7\\uFDF0-\\uFDFB\\uFE70-\\uFE74\\uFE76-\\uFEFC\\uFF21-\\uFF3A\\uFF41-  
\\uFF5A\\uFF66-\\uFFBE\\uFFC2-\\uFFC7\\uFFCA-\\uFFCF\\uFFD2-\\uFFD7\\uFFDA-  
\\uFFDC\\u8000\\uDC00-\\uDC0B\\uDC0D-\\uDC26\\uDC28-\\uDC3A\\uDC3C\\uDC3D\\uDC3F-  
\\uDC4D\\uDC50-\\uDC5D\\uDC80-\\uDCFA\\uDE80-\\uDE9C\\uDEA0-\\uDED0\\uDF00-\\uDF1F\\uDF2D-  
\\uDF40\\uDF42-\\uDF49\\uDF50-\\uDF75\\uDF80-\\uDF9D\\uDFA0-\\uDFC3\\uDFC8-  
\\uDFCF\\u8010\\uDC00-\\uDC9D\\uDCB0-\\uDCD3\\uDCD8-\\uDCFB\\uDD00-\\uDD27\\uDD30-  
\\uDD63\\uDE00-\\uDF36\\uDF40-\\uDF55\\uDF60-\\uDF67\\u8020\\uDC00-\\uDC05\\uDC08\\uDC0A-  
\\uDC35\\uDC37\\uDC38\\uDC3C\\uDC3F-\\uDC55\\uDC60-\\uDC76\\uDC80-\\uDC9E\\uDCE0-  
\\uDCF2\\uDCF4\\uDCF5\\uDD00-\\uDD15\\uDD20-\\uDD39\\uDD80-  
\\uDDB7\\uDBBE\\uDBBF\\uDE00\\uDE10-\\uDE13\\uDE15-\\uDE17\\uDE19-\\uDE33\\uDE60-  
\\uDE7C\\uDE80-\\uDE9C\\uDEC0-\\uDEC7\\uDEC9-\\uDEE4\\uDF00-\\uDF35\\uDF40-\\uDF55\\uDF60-  
\\uDF72\\uDF80-\\uDF91\\u8030\\uDC00-\\uDC48\\uDC80-\\uDCB2\\uDCC0-\\uDCF2\\u8040\\uDC03-  
\\uDC37\\uDC83-\\uDCAF\\uDCD0-\\uDCE8\\uDD03-\\uDD26\\uDD50-\\uDD72\\uDD76\\uDD83-  
\\uDDB2\\uDDC1-\\uDDC4\\uDDDA\\uDDDC\\uDE00-\\uDE11\\uDE13-\\uDE2B\\uDE80-  
\\uDE86\\uDE88\\uDE8A-\\uDE8D\\uDE8F-\\uDE9D\\uDE9F-\\uDEA8\\uDEB0-\\uDEDE\\uDF05-  
\\uDF0C\\uDF0F\\uDF10\\uDF13-\\uDF28\\uDF2A-\\uDF30\\uDF32\\uDF33\\uDF35-  
\\uDF39\\uDF3D\\uDF50\\uDF5D-\\uDF61\\u8050\\uDC00-\\uDC34\\uDC47-\\uDC4A\\uDC80-  
\\uDCAF\\uDCC4\\uDCC5\\uDCC7\\uDD80-\\uDDAE\\uDDDB\\uDDDB\\uDE00-\\uDE2F\\uDE44\\uDE80-  
\\uDEAA\\uDF00-\\uDF19\\u8060\\uDCA0-\\uDCDF\\uDCFF\\uDE00\\uDE0B-  
\\uDE32\\uDE3A\\uDE50\\uDE5C-\\uDE83\\uDE86-\\uDE89\\uDEC0-\\uDEF8\\u8070\\uDC00-  
\\uDC08\\uDC0A-\\uDC2E\\uDC40\\uDC72-\\uDC8F\\uDD00-\\uDD06\\uDD08\\uDD09\\uDD0B-  
\\uDD30\\uDD46\\u8080\\uDC00-\\uDF99\\u8090\\uDC80-\\uDD43\\u80C0\\u81C-\\u820\\u840-  
\\u868\\u86A-\\u86C\\u86F-\\u872\\u874-\\u879\\u8000\\uDC00-\\uDC00\\u80D0\\uDC00-  
\\uDC2E\\u8110\\uDC00-\\uDE46\\u81A0\\uDC00-\\uDE38\\uDE40-\\uDE5E\\uDED0-\\uDEED\\uDF00-  
\\uDF2F\\uDF40-\\uDF43\\uDF63-\\uDF77\\uDF7D-\\uDF8F\\u81B0\\uDF00-\\uDF44\\uDF50\\uDF93-  
\\uDF9F\\uDFE0\\uDFE1\\u8210\\uDC00-\\uDFEC\\u8220\\uDC00-\\uDEF2\\u82C0\\uDC00-  
\\uDD1E\\uDD70-\\uDEFB\\u82F0\\uDC00-\\uDC6A\\uDC70-\\uDC7C\\uDC80-\\uDC88\\uDC90-  
\\uDC99\\u8350\\uDC00-\\uDC54\\uDC56-\\uDC9C\\uDC9E\\uDC9F\\uDCA2\\uDCA5\\uDCA6\\uDCA9-  
\\uDCAC\\uDCAE-\\uDCB9\\uDCBB\\uDCBD-\\uDCC3\\uDCC5-\\uDD05\\uDD07-\\uDD0A\\uDD0D-  
\\uDD14\\uDD16-\\uDD1C\\uDD1E-\\uDD39\\uDD3B-\\uDD3E\\uDD40-\\uDD44\\uDD46\\uDD4A-  
\\uDD50\\uDD52-\\uDEA5\\uDEA8-\\uDEC0\\uDEC2-\\uDEDA\\uDEDC-\\uDEFA\\uDEFC-\\uDF14\\uDF16-  
\\uDF34\\uDF36-\\uDF4E\\uDF50-\\uDF6E\\uDF70-\\uDF88\\uDF8A-\\uDFA8\\uDFAA-\\uDFC2\\uDFC4-  
\\uDFCB\\u83A0\\uDC00-\\uDCC4\\uDD00-\\uDD43\\u83B0\\uDE00-\\uDE03\\uDE05-  
\\uDE1F\\uDE21\\uDE22\\uDE24\\uDE27\\uDE29-\\uDE32\\uDE34-  
\\uDE37\\uDE39\\uDE3B\\uDE42\\uDE47\\uDE49\\uDE4B\\uDE4D-  
\\uDE4F\\uDE51\\uDE52\\uDE54\\uDE57\\uDE59\\uDE5B\\uDE5D\\uDE5F\\uDE61\\uDE62\\uDE64\\uDE67-

```

\\uDE6A\\uDE6C-\\uDE72\\uDE74-\\uDE77\\uDE79-\\uDE7C\\uDE7E\\uDE80-\\uDE89\\uDE8B-
\\uDE9B\\uDEA1-\\uDEA3\\uDEA5-\\uDEA9\\uDEAB-\\uDEBB]\\uD869[\\uDC00-\\uDED6\\uDF00-
\\uDFFF]\\uD86D[\\uDC00-\\uDF34\\uDF40-\\uDFFF]\\uD86E[\\uDC00-\\uDC1D\\uDC20-
\\uDFFF]\\uD873[\\uDC00-\\uDEA1\\uDEB0-\\uDFFF]\\uD87A[\\uDC00-\\uDFE0]\\uD87E[\\uDC00-
\\uDE1D)]\\S*/g;\\n\\n**\\n

```

\* Transforms text to title case.\\n \* Capitalizes the first letter of each word and transforms the\\n \* rest of the word to lower case.\\n \* Words are delimited by any whitespace character, such as a space, tab, or line-feed character.\\n \*\\n \* @see `LowerCasePipe`\\n \* @see `UpperCasePipe`\\n \*\\n \* @usageNotes\\n \* The following example shows the result of transforming various strings into title case.\\n \*\\n \* <code-example

```

path=`common/pipes/ts/titlecase_pipe.ts` region=`TitleCasePipe`></code-example>\\n

```

```

\\n * @ngModule CommonModule\\n * @publicApi\\n *\\n * @Pipe({name: 'titlecase'})\\nexport class TitleCasePipe implements PipeTransform {\\n /\\n * @param value The string to transform to title case.\\n *\\n * transform(value: string): string;\\n transform(value: null|undefined): null;\\n transform(value: string|null|undefined): string|null;\\n transform(value: string|null|undefined): string|null {\\n if (value == null) return null;\\n if (typeof value !== 'string') {\\n throw invalidPipeArgumentError(TitleCasePipe, value);\\n }\\n\\n return value.replace(\\n

```

```

 unicodeWordMatch, (txt => txt[0].toUpperCase() + txt.substr(1).toLowerCase());\\n }\\n}\\n\\n**\\n * Transforms text to all upper case.\\n * @see `LowerCasePipe`\\n * @see `TitleCasePipe`\\n *\\n * @ngModule CommonModule\\n * @publicApi\\n *\\n * @Pipe({name: 'uppercase'})\\nexport class UpperCasePipe implements PipeTransform {\\n /**\\n * @param value The string to transform to upper case.\\n *\\n * transform(value:

```

```

 string): string;\\n transform(value: null|undefined): null;\\n transform(value: string|null|undefined): string|null;\\n transform(value: string|null|undefined): string|null {\\n if (value == null) return null;\\n if (typeof value !== 'string') {\\n throw invalidPipeArgumentError(UpperCasePipe, value);\\n }\\n return value.toUpperCase();\\n }\\n}\\n\\n"/**\\n * @license\\n * Copyright Google LLC All Rights Reserved.\\n *\\n * Use of this source code is governed by an MIT-style license that can be\\n * found in the LICENSE file at https://angular.io/license\\n

```

```

*/\\n\\nimport {Inject, LOCALE_ID, Pipe, PipeTransform} from '@angular/core';\\nimport {formatDate} from './i18n/format_date';\\nimport {invalidPipeArgumentError} from './invalid_pipe_argument_error';\\n\\n// clang-format off\\n**\\n * @ngModule CommonModule\\n * @description\\n *\\n * Formats a date value according to locale rules.\\n *\\n * Only the `en-US` locale data comes with Angular. To localize dates\\n * in another language, you must import the corresponding locale data.\\n * See the [I18n guide](guide/i18n#i18n-pipes) for more information.\\n *\\n * @see `formatDate`()\\n *\\n * @usageNotes\\n *\\n * The result of this pipe is not reevaluated when the input is mutated. To avoid the need to\\n * reformat the date on every change-detection cycle, treat the date as an immutable object\\n * and change the reference when the pipe needs to run again.\\n *\\n * ### Pre-defined format options\\n *\\n * Examples are given in `en-US` locale.\\n *\\n * - `short`: equivalent to `M/d/yy, h:mm a` (`6/15/15, 9:03 AM`).\\n * - `medium`: equivalent to `MMM d, y, h:mm:ss a` (`Jun 15, 2015, 9:03:01 AM`).\\n * - `long`: equivalent to `MMMM d, y, h:mm:ss a z` (`June 15, 2015 at 9:03:01 AM GMT+1`).\\n * - `full`: equivalent to `EEEE, MMMM d, y, h:mm:ss a zzzz` (`Monday, June 15, 2015 at 9:03:01 AM GMT+01:00`).\\n * - `shortDate`: equivalent to `M/d/yy` (`6/15/15`).\\n * - `mediumDate`: equivalent to `MMM d, y` (`Jun 15, 2015`).\\n * - `longDate`: equivalent to `MMMM d, y` (`June 15, 2015`).\\n * - `fullDate`: equivalent to `EEEE, MMMM d, y` (`Monday, June 15, 2015`).\\n * - `shortTime`: equivalent to `h:mm a` (`9:03 AM`).\\n * - `mediumTime`: equivalent to `h:mm:ss a` (`9:03:01 AM`).\\n * - `longTime`: equivalent to `h:mm:ss a z` (`9:03:01 AM GMT+1`).\\n * - `fullTime`: equivalent to `h:mm:ss a zzzz` (`9:03:01 AM GMT+01:00`).\\n *\\n * ### Custom format options\\n *\\n * You can construct a format string using symbols to specify the components\\n * of a date-time value, as described in the following table.\\n * Format details depend on the locale.\\n * Fields marked with (*) are only available in the extra data set for the given locale.\\n *\\n * | Field type | Format |\\n * |-----|-----|\\n

```

```

Description | Example Value |\\n
-----|-----|\\n

```

```

* | Era | G, GG & GGG | Abbreviated | AD\\n
| | | GGGG | Wide | Anno Domini

```

```

* | Era | G, GG & GGG | Abbreviated | AD\\n
| | | GGGG | Wide | Anno Domini

```

```

* | Era | G, GG & GGG | Abbreviated | AD\\n
| | | GGGG | Wide | Anno Domini

```

```

* | Era | G, GG & GGG | Abbreviated | AD\\n
| | | GGGG | Wide | Anno Domini

```

```

* | Era | G, GG & GGG | Abbreviated | AD\\n
| | | GGGG | Wide | Anno Domini

```



\n *		GGGGG   Narrow		A	
\n *   Year		y   Numeric: minimum digits		2, 20, 201, 2017, 20173	
\n *		yy   Numeric: 2 digits + zero padded		02, 20, 01, 17, 73	
\n *		yyy   Numeric: 3 digits + zero padded			
002, 020, 201, 2017, 20173		\n *		yyyy   Numeric: 4 digits	
or more + zero padded		0002, 0020, 0201, 2017, 20173		\n *   Week-numbering	
year  Y		Numeric: minimum digits		2, 20, 201, 2017, 20173	
*		YY   Numeric: 2 digits + zero padded		02, 20, 01, 17, 73	
\n *		YYYY   Numeric: 3 digits + zero padded		002, 020, 201, 2017,	
20173		\n *		YYYY   Numeric: 4 digits or more + zero padded	
0002, 0020, 0201, 2017, 20173		\n *   Month		M   Numeric: 1 digit	
9, 12		\n *		MM   Numeric: 2 digits +	
zero padded		09, 12		\n *	
Abbreviated		Sep		\n *	
Wide		September		\n *	
Narrow		S		\n *   Month standalone   L	
Numeric: 1 digit		9, 12		\n *	
Numeric: 2 digits + zero padded				LL	
09, 12		\n *		LLL   Abbreviated	
Sep		\n *		LLLL   Wide	
September		\n *		LLLLL   Narrow	
S		\n *   Week of year		w   Numeric: minimum digits	
1... 53		\n *		ww   Numeric: 2 digits + zero	
padded		01... 53		\n *   Week of month	
digit				W   Numeric: 1	
1... 5		\n *   Day of month		d   Numeric:	
minimum digits		1		\n *	
Numeric: 2 digits + zero padded		01		\n *   Week day	
E, EE & EEE   Abbreviated		Tue		\n *	
EEEE   Wide		Tuesday		\n *	
EEEEEE   Narrow		T		\n *	
EEEEEEE   Short					
Tu		\n *   Period		a, aa & aaa   Abbreviated	
am/pm or AM/PM		\n *		aaaa   Wide	
(fallback to `a` when missing)		ante meridiem/post meridiem		\n *	
aaaaa   Narrow		a/p		\n *   Period*	
B, BB & BBB   Abbreviated		mid.		\n *	
BBBB   Wide		am, pm, midnight, noon, morning, afternoon, evening,			
night \n *		BBBBBB   Narrow			
md		\n *   Period standalone*		b, bb & bbb	
Abbreviated		mid.		\n *	
Wide		am, pm, midnight, noon, morning, afternoon, evening, night		\n *	
bbbbbb   Narrow		md		\n *   Hour 1-12	
h   Numeric: minimum digits		1, 12		\n *	
hh   Numeric: 2 digits + zero padded		01, 12		\n *	
Hour 0-23		H   Numeric: minimum digits			
0, 23		\n *		HH   Numeric: 2 digits +	
zero padded		00, 23		\n *   Minute	
				m   Numeric:	

minimum digits	8, 59	\n *	mm	
Numeric: 2 digits + zero padded	08, 59	\n *	Second	s
Numeric: minimum digits	0... 59	\n *		
ss	Numeric: 2 digits + zero padded	00... 59	\n *	
Fractional seconds   S	Numeric: 1 digit			
	0... 9	\n *	SS	Numeric: 2 digits
+ zero padded	00... 99	\n *	SSS	Numeric: 3
digits + zero padded (= milliseconds)	000... 999	\n *	Zone	z, zz
& zzz   Short specific non location format (fallback to O)	GMT-8	\n *		
zzzz   Long specific non location format (fallback to OOOO)	GMT-08:00			
\n *	Z, ZZ & ZZZ   ISO8601 basic format	-0800		
\n *	ZZZZ   Long localized			
GMT format	GMT-8:00	\n *	ZZZZZ	
ISO8601 extended format + Z indicator for offset 0 (= XXXXX)	-08:00	\n *		
O, OO & OOO   Short localized GMT format	GMT-8			
\n *	OOOO   Long localized GMT format	GMT-08:00		

\n \* \n \* Note that timezone correction is not applied to an ISO string that has no time component, such as `2016-09-19T00:00:00.000Z`.

Format examples

These examples transform a date into various formats, assuming that `dateObj` is a JavaScript `Date` object for year: 2015, month: 6, day: 15, hour: 21, minute: 43, second: 11, given in the local time for the `en-US` locale.

```

 * \n * ``\n * {{ dateObj | date }} // output is 'Jun 15, 2015'
 * \n * {{ dateObj | date:'medium' }} // output is 'Jun 15, 2015, 9:43:11 PM'
 * \n * {{ dateObj | date:'shortTime' }} // output is '9:43 PM'
 * \n * {{ dateObj | date:'mm:ss' }} // output is '43:11'

```

Usage example

The following component uses a date pipe to display the current date in different formats.

```

 @Component({
 selector: 'date-pipe',
 template: `
 <div>
 <p>Today is {{ today | date }}</p>
 <p>Or if you prefer, {{ today | date:'fullDate' }}</p>
 <p>The time is {{ today | date:'h:mm a z' }}</p>
 </div>
 `,
 })
 export class DatePipeComponent {
 today: number = Date.now();
 }

```

Get the current date and time as a date-time value.

```

 export class DatePipeComponent {
 today: number = Date.now();
 }

```

Usage example

```

 @Pipe({name: 'date', pure: true})
 export class DatePipe implements PipeTransform {
 constructor(@Inject(LOCALE_ID) private locale: string) {}

 transform(
 value: Date|string|number,
 format?: string,
 timezone?: string,
 locale?: string
): string|null {
 if (value == null || value === '' || value !== value) return null;

 try {
 return formatDate(value, format, locale || this.locale, timezone);
 } catch (error) {
 throw invalidPipeArgumentError(DatePipe, error.message);
 }
 }
 }

```

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```

 import {Pipe, PipeTransform} from '@angular/core';
 import {getPluralCategory, NgLocalization} from '../i18n/localization';
 import {invalidPipeArgumentError} from './invalid_pipe_argument_error';
 const _INTERPOLATION_REGEXP: RegExp = /#\{g;

```

```

* @ngModule CommonModule\n * @description\n *\n * Maps a value to a string that pluralizes the value
according to locale rules.\n *\n * @usageNotes\n *\n * ### Example\n *\n * { @example
common/pipes/ts/i18n_pipe.ts region='I18nPluralPipeComponent'}\n *\n * @publicApi\n *\n * @Pipe({ name:
'i18nPlural', pure: true})\nexport class I18nPluralPipe implements PipeTransform {\n constructor(private
_localization: NgLocalization) {\n\n /**\n * @param value the number to be formatted\n * @param pluralMap
an object that mimics the ICU format, see\n * http://userguide.icu-project.org/formatparse/messages.\n * @param
locale a `string` defining the locale to use (uses the current { @link LOCALE_ID} by\n * default).\n *\n transform(value: number|null|undefined, pluralMap: {[count: string]: string}, locale?: string):\n string {\n if
(value == null) return '';\n if (typeof pluralMap !== 'object' || pluralMap === null) {\n throw
invalidPipeArgumentError(I18nPluralPipe,
pluralMap);\n }\n const key = getPluralCategory(value, Object.keys(pluralMap), this._localization,
locale);\n return pluralMap[key].replace(_INTERPOLATION_REGEXP, value.toString());\n }\n }\n },"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n *\nimport {Pipe,
PipeTransform} from '@angular/core';\nimport {invalidPipeArgumentError} from
'./invalid_pipe_argument_error';\n\n/**\n *\n * @ngModule CommonModule\n * @description\n *\n * Generic selector
that displays the string that matches the current value.\n *\n * If none of the keys of the `mapping` match the `value`,
then the content\n * of the `other` key is returned when present, otherwise an empty string is returned.\n *\n *
@usageNotes\n *\n * ### Example\n *\n * { @example common/pipes/ts/i18n_pipe.ts
region='I18nSelectPipeComponent'}\n *\n * @publicApi\n *\n * @Pipe({ name:
'i18nSelect', pure: true})\nexport class I18nSelectPipe implements PipeTransform {\n /**\n * @param value a
string to be internationalized.\n * @param mapping an object that indicates the text that should be displayed\n *
for different values of the provided `value`.\n *\n transform(value: string|null|undefined, mapping: {[key: string]:
string}): string {\n if (value == null) return '';\n if (typeof mapping !== 'object' || typeof value !== 'string') {\n
throw invalidPipeArgumentError(I18nSelectPipe, mapping);\n }\n if (mapping.hasOwnProperty(value)) {\n
return mapping[value];\n }\n if (mapping.hasOwnProperty('other')) {\n return mapping['other'];\n }\n }\n return '';\n }\n },"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n *\nimport {Pipe, PipeTransform} from '@angular/core';\n\n/**\n *\n * @ngModule CommonModule\n * @description\n *\n * Converts a value into its JSON-format representation.
Useful for debugging.\n *\n * @usageNotes\n *\n * The following component uses a JSON pipe to convert an
object\n * to JSON format, and displays the string in both formats for comparison.\n *\n * { @example
common/pipes/ts/json_pipe.ts region='JsonPipe'}\n *\n * @publicApi\n *\n * @Pipe({ name: 'json', pure:
false})\nexport class JsonPipe implements PipeTransform {\n /**\n * @param value A value of any type to
convert into a JSON-format string.\n *\n transform(value: any): string {\n return JSON.stringify(value, null,
2);\n }\n }\n },"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n *\nimport {KeyValueChangeRecord, KeyValueChanges, KeyValueDiffer, KeyValueDiffers, Pipe,
PipeTransform} from '@angular/core';\n\nfunction
makeKeyValuePair<K, V>(key: K, value: V): KeyValue<K, V> {\n return {key: key, value: value};\n }\n\n/**\n *\n * A key value pair.\n * Usually used to represent the key value pairs from a Map or Object.\n *\n * @publicApi\n
*\n * @ngModule CommonModule\n *\n * @description\n *\n * Transforms Object or Map into an array of key value pairs.\n *\n * The output array will be
ordered by keys.\n * By default the comparator will be by Unicode point value.\n * You can optionally pass a
compareFn if your keys are complex types.\n *\n * @usageNotes\n *\n * ### Examples\n *\n * This examples show
how an Object or a Map can be iterated by ngFor with the use of this\n * keyvalue pipe.\n *\n * { @example
common/pipes/ts/keyvalue_pipe.ts region='KeyValuePipe'}\n *\n * @publicApi\n *\n * @Pipe({ name: 'keyvalue',
pure: false})\nexport class KeyValuePipe implements PipeTransform {\n constructor(private readonly differs:

```

```
{ }\n\n private differ!: KeyValueDiffer<any, any>;\n\n private keyValues: Array<KeyValue<any, any>> = [];\n\n/*\n * NOTE: when the `input` value is a simple Record<K, V> object, the keys are extracted with\n * Object.keys(). This means that even if the `input` type is Record<number, V> the keys are\n * compared/returned as `string`s.\n */\n\n transform<K, V>(\n input: ReadonlyMap<K, V>,\n compareFn?: (a: KeyValue<K, V>,\n b: KeyValue<K, V>) => number): Array<KeyValue<K, V>>;\n\n transform<K extends number, V>(\n input: Record<K, V>,\n compareFn?: (a: KeyValue<string, V>, b: KeyValue<string, V>) => number):\n Array<KeyValue<string, V>>;\n\n transform<K extends string, V>(\n input: Record<K, V>|ReadonlyMap<K, V>,\n compareFn?: (a: KeyValue<K, V>, b: KeyValue<K, V>) => number): Array<KeyValue<K, V>>;\n\n transform(\n input: null|undefined,\n compareFn?: (a: KeyValue<unknown, unknown>, b: KeyValue<unknown, unknown>) => number): null;\n\n transform<K, V>(\n input: ReadonlyMap<K, V>|null|undefined,\n compareFn?: (a: KeyValue<K, V>, b: KeyValue<K, V>) => number): Array<KeyValue<K, V>>|null;\n\n transform<K extends number, V>(\n input: Record<K, V>|null|undefined,\n compareFn?: (a: KeyValue<string, V>, b: KeyValue<string, V>) => number):\n Array<KeyValue<string, V>>|null;\n\n transform<K extends string, V>(\n input: Record<K, V>|ReadonlyMap<K, V>|null|undefined,\n compareFn?: (a: KeyValue<K, V>, b: KeyValue<K, V>) => number): Array<KeyValue<K, V>>|null;\n\n transform<K, V>(\n input: undefined|null|{\n [key: string]: V,\n [key: number]: V\n }|ReadonlyMap<K, V>,\n compareFn: (a: KeyValue<K, V>, b: KeyValue<K, V>) => number =\n defaultComparator):\n Array<KeyValue<K, V>>|null {\n if (!input || !(input instanceof Map) && typeof input !== 'object')) {\n return null;\n }\n if (!this.differ) {\n // make a differ for whatever type we've been passed in\n this.differ = this.differ.find(input).create();\n }\n\n const differChanges: KeyValueChanges<K, V>|null = this.differ.diff(input as any);\n\n if (differChanges) {\n this.keyValues = [];\n differChanges.forEachItem((r: KeyValueChangeRecord<K, V>) => {\n this.keyValues.push(makeKeyValuePair(r.key, r.currentValue!));\n });\n\n this.keyValues.sort(compareFn);\n }\n\n return this.keyValues;\n }\n}\n\nexport function defaultComparator<K, V>(\n keyValueA: KeyValue<K, V>,\n keyValueB: KeyValue<K, V>): number {\n const a = keyValueA.key;\n const b = keyValueB.key;\n // if same exit with 0;\n if (a === b) return 0;\n // make sure that undefined are at the end of the sort.\n if (a === undefined) return 1;\n if (b === undefined) return -1;\n // make sure that nulls are at the end of the sort.\n if (a === null) return 1;\n if (b === null) return -1;\n if (typeof a === 'string' && typeof b === 'string') {\n return a < b ? -1 : 1;\n }\n if (typeof a === 'number' && typeof b === 'number') {\n return a - b;\n }\n if (typeof a === 'boolean' && typeof b === 'boolean') {\n return a < b ? -1 : 1;\n }\n // `a` and `b` are of different types. Compare their string values.\n const aString = String(a);\n const bString = String(b);\n return aString === bString ? 0 : aString < bString ? -1 : 1;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {\n DEFAULT_CURRENCY_CODE, Inject, LOCALE_ID, Pipe, PipeTransform\n} from '@angular/core';\nimport {\n formatCurrency, formatNumber, formatPercent\n} from './i18n/format_number';\nimport {\n getCurrencySymbol\n} from './i18n/locale_data_api';\nimport {\n invalidPipeArgumentError\n} from './invalid_pipe_argument_error';\n\n/**\n * @ngModule CommonModule\n * @description\n * Transforms a number into a string,\n * formatted according to locale rules that determine group sizing and\n * separator, decimal-point character, and other locale-specific\n * configurations.\n * If no parameters are specified, the function rounds off to the nearest value using this\n * [rounding method](https://en.wikibooks.org/wiki/Arithmetic/Rounding).\n * The behavior differs from that of the JavaScript ``Math.round()`` function.\n * In the following case for example, the pipe rounds down where\n * ``Math.round()`` rounds up:\n * ``html<div>-2.5 | number: '1.0-0'</div>`` > -3\n * ``Math.round(-2.5)</div>`` > -2\n * @see `formatNumber()`\n * @usageNotes\n * The following code shows how the pipe transforms numbers\n * into text strings, according to various format specifications,\n * where the caller's default locale is `en-US`.\n * ### Example\n * <code-example path='./common/pipes/ts/number_pipe.ts'>
```

```

region='NumberPipe'></code-example>\n * \n * @publicApi\n */\n@Pipe({name: 'number'})\nextport class
DecimalPipe implements PipeTransform {\n constructor(@Inject(LOCALE_ID) private _locale: string) {} \n\n /**\n * @param value The number to be formatted.\n * @param digitsInfo Decimal representation options, specified by a string\n * in the following format:
\n * <code>{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}</code>.\n * - `minIntegerDigits`: The minimum number of integer digits before the decimal point.\n * Default is `1`.\n * - `minFractionDigits`: The minimum number of digits after the decimal point.\n * Default is `0`.\n * - `maxFractionDigits`: The maximum number of digits after the decimal point.\n * Default is `3`.\n * @param locale A locale code for the locale format rules to use.\n * When not supplied, uses the value of `LOCALE_ID`, which is `en-US` by default.\n * See [Setting your app locale](guide/i18n#setting-up-the-locale-of-your-app).\n */\n transform(value: number|string, digitsInfo?: string, locale?: string): string|null;\n transform(value: null|undefined, digitsInfo?: string, locale?: string): null;\n transform(value: number|string|null|undefined, digitsInfo?: string, locale?: string): string|\n null {\n if (!isValue(value)) return null;\n\n locale = locale || this._locale;\n\n try {\n const num = strToNumber(value);\n return formatNumber(num, locale, digitsInfo);\n } catch (error) {\n throw invalidPipeArgumentError(DecimalPipe, error.message);\n }\n }\n}\n\n/**\n * @ngModule CommonModule\n * @description\n * Transforms a number to a percentage\n * string, formatted according to locale rules that determine group sizing and\n * separator, decimal-point character, and other locale-specific\n * configurations.\n * @see `formatPercent()`\n * @usageNotes\n * The following code shows how the pipe transforms numbers\n * into text strings, according to various format specifications,\n * where the caller's default locale is `en-US`.
\n * <code-example path=\"common/pipes/ts/percent_pipe.ts\" region='PercentPipe'></code-example>\n * \n * @publicApi\n */\n@Pipe({name: 'percent'})\nextport class PercentPipe implements PipeTransform {\n constructor(@Inject(LOCALE_ID) private _locale: string) {} \n\n /**\n * @param value The number to be formatted as a percentage.\n * @param digitsInfo Decimal representation options, specified by a string\n * in the following format:
\n * <code>{minIntegerDigits}.{minFractionDigits}-{maxFractionDigits}</code>.\n * - `minIntegerDigits`: The minimum number of integer digits before the decimal point.\n * Default is `1`.\n * - `minFractionDigits`: The minimum number of digits after the decimal point.\n * Default is `0`.\n * - `maxFractionDigits`: The maximum number of digits after the decimal point.\n * Default is `0`.\n * @param locale A locale code for the locale format rules to use.\n * When not supplied, uses the value of `LOCALE_ID`, which is `en-US` by default.\n * See [Setting your app locale](guide/i18n#setting-up-the-locale-of-your-app).\n */\n transform(value: number|string, digitsInfo?: string, locale?: string): string|null;\n transform(value: null|undefined, digitsInfo?: string, locale?: string): null;\n transform(value: number|string|null|undefined, digitsInfo?: string, locale?: string): string|\n null {\n if (!isValue(value)) return null;\n\n locale = locale || this._locale;\n\n try {\n const num = strToNumber(value);\n return formatPercent(num, locale, digitsInfo);\n } catch (error) {\n throw invalidPipeArgumentError(PercentPipe, error.message);\n }\n }\n}\n\n/**\n * @ngModule CommonModule\n * @description\n * Transforms a number to a currency string, formatted according to locale rules\n * that determine group sizing and separator, decimal-point character,\n * and other locale-specific configurations.\n * { @a currency-code-deprecation }\n * <div class=\"alert is-helpful\">\n * ***Deprecation notice:**\n * The default currency code is currently always `USD` but this is deprecated from v9.\n * In v11 the default currency code will be taken from the current locale identified by\n * the `LOCAL_ID` token. See the [i18n guide](guide/i18n#setting-up-the-locale-of-your-app)\n * for more information.\n * If you need the previous behavior then set it by creating a `DEFAULT_CURRENCY_CODE`\n * provider in your application `NgModule`:\n * ``ts\n * {provide: DEFAULT_CURRENCY_CODE, useValue: 'USD'}\n * ``\n * @see `getCurrencySymbol()`\n * @see `formatCurrency()`\n * @usageNotes\n * The following code shows how the pipe transforms numbers\n * into text strings, according to various format specifications,\n * where the caller's default locale is `en-US`.
\n * </div>\n * \n * @see `getCurrencySymbol()`\n * @see `formatCurrency()`\n * @usageNotes\n * The following code shows how the pipe transforms numbers\n * into text strings, according to various format specifications,\n * where the caller's default locale is `en-US`.
\n *

```

&lt;code-example

```
{Pipe, PipeTransform} from '@angular/core';\nimport {InvalidPipeArgumentError} from\n\n./invalid_pipe_argument_error';\n\n/**\n * @ngModule CommonModule\n * @description\n *\n * Creates a new `Array` or `String` containing a subset (slice) of the elements.\n *\n * @usageNotes\n *\n * All behavior is based on the expected behavior of the JavaScript API `Array.prototype.slice()`\n * and `String.prototype.slice()`. \n *\n * When operating on an `Array`, the returned `Array` is always a copy even when all\n * the elements are being returned.\n *\n * When operating on a blank value, the pipe returns the blank value.\n *\n * ### List Example\n *\n * This `ngFor` example:\n *\n * {\n * @example common/pipes/ts/slice_pipe.ts\n * region='SlicePipe_list'\n * }\n *\n * produces the following:\n *\n * ``htmlbc\n * ```\n *\n * ### String Examples\n *\n * {\n * @example common/pipes/ts/slice_pipe.ts\n * region='SlicePipe_string'\n * }\n *\n * @publicApi\n */\n@Pipe({name: 'slice', pure: false})\nexport\n\nclass SlicePipe implements PipeTransform {\n\n /**\n * @param value a list or a string to be sliced.\n * @param start the starting index of the subset to return:\n * - **a positive integer**: return the item at `start` index and all items after\n * in the list or string expression.\n * - **a negative integer**: return the item at `start` index from the end and all items after\n * in the list or string expression.\n * - **if positive and greater than the size of the expression**: return an empty list or\n * string.\n * - **if negative and greater than the size of the expression**: return entire list or string.\n * @param end the ending index of the subset to return:\n * - **omitted**: return all items until the end.\n * - **if positive**: return all items before `end` index of the list or string.\n * - **if negative**: return all items before `end` index from the end of the list or string.\n */\n transform<T>(value: ReadonlyArray<T>, start?: number, end?: number): Array<T>;\n\n transform(value: null|undefined, start?: number, end?: number): null;\n\n transform<T>(value: ReadonlyArray<T>|null|undefined, start?: number, end?: number): Array<T>|null;\n\n transform(value: string, start?: number, end?: number): string;\n\n transform(value: string|null|undefined, start?: number, end?: number): string|null;\n\n transform<T>(value: ReadonlyArray<T>|string|null|undefined, start?: number, end?: number):\n Array<T>|string|null {\n if (value == null) return null;\n\n if (!this.supports(value)) {\n throw invalidPipeArgumentError(SlicePipe, value);\n }\n\n return value.slice(start, end);\n }\n\n private supports(obj: any): boolean {\n return typeof obj === 'string' || Array.isArray(obj);\n }\n}\n\n/**\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\n@module\n@description\nThis module provides a set of common Pipes.\n\nimport {AsyncPipe} from './async_pipe';\nimport {LowerCasePipe, TitleCasePipe, UpperCasePipe} from './case_conversion_pipes';\nimport {DatePipe} from './date_pipe';\nimport {I18nPluralPipe} from './i18n_plural_pipe';\nimport {I18nSelectPipe} from './i18n_select_pipe';\nimport {JsonPipe} from './json_pipe';\nimport {KeyValue, KeyValuePipe} from './keyvalue_pipe';\nimport {CurrencyPipe, DecimalPipe, PercentPipe} from './number_pipe';\nimport {SlicePipe} from './slice_pipe';\n\nexport {\n AsyncPipe,\n CurrencyPipe,\n DatePipe,\n DecimalPipe,\n I18nPluralPipe,\n I18nSelectPipe,\n JsonPipe,\n KeyValue,\n KeyValuePipe,\n LowerCasePipe,\n PercentPipe,\n SlicePipe,\n TitleCasePipe,\n UpperCasePipe,\n};\n\n/**\n * A collection of Angular pipes that are likely to be used in each and every application.\n */\nexport const COMMON_PIPES = [\n AsyncPipe,\n UpperCasePipe,\n LowerCasePipe,\n JsonPipe,\n SlicePipe,\n DecimalPipe,\n PercentPipe,\n TitleCasePipe,\n CurrencyPipe,\n DatePipe,\n I18nPluralPipe,\n I18nSelectPipe,\n KeyValuePipe,\n];\n\n/**\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport {NgModule} from '@angular/core';\nimport {COMMON_DIRECTIVES} from './directives/index';\nimport {NgLocaleLocalization, NgLocalization} from './i18n/localization';\nimport {COMMON_PIPES} from './pipes/index';\n\n// Note: This does not contain the location providers, as they need some platform specific implementations to work.\n\nexport {\n // Exports all the basic Angular directives and pipes, such as `NgIf`, `NgForOf`, `DecimalPipe`, and so on.\n // Re-exported by `BrowserModule`, which is included automatically in the root `AppModule` when you create a new app with the CLI `new` command.\n // The
```

```

`providers` options configure the NgModule's injector to provide\n * localization dependencies to members.\n *
The `exports` options make the declared directives and pipes available for import\n * by other NgModules.\n *\n *
@publicApi\n * /\n * @NgModule({\n * declarations: [COMMON_DIRECTIVES, COMMON_PIPES],\n * exports:\n * [COMMON_DIRECTIVES, COMMON_PIPES],\n * providers: [\n * {provide: NgLocalization, useClass:\n * NgLocaleLocalization},\n *],\n * })\n * export class CommonModule {\n * }\n * /\n * @license\n * Copyright Google\n * LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n * in the LICENSE file at https://angular.io/license\n * /\n * export const PLATFORM_BROWSER_ID =\n * 'browser';\n * export const PLATFORM_SERVER_ID = 'server';\n * export const PLATFORM_WORKER_APP_ID =\n * 'browserWorkerApp';\n * export const PLATFORM_WORKER_UI_ID = 'browserWorkerUi';\n * /\n * Returns\n * whether a platform id represents a browser platform.\n * @publicApi\n * /\n * export function\n * isPlatformBrowser(platformId: Object): boolean {\n * return platformId ===\n * PLATFORM_BROWSER_ID;\n * }\n * /\n * Returns whether a platform id represents a server platform.\n * @publicApi\n * /\n * export function isPlatformServer(platformId: Object): boolean {\n * return platformId ===\n * PLATFORM_SERVER_ID;\n * }\n * /\n * Returns whether a platform id represents a web worker app platform.\n * @publicApi\n * /\n * export function isPlatformWorkerApp(platformId: Object): boolean {\n * return platformId ===\n * PLATFORM_WORKER_APP_ID;\n * }\n * /\n * Returns whether a platform id represents a web worker UI\n * platform.\n * @publicApi\n * /\n * export function isPlatformWorkerUi(platformId: Object): boolean {\n * return\n * platformId === PLATFORM_WORKER_UI_ID;\n * }\n * /\n * @license\n * Copyright Google LLC All Rights\n * Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n * LICENSE file at https://angular.io/license\n * /\n * /\n * @module\n * @description\n * Entry\n * point for all public APIs of the common package.\n * /\n * import {Version} from '@angular/core';\n * /\n * @publicApi\n * /\n * export const VERSION = new Version('11.0.2');\n * /\n * @license\n * Copyright Google LLC\n * All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in\n * the LICENSE file at https://angular.io/license\n * /\n * import {ErrorHandler, defineInjectable, inject} from\n * '@angular/core';\n * import {DOCUMENT} from './dom_tokens';\n * /\n * Defines a scroll position manager.\n * Implemented by `BrowserViewportScroller`.\n * @publicApi\n * /\n * export abstract class ViewportScroller {\n * //\n * De-sugared tree-shakable injection\n * // See #23917\n * /** @nocollapse */\n * static prov = defineInjectable({\n * token: ViewportScroller,\n * providedIn: 'root',\n * factory: () => new\n * BrowserViewportScroller(inject(DOCUMENT), window, inject(ErrorHandler))\n * });\n * /\n * /**\n * * Configures the\n * * top offset used when scrolling\n * * to an anchor.\n * * @param offset A position in screen coordinates (a tuple with x and y values)\n * * or a function\n * * that returns the top offset position.\n * * /\n * * /\n * * abstract setOffset(offset: [number, number]|(() => [number,\n * * number])): void;\n * * /\n * * Retrieves the current scroll position.\n * * @returns A position in screen coordinates\n * * (a tuple with x and y values).\n * * /\n * * /\n * * abstract getScrollPosition(): [number, number];\n * * /\n * * Scrolls to a\n * * specified position.\n * * @param position A position in screen coordinates (a tuple with x and y values).\n * * /\n * * /\n * * abstract scrollToPosition(position: [number, number]): void;\n * * /\n * * Scrolls to an anchor element.\n * * @param anchor The ID of the anchor element.\n * * /\n * * /\n * * abstract scrollToAnchor(anchor: string): void;\n * * /\n * * Disables automatic scroll restoration provided by the browser.\n * * See also [window.history.scrollRestoration\n * * info](https://developers.google.com/web/updates/2015/09/history-api-scroll-restoration).\n * * /\n * * /\n * * abstract setHistoryScrollRestoration(scrollRestoration: 'auto'|'manual'): void;\n * * /\n * * /\n * * Manages the\n * * scroll position for a browser window.\n * * /\n * * export class BrowserViewportScroller implements ViewportScroller {\n * * private offset: () => [number, number] = () => [0, 0];\n * * constructor(private document: any, private window: any,\n * * private errorHandler: ErrorHandler) {\n * * }\n * * /\n * * Configures the top offset used when scrolling to an anchor.\n * * @param offset A position in screen coordinates (a tuple with x and y values)\n * * or a function that returns the top\n * * offset position.\n * * /\n * * /\n * * setOffset(offset: [number, number]|(() => [number, number])): void {\n * * if\n * * (Array.isArray(offset)) {\n * * this.offset = () => offset;\n * * } else {\n * * this.offset = offset;\n * * }\n * * }\n * * /\n * * Retrieves the current scroll position.\n * * @returns The position in screen coordinates.\n * * /\n * * /\n * * getScrollPosition():\n * * [number, number] {\n * * if (this.supportsScrolling())

```



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{\n return [this.window.scrollX, this.window.scrollY];\n } else {\n return [0, 0];\n }\n}\n\n/**\n * Sets
the scroll position.\n * @param position The new position in screen coordinates.\n */\nscrollToPosition(position:
[number, number]): void {\n if (this.supportsScrolling()) {\n this.window.scrollTo(position[0], position[1]);\n
}\n}\n\n/**\n * Scrolls to an anchor element.\n * @param anchor The ID of the anchor element.\n */\n
scrollToAnchor(anchor: string): void {\n if (this.supportsScrolling()) {\n const elSelected =\nthis.document.getElementById(anchor) || this.document.getElementsByName(anchor)[0];\n if (elSelected) {\n
this.scrollToElement(elSelected);\n }\n }\n}\n\n/**\n * Disables automatic scroll restoration provided by
the browser.\n */\nsetHistoryScrollRestoration(scrollRestoration: 'auto'|'manual'): void {\n if
(this.supportScrollRestoration()) {\n
 const history = this.window.history;\n if (history && history.scrollRestoration) {\n
history.scrollRestoration = scrollRestoration;\n }\n }\n}\n\nprivate scrollToElement(el: any): void {\n
const rect = el.getBoundingClientRect();\n const left = rect.left + this.window.pageXOffset;\n const top =
rect.top + this.window.pageYOffset;\n const offset = this.offset();\n this.window.scrollTo(left - offset[0], top -
offset[1]);\n}\n\n/**\n * We only support scroll restoration when we can get a hold of window.\n * This means
that we do not support this behavior when running in a web worker.\n */\n * Lifting this restriction right now
would require more changes in the dom adapter.\n * Since webworkers aren't widely used, we will lift it once
RouterScroller is\n * battle-tested.\n */\nprivate supportScrollRestoration(): boolean {\n try {\n if
(!this.window || !this.window.scrollTo) {\n return false;\n }\n // The `scrollRestoration`
property could be on the `history` instance or its prototype.\n const scrollRestorationDescriptor =
getScrollRestorationProperty(this.window.history) ||\ngetScrollRestorationProperty(Object.getPrototypeOf(this.window.history));\n // We can write to the
`scrollRestoration` property if it is a writable data field or it has a\n // setter function.\n return
!!scrollRestorationDescriptor &&\n !!(scrollRestorationDescriptor.writable ||\nscrollRestorationDescriptor.set);\n } catch {\n return false;\n }\n}\n\nprivate supportsScrolling(): boolean
{\n try {\n return !!this.window.scrollTo;\n } catch {\n return false;\n }\n}\n}\n\nfunction
getScrollRestorationProperty(obj: any): PropertyDescriptor|undefined {\n return
Object.getOwnPropertyDescriptor(obj, 'scrollRestoration');\n}\n\n/**\n * Provides an empty implementation of the
viewport scroller.\n */\nexport class NullViewportScroller implements ViewportScroller
{\n /**\n * Empty implementation\n */\n setOffset(offset: [number, number]|((() => [number, number]))): void
{\n }\n\n /**\n * Empty implementation\n */\n getScrollPosition(): [number, number] {\n return [0, 0];\n }\n\n
 /**\n * Empty implementation\n */\n scrollToPosition(position: [number, number]): void {\n }\n\n /**\n * Empty
implementation\n */\n scrollToAnchor(anchor: string): void {\n }\n\n /**\n * Empty implementation\n */\n
 setHistoryScrollRestoration(scrollRestoration: 'auto'|'manual'): void {\n }\n}\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\n/*\n * @module\n * @description\n * Entry point
for all public APIs of the common package.\n */\nexport * from './private_export';\nexport * from
'./location/index';\nexport {formatDate} from './i18n/format_date';\nexport {formatCurrency,
formatNumber, formatPercent} from './i18n/format_number';\nexport {NgLocaleLocalization, NgLocalization}
from './i18n/localization';\nexport {registerLocaleData} from './i18n/locale_data';\nexport {Plural,
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getLocalePluralCase, getLocaleTimeFormat, getLocaleNumberSymbol, getLocaleNumberFormat,
getLocaleCurrencyCode, getLocaleCurrencyName, getLocaleCurrencySymbol, getLocaleDirection} from
'./i18n/locale_data_api';\nexport {parseCookieValue as parseCookieValue} from './cookie';\nexport
{CommonModule} from './common_module';\nexport {NgClass, NgForOf, NgForOfContext, NgIf, NgIfContext,
NgPlural, NgPluralCase, NgStyle,

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NgSwitch, NgSwitchCase, NgSwitchDefault, NgTemplateOutlet, NgComponentOutlet} from
'./directives/index';\nextport {DOCUMENT} from './dom_tokens';\nextport {AsyncPipe, DatePipe, I18nPluralPipe,
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isPlatformWorkerUi} from './platform_id';\nextport {VERSION} from './version';\nextport {ViewportScroller,
NullViewportScroller as NullViewportScroller} from './viewport_scroller';\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n
\n\n/\n * @module\n * @description\n * Entry point for all public APIs of this package.\n */\nextport * from
'./src/common';\n\n// This file only reexports content of the `src` folder. Keep it that way.\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this
module. It is only used during editing\n// by the TypeScript language service and during build for verification.
`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n", "/*\n * Generated bundle index. Do not edit.\n */\n\nexport * from './index';\n\nexport
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Content":["/\*\n

```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function
(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,
 require('@angular/core'), require('@angular/common'), require('rxjs')) :\n typeof define === 'function' &&
 define.amd ? define('@angular/common/testing', ['exports', '@angular/core', '@angular/common', 'rxjs'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.common = global.ng.common || {}),
 global.ng.common.testing = {}), global.ng.core, global.ng.common, global.rxs));\n})(this, (function (exports, core,
common, rxjs) { 'use strict';\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n
```



```

* Use of this source code is governed by an MIT-style license that
can be found in the LICENSE file at https://angular.io/license
*/
/**
 * A spy for { @link
Location} that allows tests to fire simulated location events.
 */
@publicApi
var SpyLocation =
/** @class */ (function () {
 function SpyLocation() {
 this.urlChanges = [];
 this._history =
 [new LocationState("", "", null)];
 this._historyIndex = 0;
 /** @internal */
 this._subject =
 new core.EventEmitter();
 /** @internal */
 this._baseHref = "";
 /** @internal */
 this._platformStrategy = null;
 /** @internal */
 this._platformLocation = null;
 /**
 @internal */
 this._urlChangeListeners = [];
 }
 SpyLocation.prototype.setInitialPath = function
 (url) {
 this._history[this._historyIndex].path = url;
 };
 SpyLocation.prototype.setBaseHref =
 function
 (url) {
 this._baseHref = url;
 };
 SpyLocation.prototype.path = function () {
 return
 this._history[this._historyIndex].path;
 };
 SpyLocation.prototype.getState = function () {
 return
 this._history[this._historyIndex].state;
 };
 SpyLocation.prototype.isCurrentPathEqualTo = function
 (path, query) {
 if (query === void 0) { query = ""; }
 var givenPath = path.endsWith('/') ?
 path.substring(0, path.length - 1) : path;
 var currPath = this.path().endsWith('/') ? this.path().substring(0,
 this.path().length - 1) : this.path();
 return currPath === givenPath + (query.length > 0 ? ('?' + query) : "");
 };
 SpyLocation.prototype.simulateUrlPop = function (pathname) {
 this._subject.emit({ 'url':
 pathname, 'pop': true, 'type': 'popstate' });
 };
 SpyLocation.prototype.simulateHashChange = function
 (pathname) {
 // Because we don't prevent the native event, the browser will independently update the path
 this.setInitialPath(pathname);
 this.urlChanges.push('hash: ' + pathname);
 this._subject.emit({ 'url':
 pathname, 'pop': true, 'type': 'hashchange' });
 };
 SpyLocation.prototype.prepareExternalUrl = function
 (url) {
 if (url.length > 0 && !url.startsWith('/')) {
 url = '/' + url;
 }
 return
 this._baseHref + url;
 };
 SpyLocation.prototype.go = function (path, query, state) {
 if (query
 === void 0) { query = ""; }
 if (state === void 0) { state = null; }
 path =
 this.prepareExternalUrl(path);
 if (this._historyIndex > 0) {
 this._history.splice(this._historyIndex + 1);
 this._history.push(new LocationState(path, query,
 state));
 this._historyIndex = this._history.length
 - 1;
 var locationState = this._history[this._historyIndex - 1];
 if (locationState.path === path &&
 locationState.query === query) {
 return;
 }
 var url = path + (query.length > 0 ? ('?' +
 query) : "");
 this.urlChanges.push(url);
 this._subject.emit({ 'url': url, 'pop': false });
 }
 SpyLocation.prototype.replaceState = function (path, query, state) {
 if (query === void 0) { query = ""; }
 if (state === void 0) { state = null; }
 path = this.prepareExternalUrl(path);
 var history =
 this._history[this._historyIndex];
 if (history.path === path && history.query === query) {
 return;
 }
 history.path = path;
 history.query = query;
 history.state = state;
 var url =
 path + (query.length > 0 ? ('?' + query) : "");
 this.urlChanges.push('replace:
 ' + url);
 };
 SpyLocation.prototype.forward = function () {
 if (this._historyIndex <
 (this._history.length - 1)) {
 this._historyIndex++;
 this._subject.emit({ 'url': this.path(), 'state':
 this.getState(), 'pop': true });
 }
 };
 SpyLocation.prototype.back = function () {
 if
 (this._historyIndex > 0) {
 this._historyIndex--;
 this._subject.emit({ 'url': this.path(), 'state':
 this.getState(), 'pop': true });
 }
 };
 SpyLocation.prototype.onUrlChange = function (fn) {
 var _this = this;
 this._urlChangeListeners.push(fn);
 if (!this._urlChangeSubscription) {
 this._urlChangeSubscription = this.subscribe(function (v) {
 _this._notifyUrlChangeListeners(v.url,
 v.state);
 });
 }
 };
 /** @internal */
 SpyLocation.prototype._notifyUrlChangeListeners = function (url, state) {
 if (url === void 0) { url = ""; }
 this._urlChangeListeners.forEach(function (fn) { return fn(url, state); });
 };
 SpyLocation.prototype.subscribe = function (onNext, onThrow, onReturn) {
 return
 this._subject.subscribe({ next: onNext, error: onThrow, complete: onReturn });
 };
 }
})();

```



```

 throw new TypeError("\nGenerator is already executing.\n");\n while (\n try {\n if\n (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) &&\n !(t = t.call(y, op[1])).done)\n return t;\n if\n (y = 0, t)\n op = [op[0] & 2, t.value];\n switch (op[0]) {\n case 0:\n case 1:\n t = op;\n break;\n case 4:\n case 5:\n _label++;\n return { value: op[1], done: false };\n case 7:\n op = _ops.pop();\n _trys.pop();\n continue;\n default:\n if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2))\n {\n _ = 0;\n continue;\n }\n if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3])))\n _label = op[1];\n break;\n }\n if (op[0] === 6 && _label < t[1])\n {\n _label = t[1];\n t = op;\n break;\n }\n if (t && _label < t[2])\n {\n _label = t[2];\n _ops.push(op);\n break;\n }\n if (t[2])\n _ops.pop();\n _trys.pop();\n continue;\n }\n op = body.call(thisArg, _);\n }\n catch (e) {\n op = [6, e];\n y = 0;\n }\n finally {\n f = t = 0;\n if (op[0] & 5)\n {\n throw op[1];\n return { value: op[0] ? op[1] : void 0, done: true };\n }\n var __createBinding =\n Object.create ? (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n Object.defineProperty(o,\n k2, { enumerable: true, get: function () { return m[k]; } });\n }) : (function (o, m, k, k2) {\n if (k2 ===\n undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, exports) {\n for (var p in\n m)\n if (p !== "default" && !exports.hasOwnProperty(p))\n __createBinding(exports, m, p);\n }\n function __values(o) {\n var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i =\n 0;\n if (m)\n return m.call(o);\n if (o && typeof o.length === "number")\n return {\n next: function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o && o[i++], done: !o };\n }\n };\n throw new TypeError(s ? "Object is not\n iterable." : "Symbol.iterator is not defined.");\n }\n function __read(o, n) {\n var m = typeof Symbol ===\n "function" && o[Symbol.iterator];\n if (!m)\n return o;\n var i = m.call(o), r, ar = [], e;\n try\n {\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n ar.push(r.value);\n }\n catch\n (error) {\n e = { error: error };\n }\n finally {\n try {\n if (r && !r.done && (m =\n i["return"]))\n m.call(i);\n }\n finally {\n if (e)\n throw e.error;\n }\n }\n return ar;\n }\n function __spread() {\n for (var ar = [], i = 0; i < arguments.length; i++)\n ar =\n ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for (var s = 0, i = 0, il\n = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0; i < il;\n i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return r;\n }\n function __await(v) {\n return this instanceof __await ? (this.v = v, this) : new __await(v);\n }\n function __asyncGenerator(thisArg, _arguments, generator) {\n if (!Symbol.asyncIterator)\n throw new\n TypeError("Symbol.asyncIterator is not defined.");\n var g = generator.apply(thisArg, _arguments || []), i, q =\n [];\n return i = {}, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return\n this;\n }, i;\n function verb(n) {\n if (g[n])\n i[n] = function (v) {\n return new Promise(function (a, b) {\n q.push([n, v, a, b]) > 1 || resume(n, v);\n });\n };\n }\n function resume(n, v) {\n try {\n step(g[n](v));\n }\n catch\n (e) {\n settle(q[0][3], e);\n }\n }\n function step(r) {\n r.value instanceof __await ?\n Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);\n }\n function fulfill(value) {\n resume("next",\n value);\n }\n function reject(value) {\n resume("throw",\n value);\n }\n function settle(f, v) {\n if (f(v), q.shift(),\n q.length)\n resume(q[0][0], q[0][1]);\n }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i

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= { }, verb(\"next\"), verb(\"throw\", function (e) { throw e; }), verb(\"return\"), i[Symbol.iterator] = function () {
return this; }, i;\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done:
n === \"return\" } : f ? f(v) : v; } : f; }\n }\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) : o[Symbol.iterator](), i = { },
verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),
settle(resolve, reject, v.done, v.value); }); }; }\n function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }\n }\n function
__makeTemplateObject(cooked, raw) {\n if (Object.defineProperty) {\n Object.defineProperty(cooked,
\"raw\", { value: raw });\n }\n else {\n cooked.raw = raw;\n }\n return cooked;\n }\n ;\n var __setModuleDefault = Object.create ? (function (o, v) {\n
Object.defineProperty(o, \"default\", { enumerable: true, value: v });\n }) : function (o, v) {\n o[\"default\"] =
v;\n };\n function __importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var
result = {};\n if (mod != null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod && mod.__esModule) ? mod : { default: mod };\n }\n function __classPrivateFieldGet(receiver, privateMap) {\n if (!privateMap.has(receiver)) {\n throw new
TypeError(\"attempted to get private field on non-instance\");\n }\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver,
privateMap, value) {\n if (!privateMap.has(receiver)) {\n throw new TypeError(\"attempted to set
private field on non-instance\");\n }\n privateMap.set(receiver, value);\n return value;\n }\n /**\n
* A mock implementation of { @link LocationStrategy } that allows tests to fire simulated\n
* location events.\n
* @publicApi\n
*/\n var MockLocationStrategy = /** @class */ (function (_super) {\n
__extends(MockLocationStrategy, _super);\n function MockLocationStrategy() {\n var _this =
_super.call(this) || this;\n _this.internalBaseHref = '/';\n _this.internalPath = '/';\n _this.internalTitle = '';\n _this.urlChanges = [];\n /** @internal */\n _this._subject = new
core.EventEmitter();\n _this.stateChanges = [];\n return _this;\n }\n MockLocationStrategy.prototype.simulatePopState
= function (url) {\n this.internalPath = url;\n this._subject.emit(new
_MockPopStateEvent(this.path()));\n }; \n MockLocationStrategy.prototype.path = function (includeHash)
{\n if (includeHash === void 0) { includeHash = false; }\n return this.internalPath;\n }; \n MockLocationStrategy.prototype.prepareExternalUrl = function (internal) {\n if (internal.startsWith('/') &&
this.internalBaseHref.endsWith('/')) {\n return this.internalBaseHref + internal.substring(1);\n }\n return this.internalBaseHref + internal;\n }; \n MockLocationStrategy.prototype.pushState = function
(ctx, title, path, query) {\n // Add state change to changes array\n this.stateChanges.push(ctx);\n this.internalTitle = title;\n var url = path + (query.length > 0 ? ('?' + query) : '');\n this.internalPath =
url;\n var externalUrl = this.prepareExternalUrl(url);\n this.urlChanges.push(externalUrl);\n }; \n MockLocationStrategy.prototype.replaceState = function (ctx, title, path, query) {\n // Reset the last index of
stateChanges to the ctx (state) object\n this.stateChanges[(this.stateChanges.length | 1) - 1] = ctx;\n this.internalTitle = title;\n var url = path + (query.length > 0 ? ('?' + query) : '');\n this.internalPath =
url;\n var externalUrl = this.prepareExternalUrl(url);\n this.urlChanges.push('replace: ' +
externalUrl);\n }; \n MockLocationStrategy.prototype.onPopState = function (fn) {\n this._subject.subscribe({ next: fn });\n }; \n MockLocationStrategy.prototype.getBaseHref = function () {\n
return this.internalBaseHref;\n }; \n MockLocationStrategy.prototype.back = function () {\n if
(this.urlChanges.length >

```



```
Object.defineProperty(MockPlatformLocation.prototype, \"hash\", {\n get: function () {\n return this.urlChanges[0].hash;\n },\n enumerable: false,\n configurable: true\n});\n\nObject.defineProperty(MockPlatformLocation.prototype, \"state\", {\n get: function () {\n return this.urlChanges[0].state;\n },\n enumerable: false,\n configurable: true\n});\n\nMockPlatformLocation.prototype.getBaseHrefFromDOM = function () {\n return this.baseHref;\n};\n\nMockPlatformLocation.prototype.onPopState = function (fn) {\n // No-op: a state stack is not implemented, so no events will ever come.\n};\n\nMockPlatformLocation.prototype.onHashChange = function (fn) {\n this.hashUpdate.subscribe(fn);\n};\n\nObject.defineProperty(MockPlatformLocation.prototype, \"href\", {\n get: function () {\n var url = this.protocol + \"//\" + this.hostname + (this.port ? ':' + this.port : '');\n url += \"\" + (this.pathname === '/' ? '' : this.pathname) + this.search + this.hash;\n return url;\n },\n enumerable: false,\n configurable: true\n});\n\nObject.defineProperty(MockPlatformLocation.prototype, \"url\", {\n get: function () {\n return \"\" + this.pathname + this.search + this.hash;\n },\n enumerable: false,\n configurable: true\n});\n\nMockPlatformLocation.prototype.parseChanges = function (state, url, baseHref) {\n if (baseHref === void 0) { baseHref = ''; }\n // When the `history.state` value is stored, it is always copied.\n state = JSON.parse(JSON.stringify(state));\n return Object.assign(Object.assign({},\n parseUrl(url, baseHref)), { state: state });\n};\n\nMockPlatformLocation.prototype.replaceState = function (state, title, newUrl) {\n var _a = this.parseChanges(state, newUrl), pathname = _a.pathname, search = _a.search, parsedState = _a.state, hash = _a.hash;\n this.urlChanges[0] = Object.assign(Object.assign({}, this.urlChanges[0]), {\n pathname: pathname, search: search, hash: hash, state: parsedState\n });\n};\n\nMockPlatformLocation.prototype.pushState = function (state, title, newUrl) {\n var _a = this.parseChanges(state, newUrl), pathname = _a.pathname, search = _a.search, parsedState = _a.state, hash = _a.hash;\n this.urlChanges.unshift(Object.assign(Object.assign({}, this.urlChanges[0]), {\n pathname: pathname, search: search, hash: hash, state: parsedState\n }));\n};\n\nMockPlatformLocation.prototype.forward = function () {\n throw new Error('Not implemented');\n};\n\nMockPlatformLocation.prototype.back = function () {\n var _this = this;\n var oldUrl = this.url;\n var oldHash = this.hash;\n this.urlChanges.shift();\n var newHash = this.hash;\n if (oldHash !== newHash) {\n scheduleMicroTask(function () {\n return _this.hashUpdate.next({ type: 'hashchange', state: null, oldUrl: oldUrl, newUrl: _this.url });\n });\n }\n};\n\nMockPlatformLocation.prototype.getState = function () {\n return this.state;\n};\n\nreturn MockPlatformLocation;\n})(\n {\n type: core.Injectable\n },\n {\n type: undefined, decorators: [{\n type: core.Inject,\n args: [MOCK_PLATFORM_LOCATION_CONFIG,],\n type: core.Optional\n }]\n },\n function scheduleMicroTask(cb) {\n Promise.resolve(null).then(cb);\n }\n)\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n// This file only reexports content of the `src` folder. Keep it that way.\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\nGenerated bundle index. Do not edit.\n\nexport { MOCK_PLATFORM_LOCATION_CONFIG as MOCK_PLATFORM_LOCATION_CONFIG }; \nexport { MockLocationStrategy as MockLocationStrategy }; \nexport { MockPlatformLocation as MockPlatformLocation }; \nexport { SpyLocation as SpyLocation }; \n\nObject.defineProperty(exports, '__esModule', { value: true });\n\n// sourceMappingURL=common-testing.umd.js.map\n"/>
```

Found in path(s):

\* /common-11-0-2-tgz/package/bundles/common-testing.umd.min.js.map

No license file was found, but licenses were detected in source scan.

/\*\*

\* @license Angular v11.0.2

\* (c) 2010-2020 Google LLC. <https://angular.io/>

\* License: MIT

\*/

Found in path(s):

\* /common-11-0-2-tgz/package/testing/testing.d.ts

\* /common-11-0-2-tgz/package/http.d.ts

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Angular

=====

The sources for this package are in the main [Angular](<https://github.com/angular/angular>) repo. Please file issues and pull requests against that repo.

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..../packages/core/src/di/jit/util.ts", "../..../packages/core/src/metadata/resource_loading.ts", "../..../..../
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packages/core/src/metadata/view.ts","../..../..../packages/core/src/util/ng\_dev\_mode.ts","../..../..../packages/core/src/render3/empty.ts","../..../..../packages/core/src/render3/fields.ts","../..../..../packages/core/src/render3/definition.ts","../..../..../packages/core/src/render3/util/stringify\_utils.ts","../..../..../packages/core/src/di/interface/injector.ts","../..../..../packages/core/src/di/inject\_switch.ts","../..../..../packages/core/src/di/injector\_compatibility.ts","../..../..../packages/core/src/render3/interfaces/document.ts","../..../..../packages/core/src/render3/interfaces/view.ts","../..../..../packages/core/src/render3/interfaces/container.ts","../..../..../packages/core/src/render3/interfaces/type\_checks.ts","../..../..../packages/core/src/render3/assert.ts","../..../..../packages/core/src/render3/namespaces.ts","../..../..../packages/core/src/render3/interfaces/context.ts","../..../..../packages/core/src/render3/interfaces/renderer.ts","../..../..../packages/core/src/render3/util/view\_utils.ts","../..../..../packages/core/src/render3/state.ts","../..../..../packages/core/src/util/security/trusted\_types.ts","../..../..../packages/core/src/sanitization/bypass.ts","../..../..../packages/core/src/util/is\_dev\_mode.ts","../..../..../packages/core/src/sanitization/inert\_body.ts","../..../..../packages/core/src/sanitization/url\_sanitizer.ts","../..../..../packages/core/src/sanitization/html\_sanitizer.ts","../..../..../packages/core/src/sanitization/security.ts","../..../..../packages/core/src/sanitization/sanitization.ts","../..../..../packages/core/src/render3/definition\_factory.ts","../..../..../packages/core/src/render3/error\_code.ts","../..../..../packages/core/src/render3/errors\_di.ts","../..../..../packages/core/src/interface/simple\_change.ts","../..../..../packages/core/src/render3/features/ng\_onchanges\_feature.ts","../..../..../packages/core/src/render3/hooks.ts","../..../..../packages/core/src/render3/interfaces/injector.ts","../..../..../packages/core/src/render3/interfaces/node.ts","../..../..../packages/core/src/render3/node\_assert.ts","../..../..../packages/core/src/render3/util/attrs\_utils.ts","../..../..../packages/core/src/render3/util/injector\_utils.ts","../..../..../packages/core/src/render3/di.ts","../..../..../packages/core/src/util/errors.ts","../..../..../packages/core/src/errors.ts","../..../..../packages/core/src/error\_handler.ts","../..../..../packages/core/src/metadata/schema.ts","../..../..../packages/core/src/util/named\_array\_type.ts","../..../..../packages/core/src/util/ng\_reflect.ts","../..../..../packages/core/src/render3/context\_discovery.ts","../..../..../packages/core/src/render3/util/misc\_utils.ts","../..../..../packages/core/src/render3/errors.ts","../..../..../packages/core/src/render/api\_flags.ts","../..../..../packages/core/src/render3/i18n/i18n\_tree\_shaking.ts","../..../..../packages/core/src/render3/interfaces/projection.ts","../..../..../packages/core/src/render3/util/view\_traversal\_utils.ts","../..../..../packages/core/src/render3/node\_manipulation.ts","../..../..../packages/core/src/render3/styling/class\_differ.ts","../..../..../packages/core/src/render3/node\_selector\_matcher.ts","../..../..../packages/core/src/render3/tokens.ts","../..../..../packages/core/src/render3/instructions/advance.ts","../..../..../packages/core/src/render3/interfaces/styling.ts","../..../..../packages/core/src/render3/util/debug\_utils.ts","../..../..../packages/core/src/render3/instructions/lview\_debug.ts","../..../..../packages/core/src/render3/instructions/shared.ts","../..../..../packages/core/src/render3/styling/static\_styling.ts","../..../..../packages/core/src/render3/instructions/change\_detection.ts","../..../..../packages/core/src/di/injector\_token.ts","../..../..../packages/core/src/di/null\_injector.ts","../..../..../packages/core/src/di/scope.ts","../..../..../packages/core/src/di/r3\_injector.ts","../..../..../packages/core/src/di/injector.ts","../..../..../packages/core/src/render3/util/discovery\_utils.ts","../..../..../packages/core/src/render3/util/change\_detection\_utils.ts","../..../..../packages/core/src/render3/util/global\_utils.ts","../..../..../packages/core/src/render3/component.ts","../..../..../packages/core/src/render3/features/inherit\_definition\_feature.ts","../..../..../packages/core/src/render3/features/copy\_definition\_feature.ts","../..../..../packages/core/src/util/symbol.ts","../..../..../packages/core/src/change\_detection/change\_detection\_util.ts","../..../..../packages/core/src/render3/bindings.ts","../..../..../packages/core/src/render3/instructions/attribute.ts","../..../..../packages/core/src/render3/instructions/interpolation.ts","../..../..../packages/core/src/render3/instructions/attribute\_interpolation.ts","../..../..../packages/core/src/render3/instructions/template.ts","../..../..../packages/core/src/render3/instructions/storage.ts","../..../..../packages/core/src/di/jit/environme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ore/src/render.ts","../..../..../packages/core/src/linker/ng_module_factory_loader.ts","../..../..../packages/core/src
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../..../packages/core/src/codegen_private_exports.ts","../..../..../packages/core/src/core.ts","../..../..../packages/core
/public_api.ts","../..../..../packages/core/index.ts","../..../..../packages/core/core.ts"],"sourcesContent":["/**\n
 * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n/**\n * Convince
closure compiler that the wrapped function has no side-effects.\n *\n * Closure compiler always assumes that
`toString` has no side-effects. We use this quirk to\n * allow us to execute a function but have closure compiler mark
the call as no-side-effects.\n * It is important that the return value for the `noSideEffects` function be assigned\n * to
something which is retained otherwise the call to `noSideEffects` will be removed by closure\n * compiler.\n
*\n\nexport function noSideEffects<T>(fn: () => T): T {\n return {toString: fn}.toString() as unknown as
T;\n}\n"],"**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {Type} from
'./interface/type';\n\nimport {noSideEffects} from './closure';\n\n\n/**\n * An interface implemented by all
Angular type decorators, which allows them to be used as\n * decorators as well as Angular syntax.\n *\n * ```\n *
@ng.Component({...})\n * class MyClass {...}\n * ```\n *\n * @publicApi\n *\n\nexport interface TypeDecorator {\n
/**\n * Invoke as decorator.\n *\n * <T extends Type<any>>(type: T): T;\n\n // Make TypeDecorator assignable
to built-in ParameterDecorator type.\n // ParameterDecorator is declared in lib.d.ts as a `declare type`\n // so we
cannot declare this interface as a subtype.\n // see https://github.com/angular/angular/issues/3379#issuecomment-
126169417\n (target: Object, propertyKey?: string|symbol, parameterIndex?: number): void;\n\n\nexport const
ANNOTATIONS = '__annotations__';\nexport const PARAMETERS = '__parameters__';\nexport const
PROP_METADATA = '__prop__metadata__';\n\n\n/**\n * @suppress {globalThis}\n *\n\nexport function
makeDecorator<T>(\n name: string, props?: (...args: any[]) => any, parentClass?: any,\n additionalProcessing?:
(type: Type<T>) => void,\n typeFn?: (type: Type<T>, ...args: any[]) => void):\n { new (...args: any[]): any;
(...args: any[]): any; (...args: any[]): (cls: any) => any; } {\n return noSideEffects(() => {\n const metaCtor =
makeMetadataCtor(props);\n function DecoratorFactory(\n this: unknown|typeof DecoratorFactory, ...args:
any[]): (cls: Type<T>) => any {\n if (this instanceof DecoratorFactory) {\n metaCtor.call(this, ...args);\n
return this as typeof DecoratorFactory;\n }\n\n const annotationInstance = new (DecoratorFactory as
any)(...args);\n return function TypeDecorator(cls: Type<T>) {\n if (typeFn) typeFn(cls, ...args);\n // Use
of Object.defineProperty is important since it creates non-enumerable property
which\n // prevents the property is copied during subclassing.\n const annotations =
cls.hasOwnProperty(ANNOTATIONS) ?\n (cls as any)[ANNOTATIONS] :\n Object.defineProperty(cls, ANNOTATIONS, {value: []})[ANNOTATIONS];\n
annotations.push(annotationInstance);\n\n\n if (additionalProcessing) additionalProcessing(cls);\n\n return
cls;\n };\n }\n\n if (parentClass) {\n DecoratorFactory.prototype = Object.create(parentClass.prototype);\n
}\n\n DecoratorFactory.prototype.ngMetadataName = name;\n (DecoratorFactory as any).annotationCls =
DecoratorFactory;\n return DecoratorFactory as any;\n });\n}\n\nfunction makeMetadataCtor(props?: (...args:
any[]) => any): any {\n return function ctor(this: any, ...args: any[]) {\n if (props) {\n const values =
props(...args);\n for (const propName in values) {\n this[propName] = values[propName];\n }\n }\n
}\n}\n\nexport function makeParamDecorator(\n

```

```

 name: string, props?: (...args: any[]) => any, parentClass?: any): any {\n return noSideEffects(() => {\n const
metaCtor = makeMetadataCtor(props);\n function ParamDecoratorFactory(\n this: unknown|typeof
ParamDecoratorFactory, ...args: any[]): any {\n if (this instanceof ParamDecoratorFactory) {\n
metaCtor.apply(this, args);\n return this;\n }\n const annotationInstance = new
(<any>ParamDecoratorFactory)(...args);\n (<any>ParamDecorator).annotation = annotationInstance;\n
return ParamDecorator;\n }\n function ParamDecorator(cls: any, unusedKey: any, index: number): any {\n //
Use of Object.defineProperty is important since it creates non-enumerable property which\n // prevents the
property is copied during subclassing.\n const parameters = cls.hasOwnProperty(PARAMETERS) ?\n
(cls as any)[PARAMETERS] :\n Object.defineProperty(cls, PARAMETERS, { value:
[]})(PARAMETERS);\n\n // there might be gaps if some in between parameters do not have annotations.\n // we pad with nulls.\n
while (parameters.length <= index) {\n parameters.push(null);\n }\n (parameters[index] =
parameters[index] || []).push(annotationInstance);\n return cls;\n }\n if (parentClass) {\n
ParamDecoratorFactory.prototype = Object.create(parentClass.prototype);\n }\n
ParamDecoratorFactory.prototype.ngMetadataName = name;\n (<any>ParamDecoratorFactory).annotationCls =
ParamDecoratorFactory;\n return ParamDecoratorFactory;\n });\n\n\nexport function makePropDecorator(\n
name: string, props?: (...args: any[]) => any, parentClass?: any, additionalProcessing?: (target: any, name: string,
...args: any[]) => void): any {\n return noSideEffects(() => {\n const metaCtor = makeMetadataCtor(props);\n
function PropDecoratorFactory(this: unknown|typeof PropDecoratorFactory, ...args: any[]): any {\n
 if (this instanceof PropDecoratorFactory) {\n metaCtor.apply(this, args);\n return this;\n }\n
const decoratorInstance = new (<any>PropDecoratorFactory)(...args);\n function PropDecorator(target: any,
name: string) {\n const constructor = target.constructor;\n // Use of Object.defineProperty is important
because it creates a non-enumerable property\n // which prevents the property from being copied during
subclassing.\n const meta = constructor.hasOwnProperty(PROP_METADATA) ?\n (constructor as
any)[PROP_METADATA] :\n Object.defineProperty(constructor, PROP_METADATA, { value:
{}})[PROP_METADATA];\n meta[name] = meta.hasOwnProperty(name) && meta[name] || [];\n
meta[name].unshift(decoratorInstance);\n if (additionalProcessing) additionalProcessing(target, name,
...args);\n }\n return PropDecorator;\n }\n if (parentClass) {\n PropDecoratorFactory.prototype
= Object.create(parentClass.prototype);\n }\n PropDecoratorFactory.prototype.ngMetadataName = name;\n
(<any>PropDecoratorFactory).annotationCls = PropDecoratorFactory;\n return PropDecoratorFactory;\n
});\n\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
\n\nimport {makeParamDecorator} from '../util/decorators';\n\n\n/\n * Type of the Inject decorator /
constructor function.\n *\n * @publicApi\n */\nexport interface InjectDecorator {\n /**\n * Parameter decorator
on a dependency parameter of a class constructor\n * that specifies a custom provider of the dependency.\n *\n *
@usageNotes\n * The following example shows a class constructor that specifies a\n * custom provider of a
dependency using the parameter decorator.\n *\n * When `@Inject()` is not present, the injector uses the type
annotation
of the\n * parameter as the provider.\n *\n * <code-example path=\"core/di/ts/metadata_spec.ts\"
region=\"InjectWithoutDecorator\">\n * </code-example>\n *\n * @see [\"Dependency Injection
Guide\"](guide/dependency-injection)\n *\n * ^\n * (token: any): any;\n * new(token: any): Inject;\n *}\n\n/*\n * Type
of the Inject metadata.\n *\n * @publicApi\n */\nexport interface Inject {\n /**\n * A [DI
token](guide/glossary#di-token) that maps to the dependency to be injected.\n *\n * token: any;\n *}\n\n/*\n * Inject
decorator and metadata.\n *\n * @Annotation\n * @publicApi\n */\nexport const Inject: InjectDecorator =
makeParamDecorator('Inject', (token: any) => ({token}));\n\n\n/*\n * Type of the Optional decorator / constructor
function.\n *\n * @publicApi\n */\nexport interface OptionalDecorator {\n /**\n * Parameter decorator to be used
on constructor parameters,\n * which marks the parameter as being an optional dependency.\n *\n * The DI
framework provides

```



null if the dependency is not found.

\* Can be used together with other parameter decorators that modify how dependency injection operates.

\* @usageNotes The following code allows the possibility of a null result:

```
<code-example path="core/di/ts/metadata_spec.ts" region="Optional">
@see ["Dependency Injection Guide"](guide/dependency-injection).
// An optional dependency
export interface Optional {
 // Optional decorator and metadata
 @Annotation
 @publicApi
 export const Optional: OptionalDecorator = makeParamDecorator('Optional');
 // Type of the Self decorator / constructor function
 @publicApi
 export interface SelfDecorator {
 // Parameter decorator to be used on constructor parameters, which tells the DI framework to start dependency resolution from the local injector
 // Resolution works upward through the injector hierarchy, so the children of this class must configure their own providers or be prepared for a null result
 @usageNotes
 // In the following example, the dependency can be resolved by the local injector when instantiating the class itself, but not when instantiating a child
 <code-example path="core/di/ts/metadata_spec.ts" region="Self">
@see `SkipSelf`
@see `Optional`
// An optional dependency
export interface Self {
 // Type of the Self metadata
 @publicApi
 export interface Self {
 // Self decorator and metadata
 @Annotation
 @publicApi
 export const Self: SelfDecorator = makeParamDecorator('Self');
 // Type of the `SkipSelf` decorator / constructor function
 @publicApi
 export interface SkipSelfDecorator {
 // Parameter decorator to be used on constructor parameters, which tells the DI framework to start dependency resolution from the parent injector
 // Resolution works upward through the injector hierarchy, so the local injector is not checked for a provider
 @usageNotes
 // In the following example, the dependency can be resolved when instantiating a child, but not when instantiating the class itself
 <code-example path="core/di/ts/metadata_spec.ts" region="SkipSelf">
@see [Dependency Injection guide](guide/dependency-injection-in-action#skip).
@see `Self`
@see `Optional`
// An optional dependency
export interface SkipSelf {
 // Type of the `SkipSelf` metadata
 @publicApi
 export interface SkipSelf {
 // `SkipSelf` decorator and metadata
 @Annotation
 @publicApi
 export const SkipSelf: SkipSelfDecorator = makeParamDecorator('SkipSelf');
 // Type of the `Host` decorator / constructor function
 @publicApi
 export interface HostDecorator {
 // Parameter decorator on a view-provider parameter of a class constructor that tells the DI framework to resolve the view by checking injectors of child elements, and stop when reaching the host element of the current component
 @usageNotes
 // The following shows use with the `@Optional` decorator, and allows for a null result
 <code-example path="core/di/ts/metadata_spec.ts" region="Host">
// For an extended example, see ["Dependency Injection Guide"](guide/dependency-injection-in-action#optional).
// An optional dependency
export interface Host {
 // Host decorator and metadata
 @Annotation
 @publicApi
 export const Host: HostDecorator = makeParamDecorator('Host');
 // Type of the Attribute decorator / constructor function
 @publicApi
 export interface AttributeDecorator {
 // Parameter decorator for a directive constructor that designates a host-element attribute whose value is injected as a constant string literal
 @usageNotes
 // Suppose we have an <input> element and want to know its `type`
 <code-example path="core/di/ts/metadata_spec.ts" region="Attribute">
// The following example uses the decorator to inject the string literal `text` in a directive
{ @example core/di/ts/metadata/metadata.ts region='attributeMetadata' }
// The following example uses the decorator in a component constructor
{ @example core/di/ts/metadata/metadata.ts region='attributeFactory' }
// An attribute
export interface Attribute {
 // The name of the attribute whose value can be injected
 @Annotation
 @publicApi
 export const Attribute: AttributeDecorator = makeParamDecorator('Attribute', (attributeName?: string) => ({ attributeName }));
 // License
 @license
 Copyright Google LLC All Rights Reserved
 // Use of this
```

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```

\n *
\n * Concatenates two strings with separator, allocating new strings
\n * only when necessary.
\n * @param before before string.
\n * @param separator separator string.
\n * @param after after string.
\n * @returns concatenated string.
\n *
\n * @license
\n * Copyright Google LLC All Rights Reserved.
\n * Use of this source code is governed by an MIT-style license that can be found in the
\n * LICENSE file at https://angular.io/license
\n *
\n // The functions in this file verify that the assumptions we are
\n // making about state in an instruction are correct before implementing any logic.
\n // They are meant only to be
\n // called in dev mode as sanity checks.
\n
\nimport {stringify} from './stringify';
\n
\nexport function stringify(token: any): string {
\n if (typeof token === 'string') {
\n return token;
\n }
\n if (Array.isArray(token)) {
\n return '[' + token.map(stringify).join(',') + ']';
\n }
\n if (token === null) {
\n return '';
\n }
\n if (token.overriddenName) {
\n return `${token.overriddenName}`;
\n }
\n if (token.name) {
\n return `${token.name}`;
\n }
\n const res = token.toString();
\n if (res === null) {
\n return '';
\n }
\n const newLineIndex = res.indexOf('\n');
\n return newLineIndex === -1
\n ? res : res.substring(0, newLineIndex);
\n}
\n
\nexport function concatStrings(before: string, separator: string, after: string): string {
\n return (before === null || before === '') ? (after === null ? '' : after) : (after === null || after === '') ? before : before + ' ' + after;
\n}
\n
\n *
\n * Use of this source code is governed by an MIT-style license that can be found in the
\n * LICENSE file at https://angular.io/license
\n *
\n // The functions in this file verify that the assumptions we are
\n // making about state in an instruction are correct before implementing any logic.
\n // They are meant only to be
\n // called in dev mode as sanity checks.
\n
\nimport {stringify} from './stringify';
\n
\nexport function assertNumber(actual: any, msg: string): asserts actual is number {
\n if (!(typeof actual === 'number')) {
\n throwError(msg, typeof actual, 'number', '===');
\n }
\n}
\n
\nexport function assertNumberInRange(actual: any, minInclusive: number, maxInclusive: number): asserts actual is number {
\n assertNumber(actual, 'Expected a number');
\n assertLessThanOrEqual(actual, maxInclusive, 'Expected number to be less than or equal to');
\n assertGreaterThanOrEqual(actual, minInclusive, 'Expected number to be greater than or equal to');
\n}
\n
\nexport function assertString(actual: any, msg: string): asserts actual is string {
\n if (!(typeof actual === 'string')) {
\n throwError(msg, actual === null ? 'null' : typeof actual, 'string', '===');
\n }
\n}
\n
\nexport function assertEqual<T>(actual: T, expected: T, msg: string) {
\n if (!(actual === expected)) {
\n throwError(msg, actual, expected, '===');
\n }
\n}
\n
\nexport function assertNotEqual<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual !== expected)) {
\n throwError(msg, actual, expected, '!==');
\n }
\n}
\n
\nexport function assertSame<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual === expected)) {
\n throwError(msg, actual, expected, '===');
\n }
\n}
\n
\nexport function assertNotSame<T>(actual: T, expected: T, msg: string) {
\n if (!(actual !== expected)) {
\n throwError(msg, actual, expected, '!==');
\n }
\n}
\n
\nexport function assertLessThan<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual < expected)) {
\n throwError(msg, actual, expected, '<');
\n }
\n}
\n
\nexport function assertLessThanOrEqual<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual <= expected)) {
\n throwError(msg, actual, expected, '<=');
\n }
\n}
\n
\nexport function assertGreaterThan<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual > expected)) {
\n throwError(msg, actual, expected, '>');
\n }
\n}
\n
\nexport function assertGreaterThanOrEqual<T>(actual: T, expected: T, msg: string): asserts actual is T {
\n if (!(actual >= expected)) {
\n throwError(msg, actual, expected, '>=');
\n }
\n}
\n
\nexport function assertNotDefined<T>(actual: T, msg: string) {
\n if (actual !== null) {
\n throwError(msg, actual, null, '===');
\n }
\n}
\n
\nexport function assertDefined<T>(actual: T | null | undefined, msg: string): asserts actual is T {
\n if (actual === null) {
\n throwError(msg, actual, null, '!==');
\n }
\n}
\n
\nexport function throwError(msg: string): never;
\nexport function throwError(msg: string, actual: any, expected: any, comparison: string): never;
\nexport function throwError(msg: string, actual?: any, expected?: any, comparison?: string): never {
\n throw new Error(
\n `ASSERTION ERROR: ${msg}` +
\n (comparison === null ? '' : ` [Expected=> ${expected} ${comparison} ${actual} <= Actual]`);
\n);
\n}
\n
\nexport function assertDomNode(node: any): asserts node is Node {
\n // If we're in a worker, `Node` will not be defined.
\n if (!(typeof Node !== 'undefined' && node instanceof Node) && (typeof node === 'object' && node !== null && node.constructor.name !== 'WebWorkerRenderNode')) {
\n throwError(`The provided value must be an instance of a DOM Node but got ${stringify(node)}`);
\n }
\n}
\n
\nexport function assertIndexInRange(arr: any[], index: number) {
\n assertDefined(arr, 'Array must be defined.');
```

```

assertOneOf(value: any, ...validValues: any[]) {\n if (validValues.indexOf(value) !== -1) return true;\n throwError(`Expected value to be one of ${JSON.stringify(validValues)} but was ${\n
JSON.stringify(value)}.`);\n}"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport function
getClosureSafeProperty<T>(objWithPropertyToExtract: T): string {\n for (let key in objWithPropertyToExtract)
{\n if (objWithPropertyToExtract[key] === getClosureSafeProperty as any) {\n return key;\n }\n }\n throw
Error(`Could not find renamed property on target object.`);\n}\n\n/**\n * Sets properties on a target object from a
source object, but only if\n * the property doesn't already exist on the target object.\n * @param target The target to
set properties on\n * @param source The source of the property keys and values to set\n */\nexport function
fillProperties(target: {[key: string]: string}, source: {[key: string]: string}) {\n for (const key in source) {\n if
(source.hasOwnProperty(key) && !target.hasOwnProperty(key)) {\n target[key] = source[key];\n }\n }\n}\n}"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Type} from '../interface/type';\nimport {getClosureSafeProperty} from
'../util/property';\nimport {ClassProvider, ConstructorProvider, ExistingProvider, FactoryProvider,
StaticClassProvider, ValueProvider} from './provider';\n\n\n/**\n * Information about how a type or
`InjectionToken` interfaces with the DI system.\n *\n * At a minimum, this includes a `factory` which defines how
to create the given type `T`, possibly\n * requesting injection of other types if necessary.\n *\n * Optionally, a
`providedIn` parameter specifies that the given type belongs to a particular\n * `InjectorDef`, `NgModule`, or a
special scope (e.g. `root`). A value of `null` indicates\n * that the injectable does not belong to any scope.\n *\n *
@codeGenApi\n * @publicApi The ViewEngine compiler emits code with this type for injectables. This code is\n *
deployed to
npm, and should be treated as public api.\n\n */\nexport interface InjectableDef<T> {\n /**\n * Specifies that the
given type belongs to a particular injector:\n * - `InjectorType` such as `NgModule`,\n * - `root` the root
injector\n * - `any` all injectors.\n * - `null`, does not belong to any injector. Must be explicitly listed in the
injector\n * - `providers`\n */\n providedIn: InjectorType<any>|'root'|'platform'|'any'|null;\n /**\n * The token
to which this definition belongs.\n */\n /**\n * Note that this may not be the same as the type that the `factory` will
create.\n */\n token: unknown;\n /**\n * Factory method to execute to create an instance of the injectable.\n */\n factory: (t?: Type<any>) => T;\n /**\n * In a case of no explicit injector, a location where the instance of
the injectable is stored.\n */\n value: T|undefined;\n}\n\n/**\n * Information about the providers to be included in
an `Injector` as well as how the given type\n
* which carries the information should be created by the DI system.\n *\n * An `InjectorDef` can import other types
which have `InjectorDefs`, forming a deep nested\n * structure of providers with a defined priority (identically to
how `NgModule`s also have\n * an import/dependency structure).\n *\n * NOTE: This is a private type and should
not be exported\n *\n * @codeGenApi\n */\nexport interface InjectorDef<T> {\n factory: () => T;\n /**\n * TODO(alxhub): Narrow down the type here once decorators properly change the return type of the\n * // class they
are decorating (to add the prov property for example).\n */\n providers:
(Type<any>|ValueProvider|ExistingProvider|FactoryProvider|ConstructorProvider|\n
StaticClassProvider|ClassProvider<any>[]);\n /**\n * imports:
(InjectorType<any>|InjectorTypeWithProviders<any>[]);\n }\n}\n\n/**\n * A `Type` which has an `InjectableDef`
static field.\n *\n * `InjectableDefType`s contain their own Dependency Injection metadata and are usable
in an\n * `InjectorDef`-based `StaticInjector`.\n *\n * @publicApi\n */\nexport interface InjectableType<T> extends
Type<T> {\n /**\n * Opaque type whose structure is highly version dependent. Do not rely on any properties.\n */\n prov: never;\n}\n\n/**\n * A type which has an `InjectorDef` static field.\n *\n * `InjectorDefTypes` can be
used to configure a `StaticInjector`.\n *\n * @publicApi\n */\nexport interface InjectorType<T> extends Type<T>
{\n /**\n * Opaque type whose structure is highly version dependent. Do not rely on any properties.\n */\n inj:
never;\n}\n\n/**\n * Describes the `InjectorDef` equivalent of a `ModuleWithProviders`, an `InjectorDefType` with

```

an\n \* associated array of providers.\n \*\n \* Objects of this type can be listed in the imports section of an\n \* `InjectorDef`.\n \*\n \* NOTE: This is a private type and should not be exported\n \*/\n\nexport interface\nInjectorTypeWithProviders<T> {\n ngModule: InjectorType<T>;\n providers?:\n (Type<any>|ValueProvider|ExistingProvider|FactoryProvider|ConstructorProvider|\n StaticClassProvider|ClassProvider|any[]|[]);\n}\n\n/\*\*\n \* Construct an `InjectableDef` which defines\n how a token will be constructed by the DI system, and\n \* in which injectors (if any) it will be available.\n \*\n \* This should be assigned to a static `prov` field on a type, which will then be an\n \* `InjectableType`.\n \*\n \* Options:\n \* \* `providedIn` determines which injectors will include the injectable, by either associating it\n \* with\n an `@NgModule` or other `InjectorType`, or by specifying that this injectable should be\n \* provided in the `root`\n injector, which will be the application-level injector in most apps.\n \* \* `factory` gives the zero argument function\n which will create an instance of the injectable.\n \* The factory can call `inject` to access the `Injector` and request\n injection of dependencies.\n \*\n \* @codeGenApi\n \* @publicApi This instruction has been emitted by ViewEngine\n for\n\n some time and is deployed to npm.\n \*/\n\nexport function defineInjectable<T>(opts: {\n token: unknown,\n providedIn?: Type<any>|'root'|'platform'|any|null, factory: () => T,\n}): never {\n return ({\n token:\n opts.token,\n providedIn: opts.providedIn as any || null,\n factory: opts.factory,\n value:\n undefined,\n }) as InjectableDef<T> as never;\n}\n\n/\*\*\n \* @deprecated in v8, delete after v10. This API\n should be used only be generated code, and that\n \* code should now use defineInjectable instead.\n \* @publicApi\n \*/\n\nexport const defineInjectable = defineInjectable;\n\n/\*\*\n \* Construct an `InjectorDef` which configures an\n injector.\n \*\n \* This should be assigned to a static injector def (`inj`) field on a type, which will then be an\n \* `InjectorType`.\n \*\n \* Options:\n \* \* `factory`: an `InjectorType` is an instantiable type, so a zero argument\n `factory` function to\n \* create the type must be provided. If that factory\n function needs to inject arguments, it can\n \* use the `inject` function.\n \* \* `providers`: an optional array of\n providers to add to the injector. Each provider must\n \* either have a factory or point to a type which has a `prov`\n static property (the\n \* type must be an `InjectableType`).\n \* \* `imports`: an optional array of imports of other\n `InjectorType`s or `InjectorTypeWithModule`s\n \* whose providers will also be added to the injector. Locally\n provided types will override\n \* providers from imports.\n \*\n \* @codeGenApi\n \*/\n\nexport function\ndefineInjector(options: {factory: () => any, providers?: any[], imports?: any[]}):\n never {\n return ({\n factory: options.factory,\n providers: options.providers || [],\n imports: options.imports || [],\n }) as\nInjectorDef<any> as never;\n}\n\n/\*\*\n \* Read the injectable def (`prov`) for `type` in a way which is immune to\n accidentally reading\n \* inherited value.\n \*\n \* @param\n type A type which may have its own (non-inherited) `prov`.\n \*/\n\nexport function getInjectableDef<T>(type: any):\nInjectableDef<T>|null {\n return getOwnDefinition(type, NG\_PROV\_DEF) || getOwnDefinition(type,\nNG\_INJECTABLE\_DEF);\n}\n\n/\*\*\n \* Return definition only if it is defined directly on `type` and is not inherited\n from a base\n \* class of `type`.\n \*/\n\nexport function getOwnDefinition<T>(type: any, field: string): InjectableDef<T>|null\n{\n return type.hasOwnProperty(field) ? type[field] : null;\n}\n\n/\*\*\n \* Read the injectable def (`prov`) for `type`\n or read the `prov` from one of its ancestors.\n \*\n \* @param type A type which may have `prov`, via inheritance.\n \*\n \* @deprecated Will be removed in a future version of Angular, where an error will occur in the\n scenario if\n we find the `prov` on an ancestor only.\n \*/\n\nexport function getInheritedInjectableDef<T>(type: any):\nInjectableDef<T>|null {\n const def = type && (type[NG\_PROV\_DEF] || type[NG\_INJECTABLE\_DEF]);\n if (def) {\n const typeName = getTypeName(type);\n // TODO(FW-1307): Re-add ngDevMode when closure\n can handle it\n // ngDevMode &&\n console.warn(`\n DEPRECATED: DI is instantiating a token "\${\n typeName}\n "` that inherits its @Injectable decorator but does not provide one itself.\n `);\n // This will become\n an error in a future version of Angular. Please add @Injectable() to the\n `\${\n typeName}\n "` class.`);\n return def;\n } else {\n return null;\n }\n}\n\n/\*\*\n \* Gets the name of a type, accounting for some cross-browser\n differences.\n \*/\n\nexport function getTypeName(type: any): string {\n // `Function.prototype.name` behaves differently\n between IE and other browsers. In most browsers\n // it'll always return the name of the function itself, no matter\n how many other functions it\n // inherits from. On IE the function doesn't have its own `name` property, but it takes

it from\n // the lowest level in the prototype chain. E.g. if we  
 have `class Foo extends Parent` most\n // browsers will evaluate `Foo.name` to `Foo` while IE will return `Parent`.  
 We work around\n // the issue by converting the function to a string and parsing its name out that way via a regex.\n

```

if (type.hasOwnProperty('name')) {\n return type.name;\n }\n\n const match = (" +
type).match(/^function\s*([^\s(]+)/);\n return match === null ? " : match[1];\n)\n\n/**\n * Read the injector def
type in a way which is immune to accidentally reading inherited value.\n *\n * @param type type which may have
an injector def (^inj)\n *\n * @export function getInjectorDef<T>(type: any): InjectorDef<T>|null {\n return type &&
(type.hasOwnProperty(NG_INJ_DEF) || type.hasOwnProperty(NG_INJECTOR_DEF)) ?\n (type as
any)[NG_INJ_DEF] :\n null;\n}\n\n * @export const NG_PROV_DEF = getClosureSafeProperty({prov:
getClosureSafeProperty});\n * @export const NG_INJ_DEF = getClosureSafeProperty({inj:
getClosureSafeProperty});\n\n// We need to keep these around
so we can read off old defs if new defs are unavailable\n * @export const NG_INJECTABLE_DEF =
getClosureSafeProperty({ngInjectableDef: getClosureSafeProperty});\n * @export const NG_INJECTOR_DEF =
getClosureSafeProperty({ngInjectorDef: getClosureSafeProperty});\n\n", "*/\n\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\nimport {Type} from '../interface/type';\nimport
{assertLessThan} from '../util/assert';\nimport {defineInjectable} from '../interface/defs';\n\n/**\n * Creates a token
that can be used in a DI Provider.\n *\n * Use an `InjectionToken` whenever the type you are injecting is not reified
(does not have a\n * runtime representation) such as when injecting an interface, callable type, array or\n *
parameterized type.\n *\n * `InjectionToken` is parameterized on `T` which is the type of object which will be
returned by\n *
the `Injector`. This provides additional level of type safety.\n *\n * ``\n * interface MyInterface { ... }\n * var
myInterface = injector.get(new InjectionToken<MyInterface>('SomeToken'));\n * // myInterface is inferred to be
MyInterface.\n *\n * ``\n *\n * When creating an `InjectionToken`, you can optionally specify a factory function which
returns\n * (possibly by creating) a default value of the parameterized type `T`. This sets up the\n * `InjectionToken`
using this factory as a provider as if it was defined explicitly in the\n * application's root injector. If the factory
function, which takes zero arguments, needs to inject\n * dependencies, it can do so using the `inject` function. See
below for an example.\n *\n * Additionally, if a `factory` is specified you can also specify the `providedIn` option,
which\n * overrides the above behavior and marks the token as belonging to a particular `@NgModule`. As\n *
mentioned above, `root` is the default value for `providedIn`.\n *\n *
@usageNotes\n * ### Basic Example\n *\n * ### Plain InjectionToken\n *\n * { @example
core/di/ts/injector_spec.ts region='InjectionToken'}\n *\n * ### Tree-shakable InjectionToken\n *\n * { @example
core/di/ts/injector_spec.ts region='ShakableInjectionToken'}\n *\n * @publicApi\n *\n * @export class
InjectionToken<T> {\n /** @internal */\n readonly ngMetadataName = 'InjectionToken';\n\n readonly prov:
never|undefined;\n\n constructor(protected _desc: string, options?: {\n providedIn?:
Type<any>|'root'|'platform'|'any'|null, factory: () => T\n }) {\n this.prov = undefined;\n if (typeof options ===
'number') {\n (typeof ngDevMode === 'undefined' || ngDevMode) &&\n assertLessThan(options, 0, 'Only
negative numbers are supported here');\n // This is a special hack to assign __NG_ELEMENT_ID__ to this
instance.\n // See `InjectorMarkers`\n (this as any).__NG_ELEMENT_ID__ = options;\n } else if (options
!== undefined) {\n this.prov = defineInjectable({\n token: this,\n providedIn: options.providedIn || 'root',\n factory: options.factory,\n });\n }\n }\n\n toString(): string {\n return `InjectionToken ${this._desc}`;\n }\n}\n\n * @export interface InjectableDefToken<T>
extends InjectionToken<T> {\n prov: never;\n}\n\n", "*/\n\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {InjectionToken} from '../di/injection_token';\nimport
{Type} from '../interface/type';\nimport {makePropDecorator} from '../util/decorators';\n\n/**\n * A DI token that
you can use to create a virtual [provider](guide/glossary#provider)\n * that will populate the `entryComponents`
field of components and NgModules\n * based on its `useValue` property value.\n * All components that are

```

referenced in the `useValue` value (either directly or in a nested array or map) are added to the `entryComponents` property.

The following example shows how the router can populate the `entryComponents` field of an NgModule based on a router configuration that refers to components.

```

typescript // helper function inside the router
function provideRoutes(routes) {
 return [{ provide: ROUTES, useValue: routes }, { provide: ANALYZE_FOR_ENTRY_COMPONENTS, useValue: routes, multi: true }];
}
// user code
let routes = [{ path: '/root', component: RootComp }, { path: '/teams', component: TeamsComp }];
@NgModule({ providers: [provideRoutes(routes)] })
class ModuleWithRoutes {}
export const ANALYZE_FOR_ENTRY_COMPONENTS = new InjectionToken<any>('AnalyzeForEntryComponents');
// Type of the `Attribute` decorator / constructor function.
export interface AttributeDecorator {
 // Specifies that a constant attribute value should be injected.
 // The directive can inject constant string literals of host element attributes.
 @usageNotes
 // Suppose we have an <input> element and want to know its `type`.
 // <input type="text">
 // A decorator can inject string literal `text` as in the following example.
 // @example core/ts/metadata/metadata.ts region='attributeMetadata'
 @publicApi
 (name: string): any;
 new(name: string): Attribute;
}
// Type of the Attribute metadata.
export interface Attribute {
 // The name of the attribute to be injected into the constructor.
 attributeName?: string;
 // Type of the Query metadata.
 @publicApi
 export interface Query {
 descendants: boolean;
 first: boolean;
 read: any;
 isViewQuery: boolean;
 selector: any;
 static?: boolean;
 }
 // Base class for query metadata.
 @see `ContentChildren`.
 @see `ContentChild`.
 @see `ViewChildren`.
 @see `ViewChild`.
 @publicApi
 export abstract class Query {
 // Type of the ContentChildren decorator / constructor function.
 @see `ContentChildren`.
 @publicApi
 export interface ContentChildrenDecorator {
 // Parameter decorator that configures a content query.
 // Use to get the `QueryList` of elements or directives from the content DOM.
 // Any time a child element is added, removed, or moved, the query list will be updated, and the changes observable of the query list will emit a new value.
 // Content queries are set before the `ngAfterContentInit` callback is called.
 // Does not retrieve elements or directives that are in other components' templates, since a component's template is always a black box to its ancestors.
 // ***Metadata Properties***
 // ***selector*** - The directive type or the name used for querying.
 // ***descendants*** - True to include all descendants, otherwise include only direct children.
 // ***read*** - Used to read a different token from the queried elements.
 @usageNotes
 // Here is a simple demonstration of how the `ContentChildren` decorator can be used.
 // @example core/di/ts/contentChildren/content_children_howto.ts region='HowTo'
 // ### Tab-pane example
 // Here is a slightly more realistic example that shows how `ContentChildren` decorators can be used to implement a tab pane component.
 // @example core/di/ts/contentChildren/content_children_example.ts region='Component'
 @Annotation
 (selector: Type<any> | InjectionToken<unknown> | Function | string, opts?: { descendants?: boolean, read?: any }): any;
 new(selector: Type<any> | InjectionToken<unknown> | Function | string, opts?: { descendants?: boolean, read?: any }): Query;
 }
 // Type of the ContentChildren metadata.
 @Annotation
 @publicApi
 export type ContentChildren = Query;
 // ContentChildren decorator and metadata.
 @Annotation
 @publicApi
 export const ContentChildren: ContentChildrenDecorator = makePropDecorator(
 'ContentChildren',
 (selector?: any, data: any = {}) => ({ selector, first: false, isViewQuery: false, descendants: false, ...data }),
 Query);
 // Type of the ContentChild decorator / constructor function.
 @publicApi
 export interface ContentChildDecorator {
 // Parameter decorator that configures a content query.
 // Use to get the first element or the directive matching the selector from the content DOM.
 // If the content DOM changes, and a new child matches the selector, the property will be updated.
 // Content queries

```

are set before the `ngAfterContentInit` callback is called.

- \* Does not retrieve elements or directives that are in other components' templates,
- \* since a component's template is always a black box to its ancestors.

```

Metadata Properties:
 * **selector** - The directive type or the name used for querying.
 * **read** - Used to read a different token from the queried element.
 * **static** - True to resolve query results before change detection runs,
 * false to resolve after change detection. Defaults to false.
 * @usageNotes
 * { @example core/di/ts/contentChild/content_child_howto.ts region='HowTo' }
 * ### Example
 * { @example core/di/ts/contentChild/content_child_example.ts region='Component' }
 * @Annotation
 * (selector: Type<any>|InjectionToken<unknown>|Function|string,
 * opts?: {read?: any,
 * static?: boolean}): any;
 * new(selector: Type<any>|InjectionToken<unknown>|Function|string,
 * opts?: {read?: any, static?: boolean}): ContentChild;
 * Type of the ContentChild metadata.
 * @publicApi
 * \nexport type ContentChild = Query;
 * ContentChild decorator and metadata.
 * @Annotation
 * @publicApi
 * \nexport const ContentChild: ContentChildDecorator =
 * makePropDecorator(
 * 'ContentChild',
 * (selector?: any, data: any = {}) =>
 * ({selector, first: true,
 * isViewQuery: false, descendants: true, ...data}),
 * Query);
 * Type of the ViewChildren decorator /
 * constructor function.
 * @see `ViewChildren`.
 * @publicApi
 * \nexport interface
 * ViewChildrenDecorator {
 * /**
 * * Parameter decorator that configures a view query.
 * * Use to get the
 * * `QueryList` of elements or directives from the view DOM.
 * * Any time a child element is added, removed, or
 * * moved, the query list will be updated,
 * * and the changes observable of the query list will emit a new value.
 * * View queries
 * are set before the `ngAfterViewInit` callback is called.
 * * **Metadata Properties**:
 * * **selector** - The directive type or the name used for querying.
 * * **read** - Used to read a different token
 * from the queried elements.
 * * @usageNotes
 * * { @example
 * core/di/ts/viewChildren/view_children_howto.ts region='HowTo' }
 * * ### Another example
 * * { @example core/di/ts/viewChildren/view_children_example.ts region='Component' }
 * * @Annotation
 * * (selector: Type<any>|InjectionToken<unknown>|Function|string,
 * * opts?: {read?: any}): any;
 * * new(selector:
 * Type<any>|InjectionToken<unknown>|Function|string,
 * * opts?: {read?: any}): ViewChildren;
 * * Type of the ViewChildren metadata.
 * * @publicApi
 * \nexport type ViewChildren = Query;
 * ViewChildren decorator and metadata.
 * @Annotation
 * @publicApi
 * \nexport const ViewChildren:
 * ViewChildrenDecorator = makePropDecorator(
 * 'ViewChildren',
 * (selector?: any, data: any = {}) =>
 * ({selector, first: false, isViewQuery: true, descendants: true, ...data}),
 * Query);
 * Type of the ViewChild decorator / constructor function.
 * @see `ViewChild`.
 * @publicApi
 * \nexport interface ViewChildDecorator {
 * /**
 * * @description
 * * Property decorator that
 * configures a view query.
 * * The change detector looks for the first element or the directive matching the selector
 * * in the view DOM. If the view DOM changes, and a new child matches the selector,
 * * the property is
 * updated.
 * * View queries are set before the `ngAfterViewInit` callback is called.
 * * **Metadata
 * Properties**:
 * * **selector** - The directive type or the name used for querying.
 * * **read** - Used to
 * read a different token from the queried elements.
 * * **static** - True to resolve query results before change
 * detection runs,
 * * false to resolve after change detection. Defaults
 * to false.
 * * The following selectors are supported.
 * * Any class with the `@Component` or
 * `@Directive` decorator
 * * A template reference variable as a string (e.g. query `<my-component #cmp></my-
 * component>`
 * * with `@ViewChild('cmp')`)
 * * Any provider defined in the child component tree of the
 * current component (e.g.
 * * `@ViewChild(SomeService) someService: SomeService`)
 * * Any provider
 * defined through a string token (e.g. `@ViewChild('someToken') someTokenVal:
 * any`)
 * * A
 * `TemplateRef` (e.g. query `<ng-template></ng-template>` with `@ViewChild(TemplateRef)`
 * template;
 * * @usageNotes
 * * { @example core/di/ts/viewChild/view_child_example.ts region='Component' }
 * * ### Example 2
 * * { @example core/di/ts/viewChild/view_child_howto.ts region='HowTo' }
 * * @Annotation
 * * (selector: Type<any>|InjectionToken<unknown>|Function|string,
 * * opts?: {read?: any,
 * static?: boolean}): any;

```





```

packages/compiler/src/compiler_facade_interface.ts (main)\n * -
packages/core/src/compiler/compiler_facade_interface.ts (replica)\n *\n * Please ensure that the two files are in
sync using this command:\n * ``\n * cp packages/compiler/src/compiler_facade_interface.ts \\\n *
packages/core/src/compiler/compiler_facade_interface.ts\n * ``\n */\n\nexport interface ExportedCompilerFacade
{\n compilerFacade: CompilerFacade;\n}\n\nexport interface CompilerFacade {\n compilePipe(angularCoreEnv:
CoreEnvironment, sourceMapUrl: string, meta: R3PipeMetadataFacade):\n any;\n compileInjectable(\n angularCoreEnv: CoreEnvironment, sourceMapUrl: string, meta: R3InjectableMetadataFacade): any;\n compileInjector(\n angularCoreEnv: CoreEnvironment, sourceMapUrl: string,
 meta: R3InjectorMetadataFacade): any;\n compileNgModule(\n angularCoreEnv: CoreEnvironment,
 sourceMapUrl: string, meta: R3NgModuleMetadataFacade): any;\n compileDirective(\n angularCoreEnv:
CoreEnvironment, sourceMapUrl: string, meta: R3DirectiveMetadataFacade): any;\n compileComponent(\n angularCoreEnv: CoreEnvironment, sourceMapUrl: string, meta: R3ComponentMetadataFacade): any;\n compileFactory(\n angularCoreEnv: CoreEnvironment, sourceMapUrl: string, meta:
R3FactoryDefMetadataFacade): any;\n\n createParseSourceSpan(kind: string, typeName: string, sourceUrl: string):
ParseSourceSpan;\n\n R3ResolvedDependencyType: typeof R3ResolvedDependencyType;\n R3FactoryTarget:
typeof R3FactoryTarget;\n ResourceLoader: {new(): ResourceLoader};\n}\n\nexport interface CoreEnvironment
{\n [name: string]: Function;\n}\n\nexport type ResourceLoader = {\n get(url: string):
Promise<string>|string;\n};\n\nexport type StringMap = {\n [key: string]: string;\n};\n\nexport type
StringMapWithRename = {\n [key: string]: string|[string, string];\n};\n\nexport type Provider = any;\n\nexport
enum R3ResolvedDependencyType {\n Token = 0,\n Attribute = 1,\n ChangeDetectorRef = 2,\n Invalid =
3,\n}\n\nexport enum R3FactoryTarget {\n Directive = 0,\n Component = 1,\n Injectable = 2,\n Pipe = 3,\n NgModule = 4,\n}\n\nexport interface R3DependencyMetadataFacade {\n token: any;\n resolved:
R3ResolvedDependencyType;\n host: boolean;\n optional: boolean;\n self: boolean;\n skipSelf:
boolean;\n}\n\nexport interface R3PipeMetadataFacade {\n name: string;\n type: any;\n typeArgumentCount:
number;\n pipeName: string;\n deps: R3DependencyMetadataFacade[]|null;\n pure: boolean;\n}\n\nexport
interface R3InjectableMetadataFacade {\n name: string;\n type: any;\n typeArgumentCount: number;\n
providedIn: any;\n useClass?: any;\n useFactory?: any;\n useExisting?: any;\n useValue?: any;\n userDeps?:
R3DependencyMetadataFacade[];\n}\n\nexport interface R3NgModuleMetadataFacade
{\n type: any;\n bootstrap: Function[];\n declarations: Function[];\n imports: Function[];\n exports: Function[];\n
schemas: {name: string}[]|null;\n id: string|null;\n}\n\nexport interface R3InjectorMetadataFacade {\n name:
string;\n type: any;\n deps: R3DependencyMetadataFacade[]|null;\n providers: any[];\n imports:
any[];\n}\n\nexport interface R3DirectiveMetadataFacade {\n name: string;\n type: any;\n typeArgumentCount:
number;\n typeSourceSpan: ParseSourceSpan;\n deps: R3DependencyMetadataFacade[]|null;\n selector:
string|null;\n queries: R3QueryMetadataFacade[];\n host: {[key: string]: string};\n propMetadata: {[key: string]:
any[]};\n lifecycle: {usesOnChanges: boolean};\n inputs: string[];\n outputs: string[];\n usesInheritance:
boolean;\n exportAs: string[]|null;\n providers: Provider[]|null;\n viewQueries:
R3QueryMetadataFacade[];\n}\n\nexport interface R3ComponentMetadataFacade extends
R3DirectiveMetadataFacade {\n template:
string;\n preserveWhitespaces: boolean;\n animations: any[]|undefined;\n pipes: Map<string, any>;\n directives:
{selector: string, expression: any}[];\n styles: string[];\n encapsulation: ViewEncapsulation;\n viewProviders:
Provider[]|null;\n interpolation?: [string, string];\n changeDetection?: ChangeDetectionStrategy;\n}\n\nexport
interface R3FactoryDefMetadataFacade {\n name: string;\n type: any;\n typeArgumentCount: number;\n deps:
R3DependencyMetadataFacade[]|null;\n injectFn: 'directiveInject'|'inject';\n target: R3FactoryTarget;\n}\n\nexport
enum ViewEncapsulation {\n Emulated = 0,\n // Historically the 1 value was for `Native` encapsulation which has
been removed as of v11.\n None = 2,\n ShadowDom = 3\n}\n\nexport type ChangeDetectionStrategy =
number;\n\nexport interface R3QueryMetadataFacade {\n propertyName: string;\n first: boolean;\n predicate:
any|string[];\n descendants: boolean;\n read: any|null;\n static: boolean;\n}\n\nexport interface ParseSourceSpan

```

```
{\n start: any;\n end: any;\n details: any;\n fullStart: any;\n}\n","/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {global} from '../util/global';\nimport {CompilerFacade,\nExportedCompilerFacade} from './compiler_facade_interface';\nexport * from\n'./compiler_facade_interface';\n\nexport function getCompilerFacade(): CompilerFacade {\n const globalNg:\nExportedCompilerFacade = global['ng'];\n if (!globalNg || !globalNg.compilerFacade) {\n throw new Error(\n`Angular JIT compilation failed: '@angular/compiler' not loaded!`\n +\n - JIT compilation is discouraged for\nproduction use-cases! Consider AOT mode instead.`);\n }\n return globalNg.compilerFacade;\n}\n","/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Type} from\n'../interface/type';\nimport {getClosureSafeProperty} from '../util/property';\nimport {stringify} from\n'../util/stringify';\n\n/**\n * An interface that a function passed into {@link forwardRef} has to implement.\n *\n * @usageNotes\n * ### Example\n *\n * {@example core/di/ts/forward_ref/forward_ref_spec.ts\nregion='forward_ref_fn'}\n *\n * @publicApi\n */\nexport interface ForwardRefFn {\n (): any;\n}\n\nconst\n__forward_ref__ = getClosureSafeProperty({__forward_ref__: getClosureSafeProperty});\n\n/**\n * Allows to refer to references which are not yet defined.\n *\n * For instance, `forwardRef` is used when the `token` which we need to refer to for the purposes\nof\n * DI is declared, but not yet defined. It is also used when the `token` which we use when creating\n * a query is not yet defined.\n *\n * @usageNotes\n * ### Example\n *\n * {@example core/di/ts/forward_ref/forward_ref_spec.ts\nregion='forward_ref'}\n *\n * @publicApi\n */\nexport function forwardRef(forwardRefFn: ForwardRefFn):\nType<any> {\n (<any>forwardRefFn).__forward_ref__ = forwardRef;\n (<any>forwardRefFn).toString =\nfunction() {\n return stringify(this);\n };\n return (<Type<any>><any>forwardRefFn);\n}\n\n/**\n * Lazily retrieves the reference value from a forwardRef.\n *\n * Acts as the identity function when given a non-forward-ref value.\n *\n * @usageNotes\n * ### Example\n *\n * {@example core/di/ts/forward_ref/forward_ref_spec.ts\nregion='resolve_forward_ref'}\n *\n * @see `forwardRef`\n *\n * @publicApi\n */\nexport function resolveForwardRef<T>(type: T): T {\n return isForwardRef(type) ? type() : type;\n}\n\n/**\n * Checks whether a function is wrapped by a `forwardRef`.\n *\n */\nexport function isForwardRef(fn: any): fn is () => any {\n return typeof fn === 'function' &&\nfn.hasOwnProperty('__forward_ref__') &&\n fn.__forward_ref__ === forwardRef;\n}\n\n","/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/**\n * @description\n *\n * Represents a type that a Component or other object is instances of.\n *\n * An example of a `Type` is `MyCustomComponent` class, which in JavaScript is represented by\nthe `MyCustomComponent` constructor function.\n *\n * @publicApi\n */\nexport const Type = Function;\n\nexport function isType(v: any): v is\nType<any> {\n return typeof v === 'function';\n}\n\n/**\n * @description\n *\n * Represents an abstract class `T`, if applied to a concrete class it would stop being\ninstantiable.\n *\n * @publicApi\n */\nexport interface AbstractType<T> extends Function {\n\n prototype: T;\n}\n\nexport interface Type<T> extends Function {\n new(...args: any[]): T;\n}\n\nexport type Mutable<T> extends {[x: string]: any}, K extends string = {\n [P in K]: T[P];\n};\n\n/**\n * Returns a writable type version of type.\n *\n * USAGE:\n * Given:\n ```\n interface Person {\n readonly name: string;\n }\n ```\n We would like to get a read/write version of `Person`.\n *\n const WritablePerson = Writable<Person>;\n ```\n *\n The result is that you can do:\n ```\n const readonlyPerson: Person = {\n name: 'Marry'\n };\n\n readonlyPerson.name = 'John'; // TypeError\n (readonlyPerson as WritablePerson).name = 'John'; // OK\n ```\n *\n Error: Correctly detects that `Person` did not have `age` property.\n ```\n (readonlyPerson as WritablePerson).age = 30;\n ```\n *\n */\nexport type Writable<T> = {\n -readonly[K in keyof T]: T[K];\n};\n\n","/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
```

license that can be found in the LICENSE file at <https://angular.io/license>

```

import { assertEquals,
assertLessThanOrEqual } from './assert';

// Equivalent to ES6 spread, add each item to an array.
@param items The items to add
@param arr The array to which you want to add the items
export function
addAllToArray(items: any[], arr: any[]) {
 for (let i = 0; i < items.length; i++) {
 arr.push(items[i]);
 }
}

// Flattens an array.
export function flatten(list: any[], dst?: any[]): any[] {
 if (dst ===
undefined) dst = list;
 for (let i = 0; i < list.length; i++) {
 let item = list[i];
 if (Array.isArray(item)) {
 // Our assumption that the list was already flat was wrong and
 // we need to clone flat since we need to write to it.
 dst = list.slice(0, i);
 flatten(item, dst);
 } else if (dst !== list) {
 dst.push(item);
 }
 }
 return dst;
}

export function deepForEach<T>(input: (T|any[])[], fn: (value: T) => void): void {
 input.forEach(value => Array.isArray(value) ? deepForEach(value, fn) : fn(value));
}

export function
addToArray(arr: any[], index: number, value: any): void {
 // perf: array.push is faster than array.splice!
 if (index >= arr.length) {
 arr.push(value);
 } else {
 arr.splice(index, 0, value);
 }
}

export function
removeFromArray(arr: any[], index: number): any {
 // perf: array.pop is faster than array.splice!
 if (index >=
arr.length - 1) {
 return arr.pop();
 } else {
 return arr.splice(index, 1)[0];
 }
}

export function
newArray<T = any>(size: number): T[];
export function newArray<T>(size: number, value: T): T[];
export function
newArray<T>(size: number, value?: T): T[] {
 const list: T[] = [];
 for (let i = 0; i < size; i++) {
 list.push(value!);
 }
 return list;
}

// Remove item from
array (Same as `Array.splice()` but faster.)
*n `Array.splice()` is not as fast because it has to allocate an array
for the elements which were removed. This causes memory pressure and slows down code when most of the
time we don't care about the deleted items array.
*n https://jsperf.com/fast-array-splice (About 20x faster)
*n @param array Array to splice
*n @param index Index of element in array to remove.
*n @param count
Number of items to remove.
export function arraySplice(array: any[], index: number, count: number): void {
 const length = array.length - count;
 while (index < length) {
 array[index] = array[index + count];
 index++;
 }
 while (count--) {
 array.pop(); // shrink the array
 }
}

// Same as `Array.splice(index,
0, value)` but faster.
*n `Array.splice()` is not fast because it has to allocate an array for the elements which
were removed. This causes memory pressure and slows down code when most of
the time we don't care about the deleted items array.
*n @param array Array to splice.
*n @param index
Index in array where the `value` should be added.
*n @param value Value to add to array.
export function
arrayInsert(array: any[], index: number, value: any): void {
 ngDevMode && assertLessThanOrEqual(index,
array.length, 'Can't insert past array end.');
```

let end = array.length;
while (end > index) {
 const previousEnd = end - 1;
 array[end] = array[previousEnd];
 end = previousEnd;
}
array[index] = value;
}

// Same as `Array.splice2(index, 0, value1, value2)` but faster.
\*n `Array.splice()` is not fast because it has to
allocate an array for the elements which were removed. This causes memory pressure and slows down code
when most of the time we don't care about the deleted items array.
\*n @param array Array to splice.
\*n @param index Index in array where the `value` should be added.
\*n @param value1 Value to
add to array.
\*n @param value2 Value to add to array.
export function arrayInsert2(array: any[], index:
number, value1: any, value2: any): void {
 ngDevMode && assertLessThanOrEqual(index, array.length, 'Can't
insert past array end.');

let end = array.length;
if (end === index) {
 // inserting at the end.
 array.push(value1, value2);
} else if (end === 1) {
 // corner case when we have less items in array than we
have items to insert.
 array.push(value2, array[0]);
 array[0] = value1;
} else {
 end--;
 array.push(array[end - 1], array[end]);
 while (end > index) {
 const previousEnd = end - 2;
 array[end] =
array[previousEnd];
 end--;
 }
 array[index] = value1;
 array[index + 1] = value2;
}
}

// Insert a `value` into an `array` so that the array remains sorted.
\*n NOTE:
- Duplicates are not allowed, and
are ignored.
- This uses binary search algorithm for fast inserts.
\*n @param
array A sorted array to insert into.
\*n @param value The value to insert.
\*n @returns index of the inserted value.
export function arrayInsertSorted(array: string[], value: string): number {
 let index =
arrayIndexOfSorted(array, value);
 if (index < 0) {
 // if we did not find it insert it.
 index = ~index;
 }
}

```

arrayInsert(array, index, value);\n } \n return index;\n}\n\n/**\n * Remove `value` from a sorted `array`.\n *\n * NOTE:\n * - This uses binary search algorithm for fast removals.\n *\n * @param array A sorted array to remove from.\n * @param value The value to remove.\n * @returns index of the removed value.\n * - positive index if value found and removed.\n * - negative index if value not found. (~index` to get the value where it should have been\n * inserted)\n */\n\nexport function arrayRemoveSorted(array: string[], value: string): number {\n const index = arrayIndexOfSorted(array, value);\n if (index >= 0) {\n arraySplice(array, index, 1);\n }\n return index;\n}\n\n/**\n * Get an index of an `value` in a sorted `array`.\n *\n * NOTE:\n * - This uses binary search algorithm for fast removals.\n *\n * @param array A sorted array to binary search.\n * @param value The value to look for.\n * @returns index of the value.\n * - positive index if value found.\n * - negative index if value not found. (~index` to get the value where it should have been\n * located)\n */\n\nexport function arrayIndexOfSorted(array: string[], value: string): number {\n return _arrayIndexOfSorted(array, value, 0);\n}\n\n/**\n * `KeyValueArray` is an array where even positions contain keys and odd positions contain values.\n *\n * `KeyValueArray` provides a very efficient way of iterating over its contents. For small\n * sets (~10) the cost of binary searching an `KeyValueArray` has about the same performance\n * characteristics that of a `Map` with significantly better memory footprint.\n *\n * If used as a `Map` the keys are stored in alphabetical order so that they can be binary searched\n * for retrieval.\n *\n * See: `keyValueArraySet`, `keyValueArrayGet`, `keyValueArrayIndexOf`, `keyValueArrayDelete`.\n */\n\nexport interface KeyValueArray<VALUE> extends Array<VALUE|string> {\n __brand__: 'array-map';\n}\n\n/**\n * Set a `value` for a `key`.\n *\n * @param keyValueArray to modify.\n * @param key The key to locate or create.\n * @param value The value to set for a `key`.\n * @returns index (always even) of where the value was set.\n */\n\nexport function keyValueArraySet<V>(\n keyValueArray: KeyValueArray<V>, key: string, value: V): number {\n let index = keyValueArrayIndexOf(keyValueArray, key);\n if (index >= 0) {\n // if we found it set it.\n keyValueArray[index | 1] = value;\n } else {\n index = ~index;\n arrayInsert2(keyValueArray, index, key, value);\n }\n return index;\n}\n\n/**\n * Retrieve a `value` for a `key` (on `undefined` if not found.)\n *\n * @param keyValueArray to search.\n * @param key The key to locate.\n * @return The `value` stored at the `key` location or `undefined` if not found.\n */\n\nexport function keyValueArrayGet<V>(keyValueArray: KeyValueArray<V>, key: string): V|undefined {\n const index = keyValueArrayIndexOf(keyValueArray, key);\n if (index >= 0) {\n // if we found it retrieve it.\n return keyValueArray[index | 1] as V;\n }\n return undefined;\n}\n\n/**\n * Retrieve a `key` index value in the array or -1 if not found.\n *\n * @param keyValueArray to search.\n * @param key The key to locate.\n * @returns index of where the key is (or should have been.)\n * - positive (even) index if key found.\n * - negative index if key not found. (~index` (even) to get the index where it should have\n * been inserted.)\n */\n\nexport function keyValueArrayIndexOf<V>(keyValueArray: KeyValueArray<V>, key: string): number {\n return _arrayIndexOfSorted(keyValueArray as string[], key, 1);\n}\n\n/**\n * Delete a `key` (and `value`) from the `KeyValueArray`.\n *\n * @param keyValueArray to modify.\n * @param key The key to locate or delete (if exist).\n * @returns index of where the key was (or should have been.)\n * - positive (even) index if key found and deleted.\n * - negative index if key not found. (~index` (even) to get the index where it should have\n * been.)\n */\n\nexport function keyValueArrayDelete<V>(keyValueArray: KeyValueArray<V>, key: string): number {\n const index = keyValueArrayIndexOf(keyValueArray, key);\n if (index >= 0) {\n // if we found it remove it.\n arraySplice(keyValueArray, index, 2);\n }\n return index;\n}\n\n/**\n * INTERNAL: Get an index of an `value` in a sorted `array` by grouping search by `shift`.\n *\n * NOTE:\n * - This uses binary search algorithm for fast removals.\n *\n * @param array A sorted array to binary search.\n * @param value The value to look for.\n * @param shift grouping shift.\n * - `0` means look at every location\n * - `1` means only look at every other (even) location (the odd locations are to be ignored as\n * they are values.)\n * @returns index of the value.\n * - positive index if value found.\n * - negative index if value not found. (~index` to get the value where it should have been\n * inserted)\n */\n\nfunction _arrayIndexOfSorted(array: string[], value: string, shift: number): number {\n ngDevMode && assertEqual(Array.isArray(array), true, 'Expecting an array');\n let start = 0;\n let end = array.length >> shift;\n while (end !== start) {\n const middle = start + ((end - start) >> 1); // find

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the middle.\n const current = array[middle << shift];\n if (value === current) {\n return (middle << shift);\n } else if (current > value) {\n end = middle;\n } else {\n start = middle + 1; // We already searched middle
so make it non-inclusive by adding 1\n }\n return ~(end << shift);\n}\n","/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be found in the LICENSE file at
https://angular.io/license\n */\nimport {isType, Type} from './interface/type';\nimport {newArray} from
 './util/array_utils';\nimport {ANNOTATIONS, PARAMETERS, PROP_METADATA} from
 './util/decorators';\nimport {global} from './util/global';\nimport {stringify} from './util/stringify';\nimport
{PlatformReflectionCapabilities} from './platform_reflection_capabilities';\nimport {GetterFn, MethodFn, SetterFn}
from './types';\n\n\n/*\n * #####\n * Attention: These Regular expressions have to hold
even if the code is minified!\n * #####\n * \n * \n * Regular expression that detects
pass-through constructors for ES5 output. This Regex intends to capture the common delegation pattern emitted
by TypeScript and Babel. Also it intends to capture the pattern where existing constructors have been
downleveled from ES2015 to ES5 using TypeScript
w/ downlevel iteration. e.g.\n\nfunction MyClass() {\n var _this = _super.apply(this, arguments) ||
this;\n\n function MyClass() {\n var _this = _super.apply(this, __spread(arguments)) || this;\n\n More details can be found in: https://github.com/angular/angular/issues/38453.\n }\n\n ES5_DELEGATE_CTOR =\n\n/^function\\s+([S+]+(\\(|\\)|\\s*[!\\s$]+\\.apply\\((this,\\s*(arguments|\\[^(\\)|\\s*)+\\))\\))/;/\n\n/** Regular expression
that detects ES2015 classes which extend from other classes. */\nexport const ES2015_INHERITED_CLASS =
/^class\\s+[A-Za-z][d$_]*\\s*extends\\s+[^(\\s|/);]/;\n\n/** Regular expression that detects ES2015 classes which
extend from other classes and have an explicit constructor defined. */\nexport const
ES2015_INHERITED_CLASS_WITH_CTOR =\n\n/^class\\s+[A-Za-
z][d$_]*\\s*extends\\s+[^(\\s|/){}[\\s$]*constructor\\s*/;\n\n/** Regular expression that detects ES2015 classes
which extend
from other classes and inherit a constructor. */\nexport const
ES2015_INHERITED_CLASS_WITH_DELEGATE_CTOR =\n\n/^class\\s+[A-Za-
z][d$_]*\\s*extends\\s+[^(\\s|/){}[\\s$]*constructor\\s*(\\(|\\)|\\s*{\\s*_super\\s*(\\(|\\.|\\.\\.\\.arguments\\s*))};)/;\n\n/** Determine
whether a stringified type is a class which delegates its constructor to its parent. */\n\nThis is not trivial since
compiled code can actually contain a constructor function even if the original source code did not. For instance,
when the child class contains an initialized instance property.\n\nexport function isDelegateCtor(typeStr:
string): boolean {\n return ES5_DELEGATE_CTOR.test(typeStr) ||\n ES2015_INHERITED_CLASS_WITH_DELEGATE_CTOR.test(typeStr) ||\n (ES2015_INHERITED_CLASS.test(typeStr) &&
!ES2015_INHERITED_CLASS_WITH_CTOR.test(typeStr));\n}\n\nexport class ReflectionCapabilities implements
PlatformReflectionCapabilities {\n private _reflect: any;\n\n constructor(reflect?: any) {\n this._reflect
= reflect || global['Reflect'];\n }\n\n isReflectionEnabled(): boolean {\n return true;\n }\n\n factory<T>(t:
Type<T>): (args: any[]) => T {\n return (...args: any[]) => new t(...args);\n }\n\n /** @internal */\n _zipTypesAndAnnotations(paramTypes: any[], paramAnnotations: any[]): any[][] {\n let result: any[][];\n\n if
(typeof paramTypes === 'undefined') {\n result = newArray(paramAnnotations.length);\n } else {\n result =
newArray(paramTypes.length);\n }\n\n for (let i = 0; i < result.length; i++) {\n // TS outputs Object for
parameters without types, while Traceur omits\n // the annotations. For now we preserve the Traceur behavior to
aid migration, but this can be revisited.\n if (typeof paramTypes === 'undefined') {\n result[i] = [];\n } else if (paramTypes[i] && paramTypes[i] !== Object) {\n result[i] = [paramTypes[i]];\n } else {\n result[i] = [];\n }\n if (paramAnnotations
&& paramAnnotations[i] !== null) {\n result[i] = result[i].concat(paramAnnotations[i]);\n }\n }\n\n return
result;\n }\n\n private _ownParameters(type: Type<any>, parentCtor: any): any[] | null {\n const typeStr =
type.toString();\n // If we have no decorators, we only have function.length as metadata.\n // In that case, to
```

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detect whether a child class declared an own constructor or not,\n // we need to look inside of that constructor to
check whether it is\n // just calling the parent.\n // This also helps to work around for
https://github.com/Microsoft/TypeScript/issues/12439\n // that sets 'design:paramtypes' to []\n // if a class
inherits from another class but has no ctor declared itself.\n if (isDelegateCtor(typeStr)) {\n return null;\n
}\n\n // Prefer the direct API.\n if ((<any>type).parameters && (<any>type).parameters !==
parentCtor.parameters) {\n return (<any>type).parameters;\n }\n\n // API of tsickle for
lowering decorators to properties on the class.\n const tsickleCtorParams = (<any>type).ctorParameters;\n if
(tsickleCtorParams && tsickleCtorParams !== parentCtor.ctorParameters) {\n // Newer tsickle uses a function
closure\n // Retain the non-function case for compatibility with older tsickle\n const ctorParameters =\n
typeof tsickleCtorParams === 'function' ? tsickleCtorParams() : tsickleCtorParams;\n const paramTypes =
ctorParameters.map((ctorParam: any) => ctorParam && ctorParam.type);\n const paramAnnotations =
ctorParameters.map(\n (ctorParam: any) =>\n ctorParam &&
convertTsickleDecoratorIntoMetadata(ctorParam.decorators));\n return
this._zipTypesAndAnnotations(paramTypes, paramAnnotations);\n }\n\n // API for metadata created by
invoking the decorators.\n const paramAnnotations = type.hasOwnProperty(PARAMETERS) && (type as
any)[PARAMETERS];\n const paramTypes = this._reflect && this._reflect.getOwnMetadata
&&\n this._reflect.getOwnMetadata('design:paramtypes', type);\n if (paramTypes || paramAnnotations) {\n
return this._zipTypesAndAnnotations(paramTypes, paramAnnotations);\n }\n\n // If a class has no decorators, at
least create metadata\n // based on function.length.\n // Note: We know that this is a real constructor as we
checked\n // the content of the constructor above.\n return newArray<any[]>(type.length);\n }\n\n
parameters(type: Type<any>): any[][] {\n // Note: only report metadata if we have at least one class decorator\n
// to stay in sync with the static reflector.\n if (!isType(type)) {\n return [];\n }\n const parentCtor =
getParentCtor(type);\n let parameters = this._ownParameters(type, parentCtor);\n if (!parameters && parentCtor
!== Object) {\n parameters = this.parameters(parentCtor);\n }\n return parameters || [];\n }\n\n private
_ownAnnotations(typeOrFunc: Type<any>, parentCtor: any):
any[]|null {\n // Prefer the direct API.\n if ((<any>typeOrFunc).annotations && (<any>typeOrFunc).annotations
!== parentCtor.annotations) {\n let annotations = (<any>typeOrFunc).annotations;\n if (typeof annotations
=== 'function' && annotations.annotations) {\n annotations = annotations.annotations;\n }\n return
annotations;\n }\n\n // API of tsickle for lowering decorators to properties on the class.\n if
((<any>typeOrFunc).decorators && (<any>typeOrFunc).decorators !== parentCtor.decorators) {\n return
convertTsickleDecoratorIntoMetadata((<any>typeOrFunc).decorators);\n }\n\n // API for metadata created by
invoking the decorators.\n if (typeOrFunc.hasOwnProperty(ANNOTATIONS)) {\n return (typeOrFunc as
any)[ANNOTATIONS];\n }\n return null;\n }\n\n annotations(typeOrFunc: Type<any>): any[] {\n if
(!isType(typeOrFunc)) {\n return [];\n }\n const parentCtor = getParentCtor(typeOrFunc);\n const
ownAnnotations
= this._ownAnnotations(typeOrFunc, parentCtor) || [];\n const parentAnnotations = parentCtor !== Object ?
this.annotations(parentCtor) : [];\n return parentAnnotations.concat(ownAnnotations);\n }\n\n private
_ownPropMetadata(typeOrFunc: any, parentCtor: any): {[key: string]: any[]}|null {\n // Prefer the direct API.\n
if ((<any>typeOrFunc).propMetadata &&\n (<any>typeOrFunc).propMetadata !== parentCtor.propMetadata) {\n
let propMetadata = (<any>typeOrFunc).propMetadata;\n if (typeof propMetadata === 'function' &&
propMetadata.propMetadata) {\n propMetadata = propMetadata.propMetadata;\n }\n return
propMetadata;\n }\n\n // API of tsickle for lowering decorators to properties on the class.\n if
((<any>typeOrFunc).propDecorators &&\n (<any>typeOrFunc).propDecorators !==
parentCtor.propDecorators) {\n const propDecorators = (<any>typeOrFunc).propDecorators;\n const
propMetadata = <{[key: string]: any[]}>{};\n
Object.keys(propDecorators).forEach(prop => {\n propMetadata[prop] =
convertTsickleDecoratorIntoMetadata(propDecorators[prop]);\n });\n return propMetadata;\n }\n\n // API
for metadata created by invoking the decorators.\n if (typeOrFunc.hasOwnProperty(PROP_METADATA)) {\n

```

```

return (typeOrFunc as any)[PROP_METADATA];\n }\n return null;\n }\n\n propMetadata(typeOrFunc: any):\n {[key: string]: any[]} {\n if (!isType(typeOrFunc)) {\n return {};\n }\n const parentCtor =\n getParentCtor(typeOrFunc);\n const propMetadata: {[key: string]: any[]} = {};\n if (parentCtor !== Object) {\n const parentPropMetadata = this.propMetadata(parentCtor);\n Object.keys(parentPropMetadata).forEach((propName) => {\n propMetadata[propName] =\n parentPropMetadata[propName];\n });\n }\n const ownPropMetadata = this._ownPropMetadata(typeOrFunc,\n parentCtor);\n if (ownPropMetadata) {\n Object.keys(ownPropMetadata).forEach((propName)\n => {\n const decorators: any[] = [];\n if (propMetadata.hasOwnProperty(propName)) {\n decorators.push(...propMetadata[propName]);\n }\n decorators.push(...ownPropMetadata[propName]);\n propMetadata[propName] = decorators;\n });\n }\n return propMetadata;\n }\n\n ownPropMetadata(typeOrFunc: any): {[key: string]: any[]} {\n if (!isType(typeOrFunc)) {\n return {};\n }\n return this._ownPropMetadata(typeOrFunc, getParentCtor(typeOrFunc)) || {};\n }\n\n hasLifecycleHook(type: any,\n lcProperty: string): boolean {\n return type instanceof Type && lcProperty in type.prototype;\n }\n\n guards(type: any): {[key: string]: any} {\n return {};\n }\n\n getter(name: string): GetterFn {\n return\n <GetterFn>new Function('o', 'return o.' + name + ';');\n }\n\n setter(name: string): SetterFn {\n return\n <SetterFn>new Function('o', 'v', 'return o.' + name + ' = v;');\n }\n\n method(name: string): MethodFn {\n const functionBody = `if (!o.${name}) throw new Error(`"${name}" is undefined`);\n return\n o.${name}.apply(o, args);`;\n return <MethodFn>new Function('o', 'args', functionBody);\n }\n\n // There is not a\n concept of import uri in Js, but this is useful in developing Dart applications.\n importUri(type: any): string {\n //\n StaticSymbol\n if (typeof type === 'object' && type['filePath']) {\n return type['filePath'];\n }\n // Runtime\n type\n return `./${stringify(type)}`;\n }\n\n resourceUri(type: any): string {\n return `./${stringify(type)}`;\n }\n\n resolveIdentifier(name: string, moduleUrl: string, members: string[], runtime: any): any {\n return\n runtime;\n }\n\n resolveEnum(enumIdentifier: any, name: string): any {\n return enumIdentifier[name];\n }\n\n\nfunction convertTsickleDecoratorIntoMetadata(decoratorInvocations: any[]): any[] {\n if\n (!decoratorInvocations) {\n return [];\n }\n return decoratorInvocations.map(decoratorInvocation\n => {\n const decoratorType = decoratorInvocation.type;\n const annotationCls =\n decoratorType.annotationCls;\n const annotationArgs = decoratorInvocation.args ? decoratorInvocation.args : [];\n return new annotationCls(...annotationArgs);\n });\n}\n\nfunction getParentCtor(ctor: Function): Type<any> {\n const parentProto = ctor.prototype ? Object.getPrototypeOf(ctor.prototype) : null;\n const parentCtor = parentProto\n ? parentProto.constructor : null;\n // Note: We always use `Object` as the null value\n // to simplify checking later\n on.\n return parentCtor || Object;\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\nimport { CompilerFacade, getCompilerFacade, R3DependencyMetadataFacade,\n R3ResolvedDependencyType } from '../compiler/compiler_facade';\nimport { Type } from\n '../interface/type';\n\nimport { ReflectionCapabilities } from '../reflection/reflection_capabilities';\nimport { Attribute, Host, Inject, Optional,\n Self, SkipSelf } from '../metadata';\n\nlet _reflect: ReflectionCapabilities | null = null;\n\nexport function getReflect():\n ReflectionCapabilities {\n return (_reflect = _reflect || new ReflectionCapabilities());\n }\n\nexport function\n reflectDependencies(type: Type<any>): R3DependencyMetadataFacade[] {\n return\n convertDependencies(getReflect().parameters(type));\n }\n\nexport function convertDependencies(deps: any[]):\n R3DependencyMetadataFacade[] {\n const compiler = getCompilerFacade();\n return deps.map(dep =>\n reflectDependency(compiler, dep));\n }\n\nfunction reflectDependency(compiler: CompilerFacade, dep: any | any[]):\n R3DependencyMetadataFacade {\n const meta: R3DependencyMetadataFacade = {\n token: null,\n host:\n false,\n optional: false,\n resolved: compiler.R3ResolvedDependencyType.Token,\n self: false,\n skipSelf:\n false,\n };\n\n function\n setTokenAndResolvedType(token: any): void {\n meta.resolved =\n compiler.R3ResolvedDependencyType.Token;\n meta.token = token;\n }\n\n if (Array.isArray(dep) &&\n dep.length > 0) {\n for (let j = 0; j < dep.length; j++) {\n const param = dep[j];\n if (param === undefined)\n
```

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{\n // param may be undefined if type of dep is not set by ngtscl\n continue;\n }\n\n const proto =
Object.getPrototypeOf(param);\n\n if (param instanceof Optional || proto.ngMetadataName === 'Optional') {\n
 meta.optional = true;\n } else if (param instanceof SkipSelf || proto.ngMetadataName === 'SkipSelf') {\n
 meta.skipSelf = true;\n } else if (param instanceof Self || proto.ngMetadataName === 'Self') {\n
 meta.self = true;\n } else if (param instanceof Host || proto.ngMetadataName === 'Host') {\n
 meta.host = true;\n }
else if (param instanceof Inject) {\n
 meta.token = param.token;\n } else if (param instanceof
Attribute) {\n
 if (param.attributeName === undefined) {\n
 throw new Error('Attribute name must be
defined.');();\n\n function
cachedResourceResolve(url: string): Promise<string> {\n let promise = urlMap.get(url);\n if (!promise) {\n
const resp = resourceResolver(url);\n urlMap.set(url, promise = resp.then(unwrapResponse));\n }\n return
promise;\n }\n\n componentResourceResolutionQueue.forEach((component: Component, type: Type<any>)\n
=> {\n const promises: Promise<void>[] = [];\n if (component.templateUrl) {\n
promises.push(cachedResourceResolve(component.templateUrl).then((template) => {\n component.template =
template;\n }));\n }\n const styleUrls = component.styleUrls;\n const styles = component.styles ||
(component.styles = []);\n const styleOffset = component.styles.length;\n styleUrls &&
styleUrls.forEach((styleUrl, index) => {\n styles.push(""); // pre-allocate array.\n
promises.push(cachedResourceResolve(styleUrl).then((style) => {\n styles[styleOffset + index] = style;\n
styleUrls.splice(styleUrls.indexOf(styleUrl), 1);\n if (styleUrls.length === 0) {\n component.styleUrls =
undefined;\n }\n }));\n });\n const fullyResolved = Promise.all(promises).then(() =>
componentDefResolved(type));\n componentResolved.push(fullyResolved);\n });\n clearResolutionOfComponentResourcesQueue();\n return Promise.all(componentResolved).then(()\n
=> undefined);\n}\n\nlet componentResourceResolutionQueue = new Map<Type<any>, Component>();\n\n// Track
when existing cmp for a Type is waiting on resources.\n\nconst componentDefPendingResolution = new
Set<Type<any>>();\n\nexport function maybeQueueResolutionOfComponentResources(type: Type<any>,

```



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metadata: Component) {\n if (componentNeedsResolution(metadata)) {\n
componentResourceResolutionQueue.set(type, metadata);\n componentDefPendingResolution.add(type);\n
}\n}\n\nexport function isComponentDefPendingResolution(type: Type<any>): boolean {\n return
componentDefPendingResolution.has(type);\n}\n\nexport function componentNeedsResolution(component:
Component): boolean {\n return !(\n (component.templateUrl && !component.hasOwnProperty('template')) ||\n
component.styleUrls && component.styleUrls.length);\n}\n\nexport function
clearResolutionOfComponentResourcesQueue(): Map<Type<any>, Component> {\n const old =
componentResourceResolutionQueue;\n
componentResourceResolutionQueue = new Map();\n return old;\n}\n\nexport function
restoreComponentResolutionQueue(queue: Map<Type<any>, Component>): void {\n
componentDefPendingResolution.clear();\n queue.forEach((_, type) =>
componentDefPendingResolution.add(type));\n componentResourceResolutionQueue = queue;\n}\n\nexport
function isComponentResourceResolutionQueueEmpty() {\n return componentResourceResolutionQueue.size ===
0;\n}\n\nfunction unwrapResponse(response: string|{text(): Promise<string>}): string|Promise<string> {\n return
typeof response == 'string' ? response : response.text();\n}\n\nfunction componentDefResolved(type: Type<any>):
void {\n componentDefPendingResolution.delete(type);\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\n**\n * Defines template and style encapsulation options available
for Component's { @link Component}.\n * See { @link Component#encapsulation encapsulation}.\n * \n\n *
@usageNotes\n * ### Example\n * { @example core/ts/metadata/encapsulation.ts region='longform'}\n * \n\n *
@publicApi\n * \n\nexport enum ViewEncapsulation {\n /**\n * Emulate `Native` scoping of styles by adding an
attribute containing surrogate id to the Host\n * Element and pre-processing the style rules provided via { @link
Component#styles styles} or\n * { @link Component#styleUrls styleUrls}, and adding the new Host Element
attribute to all\n * selectors.\n * \n\n * This is the default option.\n * \n\n Emulated = 0,\n\n // Historically the 1
value was for `Native` encapsulation which has been removed as of v11.\n\n /**\n * Don't provide any template or
style encapsulation.\n * \n\n None = 2,\n\n /**\n * Use Shadow DOM to encapsulate styles.\n * \n\n * For the
DOM this means using modern [Shadow\n * DOM](https://w3c.github.io/webcomponents/spec/shadow/) and\n
* creating a ShadowRoot for Component's Host Element.\n * \n\n ShadowDom = 3\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nimport {global} from
'./global';\n\ndeclare global {\n /**\n * Values of ngDevMode\n * Depending on the current state of the
application, ngDevMode may have one of several values.\n * \n\n * For convenience, the “truthy” value which
enables dev mode is also an object which contains\n * Angular’s performance counters. This is not necessary, but
cuts down on boilerplate for the\n * perf counters.\n * \n\n * ngDevMode may also be set to false. This can happen
in one of a few ways:\n * - The user explicitly sets `window.ngDevMode = false` somewhere in their app.\n * -
The user calls `enableProdMode()`. \n * - The URL contains a `ngDevMode=false` text.\n * Finally, ngDevMode
may not
have been defined at all.\n * \n\n const ngDevMode: null|NgDevModePerfCounters;\n\n interface
NgDevModePerfCounters {\n namedConstructors: boolean;\n firstCreatePass: number;\n tNode: number;\n
tView: number;\n rendererCreateTextNode: number;\n rendererSetText: number;\n rendererCreateElement:
number;\n rendererAddEventListener: number;\n rendererSetAttribute: number;\n rendererRemoveAttribute:
number;\n rendererSetProperty: number;\n rendererSetClassName: number;\n rendererAddClass: number;\n
rendererRemoveClass: number;\n rendererSetStyle: number;\n rendererRemoveStyle: number;\n
rendererDestroy: number;\n rendererDestroyNode: number;\n rendererMoveNode: number;\n
rendererRemoveNode: number;\n rendererAppendChild: number;\n rendererInsertBefore: number;\n
rendererCreateComment: number;\n }\n}\n\nexport function ngDevModeResetPerfCounters():
NgDevModePerfCounters {\n const locationString = typeof location !== 'undefined'

```

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? location.toString() : ";
const newCounters: NgDevModePerfCounters = {
 namedConstructors:
locationString.indexOf('ngDevMode=namedConstructors') !== -1,
 firstCreatePass: 0,
 tNode: 0,
 tView: 0,
 rendererCreateTextNode: 0,
 rendererSetText: 0,
 rendererCreateElement: 0,
 rendererAddEventListener: 0,
 rendererSetAttribute: 0,
 rendererRemoveAttribute: 0,
 rendererSetProperty: 0,
 rendererSetClassName: 0,
 rendererAddClass: 0,
 rendererRemoveClass: 0,
 rendererSetStyle: 0,
 rendererRemoveStyle: 0,
 rendererDestroy: 0,
 rendererDestroyNode: 0,
 rendererMoveNode: 0,
 rendererRemoveNode: 0,
 rendererAppendChild: 0,
 rendererInsertBefore: 0,
 rendererCreateComment: 0,
};
// Make sure to refer to ngDevMode as ['ngDevMode'] for closure.
const allowNgDevModeTrue =
locationString.indexOf('ngDevMode=false') === -1;
global['ngDevMode'] = allowNgDevModeTrue &&
newCounters;
return
newCounters;
}

/**
 * This function checks to see if the `ngDevMode` has been set. If yes, then we honor
 * it, otherwise we default to dev mode with additional checks.
 *
 * The idea is that unless we are doing production
 * build where we explicitly set `ngDevMode === false` we should be helping the developer by providing
 * as much early warning and errors as possible.
 *
 * `defineComponent` is guaranteed to have been called before any
 * component template functions (and thus Ivy instructions), so a single initialization there is sufficient to ensure
 * ngDevMode is defined for the entire instruction set.
 *
 * When checking `ngDevMode` on toplevel, always
 * init it before referencing it (e.g. `((typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode())`),
 * otherwise you can get a `ReferenceError` like in https://github.com/angular/angular/issues/31595.
 *
 * Details on possible values for `ngDevMode` can be found on its docstring.
 *
 * NOTE:
 * - changes to the `ngDevMode` name must be synced with `compiler-cli/src/tooling.ts`.
 *
 * @export function
 * initNgDevMode(): boolean {
 * // The below checks are to ensure that calling `initNgDevMode` multiple times does
 * // not reset the counters.
 * // If the `ngDevMode` is not an object, then it means we have not created the perf
 * // counters yet.
 * if (typeof ngDevMode === 'undefined' || ngDevMode) {
 * if (typeof ngDevMode !== 'object') {
 * ngDevModeResetPerfCounters();
 * }
 * return typeof ngDevMode !== 'undefined' && !!ngDevMode;
 * }
 * return false;
 * }

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 */
import {initNgDevMode} from './util/ng_dev_mode';

/**
 * This file contains reusable "empty" symbols
 * that can be used as default return values in different parts of the rendering code. Because
 * the same symbols are returned, this allows for identity checks against these values to be consistently used by the
 * framework code.
 */
export const EMPTY_OBJ: {} = {};
export const EMPTY_ARRAY: any[] = [];

// freezing the values prevents any code from accidentally inserting new values in
if ((typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode()) {
 // These property accesses can be ignored because
 ngDevMode will be set to false when optimizing code and the whole if statement will be dropped.
 // tslint:disable-next-line:no-toplevel-property-access
 Object.freeze(EMPTY_OBJ);
 // tslint:disable-next-line:no-toplevel-property-access
 Object.freeze(EMPTY_ARRAY);
}

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 * the LICENSE file at https://angular.io/license
 */
import {getClosureSafeProperty} from
'./util/property';

export
const NG_COMP_DEF = getClosureSafeProperty({cmp: getClosureSafeProperty});
export const NG_DIR_DEF =
getClosureSafeProperty({dir: getClosureSafeProperty});
export const NG_PIPE_DEF =
getClosureSafeProperty({pipe: getClosureSafeProperty});
export const NG_MOD_DEF =
getClosureSafeProperty({mod: getClosureSafeProperty});
export const NG_LOC_ID_DEF =
getClosureSafeProperty({loc: getClosureSafeProperty});
export const NG_FACTORY_DEF =
getClosureSafeProperty({fac: getClosureSafeProperty});

/**
 * If a directive is diPublic, bloomAdd sets a
 * property on the type with this constant as the key and the directive's unique ID as the value. This allows us to
 * map directives to their bloom filter bit for DI.
 */
// TODO(misko): This is wrong. The NG_ELEMENT_ID
// should never be minified.
export const NG_ELEMENT_ID = getClosureSafeProperty({__NG_ELEMENT_ID__:
getClosureSafeProperty});

/**
 * @license
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 * Use of this

```

source

```
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n\n *\\n\\nimport { ChangeDetectionStrategy } from './change_detection/constants';\\nimport { Mutable, Type } from\n './interface/type';\\nimport { NgModuleDef, NgModuleType } from './metadata/ng_module_def';\\nimport\n { SchemaMetadata } from './metadata/schema';\\nimport { ViewEncapsulation } from './metadata/view';\\nimport\n { noSideEffects } from './util/closure';\\nimport { initNgDevMode } from './util/ng_dev_mode';\\nimport { stringify }\n from './util/stringify';\\nimport { EMPTY_ARRAY, EMPTY_OBJ } from './empty';\\nimport { NG_COMP_DEF,\n NG_DIR_DEF, NG_LOC_ID_DEF, NG_MOD_DEF, NG_PIPE_DEF } from './fields';\\nimport { ComponentDef,\n ComponentDefFeature, ComponentTemplate, ComponentType, ContentQueriesFunction, DirectiveDef,\n DirectiveDefFeature, DirectiveTypesOrFactory, HostBindingsFunction, PipeDef, PipeTypesOrFactory,\n ViewQueriesFunction } from './interfaces/definition';\\nimport { AttributeMarker, TAttributes,\n TConstantsOrFactory } from './interfaces/node';\\nimport { CssSelectorList, SelectorFlags } from\n './interfaces/projection';\\n\\n\\nlet _renderCompCount = 0;\\n\\n// While these types are unused here, they are required\n so that types don't\\n// get resolved lazily. see: https://github.com/Microsoft/web-build-tools/issues/1050\\ntype\n _web_build_tools_issue_1050_SelectorFlags = SelectorFlags;\\ntype\n _web_build_tools_issue_1050_AttributeMarker = AttributeMarker;\\n\\n/**\\n * Create a component definition\n object.\\n *\\n * # Example\\n * ```\\n * class MyDirective {\\n * // Generated by Angular Template Compiler\\n * // [Symbol] syntax will not be supported by TypeScript until v2.7\\n * static cmp = defineComponent({\\n * ...\\n * });\\n * }\\n * ```\\n * @codeGenApi\\n * \\nexport function defineComponent<T>(componentDefinition: {\\n * /**\\n * Directive type, needed to configure the injector.\\n * \\n type: Type<T>;\\n * \\n /** The selectors that will be used to\n match nodes to this component.\n\n * \\n selectors?: CssSelectorList;\\n * \\n /**\\n * The number of nodes, local refs, and pipes in this component\n template.\\n * \\n * Used to calculate the length of this component's LView array, so we\\n * can pre-fill the array\n and set the binding start index.\\n * \\n // TODO(kara): remove queries from this count\\n decls: number;\\n * \\n /**\\n * The number of bindings in this component template (including pure fn bindings).\\n * \\n * Used to calculate the\n length of this component's LView array, so we\\n * can pre-fill the array and set the host binding start index.\\n * \\n\n vars: number;\\n * \\n /**\\n * A map of input names.\\n * \\n * The format is in: `{[actualPropertyName:\n string]:(string|[string, string])}`.\\n * \\n * Given:\\n * ```\\n * class MyComponent {\\n * @Input()\\n * publicInput1: string;\\n * @Input('publicInput2')\\n * declaredInput2: string;\\n * }\\n * ```\\n * \\n * is\n described as:\\n * ```\\n * {\\n * publicInput1: 'publicInput1',\\n\n * declaredInput2: ['publicInput2', 'declaredInput2'],\\n * }\\n * ```\\n * \\n * Which the minifier may translate\n to:\\n * ```\\n * {\\n * minifiedPublicInput1: 'publicInput1',\\n * minifiedDeclaredInput2: ['publicInput2',\n 'declaredInput2'],\\n * }\\n * ```\\n * \\n * This allows the render to re-construct the minified, public, and declared\n names\\n * of properties.\\n * \\n * NOTE:\\n * - Because declared and public name are usually same we only\n generate the array\\n * - `['public', 'declared']` format when they differ.\\n * - The reason why this API and\n `outputs` API is not the same is that `NgOnChanges` has\\n * inconsistent behavior in that it uses declared names\n rather than minified or public. For\\n * this reason `NgOnChanges` will be deprecated and removed in future\n version and this\\n * API will be simplified to be consistent with `output`.\\n * \\n inputs?: {[P in keyof T]:\n string | [string, string]};\\n * \\n /**\\n * A map of output\n names.\\n * \\n * The format is in: `{[actualPropertyName: string]:string}`.\\n * \\n * Which the minifier may\n translate to: `{[minifiedPropertyName: string]:string}`.\\n * \\n * This allows the render to re-construct the minified\n and non-minified names\\n * of properties.\\n * \\n outputs?: {[P in keyof T]: string};\\n * \\n /**\\n * Function\n executed by the parent template to allow child directive to apply host bindings.\\n * \\n hostBindings?:\n HostBindingsFunction<T>;\\n * \\n /**\\n * The number of bindings in this directive `hostBindings` (including pure fn\n bindings).\\n * \\n * Used to calculate the length of the component's LView array, so we\\n * can pre-fill the array\n and set the host binding start index.\\n * \\n hostVars?: number;\\n * \\n /**\\n * Assign static attribute values to a host\n element.\\n * \\n * This property will assign static attribute values as well as class and style\\n * values to a host\n element. Since attribute values can consist of different types
```

of values, the `hostAttrs`` array must include the values in the following format:

```

 * `hostAttrs` array must include the values in the following format:
 * `attrs = [
 * // static attributes (like `title`, `name`, `id`...)
 * attr1, value1, attr2, value,
 * // a single namespace value (like `x:id`)
 * NAMESPACE_MARKER, namespaceUri1, name1, value1,
 * // another single namespace value (like `x:name`)
 * NAMESPACE_MARKER, namespaceUri2, name2, value2,
 * // a series of CSS classes that will be applied to the element (no spaces)
 * CLASSES_MARKER, class1, class2, class3,
 * // a series of CSS styles (property + value) that will be applied to the element
 * STYLES_MARKER, prop1, value1, prop2, value2
 *]
 * All non-class and non-style attributes must be defined at the start of the list
 * first before all class and style values are set. When there is a change in value
 * type (like when classes and styles are introduced) a marker must be used to separate
 * the entries. The marker values themselves are set via entries found in the
 * [AttributeMarker] enum.
 *
 * hostAttrs?: TAttributes;
 *
 * // Function to create instances of content queries associated with a given directive.
 * contentQueries?: ContentQueriesFunction<T>;
 *
 * // Defines the name that can be used in the template to assign this directive to a variable.
 * // See: {@link Directive.exportAs}
 * exportAs?: string[];
 *
 * // Template function use for rendering DOM.
 * // This function has following structure.
 *
 * ```
 * function Template<T>(ctx:T, creationMode: boolean) {
 * if (creationMode) {
 * // Contains creation mode instructions.
 * }
 * // Contains binding update instructions
 * }
 *
 * // Common instructions are:
 * // Creation mode instructions:
 * // - `elementStart`, `elementEnd`
 * // - `text`
 * // - `container`
 * // - `listener`
 * // Binding update instructions:
 * // - `bind`
 * // - `elementAttribute`
 * // - `elementProperty`
 * // - `elementClass`
 * // - `elementStyle`
 *
 * // template: ComponentTemplate<T>;
 *
 * // Constants for the nodes in the component's view.
 * // Includes attribute arrays, local definition arrays etc.
 *
 * const?: TConstantsOrFactory;
 *
 * // An array of `ngContent[selector]` values that were found in the template.
 *
 * // ngContentSelectors?: string[];
 *
 * // Additional set of instructions specific to view query processing. This could be seen as a
 * // set of instruction to be inserted into the template function.
 *
 * // Query-related instructions need to be pulled out to a specific function as a timing of
 * // execution is different as compared to all other instructions (after change detection hooks but
 * // before view hooks).
 *
 * // viewQuery?: ViewQueriesFunction<T> | null;
 *
 * // A list of optional features to apply.
 *
 * // See:
 * // {@link NgOnChangesFeature}, {@link ProvidersFeature}
 *
 * // features?: ComponentDefFeature[];
 *
 * // Defines template and style encapsulation options available for Component's
 * // {@link Component}.
 *
 * // encapsulation?: ViewEncapsulation;
 *
 * // Defines arbitrary developer-defined data to be stored on a renderer instance.
 * // This is useful for renderers that delegate to other renderers.
 *
 * // see: animation
 *
 * // data?: {[kind: string]: any};
 *
 * // A set of styles that the component needs to be present for component to render correctly.
 *
 * // styles?: string[];
 *
 * // The strategy that the default change detector uses to detect changes.
 * // When set, takes effect the next time change detection is triggered.
 *
 * // changeDetection?: ChangeDetectionStrategy;
 *
 * // Registry of directives and components that may be found in this component's view.
 *
 * // The property is either an array of `DirectiveDef`s or a function which returns the array of
 * // `DirectiveDef`s. The function is necessary to be able to support forward declarations.
 *
 * // directives?: DirectiveTypesOrFactory | null;
 *
 * // Registry of pipes that may be found in this component's view.
 *
 * // The property is either an array of `PipeDef`s or a function which returns the array of
 * // `PipeDef`s. The function is necessary to be able to support forward declarations.
 *
 * // pipes?: PipeTypesOrFactory | null;
 *
 * // The set of schemas that declare elements to be allowed in the component's template.
 *
 * // schemas?: SchemaMetadata[] | null;
 *
 * // never {
 * // return noSideEffects() => {
 * // // Initialize ngDevMode. This must be the first statement in defineComponent.
 * // // See the `initNgDevMode` docstring for more information.
 * // (typeof ngDevMode === 'undefined' || ngDevMode) &&
 * // initNgDevMode();
 * // const type = componentDefinition.type;
 * // const typePrototype = type.prototype;
 * // const declaredInputs: {[key: string]: string} = {} as any;
 * // const def: Mutable<ComponentDef<any>, keyof ComponentDef<any>> = {
 * // type: type,
 * // providersResolver: null,
 * // decls: componentDefinition.decls,
 * // vars: componentDefinition.vars,
 * // factory: null,
 *
```

```

 template: componentDefinition.template || null!,\n consts: componentDefinition.consts || null,\n
ngContentSelectors: componentDefinition.ngContentSelectors,\n hostBindings:
componentDefinition.hostBindings || null,\n hostVars: componentDefinition.hostVars || 0,\n
hostAttrs: componentDefinition.hostAttrs || null,\n contentQueries: componentDefinition.contentQueries ||
null,\n declaredInputs: declaredInputs,\n inputs: null!, // assigned in noSideEffects\n outputs:
null!, // assigned in noSideEffects\n
 exportAs: componentDefinition.exportAs || null,\n onPush: componentDefinition.changeDetection ===
ChangeDetectionStrategy.OnPush,\n directiveDefs: null!, // assigned in noSideEffects\n pipeDefs:
null!, // assigned in noSideEffects\n selectors: componentDefinition.selectors || EMPTY_ARRAY,\n
 viewQuery: componentDefinition.viewQuery || null,\n features: componentDefinition.features as
DirectiveDefFeature[] || null,\n data: componentDefinition.data || {},\n // TODO(misko): convert
ViewEncapsulation into const enum so that it can be used\n // directly in the next line. Also `None` should be
0 not 2.\n encapsulation: componentDefinition.encapsulation || ViewEncapsulation.Emulated,\n id:
'c',\n styles: componentDefinition.styles || EMPTY_ARRAY,\n _: null as never,\n setInput:
null,\n schemas: componentDefinition.schemas
|| null,\n tView: null,\n };
const directiveTypes = componentDefinition.directives!;\n
const feature = componentDefinition.features;\n const pipeTypes = componentDefinition.pipes!;\n
def.id += _renderCompCount++;
def.inputs = invertObject(componentDefinition.inputs, declaredInputs);\n
 def.outputs = invertObject(componentDefinition.outputs),\n feature && feature.forEach((fn) =>
fn(def));
def.directiveDefs = directiveTypes ?\n () => (typeof directiveTypes === 'function' ?
directiveTypes() : directiveTypes)\n .map(extractDirectiveDef) :\n null;\n
def.pipeDefs = pipeTypes ?\n () =>\n (typeof pipeTypes === 'function' ? pipeTypes() :
pipeTypes).map(extractPipeDef) :\n null;\n\n return def as never;\n }) as never;\n}\n\n/**\n *
Generated next to

```

NgModules to monkey-patch directive and pipe references onto a component's\n \* definition, when generating a direct reference in the component file would otherwise create an\n \* import cycle.\n \* See [this explanation](https://hackmd.io/Odw80D0pR6yfsOjg\_7XCJg?view) for more details.\n \* @codeGenApi\n \* ^\nexport function setComponentScope(\n type: ComponentType<any>, directives: Type<any>[], pipes: Type<any>[]): void {\n const def = (type.cmp as ComponentDef<any>);\n def.directiveDefs = () => directives.map(extractDirectiveDef);\n def.pipeDefs = () => pipes.map(extractPipeDef);\n}\n\nexport function extractDirectiveDef(type: Type<any>): DirectiveDef<any>|ComponentDef<any> {\n const def = getComponentDef(type) || getDirectiveDef(type);\n if (ngDevMode && !def) {\n throw new Error(`\$\${type.name}` is neither 'ComponentType' or 'DirectiveType'.`);\n }\n return def!;\n}\n\nexport function extractPipeDef(type: Type<any>): PipeDef<any> {\n const def = getPipeDef(type);\n if (ngDevMode && !def) {\n throw new Error(`\$\${type.name}` is not a 'PipeType'.`);\n }\n return def!;\n}\n\nexport const autoRegisterModuleById: {[id: string]: NgModuleType} = {};\n\n/\*\*\n \* ^\nexport function defineNgModule<T>(def: {\n /\*\* Token representing the module. Used by DI. \*/\n type: T;\n /\*\* List of components to bootstrap. \*/\n bootstrap?: Type<any>[] | (() => Type<any>[]);\n /\*\* List of components, directives, and pipes declared by this module. \*/\n declarations?: Type<any>[] | (() => Type<any>[]);\n /\*\* List of modules or `ModuleWithProviders` imported by this module. \*/\n imports?: Type<any>[] | (() => Type<any>[]);\n /\*\* List of modules, `ModuleWithProviders`, components, directives, or pipes exported by this\n \* module.\n \*/\n exports?: Type<any>[] | (() => Type<any>[]);\n /\*\* The set of schemas that declare elements to be allowed in the NgModule. \*/\n schemas?: SchemaMetadata[] | null;\n /\*\* Unique ID for the module that is used with `getModuleFactory`. \*/\n id?: string | null;\n}): never {\n const res: NgModuleDef<T> = {\n type: def.type,\n bootstrap: def.bootstrap || EMPTY\_ARRAY,\n declarations: def.declarations || EMPTY\_ARRAY,\n imports: def.imports || EMPTY\_ARRAY,\n exports: def.exports || EMPTY\_ARRAY,\n transitiveCompileScopes: null,\n schemas: def.schemas || null,\n id: def.id || null,\n };\n if (def.id != null) {\n

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noSideEffects() => {\n autoRegisterModuleById[def.id!] = def.type as unknown as NgModuleType;\n }\n }\n return res as never;\n}\n\n/**\n * Adds the module metadata that is necessary to compute the module's transitive scope to an\n * existing module definition.\n *\n * Scope metadata of modules is not used in production builds, so calls to this function can be\n * marked pure to tree-shake it from the bundle, allowing for all referenced declarations\n * to become eligible for tree-shaking as well.\n *\n * @codeGenApi\n */\nexport function setNgModuleScope(type: any, scope: {\n /** List of components, directives, and pipes declared by this module. *\n declarations?: Type<any>[] | (() => Type<any>[]);\n /** List of modules or `ModuleWithProviders` imported by this module. *\n imports?: Type<any>[] | (() => Type<any>[]);\n /** List of modules, `ModuleWithProviders`, components, directives, or pipes exported by this\n * module.\n *\n exports?: Type<any>[] | (() => Type<any>[]);\n}): void {\n return noSideEffects() => {\n const ngModuleDef = getNgModuleDef(type, true);\n ngModuleDef.declarations = scope.declarations || EMPTY_ARRAY;\n ngModuleDef.imports = scope.imports || EMPTY_ARRAY;\n ngModuleDef.exports = scope.exports || EMPTY_ARRAY;\n }) as never;\n}\n\n/**\n * Inverts an inputs or outputs lookup such that the keys, which were the\n * minified keys, are part of the values, and the values are parsed so that\n * the publicName of the property is the new key\n *\n * e.g. for\n *\n * class Comp {\n * @Input()\n * propName1: string;\n *\n * @Input('publicName2')\n * declaredPropName2: number;\n * }\n *\n * will be serialized as\n *\n * {\n * propName1: 'propName1',\n * declaredPropName2: ['publicName2', 'declaredPropName2'],\n * }\n *\n * which is then translated by the minifier as:\n *\n * {\n * minifiedPropName1: 'propName1',\n * minifiedPropName2: ['publicName2', 'declaredPropName2'],\n * }\n *\n * becomes: (public name => minifiedName)\n *\n * {\n * 'propName1': 'minifiedPropName1',\n * 'publicName2': 'minifiedPropName2',\n * }\n *\n * Optionally the function can take `secondary` which will result in: (public name => declared name)\n *\n * {\n * 'propName1': 'propName1',\n * 'publicName2': 'declaredPropName2',\n * }\n *\n */\nfunction invertObject<T>(\n obj?: {[P in keyof T]?: string | string[],\n secondary?: {[key: string]: string}}): {[P in keyof T]: string} {\n if (obj == null) return EMPTY_OBJ as any;\n const newLookup: any = {};\n for (const minifiedKey in obj) {\n if (obj.hasOwnProperty(minifiedKey)) {\n let publicName: string | [string, string] = obj[minifiedKey];\n let declaredName = publicName;\n if (Array.isArray(publicName)) {\n declaredName = publicName[1];\n publicName = publicName[0];\n }\n newLookup[publicName] = minifiedKey;\n if (secondary) {\n secondary[publicName] = declaredName as string;\n }\n }\n }\n return newLookup;\n}\n\n/**\n * Create a directive definition object.\n *\n * # Example\n *\n * class MyDirective {\n * // Generated by Angular Template Compiler\n * // [Symbol]\n * }\n *\n * syntax will not be supported by TypeScript until v2.7\n *\n * static dir = defineDirective({\n * ...,\n * });\n *\n */\nexport const defineDirective =\n defineComponent as any\nas<T>(\n directiveDefinition: {\n /**\n * Directive type, needed to configure the injector.\n *\n * type: Type<T>;\n *\n /**\n * The selectors that will be used to match nodes to this directive.\n *\n selectors?: CssSelectorList;\n *\n /**\n * A map of input names.\n *\n *\n /**\n * The format is in: `{actualPropertyName: string}: (string | [string, string])`\n *\n *\n Given:\n *\n class MyComponent {\n @Input()\n publicInput1: string;\n @Input('publicInput2')\n declaredInput2: string;\n }\n *\n is described as:\n *\n {\n publicInput1: 'publicInput1',\n declaredInput2: ['declaredInput2', 'publicInput2'],\n }\n *\n Which the minifier may translate to:\n *\n {\n minifiedPublicInput1: 'publicInput1',\n minifiedDeclaredInput2: ['publicInput2', 'declaredInput2'],\n }\n *\n This allows the render to re-construct the minified, public, and declared names\n of properties.\n *\n NOTE:\n - Because declared and public name are usually same we only generate the array\n `['declared', 'public']` format when they differ.\n - The reason why this API and `outputs` API is not the same is that `NgOnChanges` has\n inconsistent behavior in that it uses declared names rather than minified or public. For\n this reason `NgOnChanges` will be deprecated and removed in future version and this\n API will be simplified to be consistent with `output`.\n }\n)

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inputs?: {[P in keyof T]?: string | [string, string]};\n\n /**\n * A map of output names.\n *\n * The
format is in: {[actualPropertyName: string]: string}`.\n *\n * Which the minifier may translate to:
`${minifiedPropertyName:
string}:string}`.\n *\n * This allows the render to re-construct the minified and non-minified names\n *
of properties.\n */\n outputs?: {[P in keyof T]?: string};\n\n /**\n * A list of optional features to
apply.\n *\n * See: { @link NgOnChangesFeature }, { @link ProvidersFeature }, { @link
InheritDefinitionFeature }\n */\n features?: DirectiveDefFeature[];\n\n /**\n * Function executed by
the parent template to allow child directive to apply host bindings.\n *\n hostBindings?:
HostBindingsFunction<T>;\n\n /**\n * The number of bindings in this directive `hostBindings` (including
pure fn bindings).\n *\n * Used to calculate the length of the component's LView array, so we\n * can
pre-fill the array and set the host binding start index.\n *\n hostVars?: number;\n\n /**\n * Assign
static attribute values to a host element.\n *\n * This property
will assign static attribute values as well as class and style\n * values to a host element. Since attribute values
can consist of different types of values,\n * the `hostAttrs` array must include the values in the following
format:\n *\n * attrs = [\n * // static attributes (like `title`, `name`, `id`...)\n * attr1, value1, attr2,
value,\n * // a single namespace value (like `x:id`)\n * NAMESPACE_MARKER, namespaceUri1,
name1, value1,\n * // another single namespace value (like `x:name`)\n * NAMESPACE_MARKER, namespaceUri2, name2, value2,\n * // a series of CSS classes that will be
applied to the element (no spaces)\n * CLASSES_MARKER, class1, class2, class3,\n * // a series
of CSS styles (property + value) that will be applied to the element\n * STYLES_MARKER, prop1, value1,
prop2, value2\n *]\n *\n * All non-class and non-style
attributes must be defined at the start of the list\n * first before all class and style values are set. When there is a
change in value\n * type (like when classes and styles are introduced) a marker must be used to separate\n *
the entries. The marker values themselves are set via entries found in the\n * [AttributeMarker] enum.\n */\n hostAttrs?: TAttributes;\n\n /**\n * Function to create instances of content queries associated with a given
directive.\n *\n contentQueries?: ContentQueriesFunction<T>;\n\n /**\n * Additional set of
instructions specific to view query processing. This could be seen as a\n * set of instructions to be inserted into
the template function.\n *\n viewQuery?: ViewQueriesFunction<T>| null;\n\n /**\n * Defines the
name that can be used in the template to assign this directive to a variable.\n *\n * See: { @link
Directive.exportAs }\n */\n exportAs?: string[];\n }) => never;\n\n /**\n * Create a pipe definition object.\n *\n * # Example\n * ```\n * class MyPipe implements PipeTransform {\n * // Generated by Angular Template Compiler\n * static pipe =
definePipe({\n * ... \n * });\n * }\n * ```\n * @param pipeDef Pipe definition generated by the compiler\n *
@codeGenApi\n */\n @next export function definePipe<T>(pipeDef: {\n /** Name of the pipe. Used for matching pipes in
template to pipe defs. *\n name: string;\n /** Pipe class reference. Needed to extract pipe lifecycle hooks. *\n type: Type<T>;\n /** Whether the pipe is pure. *\n pure?: boolean\n }): never {\n return (<PipeDef<T>>{\n type: pipeDef.type,\n name: pipeDef.name,\n factory: null,\n pure: pipeDef.pure !== false,\n onDestroy: pipeDef.type.prototype.ngOnDestroy || null\n }) as never;\n })\n\n /**\n * The following getter
methods retrieve the definition form the type. Currently
the retrieval\n * honors inheritance, but in the future we may change the rule to require that definitions are\n *
explicit. This would require some sort of migration strategy.\n */\n @next export function getComponentDef<T>(type:
any): ComponentDef<T>|null {\n return type[NG_COMP_DEF] || null;\n }\n\n @next export function
getDirectiveDef<T>(type: any): DirectiveDef<T>|null {\n return type[NG_DIR_DEF] || null;\n }\n\n @next export function
getPipeDef<T>(type: any): PipeDef<T>|null {\n return type[NG_PIPE_DEF] || null;\n }\n\n @next export function
getNgModuleDef<T>(type: any, throwNotFound: true): NgModuleDef<T>;\n\n @next export function
getNgModuleDef<T>(type: any): NgModuleDef<T>|null;\n\n @next export function getNgModuleDef<T>(type: any,
throwNotFound?: boolean): NgModuleDef<T>|null {\n const ngModuleDef = type[NG_MOD_DEF] || null;\n if
(!ngModuleDef && throwNotFound === true) {\n throw new Error(`Type ${stringify(type)} does not have 'mod'

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property.);\n }\n return ngModuleDef;\n}\n\n\nexport function getNgLocaleIdDef(type:
any): string|null {\n return (type as any)[NG_LOC_ID_DEF] || null;\n}\n\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\n/*\n * Used for stringify render output in Ivy.\n *
Important! This function is very performance-sensitive and we should\n * be extra careful not to introduce
megamorphic reads in it.\n *\n\nexport function renderStringify(value: any): string {\n if (typeof value === 'string')
return value;\n if (value == null) return ";\n return " + value;\n}\n\n\n\n/*\n * Used to stringify a value so that it can
be displayed in an error message.\n * Important! This function contains a megamorphic read and should only be\n *
used for error messages.\n *\n\nexport function stringifyForError(value: any): string {\n if (typeof value ===
'function') return value.name || value.toString();\n if (typeof value ===
'object' && value != null && typeof value.type === 'function') {\n return value.type.name ||
value.type.toString();\n }\n\n return renderStringify(value);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\n\n\n/*\n * Injection flags for DI.\n *\n * @publicApi\n *\n\nexport
enum InjectFlags {\n // TODO(alxhub): make this 'const' when ngc no longer writes exports of it into ngfactory
files.\n\n /** Check self and check parent injector if needed *\n Default = 0b0000,\n /**\n * Specifies that an
injector should retrieve a dependency from any injector until reaching the\n * host element of the current
component. (Only used with Element Injector)\n *\n Host = 0b0001,\n /** Don't ascend to ancestors of the node
requesting injection. *\n Self = 0b0010,\n /** Skip the node that is requesting injection. *\n
SkipSelf = 0b0100,\n /** Inject `defaultValue` instead if token not found. *\n Optional = 0b1000,\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n\nimport {Type} from
'./interface/type';\nimport {assertNotEqual} from './util/assert';\nimport {stringify} from './util/stringify';\nimport
{InjectionToken} from './injection_token';\nimport {getInjectableDef, InjectableDef} from './interface/defs';\nimport
{InjectFlags} from './interface/injector';\n\n\n\n/*\n * Current implementation of inject.\n *\n * By default, it is
`injectInjectorOnly`, which makes it `Injector`-only aware. It can be changed\n * to `directiveInject`, which brings
in the `NodeInjector` system of ivy. It is designed this\n * way for two reasons:\n * 1. `Injector` should not depend
on ivy logic.\n * 2. To maintain tree shake-ability we don't want
to bring in unnecessary code.\n *\n\nlet _injectImplementation: (<T>(token: Type<T>|InjectionToken<T>, flags?:
InjectFlags) => T | null)|\n undefined;\n\nexport function getInjectImplementation() {\n return
_injectImplementation;\n}\n\n\n\n/*\n * Sets the current inject implementation.\n *\n\nexport function
setInjectImplementation(\n impl: (<T>(token: Type<T>|InjectionToken<T>, flags?: InjectFlags) => T | null)|\n
undefined): (<T>(token: Type<T>|InjectionToken<T>, flags?: InjectFlags) => T | null)|\n undefined {\n const
previous = _injectImplementation;\n _injectImplementation = impl;\n return previous;\n}\n\n\n\n\n/*\n * Injects
`root` tokens in limp mode.\n *\n * If no injector exists, we can still inject tree-shakable providers which have
`providedIn` set to\n * `\"root\"`. This is known as the limp mode injection. In such case the value is stored in the\n
* `InjectableDef`.\n *\n\nexport function injectRootLimpMode<T>(\n token: Type<T>|InjectionToken<T>,
notFoundValue: T|undefined,
flags: InjectFlags): T|null {\n const injectableDef: InjectableDef<T>|null = getInjectableDef(token);\n if
(injectableDef && injectableDef.providedIn == 'root') {\n return injectableDef.value === undefined ?
injectableDef.value = injectableDef.factory() : \n injectableDef.value;\n }\n if (flags &
InjectFlags.Optional) return null;\n if (notFoundValue !== undefined) return notFoundValue;\n throw new
Error(`Injector: NOT_FOUND [${stringify(token)}]`);\n}\n\n\n\n\n\n/*\n * Assert that `_injectImplementation` is not
`fn`.\n *\n * This is useful, to prevent infinite recursion.\n *\n * @param fn Function which it should not equal to\n
*\n\nexport function assertInjectImplementationNotEqual(\n fn: (<T>(token: Type<T>|InjectionToken<T>, flags?:
InjectFlags) => T | null)) {\n ngDevMode &&\n assertNotEqual(_injectImplementation, fn, 'Calling inject would
cause infinite recursion');\n}\n\n", "/*\n * @license\n * Copyright Google LLC

```



All Rights Reserved.

```

 * Use of this source code is governed by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 *
 * \nimport './util/ng_dev_mode';
 * \nimport {Type} from './interface/type';
 * \nimport {getClosureSafeProperty} from './util/property';
 * \nimport {stringify} from './util/stringify';
 * \nimport {resolveForwardRef} from './forward_ref';
 * \nimport {getInjectImplementation, injectRootLimpMode} from './inject_switch';
 * \nimport {InjectionToken} from './injection_token';
 * \nimport {Injector} from './injector';
 * \nimport {InjectFlags} from './interface/injector';
 * \nimport {ValueProvider} from './interface/provider';
 * \nimport {Inject, Optional, Self, SkipSelf} from './metadata';
 * \n\nconst _THROW_IF_NOT_FOUND = {};
 * \nexport const THROW_IF_NOT_FOUND = _THROW_IF_NOT_FOUND;
 * \nexport const NG_TEMP_TOKEN_PATH = 'ngTempTokenPath';
 * \nconst NG_TOKEN_PATH = 'ngTokenPath';
 * \nconst NEW_LINE = /\n/gm;
 * \nconst NO_NEW_LINE = "";
 * \nexport const SOURCE = '__source';
 * \n\nexport const USE_VALUE = \n getClosureSafeProperty<ValueProvider>({provide: String, useValue:
 * \n getClosureSafeProperty});
 * \n\n * Current injector value used by `inject`.
 * \n * - `undefined`: it is an error to call `inject`
 * \n * - `null`: `inject` can be called but there is no injector (limp-mode).
 * \n * - Injector instance: Use the injector for resolution.
 * \n * \nlet _currentInjector: Injector|undefined|null = undefined;
 * \n\nexport function setCurrentInjector(injector: Injector|null|undefined): Injector|undefined|null {
 * \n const former = _currentInjector;
 * \n _currentInjector = injector;
 * \n return former;
 * \n}
 * \n\nexport function injectInjectorOnly<T>(token: Type<T>|InjectionToken<T>: T;
 * \n flags?: InjectFlags): T|
 * \n null;
 * \nexport function injectInjectorOnly<T>(\n token: Type<T>|InjectionToken<T>,
 * \n flags = InjectFlags.Default): T|null {
 * \n if (_currentInjector === undefined) {
 * \n throw new Error('inject() must be called from an injection context');
 * \n } else if (_currentInjector === null) {
 * \n return injectRootLimpMode(token, undefined, flags);
 * \n } else {
 * \n return _currentInjector.get(token, flags & InjectFlags.Optional ? null : undefined, flags);
 * \n }
 * \n}
 * \n\n * Generated instruction: Injects a token from the currently active injector.
 * \n * Must be used in the context of a factory function such as one defined for an
 * \n * `InjectionToken`. Throws an error if not called from such a context.
 * \n * (Additional documentation moved to `inject`, as it is the public API, and an alias for this
 * \n * instruction)
 * \n * @see inject
 * \n * @codeGenApi
 * \n * @publicApi This instruction has been emitted by ViewEngine for some time and is deployed to npm.
 * \n * \nexport function inject<T>(token: Type<T>|InjectionToken<T>: T;
 * \n flags?: InjectFlags): T;
 * \nexport function inject<T>(token: Type<T>|InjectionToken<T>, flags?: InjectFlags): T|null;
 * \nexport function inject<T>(token: T|null {
 * \n return (getInjectImplementation() || injectInjectorOnly)(resolveForwardRef(token), flags);
 * \n}
 * \n\n * Throws an error indicating that a factory function could not be generated by the compiler for a
 * \n * particular class.
 * \n * This instruction allows the actual error message to be optimized away when ngDevMode is turned
 * \n * off, saving bytes of generated code while still providing a good experience in dev mode.
 * \n * The name of the class is not mentioned here, but will be in the generated factory function name
 * \n * and thus in the stack trace.
 * \n * @codeGenApi
 * \n * \nexport function invalidFactoryDep(index: number): never {
 * \n const msg = ngDevMode ?
 * \n `This constructor is not compatible with Angular Dependency Injection because its dependency at index ${
 * \n index} of the parameter list is invalid.
 * \n This can happen if the dependency type is a primitive like a string or if an ancestor of this class is missing an Angular decorator.
 * \n Please check that 1) the type for the parameter at index ${
 * \n index} is correct and 2) the correct Angular decorators are defined for this class and its ancestors.` :
 * \n 'invalid';
 * \n throw new Error(msg);
 * \n}
 * \n\n * Injects a token from the currently active injector.
 * \n * Must be used in the context of a factory function such as one defined for an
 * \n * `InjectionToken`. Throws an error if not called from such a context.
 * \n * Within such a factory function, using this function to request injection of a dependency
 * \n * is faster and more type-safe than providing an additional array of dependencies
 * \n * (as has been common with `useFactory` providers).
 * \n * @param token The injection token for the dependency to be injected.
 * \n * @param flags Optional flags that control how injection is executed.
 * \n * The flags correspond to injection strategies that can be specified with
 * \n * parameter decorators `@Host`, `@Self`, `@SkipSelf`, and `@Optional`.
 * \n * @returns True if injection

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is successful, null otherwise.\n *\n * @usageNotes\n *\n * ### Example\n *\n * { @example
core/di/ts/injector_spec.ts region='ShakableInjectionToken'}\n *\n * @publicApi\n */\nexport const inject =
inject;\n\nexport function injectArgs(types: (Type<any>|InjectionToken<any>|any[])[]): any[] {\n const args:
any[] = [];\n for (let i = 0; i < types.length; i++) {\n const arg = resolveForwardRef(types[i]);\n if
(Array.isArray(arg)) {\n if (arg.length === 0) {\n throw new Error('Arguments array must have
arguments.');

```

```
'./../sanitization/sanitizer';\nimport {LContainer} from './container';\nimport {ComponentDef, ComponentTemplate, DirectiveDef, DirectiveDefList, HostBindingsFunction, PipeDef, PipeDefList, ViewQueriesFunction} from './definition';\nimport {I18nUpdateOpCodes, T118n, TIcu} from './i18n';\nimport {TConstants, TNode} from './node';\nimport {PlayerHandler} from './player';\nimport {LQueries, TQueries} from './query';\nimport {Renderer3, RendererFactory3} from './renderer';\nimport {RComment, RElement} from './renderer_dom';\nimport {TStylingKey, TStylingRange} from './styling';\n\n\n// Below are constants for LView indices to help us look up LView members\n// without
```

having to remember the specific indices.\n// Uglify will inline these when minifying so there shouldn't be a cost.\n\nexport const HOST = 0;\nexport const TVIEW = 1;\nexport const FLAGS = 2;\nexport const PARENT = 3;\nexport const NEXT = 4;\nexport const TRANSPLANTED\_VIEWS\_TO\_REFRESH = 5;\nexport const T\_HOST = 6;\nexport const CLEANUP = 7;\nexport const CONTEXT = 8;\nexport const INJECTOR = 9;\nexport const RENDERER\_FACTORY = 10;\nexport const RENDERER = 11;\nexport const SANITIZER = 12;\nexport const CHILD\_HEAD = 13;\nexport const CHILD\_TAIL = 14;\n\n// FIXME(misko): Investigate if the three declarations aren't all same thing.\nexport const DECLARATION\_VIEW = 15;\nexport const DECLARATION\_COMPONENT\_VIEW = 16;\nexport const DECLARATION\_LCONTAINER = 17;\nexport const PREORDER\_HOOK\_FLAGS = 18;\nexport const QUERIES = 19;\n\n/\*\*\n \* Size of LView's header. Necessary to adjust for it when setting slots.\n \* \n \* IMPORTANT: `HEADER\_OFFSET` should only be referred to the in the `\*` instructions

to translate\n \* instruction index into `LView` index. All other indexes should be in the `LView` index space and\n \* there should be no need to refer to `HEADER\_OFFSET` anywhere else.\n \* \nexport const HEADER\_OFFSET = 20;\n\n\n// This interface replaces the real LView interface if it is an arg or a\n// return value of a public instruction. This ensures we don't need to expose\n// the actual interface, which should be kept private.\nexport interface OpaqueViewState {\n \_\_brand\_\_: 'Brand for OpaqueViewState that nothing will match';\n}\n\n\n/\*\*\n \* `LView` stores all of the information needed to process the instructions as\n \* they are invoked from the template. Each embedded view and component view has its\n \* own `LView`. When processing a particular view, we set the `viewData` to that\n \* `LView`. When that view is done processing, the `viewData` is set back to\n \* whatever the original `viewData` was before (the parent `LView`).\n \* \n \* Keeping separate state for each view facilitates view insertion / deletion, so we\n \* don't have to edit the data array based on which views are present.\n \* \nexport interface LView extends Array<any> {\n /\*\*\n \* Human readable representation of the `LView`.\n \* \n \* NOTE: This property only exists if `ngDevMode` is set to `true` and it is not present in\n \* production. Its presence is purely to help debug issue in development, and should not be relied\n \* on in production application.\n \* \n debug?: LViewDebug;\n \n /\*\*\n \* The node into which this `LView` is inserted.\n \* \n [HOST]: RElement|null;\n \n /\*\*\n \* The static data for this view. We need a reference to this so we can easily walk up the\n \* node tree in DI and get the TView.data array associated with a node (where the\n \* directive defs are stored).\n \* \n [readonly][TVIEW]: TView;\n \n /\*\* Flags for this view. See LViewFlags for more info. \n [FLAGS]: LViewFlags;\n \n /\*\*\n \* This may store an { @link LView } or { @link LContainer }.\n \n \*\n \* `LView` - The parent view. This is needed when we exit the view and must restore the previous\n \* LView. Without this, the render method would have to keep a stack of\n \* views as it is recursively rendering templates.\n \*\n \* `LContainer` - The current view is part of a container, and is an embedded view.\n \*\n [PARENT]: LView|LContainer|null;\n \n /\*\*\n \*\n \* The next sibling LView or LContainer.\n \*\n \* Allows us to propagate between sibling view states that aren't in the same\n \* container. Embedded views already have a node.next, but it is only set for\n \* views in the same container. We need a way to link component views and views\n \* across containers as well.\n \*\n [NEXT]: LView|LContainer|null;\n \n /\*\* Queries active for this view - nodes from a view are reported to those queries. \n [QUERIES]: LQueries|null;\n \n /\*\*\n \*\n \* Store the `TNode` of the location where the current `LView` is inserted into.\n \*\n \* Given:\n \*\n \* ```\n \* <div>\n \* <ng-template><span></span></ng-template>\n \* </div>\n \* ```\n \*\n \* We end up with two `TView`s.\n \* - `parent` `TView` which contains `<div><!-- anchor --></div>`\n \* - `child` `TView` which contains `<span></span>`\n \*\n \* Typically the `child` is inserted into the declaration location of the `parent`, but

it can be inserted anywhere. Because it can be inserted anywhere it is not possible to store the insertion information in the `TVView` and instead we must store it in the `LView[T\_HOST]`. So to determine where is our insertion parent we would execute:

```

const parentLView = IView[PARENT];
const parentTNode = IView[T_HOST];
const insertionParent = parentLView[parentTNode.index];

```

If `null`, this is the root view of an application (root component is in this view) and it has no parents.

[T\_HOST]: TNode|null;

When a view is destroyed, listeners need to be released and outputs need to be unsubscribed. This context array stores both listener functions wrapped with their context and output subscription instances for a particular view.

These change per LView instance, so they cannot be stored on TVView. Instead, TVView.cleanup saves an index to the necessary context in this array.

// TODO: flatten into LView[]

[CLEANUP]: any[]|null;

- For dynamic views, this is the context with which to render the template (e.g. `NgForContext`), or `{}` if not defined explicitly.

- For root view of the root component the context contains change detection data.

- For non-root components, the context is the component instance.

- For inline views, the context is null.

[CONTEXT]: {}|RootContext|null;

An optional Module Injector to be used as fall back after Element Injectors are consulted.

readonly[INJECTOR]: Injector|null;

Factory to be used for creating Renderer.

[RENDERER\_FACTORY]: RendererFactory3;

Renderer to be used for this view.

[RENDERER]: Renderer3;

An optional custom sanitizer.

[SANITIZER]: Sanitizer|null;

Reference to the first LView or LContainer beneath this LView in the hierarchy.

Necessary to store this so views can traverse through their nested views to remove listeners and call onDestroy callbacks.

[CHILD\_HEAD]: LView|LContainer|null;

The last LView or LContainer beneath this LView in the hierarchy.

The tail allows us to quickly add a new state to the end of the view list without having to propagate starting from the first child.

[CHILD\_TAIL]: LView|LContainer|null;

View where this view's template was declared.

The template for a dynamically created view may be declared in a different view than it is inserted. We already track the "insertion view" (view where the template was inserted) in LView[PARENT], but we also need access to the "declaration view" (view where the template was declared). Otherwise, we wouldn't be able to call the view's template function with the proper contexts. Context should be inherited from the declaration view tree, not the insertion view tree.

Example (AppComponent template):

```

<ng-template #foo></ng-template>
<some-comp [tpl]="foo"></some-comp>

```

declared here --> inserted inside this component -->

The <ng-template> above is declared in the AppComponent template, but it will be passed into SomeComp and inserted there. In this case, the declaration view would be the AppComponent, but the insertion view would be SomeComp. When we are removing views, we would want to traverse through the insertion view to clean up listeners. When we are calling the template function during change detection, we need the declaration view to get inherited context.

[DECLARATION\_VIEW]: LView|null;

Points to the declaration component view, used to track transplanted LView's.

See: `DECLARATION\_VIEW` which points to the actual LView where it was declared, whereas `DECLARATION\_COMPONENT\_VIEW` points to the component which may not be same as `DECLARATION\_VIEW`.

Example:

```

<#VIEW #myComp>
<div *ngIf="true">
<ng-template #myTpl>...</ng-template>
</div>
</#VIEW>

```

In the above case `DECLARATION\_VIEW` for `myTpl` points to the LView of `ngIf` whereas `DECLARATION\_COMPONENT\_VIEW` points to LView of the `myComp` which owns the template.

The reason for this is that all embedded views are always check-always whereas the component view can be check-always or on-push. When we have a transplanted view it is important to determine if we have transplanted a view from check-always declaration to on-push insertion point. In such a case the transplanted view needs to be added to the LContainer in the declared LView and CD during the declared view CD (in addition to the CD at the insertion point.) (Any transplanted views which are intra Component are of no interest because the CD strategy of declaration and insertion will always be the same, because it is the same component.)

\*\n \* Queries already track moved views in `LView[DECLARATION\_LCONTAINER]` and\n \* `LContainer[MOVED\_VIEWS]`. However the queries also track `LView`s which moved within the same\n \* component `LView`. Transplanted views are a subset of moved views, and we use\n \* `DECLARATION\_COMPONENT\_VIEW` to differentiate them. As in this example.\n \* \n \* Example showing intra component `LView` movement.\n \* ```\n \* <#VIEW #myComp>\n \* <div \*ngIf="condition; then thenBlock else elseBlock">\n \* <ng-template #thenBlock>Content to render when condition is true.</ng-template>\n \* <ng-template #elseBlock>Content to render when condition is false.</ng-template>\n \* </#VIEW>\n \* ```\n \* The `thenBlock` and `elseBlock` is moved but not transplanted.\n \* \n \* Example showing inter component `LView` movement (transplanted view).\n \* ```\n \* <#VIEW #myComp>\n \* <ng-template #myTpl>...</ng-template>\n \* <insertion-component [template]="myTpl"></insertion-component>\n \* </#VIEW>\n \* ```\n \* In the above example `myTpl` is passed into a different component. If `insertion-component` instantiates `myTpl` and `insertion-component` is on-push then the `LContainer` needs to be\n \* marked as containing transplanted views and those views need to be CD as part of the\n \* declaration CD.\n \* \n \* \n \* When change detection runs, it iterates over `[MOVED\_VIEWS]` and CDs any child `LView`s where\n \* the `DECLARATION\_COMPONENT\_VIEW` of the current component and the child `LView` does not match\n \* (it has been transplanted across components.)\n \* \n \* Note: `[DECLARATION\_COMPONENT\_VIEW]` points to itself if the LView is a component view (the\n \* simplest / most common case).\n \* \n \* see also:\n \* - <https://hackmd.io/@mhevery/rJUsvv9H> write up of the problem\n \* - `LContainer[HAS\_TRANSPLANTED\_VIEWS]` which marks which `LContainer` has transplanted views.\n \* - `LContainer[TRANSPLANT\_HEAD]` and `LContainer[TRANSPLANT\_TAIL]` storage for transplanted\n \* - `LView[DECLARATION\_LCONTAINER]` similar problem for queries\n \* - `LContainer[MOVED\_VIEWS]` similar problem for queries\n \* \n \* [DECLARATION\_COMPONENT\_VIEW]: LView;\n \* \n \* /\*\*\n \* A declaration point of embedded views (ones instantiated based on the content of a\n \* <ng-template>), null for other types of views.\n \* \n \* We need to track all embedded views created from a given declaration point so we can prepare\n \* query matches in a proper order (query matches are ordered based on their declaration point and\n \* \_not\_ the insertion point).\n \* \n \* [DECLARATION\_LCONTAINER]: LContainer|null;\n \* \n \* /\*\*\n \* More flags for this view. See PreOrderHookFlags for more info.\n \* \n \* [PREORDER\_HOOK\_FLAGS]: PreOrderHookFlags;\n \* \n \* /\*\*\n \* The number of direct transplanted views which need a refresh or have descendants themselves\n \* that need a refresh but have not marked their ancestors as Dirty. This tells us that during\n \* change detection we should still descend to find those children to refresh, even if the parents\n \* are not `Dirty` ^ `CheckAlways`.\n \* \n \* [TRANSPLANTED\_VIEWS\_TO\_REFRESH]: number;\n \* \n \* /\*\*\n \* Flags associated with an LView (saved in LView[FLAGS])\n \* \n \* export const enum LViewFlags {\n \* /\*\* The state of the init phase on the first 2 bits\n \* \n \* InitPhaseStateIncrementer = 0b000000000001,\n \* InitPhaseStateMask = 0b000000000011,\n \* \n \* /\*\* Whether or not the view is in creationMode.\n \* \n \* This must be stored in the view rather than using `data` as a marker so that\n \* we can properly support embedded views. Otherwise, when exiting a child view\n \* back into the parent view, `data` will be defined and `creationMode` will be\n \* improperly reported as false.\n \* \n \* CreationMode = 0b00000000100,\n \* \n \* /\*\* Whether or not this LView instance is on its first processing pass.\n \* \n \* An LView instance is considered to be on its "first pass" until it\n \* has completed one creation mode run and one update mode run. At this\n \* time, the flag is turned off.\n \* \n \* FirstLViewPass = 0b00000001000,\n \* \n \* /\*\* Whether this view has default change detection strategy (checks always) or onPush\n \* \n \* CheckAlways = 0b00000010000,\n \* \n \* /\*\* Whether or not manual change detection is turned on for onPush components.\n \* \n \* This is a special mode that only marks components dirty in two cases:\n \* \n \* 1) There has been a change to an @Input property\n \* \n \* 2) `markDirty()` has been called manually by the user\n \* \n \* Note that in this mode, the firing of events does NOT mark components\n \* dirty automatically.\n \* \n \* Manual mode is turned off by default for backwards compatibility, as events\n \* automatically mark OnPush components dirty in View Engine.\n \* \n \* TODO: Add a public API to

ChangeDetectionStrategy to turn this mode on

```

 * ManualOnPush = 0b000000100000,
 /** Whether or not this view is currently dirty (needing check)
 Dirty = 0b0000001000000,
 /** Whether or not this view is currently attached to change detection tree.
 Attached = 0b000010000000,
 /** Whether or not this view is destroyed.
 Destroyed = 0b000100000000,
 /** Whether or not this view is the root view
 IsRoot = 0b001000000000,
 /**
 * Whether this moved LView was needs to be refreshed at the insertion location because the
 * declaration was dirty.
 RefreshTransplantedView = 0b0010000000000,
 /**
 * Index of the current init phase on last 21 bits
 IndexWithinInitPhaseIncrementer = 0b0100000000000,
 IndexWithinInitPhaseShift = 11,
 IndexWithinInitPhaseReset = 0b0011111111111,
 }
 /** Possible states of the init phase:
 * - 00: OnInit hooks to be run.
 * - 01: AfterContentInit hooks to be run
 * - 10: AfterViewInit hooks to be run
 * - 11: All init hooks have been run
 */
export const enum InitPhaseState {
OnInitHooksToBeRun = 0b00,
AfterContentInitHooksToBeRun = 0b01,
AfterViewInitHooksToBeRun = 0b10,
InitPhaseCompleted = 0b11,
}
/** More flags associated with an LView (saved in LView[PREORDER_HOOK_FLAGS])
export const enum PreOrderHookFlags {
 /** The index of the next pre-order hook to be called in the hooks array, on the first 16 bits
 IndexOfTheNextPreOrderHookMaskMask = 0b0111111111111111,
 /**
 * The number of init hooks that have already been called, on the last 16 bits
 NumberOfInitHooksCalledIncrementer = 0b0100000000000000,
 NumberOfInitHooksCalledShift = 16,
 NumberOfInitHooksCalledMask = 0b11111111111111110000000000000000,
 }
 /** Stores a set of OpCodes to process `HostBindingsFunction` associated with a current view.
 * In order to invoke `HostBindingsFunction` we need:
 * 1. 'elementIdx': Index to the element associated with the `HostBindingsFunction`.
 * 2. 'directiveIdx': Index to the directive associated with the `HostBindingsFunction`. (This will become the context for the `HostBindingsFunction` invocation.)
 * 3. 'bindingRootIdx': Location where the bindings for the `HostBindingsFunction` start. Internally `HostBindingsFunction` binding indexes start from `0` so we need to add `bindingRootIdx` to it.
 * 4. `HostBindingsFunction`: A host binding function to execute.
 * The above information needs to be encoded into the `HostBindingOpCodes` in an efficient manner.
 * 1. `elementIdx` is encoded into the `HostBindingOpCodes` as `~elementIdx` (so a negative number);
 * 2. `directiveIdx`
 * 3. `bindingRootIdx`
 * 4. `HostBindingsFunction` is passed in as is.
 * The `HostBindingOpCodes` array contains:
 * - negative number to select the element index.
 * - followed by 1 or more of:
 * - a number to select the directive index
 * - a number to select the bindingRoot index
 * - and a function to invoke.
 * ## Example
 * ```
 * const hostBindingOpCodes = [
 * ~30, // Select element 30
 * 40, 45, MyDir.dir.hostBindings // directiveIdx = 40; bindingRootIdx = 45;
 * 50, 55, OtherDir.dir.hostBindings // Invoke host bindings on OtherDire on element 30
 *];
 * // directiveIdx = 50; bindingRootIdx = 55;
 *]
 * ```
 * ## Pseudocode
 * ```
 * const hostBindingOpCodes = tView.hostBindingOpCodes;
 * if (hostBindingOpCodes === null) return;
 * for (let i = 0; i < hostBindingOpCodes.length; i++) {
 * const opCode = hostBindingOpCodes[i] as number;
 * if (opCode < 0) {
 * // Negative numbers are element indexes.
 * setSelectedIndex(~opCode);
 * } else {
 * // Positive numbers are NumberTuple which store bindingRootIndex and directiveIndex.
 * const directiveIdx = opCode;
 * const bindingRootIdx = hostBindingOpCodes[++i] as number;
 * const hostBindingFn = hostBindingOpCodes[++i] as HostBindingsFunction<any>;
 * setBindingRootForHostBindings(bindingRootIdx, directiveIdx);
 * const context = IView[directiveIdx];
 * hostBindingFn(RenderFlags.Update, context);
 * }
 * }
 * ```
 * ##
 * export interface HostBindingOpCodes extends Array<number|HostBindingsFunction<any>> {
 * __brand__: 'HostBindingOpCodes';
 * }
 * debug?: string[];
 }
 /** Explicitly marks `TView` as a specific type in `ngDevMode`
 * It is useful to know conceptually what time of `TView` we are dealing with when debugging an application (even if the runtime does not need it.) For this reason we store this information in the `ngDevMode` `TView` and than use it for better debugging experience.
 export const enum TViewType {
 /** Root `TView` is the used to

```

bootstrap components into. It is used in conjunction with `* `LView`` which takes an existing DOM node not owned by Angular and wraps it in ``TVView`/`LView`` so that other components can be loaded into it.

`* `Root`` = 0, `* `Component`` = 1, `* `Embedded`` = 2, `* `Converts`` ``TVViewType`` into human readable text.

`* Make sure this matches with `TVViewType``

```

export const TVViewTypeAsString = [
 'Root', // 0
 'Component', // 1
 'Embedded', // 2
] as const;

```

The static data for an `LView` (shared between all templates of a given type).

Stored on the ``ComponentDef.tView``.

```

interface TVView {
 /** Type of `TVView` ('Root'|'Component'|'Embedded'). */
 type: TVViewType;
 /** This is a blueprint used to generate LView instances for this TVView. Copying this blueprint is faster than creating a new LView from scratch. */
 blueprint: LView;
 /** The template function used to refresh the view of dynamically created views and components. Will be null for inline views. */
 template: ComponentTemplate<{}>|null;
 /** A function containing query-related instructions. */
 viewQuery: ViewQueriesFunction<{}>|null;
 /** A `TNode` representing the declaration location of this `TVView` (not part of this TVView). */
 declTNode: TNode|null;
 // FIXME(misko): Why does `TVView` not have `declarationTVView` property?
 /** Whether or not this template has been processed in creation mode. */
 firstCreatePass: boolean;
 /** Whether or not this template has been processed in update mode (e.g. change detected). */
 firstUpdatePass: boolean;
 /** Static data equivalent of LView.data[]. Contains TNodes, PipeDefInternal or TII8n. */
 data: TData;
 /** The binding start index is the index at which the data array starts to store bindings only. Saving this value ensures that we will begin reading bindings at the correct point in the array when we are in update mode. */
 bindingStartIndex: number;
 /** The index where the "expando" section of `LView` begins. The expando section contains injectors, directive instances, and host binding values. Unlike the "decls" and "vars" sections of `LView`, the length of this section cannot be calculated at compile-time because directives are matched at runtime to preserve locality. We store this start index so we know where to start checking host bindings in `setHostBindings`. */
 expandoStartIndex: number;
 /** Whether or not there are any static view queries tracked on this view. */
 staticViewQueries: boolean;
 /** Whether or not there are any static content queries tracked on this view. */
 staticContentQueries: boolean;
 /** A reference to the first child node located in the view. */
 firstChild: TNode|null;
 /** Stores the OpCodes to be replayed during change-detection to process the `HostBindings`. See `HostBindingOpCodes` for encoding details. */
 hostBindingOpCodes: HostBindingOpCodes|null;
 /** Full registry of directives and components that may be found in this view. It's necessary to keep a copy of the full def list on the TVView so it's possible to render template functions without a host component. */
 directiveRegistry: DirectiveDefList|null;
 /** Full registry of pipes that may be found in this view. The property is either an array of `PipeDefs` or a function which returns the array of `PipeDefs`. The function is necessary to be able to support forward declarations. It's necessary to keep a copy of the full def list on the TVView so it's possible to render template functions without a host component. */
 pipeRegistry: PipeDefList|null;
 /** Array of ngOnInit, ngOnChanges and

```

ngDoCheck hooks that should be executed for this view in

- \* creation mode.
- \* This array has a flat structure and contains TNode indices, directive indices (where an instance can be found in `LView`) and hook functions. TNode index is followed by the directive index and a hook function. If there are multiple hooks for a given TNode, the TNode index is not repeated and the next lifecycle hook information is stored right after the previous hook function. This is done so that at runtime the system can efficiently iterate over all of the functions to invoke without having to make any decisions/lookups.

preOrderHooks: HookData|null;

- \* Array of ngOnChanges and ngDoCheck hooks that should be executed for this view in update mode.
- \* This array has the same structure as the `preOrderHooks` one.

preOrderCheckHooks: HookData|null;

- \* Array of ngAfterContentInit and ngAfterContentChecked hooks that should be executed for this view in creation mode.
- \* Even indices: Directive index
- \* Odd indices: Hook function

contentHooks: HookData|null;

- \* Array of ngAfterContentChecked hooks that should be executed for this view in update mode.
- \* Even indices: Directive index
- \* Odd indices: Hook function

contentCheckHooks: HookData|null;

- \* Array of ngAfterViewInit and ngAfterViewChecked hooks that should be executed for this view in creation mode.
- \* Even indices: Directive index
- \* Odd indices: Hook function

viewHooks: HookData|null;

- \* Array of ngAfterViewChecked hooks that should be executed for this view in update mode.
- \* Even indices: Directive index
- \* Odd indices: Hook function

viewCheckHooks: HookData|null;

- \* Array of ngOnDestroy hooks that should be executed when this view is destroyed.
- \* Even indices: Directive index
- \* Odd indices: Hook function

destroyHooks: DestroyHookData|null;

- \* When a view is destroyed, listeners need to be released and outputs need to be unsubscribed. This cleanup array stores both listener data (in chunks of 4) and output data (in chunks of 2) for a particular view. Combining the arrays saves on memory (70 bytes per array) and on a few bytes of code size (for two separate for loops).
- \* If it's a native DOM listener or output subscription being stored:
- \* 1st index is: event name `name = tView.cleanup[i+0]`
- \* 2nd index is: index of native element or a function that retrieves global target (window, document or body) reference based on the native element:
- \* `typeof idxOrTargetGetter === 'function': global target getter function
- \* `typeof idxOrTargetGetter === 'number': index of native element
- \* 3rd index is: index of listener function `listener = LView[CLEANUP][tView.cleanup[i+2]]`
- \* 4th index is: `useCaptureOrIdx = tView.cleanup[i+3]`
- \* `typeof useCaptureOrIdx === 'boolean': useCapture boolean
- \* `typeof useCaptureOrIdx === 'number':
- \* `useCaptureOrIdx >= 0` `removeListener = LView[CLEANUP][useCaptureOrIdx]`
- \* `useCaptureOrIdx < 0` `subscription = LView[CLEANUP][-useCaptureOrIdx]`
- \* If it's an output subscription or query list destroy hook:
- \* 1st index is: output unsubscribe function / query list destroy function
- \* 2nd index is: index of function context in LView.cleanupInstances[]

tView.cleanup[i+0].call(LView[CLEANUP][tView.cleanup[i+1]])

- \* cleanup: any[]|null;
- \* A list of element indices for child components that will need to be refreshed when the current view has finished its check. These indices have already been adjusted for the HEADER\_OFFSET.
- \* components: number[]|null;
- \* A collection of queries tracked in a given view.
- \* queries: TQueries|null;
- \* An array of indices pointing to directives with content queries alongside with the corresponding query index. Each entry in this array is a tuple of:
- \* - index of the first content query index declared by a given directive;
- \* - index of a directive.
- \* We are storing those indexes so we can refresh content queries as part of a view refresh process.
- \* contentQueries: number[]|null;
- \* Set of schemas that declare elements to be allowed inside the view.
- \* schemas: SchemaMetadata[]|null;
- \* Array of constants for the view. Includes attribute arrays, local definition arrays etc.
- \* Used for directive matching, attribute bindings, local definitions and more.
- \* consts: TConstants|null;
- \* Indicates that there was an error before we managed to complete the first create pass of the view. This means that the view is likely corrupted and we should try to recover it.
- \* incompleteFirstPass: boolean;

export const enum RootContextFlags {

- \* Empty = 0b00,
- \* DetectChanges = 0b01,
- \* FlushPlayers = 0b10



RootContext contains information which is shared for all components which were bootstrapped with { @link renderComponent}.

`RootContext` {  
 \* A function used for scheduling change detection in the future. Usually this is `requestAnimationFrame`.  
 \* scheduler: (workFn: () => void) => void;  
 \* A promise which is resolved when all components are considered clean (not dirty).  
 \* This promise is overwritten every time a first call to { @link markDirty} is invoked.  
 \* clean: Promise<null>;  
 \* RootComponents - The components that were instantiated by the call to { @link renderComponent}.  
 \* components: {}[];  
 \* The player flushing handler to kick off all animations.  
 \* playerHandler: PlayerHandler|null;  
 \* What render-related operations to run once a scheduler has been set.  
 \* flags: RootContextFlags;  
 \* Single hook callback function. `HookFn = () => void`;  
 \* Information necessary to call a hook. E.g. the callback that needs to be invoked and the index at which to find its context.  
 \* HookEntry = number|HookFn;  
 \* Array of hooks that should be executed for a view and their directive indices.  
 \* For each node of the view, the following data is stored:  
 \* 1) Node index (optional)  
 \* 2) A series of number/function pairs where:  
 \* - even indices are directive indices  
 \* - odd indices are hook functions  
 \* Special cases:  
 \* - a negative directive index flags an init hook (`ngOnInit`, `ngAfterContentInit`, `ngAfterViewInit`)  
 \* HookData = HookEntry[];  
 \* Array of destroy hooks that should be executed for a view and their directive indices.  
 \* The array is set up as a series of number/function or number/(number|function)[]:  
 \* - Even indices represent the context with which hooks should be called.  
 \* - Odd indices are the hook functions themselves. If a value at an odd index is an array, it represents the destroy hooks of a 'multi' provider where:  
 \* - Even indices represent the index of the provider for which we've registered a destroy hook,  
 \* inside of the 'multi' provider array.  
 \* - Odd indices are the destroy hook functions.  
 \* For example:  
 \* LView: [0, 1, 2, AService, 4, [BService, CService, DService]]  
 \* destroyHooks: [3, AService.ngOnDestroy, 5, [0, BService.ngOnDestroy, 2, DService.ngOnDestroy]]  
 \* In the example above 'AService' is a type provider with an 'ngOnDestroy', whereas 'BService', 'CService' and 'DService' are part of a 'multi' provider where only 'BService' and 'DService' have an 'ngOnDestroy' hook.  
 \* DestroyHookData = (HookEntry|HookData)[];  
 \* Static data that corresponds to the instance-specific data array on an LView.  
 \* Each node's static data is stored in `tData` at the same index that it's stored in the data array. Any nodes that do not have static data store a null value in `tData` to avoid a sparse array.  
 \* Each pipe's definition is stored here at the same index as its pipe instance in the data array.  
 \* Each host property's name is stored here at the same index as its value in the data array.  
 \* Each property binding name is stored here at the same index as its value in the data array. If the binding is an interpolation, the static string values are stored parallel to the dynamic values. Example:  
 \* id="prefix {{ v0 }}" a {{ v1 }} b {{ v2 }} suffix  
 \* LView | TView.data  
 \* -----  
 \* v0 value | 'a' v1 value | 'b' v2 value | id prefix suffix  
 \* Injector bloom filters are also stored here.  
 \* TData = (TNode|PipeDef<any>|DirectiveDef<any>|ComponentDef<any>|number|TStylingRange|TStylingKey|Type<any>|InjectionToken<any>|TI18n|I18nUpdateOpCodes|Ticu|null|string)[];  
 \* Note: This hack is necessary so we don't erroneously get a circular dependency failure based on types.  
 \* unusedValueExportToPlacateAjd = 1;  
 \* Human readable version of the 'LView'.  
 \* LView is a data structure used internally to keep track of views. The 'LView' is designed for efficiency and so at times it is difficult to read or write tests which assert on its values. For this reason when 'ngDevMode' is true we patch a 'LView.debug' property which points to 'LViewDebug' for easier debugging and test writing. It is the intent of 'LViewDebug' to be used in tests.  
 \* LViewDebug {  
 \* Flags associated with the 'LView' unpacked into a more readable state.  
 \* See 'LViewFlags' for the flag meanings.  
 \* readonly flags: {  
 \* initPhaseState: number,  
 \* creationMode: boolean,  
 \* firstViewPass: boolean,  
 \* checkAlways: boolean,  
 \* dirty: boolean,  
 \* attached: boolean,  
 \* destroyed: boolean,  
 \* isRoot: boolean,  
 \* indexWithinInitPhase: number,  
 \* };  
 \* Associated TView  
 \* readonly tView: TView;  
 \* Parent view (or container)  
 \* readonly parent: LViewDebug|LContainerDebug|null;

```

/**\n * Next sibling to the LView.\n */\n readonly next: LViewDebugLContainerDebug|null;\n\n /**\n * The context used for evaluation of the `LView`\n */\n * (Usually the component)\n */\n readonly context:\n {}|null;\n\n /**\n * Hierarchical tree of nodes.\n */\n readonly nodes: DebugNode[];\n\n /**\n * Template structure (no instance data).\n */\n * (Shows how TNodes are connected)\n */\n readonly template: string;\n\n /**\n * HTML representation of the `LView`.\n */\n * This is only approximate to actual HTML as child `LView`s are removed.\n */\n readonly html: string;\n\n /**\n * The host element to which this `LView` is attached.\n */\n readonly hostHTML: string|null;\n\n /**\n * Child `LView`s\n */\n readonly childViews:\n Array<LViewDebugLContainerDebug>;\n\n /**\n * Sub range of `LView` containing decls (DOM elements).\n */\n readonly decls: LViewDebugRange;\n\n /**\n * Sub range of `LView` containing vars (bindings).\n */\n\n /**\n * Sub range of `LView` containing expando (used by DI).\n */\n\n /**\n * Sub range of `LView` containing expando (used by DI).\n */\n\n /**\n * Human readable version of the `LContainer`\n */\n * `LContainer` is a data structure used internally to keep track of child views. The `LContainer`\n */\n * is designed for efficiency and so at times it is difficult to read or write tests which assert on\n */\n * its values. For this reason when `ngDevMode` is true we patch a `LContainer.debug` property which\n */\n * points to `LContainerDebug` for easier debugging and test writing. It is the intent of\n */\n * `LContainerDebug` to be used in tests.\n */\n\nexport interface LContainerDebug {\n readonly native: RComment;\n\n /**\n * Child `LView`s.\n */\n readonly views: LViewDebug[];\n\n readonly parent: LViewDebug|null;\n\n readonly movedViews: LView[]|null;\n\n readonly host: RElement|RComment|LView;\n\n readonly next: LViewDebugLContainerDebug|null;\n\n readonly hasTransplantedViews:\n boolean;\n}\n\n\n/**\n * `LView` is subdivided to ranges where the actual data is stored. Some of these ranges such as\n */\n * `decls` and `vars` are known at compile time. Other such as `i18n` and `expando` are runtime only\n */\n * concepts.\n */\n\nexport interface LViewDebugRange {\n\n /**\n * The starting index in `LView` where the range begins. (Inclusive)\n */\n start: number;\n\n /**\n * The ending index in `LView` where the range ends. (Exclusive)\n */\n end: number;\n\n /**\n * The length of the range\n */\n length: number;\n\n /**\n * The merged content of the range. `t` contains data from `TView.data` and `l` contains `LView`\n */\n * data at an index.\n */\n content: LViewDebugRangeContent[];\n}\n\n\n/**\n * For convenience the static and instance portions of `TView` and `LView` are merged into a single\n */\n * object in `LViewRange`.\n */\n\nexport interface LViewDebugRangeContent {\n\n /**\n * Index into original `LView` or `TView.data`. \n */\n index: number;\n\n /**\n * Value from the `TView.data[index]` location.\n */\n t: any;\n\n /**\n * Value from the `LView[index]` location.\n */\n l: any;\n}\n\n\n/**\n * A logical node which comprise into `LView`s.\n */\n\nexport interface DebugNode {\n\n /**\n * HTML representation of the node.\n */\n html: string|null;\n\n /**\n * Human readable node type.\n */\n type: string;\n\n /**\n * DOM native node.\n */\n native: Node;\n\n /**\n * Child nodes\n */\n children: DebugNode[];\n\n /**\n * A list of Component/Directive types which need to be instantiated an this location.\n */\n factories: Type<unknown>>[];\n\n /**\n * A list of Component/Directive instances which were instantiated an this location.\n */\n instances: unknown[];\n\n /**\n * NodeInjector information.\n */\n injector: NodeInjectorDebug;\n}\n\n\nexport interface NodeInjectorDebug {\n\n /**\n * Instance bloom. Does the current injector have a provider with a given bloom mask.\n */\n bloom: string;\n\n /**\n * Cumulative bloom. Do any of the above injectors have a provider with a given bloom mask.\n */\n cumulativeBloom: string;\n\n /**\n * A list of providers associated with this injector.\n */\n providers: (Type<unknown>|DirectiveDef<unknown>|ComponentDef<unknown>)[];\n\n /**\n * A list of providers associated with this injector visible to the view of the component only.\n */\n viewProviders: Type<unknown>[];\n\n /**\n * Location of the parent `TNode`. \n */\n parentInjectorIndex: number;\n}\n","**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n */\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { TNode } from './node';\nimport { RComment, RElement } from './renderer_dom';\nimport { HOST, LView, NEXT, PARENT, T_HOST, TRANSPLANTED_VIEWS_TO_REFRESH } from './view';\n\n\n/**\n * Special location which allows easy identification
```

of type. If we have an array which was retrieved from the `LView` and that array has `true` at `TYPE` location, we know it is `LContainer`. Below are constants for LContainer indices to help us look up LContainer members without having to remember the specific indices. Uglify will inline these when minifying so there shouldn't be a cost. Flag to signify that this `LContainer` may have transplanted views which need to be change detected. (see:

```
LView[DECLARATION_COMPONENT_VIEW]`. This flag, once set, is never unset for the
`LContainer`. This means that when unset we can skip a lot of work in `refreshEmbeddedViews`. But when set
we still need to verify that the `MOVED_VIEWS` are transplanted and on-push.
export const
HAS_TRANSPLANTED_VIEWS = 2;
// PARENT, NEXT, TRANSPLANTED_VIEWS_TO_REFRESH are
indices 3, 4, and 5
// As we already have these constants in LView, we don't need to re-create
them.
// T_HOST is index 6
// We already have this constants in LView, we don't need to re-create it.
export const NATIVE = 7;
export const VIEW_REFS = 8;
export const MOVED_VIEWS = 9;
// Size of
LContainer's header. Represents the index after which all views in the container will be inserted. We need to
keep a record of current views so we know which views are already in the DOM (and don't need to be re-added)
and so we can remove views from the DOM when they are no longer required.
export const
CONTAINER_HEADER_OFFSET = 10;
// The state associated with a container.
// This is an array
so that its structure is closer to LView. This helps when traversing the view tree (which is a mix of containers
and component views), so we can jump to viewOrContainer[NEXT] in the same way regardless of type.
export interface LContainer extends Array<any> {
 // The host element of this LContainer.
 // The host could
```

```
be an LView if this container is on a component node.
 // In that case, the component LView is its HOST.
 readonly[HOST]: RElement|RComment|LView;
 // This is a type field which allows us to differentiate
 `LContainer` from `StylingContext` in an efficient way. The value is always set to `true` [TYPE]:
 true;
 // Flag to signify that this `LContainer` may have transplanted views which need to be change
 detected. (see: `LView[DECLARATION_COMPONENT_VIEW]`). This flag, once set, is never unset for
 the `LContainer`.
 // [HAS_TRANSPLANTED_VIEWS]: boolean;
 // Access to the parent view is
 necessary so we can propagate back up from inside a container to parent[NEXT].
 // [PARENT]:
 LView;
 // This allows us to jump from a container to a sibling container or component view with
 the same parent, so we can remove listeners efficiently.
 // [NEXT]: LView|LContainer|null;
 //
```

```
 // The number of direct transplanted views which need a refresh or have descendants themselves that need a
 refresh but have not marked their ancestors as Dirty. This tells us that during change detection we should still
 descend to find those children to refresh, even if the parents are not `Dirty`/`CheckAlways`.
 // [TRANSPLANTED_VIEWS_TO_REFRESH]: number;
 // A collection of views created based on the
 underlying `<ng-template>` element but inserted into a different `LContainer`. We need to track views created
 from a given declaration point since queries collect matches from the embedded view declaration point and
 not the insertion point.
 // [MOVED_VIEWS]: LView[]|null;
 // Pointer to the `TNode` which
 represents the host of the container.
 // [T_HOST]: TNode;
 // The comment element that serves as an
 anchor for this LContainer.
 readonly[NATIVE]: RComment;
 // TODO(misko): remove as this value
 can be gotten by unwrapping `[HOST]`.
 // Array of `ViewRef`s used by any `ViewContainerRef`s that
 point to this container.
 // This is lazily initialized by `ViewContainerRef` when the first view is inserted.
 // NOTE: This is stored as `any[]` because render3 should really not be aware of `ViewRef` and doing so
 creates circular dependency.
 // [VIEW_REFS]: unknown[]|null;
 // Note: This hack is necessary so we
 don't erroneously get a circular dependency failure based on types.
 export const
```

```
unusedValueExportToPlacateAjd = 1;
", "
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 https://angular.io/license
 import {LContainer, TYPE} from './container';
 import {ComponentDef,
 DirectiveDef} from './definition';
 import {TNode, TNodeFlags} from './node';
 import {RNode} from
 './renderer_dom';
 import {FLAGS,
```

```

LView, LViewFlags} from './view';\n\n/**\n * True if `value` is `LView`.\n * @param value wrapped value of
`RNode`, `LView`, `LContainer`\n */\nexport function isLView(value: RNode|LView|LContainer|{}|null): value is
LView {\n return Array.isArray(value) && typeof value[TYPE] === 'object';\n}\n\n/**\n * True if `value` is
`LContainer`.\n * @param value wrapped value of `RNode`, `LView`, `LContainer`\n */\nexport function
isLContainer(value: RNode|LView|LContainer|{}|null): value is LContainer {\n return Array.isArray(value) &&
value[TYPE] === true;\n}\n\nexport function isContentQueryHost(tNode: TNode): boolean {\n return (tNode.flags
& TNodeFlags.hasContentQuery) !== 0;\n}\n\nexport function isComponentHost(tNode: TNode): boolean {\n
return (tNode.flags & TNodeFlags.isComponentHost) === TNodeFlags.isComponentHost;\n}\n\nexport function
isDirectiveHost(tNode: TNode): boolean {\n return (tNode.flags & TNodeFlags.isDirectiveHost) ===
TNodeFlags.isDirectiveHost;\n}\n\nexport function
isComponentDef<T>(def: DirectiveDef<T>): def is ComponentDef<T> {\n return (def as
ComponentDef<T>).template !== null;\n}\n\nexport function isRootView(target: LView): boolean {\n return
(target[FLAGS] & LViewFlags.IsRoot) !== 0;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {assertDefined, assertEqual, assertNumber, throwError}
from './util/assert';\nimport {getComponentDef, getNgModuleDef} from './definition';\nimport {LContainer} from
'/interfaces/container';\nimport {DirectiveDef} from './interfaces/definition';\nimport {Ticu} from
'/interfaces/i18n';\nimport {NodeInjectorOffset} from './interfaces/injector';\nimport {TNode} from
'/interfaces/node';\nimport {isLContainer, isLView} from './interfaces/type_checks';\nimport {HEADER_OFFSET,
LView, TVIEW, TView} from './interfaces/view';\n\n// [Assert
functions do not constraint type when they are guarded by a truthy\n//
expression.](https://github.com/microsoft/TypeScript/issues/37295)\n\nexport function
assertTNodeForLView(tNode: TNode, lView: LView) {\n assertTNodeForTView(tNode,
lView[TVIEW]);\n}\n\nexport function assertTNodeForTView(tNode: TNode, tView: TView) {\n
assertTNode(tNode);\n tNode.hasOwnProperty('tView_') &&\n assertEqual(\n (tNode as any as {tView_:
TView}).tView_, tView,\n 'This TNode does not belong to this TView.);\n}\n\nexport function
assertTNode(tNode: TNode) {\n assertDefined(tNode, 'TNode must be defined');\n if (!(tNode && typeof tNode
=== 'object' && tNode.hasOwnProperty('directiveStylingLast')))\n throwError('Not of type TNode, got: ' +
tNode);\n}\n\nexport function assertTicu(tIcu: Ticu) {\n assertDefined(tIcu, 'Expected Ticu to be defined');\n
if (!(typeof tIcu.currentCaseLViewIndex === 'number'))\n throwError('Object is not of Ticu type.);\n
}\n}\n\nexport
function assertComponentType(\n actual: any,\n msg: string = 'Type passed in is not ComponentType, it does
not have `cmp` property.') {\n if (!getComponentDef(actual)) {\n throwError(msg);\n }\n}\n\nexport function
assertNgModuleType(\n actual: any,\n msg: string = 'Type passed in is not NgModuleType, it does not have
`mod` property.') {\n if (!getNgModuleDef(actual)) {\n throwError(msg);\n }\n}\n\nexport function
assertCurrentTNodeIsParent(isParent: boolean) {\n assertEqual(isParent, true, 'currentTNode should be a
parent');\n}\n\nexport function assertHasParent(tNode: TNode|null) {\n assertDefined(tNode, 'currentTNode should
exist!);\n assertDefined(tNode!.parent, 'currentTNode should have a parent');\n}\n\nexport function
assertDataNext(lView: LView, index: number, arr?: any[]) {\n if (arr === null) arr = lView;\n assertEqual(\n
arr.length, index, `index ${index} expected to be at the end of arr (length ${arr.length})`);\n}\n\nexport
function assertLContainer(value: any): asserts value is LContainer {\n assertDefined(value, 'LContainer must be
defined');\n assertEqual(isLContainer(value), true, 'Expecting LContainer');\n}\n\nexport function
assertLViewOrUndefined(value: any): asserts value is LView|null|undefined {\n value &&
assertEqual(isLView(value), true, 'Expecting LView or undefined or null');\n}\n\nexport function
assertLView(value: any): asserts value is LView {\n assertDefined(value, 'LView must be defined');\n
assertEqual(isLView(value), true, 'Expecting LView');\n}\n\nexport function assertFirstCreatePass(tView: TView,
errMessage?: string) {\n assertEqual(\n tView.firstCreatePass, true, errMessage || 'Should only be called in first
create pass.);\n}\n\nexport function assertFirstUpdatePass(tView: TView, errMessage?: string) {\n assertEqual(\n

```

```

tView.firstUpdatePass, true, errMessage || 'Should only be called in first update pass.');
```

This is a basic sanity check that an object is probably a directive def. DirectiveDef is an interface, so we can't do a direct instanceof check.

```

function assertDirectiveDef<T>(obj: any): asserts obj is DirectiveDef<T> {
 if (obj.type === undefined || obj.selectors === undefined || obj.inputs === undefined) {
 throwError(`Expected a DirectiveDef/ComponentDef and this object does not seem to have the expected shape.`);
 }
}
```

```

function assertIndexInDeclRange(IView: LView, index: number) {
 const tView = IView[1];
 assertBetween(HEADER_OFFSET, tView.bindingStartIndex, index);
}
```

```

function assertIndexInVarsRange(IView: LView, index: number) {
 const tView = IView[1];
 assertBetween(tView.bindingStartIndex, tView.expandoStartIndex, index);
}
```

```

function assertIndexInExpandoRange(IView: LView, index: number) {
 const tView = IView[1];
 assertBetween(tView.expandoStartIndex, IView.length, index);
}
```

```

function assertBetween(lower: number, upper: number, index: number) {
 if (!(lower <= index && index < upper)) {
 throwError(`Index out of range (expecting ${lower} <= ${index} < ${upper})`);
 }
}
```

This is a basic sanity check that the `injectorIndex` seems to point to what looks like a NodeInjector data structure.

```

@param IView `LView` which should be checked.
@param injectorIndex index into the `LView` where the `NodeInjector` is expected.
```

```

function assertNodeInjector(IView: LView, injectorIndex: number) {
 assertIndexInExpandoRange(IView, injectorIndex);
 assertIndexInExpandoRange(IView, injectorIndex + NodeInjectorOffset.PARENT);
 assertNumber(IView[injectorIndex + 0], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 1], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 2], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 3], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 4], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 5], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 6], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + 7], 'injectorIndex should point to a bloom filter');
 assertNumber(IView[injectorIndex + NodeInjectorOffset.PARENT], 'injectorIndex should point to parent injector');
```

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```

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```

export const SVG_NAMESPACE = 'http://www.w3.org/2000/svg';
export const MATH_ML_NAMESPACE = 'http://www.w3.org/1998/MathML/';
```

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```

import { RNode } from './renderer_dom';
import { LView } from './view';
```

This property will be monkey-patched on elements, components and directives

```

export const MONKEY_PATCH_KEY_NAME = '__ngContext__';
```

The internal view context which is specific to a given DOM element, directive or component instance. Each value in here (besides the LView and element node details) can be present, null or undefined. If undefined then it implies the value has not been looked up yet, otherwise, if null, then a lookup was executed and nothing was found.

Each value will get filled when the respective value is examined within the getContext function. The component, element and each directive instance will share the same instance of the context.

```

export interface LContext {
 /** The component's parent view data.
 * @param IView: LView;
 * @param The index instance of the node.
 * @param nodeIndex: number;
 * @param The instance of the DOM node that is attached to the INode.
 * @param native: RNode;
 * @param The instance of the Component node.
 * @param component: {}|null|undefined;
 * @param The list of active directives that exist on this element.
 * @param directives: any[]|null|undefined;
 * @param The map of local references (local reference name => element or directive instance) that exist
 * on this element.
 * @param localRefs: {[key: string]: any}|null|undefined;
}
```

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```

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LICENSE file at <https://angular.io/license> \* The goal here is to make sure that the browser DOM API is the Renderer. \* We do this by defining a subset of DOM API to be the renderer and then \* use that at runtime for rendering. \* At runtime we can then use the DOM api directly, in

```

server or web-worker * it will be easy to implement such API.
import {RendererStyleFlags2,
RendererType2} from '../render/api_flags';
import {getDocument} from './document';
import {RComment,
RElement, RNode, RText} from './renderer_dom';
// TODO: cleanup once the code is merged in
angular/angular
export enum RendererStyleFlags3 {
 Important = 1 << 0,
 DashCase = 1 << 1
}
export type Renderer3 = ObjectOrientedRenderer3|ProceduralRenderer3;
export type GlobalTargetName =
'document'|'window'|'body';
export type GlobalTargetResolver = (element: any) => {
 name:
GlobalTargetName, target: EventTarget
};
// ** * Object Oriented style of API needed to create elements and
text nodes.
// * This is the native browser API style, e.g. operations are methods on individual objects
// * like HTMLElement. With this style, no additional code is needed as a facade
// * (reducing payload size).
// *
export interface ObjectOrientedRenderer3 {
 createComment(data:
string): RComment;
 createElement(tagName: string): RElement;
 createElementNS(namespace: string,
tagName: string): RElement;
 createTextNode(data: string): RText;
 querySelector(selectors: string):
RElement|null;
}
// ** Returns whether the `renderer` is a `ProceduralRenderer3`
export function
isProceduralRenderer(renderer: ProceduralRenderer3|
ObjectOrientedRenderer3): renderer
is ProceduralRenderer3 {
 return !!(renderer as any).listen;
}
// ** * Procedural style of API needed to
create elements and text nodes.
// * In non-native browser environments (e.g. platforms such as web-workers),
this is the
// * facade that enables element manipulation. This also facilitates backwards compatibility
// * with
Renderer2.
// *
export interface ProceduralRenderer3 {
 destroy(): void;
 createComment(value: string):
RComment;
 createElement(name: string, namespace?: string|null): RElement;
 createText(value: string):
RText;
}
// **
// * This property is allowed to be null / undefined,
// * in which case the view engine won't call it.
// * This
is used as a performance optimization for production mode.
// *
destroyNode?: ((node: RNode) => void)|null;
appendChild(parent: RElement, newChild: RNode): void;
insertBefore(parent: RNode, newChild: RNode,
refChild: RNode|null, isMove?: boolean): void;
removeChild(parent: RElement, oldChild: RNode,
isHostElement?: boolean): void;
selectRootElement(selectorOrNode: string|any, preserveContent?: boolean):
RElement;
parentNode(node: RNode): RElement|null;
nextSibling(node: RNode): RNode|null;
setAttribute(el: RElement, name: string, value: string, namespace?: string|null): void;
removeAttribute(el:
RElement, name: string, namespace?: string|null): void;
addClass(el: RElement, name: string): void;
removeClass(el: RElement, name: string): void;
setStyle(
 el: RElement, style: string, value: any,
 flags?:
RendererStyleFlags2|RendererStyleFlags3):
void;
removeStyle(el: RElement, style: string, flags?: RendererStyleFlags2|RendererStyleFlags3): void;
setProperty(el: RElement, name: string, value: any): void;
setValue(node: RText|RComment, value: string):
void;
// TODO(misko): Deprecate in favor of addEventListener/removeEventListener
listen(
 target:
GlobalTargetName|RNode, eventName: string,
 callback: (event: any) => boolean | void): () =>
void;
}
export interface RendererFactory3 {
 createRenderer(hostElement: RElement|null, rendererType:
RendererType2|null): Renderer3;
 begin?(): void;
 end?(): void;
}
export const domRendererFactory3:
RendererFactory3 = {
 createRenderer: (hostElement: RElement|null, rendererType: RendererType2|null):
Renderer3 => {
 return getDocument();
 }
};
// Note: This hack is necessary so we don't erroneously get a
circular dependency
// failure based on types.
export const unusedValueExportToPlacateAjd = 1;
// **
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// * found in the LICENSE file at https://angular.io/license
import
{assertDefined, assertDomNode, assertGreaterThan, assertGreaterThanOrEqual, assertIndexInRange,
assertLessThan} from '../util/assert';
import {assertTNode, assertTNodeForLView} from './assert';
import
{LContainer, TYPE} from './interfaces/container';
import {LContext, MONKEY_PATCH_KEY_NAME} from
'./interfaces/context';
import {TConstants, TNode} from './interfaces/node';
import {isProceduralRenderer} from

```

```

'./interfaces/renderer';\nimport {RNode} from './interfaces/renderer_dom';\nimport {isLContainer, isLView} from
'./interfaces/type_checks';\nimport {FLAGS, HEADER_OFFSET, HOST, LView, LViewFlags, PARENT,
PREORDER_HOOK_FLAGS, RENDERER, TData, TRANSPLANTED_VIEWS_TO_REFRESH, TView} from
'./interfaces/view';\n\n\n\n * For efficiency reasons we often put several
different data types (`RNode`, `LView`, `LContainer`)\n * in same location in `LView`. This is because we don't
want to pre-allocate space for it\n * because the storage is sparse. This file contains utilities for dealing with such
data types.\n\n * How do we know what is stored at a given location in `LView`.\n * - `Array.isArray(value) ===
false` => `RNode` (The normal storage value)\n * - `Array.isArray(value) === true` => then the `value[0]`
represents the wrapped value.\n * - `typeof value[TYPE] === 'object'` => `LView`\n * - This happens when we
have a component at a given location\n * - `typeof value[TYPE] === true` => `LContainer`\n * - This happens
when we have `LContainer` binding at a given location.\n\n * NOTE: it is assumed that `Array.isArray` and
`typeof` operations are very efficient.\n\n * Returns `RNode`.\n * @param value wrapped value of
`RNode`, `LView`, `LContainer`\n */\nexport function unwrapRNode(value: RNode|LView|LContainer):
RNode {\n while (Array.isArray(value)) {\n value = value[HOST] as any;\n }\n return value as
RNode;\n}\n\n * Returns `LView` or `null` if not found.\n * @param value wrapped value of `RNode`,
`LView`, `LContainer`\n */\nexport function unwrapLView(value: RNode|LView|LContainer): LView|null {\n
 while (Array.isArray(value)) {\n // This check is same as `isLView()` but we don't call it as we don't want to call\n
 // `Array.isArray()` twice and give JITer more work for inlining.\n if (typeof value[TYPE] === 'object') return
value as LView;\n value = value[HOST] as any;\n }\n return null;\n}\n\n * Returns `LContainer` or `null` if
not found.\n * @param value wrapped value of `RNode`, `LView`, `LContainer`\n */\nexport function
unwrapLContainer(value: RNode|LView|LContainer): LContainer|null {\n while (Array.isArray(value)) {\n //
This check is same as `isLContainer()` but we don't call it as we don't want to call\n // `Array.isArray()` twice and
give
JITer more work for inlining.\n if (value[TYPE] === true) return value as LContainer;\n value = value[HOST]
as any;\n }\n return null;\n}\n\n * Retrieves an element value from the provided `viewData`, by unwrapping\n
* from any containers, component views, or style contexts.\n */\nexport function getNativeByIndex(index: number,
IView: LView): RNode {\n ngDevMode && assertIndexInRange(IView, index);\n ngDevMode &&
assertGreaterThanOrEqual(index, HEADER_OFFSET, 'Expected to be past HEADER_OFFSET');\n return
unwrapRNode(IView[index]);\n}\n\n * Retrieve an `RNode` for a given `TNode` and `LView`.\n * This
function guarantees in dev mode to retrieve a non-null `RNode`.\n * @param tNode\n * @param IView\n
*/\nexport function getNativeByTNode(tNode: TNode, IView: LView): RNode {\n ngDevMode &&
assertTNodeForLView(tNode, IView);\n ngDevMode && assertIndexInRange(IView, tNode.index);\n const node:
RNode = unwrapRNode(IView[tNode.index]);\n ngDevMode && !isProceduralRendererer(IView[RENDERER])
&& assertDomNode(node);\n return node;\n}\n\n * Retrieve an `RNode` or `null` for a given `TNode` and
`LView`.\n * Some `TNode`s don't have associated `RNode`s. For example `Projection`\n * @param
tNode\n * @param IView\n */\nexport function getNativeByTNodeOrNull(tNode: TNode|null, IView: LView):
RNode|null {\n const index = tNode === null ? -1 : tNode.index;\n if (index !== -1) {\n ngDevMode &&
assertTNodeForLView(tNode!, IView);\n const node: RNode|null = unwrapRNode(IView[index]);\n ngDevMode
&& node !== null && !isProceduralRendererer(IView[RENDERER]) && assertDomNode(node);\n return node;\n }\n return null;\n}\n\n * fixme(misko): The return Type should be `TNode|null`\n */\nexport function
getTNode(tView: TView, index: number): TNode {\n ngDevMode && assertGreaterThan(index, -1, 'wrong index
for TNode');\n ngDevMode && assertLessThan(index, tView.data.length, 'wrong index for TNode');\n const tNode
= tView.data[index] as
TNode;\n ngDevMode && tNode !== null && assertTNode(tNode);\n return tNode;\n}\n\n * Retrieves a value
from any `LView` or `TData`.\n */\nexport function load<T>(view: LView|TData, index: number): T {\n ngDevMode
&& assertIndexInRange(view, index);\n return view[index];\n}\n\n * export function
getComponentLViewByIndex(nodeIndex: number, hostView: LView): LView {\n // Could be an LView or an
LContainer. If LContainer, unwrap to find LView.\n ngDevMode && assertIndexInRange(hostView, nodeIndex);\n

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const slotValue = hostView[nodeIndex];\n const IView = isLView(slotValue) ? slotValue : slotValue[HOST];\n
return IView;\n}\n\n/**\n * Returns the monkey-patch value data present on the target (which could be\n * a
component, directive or a DOM node).\n */\nexport function readPatchedData(target: any): LView|LContext|null {\n
ngDevMode && assertDefined(target, "Target expected");\n return target[MONKEY_PATCH_KEY_NAME] ||
null;\n}\n\nexport function readPatchedLView(target: any): LView|null
{\n const value = readPatchedData(target);\n if (value) {\n return Array.isArray(value) ? value : (value as
LContext).IView;\n }\n return null;\n}\n\n/** Checks whether a given view is in creation mode */\nexport function
isCreationMode(view: LView): boolean {\n return (view[FLAGS] & LViewFlags.CreationMode) ===
LViewFlags.CreationMode;\n}\n\n/**\n * Returns a boolean for whether the view is attached to the change
detection tree.\n */\n * Note: This determines whether a view should be checked, not whether it's inserted\n * into a
container. For that, you'll want `viewAttachedToContainer` below.\n */\nexport function
viewAttachedToChangeDetector(view: LView): boolean {\n return (view[FLAGS] & LViewFlags.Attached) ===
LViewFlags.Attached;\n}\n\n/** Returns a boolean for whether the view is attached to a container. */\nexport
function viewAttachedToContainer(view: LView): boolean {\n return isLContainer(view[PARENT]);\n}\n\n/**
Returns a constant from `TConstants` instance.
*/\nexport function getConstant<T>(consts: TConstants|null, index: null|undefined): null;\nexport function
getConstant<T>(consts: TConstants, index: number): T|null;\nexport function getConstant<T>(consts:
TConstants|null, index: number|null|undefined): T|null;\nexport function getConstant<T>(consts: TConstants|null,
index: number|null|undefined): T|null {\n if (index === null || index === undefined) return null;\n ngDevMode &&
assertIndexInRange(consts!, index);\n return consts![index] as unknown as T;\n}\n\n/**\n * Resets the pre-order
hook flags of the view.\n */\n * @param IView the LView on which the flags are reset\n */\nexport function
resetPreOrderHookFlags(IView: LView) {\n IView[PREORDER_HOOK_FLAGS] = 0;\n}\n\n/**\n * Updates the
`TRANSPLANTED_VIEWS_TO_REFRESH` counter on the `LContainer` as well as the parents\n * whose\n * 1.
counter goes from 0 to 1, indicating that there is a new child that has a view to refresh\n * or\n * 2. counter goes
from 1 to 0, indicating there
are no more descendant views to refresh\n */\nexport function updateTransplantedViewCount(IContainer:
LContainer, amount: 1|- 1) {\n IContainer[TRANSPLANTED_VIEWS_TO_REFRESH] += amount;\n let
viewOrContainer: LView|LContainer = IContainer;\n let parent: LView|LContainer|null = IContainer[PARENT];\n
while (parent !== null &&\n ((amount === 1 &&
viewOrContainer[TRANSPLANTED_VIEWS_TO_REFRESH] === 1) ||\n (amount === -1 &&
viewOrContainer[TRANSPLANTED_VIEWS_TO_REFRESH] === 0))) {\n
parent[TRANSPLANTED_VIEWS_TO_REFRESH] += amount;\n viewOrContainer = parent;\n parent =
parent[PARENT];\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {InjectFlags} from './di/interface/injector';\nimport {assertDefined,
assertEqual, assertGreaterThanOrEqual, assertLessThan, assertNotEqual} from './util/assert';\nimport
{assertLViewOrUndefined, assertTNodeForLView, assertTNodeForTView} from './assert';\nimport {DirectiveDef}
from './interfaces/definition';\nimport {TNode, TNodeType} from './interfaces/node';\nimport {CONTEXT,
DECLARATION_VIEW, HEADER_OFFSET, LView, OpaqueViewState, T_HOST, TData, TVIEW, TView,
TViewType} from './interfaces/view';\nimport {MATH_ML_NAMESPACE, SVG_NAMESPACE} from
'./namespaces';\nimport {getTNode} from './util/view_utils';\n\n\n/**\n */\n * Parent
LFrame.\n */\n * This is needed when `leaveView` is called to restore the previous state.\n */\n parent:
LFrame;\n\n /**\n */\n * Child LFrame.\n */\n * This is used to cache existing LFrames to relieve the memory
pressure.\n */\n * child: LFrame|null;\n\n /**\n */\n * State of the current view being processed.\n */\n * An array of
nodes (text, element, container, etc), pipes, their bindings, and\n * any local variables that need to be stored
between invocations.\n\n
*/\n IView: LView;\n\n /**\n */\n * Current `TView` associated with the `LFrame.IView`.\n */\n * One can get
`TView` from `LFrame[TVIEW]` however because it is so common it makes sense to\n * store it in `LFrame` for

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perf reasons.\n \* \n tView: TView;\n\n /\*\*\n \* Used to set the parent property when nodes are created and track query results.\n \* \n \* This is used in conjunction with `isParent`.\n \* \n currentTNode: TNode|null;\n\n /\*\*\n \* If `isParent` is:\n \* - `true`: then `currentTNode` points to a parent node.\n \* - `false`: then `currentTNode` points to previous node (sibling).\n \* \n isParent: boolean;\n\n /\*\*\n \* Index of currently selected element in LView.\n \* \n \* Used by binding instructions. Updated as part of advance instruction.\n \* \n selectedIndex: number;\n\n /\*\*\n \* Current pointer to the binding index.\n \* \n bindingIndex: number;\n\n /\*\*\n \* The last viewData retrieved by nextContext().\n \* \n Allows building nextContext() and reference() calls.\n \* \n e.g. const inner = x().\$implicit; const outer = x().\$implicit;\n \* \n contextLView: LView;\n\n /\*\*\n \* Store the element depth count. This is used to identify the root elements of the template\n \* so that we can then attach patch data `LView` to only those elements. We know that those\n \* are the only places where the patch data could change, this way we will save on number\n \* of places where the patching occurs.\n \* \n elementDepthCount: number;\n\n /\*\*\n \* Current namespace to be used when creating elements\n \* \n currentNamespace: string|null;\n\n /\*\*\n \* The root index from which pure function instructions should calculate their binding\n \* indices. In component views, this is TView.bindingStartIndex. In a host binding\n \* context, this is the TView.expandoStartIndex + any dirs/hostVars before the given dir.\n \* \n bindingRootIndex: number;\n\n /\*\*\n \* Current index of a View or Content Query which needs to be processed next.\n \* \n We iterate over the list of Queries and increment current query index at every step.\n \* \n currentQueryIndex: number;\n\n /\*\*\n \* When host binding is executing this points to the directive index.\n \* \n `TView.data[currentDirectiveIndex]` is `DirectiveDef`\n \* `LView[currentDirectiveIndex]` is directive instance.\n \* \n currentDirectiveIndex: number;\n\n /\*\*\n \* Are we currently in i18n block as denoted by `elementStart` and `elementEnd`.\n \* \n \* This information is needed because while we are in i18n block all elements must be pre-declared\n \* in the translation. (i.e. `Hello #2World/#2!` pre-declares element at `#2` location.)\n \* \n \* This allocates `TNodeType.Placeholder` element at location `2`. If translator removes `#2`\n \* from translation then the runtime must also ensure the element at `2` does not get inserted\n \* into the DOM. The translation does not carry information about deleted elements. Therefore the\n \* only way to know that an element is deleted is that it was not pre-declared in the translation.\n \* \n \* This flag works by ensuring that elements which are created without pre-declaration\n \* (`TNodeType.Placeholder`) are not inserted into the DOM render tree. (It does mean that the\n \* element still gets instantiated along with all of its behavior [directives])\n \* \n inI18n: boolean;\n}\n\n /\*\*\n \* All implicit instruction state is stored here.\n \* \n \* It is useful to have a single object where all of the state is stored as a mental model\n \* (rather it being spread across many different variables.)\n \* \n \* PERF NOTE: Turns out that writing to a true global variable is slower than\n \* having an intermediate object with properties.\n \* \n\n interface InstructionState {\n\n /\*\*\n \* Current `LFrame`\n \* \n \* `null` if we have not called `enterView`\n \* \n IFrame: LFrame;\n\n /\*\*\n \* Stores whether directives should be matched to elements.\n \* \n \* When template contains `ngNonBindable` then we need to prevent the runtime from matching\n \* directives on children of that element.\n \* \n \* Example:\n \* ```\n \* <my-comp my-directive>\n \* Should match component / directive.\n \* </my-comp>\n \* <div ngNonBindable>\n \* <my-comp my-directive>\n \* Should not match component / directive because we are in ngNonBindable.\n \* </my-comp>\n \* </div>\n \* ```\n \* \n bindingsEnabled: boolean;\n\n /\*\*\n \* In this mode, any changes in bindings will throw an ExpressionChangedAfterChecked error.\n \* \n \* Necessary to support ChangeDetectorRef.checkNoChanges().\n \* \n \* checkNoChanges Runs only in devmode=true and verifies that no unintended changes exist in\n \* the change detector or its children.\n \* \n isInCheckNoChangesMode: boolean;\n}\n\n const instructionState: InstructionState = {\n IFrame: createLFrame(null),\n bindingsEnabled: true,\n isInCheckNoChangesMode: false,\n};\n\n /\*\*\n \* Returns true if the instruction state stack is empty.\n \* \n \* Intended to be called from tests only (tree shaken otherwise).\n \* \n\n export function specOnlyIsInstructionStateEmpty(): boolean {\n return instructionState.IFrame.parent === null;\n}\n\n\n export function getElementDepthCount() {\n return instructionState.IFrame.elementDepthCount;\n}\n\n\n export function increaseElementDepthCount() {\n instructionState.IFrame.elementDepthCount++;\n}\n\n\n export function

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decreaseElementDepthCount() {\n instructionState.IFrame.elementDepthCount--;\n}\n\nexport function
getBindingsEnabled(): boolean {\n return instructionState.bindingsEnabled;\n}\n\n/**\n * Enables directive
matching on elements.\n *\n * Example:\n * ```\n * <my-comp my-directive>\n * Should match component /
directive.\n * </my-comp>\n * <div ngNonBindable>\n * <!-- disableBindings() -->\n * <my-comp my-
directive>\n * Should not match component / directive because we are in ngNonBindable.\n * </my-comp>\n *
<!-- enableBindings() -->\n
* </div>\n * ```\n *\n * @codeGenApi\n */\nexport function enableBindings(): void {\n
instructionState.bindingsEnabled = true;\n}\n\n/**\n * Disables directive matching on element.\n *\n *
Example:\n * ```\n * <my-comp my-directive>\n * Should match component / directive.\n * </my-comp>\n * <div
ngNonBindable>\n * <!-- disableBindings() -->\n * <my-comp my-directive>\n * Should not match component
/ directive because we are in ngNonBindable.\n * </my-comp>\n * <!-- enableBindings() -->\n * </div>\n * ```\n
*\n * @codeGenApi\n */\nexport function disableBindings(): void {\n instructionState.bindingsEnabled =
false;\n}\n\n/**\n * Return the current `LView`.\n */\nexport function getLView(): LView {\n return
instructionState.IFrame.LView;\n}\n\n/**\n * Return the current `TView`.\n */\nexport function getTView(): TView
{\n return instructionState.IFrame.tView;\n}\n\n/**\n * Restores `contextViewData` to the given OpaqueViewState
instance.\n *\n * Used in conjunction
with the getCurrentView() instruction to save a snapshot\n * of the current view and restore it when listeners are
invoked. This allows\n * walking the declaration view tree in listeners to get vars from parent views.\n *\n *
@param viewToRestore The OpaqueViewState instance to restore.\n *\n * @codeGenApi\n */\nexport function
restoreView(viewToRestore: OpaqueViewState) {\n instructionState.IFrame.contextLView = viewToRestore as any
as LView;\n}\n\nexport function getCurrentTNode(): TNode|null {\n let currentTNode =
getCurrentTNodePlaceholderOk();\n while (currentTNode !== null && currentTNode.type ===
TNodeType.Placeholder) {\n currentTNode = currentTNode.parent;\n }\n return currentTNode;\n}\n\nexport
function getCurrentTNodePlaceholderOk(): TNode|null {\n return
instructionState.IFrame.currentTNode;\n}\n\nexport function getCurrentParentTNode(): TNode|null {\n const
IFrame = instructionState.IFrame;\n const currentTNode = IFrame.currentTNode;\n return IFrame.isParent
? currentTNode : currentTNode!.parent;\n}\n\nexport function setCurrentTNode(tNode: TNode|null, isParent:
boolean) {\n ngDevMode && tNode && assertTNodeForTView(tNode, instructionState.IFrame.tView);\n const
IFrame = instructionState.IFrame;\n IFrame.currentTNode = tNode;\n IFrame.isParent = isParent;\n}\n\nexport
function isCurrentTNodeParent(): boolean {\n return instructionState.IFrame.isParent;\n}\n\nexport function
setCurrentTNodeAsNotParent(): void {\n instructionState.IFrame.isParent = false;\n}\n\nexport function
setCurrentTNodeAsParent(): void {\n instructionState.IFrame.isParent = true;\n}\n\nexport function
getContextLView(): LView {\n return instructionState.IFrame.contextLView;\n}\n\nexport function
isInCheckNoChangesMode(): boolean {\n // TODO(misko): remove this from the LView since it is
ngDevMode=true mode only.\n return instructionState.isInCheckNoChangesMode;\n}\n\nexport function
setIsInCheckNoChangesMode(mode: boolean): void {\n instructionState.isInCheckNoChangesMode
= mode;\n}\n\n// top level variables should not be exported for performance reasons (PERF_NOTES.md)\nexport
function getBindingRoot() {\n const IFrame = instructionState.IFrame;\n let index = IFrame.bindingRootIndex;\n
if (index === -1) {\n index = IFrame.bindingRootIndex = IFrame.tView.bindingStartIndex;\n }\n return
index;\n}\n\nexport function getBindingIndex(): number {\n return
instructionState.IFrame.bindingIndex;\n}\n\nexport function setBindingIndex(value: number): number {\n return
instructionState.IFrame.bindingIndex = value;\n}\n\nexport function nextBindingIndex(): number {\n return
instructionState.IFrame.bindingIndex++;\n}\n\nexport function incrementBindingIndex(count: number): number {\n
const IFrame = instructionState.IFrame;\n const index = IFrame.bindingIndex;\n IFrame.bindingIndex =
IFrame.bindingIndex + count;\n return index;\n}\n\nexport function isInI18nBlock() {\n return
instructionState.IFrame.inI18n;\n}\n\nexport function
setInI18nBlock(isInI18nBlock: boolean): void {\n instructionState.IFrame.inI18n = isInI18nBlock;\n}\n\n/**\n *
Set a new binding root index so that host template functions can execute.\n *\n * Bindings inside the host template

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are 0 index. But because we don't know ahead of time how many host bindings we have we can't pre-compute them. For this reason they are all 0 index and we just shift the root so that they match next available location in the LView. @param bindingRootIndex Root index for `hostBindings` @param currentDirectiveIndex `TData[currentDirectiveIndex]` will point to the current directive whose `hostBindings` are being processed. @nexport function setBindingRootForHostBindings(bindingRootIndex: number, currentDirectiveIndex: number) { const lFrame = instructionState.lFrame; lFrame.bindingIndex = lFrame.bindingRootIndex = bindingRootIndex; setCurrentDirectiveIndex(currentDirectiveIndex); }  
When host binding is

executing this points to the directive index. `TView.data[getCurrentDirectiveIndex()]` is `DirectiveDef`  
`LView[getCurrentDirectiveIndex()]` is directive instance. @nexport function getCurrentDirectiveIndex(): number { return instructionState.lFrame.currentDirectiveIndex; }  
Sets an index of a directive whose `hostBindings` are being processed. @param currentDirectiveIndex `TData` index where current directive instance can be found. @nexport function setCurrentDirectiveIndex(currentDirectiveIndex: number): void { instructionState.lFrame.currentDirectiveIndex = currentDirectiveIndex; }  
Retrieve the current `DirectiveDef` which is active when `hostBindings` instruction is being executed. @param tData Current `TData` where the `DirectiveDef` will be looked up at. @nexport function getCurrentDirectiveDef(tData: TData): DirectiveDef<any> | null { const currentDirectiveIndex = instructionState.lFrame.currentDirectiveIndex; return currentDirectiveIndex === -1 ? null : tData[currentDirectiveIndex] as DirectiveDef<any>; }  
@nexport function getCurrentQueryIndex(): number { return instructionState.lFrame.currentQueryIndex; }  
@nexport function setCurrentQueryIndex(value: number): void { instructionState.lFrame.currentQueryIndex = value; }  
Returns a `TNode` of the location where the current `LView` is declared at. @param lView an `LView` that we want to find parent `TNode` for. @nfunction getDeclarationTNode(lView: LView): TNode | null { const tView = lView[TVIEW]; // Return the declaration parent for embedded views if (tView.type === TViewType.Embedded) { ngDevMode && assertDefined(tView.declTNode, 'Embedded TNodes should have declaration parents. '); return tView.declTNode; } // Components don't have `TView.declTNode` because each instance of component could be inserted in different location, hence `TView.declTNode` is meaningless. }

Falling back to `T\_HOST` in case we cross component boundary. if (tView.type === TViewType.Component) { return lView[T\_HOST]; }  
Remaining TNode type is `TViewType.Root` which doesn't have a parent TNode. return null;  
This is a light weight version of the `enterView` which is needed by the DI system. @param lView `LView` location of the DI context. @param tNode `TNode` for DI context @param flags DI context flags. if `SkipSelf` flag is set then we walk up the declaration tree from `tNode` until we find parent declared `TElementNode`. @returns `true` if we have successfully entered DI associated with `tNode` (or with declared `TNode` if `flags` has `SkipSelf`). Failing to enter DI implies that no associated `NodeInjector` can be found and we should instead use `ModuleInjector`. - If `true` then this call must be followed by `leaveDI` - If `false` then this call failed and we should NOT call

`leaveDI` @nexport function enterDI(lView: LView, tNode: TNode, flags: InjectFlags) { ngDevMode && assertLViewOrUndefined(lView); if (flags & InjectFlags.SkipSelf) { ngDevMode && assertTNodeForTView(tNode, lView[TVIEW]); let parentTNode = tNode as TNode | null; let parentLView = lView; while (true) { ngDevMode && assertDefined(parentTNode, 'Parent TNode should be defined. '); parentTNode = parentTNode!.parent as TNode | null; if (parentTNode === null && !(flags & InjectFlags.Host)) { parentTNode = getDeclarationTNode(parentLView); if (parentTNode === null) break; // In this case, a parent exists and is definitely an element. So it will definitely have an existing lView as the declaration view, which is why we can assume it's defined. ngDevMode && assertDefined(parentLView, 'Parent LView should be defined. '); parentLView = parentLView[DECLARATION\_VIEW]!; } // In Ivy

there are Comment nodes that correspond to ngIf and NgFor embedded directives // We want to skip those and look only at Elements and ElementContainers to ensure // we're looking at true parent nodes, and not



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oldLFrame.bindingIndex = -1;\n oldLFrame.currentQueryIndex = 0;\n}\n\n\nexport function nextContextImpl<T =
any>(level: number): T {\n const contextLView = instructionState.IFrame.contextLView =\nwalkUpViews(level, instructionState.IFrame.contextLView!);\n return contextLView[CONTEXT] as
T;\n}\n\n\nfunction walkUpViews(nestingLevel: number, currentView: LView): LView {\n while (nestingLevel > 0)
{\n ngDevMode &&\n assertDefined(\n currentView[DECLARATION_VIEW],\n 'Declaration
view should be defined if nesting level is greater than 0.);\n currentView =
currentView[DECLARATION_VIEW];\n nestingLevel--;\n }\n return currentView;\n}\n\n\n**\n * Gets the
currently selected element index.\n * \n * Used with { @link property } instruction (and more in the future) to identify
the index in the\n * current `LView` to act on.\n * \n\nexport function getSelectedIndex() {\n return
instructionState.IFrame.selectedIndex;\n}\n\n\n**\n * Sets the most recent
index passed to { @link select }\n * \n * Used with { @link property } instruction (and more in the future) to identify
the index in the\n * current `LView` to act on.\n * \n * (Note that if an `\"exit function\"` was set earlier (via
`setElementExitFn`) then that will be\n * run if and when the provided `index` value is different from the current
selected index value.)\n * \n\nexport function setSelectedIndex(index: number) {\n ngDevMode && index !== -1
&&\n assertGreaterThanOrEqual(index, HEADER_OFFSET, 'Index must be past HEADER_OFFSET (or -
1).);\n ngDevMode &&\n assertLessThan(\n index, instructionState.IFrame.IView.length, 'Can\\'t set index
passed end of LView');\n instructionState.IFrame.selectedIndex = index;\n}\n\n\n**\n * Gets the `tNode` that
represents currently selected element.\n * \n\nexport function getSelectedTNode() {\n const IFrame =
instructionState.IFrame;\n return getTNode(IFrame.tView, IFrame.selectedIndex);\n}\n\n\n**\n * Sets the namespace
used to
create elements to `http://www.w3.org/2000/svg` in global state.\n * \n * @codeGenApi\n * \n\nexport function
namespaceSVG() {\n instructionState.IFrame.currentNamespace = SVG_NAMESPACE;\n}\n\n\n**\n * Sets the
namespace used to create elements to `http://www.w3.org/1998/MathML/` in global state.\n * \n * @codeGenApi\n * \n\nexport function namespaceMathML() {\n instructionState.IFrame.currentNamespace =
MATH_ML_NAMESPACE;\n}\n\n\n**\n * Sets the namespace used to create elements to `null`, which forces
element creation to use\n * `createElement` rather than `createElementNS`.\n * \n * @codeGenApi\n * \n\nexport
function namespaceHTML() {\n namespaceHTMLInternal();\n}\n\n\n**\n * Sets the namespace used to create
elements to `null`, which forces element creation to use\n * `createElement` rather than `createElementNS`.\n * \n\nexport function namespaceHTMLInternal() {\n instructionState.IFrame.currentNamespace = null;\n}\n\n\nexport
function getNamespace(): string|null {\n return instructionState.IFrame.currentNamespace;\n}\n\n\n\", \"**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\n**\n *
@fileoverview\n * A module to facilitate use of a Trusted Types policy internally within\n * Angular. It lazily
constructs the Trusted Types policy, providing helper\n * utilities for promoting strings to Trusted Types. When
Trusted Types are not\n * available, strings are used as a fallback.\n * \n * @security All use of this module is security-
sensitive and should go through\n * security review.\n * \n\nimport { global } from './global';\nimport
{ TrustedHTML, TrustedScript, TrustedScriptURL, TrustedTypePolicy, TrustedTypePolicyFactory } from
'./trusted_type_defs';\n\n**\n * The Trusted Types policy, or null if Trusted Types are not\n * enabled/supported, or
undefined if the policy has not been created yet.\n * \n\nlet policy: TrustedTypePolicy|null|undefined;\n\n**\n *
Returns the Trusted Types policy, or null if Trusted Types are not\n * enabled/supported. The first call to this
function will create the policy.\n * \n\nfunction getPolicy(): TrustedTypePolicy|null {\n if (policy === undefined) {\n
policy = null;\n if (global.trustedTypes) {\n try {\n policy = (global.trustedTypes as
TrustedTypePolicyFactory).createPolicy('angular', {\n createHTML: (s: string) => s,\n createScript: (s:
string) => s,\n createScriptURL: (s: string) => s,\n });\n } catch {\n // trustedTypes.createPolicy
throws if called with a name that is\n // already registered, even in report-only mode. Until the API changes,\n
 // catch the error not to break the applications functionally. In such\n // cases, the code will fall back to using
strings.\n }\n }\n return policy;\n}\n\n\n**\n * Unsafely promote a string to a TrustedHTML, falling back
to strings

```

when Trusted Types are not available. This is a security-sensitive function; any use of this function must go through security review. In particular, it must be assured that the provided string will never cause an XSS vulnerability if used in a context that will be interpreted as HTML by a browser, e.g. when assigning to element.innerHTML. The following exports function trustedHTMLFromString(html: string):

```
TrustedHTML|string {\n return getPolicy()?.createHTML(html) || html;\n}\n\n/**\n * Unsafely promote a string to a TrustedScript, falling back to strings when Trusted Types are not available.\n * @security In particular, it must be assured that the provided string will never cause an XSS vulnerability if used in a context that will be interpreted and executed as a script by a browser, e.g. when calling eval.\n */\nexport function trustedScriptFromString(script: string): TrustedScript|string {\n return getPolicy()?.createScript(script) || script;\n}\n\n/**\n
```

```
 * Unsafely promote a string to a TrustedScriptURL, falling back to strings when Trusted Types are not available.\n * @security This is a security-sensitive function; any use of this function must go through security review. In particular, it must be assured that the provided string will never cause an XSS vulnerability if used in a context that will cause a browser to load and execute a resource, e.g. when assigning to script.src.\n */\nexport function trustedScriptURLFromString(url: string): TrustedScriptURL|string {\n return getPolicy()?.createScriptURL(url) || url;\n}\n\n/**\n * Unsafely call the Function constructor with the given string arguments. It is only available in development mode, and should be stripped out of production code.\n * @security This is a security-sensitive function; any use of this function must go through security review. In particular, it must be assured that it is only called from development code, as use
```

```
in production code can lead to XSS vulnerabilities.\n */\nexport function newTrustedFunctionForDev(...args: string[]): Function {\n if (typeof ngDevMode === 'undefined') {\n throw new Error('newTrustedFunctionForDev should never be called in production');\n }\n if (!global.trustedTypes) {\n // In environments that don't support Trusted Types, fall back to the most straightforward implementation:\n return new Function(...args);\n }\n // Chrome currently does not support passing TrustedScript to the Function constructor. The following implements the workaround proposed on the page below, where the Chromium bug is also referenced:\n // https://github.com/w3c/webappsec-trusted-types/wiki/Trusted-Types-for-function-constructor\n const fnArgs = args.slice(0, -1).join(',');\n const fnBody = args.pop()!.toString();\n const body = `(function anonymous(${fnArgs}) { ${fnBody} })`;\n // Using eval directly confuses the compiler and prevents this module from being stripped out of JS binaries even if not used. The global['eval'] indirection fixes that.\n const fn = global['eval'](trustedScriptFromString(body) as string) as Function;\n // To completely mimic the behavior of calling "new Function", two more things need to happen:\n // 1. Stringifying the resulting function should return its source code\n fn.toString = () => body;\n // 2. When calling the resulting function, `this` should refer to `global`\n return fn.bind(global);\n}\n\n// When Trusted Types support in Function constructors is widely available, the implementation of this function can be simplified to:\n// return new Function(...args.map(a => trustedScriptFrom(a)));
```

```
\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at\n https://angular.io/license\n */\n\nexport enum BypassType {\n Url = 'URL',\n
```

```
 Html = 'HTML',\n ResourceUrl = 'ResourceURL',\n Script = 'Script',\n Style = 'Style',\n}\n\n/**\n * Marker interface for a value that's safe to use in a particular context.\n */\nexport interface SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as HTML.\n */\nexport interface SafeHtml extends SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as style (CSS).\n */\nexport interface SafeStyle extends SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as JavaScript.\n */\nexport interface SafeScript extends SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as a URL linking to a document.\n */\nexport interface SafeUrl extends SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as a URL to load executable code from.\n */\nexport interface SafeResourceUrl extends
```

```
 SafeValue {\n}\n\nabstract class SafeValueImpl implements SafeValue {\n constructor(public changingThisBreaksApplicationSecurity: string) {\n}\n\n abstract get typeName(): string;\n\n toString() {\n return
```

```

`SafeValue must use [property]=binding: ${this.changingThisBreaksApplicationSecurity}` +\n ` (see
http://g.co/ng/security#xss`);\n }\n}\n\nclass SafeHtmlImpl extends SafeValueImpl implements SafeHtml {\n
getTypeName() {\n return BypassType.Html;\n }\n}\n\nclass SafeStyleImpl extends SafeValueImpl implements
SafeStyle {\n getTypeName() {\n return BypassType.Style;\n }\n}\n\nclass SafeScriptImpl extends SafeValueImpl
implements SafeScript {\n getTypeName() {\n return BypassType.Script;\n }\n}\n\nclass SafeUrlImpl extends
SafeValueImpl implements SafeUrl {\n getTypeName() {\n return BypassType.Url;\n }\n}\n\nclass
SafeResourceUrlImpl extends SafeValueImpl implements SafeResourceUrl {\n getTypeName() {\n return
BypassType.ResourceUrl;\n }\n}\n\n\nexport function
unwrapSafeValue(value: SafeValue): string;\nexport function unwrapSafeValue<T>(value: T): T;\nexport function
unwrapSafeValue<T>(value: T|SafeValue): T {\n return value instanceof SafeValueImpl ?
value.changingThisBreaksApplicationSecurity as any as T : \n value as any as
T;\n }\n}\n\n\nexport function allowSanitizationBypassAndThrow(\n value: any, type: BypassType.Html): value is
SafeHtml;\nexport function allowSanitizationBypassAndThrow(\n value: any, type: BypassType.ResourceUrl):
value is SafeResourceUrl;\nexport function allowSanitizationBypassAndThrow(\n value: any, type:
BypassType.Script): value is SafeScript;\nexport function allowSanitizationBypassAndThrow(\n value: any, type:
BypassType.Style): value is SafeStyle;\nexport function allowSanitizationBypassAndThrow(value: any, type:
BypassType.Url): value is SafeUrl;\nexport function allowSanitizationBypassAndThrow(value: any, type:
BypassType): boolean;\nexport function allowSanitizationBypassAndThrow(value:
any, type: BypassType): boolean {\n const actualType = getSanitizationBypassType(value);\n if (actualType !=
null && actualType !== type) {\n // Allow ResourceURLs in URL contexts, they are strictly more trusted.\n if
(actualType === BypassType.ResourceUrl && type === BypassType.Url) return true;\n throw new Error(\n
`Required a safe ${type}, got a ${actualType} (see http://g.co/ng/security#xss)`);\n }\n return actualType ===
type;\n }\n}\n\nexport function getSanitizationBypassType(value: any): BypassType|null {\n return value instanceof
SafeValueImpl && value.getTypeName() as BypassType || null;\n }\n}\n\n/**\n * Mark `html` string as trusted.\n *\n *
This function wraps the trusted string in `String` and brands it in a way which makes it\n * recognizable to { @link
htmlSanitizer} to be trusted implicitly.\n *\n * @param trustedHtml `html` string which needs to be implicitly
trusted.\n *\n * @returns a `html` which has been branded to be implicitly
trusted.\n */\nexport function bypassSanitizationTrustHtml(trustedHtml: string): SafeHtml {\n return new
SafeHtmlImpl(trustedHtml);\n }\n}\n\n/**\n * Mark `style` string as trusted.\n *\n * This function wraps the trusted string
in `String` and brands it in a way which makes it\n * recognizable to { @link styleSanitizer} to be trusted
implicitly.\n *\n * @param trustedStyle `style` string which needs to be implicitly trusted.\n *\n * @returns a `style`
hich has been branded to be implicitly trusted.\n */\nexport function bypassSanitizationTrustStyle(trustedStyle:
string): SafeStyle {\n return new SafeStyleImpl(trustedStyle);\n }\n}\n\n/**\n * Mark `script` string as trusted.\n *\n *
This function wraps the trusted string in `String` and brands it in a way which makes it\n * recognizable to { @link
scriptSanitizer} to be trusted implicitly.\n *\n * @param trustedScript `script` string which needs to be implicitly
trusted.\n *\n * @returns a `script` which has been branded to be implicitly trusted.\n */\nexport function
bypassSanitizationTrustScript(trustedScript: string): SafeScript {\n return new
SafeScriptImpl(trustedScript);\n }\n}\n\n/**\n * Mark `url` string as trusted.\n *\n * This function wraps the trusted string
in `String` and brands it in a way which makes it\n * recognizable to { @link urlSanitizer} to be trusted implicitly.\n
*\n * @param trustedUrl `url` string which needs to be implicitly trusted.\n *\n * @returns a `url` which has been
branded to be implicitly trusted.\n */\nexport function bypassSanitizationTrustUrl(trustedUrl: string): SafeUrl {\n
return new SafeUrlImpl(trustedUrl);\n }\n}\n\n/**\n * Mark `url` string as trusted.\n *\n * This function wraps the trusted
string in `String` and brands it in a way which makes it\n * recognizable to { @link resourceUrlSanitizer} to be
trusted implicitly.\n *\n * @param trustedResourceUrl `url` string which needs to be implicitly trusted.\n *\n * @returns
a `url` which has been branded to be implicitly trusted.\n */\nexport function
bypassSanitizationTrustResourceUrl(trustedResourceUrl:
string): SafeResourceUrl {\n return new SafeResourceUrlImpl(trustedResourceUrl);\n }\n}\n\n", "/*\n * @license\n *
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```

that can be found in the LICENSE file at <https://angular.io/license> This file is used to control if the default rendering pipeline should be `ViewEngine` or `Ivy`. For more information on how to run and debug tests with either Ivy or View Engine (legacy), please see [BAZEL.md](./docs/BAZEL.md).

```

let _devMode: boolean = true;
let _runModeLocked: boolean = false;

Returns whether Angular is in development mode. After called once, the value is locked and won't change any more. By default, this is true, unless a user calls `enableProdMode` before calling this.

@publicApi
export function isDevMode(): boolean {
 if (_runModeLocked) return _devMode;
}

* Disable Angular's development mode, which turns off assertions and other checks within the framework.

* One important assertion this disables verifies that a change detection pass does not result in additional changes to any bindings (also known as unidirectional data flow).

@publicApi
export function enableProdMode(): void {
 if (_runModeLocked) throw new Error('Cannot enable prod mode after platform setup.');
```

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```

import {trustedHTMLFromString} from '../util/security/trusted_types';

This helper is used to get hold of an inert tree of DOM elements containing dirty HTML that needs sanitizing.

* Depending upon browser support we use one of two strategies for doing this.

Default: DOMParser strategy
Fallback: InertDocument strategy
export function getInertBodyHelper(defaultDoc: Document): InertBodyHelper {
 return isDOMParserAvailable() ? new DOMParserHelper() : new InertDocumentHelper(defaultDoc);
}

export interface InertBodyHelper {
 /**
 * Get an inert DOM element containing DOM created from the dirty HTML string provided.
 */
 getInertBodyElement(html: string): HTMLElement | null;
}

* Uses DOMParser to create and fill an inert body element. This is the default strategy used in browsers that support it.

class DOMParserHelper implements InertBodyHelper {
 getInertBodyElement(html: string): HTMLElement | null {
 // We add these extra elements to ensure that the rest of the content is parsed as expected // e.g. leading whitespace is maintained and tags like <meta> do not get hoisted to the <head> tag. Note that the <body> tag is closed implicitly to prevent unclosed tags
 const html = '<body><remove></remove>' + html;
 try {
 const body = new window.DOMParser().parseFromString(trustedHTMLFromString(html) as string, 'text/html').body as HTMLBodyElement;
 body.removeChild(body.firstChild);
 return body;
 } catch {
 return null;
 }
 }

 * Use an HTML5 `template` element, if supported, or an inert body element created via `createHTMLDocument` to create and fill an inert DOM element. This is the fallback strategy if the browser does not support DOMParser.

 class InertDocumentHelper implements InertBodyHelper {
 private inertDocument: Document;

 constructor(private defaultDoc: Document) {
 this.inertDocument = this.defaultDoc.implementation.createHTMLDocument('sanitization-inert');
 if (this.inertDocument.body == null) {
 // usually there should be only one body element in the document, but IE doesn't have any, so we need to create one.
 const inertHtml = this.inertDocument.createElement('html');
 this.inertDocument.appendChild(inertHtml);
 const inertBodyElement = this.inertDocument.createElement('body');
 inertHtml.appendChild(inertBodyElement);
 }

 getInertBodyElement(html: string): HTMLElement | null {
 // Prefer using <template> element if supported.
 const templateEl = this.inertDocument.createElement('template');
 if ('content' in templateEl) {
 templateEl.innerHTML = trustedHTMLFromString(html) as string;
 return templateEl;
 }

 // Note that previously we used to do something like this.inertDocument.body.innerHTML = html and we returned the inert `body` node. This was changed, because IE seems to treat setting `innerHTML` on an inserted element differently, compared to one that hasn't been inserted yet. In particular, IE appears to split some of the text into multiple text nodes rather than keeping them in a single one which ends up messing with Ivy's parsing further down the line. This has been worked around by creating a new inert `body` and using it as the root node in which we insert the HTML.
 const inertBody =
```





```

boolean} = {};\n for (const s of sets) {\n for (const v in s) {\n if (s.hasOwnProperty(v)) res[v] = true;\n }\n }\n return res;\n}\n\n// Good source of info about elements and attributes\n//\nhttp://dev.w3.org/html5/spec/Overview.html#semantics\n// http://simon.html5.org/html-elements\n\n// Safe Void Elements - HTML5\n// http://dev.w3.org/html5/spec/Overview.html#void-elements\n\nconst VOID_ELEMENTS = tagSet('area,br,col,hr,img,wbr');\n\n// Elements that you can, intentionally, leave open (and which close themselves)\n//\nhttp://dev.w3.org/html5/spec/Overview.html#optional-tags\n\nconst OPTIONAL_END_TAG_BLOCK_ELEMENTS = tagSet('colgroup,dd,dt,li,p,tbody,td,tfoot,th,thead,tr');\n\nconst OPTIONAL_END_TAG_INLINE_ELEMENTS = tagSet('rp,rt');\n\nconst OPTIONAL_END_TAG_ELEMENTS =\n merge(OPTIONAL_END_TAG_INLINE_ELEMENTS, OPTIONAL_END_TAG_BLOCK_ELEMENTS);\n\n// Safe Block Elements - HTML5\n\nconst BLOCK_ELEMENTS = merge(\n OPTIONAL_END_TAG_BLOCK_ELEMENTS,\n tagSet(\n 'address,article,' +\n 'aside,blockquote,caption,center,del,details,dialog,dir,div,dl,figure,figcaption,footer,h1,h2,h3,h4,h5,' +\n 'h6,header,hgroup,hr,ins,main,map,menu,nav,ol,pre,section,summary,table,ul')));\n\n// Inline Elements - HTML5\n\nconst INLINE_ELEMENTS = merge(\n OPTIONAL_END_TAG_INLINE_ELEMENTS,\n tagSet(\n 'a,abbr,acronym,audio,b,' +\n 'bdi,bdo,big,br,cite,code,del,dfn,em,font,i,img,ins,kbd,label,map,mark,picture,q,ruby,rp,rt,s,' +\n 'samp,small,source,span,strike,strong,sub,sup,time,track,tt,u,var,video')));\n\nexport\n const VALID_ELEMENTS =\n merge(VOID_ELEMENTS, BLOCK_ELEMENTS, INLINE_ELEMENTS, OPTIONAL_END_TAG_ELEMENTS);\n\n// Attributes that have href and hence need to be sanitized\n\nexport const\n URI_ATTRS = tagSet('background,cite,href,itemtype,longdesc,poster,src,xlink:href');\n\n// Attributes that have special href set hence need to be sanitized\n\nexport const\n SRCSET_ATTRS = tagSet('srcset');\n\nconst\n HTML_ATTRS = tagSet(\n 'abbr,accesskey,align,alt,autoplay,axis,bgcolor,border,cellpadding,cellspacing,class,clear,color,cols,colspan,' +\n 'compact,controls,coords,datetime,default,dir,download,face,headers,height,hidden,hreflang,hspace,' +\n 'ismap,itemscope,itemprop,kind,label,lang,language,loop,media,muted,nohref,nowrap,open,preload,rel,rev,role,rows, rowspan,rules,' +\n 'scope,scrolling,shape,size,sizes,span,srelang,start,summary,tabindex,target,title,translate,type,usemap,' +\n 'valign,value,vspace,width');\n\n// Accessibility attributes as per WAI-ARIA 1.1 (W3C Working Draft 14 December 2018)\n\nconst\n ARIA_ATTRS = tagSet(\n 'aria-activedescendant,aria-atomic,aria-autocomplete,aria-busy,aria-checked,aria-colcount,aria-colindex,' +\n 'aria-colspan,aria-controls,aria-current,aria-describedby,aria-details,aria-disabled,aria-dropeffect,' +\n 'aria-errormessage,aria-expanded,aria-flowto,aria-grabbed,aria-haspopup,aria-hidden,aria-invalid,' +\n 'aria-keyshortcuts,aria-label,aria-labelledby,aria-level,aria-live,aria-modal,aria-multiline,' +\n 'aria-multiselectable,aria-orientation,aria-owns,aria-placeholder,aria-posinset,aria-pressed,aria-readonly,' +\n 'aria-relevant,aria-required,aria-roledescription,aria-rowcount,aria-rowindex,aria-rowspan,aria-selected,' +\n 'aria-setsize,aria-sort,aria-valuemax,aria-valuemin,aria-valuenow,aria-valuetext');\n\n// NB: This currently consciously doesn't support SVG. SVG sanitization has had several security\n// issues in the past, so it seems safer to leave it out if possible.\n\nIf support for binding SVG via\n// innerHTML is required, SVG attributes should be added here.\n\n// NB: Sanitization does not allow <form> elements or other active elements (<button> etc). Those\n// can be sanitized, but they increase security surface area without a legitimate use case, so they\n// are left out here.\n\nexport const\n VALID_ATTRS = merge(URI_ATTRS, SRCSET_ATTRS, HTML_ATTRS, ARIA_ATTRS);\n\n// Elements whose content should not be traversed/preserved, if the elements themselves are invalid.\n\n// Typically, `<invalid>Some content</invalid>` would traverse (and in this case preserve)\n// `Some content`, but strip `invalid` opening/closing tags. For some elements, though, we\n// don't want to preserve the content, if the elements themselves are going to be removed.\n\nconst\n SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS = tagSet('script,style,template');\n\n// **\n\n * SanitizingHtmlSerializer serializes a DOM fragment, stripping out any

```

```

unsafe elements and unsafe\n * attributes.\n
*/\n
class SanitizingHtmlSerializer {\n // Explicitly track if something was stripped, to avoid accidentally warning
of sanitization just\n // because characters were re-encoded.\n public sanitizedSomething = false;\n private buf:
string[] = [];\n\n sanitizeChildren(el: Element): string {\n // This cannot use a TreeWalker, as it has to run on
Angular's various DOM adapters.\n // However this code never accesses properties off of `document` before
deleting its contents\n // again, so it shouldn't be vulnerable to DOM clobbering.\n let current: Node =
el.firstChild!;\n let traverseContent = true;\n while (current) {\n if (current.nodeType ===
Node.ELEMENT_NODE) {\n traverseContent = this.startElement(current as Element);\n } else if
(current.nodeType === Node.TEXT_NODE) {\n this.chars(current.nodeValue!);\n } else {\n // Strip
non-element, non-text nodes.\n this.sanitizedSomething = true;\n }\n if (traverseContent
&& current.firstChild) {\n current = current.firstChild!;\n continue;\n }\n while (current) {\n //
Leaving the element. Walk up and to the right, closing tags as we go.\n if (current.nodeType ===
Node.ELEMENT_NODE) {\n this.endElement(current as Element);\n }\n\n let next =
this.checkClobberedElement(current, current.nextSibling!);\n\n if (next) {\n current = next;\n
break;\n }\n\n current = this.checkClobberedElement(current, current.parentNode!);\n }\n }\n return
this.buf.join('');\n }\n\n /**\n * Sanitizes an opening element tag (if valid) and returns whether the element's
contents should\n * be traversed. Element content must always be traversed (even if the element itself is not\n *
valid/safe), unless the element is one of `SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS`.\n * \n
* @param element The element to sanitize.\n * @return True if the element's
contents should be traversed.\n */\n private startElement(element: Element): boolean {\n const tagName =
element.nodeName.toLowerCase();\n if (!VALID_ELEMENTS.hasOwnProperty(tagName)) {\n
this.sanitizedSomething = true;\n return
!SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS.hasOwnProperty(tagName);\n }\n
this.buf.push('<');\n this.buf.push(tagName);\n const elAttrs = element.attributes;\n for (let i = 0; i <
elAttrs.length; i++) {\n const elAttr = elAttrs.item(i);\n const attrName = elAttr!.name;\n const lower =
attrName.toLowerCase();\n if (!VALID_ATTRS.hasOwnProperty(lower)) {\n this.sanitizedSomething =
true;\n continue;\n }\n let value = elAttr!.value;\n // TODO(martinprobst): Special case image URIs for
data:image/...\n if (URI_ATTRS[lower]) value = _sanitizeUrl(value);\n if (SRCSET_ATTRS[lower]) value =
sanitizeSrcset(value);\n this.buf.push(' ', attrName, '=', encodeEntities(value),
'");\n }\n this.buf.push('>');\n return true;\n }\n\n private endElement(current: Element) {\n const tagName =
current.nodeName.toLowerCase();\n if (VALID_ELEMENTS.hasOwnProperty(tagName) &&
!VOID_ELEMENTS.hasOwnProperty(tagName)) {\n this.buf.push('</');\n this.buf.push(tagName);\n
this.buf.push('>');\n }\n }\n\n private chars(chars: string) {\n this.buf.push(encodeEntities(chars));\n }\n\n
checkClobberedElement(node: Node, nextNode: Node): Node {\n if (nextNode &&\n
(node.compareDocumentPosition(nextNode) &\n Node.DOCUMENT_POSITION_CONTAINED_BY)
=== Node.DOCUMENT_POSITION_CONTAINED_BY) {\n throw new Error(`Failed to sanitize html because
the element is clobbered: ${\n (node as Element).outerHTML}`);\n }\n return nextNode;\n }\n\n\n//
Regular Expressions for parsing tags and attributes\nconst SURROGATE_PAIR_REGEXP = /[\\uD800-
\\uDBFF][\\uDC00-\\uDFFF]/g;\n// ! to ~ is the ASCII range.\nconst NON_ALPHANUMERIC_REGEXP =
/([^\u0021-\u007E])/g;\n\n/**\n * Escapes all potentially dangerous characters, so that the\n * resulting string can be
safely inserted into attribute or\n * element text.\n * @param value\n */\nfunction encodeEntities(value: string) {\n
return value.replace(/&/g, '&')\n .replace(\n SURROGATE_PAIR_REGEXP,\n function(match:
string) {\n const hi = match.charCodeAt(0);\n const low = match.charCodeAt(1);\n return '&#
+ (((hi - 0xD800) * 0x400) + (low - 0xDC00) + 0x10000) + ';';\n }\n)\n .replace(\n
NON_ALPHANUMERIC_REGEXP,\n function(match: string) {\n return '&# ' + match.charCodeAt(0)
+ ';';\n }\n)\n .replace(/</g, '<')\n .replace(/>/g, '>');\n }\n\nlet inertBodyHelper:
InertBodyHelper;\n\n/**\n * Sanitizes the given unsafe, untrusted HTML fragment, and returns HTML text that is
safe to add to\n * the DOM in a browser environment.\n */\nexport function

```

```

_sanitizeHtml(defaultDoc: any, unsafeHtmlInput: string): string {\n let inertBodyElement: HTMLElement|null =
null;\n try {\n inertBodyHelper = inertBodyHelper || getInertBodyHelper(defaultDoc);\n // Make sure
unsafeHtml is actually a string (TypeScript types are not enforced at runtime).\n let unsafeHtml =
unsafeHtmlInput ? String(unsafeHtmlInput) : '';\n inertBodyElement =
inertBodyHelper.getInertBodyElement(unsafeHtml);\n\n // mXSS protection. Repeatedly parse the document to
make sure it stabilizes, so that a browser\n // trying to auto-correct incorrect HTML cannot cause formerly inert
HTML to become dangerous.\n let mXSSAttempts = 5;\n let parsedHtml = unsafeHtml;\n\n do {\n if
(mXSSAttempts === 0) {\n throw new Error('Failed to sanitize html because the input is unstable');\n }\n
mXSSAttempts--;\n\n unsafeHtml = parsedHtml;\n parsedHtml = inertBodyElement!.innerHTML;\n
inertBodyElement = inertBodyHelper.getInertBodyElement(unsafeHtml);\n
} while (unsafeHtml !== parsedHtml);\n\n const sanitizer = new SanitizingHtmlSerializer();\n const safeHtml
= sanitizer.sanitizeChildren(\n getTemplateContent(inertBodyElement!) as Element || inertBodyElement);\n if
(isDevMode() && sanitizer.sanitizedSomething) {\n console.warn(\n 'WARNING: sanitizing HTML
stripped some content, see http://g.co/ng/security#xss');\n }\n\n return safeHtml;\n } finally {\n // In case
anything goes wrong, clear out inertElement to reset the entire DOM structure.\n if (inertBodyElement) {\n
const parent = getTemplateContent(inertBodyElement) || inertBodyElement;\n while (parent.firstChild) {\n
parent.removeChild(parent.firstChild);\n }\n }\n }\n }\n\nexport function getTemplateContent(el: Node):
Node|null {\n return 'content' in (el as any /** Microsoft/TypeScript#21517 */) && isTemplateElement(el) ?\n
el.content :\n null;\n }\n\nfunction isTemplateElement(el:
Node): el is HTMLTemplateElement {\n return el.nodeType === Node.ELEMENT_NODE && el.nodeName ===
'TEMPLATE';\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\n *\n * A SecurityContext marks a location that has dangerous security implications, e.g. a DOM property\n *
like `innerHTML` that could cause Cross Site Scripting (XSS) security bugs when improperly\n * handled.\n *\n *
See DomSanitizer for more details on security in Angular applications.\n *\n * @publicApi\n */\nexport enum
SecurityContext {\n NONE = 0,\n HTML = 1,\n STYLE = 2,\n SCRIPT = 3,\n URL = 4,\n RESOURCE_URL =
5,\n }\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\n\nimport
{ getDocument } from './render3/interfaces/document';\nimport { SANITIZER } from
'./render3/interfaces/view';\nimport { getLView } from './render3/state';\nimport { renderStringify } from
'./render3/util/stringify_utils';\nimport { TrustedHTML, TrustedScript, TrustedScriptURL } from
'./util/security/trusted_type_defs';\nimport { trustedHTMLFromString, trustedScriptFromString,
trustedScriptURLFromString } from './util/security/trusted_types';\nimport { allowSanitizationBypassAndThrow,
BypassType, unwrapSafeValue } from './bypass';\nimport { _sanitizeHtml as _sanitizeHtml } from
'./html_sanitizer';\nimport { Sanitizer } from './sanitizer';\nimport { SecurityContext } from './security';\nimport
{ _sanitizeUrl as _sanitizeUrl } from './url_sanitizer';\n\n\n\n\n *\n * An `html` sanitizer which converts untrusted
`html` **string** into trusted string by removing\n * dangerous content.\n *\n * This method parses the `html` and
locates potentially dangerous content (such as urls and\n * javascript) and removes
it.\n *\n * It is possible to mark a string as trusted by calling { @link bypassSanitizationTrustHtml }.\n *\n *
@param unsafeHtml untrusted `html`, typically from the user.\n * @returns `html` string which is safe to display to
user, because all of the dangerous javascript\n * and urls have been removed.\n *\n * @codeGenApi\n */\nexport
function sanitizeHtml(unsafeHtml: any): string {\n const sanitizer = getSanitizer();\n if (sanitizer) {\n return
sanitizer.sanitize(SecurityContext.HTML, unsafeHtml) || '';\n }\n\n if
(allowSanitizationBypassAndThrow(unsafeHtml, BypassType.Html)) {\n return unwrapSafeValue(unsafeHtml);\n
}\n\n return _sanitizeHtml(getDocument(), renderStringify(unsafeHtml));\n }\n\n\n\n *\n * A `style` sanitizer which
converts untrusted `style` **string** into trusted string by removing\n * dangerous content.\n *\n * It is possible to
mark a string as trusted by calling { @link bypassSanitizationTrustStyle }.\n *\n * @param unsafeStyle untrusted

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`style`, typically

```
from the user.\n * @returns `style` string which is safe to bind to the `style` properties.\n *\n * @codeGenApi\n */\nexport function sanitizeStyle(unsafeStyle: any): string {\n const sanitizer = getSanitizer();\n if (sanitizer) {\n return sanitizer.sanitize(SecurityContext.STYLE, unsafeStyle) || '';\n }\n if (allowSanitizationBypassAndThrow(unsafeStyle, BypassType.Style)) {\n return unwrapSafeValue(unsafeStyle);\n }\n return renderStringify(unsafeStyle);\n}\n\n/**\n * A `url` sanitizer which converts untrusted `url` **string** into trusted string by removing\n * dangerous\n * content.\n *\n * This method parses the `url` and locates potentially dangerous content (such as javascript) and\n * removes it.\n *\n * It is possible to mark a string as trusted by calling { @link bypassSanitizationTrustUrl }.\n *\n * @param unsafeUrl untrusted `url`, typically from the user.\n * @returns `url` string which is safe to bind to the `src` properties such as `
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URL schema, use URL sanitizer.\n */\nexport function getUrlSanitizer(tag: string, prop: string) {\n if ((prop ===
'src' &&\n (tag === 'embed' || tag === 'frame' || tag === 'iframe' || tag === 'media' ||\n tag === 'script')) ||\n (prop === 'href' && (tag === 'base' || tag === 'link')))) {\n return sanitizeResourceUrl;\n }\n return
sanitizeUrl;\n}\n\n/**\n * Sanitizes URL, selecting sanitizer function based on tag and property names.\n *\n * This
function is used in case we can't define security context at compile time, when only prop\n * name is available. This
happens when we generate host bindings for Directives/Components. The\n * host element is unknown at compile
time, so we defer calculation of specific sanitizer to\n * runtime.\n *\n * @param unsafeUrl untrusted `url`, typically
from the user.\n *\n * @param tag target element tag name.\n *\n * @param prop name of the property that contains the
value.\n *\n * @returns `url` string which is safe to bind.\n *\n * @codeGenApi\n
*/\nexport function sanitizeUrlOrResourceUrl(unsafeUrl: any, tag: string, prop: string): any {\n return
getUrlSanitizer(tag, prop)(unsafeUrl);\n}\n\nexport function validateAgainstEventProperties(name: string) {\n if
(name.toLowerCase().startsWith('on')) {\n const msg = `Binding to event property '${name}' is disallowed for
security reasons, ` +\n `please use (${name.slice(2)})=...` +\n `\nIf '${name}' is a directive input, make
sure the directive is imported by the` +\n `current module.`;\n throw new Error(msg);\n }\n}\n\nexport
function validateAgainstEventAttributes(name: string) {\n if (name.toLowerCase().startsWith('on')) {\n const msg
= `Binding to event attribute '${name}' is disallowed for security reasons, ` +\n `please use
(${name.slice(2)})=...`;\n throw new Error(msg);\n }\n}\n\nfunction getSanitizer(): Sanitizer|null {\n const IView
= getLView();\n return IView && IView[SAITIZER];\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from './interface/type';\nimport
{stringify} from './util/stringify';\nimport {NG_FACTORY_DEF} from './fields';\n\n\n/**\n * Definition of what a
factory function should look like.\n */\nexport type FactoryFn<T> = {\n /**\n * Subclasses without an explicit
constructor call through to the factory of their base\n * definition, providing it with their own constructor to
instantiate.\n *\n * <U extends T>(t: Type<U>): U;\n *\n * If no constructor to instantiate is provided, an
instance of type T itself is created.\n *\n * (t?: undefined): T;\n *};\n\n\nexport function getFactoryDef<T>(type: any,
throwNotFound: true): FactoryFn<T>;\nexport function getFactoryDef<T>(type: any): FactoryFn<T>|null;\nexport
function getFactoryDef<T>(type: any, throwNotFound?: boolean): FactoryFn<T>|null
{\n const hasFactoryDef = type.hasOwnProperty(NG_FACTORY_DEF);\n if (!hasFactoryDef &&
throwNotFound === true && ngDevMode) {\n throw new Error(`Type ${stringify(type)} does not have 'fac'
property.`);\n }\n return hasFactoryDef ? type[NG_FACTORY_DEF] : null;\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nexport const enum RuntimeErrorCode {\n //
Internal Errors\n // Change Detection Errors\n EXPRESSION_CHANGED_AFTER_CHECKED = '100',\n //
Dependency Injection Errors\n CYCLIC_DI_DEPENDENCY = '200',\n PROVIDER_NOT_FOUND = '201',\n //
Template Errors\n MULTIPLE_COMPONENTS_MATCH = '300',\n EXPORT_NOT_FOUND = '301',\n PIPE_NOT_FOUND = '302',\n UNKNOWN_BINDING = '303',\n UNKNOWN_ELEMENT = '304',\n //
Styling Errors\n // Declarations Errors\n // i18n Errors\n // Compilation Errors\n}\n\nexport
class RuntimeError extends Error {\n constructor(public code: RuntimeErrorCode, message: string) {\n super(formatRuntimeError(code, message));\n }\n}\n\n\n/** Called to format a runtime error */\nexport function
formatRuntimeError(code: RuntimeErrorCode, message: string): string {\n const fullCode = code ? `NG0${code}` : `
: `;\n return `${fullCode}${message}`;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {InjectorType} from './di/interface/defs';\nimport {stringify} from
'./util/stringify';\nimport {RuntimeError, RuntimeErrorCode} from './error_code';\nimport {stringifyForError} from
'./util/stringify_utils';\n\n\n/** Called when directives inject each other (creating a circular dependency) */\nexport
function throwCyclicDependencyError(token: string, path?: string[]): never {\n const depPath
= path ? `Dependency path: ${path.join(' > ')} > ${token}` : ` `;\n throw new RuntimeError(\n
RuntimeErrorCode.CYCLIC_DI_DEPENDENCY,\n `Circular dependency in DI detected for

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${token}${depPath}`);\n}\n\nexport function throwMixedMultiProviderError() {\n throw new Error(`Cannot mix
multi providers and regular providers`);\n}\n\nexport function throwInvalidProviderError(\n ngModuleType?:
InjectorType<any>, providers?: any[], provider?: any) {\n let ngModuleDetail = `";\n if (ngModuleType &&
providers) {\n const providerDetail = providers.map(v => v === provider ? '?' + provider + ':' + '...');\n
ngModuleDetail =\n ` - only instances of Provider and Type are allowed, got: [${providerDetail.join(', ')}]`;
\n }\n throw new Error(\n `Invalid provider for the NgModule '${stringify(ngModuleType)}'` +
ngModuleDetail);\n}\n}\n\n/** Throws an error when a token is not found in DI. */\nexport function
throwProviderNotFoundError(token: any, injectorName?: string):
never {\n const injectorDetails = injectorName ? ` in ${injectorName}` : `";\n throw new RuntimeError(\n
RuntimeErrorCode.PROVIDER_NOT_FOUND,\n `No provider for ${stringifyForError(token)}
found${injectorDetails}`);\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n * Represents a basic change from a previous to a new value for a single\n *
property on a directive instance. Passed as a value in a\n * { @link SimpleChanges } object to the `ngOnChanges`
hook.\n * @see `OnChanges`\n * @publicApi\n */\nexport class SimpleChange {\n constructor(public
previousValue: any, public currentValue: any, public firstChange: boolean) {}\n /**\n * Check whether the new
value is the first value assigned.\n */\n isFirstChange(): boolean {\n return this.firstChange;\n }\n}\n\n/**\n * A
hashtable of
changes represented by { @link SimpleChange } objects stored\n * at the declared property name they belong to on a
Directive or Component. This is\n * the type passed to the `ngOnChanges` hook.\n * @see `OnChanges`\n * @publicApi\n */\nexport interface SimpleChanges {\n [propName: string]: SimpleChange;\n}\n\n", /**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport { OnChanges }
from '.././interface/lifecycle_hooks';\nimport { SimpleChange, SimpleChanges } from
'.././interface/simple_change';\nimport { EMPTY_OBJ } from '../empty';\nimport { DirectiveDef,
DirectiveDefFeature } from '.././interfaces/definition';\n\n/**\n * The NgOnChangesFeature decorates a component
with support for the ngOnChanges\n * lifecycle hook, so it should be included in any component that implements\n
* that hook.\n * If the component or directive
uses inheritance, the NgOnChangesFeature MUST\n * be included as a feature AFTER { @link
InheritDefinitionFeature }, otherwise\n * inherited properties will not be propagated to the ngOnChanges lifecycle\n
* hook.\n * Example usage:\n * ```\n * static cmp = defineComponent({\n * ... inputs: { name:
'publicName' },\n * features: [NgOnChangesFeature]\n * });\n * ```\n * @codeGenApi\n */\nexport function
NgOnChangesFeature<T>(): DirectiveDefFeature {\n return NgOnChangesFeatureImpl;\n}\n\nexport function
NgOnChangesFeatureImpl<T>(definition: DirectiveDef<T>) {\n if (definition.type.prototype.ngOnChanges) {\n
definition.setInput = ngOnChangesSetInput;\n }\n return
rememberChangeHistoryAndInvokeOnChangesHook;\n}\n\n// This option ensures that the ngOnChanges lifecycle
hook will be inherited\n// from superclasses (in InheritDefinitionFeature).\n/** @nocollapse */\n// tslint:disable-
next-line:no-toplevel-property-access\n(NgOnChangesFeature as DirectiveDefFeature).ngInherit
= true;\n\n/**\n * This is a synthetic lifecycle hook which gets inserted into `TView.preOrderHooks` to simulate\n
* `ngOnChanges`.\n * The hook reads the `NgSimpleChangesStore` data from the component instance and if
changes are\n * found it invokes `ngOnChanges` on the component instance.\n * @param this Component
instance. Because this function gets inserted into `TView.preOrderHooks`,\n * it is guaranteed to be called with
component instance.\n */\nfunction rememberChangeHistoryAndInvokeOnChangesHook(this: OnChanges) {\n
const simpleChangesStore = getSimpleChangesStore(this);\n const current = simpleChangesStore?.current;\n if
(current) {\n const previous = simpleChangesStore!.previous;\n if (previous === EMPTY_OBJ) {\n
simpleChangesStore!.previous = current;\n } else {\n // New changes are copied to the previous store, so that
we don't lose history for inputs\n // which were not changed this time\n for (let key in current)

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 {\n previous[key] = current[key];\n }\n }\n simpleChangesStore!.current = null;\n this.ngOnChanges(current);\n }\n }\n\nfunction ngOnChangesSetInput<T>(\n this: DirectiveDef<T>, instance:
 T, value: any, publicName: string, privateName: string): void {\n const simpleChangesStore =
 getSimpleChangesStore(instance) ||\n setSimpleChangesStore(instance, {previous: EMPTY_OBJ, current:
 null});\n const current = simpleChangesStore.current || (simpleChangesStore.current = {});\n const previous =
 simpleChangesStore.previous;\n const declaredName = (this.declaredInputs as {[key: string]:
 string})[publicName];\n const previousChange = previous[declaredName];\n current[declaredName] = new
 SimpleChange(\n previousChange && previousChange.currentValue, value, previous === EMPTY_OBJ);\n }\n (instance as any)[privateName] = value;\n }\n\nconst SIMPLE_CHANGES_STORE =
 '__ngSimpleChanges__';\n\nfunction getSimpleChangesStore(instance: any): null|NgSimpleChangesStore
 {\n return instance[SIMPLE_CHANGES_STORE] || null;\n }\n\nfunction setSimpleChangesStore(instance: any,
 store: NgSimpleChangesStore): NgSimpleChangesStore {\n return instance[SIMPLE_CHANGES_STORE] =
 store;\n }\n\n/**\n * Data structure which is monkey-patched on the component instance and used by
 `ngOnChanges`\n * life-cycle hook to track previous input values.\n */\ninterface NgSimpleChangesStore {\n
 previous: SimpleChanges;\n current: SimpleChanges|null;\n }\n ,"/**\n * @license\n * Copyright Google LLC All
 Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
 LICENSE file at https://angular.io/license\n */\n\nimport {AfterContentChecked, AfterContentInit,
 AfterViewChecked, AfterViewInit, DoCheck, OnChanges, OnDestroy, OnInit} from
 './interface/lifecycle_hooks';\nimport {assertDefined, assertEqual, assertNotEqual} from './util/assert';\nimport
 {assertFirstCreatePass} from './assert';\nimport {NgOnChangesFeatureImpl} from
 './features/ng_onchanges_feature';\nimport {DirectiveDef} from './interfaces/definition';\nimport {TNode} from
 './interfaces/node';\nimport {FLAGS, HookData, InitPhaseState, LView, LViewFlags,
 PREORDER_HOOK_FLAGS, PreOrderHookFlags, TView} from './interfaces/view';\nimport
 {isInCheckNoChangesMode} from './state';\n\n\n/**\n * Adds all directive lifecycle hooks from the given
 `DirectiveDef` to the given `TView`.\n *\n * Must be run *only* on the first template pass.\n *\n * Sets up the pre-
 order hooks on the provided `tView`,\n * see {@link HookData} for details about the data structure.\n *\n *
 @param directiveIndex The index of the directive in LView\n * @param directiveDef The definition containing the
 hooks to setup in tView\n * @param tView The current TView\n */\nexport function registerPreOrderHooks(\n
 directiveIndex: number, directiveDef: DirectiveDef<any>, tView: TView): void {\n ngDevMode &&
 assertFirstCreatePass(tView);\n const {ngOnChanges, ngOnInit, ngDoCheck} =\n
 directiveDef.type.prototype as OnChanges & OnInit & DoCheck;\n\n if (ngOnChanges as Function | undefined)
 {\n const wrappedOnChanges = NgOnChangesFeatureImpl(directiveDef);\n (tView.preOrderHooks ||
 (tView.preOrderHooks = [])).push(directiveIndex, wrappedOnChanges);\n (tView.preOrderCheckHooks ||
 (tView.preOrderCheckHooks = [])).push(directiveIndex, wrappedOnChanges);\n }\n\n if (ngOnInit) {\n
 (tView.preOrderHooks || (tView.preOrderHooks = [])).push(0 - directiveIndex, ngOnInit);\n }\n\n if (ngDoCheck)
 {\n (tView.preOrderHooks || (tView.preOrderHooks = [])).push(directiveIndex, ngDoCheck);\n
 (tView.preOrderCheckHooks || (tView.preOrderCheckHooks = [])).push(directiveIndex, ngDoCheck);\n
 }\n\n\n /**\n * Loops through the directives on the provided `tNode` and queues hooks to be\n * run that are not
 initialization hooks.\n * Should be executed during `elementEnd()` and similar to\n * preserve hook execution
 order. Content, view, and destroy
 hooks for projected\n * components and directives must be called *before* their hosts.\n *\n * Sets up the content,
 view, and destroy hooks on the provided `tView`,\n * see {@link HookData} for details about the data structure.\n
 *\n * NOTE: This does not set up `onChanges`, `onInit` or `doCheck`, those are set up\n * separately at
 `elementStart`.\n *\n * @param tView The current TView\n * @param tNode The TNode whose directives are to be
 searched for hooks to queue\n */\n export function registerPostOrderHooks(tView: TView, tNode: TNode): void {\n
 ngDevMode && assertFirstCreatePass(tView);\n // It's necessary to loop through the directives at elementEnd()
 (rather than processing in\n // directiveCreate) so we can preserve the current hook order. Content, view, and
 destroy\n // hooks for projected components and directives must be called *before* their hosts.\n for (let i =

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tNode.directiveStart, end = tNode.directiveEnd; i < end; i++) {\n const directiveDef = tView.data[i] as
DirectiveDef<any>;\n
 ngDevMode && assertDefined(directiveDef, 'Expecting DirectiveDef');\n const lifecycleHooks:
AfterContentInit&AfterContentChecked&AfterViewInit&AfterViewChecked&\n OnDestroy =
directiveDef.type.prototype;\n const {\n ngAfterContentInit,\n ngAfterContentChecked,\n ngAfterViewInit,\n ngAfterViewChecked,\n ngOnDestroy\n } = lifecycleHooks;\n\n if
(ngAfterContentInit) {\n (tView.contentHooks || (tView.contentHooks = [])).push(-i, ngAfterContentInit);\n }\n\n if (ngAfterContentChecked) {\n (tView.contentHooks || (tView.contentHooks = [])).push(i,
ngAfterContentChecked);\n (tView.contentCheckHooks || (tView.contentCheckHooks = [])).push(i,
ngAfterContentChecked);\n }\n\n if (ngAfterViewInit) {\n (tView.viewHooks || (tView.viewHooks =
[])).push(-i, ngAfterViewInit);\n }\n\n if (ngAfterViewChecked) {\n (tView.viewHooks || (tView.viewHooks
= [])).push(i, ngAfterViewChecked);\n (tView.viewCheckHooks
|| (tView.viewCheckHooks = [])).push(i, ngAfterViewChecked);\n }\n\n if (ngOnDestroy != null) {\n
(tView.destroyHooks || (tView.destroyHooks = [])).push(i, ngOnDestroy);\n }\n }\n}\n\n/**\n * Executing hooks
requires complex logic as we need to deal with 2 constraints.\n * 1. Init hooks (ngOnInit, ngAfterContentInit,
ngAfterViewInit) must all be executed once and only\n * once, across many change detection cycles. This must be
true even if some hooks throw, or if\n * some recursively trigger a change detection cycle.\n * To solve that, it is
required to track the state of the execution of these init hooks.\n * This is done by storing and maintaining flags in
the view: the { @link InitPhaseState },\n * and the index within that phase. They can be seen as a cursor in the
following structure:\n * [[onInit1, onInit2], [afterContentInit1], [afterViewInit1, afterViewInit2, afterViewInit3]]\n *
They are stored as flags in LView[FLAGS].\n *\n * 2. Pre-order
hooks can be executed in batches, because of the select instruction.\n * To be able to pause and resume their
execution, we also need some state about the hook's array\n * that is being processed:\n * - the index of the next
hook to be executed\n * - the number of init hooks already found in the processed part of the array\n * They are
stored as flags in LView[PREORDER_HOOK_FLAGS].\n */\n\n/**\n * Executes pre-order check hooks (
OnChanges, DoChanges) given a view where all the init hooks were\n * executed once. This is a light version of
executeInitAndCheckPreOrderHooks where we can skip read\n * / write of the init-hooks related flags.\n * @param
IView The LView where hooks are defined\n * @param hooks Hooks to be run\n * @param nodeIndex 3 cases
depending on the value:\n * - undefined: all hooks from the array should be executed (post-order case)\n * - null:
execute hooks only from the saved index until the end of the array (pre-order case, when\n * flushing the remaining
hooks)\n
\n * - number: execute hooks only from the saved index until that node index exclusive (pre-order\n * case, when
executing select(number))\n */\n\nexport function executeCheckHooks(IView: LView, hooks: HookData, nodeIndex?:
number|null) {\n callHooks(IView, hooks, InitPhaseState.InitPhaseCompleted, nodeIndex);\n }\n\n/**\n * Executes
post-order init and check hooks (one of AfterContentInit, AfterContentChecked,\n * AfterViewInit,
AfterViewChecked) given a view where there are pending init hooks to be executed.\n * @param IView The LView
where hooks are defined\n * @param hooks Hooks to be run\n * @param initPhase A phase for which hooks should
be run\n * @param nodeIndex 3 cases depending on the value:\n * - undefined: all hooks from the array should be
executed (post-order case)\n * - null: execute hooks only from the saved index until the end of the array (pre-order
case, when\n * flushing the remaining hooks)\n * - number: execute hooks only from the saved index until that node
index
\n * exclusive (pre-order\n * case, when executing select(number))\n */\n\nexport function executeInitAndCheckHooks(\n
IView: LView, hooks: HookData, initPhase: InitPhaseState, nodeIndex?: number|null) {\n ngDevMode &&\n
assertNotEqual(\n initPhase, InitPhaseState.InitPhaseCompleted,\n 'Init pre-order hooks should not be
called more than once');\n if ((IView[FLAGS] & LViewFlags.InitPhaseStateMask) === initPhase) {\n
callHooks(IView, hooks, initPhase, nodeIndex);\n }\n }\n\nexport function incrementInitPhaseFlags(IView: LView,
initPhase: InitPhaseState): void {\n ngDevMode &&\n assertNotEqual(\n initPhase,
InitPhaseState.InitPhaseCompleted,\n 'Init hooks phase should not be incremented after all init hooks have

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been run.});\n let flags = IView[FLAGS];\n if ((flags & LViewFlags.InitPhaseStateMask) === initPhase) {\n flags
&= LViewFlags.IndexWithinInitPhaseReset;\n flags += LViewFlags.InitPhaseStateIncrementer;\n
IView[FLAGS]
= flags;\n }\n}\n\n/**\n * Calls lifecycle hooks with their contexts, skipping init hooks if it's not\n * the first
LView pass\n *\n * @param currentView The current view\n * @param arr The array in which the hooks are
found\n * @param initPhaseState the current state of the init phase\n * @param currentNodeIndex 3 cases
depending on the value:\n * - undefined: all hooks from the array should be executed (post-order case)\n * - null:
execute hooks only from the saved index until the end of the array (pre-order case, when\n * flushing the remaining
hooks)\n * - number: execute hooks only from the saved index until that node index exclusive (pre-order\n * case,
when executing select(number))\n */\nfunction callHooks(\n currentView: LView, arr: HookData, initPhase:
InitPhaseState,\n currentNodeIndex: number|null|undefined): void {\n ngDevMode &&\n assertEqual(\n
isInCheckNoChangesMode(), false,\n 'Hooks should never be run when in check no changes mode.');https://angular.io/license\n
*/\n\nimport { InjectionToken } from '../di/injection_token';\nimport { InjectFlags } from
'../di/interface/injector';\nimport { Type } from '../di/interface/type';\nimport { assertDefined, assertEqual } from
'../util/assert';\nimport { TDirectiveHostNode } from './node';\nimport { LView, TData } from './view';\n\n/**\n *
Offsets of the `NodeInjector` data structure in the expando.\n *\n * `NodeInjector` is stored in both `LView` as well
as `TView.data`. All storage requires 9 words.\n * First 8 are reserved for bloom filter and the 9th is reserved for the
associated `TNode` as
well\n * as parent `NodeInjector` pointer. All indexes are starting with `index` and have an offset as\n * shown.\n
*\n * `LView` layout:\n * ```\n * index + 0: cumulative bloom filter\n * index + 1: cumulative bloom filter\n * index
+ 2: cumulative bloom filter\n * index + 3: cumulative bloom filter\n * index + 4: cumulative bloom filter\n * index
+ 5: cumulative bloom filter\n * index + 6: cumulative bloom filter\n * index + 7: cumulative bloom filter\n * index
+ 8: cumulative bloom filter\n * index + PARENT: Index to the parent injector. See `RelativeInjectorLocation`\n *
`\n * const parent = IView[index + NodeInjectorOffset.PARENT]`\n * ```\n *\n * `TViewData` layout:\n * ```\n *

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index + 0: cumulative bloom filter\n \* index + 1: cumulative bloom filter\n \* index + 2: cumulative bloom filter\n \*  
index + 3: cumulative bloom filter\n \* index + 4: cumulative bloom filter\n \* index + 5: cumulative bloom filter\n \*  
index + 6: cumulative bloom filter\n \* index + 7: cumulative  
bloom filter\n \* index + 8: cumulative bloom filter\n \* index + TNode: TNode associated with this

``NodeInjector`\n *           `const tNode = tView.data[index + NodeInjectorOffset.TNode]`\n * ```\n */\nexport  
const enum NodeInjectorOffset {\n TNode = 8,\n PARENT = 8,\n BLOOM_SIZE = 8,\n SIZE = 9,\n}\n\n/**\n  
* Represents a relative location of parent injector.\n *\n * The interfaces encodes number of parents `LView`s to  
traverse and index in the `LView`\n * pointing to the parent injector.\n */\nexport interface RelativeInjectorLocation  
{\n __brand__: 'RelativeInjectorLocationFlags';\n}\n\nexport const enum RelativeInjectorLocationFlags {\n  
InjectorIndexMask = 0b11111111111111,\n ViewOffsetShift = 16,\n NO_PARENT = -1,\n}\n\nexport const  
NO_PARENT_INJECTOR: RelativeInjectorLocation = -1 as any;\n\n/**\n * Each injector is saved in 9 contiguous  
slots in `LView` and 9 contiguous slots in\n * `TView.data`. This allows us to store information about the current  
node's tokens`

(which\n \* can be shared in `TView`) as well as the tokens of its ancestor nodes (which cannot be\n \* shared, so  
they live in `LView`).\n \*\n \* Each of these slots (aside from the last slot) contains a bloom filter. This bloom  
filter\n \* determines whether a directive is available on the associated node or not. This prevents us\n \* from  
searching the directives array at this level unless it's probable the directive is in it.\n \*\n \* See:  
[https://en.wikipedia.org/wiki/Bloom\\_filter](https://en.wikipedia.org/wiki/Bloom_filter) for more about bloom filters.\n \*\n \* Because all injectors have been  
flattened into `LView` and `TViewData`, they cannot typed\n \* using interfaces as they were previously. The start  
index of each `LInjector` and `TInjector`\n \* will differ based on where it is flattened into the main array, so it's not  
possible to know\n \* the indices ahead of time and save their types here. The interfaces are still included here\n \* for  
documentation purposes.\n \*\n \* export interface LInjector extends Array<any> {\n \*\n \*  
// Cumulative bloom for directive IDs 0-31 (IDs are % BLOOM\_SIZE)\n \* [0]: number;\n \*\n \* //  
Cumulative bloom for directive IDs 32-63\n \* [1]: number;\n \*\n \* // Cumulative bloom for directive IDs 64-  
95\n \* [2]: number;\n \*\n \* // Cumulative bloom for directive IDs 96-127\n \* [3]: number;\n \*\n \* //  
Cumulative bloom for directive IDs 128-159\n \* [4]: number;\n \*\n \* // Cumulative bloom for directive IDs 160  
- 191\n \* [5]: number;\n \*\n \* // Cumulative bloom for directive IDs 192 - 223\n \* [6]: number;\n \*\n \* //  
Cumulative bloom for directive IDs 224 - 255\n \* [7]: number;\n \*\n \* // We need to store a reference to the  
injector's parent so DI can keep looking up\n \* // the injector tree until it finds the dependency it's looking for.\n \*  
[PARENT\_INJECTOR]: number;\n \* }\n \*\n \* export interface TInjector extends Array<any> {\n \*\n \* // Shared  
node bloom for directive IDs 0-31 (IDs are % BLOOM\_SIZE)\n \* [0]: number;\n \*\n \*  
\* // Shared node bloom for directive IDs 32-63\n \* [1]: number;\n \*\n \* // Shared node bloom for directive  
IDs 64-95\n \* [2]: number;\n \*\n \* // Shared node bloom for directive IDs 96-127\n \* [3]: number;\n \*\n \* //  
Shared node bloom for directive IDs 128-159\n \* [4]: number;\n \*\n \* // Shared node bloom for directive IDs  
160 - 191\n \* [5]: number;\n \*\n \* // Shared node bloom for directive IDs 192 - 223\n \* [6]: number;\n \*\n \* //  
Shared node bloom for directive IDs 224 - 255\n \* [7]: number;\n \*\n \* // Necessary to find directive indices  
for a particular node.\n \* [TNode]: TElementNode|TElementContainerNode|TContainerNode;\n \* }\n  
\*/\n\n/\*\*\n \* Factory for creating instances of injectors in the NodeInjector.\n \*\n \* This factory is complicated by  
the fact that it can resolve `multi` factories as well.\n \*\n \* NOTE: Some of the fields are optional which means that  
this class has two hidden classes.\n \* - One without `multi` support (most  
common)\n \* - One with `multi` values, (rare).\n \*\n \* Since VMs can cache up to 4 inline hidden classes this is  
OK.\n \*\n \* - Single factory: Only `resolving` and `factory` is defined.\n \* - `providers` factory:  
`componentProviders` is a number and `index = -1`.\n \* - `viewProviders` factory: `componentProviders` is a  
number and `index` points to `providers`.\n \*/\nexport class NodeInjectorFactory {\n /\*\*\n \* The inject  
implementation to be activated when using the factory.\n \*  
injectImpl: null|(<T> (token:  
Type<T>|InjectionToken<T>, flags?: InjectFlags) => T);\n \*/\n /\*\*\n \* Marker set to true during factory invocation  
to see if we get into recursive loop.\n \* Recursive loop causes an error to be displayed.\n \*  
resolving =  
false;\n \*/\n /\*\*\n \* Marks that the token can see other Tokens declared in `viewProviders` on the same node.\n \*/\n

```

canSeeViewProviders: boolean;\n\n /**\n * An array of factories to use in case of `multi` provider.\n */\n multi?:
Array<()
=> any>;\n\n /**\n * Number of `multi`-providers which belong to the component.\n *\n * This is needed
because when multiple components and directives declare the `multi` provider\n * they have to be concatenated in
the correct order.\n *\n * Example:\n *\n * If we have a component and directive active on a single element as
declared here\n * ```\n * component:\n * provides: [{provide: String, useValue: 'component', multi: true}],\n
* viewProvides: [{provide: String, useValue: 'componentView', multi: true}],\n *\n * directive:\n * provides:
[{provide: String, useValue: 'directive', multi: true}],\n * ```\n *\n * Then the expected results are:\n *\n *
```\n * providers: ['component', 'directive']\n * viewProviders: ['component', 'componentView', 'directive']\n *
```\n *\n * The way to think about it is that the `viewProviders` have been inserted after the component\n * but
before the directives, which is why we need to
know how many `multi`s have been declared by\n * the component.\n */\n componentProviders?: number;\n\n
/**\n * Current index of the Factory in the `data`. Needed for `viewProviders` and `providers` merging.\n * See
`providerFactory`.\n */\n index?: number;\n\n /**\n * Because the same `multi` provider can be declared in
`provides` and `viewProvides` it is\n * possible for `viewProvides` to shadow the `provides`. For this reason we
store the\n * `provideFactory` of the `providers` so that `providers` can be extended with `viewProviders`.\n *\n
* Example:\n *\n * Given:\n * ```\n * provides: [{provide: String, useValue: 'all', multi: true}],\n *
viewProvides: [{provide: String, useValue: 'viewOnly', multi: true}],\n * ```\n *\n * We have to return `[all]`
in case of content injection, but `[all, 'viewOnly']` in case\n * of view injection. We further have to make sure that
the shared instances (in our case\n * `all`) are the exact same
instance in both the content as well as the view injection. (We\n * have to make sure that we don't double
instantiate.) For this reason the `viewProvides`\n * `Factory` has a pointer to the shadowed `provides` factory so
that it can instantiate the\n * `providers` (`[all]`) and then extend it with `viewProviders` (`[all] + ['viewOnly']`
= \n * `[all, 'viewOnly']`).\n */\n providerFactory?: NodeInjectorFactory|null;\n\n\n constructor(\n /**\n *
Factory to invoke in order to create a new instance.\n *\n public factory:\n (this: NodeInjectorFactory,
_: undefined,\n /**\n * array where injectables tokens are stored. This is used in\n * case of an
error reporting to produce friendlier errors.\n *\n tData: TData,\n /**\n * array where
existing instances of injectables are stored. This is used in case\n * of multi shadow is needed. See `multi`
field documentation.\n
*\n lView: LView,\n /**\n * The TNode of the same element injector.\n *\n tNode: TDirectiveHostNode) => any,\n /**\n * Set to `true` if the token is declared in `viewProviders` (or if it
is component).\n *\n isViewProvider: boolean,\n injectImplementation: null|\n (<T>(token:
Type<T>|InjectionToken<T>, flags?: InjectFlags) => T)) {\n ngDevMode && assertDefined(factory, 'Factory not
specified');\n ngDevMode && assertEqual(typeof factory, 'function', 'Expected factory function.');
```

{ @link RText}. \n \* \n Text = 0b1, \n \n /\*\* \n \* The TNode contains information about a DOM element aka { @link RElement}. \n \* \n Element = 0b10, \n \n /\*\* \n \* The TNode contains information about an { @link LContainer} for embedded views. \n \* \n Container = 0b100, \n \n /\*\* \n \* The TNode contains information about an <ng-container> element { @link RNode}. \n \* \n ElementContainer = 0b1000, \n \n /\*\* \n \* The TNode contains information about an <ng-content> projection \n \* \n Projection = 0b10000, \n \n /\*\* \n \* The TNode contains information about an ICU comment used in i18n. \n \* \n Icu = 0b100000, \n \n /\*\* \n \* Special node type representing a placeholder for future TNode at this location. \n \* \n \* I18n translation blocks are created before the element nodes which they contain. (I18n blocks \n \* can span over many elements.) Because i18n TNode's (representing text) are created first they \n \* often may need to point to element TNode's which are not yet

created. In such a case we create \n \* a Placeholder TNode. This allows the i18n to structurally link the TNode's together \n \* without knowing any information about the future nodes which will be at that location. \n \* \n \* On firstCreatePass When element instruction executes it will try to create a TNode at that \n \* location. Seeing a Placeholder TNode already there tells the system that it should reuse \n \* existing TNode (rather than create a new one) and just update the missing information. \n \* \n Placeholder = 0b1000000, \n \n // Combined Types These should never be used for TNode.type only as a useful way to check \n \* if TNode.type is one of several choices. \n \n // See: <https://github.com/microsoft/TypeScript/issues/35875> why we can't refer to existing enum. \n AnyRNode = 0b11, // Text | Element, \n AnyContainer = 0b1100, // Container | ElementContainer, // See: \n \n \n /\*\* \n \* Converts TNodeType into human readable text. \n \* Make sure this

matches with TNodeType \n \* \n export function toTNodeTypeAsString(tNodeType: TNodeType): string { \n let text = "; \n (tNodeType & TNodeType.Text) && (text += 'Text'); \n (tNodeType & TNodeType.Element) && (text += 'Element'); \n (tNodeType & TNodeType.Container) && (text += 'Container'); \n (tNodeType & TNodeType.ElementContainer) && (text += 'ElementContainer'); \n (tNodeType & TNodeType.Projection) && (text += 'Projection'); \n (tNodeType & TNodeType.Icu) && (text += 'IcuContainer'); \n (tNodeType & TNodeType.Placeholder) && (text += 'Placeholder'); \n return text.length > 0 ? text.substring(1) : text; \n } \n \n /\*\* \n \* Corresponds to the TNode.flags property. \n \* \n export const enum TNodeFlags { \n /\*\* Bit #1 - This bit is set if the node is a host for any directive (including a component) \n \* isDirectiveHost = 0x1, \n \n /\*\* \n \* Bit #2 - This bit is set if the node is a host for a component. \n \* \n \* Setting this bit implies that the isDirectiveHost bit is set as well. \n

\* \n isComponentHost = 0x2, \n \n /\*\* Bit #3 - This bit is set if the node has been projected \n \* isProjected = 0x4, \n \n /\*\* Bit #4 - This bit is set if any directive on this node has content queries \n \* hasContentQuery = 0x8, \n \n /\*\* Bit #5 - This bit is set if the node has any "class" inputs \n \* hasClassInput = 0x10, \n \n /\*\* Bit #6 - This bit is set if the node has any "style" inputs \n \* hasStyleInput = 0x20, \n \n /\*\* Bit #7 This bit is set if the node has been detached by i18n \n \* isDetached = 0x40, \n \n /\*\* \n \* Bit #8 - This bit is set if the node has directives with host bindings. \n \* \n \* This flags allows us to guard host-binding logic and invoke it only on nodes \n \* that actually have directives with host bindings. \n \* \n hasHostBindings = 0x80, \n } \n \n /\*\* \n \* Corresponds to the TNode.providerIndexes property. \n \* \n export const enum TNodeProviderIndexes { \n /\*\* The index of the first provider on this node is encoded on the least significant

bits. \n \* ProvidersStartIndexMask = 0b00000000000000000000000000000000, \n \n /\*\* \n \* The count of view providers from the component on this node is \n \* encoded on the 20 most significant bits. \n \* \n

CptViewProvidersCountShift = 20, \n CptViewProvidersCountShifter =

0b00000000000000000000000000000000, \n } \n \n /\*\* \n \* A set of marker values to be used in the attributes arrays.

These markers indicate that some \n \* items are not regular attributes and the processing should be adapted accordingly. \n \* \n export const enum AttributeMarker { \n /\*\* \n \* An implicit marker which indicates that the

value in the array are of attributeKey, \n \* attributeValue format. \n \* \n \* NOTE: This is implicit as it is the type when no marker is present in array. We indicate that \n \* it should not be present at runtime by the negative

number. \n \* \n ImplicitAttributes = -1, \n \n /\*\* \n \* Marker indicates that the following 3 values in the attributes array are: \n \* namespaceUri, attributeName,

attributeValue\n \* in that order.\n \*/\n NamespaceURI = 0,\n /\*\*\n \* Signals class declaration.\n \*\n \* Each value following `Classes` designates a class name to include on the element.\n \* ## Example:\n \*\n \* Given:\n \* ```\n \* <div class="foo bar baz">...</div>\n \* ```\n \* the generated code is:\n \* ```\n \* var \_c1 = [AttributeMarker.Classes, 'foo', 'bar', 'baz'];\n \* ```\n \*/\n Classes = 1,\n /\*\*\n \* Signals style declaration.\n \*\n \* Each pair of values following `Styles` designates a style name and value to include on the\n \* element.\n \* ## Example:\n \*\n \* Given:\n \* ```\n \* <div style="width:100px; height:200px; color:red">...</div>\n \* ```\n \* the generated code is:\n \* ```\n \* var \_c1 = [AttributeMarker.Styles, 'width', '100px', 'height', '200px', 'color', 'red'];\n \* ```\n \*/\n Styles = 2,\n\n /\*\*\n \* Signals that the following attribute names were extracted from input or output bindings.\n \*\n \* For example, given the following HTML:\n \* ```\n \* <div moo="car" [foo]="exp" (bar)="doSth()">\n \* ```\n \* the generated code is:\n \* ```\n \* var \_c1 = ['moo', 'car', AttributeMarker.Bindings, 'foo', 'bar'];\n \* ```\n \*/\n Bindings = 3,\n\n /\*\*\n \* Signals that the following attribute names were hoisted from an inline-template declaration.\n \*\n \* For example, given the following HTML:\n \* ```\n \* <div \*ngFor="let value of values; trackBy:trackBy" dirA [dirB]="value">\n \* ```\n \* the generated code for the `template()` instruction would include:\n \* ```\n \* ['dirA', AttributeMarker.Bindings, 'dirB', AttributeMarker.Template, 'ngFor', 'ngForOf', 'ngForTrackBy', 'let-value']\n \* ```\n \* while the generated code for the `element()` instruction inside the template function would\n \* include:\n \* ```\n \* ['dirA', AttributeMarker.Bindings, 'dirB']\n \* ```\n \*/\n Template = 4,\n\n /\*\*\n \* Signals that the following attribute is `ngProjectAs` and its value is a\n \* parsed\n \* `CssSelector`.\n \*\n \* For example, given the following HTML:\n \* ```\n \* <h1 attr="value" ngProjectAs="[title]">\n \* ```\n \* the generated code for the `element()` instruction would include:\n \* ```\n \* ['attr', 'value', AttributeMarker.ProjectAs, ['title']]\n \* ```\n \*/\n ProjectAs = 5,\n\n /\*\*\n \* Signals that the following attribute will be translated by runtime i18n\n \*\n \* For example, given the following HTML:\n \* ```\n \* <div moo="car" foo="value" i18n-foo [bar]="binding" i18n-bar>\n \* ```\n \* the generated code is:\n \* ```\n \* var \_c1 = ['moo', 'car', AttributeMarker.I18n, 'foo', 'bar'];\n \* ```\n \*/\n I18n = 6,\n\n\n /\*\*\n \* A combination of:\n \* - Attribute names and values.\n \* - Special markers acting as flags to alter attributes processing.\n \* - Parsed ngProjectAs selectors.\n \*/\nexport type TAttributes = (string|AttributeMarker|CssSelector)[];\n\n\n /\*\*\n \* Constants that are associated with a view. Includes:\n \* - Attribute arrays.\n \* - Local definition arrays.\n \* - Translated messages (i18n).\n \*/\nexport type TConstants = (TAttributes|string)[];\n\n\n /\*\*\n \* Factory function that returns an array of consts. Consts can be represented as a function in\n \* case any additional statements are required to define consts in the list. An example is i18n\n \* where additional i18n calls are generated, which should be executed when consts are requested\n \* for the first time.\n \*/\nexport type TConstantsFactory = () => TConstants;\n\n\n /\*\*\n \* TConstants type that describes how the `consts` field is generated on ComponentDef: it can be\n \* either an array or a factory function that returns that array.\n \*/\nexport type TConstantsOrFactory = TConstants|TConstantsFactory;\n\n\n\n /\*\*\n \* Binding data (flyweight) for a particular node that is shared between all templates\n \* of a specific type.\n \*\n \* If a property is:\n \* - PropertyAliases: that property's data was generated and this is it\n \* - Null: that property's data was already generated and nothing was found.\n \* - Undefined: that property's data has not yet been generated\n \* see: [https://en.wikipedia.org/wiki/Flyweight\\_pattern](https://en.wikipedia.org/wiki/Flyweight_pattern) for more on the Flyweight pattern\n \*/\nexport interface TNode {\n\n /\*\*\n \* The type of the TNode. See TNodeType.\n \*/\n type: TNodeType;\n\n /\*\*\n \* Index of the TNode in TView.data and corresponding native element in LView.\n \*\n \* This is necessary to get from any TNode to its corresponding native element when\n \* traversing the node tree.\n \*\n \* If index is -1, this is a dynamically created container node or embedded view node.\n \*/\n index: number;\n\n /\*\*\n \* Insert before existing DOM node index.\n \*\n \* When DOM nodes are being inserted, normally they are being appended as they are created.\n \*\n \* Under i18n case, the translated text nodes are created ahead of time as part of the\n \* `i18nStart` instruction which means that this `TNode` can't just be appended and instead\n \* needs to be inserted using `insertBeforeIndex` semantics.\n \*/\n

Additionally sometimes it is necessary to insert new text nodes as a child of this `TNode`. In such a case the value stores an array of text nodes to insert.

Example:

```
<div>HelloWorld!
```

In the above example the `i18nStart` instruction can create `Hello`, `World` and `!` text nodes. It can also insert `Hello` and `!` text node as a child of `

`, but it can't insert `World` because the `` node has not yet been created. In such a case the `` `TNode` will have an array which will direct the `` to not only insert itself in front of `!` but also to insert the `World` (created by `i18nStart`) into `` itself.

```
* Pseudo code:
if (insertBeforeIndex === null) {
 // append as normal
} else if (Array.isArray(insertBeforeIndex)) {
 // First insert current `TNode` at correct location
 const currentNode = lView[this.index];
 parentNode.insertBefore(currentNode, lView[this.insertBeforeIndex[0]]);
 // Now append all of the children
 for(let i=1; i<this.insertBeforeIndex.length; i++) {
 currentNode.appendChild(lView[this.insertBeforeIndex[i]]);
 }
} else {
 parentNode.insertBefore(lView[this.index], lView[this.insertBeforeIndex]);
}
// Append as normal using `parentNode.appendChild`
// Append using `parentNode.insertBefore(lView[this.index], lView[this.insertBeforeIndex])`
// Initialization
Because `i18nStart` executes before nodes are created, on `TView.firstCreatePass` it is not possible for `i18nStart`
```

to set the `insertBeforeIndex` value as the corresponding `TNode` has not yet been created. For this reason the `i18nStart` creates a `TNodeType.Placeholder` `TNode` at that location. See `TNodeType.Placeholder` for more information.

`insertBeforeIndex`: InsertBeforeIndex;

The index of the closest injector in this node's LView.

If the index === -1, there is no injector on this node or any ancestor node in this view.

If the index !== -1, it is the index of this node's injector OR the index of a parent injector in the same view. We pass the parent injector index down the node tree of a view so it's possible to find the parent injector without walking a potentially deep node tree.

Injector indices are not set across view boundaries because there could be multiple component hosts.

If tNode.injectorIndex === tNode.parent.injectorIndex, then the index belongs to a parent injector.

`injectorIndex`: number;

Stores starting index of the directives.

NOTE: The first directive is always component (if present).

`directiveStart`: number;

Stores final exclusive index of the directives.

The area right behind the `directiveStart-directiveEnd` range is used to allocate the `HostBindingFunction` `vars` (or null if no bindings.) Therefore `directiveEnd` is used to set `LFrame.bindingRootIndex` before `HostBindingFunction` is executed.

`directiveEnd`: number;

Stores the last directive which had a styling instruction.

Initial value of this is -1 which means that no `hostBindings` styling instruction has executed. As `hostBindings` instructions execute they set the value to the index of the `DirectiveDef` which contained the last `hostBindings` styling instruction.

Valid values are: -1 No `hostBindings` instruction has executed.

`directiveStart <= directiveStylingLast < directiveEnd`: Points to the `DirectiveDef` of the last styling instruction which executed in the `hostBindings`.

This data is needed so that styling instructions know which static styling data needs to be collected from the `DirectiveDef.hostAttrs`. A styling instruction needs to collect all data since last styling instruction.

`directiveStylingLast`: number;

Stores indexes of property bindings. This field is only set in the ngDevMode and holds indexes of property bindings so TestBed can get bound property metadata for a given node.

`propertyBindings`: number[]|null;

Stores if Node isComponent, isProjected, hasContentQuery, hasClassInput and hasStyleInput etc.

`TNodeFlags`:

This number stores two values using its bits:

- the index of the first provider on that node (first 16 bits)
- the count of view providers from the component on this node (last 16 bits)

`providerIndexes`: TNodeProviderIndexes;

The value name associated with this node.

if type: `TNodeType.Text`: text value

`TNodeType.Element`: tag name

`TNodeType.ICUContainer`: `Ticu` value: any;

Attributes associated with an element. We need to store attributes to support various

\* use-cases (attribute injection, content projection with selectors, directives matching).\n \* Attributes are stored statically because reading them from the DOM would be way too slow for\n \* content projection and queries.\n \* Since attrs will always be calculated first, they will never need to be marked undefined by\n \* other instructions.\n \* For regular attributes a name of an attribute and its value alternate in the array.\n \* e.g. ['role', 'checkbox']\n \* This array can contain flags that will indicate \"special attributes\" (attributes with\n \* namespaces, attributes extracted from bindings and outputs).\n \* attrs: TAttributes|null;\n \* Same as `TNode.attrs` but contains merged data across all directive host bindings.\n \* We need to keep `attrs` as unmerged so that it can be used for attribute selectors.\n \* We merge attrs here so that it can be used in a performant way for initial rendering.\n \* The `attrs` are merged in first pass in following order:\n \* - Component's `hostAttrs`\n \* - Directives' `hostAttrs`\n \* - Template `TNode.attrs` associated with the current `TNode`.\n \* mergedAttrs: TAttributes|null;\n \* A set of local names under which a given element is exported in a template and\n \* visible to queries. An entry in this array can be created for different reasons:\n \* - an element itself is referenced, ex.: `

`\n \* - a component is referenced, ex.: ``\n \* - a directive is referenced, ex.: `` => `["foo", -1]`\n \* - `` => `["foo", myCmptIdx]`\n \* - `

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assume this example:\n \* ``<parent>``'s view definition:\n \* ```\n \* `<child id="c1">content1</child>`\n \* `<child id="c2"><span>content2</span></child>`\n \* ```\n \* ``<child>``'s view definition:\n \* ```\n \* `<ng-content id="cont1"></ng-content>`\n \* ```\n \* \n \* If `Array.isArray(projection)` then `TNode` is a host element:\n \* - `projection` stores the content nodes which are to be projected.\n \* - The nodes represent categories defined by the selector: For example:\n \* `<ng-content/><ng-content select="abc"/>` would represent the heads for `<ng-content/>`\n \* and `<ng-content select="abc"/>` respectively.\n \* - The nodes we store in `projection` are heads only, we used `.next` to get their\n \* siblings.\n \* - The nodes `.next` is sorted/rewritten as part of the projection setup.\n \* - `projection` size is equal to the number of projections `<ng-content>`. The size of\n \* `c1` will be `1` because `<child>` has only one `<ng-content>`.\n \* - we store `projection` with the host (`c1`, `c2`) rather than the `<ng-content>` (`cont1`)\n \* because the same component (`<child>`) can be used in multiple locations (`c1`, `c2`) and\n \* as a result have different set of nodes to project.\n \* - without `projection` it would be difficult to efficiently traverse nodes to be projected.\n \* \n \* If `typeof projection === 'number'` then `TNode` is a `<ng-content>` element:\n \* - `projection` is an index of the host's `projection` Nodes.\n \* - This would return the first head node to project:\n \* `getHost(currentTNode).projection[currentTNode.projection]`.\n \* \n \* - When projecting nodes the parent node retrieved may be a `<ng-content>` node, in which case\n \* the process is recursive in nature.\n \* \n \* If `projection` is of type `RNode[]` then we have a collection of native nodes passed as\n \* projectable nodes during dynamic component creation.\n \* \n \* projection:\n \* (TNode|RNode[])[number|null];\n \* \n \* /\*\*\n \* A collection of all `style` static values for an element (including from host).\n \* \n \* This field will be populated if and when:\n \* \n \* - There are one or more initial `style`s on an element (e.g. `<div style="width:200px;">`)\n \* - There are one or more initial `style`s on a directive/component host\n \* (e.g. `@Directive({host: {style: "width:200px;" } })`)\n \* \n \* styles: string|null;\n \* \n \* /\*\*\n \* A collection of all `style` static values for an element excluding host sources.\n \* \n \* Populated when there are one or more initial `style`s on an element\n \* (e.g. `<div style="width:200px;">`)\n \* Must be stored separately from `tNode.styles` to facilitate setting directive\n \* inputs that shadow the `style` property. If we used `tNode.styles` as is for shadowed inputs,\n \* we would feed host styles back into directives as `"inputs"`. If we used `tNode.attrs`, we\n \* would have to concatenate the attributes on every template pass. Instead, we process once on\n \* first create pass and store here.\n \* \n \* stylesWithoutHost: string|null;\n \* \n \* /\*\*\n \* A `KeyValueArray` version of residual `styles`.\n \* \n \* When there are styling instructions then each instruction stores the static styling\n \* which is of lower priority than itself. This means that there may be a higher priority\n \* styling than the instruction.\n \* \n \* Imagine:\n \* ```\n \* <div style="color: highest;" my-dir>\n \* \n \* @Directive({\n \* \n \* host: {\n \* \n \* style: 'color: lowest;',\n \* \n \* [styles.color]: 'exp' // styleProp('color', ctx.exp);\n \* \n \* }})\n \* ```\n \* \n \* In the above case:\n \* - `color: lowest` is stored with `styleProp('color', ctx.exp)`; instruction\n \* - `color: highest` is the residual and is stored here.\n \* \n \* - `undefined`: not initialized.\n \* \n \* - `null`: initialized but `styles` is `null`\n \* \n \* - `KeyValueArray`: parsed version of `styles`.\n \* \n \* residualStyles: KeyValueArray<any>|undefined|null;\n \* \n \* /\*\*\n \* A collection of all class static values for an element (including from host).\n \* \n \* This field will be populated if and when:\n \* \n \* - There are one or more initial classes on an element (e.g. `<div class="one two three">`)\n \* - There are one or more initial classes on a directive/component host\n \* (e.g. `@Directive({host: {class: "SOME_CLASS" } })`)\n \* \n \* classes: string|null;\n \* \n \* /\*\*\n \* A collection of all class static values for an element excluding host sources.\n \* \n \* Populated when there are one or more initial classes on an element\n \* (e.g. `<div class="SOME_CLASS">`)\n \* Must be stored separately from `tNode.classes` to facilitate setting directive\n \* inputs that shadow the `class` property. If we used `tNode.classes` as is for shadowed\n \* inputs, we would feed host classes back into directives as `"inputs"`. If we used\n \* `tNode.attrs`, we would have to concatenate the attributes on every template pass. Instead,\n \* we process once on first create pass and store here.\n \* \n \* classesWithoutHost: string|null;\n \* \n \* /\*\*\n \* A `KeyValueArray`

version of residual `classes`. \n \* Same as `TNode.residualStyles` but for classes. \n \* - `undefined`: not initialized. \n \* - `null`: initialized but `classes` is `null` \n \* - `KeyValueArray`: parsed version of `classes`. \n

\* \n residualClasses: KeyValueArray<any>|undefined|null; \n /\*\* \n \* Stores the head/tail index of the class bindings. \n \* \n \* - If no bindings, the head and tail will both be 0. \n \* - If there are template bindings, stores the head/tail of the class bindings in the template. \n \* - If no template bindings but there are host bindings, the head value will point to the last \n \* host binding for `"class"` (not the head of the linked list), tail will be 0. \n \* \n \* See: `style\_binding\_list.ts` for details. \n \* \n \* This is used by `insertTStylingBinding` to know where the next styling binding should be \n \* inserted so that they can be sorted in priority order. \n \* \n classBindings: TStylingRange; \n /\*\* \n \* Stores the head/tail index of the class bindings. \n \* \n \* - If no bindings, the head and tail will both be 0. \n \* - If there are template bindings, stores the head/tail of the style bindings in the template. \n \* - If no template bindings but there are host bindings, the head value will point to the last \n \* host binding for `"style"` (not the head of the linked list), tail will be 0. \n \* \n \* See: `style\_binding\_list.ts` for details. \n \* \n \* This is used by `insertTStylingBinding` to know where the next styling binding should be \n \* inserted so that they can be sorted in priority order. \n \* \n styleBindings: TStylingRange; \n } \n /\*\* \n \* See `TNode.insertBeforeIndex` \n \*/ \n export type InsertBeforeIndex = null|number|number[]; \n /\*\* \n \* Static data for an element \n \*/ \n export interface TElementNode extends TNode { \n /\*\* \n \* Index in the data[] array \n \*/ \n index: number; \n child: TElementNode|TTextNode|TElementContainerNode|TContainerNode|TProjectionNode|null; \n /\*\* \n \* Element nodes will have parents unless they are the first node of a component or \n \* embedded view (which means their parent is in a different view and must be \n \* retrieved using viewData[HOST\_NODE]). \n \* \n parent: TElementNode|TElementContainerNode|null; \n tViews: null; \n /\*\* \n \* If this is a component TNode with projection, this will be an array of projected \n \* TNodes or native nodes (see TNode.projection for more info). If it's a regular element node \n \* or a component without projection, it will be null. \n \* \n projection: (TNode|RNode[])|null; \n /\*\* \n \* Stores TagName \n \* \n value: string; \n } \n /\*\* \n \* Static data for a text node \n \*/ \n export interface TTextNode extends TNode { \n /\*\* \n \* Index in the data[] array \n \*/ \n index: number; \n child: null; \n /\*\* \n \* Text nodes will have parents unless they are the first node of a component or \n \* embedded view (which means their parent is in a different view and must be \n \* retrieved using LView.node). \n \* \n parent: TElementNode|TElementContainerNode|null; \n tViews: null; \n projection: null; \n } \n /\*\* \n \* Static data for an LContainer \n \*/ \n export interface TContainerNode extends TNode { \n /\*\* \n \* Index in the data[] array. \n \* \n \* If it's -1, this is a dynamically created container node that isn't stored in \n \* data[] (e.g. when you inject ViewContainerRef). \n \* \n index: number; \n child: null; \n /\*\* \n \* Container nodes will have parents unless: \n \* \n \* - They are the first node of a component or embedded view \n \* - They are dynamically created \n \* \n parent: TElementNode|TElementContainerNode|null; \n tViews: TView|TView[]|null; \n projection: null; \n value: null; \n } \n /\*\* \n \* Static data for an <ng-container> \n \*/ \n export interface TElementContainerNode extends TNode { \n /\*\* \n \* Index in the LView[] array. \n \*/ \n index: number; \n child: TElementNode|TTextNode|TContainerNode|TElementContainerNode|TProjectionNode|null; \n parent: TElementNode|TElementContainerNode|null; \n tViews: null; \n projection: null; \n } \n /\*\* \n \* Static data for an ICU expression \n \*/ \n export interface TIcuContainerNode extends TNode { \n /\*\* \n \* Index in the LView[] array. \n \*/ \n index: number; \n child: null; \n parent: TElementNode|TElementContainerNode|null; \n tViews: null; \n projection: null; \n value: TIcu; \n } \n /\*\* \n \* Static data for an LProjectionNode \n \*/ \n export interface TProjectionNode extends TNode { \n /\*\* \n \* Index in the data[] array \n \*/ \n child: null; \n /\*\* \n \* Projection nodes will have parents unless they are the first node of a component \n \* or embedded view (which means their parent is in a different view and must be \n \* retrieved using LView.node). \n \* \n parent: TElementNode|TElementContainerNode|null; \n tViews: null; \n /\*\* \n \* Index of the projection node. (See TNode.projection for more info.) \n \*/ \n projection: number; \n value: null; \n } \n /\*\* \n \* A union type representing all TNode types that can host a directive. \n \*/ \n export type TDirectiveHostNode = TElementNode|TContainerNode|TElementContainerNode; \n /\*\* \n \* This mapping is necessary so we can set input properties and output listeners \n \* properly at runtime when property names are minified or aliased. \n \* \n \*

Key: unminified / public input or output name\n \* Value: array containing minified / internal name and related directive index\n \* The value must be an array to support inputs and outputs with the same name\n \* on the same node.\n \* \nexport type PropertyAliases = {\n // This uses an object map because using the Map type would be too slow\n [key: string]: PropertyAliasValue\n};\n\n/\*\*\n \* Store the runtime input or output names for all the directives.\n \* \n \* i+0: directive instance index\n \* i+1: privateName\n \* \n \* e.g. [0, 'change-minified']\n \* \nexport type PropertyAliasValue = (number|string)[];\n\n/\*\*\n \* This array contains information about input properties that\n \* need to be set once from attribute data. It's ordered by\n \* directive index (relative to element) so it's simple to\n \* look up a specific directive's initial input data.\n \* \n \* Within each sub-array:\n \* \n \* i+0: attribute name\n \* i+1: minified/internal input name\n \* i+2: initial value\n \* \n \* If a directive on a node does not have any input properties\n \* that should be set from attributes, its index is set to null\n \* to avoid a sparse array.\n \* \n \* e.g. [null, ['role-min', 'minified-input', 'button']]\n \* \nexport type InitialInputData = (InitialInputs|null)[];\n\n/\*\*\n \* Used by InitialInputData to store input properties\n \* that should be set once from attributes.\n \* \n \* i+0: attribute name\n \* i+1: minified/internal input name\n \* i+2: initial value\n \* \n \* e.g. ['role-min', 'minified-input', 'button']\n \* \nexport type InitialInputs = string[];\n\n// Note: This hack is necessary so we don't erroneously get a circular dependency\n// failure based on types.\nexport const unusedValueExportToPlacateAjd = 1;\n\n/\*\*\n \* Type representing a set of TNodes that can have local refs (`#foo`) placed on them.\n \* \nexport type TNodeWithLocalRefs = TContainerNode|TElementNode|TElementContainerNode;\n\n/\*\*\n \* Type for a function that extracts a value for a local refs.\n \* \n \* Example:\n \* - `

` - `nativeDivEl` should point to the native `

` element;\n \* - `` - `tplRef` should point to the `TemplateRef` instance;\n \* \nexport type LocalRefExtractor = (tNode: TNodeWithLocalRefs, currentView: LView) => any;\n\n/\*\*\n \* Returns `true` if the `TNode` has a directive which has `@Input()` for `class` binding.\n \* \n \* ```\n \* <div my-dir [class]="exp">\n \* and\n \* @Directive({\n \* })\n \* class MyDirective {\n \* @Input()\n \* class: string;\n \* }\n \* ```\n \* \n \* In the above case it is necessary to write the reconciled styling information into the\n \* directive's input.\n \* \n \* @param tNode\n \* \nexport function hasClassInput(tNode: TNode) {\n return (tNode.flags & TNodeFlags.hasClassInput) !== 0;\n}\n\n \* Returns `true` if the `TNode` has a directive which has `@Input()` for `style` binding.\n \* \n \* ```\n \* <div my-dir [style]="exp">\n \* and\n \* @Directive({\n \* })\n \* class MyDirective {\n \* @Input()\n \* class: string;\n \* }\n \* ```\n \* \n \* In the above case it is necessary to write the reconciled styling information into the\n \* directive's input.\n \* \n \* @param tNode\n \* \nexport function hasStyleInput(tNode: TNode) {\n return (tNode.flags & TNodeFlags.hasStyleInput) !== 0;\n}\n\n"/\*\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* \n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \* \nimport {assertDefined, throwError} from './util/assert';\nimport {TNode, TNodeType, toTNodeTypeAsString} from './interfaces/node';\nexport function assertTNodeType(\n tNode: TNode|null, expectedTypes: TNodeType, message?: string): void {\n assertDefined(tNode, 'should be called with a TNode');\n if ((tNode.type & expectedTypes) === 0) {\n throwError(\n message ||\n `Expected [\${toTNodeTypeAsString(expectedTypes)}] but got \${\n toTNodeTypeAsString(tNode.type)}.`);\n }\n}\nexport function assertPureTNodeType(type: TNodeType) {\n if (!(\n type === TNodeType.Element ||\n type === TNodeType.Text ||\n type === TNodeType.Container ||\n type === TNodeType.ElementContainer ||\n type === TNodeType.Icu ||\n type === TNodeType.Projection ||\n type === TNodeType.Placeholder)) {\n throwError(`Expected TNodeType to have only a single type selected, but got \${\n toTNodeTypeAsString(type)}.`);\n }\n}\n"/\*\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* \n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \* \nimport {CharCode} from './util/char\_code';\nimport {AttributeMarker, TAttributes} from './interfaces/node';\nimport {CssSelector} from './interfaces/projection';\nimport {isProceduralRenderer, ProceduralRenderer3, Renderer3} from './interfaces/renderer';\nimport {RElement} from

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'./interfaces/renderer_dom';\n\n\n/**\n * Assigns all attribute values to the provided element via the inferred
renderer.\n *\n * This function accepts two forms of attribute entries:\n *\n * default: (key, value):\n *\n * attrs = [key1,
value1, key2, value2]\n *\n * namespaced: (NAMESPACE_MARKER, uri, name, value)\n *\n * attrs =
[NAMESPACE_MARKER, uri, name, value, NAMESPACE_MARKER, uri, name, value]\n *\n * The `attrs` array
can contain a mix of both the default and namespaced entries.\n *\n * The `"default"` values are set without a marker,
but if the function comes across\n *\n * a marker value then it will attempt to set a namespaced value. If the marker is\n
*\n * not of a namespaced value then the function
will quit and return the index value\n *\n * where it stopped during the iteration of the attrs array.\n *\n * See
[AttributeMarker] to understand what the namespace marker value is.\n *\n * Note that this instruction does not
support assigning style and class values to\n *\n * an element. See `elementStart` and `elementHostAttrs` to learn how
styling values\n *\n * are applied to an element.\n *\n * @param renderer The renderer to be used\n *\n * @param native The
element that the attributes will be assigned to\n *\n * @param attrs The attribute array of values that will be assigned to
the element\n *\n * @returns the index value that was last accessed in the attributes array\n */\n\nexport function
setUpAttributes(renderer: Renderer3, native: RElement, attrs: TAttributes): number {\n const isProc =
isProceduralRenderer(renderer);\n\n let i = 0;\n while (i < attrs.length) {\n const value = attrs[i];\n if (typeof
value === 'number') {\n // only namespaces are supported. Other value types (such as
style/class\n // entries) are not supported in this function.\n if (value !== AttributeMarker.NamespaceURI) {\n
break;\n }\n // we just landed on the marker value ... therefore\n // we should skip to the next entry\n
i++;\n const namespaceURI = attrs[i++] as string;\n const attrName = attrs[i++] as string;\n const
attrVal = attrs[i++] as string;\n ngDevMode && ngDevMode.rendererSetAttribute++;\n isProc ?\n (renderer as ProceduralRenderer3).setAttribute(native, attrName, attrVal, namespaceURI) :\n
native.setAttributeNS(namespaceURI, attrName, attrVal);\n } else {\n // attrName is string;\n const
attrName = value as string;\n const attrVal = attrs[i++];\n // Standard attributes\n ngDevMode &&
ngDevMode.rendererSetAttribute++;\n if (isAnimationProp(attrName)) {\n if (isProc) {\n (renderer as
ProceduralRenderer3).setProperty(native, attrName, attrVal);\n }\n } else {\n isProc ?\n (renderer as ProceduralRenderer3).setAttribute(native, attrName, attrVal as
string) :\n native.setAttribute(attrName, attrVal as string);\n }\n i++;\n }\n }\n // another piece of
code may iterate over the same attributes array. Therefore\n // it may be helpful to return the exact spot where the
attributes array exited\n // whether by running into an unsupported marker or if all the static values were\n //
iterated over.\n return i;\n}\n\n/**\n * Test whether the given value is a marker that indicates that the following\n *
attribute values in a `TAttributes` array are only the names of attributes,\n * and not name-value pairs.\n * @param
marker The attribute marker to test.\n * @returns true if the marker is a `"name-only"` marker (e.g. `Bindings`,
`Template` or `I18n`).\n */\n\nexport function isNameOnlyAttributeMarker(marker:
string|AttributeMarker|CssSelector) {\n return marker === AttributeMarker.Bindings
|| marker === AttributeMarker.Template ||\n marker === AttributeMarker.I18n;\n}\n\nexport function
isAnimationProp(name: string): boolean {\n // Perf note: accessing charCodeAt to check for the first character of a
string is faster as\n // compared to accessing a character at index 0 (ex. name[0]). The main reason for this is that\n
// charCodeAt doesn't allocate memory to return a substring.\n return name.charCodeAt(0) ===
CharCode.AT_SIGN;\n}\n\n/**\n * Merges `src` `TAttributes` into `dst` `TAttributes` removing any duplicates in
the process.\n *\n * This merge function keeps the order of attrs same.\n *\n * @param dst Location of where the
merged `TAttributes` should end up.\n *\n * @param src `TAttributes` which should be appended to `dst`\n */\n\nexport
function mergeHostAttrs(dst: TAttributes|null, src: TAttributes|null): TAttributes|null {\n if (src === null ||
src.length === 0) {\n // do nothing\n } else if (dst === null || dst.length === 0) {\n // We have source,
but dst is empty, just make a copy.\n dst = src.slice();\n } else {\n let srcMarker: AttributeMarker =
AttributeMarker.ImplicitAttributes;\n for (let i = 0; i < src.length; i++) {\n const item = src[i];\n if (typeof
item === 'number') {\n srcMarker = item;\n } else {\n if (srcMarker ===
AttributeMarker.NamespaceURI) {\n // Case where we need to consume `key1`, `key2`, `value` items.\n }\n
else if (\n srcMarker === AttributeMarker.ImplicitAttributes ||\n srcMarker ===

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viewOffset--;\n }\n return parentView;\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n *\n\nimport {isForwardRef, resolveForwardRef} from './di/forward_ref';\nimport {injectRootLimpMode,\n setInjectImplementation} from './di/inject_switch';\nimport {InjectionToken} from './di/injection_token';\nimport {Injector} from './di/injector';\nimport {InjectorMarkers} from './di/injector_marker';\nimport {getInjectorDef}\n from './di/interface/defs';\nimport {InjectFlags} from './di/interface/injector';\nimport {Type} from\n './interface/type';\nimport {assertDefined, assertEqual, assertIndexInRange} from './util/assert';\nimport\n {noSideEffects} from './util/closure';\n\nimport {assertDirectiveDef, assertNodeInjector, assertTNodeForLView}\n from './assert';\nimport {FactoryFn, getFactoryDef} from './definition_factory';\nimport\n {throwCyclicDependencyError, throwProviderNotFoundError} from './errors_di';\nimport {NG_ELEMENT_ID,\n NG_FACTORY_DEF} from './fields';\nimport {registerPreOrderHooks} from './hooks';\nimport {DirectiveDef}\n from './interfaces/definition';\nimport\n {isFactory, NO_PARENT_INJECTOR, NodeInjectorFactory, NodeInjectorOffset, RelativeInjectorLocation,\n RelativeInjectorLocationFlags} from './interfaces/injector';\nimport {AttributeMarker, TContainerNode,\n TDirectiveHostNode, TElementContainerNode, TElementNode, TNode, TNodeProviderIndexes, TNodeType} from\n './interfaces/node';\nimport {isComponentDef, isComponentHost} from './interfaces/type_checks';\nimport\n {DECLARATION_COMPONENT_VIEW, DECLARATION_VIEW, INJECTOR, LView, T_HOST, TData,\n TVIEW, TView, TViewType} from './interfaces/view';\nimport {assertTNodeType} from './node_assert';\nimport\n {enterDI, getCurrentTNode, getLView, leaveDI} from './state';\nimport {isNameOnlyAttributeMarker} from\n './util/attrs_utils';\nimport {getParentInjectorIndex, getParentInjectorView, hasParentInjector} from\n './util/injector_utils';\nimport {stringifyForError} from './util/stringify_utils';\n\n\n/**\n * Defines if the call to\n `inject` should include `viewProviders` in its resolution.\n */\n\n * This is set to true when we try to instantiate a component. This value is reset in\n * `getNodeInjectable` to a value\n which matches the declaration location of the token about to be\n * instantiated. This is done so that if we are\n injecting a token which was declared outside of\n * `viewProviders` we don't accidentally pull `viewProviders` in.\n\n * Example:\n *\n * @Injectable()\n * class MyService {\n * constructor(public value: String) {}\n * }\n *\n * @Component({\n * providers: [\n * MyService,\n * {provide: String, value: 'providers'}\n *]\n * viewProviders: [\n * {provide: String, value: 'viewProviders'}\n *]\n * })\n * class MyComponent {\n * constructor(myService: MyService, value: String) {\n * // We expect that Component can see into\n * `viewProviders`.\n * expect(value).toEqual('viewProviders');\n * // `MyService` was not declared in\n * `viewProviders` hence it can't see it.\n * expect(myService.value).toEqual('providers');\n * }\n * }\n\n * \n\nlet includeViewProviders = true;\n\nexport function setIncludeViewProviders(v:\n boolean): boolean {\n const oldValue = includeViewProviders;\n includeViewProviders = v;\n return\n oldValue;\n}\n\n/**\n * The number of slots in each bloom filter (used by DI). The larger this number, the fewer\n * directives that will share slots, and thus, the fewer false positives when checking for\n * the existence of a\n directive.\n *\nconst BLOOM_SIZE = 256;\nconst BLOOM_MASK = BLOOM_SIZE - 1;\n\n/**\n * Counter used to\n generate unique IDs for directives.\n *\nlet nextNgElementId = 0;\n\n/**\n * Registers this directive as present in its\n node's injector by flipping the directive's\n * corresponding bit in the injector's bloom filter.\n *\n * @param\n injectorIndex The index of the node injector where this token should be registered\n * @param tView The TView\n for the injector's bloom filters\n * @param type The directive token to register\n *\nexport function bloomAdd(\n injectorIndex:\n number, tView: TView, type: Type<any>|InjectionToken<any>|string): void {\n ngDevMode &&\n assertEqual(tView.firstCreatePass, true, 'expected firstCreatePass to be true');\n let id: number|undefined;\n if\n (typeof type === 'string') {\n id = type.charCodeAt(0) || 0;\n } else if\n (type.hasOwnProperty(NG_ELEMENT_ID)) {\n id = (type as any)[NG_ELEMENT_ID];\n }\n // Set a unique\n ID on the directive type, so if something tries to inject the directive,\n // we can easily retrieve the ID and hash it\n into the bloom bit that should be checked.\n if (id == null) {\n id = (type as any)[NG_ELEMENT_ID] =

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nextNgElementId++;
}

// We only have BLOOM_SIZE (256) slots in our bloom filter (8 buckets * 32 bits
// each), so all unique IDs must be modulo-ed into a number from 0 - 255 to fit into the filter.
const bloomBit =
id & BLOOM_MASK;

// Create a mask that targets the specific bit associated with the directive.
// JS bit
operations are 32 bits, so this
will be a number between 2^0 and 2^31, corresponding
// to bit positions 0 - 31 in a 32 bit integer.
const mask
= 1 << bloomBit;

// Use the raw bloomBit number to determine which bloom filter bucket we should check
// e.g: bf0 = [0 - 31], bf1 = [32 - 63], bf2 = [64 - 95], bf3 = [96 - 127], etc
const b7 = bloomBit & 0x80;
const b6
= bloomBit & 0x40;
const b5 = bloomBit & 0x20;
const tData = tView.data as number[];

if (b7) {
 b6 ?
(b5 ? (tData[injectorIndex + 7] | mask) : (tData[injectorIndex + 6] | mask)) :
(b5 ? (tData[injectorIndex + 5] | mask) : (tData[injectorIndex + 4] | mask));
} else {
 b6 ? (b5 ? (tData[injectorIndex + 3] | mask) :
(tData[injectorIndex + 2] | mask)) :
(b5 ? (tData[injectorIndex + 1] | mask) : (tData[injectorIndex] |
mask));
}

}

// Creates (or gets an existing) injector for a given element or container.
// * @param
tNode for which an injector should be retrieved / created.
*

@param IView View where the node is stored
* @returns Node injector
*

function
getOrCreateNodeInjectorForNode(
 tNode: TElementNode|TContainerNode|TElementContainerNode, IView:
 LView): number {
 const existingInjectorIndex = getInjectorIndex(tNode, IView);
 if (existingInjectorIndex !==
-1) {
 return existingInjectorIndex;
 }

 const tView = IView[TVIEW];
 if (tView.firstCreatePass) {
 tNode.injectorIndex = IView.length;
 insertBloom(tView.data, tNode); // foundation for node bloom
 insertBloom(IView, null); // foundation for cumulative bloom
 insertBloom(tView.blueprint, null);
 }

 const parentLoc = getParentInjectorLocation(tNode, IView);
 const injectorIndex = tNode.injectorIndex;

 // If
a parent injector can't be found, its location is set to -1.
// In that case, we don't need to set up a cumulative
bloom
if (hasParentInjector(parentLoc)) {
 const parentIndex = getParentInjectorIndex(parentLoc);
 const
parentLView = getParentInjectorView(parentLoc, IView);
 const parentData = parentLView[TVIEW].data as
any;

 // Creates a cumulative bloom filter that merges the parent's bloom filter
 // and its own cumulative
bloom (which contains tokens for all ancestors)
 for (let i = 0; i < NodeInjectorOffset.BLOOM_SIZE; i++) {
 IView[injectorIndex + i] = parentLView[parentIndex + i] | parentData[parentIndex + i];
 }

 IView[injectorIndex + NodeInjectorOffset.PARENT] = parentLoc;
 return injectorIndex;
}

function
insertBloom(arr: any[], footer: TNode|null): void {
 arr.push(0, 0, 0, 0, 0, 0, 0, 0, footer);
}

function
getInjectorIndex(tNode: TNode, IView: LView): number {
 if (tNode.injectorIndex === -1) {
 // If the injector
index is the same as its parent's injector index, then the index has been
 // copied down from the parent node. No
injector has been created yet on this node.
 (tNode.parent && tNode.parent.injectorIndex
=== tNode.injectorIndex) {
 // After the first template pass, the injector index might exist but the parent
values
 // might not have been calculated yet for this instance
 IView[tNode.injectorIndex +
NodeInjectorOffset.PARENT] === null) {
 return -1;
 } else {
 ngDevMode && assertIndexInRange(IView,
tNode.injectorIndex);
 return tNode.injectorIndex;
 }
 }

 // Finds the index of the parent injector, with a
view offset if applicable. Used to set the
 // parent injector initially.
 // * @returns Returns a number that is the
combination of the number of LViews that we have to go up
 // to find the LView containing the parent inject AND
the index of the injector within that LView.
 // *
function getParentInjectorLocation(tNode: TNode, IView:
 LView): RelativeInjectorLocation {
 if (tNode.parent && tNode.parent.injectorIndex !== -1) {
 // If we have a
parent `TNode` and there is an injector associated with it we are done, because
 // the parent injector is within the current `LView`.
 return tNode.parent.injectorIndex as any;

 // ViewOffset is
0
 }

 // When parent injector location is computed it may be outside of the current view. (ie it could
 // be
pointing to a declared parent location). This variable stores number of declaration parents
 // we need to walk up in
order to find the parent injector location.
 let declarationViewOffset = 0;
 let parentTNode: TNode|null = null;
 let IViewCursor: LView|null = IView;

 // The parent injector is not in the current `LView`. We will have to walk
the declared parent
 // `LView` hierarchy and look for it. If we walk of the top, that means that there is no parent
 // `NodeInjector`.
 while (IViewCursor !== null) {
 // First determine the `parentTNode` location. The parent
pointer differs based on `TView.type`.
 const tView = IViewCursor[TVIEW];
 const tViewType =

```

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tView.type;\n if (tViewType === TViewType.Embedded) {\n
 ngDevMode &&\n assertDefined(tView.declTNode, 'Embedded TNodes should have declaration parents.');

```



```

implementation for module injector, since module injector\n // should not have access to Component/Directive DI
scope (that may happen through\n // `directiveInject` implementation)\n const previousInjectImplementation =
setInjectImplementation(undefined);\n try {\n if (moduleInjector) {\n return moduleInjector.get(token,
notFoundValue, flags & InjectFlags.Optional);\n } else {\n return injectRootLimpMode(token,
notFoundValue, flags & InjectFlags.Optional);\n }\n } finally {\n
setInjectImplementation(previousInjectImplementation);\n }\n }\n return
notFoundValueOrThrow<T>(notFoundValue, token, flags);\n}\n\n/**\n * Returns the value associated to the given
token from the NodeInjectors => ModuleInjector.\n *\n * Look for the injector providing the token by walking up
the node injector tree and then\n * the module injector tree.\n *\n * This function patches `token` with
`__NG_ELEMENT_ID__` which contains the id for the bloom\n *
filter. `-1` is reserved for injecting `Injector` (implemented by `NodeInjector`)\n *\n * @param tNode The Node
where the search for the injector should start\n *\n * @param IView The `LView` that contains the `tNode`\n *\n * @param
token The token to look for\n *\n * @param flags Injection flags\n *\n * @param notFoundValue The value to return when
the injection flags is `InjectFlags.Optional`\n *\n * @returns the value from the injector, `null` when not found, or
`notFoundValue` if provided\n */\nexport function getOrCreateInjectable<T>(\n tNode: TDirectiveHostNode|null,\n IView: LView, token: Type<T>|InjectionToken<T>,\n flags: InjectFlags = InjectFlags.Default, notFoundValue?:
any): T|null {\n if (tNode !== null) {\n const bloomHash = bloomHashBitOrFactory(token);\n // If the ID stored
here is a function, this is a special object like ElementRef or TemplateRef\n // so just call the factory function to
create it.\n if (typeof bloomHash === 'function') {\n if (!enterDI(IView, tNode,\n
flags)) {\n // Failed to enter DI, try module injector instead. If a token is injected with the @Host\n // flag,
the module injector is not searched for that token in Ivy.\n return (flags & InjectFlags.Host) ?\n
notFoundValueOrThrow<T>(notFoundValue, token, flags) : \n lookupTokenUsingModuleInjector<T>(IView,\n
token, flags, notFoundValue);\n }\n } try {\n const value = bloomHash();\n if (value == null && !(flags
& InjectFlags.Optional)) {\n throw ProviderNotFoundError(token);\n } else {\n return value;\n
}\n } finally {\n leaveDI();\n }\n } else if (typeof bloomHash === 'number') {\n // A reference to the
previous injector TView that was found while climbing the element\n // injector tree. This is used to know if
viewProviders can be accessed on the current\n // injector.\n let previousTView: TView|null = null;\n let
injectorIndex = getInjectorIndex(tNode,\n IView);\n let parentLocation: RelativeInjectorLocation = NO_PARENT_INJECTOR;\n let
hostTElementNode: TNode|null = \n flags & InjectFlags.Host ?\n IView[DECLARATION_COMPONENT_VIEW][T_HOST] : null;\n\n // If we should skip this injector, or if
there is no injector on this node, start by\n // searching the parent injector.\n if (injectorIndex === -1 || flags &
InjectFlags.SkipSelf) {\n parentLocation = injectorIndex === -1 ? getParentInjectorLocation(tNode, IView) : \n
IView[injectorIndex + NodeInjectorOffset.PARENT];\n\n if (parentLocation ===\n NO_PARENT_INJECTOR || !shouldSearchParent(flags, false)) {\n injectorIndex = -1;\n } else {\n
previousTView = IView[TVIEW];\n injectorIndex = getParentInjectorIndex(parentLocation);\n IView =\n
getParentInjectorView(parentLocation, IView);\n }\n }\n\n // Traverse up the injector tree until we
find a potential match or until we know there\n // *isn't* a match.\n while (injectorIndex !== -1) {\n
ngDevMode && assertNodeInjector(IView, injectorIndex);\n\n // Check the current injector. If it matches, see if
it contains token.\n const tView = IView[TVIEW];\n ngDevMode && \n assertTNodeForLView(\n
tView.data[injectorIndex + NodeInjectorOffset.TNODE] as TNode, IView);\n if\n (bloomHasToken(bloomHash, injectorIndex, tView.data)) {\n // At this point, we have an injector which
may contain the token, so we step through\n // the providers and directives associated with the injector's
corresponding node to get\n // the instance.\n const instance: T|null = searchTokensOnInjector<T>(\n
injectorIndex, IView, token, previousTView, flags, hostTElementNode);\n if (instance !== NOT_FOUND)\n {\n return instance;\n }\n }\n }\n\n parentLocation\n = IView[injectorIndex + NodeInjectorOffset.PARENT];\n if (parentLocation !== NO_PARENT_INJECTOR\n &&\n shouldSearchParent(\n flags,\n IView[TVIEW].data[injectorIndex +

```

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NodeInjectorOffset.TNODE] === hostTElementNode) &&\n bloomHasToken(bloomHash, injectorIndex,
IView)) {\n // The def wasn't found anywhere on this node, so it was a false positive.\n // Traverse up the
tree and continue searching.\n previousTView = tView;\n injectorIndex =
getParentInjectorIndex(parentLocation);\n IView = getParentInjectorView(parentLocation, IView);\n }
else {\n // If we should not search parent OR If the ancestor bloom filter value does not have the\n // bit
corresponding to the directive we can give up on traversing up to find the specific\n // injector.\n injectorIndex = -1;\n }\n }\n }\n }\n return lookupTokenUsingModuleInjector<T>(IView,
token, flags, notFoundValue);\n}\n\nconst NOT_FOUND = {};\n\nexport function createNodeInjector(): Injector
{\n return new NodeInjector(getCurrentTNode()! as TDirectiveHostNode, getLView()) as any;\n}\n\nfunction
searchTokensOnInjector<T>(\n injectorIndex: number, IView: LView, token: Type<T>|InjectionToken<T>,\n previousTView: TView|null, flags: InjectFlags, hostTElementNode: TNode|null) {\n const currentTView =
IView[TVIEW];\n const tNode = currentTView.data[injectorIndex + NodeInjectorOffset.TNODE] as TNode;\n //
First, we need to determine if view providers can be accessed by the starting element.\n // There are two
possibilities\n const canAccessViewProviders = previousTView == null ?\n // 1) This is the first invocation
`previousTView == null` which means that we are at the\n // `TNode` of where injector is starting to look. In
such a case the only time we are allowed\n // to look into the ViewProviders is if:\n // - we are on a
component\n // - AND the injector set `includeViewProviders` to true (implying that the token can see\n // ViewProviders
because it is the Component or a Service which itself was declared in\n // ViewProviders)\n (isComponentHost(tNode) && includeViewProviders) :\n // 2) `previousTView != null` which means that we are
now walking across the parent nodes.\n // In such a case we are only allowed to look into the ViewProviders if:\n // - We just crossed from child View to Parent View `previousTView != currentTView`\n // - AND the parent
TNode is an Element.\n // This means that we just came from the Component's View and therefore are allowed to
see\n // into the ViewProviders.\n (previousTView != currentTView && ((tNode.type &
TNodeType.AnyRNode) !== 0));\n }\n // This special case happens when there is a @host on the inject and when we
are searching\n // on the host element node.\n const isHostSpecialCase = (flags & InjectFlags.Host) &&
hostTElementNode
 === tNode;\n const injectableIdx = locateDirectiveOrProvider(\n tNode, currentTView, token,
canAccessViewProviders, isHostSpecialCase);\n if (injectableIdx !== null) {\n return getNodeInjectable(IView,
currentTView, injectableIdx, tNode as TElementNode);\n } else {\n return NOT_FOUND;\n }\n}\n\n/**\n *
Searches for the given token among the node's directives and providers.\n * \n * @param tNode TNode on which
directives are present.\n * @param tView The tView we are currently processing\n * @param token Provider token
or type of a directive to look for.\n * @param canAccessViewProviders Whether view providers should be
considered.\n * @param isHostSpecialCase Whether the host special case applies.\n * @returns Index of a found
directive or provider, or null when none found.\n */\nexport function locateDirectiveOrProvider<T>(\n tNode:
TNode, tView: TView, token: Type<T>|InjectionToken<T>|string,\n canAccessViewProviders: boolean,
isHostSpecialCase: boolean|number):
number|null {\n const nodeProviderIndexes = tNode.providerIndexes;\n const tInjectables = tView.data;\n const
injectablesStart = nodeProviderIndexes & TNodeProviderIndexes.ProvidersStartIndexMask;\n const directivesStart
= tNode.directiveStart;\n const directiveEnd = tNode.directiveEnd;\n const cptViewProvidersCount =\n nodeProviderIndexes >> TNodeProviderIndexes.CptViewProvidersCountShift;\n const startIndex =\n canAccessViewProviders ? injectablesStart : injectablesStart + cptViewProvidersCount;\n // When the host special
case applies, only the viewProviders and the component are visible\n const endIndex = isHostSpecialCase ?
injectablesStart + cptViewProvidersCount : directiveEnd;\n for (let i = startIndex; i < endIndex; i++) {\n const
providerTokenOrDef =\n tInjectables[i] as InjectionToken<any>| Type<any>| DirectiveDef<any>| string;\n if
(i < directivesStart && token === providerTokenOrDef ||\n i >= directivesStart && (providerTokenOrDef
as DirectiveDef<any>).type === token) {\n return i;\n }\n }\n if (isHostSpecialCase) {\n const dirDef =
tInjectables[directivesStart] as DirectiveDef<any>;\n if (dirDef && isComponentDef(dirDef) && dirDef.type ===

```

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token) {\n return directivesStart;\n }\n }\n return null;\n}\n\n/**\n * Retrieve or instantiate the injectable from\n the `LView` at particular `index`. \n * This function checks to see if the value has already been instantiated and if\n so returns the \n * cached `injectable`. Otherwise if it detects that the value is still a factory it \n * instantiates the\n `injectable` and caches the value. \n */\nexport function getNodeInjectable(\n IView: LView, tView: TView, index:\n number, tNode: TDirectiveHostNode): any {\n let value = IView[index];\n const tData = tView.data;\n if\n (isFactory(value)) {\n const factory: NodeInjectorFactory = value;\n if (factory.resolving) {\n throwCyclicDependencyError(stringifyForError(tData[index]));\n }\n const previousIncludeViewProviders = setIncludeViewProviders(factory.canSeeViewProviders);\n factory.resolving = true;\n const previousInjectImplementation =\n factory.injectImpl ?\n setInjectImplementation(factory.injectImpl) : null;\n const success = enterDI(IView, tNode, InjectFlags.Default);\n ngDevMode &&\n assertEqual(\n success, true,\n 'Because flags do not contain `SkipSelf` we\n expect this to always succeed.);\n try {\n value = IView[index] = factory.factory(undefined, tData, IView,\n tNode);\n // This code path is hit for both directives and providers. \n // For perf reasons, we want to avoid\n searching for hooks on providers. \n // It does no harm to try (the hooks just won't exist), but the extra \n // \n checks are unnecessary and this is a hot path. So we check to see \n // if the index of the dependency is in the\n directive range for this \n // tNode. If it's not, we know it's a provider\n and skip hook registration. \n if (tView.firstCreatePass && index >= tNode.directiveStart) {\n ngDevMode\n && assertDirectiveDef(tData[index]);\n registerPreOrderHooks(index, tData[index] as DirectiveDef<any>,\n tView);\n }\n } finally {\n previousInjectImplementation !== null &&\n setInjectImplementation(previousInjectImplementation);\n setIncludeViewProviders(previousIncludeViewProviders);\n factory.resolving = false;\n leaveDI();\n }\n }\n return value;\n}\n\n/**\n * Returns the bit in an injector's bloom filter that should be used to determine whether\n or not \n * the directive might be provided by the injector. \n * When a directive is public, it is added to the bloom\n filter and given a unique ID that can be \n * retrieved on the Type. When the directive isn't public or the token is not\n a directive `null` \n * is returned as the node injector can not possibly provide that token. \n * @param token the\n injection token\n\n * @returns the matching bit to check in the bloom filter or `null` if the token is not known. \n * When the returned\n value is negative then it represents special values such as `Injector`. \n */\nexport function\n bloomHashBitOrFactory(token: Type<any>|InjectionToken<any>|string): number|Function|\n undefined {\n ngDevMode && assertDefined(token, 'token must be defined');\n if (typeof token === 'string') {\n return\n token.charCodeAt(0) || 0;\n }\n const tokenId: number|undefined =\n // First check with `hasOwnProperty` so\n we don't get an inherited ID. \n token.hasOwnProperty(NG_ELEMENT_ID) ? (token as\n any)[NG_ELEMENT_ID] : undefined;\n // Negative token IDs are used for special objects such as `Injector` \n if\n (typeof tokenId === 'number') {\n if (tokenId >= 0) {\n return tokenId & BLOOM_MASK;\n } else {\n ngDevMode &&\n assertEqual(tokenId, InjectorMarkers.Injector, 'Expecting to get Special Injector Id');\n return createNodeInjector;\n }\n } else {\n return tokenId;\n }\n}\n\nexport function bloomHasToken(bloomHash: number, injectorIndex:\n number, injectorView: LView|TData) {\n // Create a mask that targets the specific bit associated with the directive\n we're looking for. \n // JS bit operations are 32 bits, so this will be a number between 2^0 and 2^31, corresponding \n // to bit positions 0 - 31 in a 32 bit integer. \n const mask = 1 << bloomHash;\n const b7 = bloomHash & 0x80;\n const b6 = bloomHash & 0x40;\n const b5 = bloomHash & 0x20;\n // Our bloom filter size is 256 bits, which is\n eight 32-bit bloom filter buckets: \n // bf0 = [0 - 31], bf1 = [32 - 63], bf2 = [64 - 95], bf3 = [96 - 127], etc. \n // Get\n the bloom filter value from the appropriate bucket based on the directive's bloomBit. \n let value: number;\n if\n (b7) {\n value = b6 ? (b5 ? injectorView[injectorIndex + 7] : injectorView[injectorIndex + 6]) :\n (b5 ?\n injectorView[injectorIndex + 5] : injectorView[injectorIndex\n + 4]);\n } else {\n value = b6 ? (b5 ? injectorView[injectorIndex + 3] : injectorView[injectorIndex + 2]) :\n (b5 ? injectorView[injectorIndex + 1] : injectorView[injectorIndex]);\n }\n // If the bloom filter value has the\n bit corresponding to the directive's bloomBit flipped on, \n // this injector is a potential match. \n return !!((value &

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mask);\n\n/** Returns true if flags prevent parent injector from being searched for tokens */\nfunction
shouldSearchParent(flags: InjectFlags, isFirstHostTNode: boolean): boolean{\n return !(flags &
InjectFlags.Self) && !(flags & InjectFlags.Host && isFirstHostTNode);\n}\n\nexport class NodeInjector
implements Injector {\n constructor(\n private _tNode:
TElementNode|TContainerNode|TElementContainerNode|null,\n private _lView: LView) {} \n\n get(token: any,
notFoundValue?: any): any {\n return getOrCreateInjectable(this._tNode, this._lView, token, undefined,
notFoundValue);\n }\n}\n\n/**\n * @codeGenApi\n */\nexport function getFactoryOf<T>(type: Type<any>): FactoryFn<T>|null {\n const typeAny = type as any;\n if (isForwardRef(type)) {\n return () => {\n const factory =
getFactoryOf<T>(resolveForwardRef(typeAny));\n return factory ? factory() : null;\n } as any;\n }\n\n let factory = getFactoryDef<T>(typeAny);\n if (factory === null) {\n const injectorDef =
getInjectorDef<T>(typeAny);\n factory = injectorDef && injectorDef.factory;\n }\n\n return factory ||
null;\n}\n\n/**\n * @codeGenApi\n */\nexport function getInheritedFactory<T>(type: Type<any>): (type:
Type<T>) => T {\n return noSideEffects(() => {\n const ownConstructor = type.prototype.constructor;\n const
ownFactory = ownConstructor[NG_FACTORY_DEF] || getFactoryOf(ownConstructor);\n const objectPrototype
= Object.prototype;\n let parent = Object.getPrototypeOf(type.prototype).constructor;\n\n // Go up the prototype
until we hit `Object`.\n while
(parent && parent !== objectPrototype) {\n const factory = parent[NG_FACTORY_DEF] ||
getFactoryOf(parent);\n\n // If we hit something that has a factory and the factory isn't the same as the type,\n
// we've found the inherited factory. Note the check that the factory isn't the type's\n // own factory is redundant
in most cases, but if the user has custom decorators on the\n // class, this lookup will start one level down in the
prototype chain, causing us to\n // find the own factory first and potentially triggering an infinite loop
downstream.\n if (factory && factory !== ownFactory) {\n return factory;\n }\n\n parent =
Object.getPrototypeOf(parent);\n }\n\n // There is no factory defined. Either this was improper usage of
inheritance\n // (no Angular decorator on the superclass) or there is no constructor at all\n // in the inheritance
chain. Since the two cases cannot be distinguished, the\n // latter has to
be assumed.\n return t => new t();\n });\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nexport const ERROR_TYPE = 'ngType';\nexport const
ERROR_DEBUG_CONTEXT = 'ngDebugContext';\nexport const ERROR_ORIGINAL_ERROR =
'ngOriginalError';\nexport const ERROR_LOGGER = 'ngErrorLogger';\n\nexport function
wrappedError(message: string, originalError: any): Error {\n const msg = `${message} caused by: ${\n
originalError instanceof Error ? originalError.message : originalError`;\n const error = Error(msg);\n (error as
any)[ERROR_ORIGINAL_ERROR] = originalError;\n return error;\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {ERROR_DEBUG_CONTEXT,
ERROR_LOGGER, ERROR_ORIGINAL_ERROR, ERROR_TYPE} from './util/errors';\nimport {DebugContext}
from './view/types';\n\nexport function getType(error: Error): Function {\n return (error as
any)[ERROR_TYPE];\n}\n\nexport function getDebugContext(error: Error): DebugContext {\n return (error as
any)[ERROR_DEBUG_CONTEXT];\n}\n\nexport function getOriginalError(error: Error): Error {\n return (error
as any)[ERROR_ORIGINAL_ERROR];\n}\n\nexport function getErrorLogger(error: Error): (console: Console,
...values: any[]) => void {\n return (error as any)[ERROR_LOGGER] || defaultErrorLogger;\n}\n\n\nfunction
defaultErrorLogger(console: Console, ...values: any[]) {\n (<any>console.error)(...values);\n}\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{getDebugContext, getErrorLogger, getOriginalError} from './errors';\n\n\n/**\n * Provides a hook for centralized exception handling.\n * The default implementation of `ErrorHandler` prints
error messages to the `console`. To\n * intercept error handling, write a custom exception handler that replaces this

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default as\n * appropriate for your app.\n\n * @usageNotes\n * ### Example\n * ```\n * class MyErrorHandler
implements ErrorHandler {\n * handleError(error) {\n * // do something with the exception\n * }\n * }\n\n * @NgModule({\n * providers: [{provide: ErrorHandler, useClass: MyErrorHandler}]\n * })\n * class MyModule
{\n * ...}\n\n * @publicApi\n * \nexport class ErrorHandler {\n * /**\n * * @internal\n * * \n _console: Console =
console;\n\n * handleError(error: any): void {\n * const originalError = this._findOriginalError(error);\n * const
context = this._findContext(error);\n * // Note: Browser consoles show the place from where console.error was
called.\n * // We can use this to give users additional information about
the error.\n * const errorLogger = getErrorLogger(error);\n * errorLogger(this._console, `ERROR`, error);\n * if
(originalError) {\n * errorLogger(this._console, `ORIGINAL ERROR`, originalError);\n * }\n * if (context) {\n *
errorLogger(this._console, 'ERROR CONTEXT', context);\n * }\n * }\n\n * /** @internal\n * * \n _findContext(error:
any): any {\n * if (error) {\n * return getDebugContext(error) ? getDebugContext(error) : \n
this._findContext(getOriginalError(error));\n * }\n * return null;\n * }\n\n * /** @internal\n * * \n _findOriginalError(error: Error): any {\n * let e = getOriginalError(error);\n * while (e && getOriginalError(e)) {\n *
e = getOriginalError(e);\n * }\n * return e;\n * }\n * }\n * }", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\n * A schema
definition associated with an NgModule.\n * \n * @see `@NgModule`, `CUSTOM_ELEMENTS_SCHEMA`,
`NO_ERRORS_SCHEMA`\n * \n * @param name The name of a defined schema.\n * \n * @publicApi\n * \nexport
interface SchemaMetadata {\n * name: string;\n * }\n\n * Defines a schema that allows an NgModule to contain
the following:\n * - Non-Angular elements named with dash case (`-`).\n * - Element properties named with dash
case (`-`).\n * - Dash case is the naming convention for custom elements.\n * \n * @publicApi\n * \nexport const
CUSTOM_ELEMENTS_SCHEMA: SchemaMetadata = {\n * name: 'custom-elements'\n * }; \n\n * Defines a
schema that allows any property on any element.\n * \n * @publicApi\n * \nexport const NO_ERRORS_SCHEMA:
SchemaMetadata = {\n * name: 'no-errors-schema'\n * }; \n\n * \n\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\nimport
'./ng_dev_mode';\nimport {newTrustedFunctionForDev} from './security/trusted_types';\n\n * THIS FILE
CONTAINS CODE WHICH SHOULD BE TREE SHAKEN AND NEVER CALLED FROM PRODUCTION
CODE!!!\n * \n\n * Creates an `Array` construction with a given name. This is useful when\n * looking for
memory consumption to see what time of array it is.\n * \n * \n * @param name Name to give to the constructor\n *
@returns A subclass of `Array` if possible. This can only be done in\n * environments which support `class`
construct.\n * \nexport function createNamedArrayType(name: string): typeof Array {\n * // This should never be
called in prod mode, so let's verify that is the case.\n * if (ngDevMode) {\n * try {\n * // If this function were
compromised the following could lead to arbitrary\n * // script execution. We bless it with Trusted Types anyway
since this\n * // function is stripped out of production binaries.\n * return (newTrustedFunctionForDev('Array',
`return class
${name} extends Array{${}})(Array);\n * } catch (e) {\n * // If it does not work just give up and fall back to regular
Array.\n * return Array;\n * }\n * } else {\n * throw new Error(\n * 'Looks like we are in \\`prod mode\\`, but we
are creating a named Array type, which is wrong! Check your code');\n * }\n * }\n * }\n\n * \n\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n *
found in the LICENSE file at https://angular.io/license\n * \n\nexport function
normalizeDebugBindingName(name: string) {\n * // Attribute names with `$` (eg `x-y$`) are valid per spec, but
unsupported by some browsers\n * name = camelCaseToDashCase(name.replace(/[$@/g, '_']));\n * return `ng-reflect-
${name}`;\n * }\n\nconst CAMEL_CASE_REGEXP = /[A-Z]/g;\n\nfunction camelCaseToDashCase(input: string):
string {\n * return input.replace(CAMEL_CASE_REGEXP, (...m: any[]) => '-' + m[1].toLowerCase());\n * }\n\nexport
function normalizeDebugBindingValue(value:
any): string {\n * try {\n * // Limit the size of the value as otherwise the DOM just gets polluted.\n * return value !=
null ? value.toString().slice(0, 30) : value;\n * } catch (e) {\n * return '[ERROR] Exception while trying to serialize

```

```

the value';\n } }\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\nimport '../util/ng_dev_mode';\nimport {assertDomNode} from '../util/assert';\nimport {EMPTY_ARRAY}
from './empty';\nimport {LContext, MONKEY_PATCH_KEY_NAME} from './interfaces/context';\nimport
{TNode, TNodeFlags} from './interfaces/node';\nimport {RElement, RNode} from
'/interfaces/renderer_dom';\nimport {CONTEXT, HEADER_OFFSET, HOST, LView, TVIEW} from
'/interfaces/view';\nimport {getComponentLViewByIndex, readPatchedData, unwrapRNode} from
'/util/view_utils';\n\n\n\n**\n * Returns
the matching `LContext` data for a given DOM node, directive or component instance.\n * This function will
examine the provided DOM element, component, or directive instance's\n * monkey-patched property to derive the
`LContext` data. Once called then the monkey-patched\n * value will be that of the newly created `LContext`.\n *\n
* If the monkey-patched value is the `LView` instance then the context value for that\n * target will be created and
the monkey-patch reference will be updated. Therefore when this\n * function is called it may mutate the provided
element's, component's or any of the associated\n * directive's monkey-patch values.\n *\n
* If the monkey-patch value is not detected then the code will walk up the DOM until an element\n * is found which contains a
monkey-patch reference. When that occurs then the provided element\n * will be updated with a new context (which
is then returned). If the monkey-patch value is not\n * detected for a component/directive instance
then it will throw an error (all components and\n * directives should be automatically monkey-patched by ivy).\n
*\n
* @param target Component, Directive or DOM Node.\n */\nexport function getLContext(target: any):
LContext|null {\n let mpValue = readPatchedData(target);\n if (mpValue) {\n // only when it's an array is it
considered an LView instance\n // ... otherwise it's an already constructed LContext instance\n if
(Array.isArray(mpValue)) {\n const lView: LView = mpValue!;\n let nodeIndex: number;\n let
component: any = undefined;\n let directives: any[]|null|undefined = undefined;\n if
(isComponentInstance(target)) {\n nodeIndex = findViaComponent(lView, target);\n if (nodeIndex === -1)
{\n throw new Error("The provided component was not found in the application");\n }\n component =
target;\n } else if (isDirectiveInstance(target)) {\n nodeIndex = findViaDirective(lView, target);\n if (nodeIndex === -1) {\n throw new Error("The provided directive was not found in the application");\n }\n directives = getDirectivesAtNodeIndex(nodeIndex, lView, false);\n } else {\n nodeIndex =
findViaNativeElement(lView, target as RElement);\n if (nodeIndex === -1) {\n return null;\n }\n }\n // the goal is not to fill the entire context full of data because the lookups\n // are expensive. Instead, only
the target data (the element, component, container, ICU\n // expression or directive details) are filled into the
context. If called multiple times\n // with different target values then the missing target data will be filled in.\n const native = unwrapRNode(lView[nodeIndex]);\n const existingCtx = readPatchedData(native);\n const
context: LContext = (existingCtx && !Array.isArray(existingCtx)) ?\n existingCtx :\n createLContext(lView, nodeIndex, native);\n // only
when the component has been discovered then update the monkey-patch\n if (component &&
context.component === undefined) {\n context.component = component;\n }\n attachPatchData(context.component, context);\n }\n // only when the directives have been discovered then
update the monkey-patch\n if (directives && context.directives === undefined) {\n context.directives =
directives;\n for (let i = 0; i < directives.length; i++) {\n attachPatchData(directives[i], context);\n }\n }\n attachPatchData(context.native, context);\n mpValue = context;\n }\n } else {\n const rElement =
target as RElement;\n ngDevMode && assertDomNode(rElement);\n }\n // if the context is not found then we
need to traverse upwards up the DOM\n // to find the nearest element that has already been monkey patched with
data\n let parent = rElement as any;\n while (parent = parent.parentNode) {\n const parentContext
= readPatchedData(parent);\n if (parentContext) {\n let lView: LView|null;\n if
(Array.isArray(parentContext)) {\n lView = parentContext as LView;\n } else {\n lView =
parentContext.lView;\n }\n // the edge of the app was also reached here through another means\n //
(maybe because the DOM was changed manually).\n if (!lView) {\n return null;\n }\n const

```

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index = findViaNativeElement(IView, rElement);\n if (index >= 0) {\n const native =
unwrapRNode(IView[index]);\n const context = createLContext(IView, index, native);\n attachPatchData(native, context);\n mpValue = context;\n break;\n }\n }\n }\n }\n return
(mpValue as LContext) || null;\n}\n\n/**\n * Creates an empty instance of a `LContext` context\n */\nfunction
createLContext(IView: LView, nodeIndex: number, native: RNode): LContext {\n return {\n IView,\n nodeIndex,\n native,\n component: undefined,\n directives: undefined,\n localRefs: undefined,\n };\n}\n\n/**\n * Takes a
component instance and returns the view for that component.\n */\n * @param componentInstance\n * @returns The
component's view\n */\nexport function getComponentViewByInstance(componentInstance: {}): LView {\n let
IView = readPatchedData(componentInstance);\n let view: LView;\n\n if (Array.isArray(IView)) {\n const
nodeIndex = findViaComponent(IView, componentInstance);\n view = getComponentLViewByIndex(nodeIndex,
IView);\n const context = createLContext(IView, nodeIndex, view[HOST] as RElement);\n context.component =
componentInstance;\n attachPatchData(componentInstance, context);\n attachPatchData(context.native,
context);\n } else {\n const context = IView as any as LContext;\n view =
getComponentLViewByIndex(context.nodeIndex, context.IView);\n }\n return view;\n}\n\n/**\n * Assigns the
given data to the given target (which
could be a component,\n * directive or DOM node instance) using monkey-patching.\n */\nexport function
attachPatchData(target: any, data: LView|LContext) {\n target[MONKEY_PATCH_KEY_NAME] =
data;\n}\n\nexport function isComponentInstance(instance: any): boolean {\n return instance &&
instance.constructor && instance.constructor.cmp;\n}\n\nexport function isDirectiveInstance(instance: any):
boolean {\n return instance && instance.constructor && instance.constructor.dir;\n}\n\n/**\n * Locates the element
within the given LView and returns the matching index\n */\nfunction findViaNativeElement(IView: LView, target:
RElement): number {\n const tView = IView[TVIEW];\n for (let i = HEADER_OFFSET; i <
tView.bindingStartIndex; i++) {\n if (unwrapRNode(IView[i]) === target) {\n return i;\n }\n }\n return -
1;\n}\n\n/**\n * Locates the next tNode (child, sibling or parent).\n */\nfunction traverseNextElement(tNode:
TNode): TNode|null {\n if (tNode.child) {\n return tNode.child;\n }
 } else if (tNode.next) {\n return tNode.next;\n } else {\n // Let's take the following template:
<div>text</div><component/>\n // After checking the text node, we need to find the next parent
that has a `next` TNode,\n // in this case the parent `div`, so that we can find the component.\n while
(tNode.parent && !tNode.parent.next) {\n tNode = tNode.parent;\n }\n return tNode.parent &&
tNode.parent.next;\n }\n}\n\n/**\n * Locates the component within the given LView and returns the matching
index\n */\nfunction findViaComponent(IView: LView, componentInstance: {}): number {\n const
componentIndices = IView[TVIEW].components;\n if (componentIndices) {\n for (let i = 0; i <
componentIndices.length; i++) {\n const elementComponentIndex = componentIndices[i];\n const
componentView = getComponentLViewByIndex(elementComponentIndex, IView);\n if
(componentView[CONTEXT] === componentInstance) {\n return elementComponentIndex;\n }\n }\n } else {\n const rootComponentView = getComponentLViewByIndex(HEADER_OFFSET,
IView);\n const rootComponent = rootComponentView[CONTEXT];\n if (rootComponent ===
componentInstance) {\n // we are dealing with the root element here therefore we know that the\n // element is
the very first element after the HEADER data in the IView\n return HEADER_OFFSET;\n }\n }\n return -
1;\n}\n\n/**\n * Locates the directive within the given LView and returns the matching index\n */\nfunction
findViaDirective(IView: LView, directiveInstance: {}): number {\n // if a directive is monkey patched then it will
(by default)\n // have a reference to the LView of the current view. The\n // element bound to the directive being
search lives somewhere\n // in the view data. We loop through the nodes and check their\n // list of directives for
the instance.\n let tNode = IView[TVIEW].firstChild;\n while (tNode) {\n const directiveIndexStart =
tNode.directiveStart;\n const directiveIndexEnd = tNode.directiveEnd;\n for (let i = directiveIndexStart; i < directiveIndexEnd; i++) {\n if (IView[i] === directiveInstance) {\n return tNode.index;\n }\n }\n tNode =

```

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 traverseNextElement(tNode);\n } \n return -1;\n } \n\n/**\n * Returns a list of directives extracted from the given
view based on the\n * provided list of directive index values.\n *\n * @param nodeIndex The node index\n *\n * @param lView The target view data\n *\n * @param includeComponents Whether or not to include components in
returned directives\n */\nexport function getDirectivesAtNodeIndex(\n nodeIndex: number, lView: LView,
includeComponents: boolean): any[] | null {\n const tNode = lView[TVIEW].data[nodeIndex] as TNode;\n let
directiveStartIndex = tNode.directiveStart;\n if (directiveStartIndex == 0) return EMPTY_ARRAY;\n const
directiveEndIndex = tNode.directiveEnd;\n if (!includeComponents && tNode.flags &
TNodeFlags.isComponentHost) directiveStartIndex++;\n
 return lView.slice(directiveStartIndex, directiveEndIndex);\n } \n\nexport function
getComponentAtNodeIndex(nodeIndex: number, lView: LView): {} | null {\n const tNode =
lView[TVIEW].data[nodeIndex] as TNode;\n let directiveStartIndex = tNode.directiveStart;\n return tNode.flags &
TNodeFlags.isComponentHost ? lView[directiveStartIndex] : null;\n } \n\n/**\n * Returns a map of local references
(local reference name => element or directive instance) that\n * exist on a given element.\n */\nexport function
discoverLocalRefs(lView: LView, nodeIndex: number): {[key: string]: any} | null {\n const tNode =
lView[TVIEW].data[nodeIndex] as TNode;\n if (tNode && tNode.localNames) {\n const result: {[key: string]:
any} = {};\n let localIndex = tNode.index + 1;\n for (let i = 0; i < tNode.localNames.length; i += 2) {\n
result[tNode.localNames[i]] = lView[localIndex];\n localIndex++;\n }\n return result;\n } \n\n return
null;\n } \n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { global } from
'../util/global';\nimport { RElement } from './interfaces/renderer_dom';\n\nexport const defaultScheduler =\n ((\n
=> (\n typeof requestAnimationFrame !== 'undefined' &&\n requestAnimationFrame || //
browser only\n setTimeout // everything else\n)\n .bind(global)));\n\n/**\n *\n * @codeGenApi\n */\nexport function resolveWindow(element: RElement & { ownerDocument: Document }) {\n
return { name: 'window', target: element.ownerDocument.defaultView; }\n }\n\n/**\n *\n * @codeGenApi\n */\nexport function resolveDocument(element: RElement & { ownerDocument: Document }) {\n
return { name:
'document', target: element.ownerDocument; }\n }\n\n/**\n *\n * @codeGenApi\n */\nexport function
resolveBody(element:
 RElement & { ownerDocument: Document }) {\n return { name: 'body', target:
 element.ownerDocument.body; }\n }\n\n/**\n *\n * The special delimiter we use to separate property names, prefixes,
and suffixes\n * in property binding metadata. See storeBindingMetadata().\n *\n * We intentionally use the
Unicode \"REPLACEMENT CHARACTER\" (U+FFFD) as a delimiter\n * because it is a very uncommon
character that is unlikely to be part of a user's\n * property names or interpolation strings. If it is in fact used in a
property\n * binding, DebugElement.properties will not return the correct value for that\n * binding. However, there
should be no runtime effect for real applications.\n *\n * This character is typically rendered as a question mark
inside of a diamond.\n * See https://en.wikipedia.org/wiki/Specials_(Unicode_block)\n *\n */\nexport const
INTERPOLATION_DELIMITER = ``;\n\n/**\n *\n * Unwrap a value which might be behind a closure (for forward
declaration reasons).\n */\nexport function
maybeUnwrapFn<T>(value: T | (() => T)): T {\n if (value instanceof Function) {\n return value();\n } else {\n
return value;\n }\n }\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport { RuntimeError, RuntimeErrorCode } from './error_code';\nimport { TNode }
from './interfaces/node';\nimport { LView, TVIEW } from './interfaces/view';\nimport
{ INTERPOLATION_DELIMITER } from './util/misc_utils';\n\n\n/**\n * Called when there are multiple component
selectors that match a given node\n */\nexport function throwMultipleComponentError(tNode: TNode): never {\n
throw new RuntimeError(\n RuntimeErrorCode.MULTIPLE_COMPONENTS_MATCH,\n `Multiple
components match node with tagname ${tNode.value}`);\n }\n\n/**\n * Throws an ExpressionChangedAfterChecked
error if checkNoChanges mode is on.\n */\nexport function throwErrorIfNoChangesMode(\n

```



```

creationMode: boolean, oldValue: any, currValue: any, propName?: string): never|void {\n const field =
propName ? `for '${propName}'` : '';\n let msg =\n `ExpressionChangedAfterItHasBeenCheckedError:
Expression has changed after it was checked. Previous value${\n field}: '${oldValue}'. Current value:
'${currValue}'.`;\n if (creationMode) {\n msg +=\n ` It seems like the view has been created after its parent
and its children have been dirty checked.` +\n ` Has it been created in a change detection hook?`;\n }\n //
TODO: include debug context, see `viewDebugError` function in\n // `packages/core/src/view/errors.ts` for
reference.\n throw new RuntimeError(RuntimeErrorCode.EXPRESSION_CHANGED_AFTER_CHECKED,
msg);\n}\n\nfunction constructDetailsForInterpolation(\n IView: LView, rootIndex: number, expressionIndex:
number, meta: string, changedValue: any) {\n const [propName, prefix, ...chunks] =
meta.split(INTERPOLATION_DELIMITER);\n let
oldValue = prefix, newValue = prefix;\n for (let i = 0; i < chunks.length; i++) {\n const slotIdx = rootIndex + i;\n
oldValue += `${IView[slotIdx]}${chunks[i]}`;\n newValue += `${slotIdx === expressionIndex ? changedValue :
IView[slotIdx]}${chunks[i]}`;\n }\n return {propName, oldValue, newValue};\n}\n\n/**\n * Constructs an object
that contains details for the ExpressionChangedAfterItHasBeenCheckedError:\n * - property name (for property
bindings or interpolations)\n * - old and new values, enriched using information from metadata\n * \n * More
information on the metadata storage format can be found in `storePropertyBindingMetadata`\n * function
description.\n */\nexport function getExpressionChangedErrorDetails(\n IView: LView, bindingIndex: number,
oldValue: any, newValue: any): {propName?: string, oldValue: any, newValue: any} {\n const tData =
IView[TVIEW].data;\n const metadata = tData[bindingIndex];\n if (typeof metadata === 'string') {\n //
metadata\n for property interpolation\n if (metadata.indexOf(INTERPOLATION_DELIMITER) > -1) {\n return
constructDetailsForInterpolation(\n IView, bindingIndex, bindingIndex, metadata, newValue);\n }\n //
metadata for property binding\n return {propName: metadata, oldValue, newValue};\n }\n // metadata is not
available for this expression, check if this expression is a part of the\n // property interpolation by going from the
current binding index left and look for a string that\n // contains INTERPOLATION_DELIMITER, the layout in
tView.data for this case will look like this:\n // [..., 'idPrefix and suffix', null, null, null, ...]\n if (metadata ===
null) {\n let idx = bindingIndex - 1;\n while (typeof tData[idx] !== 'string' && tData[idx + 1] === null) {\n
idx--;\n }\n const meta = tData[idx];\n if (typeof meta === 'string') {\n const matches = meta.match(new
RegExp(INTERPOLATION_DELIMITER, 'g'));\n // first interpolation delimiter
separates property name from interpolation parts (in case of\n // property interpolations), so we subtract one from
total number of found delimiters\n if (matches && (matches.length - 1) > bindingIndex - idx) {\n return
constructDetailsForInterpolation(IView, idx, bindingIndex, meta, newValue);\n }\n }\n }\n return {propName:
undefined, oldValue, newValue};\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {ViewEncapsulation} from '../metadata/view';\n\n/**\n * Used by
`RendererFactory2` to associate custom rendering data and styles\n * with a rendering implementation.\n *
@publicApi\n */\nexport interface RendererType2 {\n /**\n * A unique identifying string for the new renderer,
used when creating\n * unique styles for encapsulation.\n */\n id: string;\n /**\n * The
view encapsulation type, which determines how styles are applied to\n * DOM elements. One of\n * - `Emulated`
(default): Emulate native scoping of styles.\n * - `Native`: Use the native encapsulation mechanism of the
renderer.\n * - `ShadowDom`: Use modern [Shadow\n *
DOM](https://w3c.github.io/webcomponents/spec/shadow/) and\n * create a ShadowRoot for component's host
element.\n * - `None`: Do not provide any template or style encapsulation.\n */\n encapsulation:
ViewEncapsulation;\n /**\n * Defines CSS styles to be stored on a renderer instance.\n */\n styles:
(string|any[])[];\n /**\n * Defines arbitrary developer-defined data to be stored on a renderer instance.\n * This is
useful for renderers that delegate to other renderers.\n */\n data: {[kind: string]: any};\n}\n\n/**\n * Flags for
renderer-specific style modifiers.\n * @publicApi\n */\nexport enum RendererStyleFlags2 {\n // TODO(misko):
This needs to be refactored into a separate file so that

```

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it can be imported from\n // `node_manipulation.ts` Currently doing the import cause resolution order to change
and fails\n // the tests. The work around is to have hard coded value in `node_manipulation.ts` for now.\n /**\n *
Marks a style as important.\n *\n Important = 1 << 0,\n /**\n * Marks a style as using dash case naming (this-is-
dash-case).\n *\n DashCase = 1 << 1\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n/**\n * @fileoverview\n *\n * This file provides mechanism by which code
relevant to the `TicuContainerNode` is only loaded if\n * ICU is present in the template.\n */\n\nimport
{TicuContainerNode} from '../interfaces/node';\nimport {RNode} from '../interfaces/renderer_dom';\nimport
{LView} from '../interfaces/view';\n\nlet _icuContainerIterate: (TicuContainerNode: TicuContainerNode,
IView: LView) =>\n () => RNode | null);\n\n/**\n * Iterator which provides ability to visit all of the
`TicuContainerNode` root `RNode`s.\n */\n\nexport function icuContainerIterate(ticuContainerNode:
TicuContainerNode, IView: LView): () =>\n RNode | null {\n return _icuContainerIterate(ticuContainerNode,
IView);\n}\n\n/**\n * Ensures that `IcuContainerVisitor`'s implementation is present.\n *\n * This function is
invoked when i18n instruction comes across an ICU. The purpose is to allow the\n * bundler to tree shake ICU logic
and only load it if ICU instruction is executed.\n */\n\nexport function ensureIcuContainerVisitorLoaded(\n loader:
() => ((TicuContainerNode: TicuContainerNode, IView: LView) => (() => RNode | null))) {\n if
(!_icuContainerIterate === undefined) {\n // Do not inline this function. We want to keep
`ensureIcuContainerVisitorLoaded` light, so it\n // can be inlined into call-site.\n _icuContainerIterate =
loader();\n }\n}\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\n/**\n * Expresses a single CSS
Selector.\n *\n * Beginning of array\n * - First index: element name\n * - Subsequent odd indices: attr keys\n * -
Subsequent even indices: attr values\n *\n * After SelectorFlags.CLASS flag\n * - Class name values\n *\n *
SelectorFlags.NOT flag\n * - Changes the mode to NOT\n * - Can be combined with other flags to set the element /
attr / class mode\n *\n * e.g. SelectorFlags.NOT | SelectorFlags.ELEMENT\n *\n * Example:\n * Original:
`div.foo.bar[attr1=val1][attr2]`\n * Parsed: ['div', 'attr1', 'val1', 'attr2', '\n * SelectorFlags.CLASS, 'foo', 'bar']\n *\n *
Original: 'div[attr1]:not(.foo[attr2])`\n * Parsed: [\n * 'div', 'attr1', '\n * SelectorFlags.NOT |
SelectorFlags.ATTRIBUTE 'attr2', '\n * SelectorFlags.CLASS, 'foo'\n *]\n *\n * See more examples in
node_selector_matcher_spec.ts\n
*/\n\nexport type CssSelector = (string|SelectorFlags)[];\n\n\n/**\n * A list of CssSelectors.\n *\n * A directive or
component can have multiple selectors. This type is used for\n * directive defs so any of the selectors in the list will
match that directive.\n *\n * Original: 'form, [ngForm]`\n * Parsed: [['form'], ['\n * 'ngForm', '']]\n */\n\nexport type
CssSelectorList = CssSelector[];\n\n\n/**\n * List of slots for a projection. A slot can be either based on a parsed CSS
selector\n * which will be used to determine nodes which are projected into that slot.\n *\n * When set to `""`, the
slot is reserved and can be used for multi-slot projection\n * using { @link ViewContainerRef#createComponent }.
The last slot that specifies the\n * wildcard selector will retrieve all projectable nodes which do not match any
selector.\n */\n\nexport type ProjectionSlots = (CssSelectorList|'')[];\n\n\n/**\n * Flags used to build up CssSelectors
*/\n\nexport const enum SelectorFlags {\n /**
Indicates this is the beginning of a new negative selector\n NOT = 0b0001,\n /** Mode for matching
attributes\n ATTRIBUTE = 0b0010,\n /** Mode for matching tag names\n ELEMENT = 0b0100,\n /**
Mode for matching class names\n CLASS = 0b1000,\n }\n\n // Note: This hack is necessary so we don't
erroneously get a circular dependency\n // failure based on types.\n export const unusedValueExportToPlacateAjd =
1;\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{assertDefined} from '../util/assert';\nimport {assertLView} from '../assert';\nimport {LContainer} from
'../interfaces/container';\nimport {isLContainer, isLView} from '../interfaces/type_checks';\nimport
{CHILD_HEAD, CONTEXT, FLAGS, LView, LViewFlags, NEXT, PARENT, RootContext} from
'../interfaces/view';\nimport {readPatchedLView} from './view_utils';\n\n\n

```

```

* Gets the parent LView of the passed LView, if the PARENT is an LContainer, will get the parent of
LContainer, which is an LView
@param LView the LView whose parent to get
*/
next export function
getLViewParent(LView: LView): LView|null {
 let ngDevMode && assertLView(LView);
 const parent =
 LView[PARENT];
 return isLContainer(parent) ? parent[PARENT]! : parent;
}

/**
 * Retrieve the root view
 * from any component or `LView` by walking the parent `LView` until
 * reaching the root `LView`.
 */
@param componentOrLView any component or `LView`
*/
next export function getRootView(componentOrLView:
LView|{}): LView {
 let ngDevMode && assertDefined(componentOrLView, 'component');
 let LView =
 isLView(componentOrLView) ? componentOrLView : readPatchedLView(componentOrLView)!;
 while (LView
 && !(LView[FLAGS] & LViewFlags.IsRoot)) {
 LView = getLViewParent(LView)!;
 }
 let ngDevMode &&
 assertLView(LView);
 return LView;
}

/**
 * Returns
 * the `RootContext` instance that is associated with
 * the application where the target is situated. It does this by
 * walking the parent views until it
 * gets to the root view, then getting the context off of that.
 */
@param
viewOrComponent the `LView` or component to get the root context for.
*/
next export function
getRootContext(viewOrComponent: LView|{}): RootContext {
 const rootView =
 getRootView(viewOrComponent);
 let ngDevMode &&
 assertDefined(rootView[CONTEXT], 'RootView has
 no context. Perhaps it is disconnected?');
 return rootView[CONTEXT] as RootContext;
}

/**
 * Gets the
 * first `LContainer` in the LView or `null` if none exists.
 */
next export function getFirstLContainer(LView: LView):
LContainer|null {
 return getNearestLContainer(LView[CHILD_HEAD]);
}

/**
 * Gets the next `LContainer`
 * that is a sibling of the given container.
 */
next export function getNextLContainer(container: LContainer):
LContainer|null {
 return getNearestLContainer(container[NEXT]);
}

function
getNearestLContainer(viewOrContainer: LContainer|LView|null) {
 while (viewOrContainer !== null &&
 !isLContainer(viewOrContainer)) {
 viewOrContainer = viewOrContainer[NEXT];
 }
 return
 viewOrContainer;
}

/**
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 * found in the LICENSE file at
https://angular.io/license
 */
import {ViewEncapsulation} from '../metadata/view';
import {Renderer2} from
'../render/api';
import {RendererStyleFlags2} from '../render/api_flags';
import {addToArray, removeFromArray}
from '../util/array_utils';
import {assertDefined, assertDomNode, assertEqual, assertString} from
'../util/assert';
import {assertLContainer, assertLView, assertTNodeForLView} from '../assert';
import
{attachPatchData} from '../context_discovery';
import {icuContainerIterate} from
'./i18n/i18n_tree_shaking';
import {CONTAINER_HEADER_OFFSET, HAS_TRANSPLANTED_VIEWS,
LContainer, MOVED_VIEWS, NATIVE, unusedValueExportToPlacateAjd as unused1} from
'./interfaces/container';
import {ComponentDef} from './interfaces/definition';
import {NodeInjectorFactory} from
'./interfaces/injector';
import {TElementNode, TIcuContainerNode, TNode, TNodeFlags, TNodeType,
TProjectionNode, unusedValueExportToPlacateAjd as unused2} from './interfaces/node';
import
{unusedValueExportToPlacateAjd as unused3} from './interfaces/projection';
import {isProceduralRenderer,
ProceduralRenderer3, Renderer3, unusedValueExportToPlacateAjd as unused4} from
'./interfaces/renderer';
import {RComment, RElement, RNode, RText} from './interfaces/renderer_dom';
import
{isLContainer, isLView} from './interfaces/type_checks';
import {CHILD_HEAD, CLEANUP,
DECLARATION_COMPONENT_VIEW, DECLARATION_LCONTAINER, DestroyHookData, FLAGS,
HookData, HookFn, HOST, LView, LViewFlags, NEXT, PARENT, QUERIES, RENDERER, T_HOST, TVIEW,
TView, TViewType, unusedValueExportToPlacateAjd
as unused5} from './interfaces/view';
import {assertTNodeType} from './node_assert';
import {getLViewParent}
from './util/view_traversal_utils';
import {getNativeByTNode, unwrapRNode, updateTransplantedViewCount}
from './util/view_utils';

const unusedValueToPlacateAjd = unused1 + unused2 + unused3 + unused4 +
unused5;

const enum WalkTNodeTreeAction {
 /** node create in the native environment. Run on initial
 creation. */
 Create = 0,
 /** node insert in the native environment.
 */
 Insert = 1,
 /** node detach from the native environment */
 Detach = 2,
 /** node destruction using the renderer's API */
 Destroy = 3,
}

/** NOTE: for

```

performance reasons, the possible actions are inlined within the function instead of `action` being passed as an argument.

```
function applyToElementOrContainer(
 action: WalkTreeNodeTreeAction, renderer: Renderer3,
 parent: RElement|null,
```

```

 INodeToHandle: RNode|LContainer|LView, beforeNode?: RNode|null) {
 // If this slot was allocated for a text
 node dynamically created by i18n, the text node itself
 // won't be created until i18nApply() in the update block, so
 this node should be skipped.
 // For more info, see "ICU expressions should work inside an ngTemplateOutlet
 inside an ngFor"
 // in `i18n_spec.ts`.
 if (INodeToHandle !== null) {
 let lContainer: LContainer|undefined;
 let isComponent = false;
 // We are expecting an RNode, but in the case of a component or LContainer the
 `RNode` is
 // wrapped in an array which needs to be unwrapped. We need to know if it is a component and if
 // it has LContainer so that we can process all of those cases appropriately.
 if (isLContainer(INodeToHandle)) {
 lContainer = INodeToHandle;
 } else if (isLView(INodeToHandle)) {
 isComponent = true;
 ngDevMode && assertDefined(INodeToHandle[HOST], 'HOST must be defined
 for a component LView');
 INodeToHandle = INodeToHandle[HOST];
 }
 const rNode: RNode =
 unwrapRNode(INodeToHandle);
 ngDevMode && !isProceduralRenderer(renderer) &&
 assertDomNode(rNode);
 if (action === WalkTreeNodeTreeAction.Create && parent !== null) {
 if
 (beforeNode === null) {
 nativeAppendChild(renderer, parent, rNode);
 } else {
 nativeInsertBefore(renderer, parent, rNode, beforeNode || null, true);
 }
 } else if (action ===
 WalkTreeNodeTreeAction.Insert && parent !== null) {
 nativeInsertBefore(renderer, parent, rNode, beforeNode ||
 null, true);
 } else if (action === WalkTreeNodeTreeAction.Detach) {
 nativeRemoveNode(renderer, rNode,
 isComponent);
 } else if (action === WalkTreeNodeTreeAction.Destroy) {
 ngDevMode &&
 ngDevMode.rendererDestroyNode++;
 (renderer as ProceduralRenderer3).destroyNode!(rNode);
 }
 if
 (lContainer !== null) {
 applyContainer(renderer, action, lContainer,
 parent, beforeNode);
 }
 }
}

export function createTextNode(renderer: Renderer3, value: string): RText {
 ngDevMode && ngDevMode.rendererCreateTextNode++;
 ngDevMode &&
 ngDevMode.rendererSetText++;
 return isProceduralRenderer(renderer) ? renderer.createText(value) :
 renderer.createTextNode(value);
}

export function updateTextNode(renderer: Renderer3, rNode:
RText, value: string): void {
 ngDevMode && ngDevMode.rendererSetText++;
 isProceduralRenderer(renderer)
 ? renderer.setValue(rNode, value) : rNode.textContent = value;
}

export function
createCommentNode(renderer: Renderer3, value: string): RComment {
 ngDevMode &&
 ngDevMode.rendererCreateComment++;
 // isProceduralRenderer check is not needed because both `Renderer2`
 and `Renderer3` have the same
 // method name.
 return renderer.createComment(value);
}

/**
 * Creates a
 native element from a tag name, using a renderer.
 * @param renderer A renderer
 to use
 * @param name the tag name
 * @param namespace Optional namespace for element.
 * @returns the
 element created
 */
export function createElement(
 renderer: Renderer3, name: string, namespace:
 string|null): RElement {
 ngDevMode && ngDevMode.rendererCreateElement++;
 if
 (isProceduralRenderer(renderer)) {
 return renderer.createElement(name, namespace);
 } else {
 return
 namespace === null ? renderer.createElement(name) :
 renderer.createElementNS(namespace,
 name);
 }
}

/**
 * Removes all DOM elements associated with a view.
 * Because some root nodes of
 the view may be containers, we sometimes need
 * to propagate deeply into the nested containers to remove all
 elements in the
 * views beneath it.
 * @param tView The `TView` of the `LView` from which elements
 should be added or removed
 * @param lView The view from which elements should be added or removed
 */
export function removeViewFromContainer(tView:
TView, lView: LView): void {
 const renderer = lView[RENDERER];
 applyView(tView, lView, renderer,
 WalkTreeNodeTreeAction.Detach, null, null);
 lView[HOST] = null;
 lView[T_HOST] = null;
}

/**
 * Adds
 all DOM elements associated with a view.
 * Because some root nodes of the view may be containers, we
 sometimes need
 * to propagate deeply into the nested containers to add all elements in the
 * views beneath it.
 * @param tView The `TView` of the `LView` from which elements should be added or removed
 * @param
 parentTNode The `TNode` where the `LView` should be attached to.
 * @param renderer Current renderer to use

```

```

for DOM manipulations.\n * @param IView The view from which elements should be added or removed\n *
@param parentNativeNode The parent `RElement` where it should be inserted into.\n * @param beforeNode The
node before which elements should be added, if insert mode\n */\n\nexport function addViewToContainer(\n tView:
TView, parentTNode:
TNode, renderer: Renderer3, IView: LView, parentNativeNode: RElement,\n beforeNode: RNode|null): void {\n
IView[HOST] = parentNativeNode;\n IView[T_HOST] = parentTNode;\n applyView(tView, IView, renderer,
WalkTNodeTreeAction.Insert, parentNativeNode, beforeNode);\n }\n\n/**\n * Detach a `LView` from the DOM
by detaching its nodes.\n */\n * @param tView The `TView` of the `LView` to be detached\n * @param IView the
`LView` to be detached.\n */\n\nexport function renderDetachView(tView: TView, IView: LView) {\n
applyView(tView, IView, IView[RENDERER], WalkTNodeTreeAction.Detach, null, null);\n }\n\n/**\n * Traverses
down and up the tree of views and containers to remove listeners and\n * call onDestroy callbacks.\n */\n * Notes:\n
* - Because it's used for onDestroy calls, it needs to be bottom-up.\n * - Must process containers instead of their
views to avoid splicing\n * when views are destroyed and re-added.\n * - Using a while loop because it's faster than
recursion\n * - Destroy

only called on movement to sibling or movement to parent (laterally or up)\n */\n * @param rootView The view to
destroy\n */\n\nexport function destroyViewTree(rootView: LView): void {\n // If the view has no children, we can
clean it up and return early.\n let IViewOrLContainer = rootView[CHILD_HEAD];\n if (!IViewOrLContainer) {\n
return cleanUpView(rootView[TVIEW], rootView);\n }\n\n while (IViewOrLContainer) {\n let next:
LView|LContainer|null = null;\n if (isLView(IViewOrLContainer)) {\n // If LView, traverse down to child.\n
next = IViewOrLContainer[CHILD_HEAD];\n } else {\n ngDevMode &&
assertLContainer(IViewOrLContainer);\n // If container, traverse down to its first LView.\n const firstView:
LView|undefined = IViewOrLContainer[CONTAINER_HEADER_OFFSET];\n if (firstView) next =
firstView;\n }\n\n if (!next) {\n // Only clean up view when moving to the side or up, as destroy hooks\n
// should be called in order from
the bottom up.\n while (IViewOrLContainer && !IViewOrLContainer![NEXT] && IViewOrLContainer !==
rootView) {\n if (isLView(IViewOrLContainer)) {\n cleanUpView(IViewOrLContainer[TVIEW],
IViewOrLContainer);\n }\n IViewOrLContainer = IViewOrLContainer[PARENT];\n }\n if
(IViewOrLContainer === null) IViewOrLContainer = rootView;\n if (isLView(IViewOrLContainer)) {\n
cleanUpView(IViewOrLContainer[TVIEW], IViewOrLContainer);\n }\n next = IViewOrLContainer &&
IViewOrLContainer![NEXT];\n }\n IViewOrLContainer = next;\n }\n}\n\n/**\n * Inserts a view into a
container.\n */\n * This adds the view to the container's array of active views in the correct\n * position. It also adds
the view's elements to the DOM if the container isn't a\n * root node of another view (in that case, the view's
elements will be added when\n * the container's parent view is added later).\n */\n * @param tView The `TView` of
the `LView` to insert\n
* @param IView The view to insert\n * @param IContainer The container into which the view should be inserted\n
* @param index Which index in the container to insert the child view into\n */\n\nexport function insertView(tView:
TView, IView: LView, IContainer: LContainer, index: number) {\n ngDevMode && assertLView(IView);\n
ngDevMode && assertLContainer(IContainer);\n const indexInContainer = CONTAINER_HEADER_OFFSET +
index;\n const containerLength = IContainer.length;\n\n if (index > 0) {\n // This is a new view, we need to add it
to the children.\n IContainer[indexInContainer - 1][NEXT] = IView;\n }\n if (index < containerLength -
CONTAINER_HEADER_OFFSET) {\n IView[NEXT] = IContainer[indexInContainer];\n
addToArray(IContainer, CONTAINER_HEADER_OFFSET + index, IView);\n } else {\n
IContainer.push(IView);\n IView[NEXT] = null;\n }\n\n IView[PARENT] = IContainer;\n\n // track views where
declaration and insertion points are different\n const declarationLContainer
= IView[DECLARATION_LCONTAINER];\n if (declarationLContainer !== null && IContainer !==
declarationLContainer) {\n trackMovedView(declarationLContainer, IView);\n }\n\n // notify query that a new
view has been added\n const IQueries = IView[QUERIES];\n if (IQueries !== null) {\n
IQueries.insertView(tView);\n }\n\n // Sets the attached flag\n IView[FLAGS] |=

```

```

LViewFlags.Attached;\n}\n\n/**\n * Track views created from the declaration container (TemplateRef) and inserted
into a\n * different LContainer.\n */\nfunction trackMovedView(declarationContainer: LContainer, IView: LView)
{\n ngDevMode && assertDefined(IView, 'LView required');\n ngDevMode &&
assertLContainer(declarationContainer);\n const movedViews = declarationContainer[MOVED_VIEWS];\n const
insertedLContainer = IView[PARENT] as LContainer;\n ngDevMode && assertLContainer(insertedLContainer);\n
const insertedComponentLView = insertedLContainer[PARENT]![DECLARATION_COMPONENT_VIEW];\n
ngDevMode && assertDefined(insertedComponentLView,
'Missing insertedComponentLView');\n const declaredComponentLView =
IView[DECLARATION_COMPONENT_VIEW];\n ngDevMode && assertDefined(declaredComponentLView,
'Missing declaredComponentLView');\n if (declaredComponentLView !== insertedComponentLView) {\n // At
this point the declaration-component is not same as insertion-component; this means that\n // this is a transplanted
view. Mark the declared IView as having transplanted views so that\n // those views can participate in CD.\n
declarationContainer[HAS_TRANSPLANTED_VIEWS] = true;\n }\n if (movedViews === null) {\n
declarationContainer[MOVED_VIEWS] = [IView];\n } else {\n movedViews.push(IView);\n }\n}\n\nfunction
detachMovedView(declarationContainer: LContainer, IView: LView) {\n ngDevMode &&
assertLContainer(declarationContainer);\n ngDevMode &&\n assertDefined(\n
declarationContainer[MOVED_VIEWS],\n 'A projected view should belong to a non-empty projected
views collection');\n const movedViews = declarationContainer[MOVED_VIEWS]!;\n const
declarationViewIndex = movedViews.indexOf(IView);\n const insertionLContainer = IView[PARENT] as
LContainer;\n ngDevMode && assertLContainer(insertionLContainer);\n \n // If the view was marked for refresh
but then detached before it was checked (where the flag\n // would be cleared and the counter decremented), we
need to decrement the view counter here\n // instead.\n if (IView[FLAGS] &
LViewFlags.RefreshTransplantedView) {\n IView[FLAGS] &= ~LViewFlags.RefreshTransplantedView;\n
updateTransplantedViewCount(insertionLContainer, -1);\n }\n \n movedViews.splice(declarationViewIndex,
1);\n}\n\n/**\n * Detaches a view from a container.\n * This method removes the view from the container's array
of active views. It also\n * removes the view's elements from the DOM.\n * @param IContainer The container
from which to detach a view\n * @param removeIndex The index of the view to detach\n
* @returns Detached LView instance.\n */\nexport function detachView(IContainer: LContainer, removeIndex:
number): LView|undefined {\n if (IContainer.length <= CONTAINER_HEADER_OFFSET) return;\n \n const
indexInContainer = CONTAINER_HEADER_OFFSET + removeIndex;\n const viewToDetach =
IContainer[indexInContainer];\n \n if (viewToDetach) {\n const declarationLContainer =
viewToDetach[DECLARATION_LCONTAINER];\n if (declarationLContainer !== null &&
declarationLContainer !== IContainer) {\n detachMovedView(declarationLContainer, viewToDetach);\n
}\n }\n \n if (removeIndex > 0) {\n IContainer[indexInContainer - 1][NEXT] = viewToDetach[NEXT] as
LView;\n }\n \n const removedLView = removeFromArray(IContainer, CONTAINER_HEADER_OFFSET +
removeIndex);\n \n removeViewFromContainer(viewToDetach[TVIEW], viewToDetach);\n \n // notify query that a
view has been removed\n const IQueries = removedLView[QUERIES];\n if (IQueries !== null) {\n
IQueries.detachView(removedLView[TVIEW]);\n }\n \n viewToDetach[PARENT] = null;\n viewToDetach[NEXT] = null;\n // Unsets the attached flag\n
viewToDetach[FLAGS] &= ~LViewFlags.Attached;\n }\n \n return viewToDetach;\n}\n\n/**\n * A standalone
function which destroys an LView,\n * conducting clean up (e.g. removing listeners, calling onDestroys).\n * @param tView The `TView` of the `LView` to be destroyed\n * @param IView The view to be destroyed.\n
*/\nexport function destroyLView(tView: TView, IView: LView) {\n if (!(IView[FLAGS] &
LViewFlags.Destroyed)) {\n const renderer = IView[RENDERER];\n if (isProceduralRenderer(renderer) &&
renderer.destroyNode) {\n applyView(tView, IView, renderer, WalkTreeNodeTreeAction.Destroy, null, null);\n
}\n }\n \n destroyViewTree(IView);\n }\n}\n\n/**\n * Calls onDestroys hooks for all directives and pipes in a given
view and then removes all\n * listeners. Listeners are removed as the last step so events delivered in the onDestroys
hooks\n * can

```

```

be propagated to @Output listeners.\n *\n * @param tView `TView` for the `LView` to clean up.\n *\n * @param
IView The LView to clean up\n *\nfunction cleanUpView(tView: TView, IView: LView): void {\n if
(!(!IView[FLAGS] & LViewFlags.Destroyed)) {\n // Usually the Attached flag is removed when the view is
detached from its parent, however\n // if it's a root view, the flag won't be unset hence why we're also removing on
destroy.\n IView[FLAGS] &= ~LViewFlags.Attached;\n\n // Mark the LView as destroyed *before* executing
the onDestroy hooks. An onDestroy hook\n // runs arbitrary user code, which could include its own
`viewRef.destroy()` (or similar). If\n // We don't flag the view as destroyed before the hooks, this could lead to an
infinite loop.\n // This also aligns with the ViewEngine behavior. It also means that the onDestroy hook is\n //
really more of an `afterDestroy` hook if you think about it.\n IView[FLAGS] |= LViewFlags.Destroyed;\n\n
executeOnDestroys(tView,
IView);\n removeListeners(tView, IView);\n // For component views only, the local renderer is destroyed at
clean up time.\n if (IView[TVIEW].type === TViewType.Component &&
isProceduralRenderer(IView[RENDERER])) {\n ngDevMode && ngDevMode.rendererDestroy++;\n
(IView[RENDERER] as ProceduralRenderer3).destroy();\n }\n\n const declarationContainer =
IView[DECLARATION_LCONTAINER];\n // we are dealing with an embedded view that is still inserted into a
container\n if (declarationContainer !== null && isLContainer(IView[PARENT])) {\n // and this is a projected
view\n if (declarationContainer !== IView[PARENT]) {\n detachMovedView(declarationContainer,
IView);\n }\n\n // For embedded views still attached to a container: remove query result from this view.\n
const lQueries = IView[QUERIES];\n if (lQueries !== null) {\n lQueries.detachView(tView);\n }\n }\n
}\n\n\n/** Removes listeners and unsubscribes
from output subscriptions *\nfunction removeListeners(tView: TView, IView: LView): void {\n const tCleanup =
tView.cleanup;\n if (tCleanup !== null) {\n const lCleanup = IView[CLEANUP];\n for (let i = 0; i <
tCleanup.length - 1; i += 2) {\n if (typeof tCleanup[i] === 'string') {\n // This is a native DOM listener\n
const idxOrTargetGetter = tCleanup[i + 1];\n const target = typeof idxOrTargetGetter === 'function' ?\n
idxOrTargetGetter(IView) : \n unwrapRNode(IView[idxOrTargetGetter]);\n const listener =
lCleanup[tCleanup[i + 2]];\n const useCaptureOrSubIdx = tCleanup[i + 3];\n if (typeof
useCaptureOrSubIdx === 'boolean') {\n // native DOM listener registered with Renderer3\n
target.removeEventListener(tCleanup[i], listener, useCaptureOrSubIdx);\n } else {\n if
(useCaptureOrSubIdx >= 0) {\n // unregister\n lCleanup[useCaptureOrSubIdx]();\n
} else {\n // Subscription\n lCleanup[-useCaptureOrSubIdx].unsubscribe();\n }\n }\n i
+= 2;\n } else {\n // This is a cleanup function that is grouped with the index of its context\n const
context = lCleanup[tCleanup[i + 1]];\n tCleanup[i].call(context);\n }\n }\n IView[CLEANUP] = null;\n
}\n\n\n/** Calls onDestroy hooks for this view *\nfunction executeOnDestroys(tView: TView, IView: LView):
void {\n let destroyHooks: DestroyHookData|null;\n if (tView !== null && (destroyHooks = tView.destroyHooks)
!== null) {\n for (let i = 0; i < destroyHooks.length; i += 2) {\n const context = IView[destroyHooks[i] as
number];\n // Only call the destroy hook if the context has been requested.\n if (!(context instanceof
NodeInjectorFactory)) {\n const toCall = destroyHooks[i + 1] as HookFn | HookData;\n if
(Array.isArray(toCall)) {\n for (let j = 0; j < toCall.length;
j += 2) {\n (toCall[j + 1] as HookFn).call(context[toCall[j] as number]);\n }\n } else {\n
toCall.call(context);\n }\n }\n }\n }\n\n\n\n/** Returns a native element if a node can be inserted into
the given parent.\n *\n * There are two reasons why we may not be able to insert a element immediately.\n * -
Projection: When creating a child content element of a component, we have to skip the\n * insertion because the
content of a component will be projected.\n * - `<component><content>delayed due to
projection</content></component>`\n * - Parent container is disconnected: This can happen when we are inserting a
view into\n * parent container, which itself is disconnected. For example the parent container is part\n * of a View
which has not be inserted or is made for projection but has not been inserted\n * into destination.\n *\n * @param
tView: Current `TView`.\n *\n * @param tNode: `TNode` for which we wish to retrieve render

```





be inserted.\n

```
*\n * This method determines the `RNode` in front of which we should insert the `currentRNode`. This\n * takes\n * `TNode.insertBeforeIndex` into account if i18n code has been invoked.\n *\n * @param parentTNode parent\n * `TNode`\n *\n * @param currentTNode current `TNode` (The node which we would like to insert into the DOM)\n *\n * @param lView current `LView`\n */\nfunction getInsertInFrontOfRNode(parentTNode: TNode, currentTNode:\n TNode, lView: LView): RNode|\n null {\n return _getInsertInFrontOfRNodeWithI18n(parentTNode,\n currentTNode, lView);\n}\n\n/**\n * Find a node in front of which `currentTNode` should be inserted. (Does not\n * take i18n into\n * account)\n *\n * This method determines the `RNode` in front of which we should insert the\n * `currentRNode`. This\n * does not take `TNode.insertBeforeIndex` into account.\n *\n * @param parentTNode\n * parent `TNode`\n *\n * @param currentTNode current `TNode` (The node which we would like to insert into the\n * DOM)\n *\n * @param lView current `LView`\n */\nexport\n function getInsertInFrontOfRNodeWithNoI18n(\n parentTNode: TNode, currentTNode: TNode, lView: LView):\n RNode|\n null {\n if (parentTNode.type & (TNodeType.ElementContainer | TNodeType.Icu)) {\n return\n getNativeByTNode(parentTNode, lView);\n }\n return null;\n}\n\n/**\n * Tree shakable boundary for\n * `getInsertInFrontOfRNodeWithI18n` function.\n *\n * This function will only be set if i18n code runs.\n */\nlet\n _getInsertInFrontOfRNodeWithI18n: (parentTNode: TNode, currentTNode: TNode, lView: LView) =>\n RNode | null = getInsertInFrontOfRNodeWithNoI18n;\n\n/**\n * Tree shakable boundary for `processI18nInsertBefore`\n * function.\n *\n * This function will only be set if i18n code runs.\n */\nlet _processI18nInsertBefore: (\n renderer:\n Renderer3, childTNode: TNode, lView: LView, childRNode: RNode|RNode[],\n parentRElement: RElement|\n null) =>\n void;\n\nexport function setI18nHandling(\n getInsertInFrontOfRNodeWithI18n: (parentTNode: TNode,\n currentTNode: TNode, lView: LView)\n =>\n RNode | null,\n processI18nInsertBefore: (\n renderer: Renderer3, childTNode: TNode, lView:\n LView, childRNode: RNode|RNode[],\n parentRElement: RElement|\n null) =>\n void) {\n _getInsertInFrontOfRNodeWithI18n = getInsertInFrontOfRNodeWithI18n;\n _processI18nInsertBefore =\n processI18nInsertBefore;\n}\n\n/**\n * Appends the `child` native node (or a collection of nodes) to the `parent`.\n *\n * @param tView The `TVIEW` to be appended\n *\n * @param lView The current LView\n *\n * @param childRNode\n * The native child (or children) that should be appended\n *\n * @param childTNode The TNode of the child element\n */\nexport function appendChild(\n tView: TVIEW, lView: LView, childRNode: RNode|RNode[], childTNode:\n TNode): void {\n const parentRNode = getParentRElement(tView, childTNode, lView);\n const renderer =\n lView[RENDERER];\n const parentTNode: TNode = childTNode.parent || lView[T_HOST];\n const anchorNode =\n getInsertInFrontOfRNode(parentTNode, childTNode, lView);\n\n if (parentRNode != null) {\n if (Array.isArray(childRNode)) {\n for (let i = 0; i < childRNode.length; i++) {\n nativeAppendOrInsertBefore(renderer, parentRNode, childRNode[i], anchorNode, false);\n }\n } else {\n nativeAppendOrInsertBefore(renderer, parentRNode, childRNode, anchorNode, false);\n }\n }\n\n _processI18nInsertBefore !== undefined &&\n _processI18nInsertBefore(renderer, childTNode, lView,\n childRNode, parentRNode);\n}\n\n/**\n * Returns the first native node for a given LView, starting from the\n * provided TNode.\n *\n * Native nodes are returned in the order in which those appear in the native tree (DOM).\n */\nfunction getFirstNativeNode(lView: LView, tNode: TNode|\n null): RNode|\n null {\n if (tNode === null) {\n ngDevMode &&\n assertTNodeType(\n tNode,\n TNodeType.AnyRNode | TNodeType.AnyContainer | TNodeType.Icu | TNodeType.Projection);\n\n const tNodeType = tNode.type;\n\n if (tNodeType & TNodeType.AnyRNode)\n {\n return getNativeByTNode(tNode, lView);\n }\n else if (tNodeType & TNodeType.Container)\n {\n return\n getBeforeNodeForView(-1, lView[tNode.index]);\n }\n else if (tNodeType & TNodeType.ElementContainer)\n {\n const elIcuContainerChild = tNode.child;\n\n if (elIcuContainerChild !== null)\n {\n return\n getFirstNativeNode(lView, elIcuContainerChild);\n }\n }\n else {\n const rNodeOrLContainer =\n lView[tNode.index];\n\n if (isLContainer(rNodeOrLContainer))\n {\n return getBeforeNodeForView(-1,\n rNodeOrLContainer);\n }\n }\n }\n }\n }\n }\n }\n\n if (tNodeType & TNodeType.Icu)\n {\n let nextRNode = icuContainerIterate(tNode as TIcuContainerNode,
```

```

IView);\n let rNode: RNode|null = nextRNode();\n // If the ICU container has no nodes, than we use the ICU
anchor as the node.\n return rNode || unwrapRNode(IView[tNode.index]);\n } else {\n const
componentView
= IView[DECLARATION_COMPONENT_VIEW];\n const componentHost = componentView[T_HOST] as
TElementNode;\n const parentView = getLViewParent(componentView);\n const firstProjectedTNode:
TNode|null =\n (componentHost.projection as (TNode | null)[])[tNode.projection as number];\n if
(firstProjectedTNode != null) {\n return getFirstNativeNode(parentView!, firstProjectedTNode);\n } else {\n
 return getFirstNativeNode(IView, tNode.next);\n }\n }\n}\n\nreturn null;\n}\n\n\nexport function
getBeforeNodeForView(viewIndexInContainer: number, lContainer: LContainer): RNode|\n null {\n const
nextViewIndex = CONTAINER_HEADER_OFFSET + viewIndexInContainer + 1;\n if (nextViewIndex <
lContainer.length) {\n const lView = lContainer[nextViewIndex] as LView;\n const firstTNodeOfView =
IView[TVIEW].firstChild;\n if (firstTNodeOfView !== null) {\n return getFirstNativeNode(lView,
firstTNodeOfView);\n }\n }\n return lContainer[NATIVE];\n}\n\n\n**\n
* Removes a native node itself using a given renderer. To remove the node we are looking up its\n * parent from
the native tree as not all platforms / browsers support the equivalent of\n * node.remove().\n * @param renderer
A renderer to be used\n * @param rNode The native node that should be removed\n * @param isHostElement A
flag indicating if a node to be removed is a host of a component.\n */\nexport function nativeRemoveNode(renderer:
Renderer3, rNode: RNode, isHostElement?: boolean): void {\n ngDevMode &&\n
ngDevMode.rendererRemoveNode++;\n const nativeParent = nativeParentNode(renderer, rNode);\n if
(nativeParent) {\n nativeRemoveChild(renderer, nativeParent, rNode, isHostElement);\n }\n}\n\n\n**\n
Performs the operation of `action` on the node. Typically this involves inserting or removing\n * nodes on the
LView or projection boundary.\n */\nfunction applyNodes(\n renderer: Renderer3, action: WalkTNodeTreeAction,
tNode: TNode|null, lView:
LView,\n parentRElement: RElement|null, beforeNode: RNode|null, isProjection: boolean) {\n while (tNode !=
null) {\n ngDevMode && assertTNodeForLView(tNode, lView);\n ngDevMode &&\n assertTNodeType(\n
tNode,\n TNodeType.AnyRNode | TNodeType.AnyContainer | TNodeType.Projection |
TNodeType.Icu);\n const rawSlotValue = lView[tNode.index];\n const tNodeType = tNode.type;\n if
(isProjection) {\n if (action === WalkTNodeTreeAction.Create) {\n rawSlotValue &&
attachPatchData(unwrapRNode(rawSlotValue), lView);\n tNode.flags |= TNodeFlags.isProjected;\n }\n }\n
 if ((tNode.flags & TNodeFlags.isDetached) !== TNodeFlags.isDetached) {\n if (tNodeType &
TNodeType.ElementContainer) {\n applyNodes(renderer, action, tNode.child, lView, parentRElement,
beforeNode, false);\n applyToElementOrContainer(action, renderer, parentRElement, rawSlotValue,
beforeNode);\n } else if (tNodeType & TNodeType.Icu)\n {\n const nextRNode = icuContainerIterate(tNode as TIcuContainerNode, lView);\n let rNode:
RNode|null;\n while (rNode = nextRNode()) {\n applyToElementOrContainer(action, renderer,
parentRElement, rNode, beforeNode);\n }\n applyToElementOrContainer(action, renderer,
parentRElement, rawSlotValue, beforeNode);\n } else if (tNodeType & TNodeType.Projection) {\n
 applyProjectionRecursive(\n renderer, action, lView, tNode as TProjectionNode, parentRElement,
beforeNode);\n } else {\n ngDevMode && assertTNodeType(tNode, TNodeType.AnyRNode |
TNodeType.Container);\n applyToElementOrContainer(action, renderer, parentRElement, rawSlotValue,
beforeNode);\n }\n }\n tNode = isProjection ? tNode.projectionNext : tNode.next;\n }\n }\n}\n\n\n**\n
`applyView` performs operation on the view as specified in `action` (insert, detach, destroy)\n */\n * Inserting a view
without projection or containers at top level
is simple. Just iterate over the\n * root nodes of the View, and for each node perform the `action`.\n * Things
get more complicated with containers and projections. That is because coming across:\n * - Container: implies that
we have to insert/remove/destroy the views of that container as well\n * which in turn can have their own
Containers at the View roots.\n * - Projection: implies that we have to insert/remove/destroy the nodes of the
projection. The\n * complication is that the nodes we are projecting can themselves have Containers\n *

```

or other Projections.

As you can see this is a very recursive problem. Yes recursion is not most efficient but the code is complicated enough that trying to implement with recursion becomes unmaintainable.

`@param tView The `TView` which needs to be inserted, detached, destroyed`

`@param IView The LView which needs to be inserted, detached, destroyed.`

`@param renderer Renderer`

to use

`@param action action to perform (insert, detach, destroy)`

`@param parentRElement parent DOM element for insertion (Removal does not need it).`

`@param beforeNode Before which node the insertions should happen.`

```

function applyView(tView: TView, IView: LView, renderer: Renderer3, action: WalkTreeNodeTreeAction.Destroy, parentRElement: null, beforeNode: null): void;
function applyView(tView: TView, IView: LView, renderer: Renderer3, action: WalkTreeNodeTreeAction, parentRElement: RElement|null, beforeNode: RNode|null): void;
function applyView(tView: TView, IView: LView, renderer: Renderer3, action: WalkTreeNodeTreeAction, parentRElement: RElement|null, beforeNode: RNode|null): void {
 applyNodes(renderer, action, tView.firstChild, IView, parentRElement, beforeNode, false);
}

```

``applyProjection` performs operation on the projection.`

Inserting a projection requires us to locate the projected nodes from the parent component.

The complication is that those nodes themselves could be re-projected from their parent component.

`@param tView The `TView` of `LView` which needs to be inserted, detached, destroyed`

`@param IView The `LView` which needs to be inserted, detached, destroyed.`

`@param tProjectionNode node to project`

`function applyProjection(tView: TView, IView: LView, tProjectionNode: TProjectionNode) {`

`const renderer = IView[RENDERER];`

`const parentRNode = getParentRElement(tView, tProjectionNode, IView);`

`const parentTNode = tProjectionNode.parent || IView[T_HOST]!`

`let beforeNode = getInsertInFrontOfRNode(parentTNode, tProjectionNode, IView);`

`applyProjectionRecursive(renderer, WalkTreeNodeTreeAction.Create, IView, tProjectionNode, parentRNode, beforeNode);`

``applyProjectionRecursive` performs operation on the projection specified by `action` (insert, detach, destroy)`

Inserting a projection requires us to locate the projected nodes from the parent component.

The complication is that those nodes themselves could be re-projected from their parent component.

`@param renderer Render to use`

`@param action action to perform (insert, detach, destroy)`

`@param IView The LView which needs to be inserted, detached, destroyed.`

`@param tProjectionNode node to project`

`@param parentRElement parent DOM element for insertion/removal.`

`@param beforeNode Before which node the insertions should happen.`

```

function applyProjectionRecursive(renderer: Renderer3, action: WalkTreeNodeTreeAction, IView: LView, tProjectionNode: TProjectionNode, parentRElement: RElement|null, beforeNode: RNode|null) {
 const componentLView = IView[DECLARATION_COMPONENT_VIEW];
 const componentNode = componentLView[T_HOST] as TElementNode;
 ngDevMode && assertEqual(typeof tProjectionNode.projection, 'number', 'expecting projection index');
 const nodeToProjectOrRNodes = componentNode.projection![tProjectionNode.projection]!;
 if (Array.isArray(nodeToProjectOrRNodes)) {
 // This should not exist, it is a bit of a hack. When we bootstrap a top level node and we need to support passing projectable nodes, so we cheat and put them in the TNode of the Host TView. (Yes we put instance info at the T Level). We can get away with it because we know that that TView is not shared and therefore it will not be a problem.
 // This should be refactored and cleaned up.
 for (let i = 0; i < nodeToProjectOrRNodes.length; i++) {
 const rNode = nodeToProjectOrRNodes[i];
 applyToElementOrContainer(action, renderer, parentRElement, rNode, beforeNode);
 }
 } else {
 let nodeToProject: TNode|null = nodeToProjectOrRNodes;
 const projectedComponentLView = componentLView[PARENT] as LView;
 applyNodes(renderer, action, nodeToProject, projectedComponentLView, parentRElement, beforeNode, true);
 }
}

```

``applyContainer` performs an operation on the container and its views as specified by `action` (insert, detach, destroy)`

Inserting a Container is complicated by the fact that the container may have Views which themselves have containers or projections.

`@param renderer Renderer to use`

`@param action action to perform (insert, detach, destroy)`

`@param IContainer The LContainer which needs to be inserted, detached, destroyed.`

`@param parentRElement parent DOM element for insertion/removal.`

`@param beforeNode Before which node the`

```

insertions should happen.\n */\nfunction applyContainer(\n renderer: Renderer3, action: WalkTNodeTreeAction,\n lContainer: LContainer,\n parentRElement: RElement|null, beforeNode: RNode|null|undefined) {\n ngDevMode\n && assertLContainer(lContainer);\n const anchor = lContainer[NATIVE]; // LContainer has its own before node.\n const native = unwrapRNode(lContainer);\n // An LContainer can be created dynamically on any node by injecting\n ViewContainerRef.\n
```

```

 // Asking for a ViewContainerRef on an element will result in a creation of a separate anchor\n // node (comment\n in the DOM) that will be different from the LContainer's host node. In this\n // particular case we need to execute\n action on 2 nodes:\n // - container's host node (this is done in the executeActionOnElementOrContainer)\n // -\n container's host node (this is done here)\n if (anchor !== native) {\n // This is very strange to me (Misko). I would\n expect that the native is same as anchor. I\n // don't see a reason why they should be different, but they are.\n /\n
```

```

 // If they are we need to process the second anchor as well.\n applyToElementOrContainer(action, renderer,\n parentRElement, anchor, beforeNode);\n }\n for (let i = CONTAINER_HEADER_OFFSET; i < lContainer.length;\n i++) {\n const lView = lContainer[i] as LView;\n applyView(lView[TVIEW], lView, renderer, action,\n parentRElement, anchor);\n }\n}\n\n/**\n * Writes class/style to element.\n
```

```

 * \n * @param renderer Renderer to use.\n * @param isClassBased `true` if it should be written to `class` (`false` to\n write to `style`)\n * @param rNode The Node to write to.\n * @param prop Property to write to. This would be the\n class/style name.\n * @param value Value to write. If `null`/`undefined`/`false` this is considered a remove\n (set/add\n * otherwise).\n */\n\nexport function applyStyling(\n renderer: Renderer3, isClassBased: boolean,\n rNode: RElement, prop: string, value: any) {\n const isProcedural = isProceduralRenderer(renderer);\n if\n (isClassBased) {\n // We actually want JS true/false here because any truthy value should add the class\n if\n (!value) {\n ngDevMode && ngDevMode.rendererRemoveClass++;\n if (isProcedural) {\n (renderer as\n Renderer2).removeClass(rNode, prop);\n }\n } else {\n (rNode as HTMLElement).classList.remove(prop);\n }\n } else {\n ngDevMode && ngDevMode.rendererAddClass++;\n if (isProcedural)\n {\n (renderer as Renderer2).addClass(rNode, prop);\n } else {\n ngDevMode && assertDefined((rNode\n as HTMLElement).classList, 'HTMLElement expected');\n (rNode as HTMLElement).classList.add(prop);\n }\n } else {\n let flags = prop.indexOf('-') === -1 ? undefined : RendererStyleFlags2.DashCase as number;\n if (value === null /** || value === undefined */) {\n ngDevMode && ngDevMode.rendererRemoveStyle++;\n if (isProcedural) {\n (renderer as Renderer2).removeStyle(rNode, prop, flags);\n } else {\n (rNode as\n HTMLElement).style.removeProperty(prop);\n }\n } else {\n // A value is important if it ends with\n `!important`. The style\n // parser strips any semicolons at the end of the value.\n const isImportant = typeof\n value === 'string' ? value.endsWith('!important') : false;\n if (isImportant) {\n // !important has to be\n stripped from the value for it to be valid.\n value =\n
```

```

 value.slice(0, -10);\n flags!|= RendererStyleFlags2.Important;\n }\n ngDevMode &&\n ngDevMode.rendererSetStyle++;\n if (isProcedural) {\n (renderer as Renderer2).setStyle(rNode, prop, value,\n flags);\n } else {\n ngDevMode && assertDefined((rNode as HTMLElement).style, 'HTMLElement\n expected');\n (rNode as HTMLElement).style.setProperty(prop, value, isImportant ? 'important' : '');\n }\n }\n }\n}\n\n/**\n * Write `cssText` to `RElement`.\n * \n * This function does direct write without any\n reconciliation. Used for writing initial values, so\n * that static styling values do not pull in the style parser.\n * \n * @param renderer Renderer to use\n * @param element The element which needs to be updated.\n * @param\n newValue The new class list to write.\n */\n\nexport function writeDirectStyle(renderer: Renderer3, element:\n RElement, newValue: string) {\n ngDevMode && assertString(newValue, `'\\`newValue\\`' should be a string`);\n if\n (isProceduralRenderer(renderer))\n
```

```

 {\n renderer.setAttribute(element, 'style', newValue);\n } else {\n (element as HTMLElement).style.cssText =\n newValue;\n }\n ngDevMode && ngDevMode.rendererSetStyle++;\n}\n\n/**\n * Write `className` to\n `RElement`.\n * \n * This function does direct write without any reconciliation. Used for writing initial values, so\n * that static styling values do not pull in the style parser.\n * \n * @param renderer Renderer to use\n * @param\n element The element which needs to be updated.\n * @param newValue The new class list to write.\n */\n\nexport function writeDirectClass(renderer: Renderer3, element: RElement, newValue: string) {\n ngDevMode &&

```

```

assertString(newValue, '\newValue\' should be a string');\n if (isProceduralRenderer(renderer)) {\n if (newValue
=== ") {\n // There are tests in `google3` which expect `element.getAttribute('class')` to be `null`.\n
renderer.removeAttribute(element, 'class');\n } else {\n renderer.setAttribute(element,
'class', newValue);\n }\n } else {\n element.className = newValue;\n }\n\n ngDevMode &&
ngDevMode.rendererSetClassName++;\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {assertNotEqual} from '../util/assert';\nimport {CharCode} from
'../util/char_code';\n\n/**\n * Returns an index of `classToSearch` in `className` taking token boundaries into
account.\n *\n * `classIndexof('AB A', 'A', 0)` will be 3 (not 0 since `AB!==A`)\n *\n * @param className A
string containing classes (whitespace separated)\n * @param classToSearch A class name to locate\n * @param
startIndex Starting location of search\n * @returns an index of the located class (or -1 if not found)\n */\n\nexport
function classIndexof(\n className: string, classToSearch: string, startIndex: number): number {\n
ngDevMode
&& assertNotEqual(classToSearch, "", 'can not look for "" string.);\n let end = className.length;\n while (true)
{\n const foundIndex = className.indexOf(classToSearch, startIndex);\n if (foundIndex === -1) return
foundIndex;\n if (foundIndex === 0 || className.charCodeAt(foundIndex - 1) <= CharCode.SPACE) {\n //
Ensure that it has leading whitespace\n const length = classToSearch.length;\n if (foundIndex + length ===
end ||\n className.charCodeAt(foundIndex + length) <= CharCode.SPACE) {\n // Ensure that it has
trailing whitespace\n return foundIndex;\n }\n }\n // False positive, keep searching from where we left
off.\n startIndex = foundIndex + 1;\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport '../util/ng_dev_mode';\nimport {assertDefined,
assertEqual, assertNotEqual} from '../util/assert';\nimport {AttributeMarker, TAttributes, TNode, TNodeType,
unusedValueExportToPlacateAjd as unused1} from './interfaces/node';\nimport {CssSelector, CssSelectorList,
SelectorFlags, unusedValueExportToPlacateAjd as unused2} from './interfaces/projection';\nimport {classIndexof}
from './styling/class_differ';\nimport {isNameOnlyAttributeMarker} from './util/attrs_utils';\n\nconst
unusedValueToPlacateAjd = unused1 + unused2;\n\nconst NG_TEMPLATE_SELECTOR = 'ng-template';\n\n/**\n
* Search the `TAttributes` to see if it contains `cssClassToMatch` (case insensitive)\n *\n * @param attrs
`TAttributes` to search through.\n *\n * @param cssClassToMatch class to match (lowercase)\n *\n * @param
isProjectionMode Whether or not class matching should look into the attribute `class` in\n * addition to the
`AttributeMarker.Classes`.\n */\n\nfunction isCssClassMatching(\n attrs: TAttributes, cssClassToMatch: string,
isProjectionMode: boolean):
boolean {\n // TODO(misko): The fact that this function needs to know about `isProjectionMode` seems suspect.\n
// It is strange to me that sometimes the class information comes in form of `class` attribute\n // and sometimes in
form of `AttributeMarker.Classes`. Some investigation is needed to determine\n // if that is the right behavior.\n
ngDevMode &&\n assertEqual(\n cssClassToMatch, cssClassToMatch.toLowerCase(), 'Class name
expected to be lowercase.);\n let i = 0;\n while (i < attrs.length) {\n let item = attrs[i++];\n if (isProjectionMode
&& item === 'class') {\n item = attrs[i] as string;\n if (classIndexof(item.toLowerCase(), cssClassToMatch,
0) !== -1) {\n return true;\n }\n } else if (item === AttributeMarker.Classes) {\n // We found the classes
section. Start searching for the class.\n while (i < attrs.length && typeof (item = attrs[i++]) === 'string') {\n //
while we have strings\n if (item.toLowerCase()
=== cssClassToMatch) return true;\n }\n return false;\n }\n }\n return false;\n }\n\n/**\n
* Checks whether
the `tNode` represents an inline template (e.g. `*ngFor`).\n *\n * @param tNode current TNode\n */\n\nexport
function isInlineTemplate(tNode: TNode): boolean {\n return tNode.type === TNodeType.Container &&
tNode.value !== NG_TEMPLATE_SELECTOR;\n }\n\n/**\n
* Function that checks whether a given tNode
matches tag-based selector and has a valid type.\n *\n * Matching can be performed in 2 modes: projection mode
(when we project nodes) and regular\n * directive matching mode:\n * - in the `directive matching` mode we do
not take TContainer's tagName into account if it is\n * different from NG_TEMPLATE_SELECTOR (value

```

different from NG\_TEMPLATE\_SELECTOR indicates that a\n \* tag name was extracted from \* syntax so we would match the same directive twice);\n \* - in the \"projection\" mode, we use a tag name potentially extracted from the \* syntax processing\n

```

* (applicable to TNodeType.Container only).\n */\nfunction hasTagAndTypeMatch(\n tNode: TNode,\n currentSelector: string, isProjectionMode: boolean): boolean {\n const tagNameToCompare =\n tNode.type ===\n TNodeType.Container && !isProjectionMode ? NG_TEMPLATE_SELECTOR : tNode.value;\n return\n currentSelector === tagNameToCompare;\n}\n\n/**\n * A utility function to match an Ivy node static data against a\n * simple CSS selector\n */\n * @param node static data of the node to match\n * @param selector The selector to try\n * matching against the node.\n * @param isProjectionMode if `true` we are matching for content projection, otherwise\n * we are doing\n * directive matching.\n * @returns true if node matches the selector.\n */\nexport function\n isNodeMatchingSelector(\n tNode: TNode, selector: CssSelector, isProjectionMode: boolean): boolean {\n ngDevMode && assertDefined(selector[0], 'Selector should have a tag name');\n let mode: SelectorFlags =\n SelectorFlags.ELEMENT;\n const nodeAttrs\n = tNode.attrs || [];\n // Find the index of first attribute that has no value, only a name.\n const\n nameOnlyMarkerIdx = getNameOnlyMarkerIndex(nodeAttrs);\n // When processing \":not\" selectors, we skip to\n // the next \":not\" if the\n // current one doesn't match\n let skipToNextSelector = false;\n for (let i = 0; i <\n selector.length; i++) {\n const current = selector[i];\n if (typeof current === 'number') {\n // If we finish\n // processing a :not selector and it hasn't failed, return false\n if (!skipToNextSelector && !isPositive(mode) &&\n !isPositive(current)) {\n return false;\n }\n // If we are skipping to the next :not() and this mode flag is\n // positive,\n // it's a part of the current :not() selector, and we should keep skipping\n if (skipToNextSelector\n && isPositive(current)) continue;\n skipToNextSelector = false;\n mode = (current as number) | (mode &\n SelectorFlags.NOT);\n continue;\n }\n if (skipToNextSelector\n continue;\n if (mode & SelectorFlags.ELEMENT) {\n mode = SelectorFlags.ATTRIBUTE | mode &\n SelectorFlags.NOT;\n if (current !== \" && !hasTagAndTypeMatch(tNode, current, isProjectionMode) ||\n current === \" && selector.length === 1) {\n if (isPositive(mode)) return false;\n skipToNextSelector =\n true;\n }\n } else {\n const selectorAttrValue = mode & SelectorFlags.CLASS ? current : selector[++i];\n // special case for matching against classes when a tNode has been instantiated with\n // class and style values as\n // separate attribute values (e.g. ['title', CLASS, 'foo'])\n if ((mode & SelectorFlags.CLASS) && tNode.attrs !==\n null) {\n if (!isCssClassMatching(tNode.attrs, selectorAttrValue as string, isProjectionMode)) {\n if\n (isPositive(mode)) return false;\n skipToNextSelector = true;\n }\n continue;\n }\n const\n attrName = (mode & SelectorFlags.CLASS) ? 'class'\n : current;\n const attrIndexInNode =\n findAttrIndexInNode(attrName, nodeAttrs,\n isInlineTemplate(tNode), isProjectionMode);\n if (attrIndexInNode === -1) {\n if (isPositive(mode)) return\n false;\n skipToNextSelector = true;\n continue;\n }\n if (selectorAttrValue !== \"\") {\n let\n nodeAttrValue: string;\n if (attrIndexInNode > nameOnlyMarkerIdx) {\n nodeAttrValue = \";\n } else\n {\n ngDevMode &&\n assertNotEqual(\n nodeAttrs[attrIndexInNode],\n AttributeMarker.NamespaceURI,\n 'We do not match directives on namespaced attributes');\n // we\n // lowercase the attribute value to be able to match\n // selectors without case-sensitivity\n // (selectors are\n // already in lowercase when generated)\n nodeAttrValue = (nodeAttrs[attrIndexInNode + 1] as\n string).toLowerCase();\n }\n const compareAgainstClassName = mode & SelectorFlags.CLASS\n ? nodeAttrValue : null;\n if (compareAgainstClassName &&\n classIndexOf(compareAgainstClassName, selectorAttrValue as string, 0) !== -1 ||\n mode &\n SelectorFlags.ATTRIBUTE && selectorAttrValue !== nodeAttrValue) {\n if (isPositive(mode)) return false;\n skipToNextSelector = true;\n }\n }\n }\n }\n }\n return isPositive(mode) ||\n skipToNextSelector;\n}\n\nfunction isPositive(mode: SelectorFlags): boolean {\n return (mode &\n SelectorFlags.NOT) === 0;\n}\n\n/**\n * Examines the attribute's definition array for a node to find the index of\n * the\n * attribute that matches the given `name`\n */\n * NOTE: This will not match namespaced attributes.\n */\n * Attribute matching depends upon `isInlineTemplate` and `isProjectionMode`\n * The following table summarizes

```

which types of attributes we attempt to match:\n \*\n \*

```
=====
=====
=====
\n
* Modes | Normal Attributes | Bindings Attributes | Template Attributes | I18n\n * Attributes\n *
=====
=====
\n * Inline + Projection | YES | YES | NO |
YES\n * -----
\n * Inline +
Directive | NO | NO | YES | NO\n * -----

\n * Non-inline + Projection | YES | YES | NO
| YES\n * -----
\n * Non-inline +
Directive | YES | YES | NO | YES\n *
=====
=====
```

```
=====
=====
\n
*\n * @param name the name of the attribute to find\n * @param attrs the attribute array to examine\n * @param
isInlineTemplate true if the node being matched is an inline template (e.g. `*ngFor`)\n * rather than a manually
expanded template node (e.g. ``).\n * @param isProjectionMode true if we are matching against
content projection otherwise we are\n * matching against directives.\n */\nfunction findAttrIndexInNode(\n name:
string, attrs: TAttributes|null, isInlineTemplate: boolean,\n isProjectionMode: boolean): number {\n if (attrs ===
null) return -1;\n let i = 0;\n if (isProjectionMode || !isInlineTemplate) {\n let bindingsMode = false;\n while
(i < attrs.length) {\n const maybeAttrName = attrs[i];\n if (maybeAttrName === name) {\n return i;\n
 } else if (\n maybeAttrName === AttributeMarker.Bindings || maybeAttrName === AttributeMarker.I18n\n
) {\n bindingsMode = true;\n } else if (\n maybeAttrName === AttributeMarker.Classes ||
maybeAttrName === AttributeMarker.Styles\n) {\n let value = attrs[++i];\n // We should skip classes here
because we have a separate mechanism for\n // matching classes in projection mode.\n while (typeof value
=== 'string') {\n value = attrs[++i];\n }\n continue;\n } else if (maybeAttrName ===
AttributeMarker.Template) {\n // We do not care about Template attributes in this scenario.\n break;\n }
else if (maybeAttrName === AttributeMarker.NamespaceURI) {\n // Skip the whole namespaced attribute and
value. This is by design.\n i += 4;\n continue;\n }\n // In binding mode there are only names, rather
than name-value pairs.\n i += bindingsMode ? 1 : 2;\n }\n // We did not match the attribute\n return -1;\n }
else {\n return matchTemplateAttribute(attrs, name);\n }\n}\n\nexport function isNodeMatchingSelectorList(\n tNode: TNode, selector: CssSelectorList,
isProjectionMode: boolean = false): boolean {\n for (let i = 0; i < selector.length; i++) {\n if
(isNodeMatchingSelector(tNode, selector[i], isProjectionMode)) {\n return true;\n }\n }\n return
false;\n}\n\nexport function getProjectAsAttrValue(tNode: TNode): CssSelector|null {\n const nodeAttrs =
tNode.attrs;\n if (nodeAttrs != null) {\n const ngProjectAsAttrIdx =
nodeAttrs.indexOf(AttributeMarker.ProjectAs);\n // only check for ngProjectAs in attribute names, don't
accidentally match attribute's value\n // (attribute names are stored at even indexes)\n if ((ngProjectAsAttrIdx &
1) === 0) {\n return nodeAttrs[ngProjectAsAttrIdx + 1] as CssSelector;\n }\n }\n return null;\n}\n\nfunction
getNameOnlyMarkerIndex(nodeAttrs: TAttributes) {\n for (let i = 0; i < nodeAttrs.length; i++) {\n const nodeAttr
= nodeAttrs[i];\n if (isNameOnlyAttributeMarker(nodeAttr))\n {\n return i;\n }\n }\n return nodeAttrs.length;\n}\n\nfunction matchTemplateAttribute(attrs: TAttributes,
name: string): number {\n let i = attrs.indexOf(AttributeMarker.Template);\n if (i > -1) {\n i++;\n while (i <
attrs.length) {\n const attr = attrs[i];\n // Return in case we checked all template attrs and are switching to the
next section in the\n // attrs array (that starts with a number that represents an attribute marker).\n if (typeof
attr === 'number') return -1;\n if (attr === name) return i;\n i++;\n }\n return -1;\n }\n // **\n * Checks
whether a selector is inside a CssSelectorList\n * @param selector Selector to be checked.\n * @param list List in
which to look for the selector.\n */\nexport function isSelectorInSelectorList(selector: CssSelector, list:
CssSelectorList): boolean {\n selectorListLoop: for (let i = 0; i < list.length; i++) {\n const currentSelectorInList =
```

```

list[i];\n if (selector.length
!= currentSelectorInList.length) {\n continue;\n }\n for (let j = 0; j < selector.length; j++) {\n if
(selector[j] !== currentSelectorInList[j]) {\n continue selectorListLoop;\n }\n }\n return true;\n }\n
return false;\n}\n\nfunction maybeWrapInNotSelector(isNegativeMode: boolean, chunk: string): string {\n return
isNegativeMode ? `not(` + chunk.trim() + `)` : chunk;\n}\n\nfunction stringifyCSSSelector(selector: CssSelector):
string {\n let result = selector[0] as string;\n let i = 1;\n let mode = SelectorFlags.ATTRIBUTE;\n let
currentChunk = `);\n let isNegativeMode = false;\n while (i < selector.length) {\n let valueOrMarker =
selector[i];\n if (typeof valueOrMarker === `string`) {\n if (mode & SelectorFlags.ATTRIBUTE) {\n const
attrValue = selector[++i] as string;\n currentChunk += ` ` + valueOrMarker + (attrValue.length > 0 ?
`=` + attrValue + ` ` : ` `) + ` `;\n } else if (mode & SelectorFlags.CLASS)
{\n currentChunk += `.` + valueOrMarker;\n } else if (mode & SelectorFlags.ELEMENT) {\n
currentChunk += ` ` + valueOrMarker;\n }\n } else {\n //\n // Append current chunk to the final result in
case we come across SelectorFlag, which\n // indicates that the previous section of a selector is over. We need to
accumulate content\n // between flags to make sure we wrap the chunk later in `not()` selector if needed, e.g.\n
// ``\n // [, Flags.CLASS, `classA`, Flags.CLASS | Flags.NOT, `classB`, `classC`]\n // ``\n // should be
transformed to `.classA :not(.classB .classC)`.\n //\n // Note: for negative selector part, we accumulate content
between flags until we find the\n // next negative flag. This is needed to support a case where `:not()` rule
contains more than\n // one chunk, e.g. the following selector:\n // ``\n // [, Flags.ELEMENT |
Flags.NOT, `p`, Flags.CLASS,
`foo`, Flags.CLASS | Flags.NOT, `bar`]\n // ``\n // should be stringified to `:not(p.foo) :not(bar)`.\n //\n
if (currentChunk !== ` ` && !isPositive(valueOrMarker)) {\n result +=
maybeWrapInNotSelector(isNegativeMode, currentChunk);\n currentChunk = `);\n }\n mode =
valueOrMarker;\n // According to CssSelector spec, once we come across `SelectorFlags.NOT` flag, the
negative\n // mode is maintained for remaining chunks of a selector.\n isNegativeMode = isNegativeMode ||
!isPositive(mode);\n }\n i++;\n }\n if (currentChunk !== ` `) {\n result +=
maybeWrapInNotSelector(isNegativeMode, currentChunk);\n }\n return result;\n}\n\n/**\n * Generates string
representation of CSS selector in parsed form.\n * ComponentDef and DirectiveDef are generated with the
selector in parsed form to avoid doing\n * additional parsing at runtime (for example, for directive matching).
However in some cases (for\n * example, while bootstrapping
a component), a string version of the selector is required to query\n * for the host element on the page. This
function takes the parsed form of a selector and returns\n * its string representation.\n *\n * @param selectorList
selector in parsed form\n * @returns string representation of a given selector\n */\nexport function
stringifyCSSSelectorList(selectorList: CssSelectorList): string {\n return
selectorList.map(stringifyCSSSelector).join(` `);\n}\n\n/**\n * Extracts attributes and classes information from a
given CSS selector.\n *\n * This function is used while creating a component dynamically. In this case, the host
element\n * (that is created dynamically) should contain attributes and classes specified in component's CSS\n *
selector.\n *\n * @param selector CSS selector in parsed form (in a form of array)\n * @returns object with `attrs`
and `classes` fields that contain extracted information\n */\nexport function
extractAttrsAndClassesFromSelector(selector: CssSelector):\n
{\n attrs: string[], classes: string[] } {\n const attrs: string[] = [];\n const classes: string[] = [];\n let i = 1;\n let mode
= SelectorFlags.ATTRIBUTE;\n while (i < selector.length) {\n let valueOrMarker = selector[i];\n if (typeof
valueOrMarker === `string`) {\n if (mode === SelectorFlags.ATTRIBUTE) {\n if (valueOrMarker !== ` `) {\n
attrs.push(valueOrMarker, selector[++i] as string);\n }\n } else if (mode === SelectorFlags.CLASS) {\n
classes.push(valueOrMarker);\n }\n } else {\n // According to CssSelector spec, once we come across
`SelectorFlags.NOT` flag, the negative\n // mode is maintained for remaining chunks of a selector. Since
attributes and classes are\n // extracted only for `positive` part of the selector, we can stop here.\n if
(!isPositive(mode)) break;\n mode = valueOrMarker;\n }\n i++;\n }\n return { attrs, classes };\n}\n\n"/**\n *
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```



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export interface NO\_CHANGE {  
 // This is a brand that ensures that this type can never match anything else  
 \_\_brand\_\_: 'NO\_CHANGE';  
} // A special value which designates that a value has not changed.

export const NO\_CHANGE: NO\_CHANGE = (typeof ngDevMode === 'undefined' || ngDevMode) ? { \_\_brand\_\_: 'NO\_CHANGE' } : ({ as NO\_CHANGE });

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import { assertGreaterThan } from './util/assert';  
import { assertIndexInDeclRange } from './assert';  
import { executeCheckHooks, executeInitAndCheckHooks } from './hooks';  
import { FLAGS, InitPhaseState, LView, LViewFlags, TView } from './interfaces/view';  
import { getLView, getSelectedIndex, getTView, isInCheckNoChangesMode, setSelectedIndex } from './state';

Advances to an element for later binding instructions.

Used in conjunction with instructions like { @link property } to act on elements with specified indices, for example those created with { @link elementStart }.

(rf: RenderFlags, ctx: any) => {  
 if (rf & 1) {  
 text(0, 'Hello');  
 text(1, 'Goodbye');  
 element(2, 'div');  
 }  
 if (rf & 2) {  
 advance(2); // Advance twice to the <div>.  
 }  
 property('title', 'test');  
} // @param delta Number of elements to advance forwards by.

@codeGenApi  
export function advance(delta: number): void {  
 ngDevMode && assertGreaterThan(delta, 0, 'Can only advance forward');  
 selectIndexInternal(getTView(), getLView(), getSelectedIndex() + delta, isInCheckNoChangesMode());  
}

export function selectIndexInternal(tView: TView, lView: LView, index: number, checkNoChangesMode: boolean) {  
 ngDevMode && assertIndexInDeclRange(lView, index);  
 // Flush the initial hooks for elements in the view that have been added up to this point.  
 // PERF WARNING: do NOT extract this to a separate function without running benchmarks  
 if (!checkNoChangesMode) {  
 const hooksInitPhaseCompleted = (lView[FLAGS] & LViewFlags.InitPhaseStateMask) === InitPhaseState.InitPhaseCompleted;  
 if (hooksInitPhaseCompleted) {  
 const preOrderCheckHooks = tView.preOrderCheckHooks;  
 if (preOrderCheckHooks !== null) {  
 executeCheckHooks(lView, preOrderCheckHooks, index);  
 }  
 } else {  
 const preOrderHooks = tView.preOrderHooks;  
 if (preOrderHooks !== null) {  
 executeInitAndCheckHooks(lView, preOrderHooks, InitPhaseState.OnInitHooksToBeRun, index);  
 }  
 }  
 // We must set the selected index *after* running the hooks, because hooks may have side-effects that cause other template functions to run, thus updating the selected index, which is global state. If we run `setSelectedIndex` *before* we run the hooks, in some cases the selected index will be altered by the time we leave the `advance` instruction.  
 setSelectedIndex(index);  
 }  
}

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import { KeyValueArray } from './util/array\_utils';  
import { assertNumber, assertNumberInRange } from './util/assert';

Value stored in the `TData` which is needed to re-concatenate the styling.

See: `TStylingKeyPrimitive` and `TStylingStatic`

export type TStylingKey = TStylingKeyPrimitive | TStylingStatic;

The primitive portion ( `TStylingStatic` removed) of the value stored in the `TData` which is needed to re-concatenate the styling.

\* - `string`: Stores the property name. Used with `styleProp`/`classProp` instruction.  
\* - `null`: Represents map, so there is no name. Used with `styleMap`/`classMap`.  
\* - `false`: Represents an ignore case. This happens when `styleProp`/`classProp` instruction is combined with directive which shadows its input `@Input('class')`. That way the binding should not participate in the styling resolution.

export type TStylingKeyPrimitive = string | null | false;

Store the static values for the styling binding.

The `TStylingStatic` is just `KeyValueArray` where key `""` (stored at location 0) contains the `TStylingKey` (stored at location 1). In other words this wraps the `TStylingKey` such that the `""` contains the wrapped value.

When instructions are resolving styling they may need to look forward or backwards in the linked list to resolve the value. For this reason we have to make sure that the linked list

also contains the static values. However the list only has space for one item per styling instruction. For this reason we store the static values here as part of the `TStylingKey`. This means that the resolution function when looking for a value needs to first look at the binding value, and then at `TStylingKey` (if it exists).  
 Imagine we have:  

```
<div class="TEMPLATE" my-dir> @Directive({ host: { class: 'DIR', [class.dynamic]: 'exp' // classProp('dynamic', ctx.exp); }})
```

 In the above case the linked list will contain one item:  

```
// assume binding location: 10 for `classProp('dynamic', ctx.exp);`
tData[10] = <TStylingStatic>["dynamic", // This is the wrapped value of `TStylingKey`
'DIR': true, // This is the default static value of directive binding.
];
tData[10 + 1] = 0; // We don't have prev/next.
IView[10] = undefined;
```

```
// assume `ctx.exp` is `undefined`
IView[10 + 1] = undefined; // Just normalized `IView[10]`
```

So when the function is resolving styling value, it first needs to look into the linked list (there is none) and then into the static `TStylingStatic` too see if there is a default value for `dynamic` (there is not). Therefore it is safe to remove it.  
 If setting `true` case:  

```
IView[10] = true; // assume `ctx.exp` is `true`
IView[10 + 1] = true; // Just normalized `IView[10]`
```

 So when the function is resolving styling value, it first needs to look into the linked list (there is none) and then into `TNode.residualClass` (TNode.residualStyle) which contains:  

```
tNode.residualClass = [{"TEMPLATE": true, }];
```

 This means that it is safe to add class.  
 export interface TStylingStatic extends KeyValueArray<any> {}  
 This is a branded number which contains previous and

next index.  
 When we come across styling instructions we need to store the `TStylingKey` in the correct order so that we can re-concatenate the styling value in the desired priority.  
 The insertion can happen either at the:  
 - end of template as in the case of coming across additional styling instruction in the template  
 - in front of the template in the case of coming across additional instruction in the `hostBindings`.  
 We use `TStylingRange` to store the previous and next index into the `TData` where the template bindings can be found.  
 - bit 0 is used to mark that the previous index has a duplicate for current value.  
 - bit 1 is used to mark that the next index has a duplicate for the current value.  
 - bits 2-16 are used to encode the next/tail of the template.  
 - bits 17-32 are used to encode the previous/head of template.  
 NODE: \*duplicate\* false implies that it is statically known that this binding will not collide with

other bindings and therefore there is no need to check other bindings. For example the bindings in  

```
[style.color]="exp" [style.width]="exp">
```

 will never collide and will have their bits set accordingly. Previous duplicate means that we may need to check previous if the current binding is `null`. Next duplicate means that we may need to check next bindings if the current binding is not `null`.  
 NOTE: `0` has special significance and represents `null` as in no additional pointer.  
 export interface TStylingRange {  
 \_\_brand\_\_: "TStylingRange";  
 }  
 Shift and masks constants for encoding two numbers into and duplicate info into a single number.  
 export const enum StylingRange {  
 /// Number of bits to shift for the previous pointer  
 PREV\_SHIFT = 17,  
 /// Previous pointer mask.  
 PREV\_MASK = 0xFFFE0000,  
 /// Number of bits to shift for the next pointer  
 NEXT\_SHIFT = 2,  
 /// Next pointer mask.  
 NEXT\_MASK = 0x001FFFC,

```

 // Mask to remove negative bit. (interpret number as positive)
 UNSIGNED_MASK = 0x7FFF,
 }

 * This bit is set if the previous bindings contains a binding which could possibly cause a duplicate. For example:
 <div [style]="map" [style.width]="width">, the `width` binding will have previous duplicate set. The implication is that if `width` binding becomes `null`, it is necessary to defer the value to `map.width`. (Because `width` overwrites `map.width`.)
 PREV_DUPLICATE = 0x02,
 * This bit is set to if the next binding contains a binding which could possibly cause a duplicate. For example:
 <div [style]="map" [style.width]="width">, the `map` binding will have next duplicate set. The implication is that if `map.width` binding becomes not `null`, it is necessary to defer the value to `width`. (Because `width` overwrites `map.width`.)
 NEXT_DUPLICATE = 0x01,
}

export function toTStylingRange(prev: number, next: number): TStylingRange {
 ngDevMode && assertNumberInRange(prev, 0, StylingRange.UNSIGNED_MASK);
 ngDevMode && assertNumberInRange(next, 0, StylingRange.UNSIGNED_MASK);
 return (prev << StylingRange.PREV_SHIFT | next <<

```

```

StylingRange.NEXT_SHIFT) as any;\n}\n\nexport function getTStylingRangePrev(tStylingRange: TStylingRange):
number {\n ngDevMode && assertNumber(tStylingRange, 'expected number');\n return (((tStylingRange as any as
number) >> StylingRange.PREV_SHIFT) & StylingRange.UNSIGNED_MASK);\n}\n\nexport function
getTStylingRangePrevDuplicate(tStylingRange: TStylingRange): boolean {\n ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n return ((tStylingRange as any as number) &
StylingRange.PREV_DUPLICATE) ===\n StylingRange.PREV_DUPLICATE;\n}\n\nexport function
setTStylingRangePrev(\n tStylingRange: TStylingRange, previous: number): TStylingRange {\n ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n ngDevMode && assertNumberInRange(previous,
0, StylingRange.UNSIGNED_MASK);\n return (((tStylingRange as any as number) &
~StylingRange.PREV_MASK) |\n (previous << StylingRange.PREV_SHIFT)) as any;\n}\n\nexport function
setTStylingRangePrevDuplicate(tStylingRange: TStylingRange): TStylingRange {\n ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n return ((tStylingRange as any as number) |
StylingRange.PREV_DUPLICATE) as any;\n}\n\nexport function getTStylingRangeNext(tStylingRange:
TStylingRange): number {\n ngDevMode && assertNumber(tStylingRange, 'expected number');\n return
(((tStylingRange as any as number) & StylingRange.NEXT_MASK) >> StylingRange.NEXT_SHIFT);\n}\n\nexport
function setTStylingRangeNext(tStylingRange: TStylingRange, next: number): TStylingRange {\n ngDevMode
&& assertNumber(tStylingRange, 'expected number');\n ngDevMode && assertNumberInRange(next, 0,
StylingRange.UNSIGNED_MASK);\n return (((tStylingRange as any as number) &
~StylingRange.NEXT_MASK) | /\n
 next << StylingRange.NEXT_SHIFT) as any;\n}\n\nexport function
getTStylingRangeNextDuplicate(tStylingRange: TStylingRange): boolean {\n ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n return ((tStylingRange as any as number) &
StylingRange.NEXT_DUPLICATE) ===\n StylingRange.NEXT_DUPLICATE;\n}\n\nexport function
setTStylingRangeNextDuplicate(tStylingRange: TStylingRange): TStylingRange {\n ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n return ((tStylingRange as any as number) |
StylingRange.NEXT_DUPLICATE) as any;\n}\n\nexport function getTStylingRangeTail(tStylingRange:
TStylingRange): number {\n ngDevMode && assertNumber(tStylingRange, 'expected number');\n const next =
getTStylingRangeNext(tStylingRange);\n return next === 0 ? getTStylingRangePrev(tStylingRange) :
next;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n * \n\n/**\n * Patch a `debug` property on top of the existing
object.\n * \n * NOTE: always call this method with `ngDevMode && attachDebugObject(...)`\n * \n * @param obj
Object to patch\n * @param debug Value to patch\n * \n\nexport function attachDebugObject(obj: any, debug: any):
void {\n if (ngDevMode) {\n Object.defineProperty(obj, 'debug', {value: debug, enumerable: false});\n } else {\n
throw new Error(\n 'This method should be guarded with `ngDevMode` so that it can be tree shaken in
production!');\n }\n}\n\n"/**\n * Patch a `debug` property getter on top of the existing object.\n * \n * NOTE: always
call this method with `ngDevMode && attachDebugObject(...)`\n * \n * @param obj Object to patch\n * @param
debugGetter Getter returning a value to patch\n * \n\nexport function attachDebugGetter<T>(<T>(obj: T, debugGetter:
(this: T) => any): void {\n if (ngDevMode) {\n Object.defineProperty(obj, 'debug', {get: debugGetter,
enumerable:
false});\n } else {\n throw new Error(\n 'This method should be guarded with `ngDevMode` so that it can be
tree shaken in production!');\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\nimport {Injector} from '../di/injector';\nimport {Type} from
'../interface/type';\nimport {SchemaMetadata} from '../metadata/schema';\nimport {Sanitizer} from
'../sanitization/sanitizer';\nimport {KeyValueArray} from '../util/array_utils';\nimport {assertDefined} from
'../util/assert';\nimport {createNamedArrayType} from '../util/named_array_type';\nimport {initNgDevMode}
from '../util/ng_dev_mode';\nimport {assertNodeInjector} from '../assert';\nimport {getInjectorIndex} from

```

```

'./di';\nimport {CONTAINER_HEADER_OFFSET, HAS_TRANSPLANTED_VIEWS, LContainer,
MOVED_VIEWS, NATIVE} from './interfaces/container';\nimport
{ComponentTemplate, DirectiveDef, DirectiveDefList, PipeDefList, ViewQueriesFunction} from
'./interfaces/definition';\nimport {NO_PARENT_INJECTOR, NodeInjectorOffset} from
'./interfaces/injector';\nimport {AttributeMarker, InsertBeforeIndex, PropertyAliases, TConstants, TContainerNode,
TElementNode, TNode as ITNode, TNodeFlags, TNodeProviderIndexes, TNodeType, toTNodeTypeAsString} from
'./interfaces/node';\nimport {SelectorFlags} from './interfaces/projection';\nimport {LQueries, TQueries} from
'./interfaces/query';\nimport {Renderer3, RendererFactory3} from './interfaces/renderer';\nimport {RComment,
RElement, RNode} from './interfaces/renderer_dom';\nimport {getTStylingRangeNext,
getTStylingRangeNextDuplicate, getTStylingRangePrev, getTStylingRangePrevDuplicate, TStylingKey,
TStylingRange} from './interfaces/styling';\nimport {CHILD_HEAD, CHILD_TAIL, CLEANUP, CONTEXT,
DebugNode, DECLARATION_VIEW, DestroyHookData, FLAGS, HEADER_OFFSET, HookData, HOST,
HostBindingOpCodes, INJECTOR, LContainerDebug as ILContainerDebug, LView, LViewDebug as
ILViewDebug, LViewDebugRange, LViewDebugRangeContent, LViewFlags, NEXT, PARENT, QUERIES,
RENDERER, RENDERER_FACTORY, SANITIZER, T_HOST, TData, TView as ITView, TVIEW, TView,
TViewType, TViewTypeAsString} from './interfaces/view';\nimport {attachDebugObject} from
'./util/debug_utils';\nimport {getParentInjectorIndex, getParentInjectorView} from './util/injector_utils';\nimport
{unwrapRNode} from './util/view_utils';\n\nconst NG_DEV_MODE = ((typeof ngDevMode === 'undefined' ||
!!ngDevMode) && initNgDevMode());\n\n/*\n * This file contains conditionally attached classes which provide
human readable (debug) level\n * information for `LView`, `LContainer` and other internal data structures. These
data structures\n * are stored internally as array which makes it very difficult during debugging to reason about the\n
* current state of the system.\n *\n * Patching the array with extra property does change
the array's hidden class' but it does not\n * change the cost of access, therefore this patching should not have
significant if any impact in\n * `ngDevMode` mode. (see: https://jsperf.com/array-vs-monkey-patch-array)\n *\n * So instead of seeing:\n * ```\n * Array(30) [Object, 659, null, ...]\n * ```\n * You get to see:\n * ```\n *
LViewDebug {\n * views: [...],\n * flags: {attached: true, ...}\n * nodes: [\n * {html: '<div id="123">', ...,
nodes: [\n * {html: '', ..., nodes: null}\n *]}\n *]\n * }\n * ```\n *\n * LVIEW_COMPONENT_CACHE!: Map<string|null, Array<any>>;\n * LVIEW_EMBEDDED_CACHE!:
Map<string|null, Array<any>>;\n * LVIEW_ROOT!: Array<any>;\n *\n * LViewDebug extends ITView {\n
type: TViewType;\n * }\n *\n * This function clones a blueprint and creates LView.\n *\n * Simple slice will keep
the same type, and we need it to be LView\n *\n * export function cloneToLViewFromTViewBlueprint(tView:
TView): LView {\n
 const debugTView
 = tView as TViewDebug;\n
 const IView = getLViewToClone(debugTView.type, tView.template &&
tView.template.name);\n
 return IView.concat(tView.blueprint) as any;\n
}\n\nfunction getLViewToClone(type:
TViewType, name: string|null): Array<any> {\n
 switch (type) {\n
 case TViewType.Root:\n
 if (LVIEW_ROOT
=== undefined) LVIEW_ROOT = new (createNamedArrayType('LRootView'))();\n
 return LVIEW_ROOT;\n
 case TViewType.Component:\n
 if (LVIEW_COMPONENT_CACHE === undefined)\n
LVIEW_COMPONENT_CACHE = new Map();\n
 let componentArray =
LVIEW_COMPONENT_CACHE.get(name);\n
 if (componentArray === undefined) {\n
 componentArray =
new (createNamedArrayType('LComponentView' + nameSuffix(name)))();\n
LVIEW_COMPONENT_CACHE.set(name, componentArray);\n
 }\n
 return componentArray;\n
 case
TViewType.Embedded:\n
 if (LVIEW_EMBEDDED_CACHE === undefined) LVIEW_EMBEDDED_CACHE
= new Map();\n
 let embeddedArray = LVIEW_EMBEDDED_CACHE.get(name);\n
 if (embeddedArray
=== undefined) {\n
 embeddedArray = new (createNamedArrayType('LEmbeddedView' +
nameSuffix(name)))();\n
LVIEW_EMBEDDED_CACHE.set(name, embeddedArray);\n
 }\n
 return
embeddedArray;\n
 }\n
 throw new Error('unreachable code');\n
}\n\nfunction nameSuffix(text:
string|null|undefined): string {\n
 if (text == null) return '';\n
 const index = text.lastIndexOf('_Template');\n
 return
'_' + (index === -1 ? text : text.substr(0, index));\n
}\n\n/*\n * This class is a debug version of Object literal so that

```

```
we can have constructor name show up\n * in\n * debug tools in ngDevMode.\n */\nextport const TViewConstructor
= class TView implements ITView {\n constructor(\n public type: TViewType,\n public blueprint: LView,\n public template: ComponentTemplate<{}>\|null,\n public queries: TQueries\|null,\n public viewQuery:
ViewQueriesFunction<{}>\|null,\n public declTNode: ITNode\|null,\n public data: TData,\n public
bindingStartIndex:
number,\n public expandoStartIndex: number,\n public hostBindingOpCodes: HostBindingOpCodes\|null,\n public firstCreatePass: boolean,\n public firstUpdatePass: boolean,\n public staticViewQueries: boolean,\n public staticContentQueries: boolean,\n public preOrderHooks: HookData\|null,\n public
preOrderCheckHooks: HookData\|null,\n public contentHooks: HookData\|null,\n public contentCheckHooks:
HookData\|null,\n public viewHooks: HookData\|null,\n public viewCheckHooks: HookData\|null,\n public
destroyHooks: DestroyHookData\|null,\n public cleanup: any[]\|null,\n public contentQueries: number[]\|null,\n public components: number[]\|null,\n public directiveRegistry: DirectiveDefList\|null,\n public pipeRegistry:
PipeDefList\|null,\n public firstChild: ITNode\|null,\n public schemas: SchemaMetadata[]\|null,\n public
consts: TConstants\|null,\n public incompleteFirstPass: boolean,\n public
_decls: number,\n public _vars: number,\n) {} \n get template_(): string {\n const buf: string[] = [];\n processTNodeChildren(this.firstChild, buf);\n return buf.join('');\n } \n get type_(): string {\n return
TVIEW_TYPE_AS_STRING[this.type] || `TVIEW_TYPE.${this.type}`;\n } \n}; \nnclass TNode implements ITNode {\n constructor(\n public tView_: TView,

//\n public type: TNodeType,

//\n public index: number,

//\n public
insertBeforeIndex: InsertBeforeIndex,

//\n public injectorIndex: number,

//\n public directiveStart: number,

//\n public directiveEnd: number,

//\n public directiveStylingLast:
number,

//\n public propertyBindings: number[]\|null,

//\n public flags: TNodeFlags,

//\n public providerIndexes: TNodeProviderIndexes,

//\n public value: string\|null,

//\n public attrs:
(string\|AttributeMarker|(string\|SelectorFlags)[])[]\|null,

//\n public mergedAttrs:
(string\|AttributeMarker|(string\|SelectorFlags)[])[]\|null,

//\n public localNames: (string\|number)[]\|null,

//\n public initialInputs: (string[]\|null)[]\|null\|undefined,

//\n public inputs:
PropertyAliases\|null,

//\n public outputs: PropertyAliases\|null,

//\n public tViews: ITView\|ITView[]\|null,

//\n public next: ITNode\|null,

//\n public
projectionNext: ITNode\|null,

//\n public child: ITNode\|null,

//\n public parent: TELEMENT_NODE\|TCONTAINER_NODE\|null,

//\n public projection:
number|(ITNode\|RNODE[])[]\|null,

//\n public styles: string\|null,

//\n public stylesWithoutHost: string\|null,

//\n public residualStyles:
KeyValueArray<any>\|undefined\|null,

//\n public classes: string\|null,

//\n public classesWithoutHost: string\|null,

//\n public residualClasses:
KeyValueArray<any>\|undefined\|null,

//\n public classBindings: TStylingRange,

//\n public styleBindings:
TStylingRange,

//\n) {} \n} /** \n * Return a human debug version of the set of
`NodeInjector`s which will be consulted when\n * resolving tokens from this `TNode`. \n *\n * When debugging applications, it is often difficult to determine which `NodeInjector`s will be\n * consulted. This method shows a list of `DebugNode`s representing the `TNode`s which will be\n * consulted in order when resolving a token starting at this `TNode`. \n *\n * The original data is stored in `LView` and `TView` with a lot of offset indexes, and so it is\n * difficult to reason about. \n *\n * @param IView The `LView` instance for this `TNode`. \n */ \ndebugNodeInjectorPath(IView: LView): DebugNode[] {\n const path: DebugNode[] = [];\n let injectorIndex =
getInjectorIndex(this, IView); \n ngDevMode
```

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 && assertNodeInjector(IView, injectorIndex);\n while (injectorIndex !== -1) {\n const tNode =
IView[TVIEW].data[injectorIndex + NodeInjectorOffset.TNODE] as TNode;\n
path.push(buildDebugNode(tNode, IView));\n const parentLocation = IView[injectorIndex +
NodeInjectorOffset.PARENT];\n if (parentLocation === NO_PARENT_INJECTOR) {\n injectorIndex = -
1;\n } else {\n injectorIndex = getParentInjectorIndex(parentLocation);\n IView =
getParentInjectorView(parentLocation, IView);\n }\n return path;\n }\n return path;\n\n get type_(): string {\n return
toTNodeTypeAsString(this.type) || `TNodeType.${this.type}`;\n }\n\n get flags_(): string {\n const flags:
string[] = [];\n if (this.flags & TNodeFlags.hasClassInput) flags.push('TNodeFlags.hasClassInput');\n if
(this.flags & TNodeFlags.hasContentQuery) flags.push('TNodeFlags.hasContentQuery');\n if (this.flags &
TNodeFlags.hasStyleInput) flags.push('TNodeFlags.hasStyleInput');\n
 if (this.flags & TNodeFlags.hasHostBindings) flags.push('TNodeFlags.hasHostBindings');\n if (this.flags &
TNodeFlags.isComponentHost) flags.push('TNodeFlags.isComponentHost');\n if (this.flags &
TNodeFlags.isDirectiveHost) flags.push('TNodeFlags.isDirectiveHost');\n if (this.flags & TNodeFlags.isDetached)
flags.push('TNodeFlags.isDetached');\n if (this.flags & TNodeFlags.isProjected)
flags.push('TNodeFlags.isProjected');\n return flags.join('|');\n }\n\n get template_(): string {\n if (this.type &
TNodeType.Text) return this.value!;\n const buf: string[] = [];\n const tagName = typeof this.value === 'string'
&& this.value || this.type_;\n buf.push('<', tagName);\n if (this.flags) {\n buf.push(' ', this.flags_);\n }\n if
(this.attrs) {\n for (let i = 0; i < this.attrs.length; i++) {\n const attrName = this.attrs[i];\n if (typeof
attrName === 'number') {\n break;\n }\n const attrValue = this.attrs[i];\n
 buf.push(' ', attrName as string, '=', attrValue as string, '\"');\n }\n buf.push('>');\n
 }\n processTNodeChildren(this.child, buf);\n buf.push('</', tagName, '>');\n return buf.join('');\n }\n\n get
styleBindings_(): DebugStyleBindings {\n return toDebugStyleBinding(this, false);\n }\n\n get classBindings_():
DebugStyleBindings {\n return toDebugStyleBinding(this, true);\n }\n\n get providerIndexStart_(): number {\n return
this.providerIndexes & TNodeProviderIndexes.ProvidersStartIndexMask;\n }\n\n get providerIndexEnd_():
number {\n return this.providerIndexStart_ +\n (this.providerIndexes >>>
TNodeProviderIndexes.CptViewProvidersCountShift);\n }\n\n next export const TNodeDebug = TNode;\n next export type
TNodeDebug = TNode;\n\n next export interface DebugStyleBindings extends\nArray<KeyValueArray<any>|DebugStyleBinding|string|null> {} {\n next export interface DebugStyleBinding {\n key:
TStylingKey;\n index: number;\n isTemplate: boolean;\n
 prevDuplicate: boolean;\n nextDuplicate: boolean;\n prevIndex: number;\n nextIndex: number;\n }\n\n next
function toDebugStyleBinding(tNode: TNode, isClassBased: boolean): DebugStyleBindings {\n const tData =
tNode.tView_.data;\n const bindings: DebugStyleBindings = [] as any;\n const range = isClassBased ?
tNode.classBindings : tNode.styleBindings;\n const prev = getTStylingRangePrev(range);\n const next =
getTStylingRangeNext(range);\n let isTemplate = next !== 0;\n let cursor = isTemplate ? next : prev;\n while
(cursor !== 0) {\n const itemKey = tData[cursor] as TStylingKey;\n const itemRange = tData[cursor + 1] as
TStylingRange;\n bindings.unshift({\n key: itemKey,\n index: cursor,\n isTemplate: isTemplate,\n
 prevDuplicate: getTStylingRangePrevDuplicate(itemRange),\n nextDuplicate:
getTStylingRangeNextDuplicate(itemRange),\n nextIndex: getTStylingRangeNext(itemRange),\n prevIndex:
getTStylingRangePrev(itemRange),\n });\n if
(cursor === prev) isTemplate = false;\n cursor = getTStylingRangePrev(itemRange);\n }\n bindings.push((isClassBased ?
tNode.residualClasses : tNode.residualStyles) || null);\n return
bindings;\n }\n\n next function processTNodeChildren(tNode: ITNode|null, buf: string[]) {\n while (tNode) {\n
 buf.push((tNode as any as {template_: string}).template_);\n tNode = tNode.next;\n }\n }\n\n const TViewData =
NG_DEV_MODE && createNamedArrayType('TViewData') || null! as ArrayConstructor;\n let
TVIEWDATA_EMPTY: unknown[]; // can't initialize here or it will not be tree shaken, because\n
 // `LView` constructor could have side-effects.\n * This function clones a blueprint and creates TData.\n * Simple slice will keep the same type, and we need it to be TData.\n * next export function cloneToTViewData(list:
any[]): TData {\n if (TVIEWDATA_EMPTY === undefined) TVIEWDATA_EMPTY = new TViewData();\n

```



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this._raw_IView[SANITIZER];\n }\n get childHead(): ILViewDebug|ILContainerDebug|null {\n return
toDebug(this._raw_IView[CHILD_HEAD]);\n }\n get next(): ILViewDebug|ILContainerDebug|null {\n return
toDebug(this._raw_IView[NEXT]);\n }\n get childTail():
ILViewDebug|ILContainerDebug|null {\n return toDebug(this._raw_IView[CHILD_TAIL]);\n }\n get
declarationView(): ILViewDebug|null {\n return toDebug(this._raw_IView[DECLARATION_VIEW]);\n }\n get
queries(): LQueries|null {\n return this._raw_IView[QUERIES];\n }\n get tHost(): ITNode|null {\n return
this._raw_IView[T_HOST];\n }\n get decls(): LViewDebugRange {\n return toLViewRange(this.tView,
this._raw_IView, HEADER_OFFSET, this.tView.bindingStartIndex);\n }\n get vars(): LViewDebugRange {\n
return toLViewRange(\n this.tView, this._raw_IView, this.tView.bindingStartIndex,
this.tView.expandoStartIndex);\n }\n get expando(): LViewDebugRange {\n return toLViewRange(\n
this.tView, this._raw_IView, this.tView.expandoStartIndex, this._raw_IView.length);\n }\n\n /**\n * Normalized
view of child views (and containers) attached at this location.\n */\n get childViews():
Array<ILViewDebug|ILContainerDebug> {\n const childViews:
Array<ILViewDebug|ILContainerDebug> = [];\n let child = this.childHead;\n while (child) {\n
childViews.push(child);\n child = child.next;\n }\n return childViews;\n }\n\n\nfunction
mapToHTML(node: DebugNode): string {\n if (node.type === 'ElementContainer') {\n return (node.children ||
[]).map(mapToHTML).join('');\n } else if (node.type === 'IcuContainer') {\n throw new Error('Not
implemented');\n } else {\n return toHtml(node.native, true) || '';\n }\n }\n\n\nfunction toLViewRange(tView:
TView, lView: LView, start: number, end: number): LViewDebugRange {\n let content:
LViewDebugRangeContent[] = [];\n for (let index = start; index < end; index++) {\n content.push({index: index,
t: tView.data[index], l: lView[index]});\n }\n return {start: start, end: end, length: end - start, content:
content};\n }\n\n\n/**\n * Turns a flat list of nodes into a tree by walking the associated `TNode` tree.\n */\n * @param
tNode\n * @param lView\n */\n\nexport function
toDebugNodes(tNode: ITNode|null, lView: LView): DebugNode[] {\n if (tNode) {\n const debugNodes:
DebugNode[] = [];\n let tNodeCursor: ITNode|null = tNode;\n while (tNodeCursor) {\n
debugNodes.push(buildDebugNode(tNodeCursor, lView));\n tNodeCursor = tNodeCursor.next;\n }\n return
debugNodes;\n } else {\n return [];\n }\n }\n\n\nexport function buildDebugNode(tNode: ITNode, lView: LView):
DebugNode {\n const rawValue = lView[tNode.index];\n const native = unwrapRNode(rawValue);\n const
factories: Type<any>[] = [];\n const instances: any[] = [];\n const tView = lView[TVIEW];\n for (let i =
tNode.directiveStart; i < tNode.directiveEnd; i++) {\n const def = tView.data[i] as DirectiveDef<any>;\n
factories.push(def.type);\n instances.push(lView[i]);\n }\n return {\n html: toHtml(native),\n type:
toTNodeTypeAsString(tNode.type),\n native: native as any,\n children: toDebugNodes(tNode.child, lView),\n
factories,\n instances,\n\ninjector: buildNodeInjectorDebug(tNode, tView, lView)\n };\n }\n\n\nfunction buildNodeInjectorDebug(tNode:
ITNode, tView: ITView, lView: LView) {\n const viewProviders: Type<any>[] = [];\n for (let i = (tNode as
TNode).providerIndexStart; i < (tNode as TNode).providerIndexEnd; i++) {\n
viewProviders.push(tView.data[i] as Type<any>);\n }\n const providers: Type<any>[] = [];\n for (let i = (tNode as
TNode).providerIndexEnd; i < (tNode as TNode).directiveEnd; i++) {\n providers.push(tView.data[i] as
Type<any>);\n }\n const nodeInjectorDebug = {\n bloom: toBloom(lView, tNode.injectorIndex),\n
cumulativeBloom: toBloom(tView.data, tNode.injectorIndex),\n providers,\n viewProviders,\n
parentInjectorIndex: lView[(tNode as TNode).providerIndexStart - 1],\n }\n return
nodeInjectorDebug;\n }\n\n\n/**\n * Convert a number at `idx` location in `array` into binary representation.\n */\n * @param
array\n * @param idx\n */\n\nfunction binary(array: any[], idx: number): string
{\n const value = array[idx];\n // If not a number we print 8 ` ` to retain alignment but let user know that it was
called on\n // wrong type.\n if (typeof value !== 'number') return '????????';\n // We prefix 0s so that we have
constant length number\n const text = '00000000' + value.toString(2);\n return text.substring(text.length -
8);\n }\n\n\n/**\n * Convert a bloom filter at location `idx` in `array` into binary representation.\n */\n * @param
array\n * @param idx\n */\n\nfunction toBloom(array: any[], idx: number): string {\n return `${binary(array, idx +

```



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7)}_${binary(array, idx + 6)}_${binary(array, idx + 5)}_${\n binary(array, idx + 4)}_${binary(array, idx +
3)}_${binary(array, idx + 2)}_${\n binary(array, idx + 1)}_${binary(array, idx + 0)}';\n\n\nexport class
LContainerDebug implements ILContainerDebug {\n constructor(private readonly _raw_ILContainer: LContainer)
{\n\n get hasTransplantedViews(): boolean {\n return
this._raw_ILContainer[HAS_TRANSPLANTED_VIEWS];\n
 }\n get views(): ILViewDebug[] {\n return this._raw_ILContainer.slice(CONTAINER_HEADER_OFFSET)\n
.map(toDebug as (l: LView) => ILViewDebug);\n }\n get parent(): ILViewDebug|null {\n return
toDebug(this._raw_ILContainer[PARENT]);\n }\n get movedViews(): LView[]|null {\n return
this._raw_ILContainer[MOVED_VIEWS];\n }\n get host(): RElement|RComment|LView {\n return
this._raw_ILContainer[HOST];\n }\n get native(): RComment {\n return this._raw_ILContainer[NATIVE];\n }\n
 get next() {\n return toDebug(this._raw_ILContainer[NEXT]);\n }\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\nimport {Injector} from '../di';\nimport {ErrorHandler} from
'../error_handler';\nimport {DoCheck, OnChanges, OnInit} from '../interface/lifecycle_hooks';\nimport
{CUSTOM_ELEMENTS_SCHEMA, NO_ERRORS_SCHEMA,
 SchemaMetadata} from '../metadata/schema';\nimport {ViewEncapsulation} from '../metadata/view';\nimport
{validateAgainstEventAttributes, validateAgainstEventProperties} from '../sanitization/sanitization';\nimport
{Sanitizer} from '../sanitization/sanitizer';\nimport {assertDefined, assertDomNode, assertEqual,
assertGreaterThanOrEqual, assertIndexInRange, assertNotEqual, assertNotSame, assertSame, assertString} from
'../util/assert';\nimport {createNamedArrayType} from '../util/named_array_type';\nimport {initNgDevMode}
from '../util/ng_dev_mode';\nimport {normalizeDebugBindingName, normalizeDebugBindingValue} from
'../util/ng_reflect';\nimport {stringify} from '../util/stringify';\nimport {assertFirstCreatePass,
assertFirstUpdatePass, assertLContainer, assertLView, assertTNodeForLView, assertTNodeForTVView} from
'../assert';\nimport {attachPatchData} from '../context_discovery';\nimport {getFactoryDef} from
'../definition_factory';\nimport {diPublicInInjector,
 getNodeInjectable, getOrCreateNodeInjectorForNode} from '../di';\nimport {formatRuntimeError, RuntimeError,
RuntimeErrorCode} from '../error_code';\nimport {throwMultipleComponentError} from '../errors';\nimport
{executeCheckHooks, executeInitAndCheckHooks, incrementInitPhaseFlags} from '../hooks';\nimport
{CONTAINER_HEADER_OFFSET, HAS_TRANSPLANTED_VIEWS, LContainer, MOVED_VIEWS} from
'../interfaces/container';\nimport {ComponentDef, ComponentTemplate, DirectiveDef, DirectiveDefListOrFactory,
HostBindingsFunction, PipeDefListOrFactory, RenderFlags, ViewQueriesFunction} from
'../interfaces/definition';\nimport {NodeInjectorFactory} from '../interfaces/injector';\nimport {AttributeMarker,
InitialInputData, InitialInputs, LocalRefExtractor, PropertyAliases, PropertyAliasValue, TAttributes,
TConstantsOrFactory, TContainerNode, TDirectiveHostNode, TElementContainerNode, TElementNode,
TICuContainerNode, TNode, TNodeFlags, TNodeType, TProjectionNode} from '../interfaces/node';\nimport
{isProceduralRenderer, Renderer3, RendererFactory3} from '../interfaces/renderer';\nimport {RComment,
RElement, RNode, RText} from '../interfaces/renderer_dom';\nimport {SanitizerFn} from
'../interfaces/sanitization';\nimport {isComponentDef, isComponentHost, isContentQueryHost, isRootView} from
'../interfaces/type_checks';\nimport {CHILD_HEAD, CHILD_TAIL, CLEANUP, CONTEXT,
DECLARATION_COMPONENT_VIEW, DECLARATION_VIEW, FLAGS, HEADER_OFFSET, HOST,
HostBindingOpCodes, InitPhaseState, INJECTOR, LView, LViewFlags, NEXT, PARENT, RENDERER,
RENDERER_FACTORY, RootContext, RootContextFlags, SANITIZER, T_HOST, TData,
TRANSPLANTED_VIEWS_TO_REFRESH, TVIEW, TView, TViewType} from '../interfaces/view';\nimport
{assertPureTNodeType, assertTNodeType} from '../node_assert';\nimport {updateTextNode} from
'../node_manipulation';\nimport {isInlineTemplate, isNodeMatchingSelectorList} from
'../node_selector_matcher';\nimport {enterView, getBindingsEnabled, getCurrentDirectiveIndex,
getCurrentParentTNode,

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getCurrentTNode, getCurrentTNodePlaceholderOk, getSelectedIndex, isCurrentTNodeParent,
isInCheckNoChangesMode, isInI18nBlock, leaveView, setBindingIndex, setBindingRootForHostBindings,
setCurrentDirectiveIndex, setCurrentQueryIndex, setCurrentTNode, setIsInCheckNoChangesMode,
setSelectedIndex} from './state';\nimport {NO_CHANGE} from './tokens';\nimport {isAnimationProp,
mergeHostAttrs} from './util/attrs_utils';\nimport {INTERPOLATION_DELIMITER} from
'./util/misc_utils';\nimport {renderStringify, stringifyForError} from './util/stringify_utils';\nimport
{getFirstLContainer, getLViewParent, getNextLContainer} from './util/view_traversal_utils';\nimport
{getComponentLViewByIndex, getNativeByIndex, getNativeByTNode, isCreationMode, readPatchedLView,
resetPreOrderHookFlags, unwrapLView, updateTransplantedViewCount, viewAttachedToChangeDetector} from
'./util/view_utils';\n\nimport {selectIndexInternal} from './advance';\nimport {attachLContainerDebug,
attachLViewDebug, cloneToLViewFromTViewBlueprint,
cloneToTViewData, LCleanup, LViewBlueprint, MatchesArray, TCleanup, TNodeDebug, TNodeInitialInputs,
TNodeLocalNames, TViewComponents, TViewConstructor} from './lview_debug';\n\n\n/**\n * A permanent
marker promise which signifies that the current CD tree is\n * clean.\n */\nconst _CLEAN_PROMISE = (() =>
Promise.resolve(null))();\n\n/**\n * Invoke `HostBindingsFunction`s for view.\n */\n * This methods executes
`TView.hostBindingOpCodes`. It is used to execute the\n * `HostBindingsFunction`s associated with the current
`LView`.\n */\n * @param tView Current `TView`.\n */\n * @param lView Current `LView`.\n */\nexport function
processHostBindingOpCodes(tView: TView, lView: LView): void {\n const hostBindingOpCodes =
tView.hostBindingOpCodes;\n if (hostBindingOpCodes === null) return;\n try {\n for (let i = 0; i <
hostBindingOpCodes.length; i++) {\n const opCode = hostBindingOpCodes[i] as number;\n if (opCode < 0)
{\n // Negative numbers are element
indexes.\n setSelectedIndex(~opCode);\n } else {\n // Positive numbers are NumberTuple which store
bindingRootIndex and directiveIndex.\n const directiveIdx = opCode;\n const bindingRootIdx =
hostBindingOpCodes[++i] as number;\n const hostBindingFn = hostBindingOpCodes[++i] as
HostBindingsFunction<any>;\n setBindingRootForHostBindings(bindingRootIdx, directiveIdx);\n const
context = lView[directiveIdx];\n hostBindingFn(RenderFlags.Update, context);\n }\n }\n } finally {\n
setSelectedIndex(-1);\n }\n}\n\n\n/** Refreshes all content queries declared by directives in a given view
*/\nfunction refreshContentQueries(tView: TView, lView: LView): void {\n const contentQueries =
tView.contentQueries;\n if (contentQueries !== null) {\n for (let i = 0; i < contentQueries.length; i += 2) {\n
const queryStartIdx = contentQueries[i];\n const directiveDefIdx = contentQueries[i + 1];\n if
(directiveDefIdx
!==- 1) {\n const directiveDef = tView.data[directiveDefIdx] as DirectiveDef<any>;\n ngDevMode &&
assertDefined(directiveDef, 'DirectiveDef not found.);\n ngDevMode &&\n
assertDefined(directiveDef.contentQueries, 'contentQueries function should be defined');\n
setCurrentQueryIndex(queryStartIdx);\n directiveDef.contentQueries!(RenderFlags.Update,
lView[directiveDefIdx], directiveDefIdx);\n }\n }\n}\n\n\n/** Refreshes child components in the current
view (update mode). */\nfunction refreshChildComponents(hostLView: LView, components: number[]): void {\n
for (let i = 0; i < components.length; i++) {\n refreshComponent(hostLView, components[i]);\n}\n}\n\n\n/**
Renders child components in the current view (creation mode). */\nfunction renderChildComponents(hostLView:
LView, components: number[]): void {\n for (let i = 0; i < components.length; i++) {\n
renderComponent(hostLView, components[i]);\n}\n}\n\n\nexport function
createLView<T>(\n parentLView: LView|null, tView: TView, context: T|null, flags: LViewFlags, host:
RElement|null,\n tHostNode: TNode|null, rendererFactory: RendererFactory3|null, renderer: Renderer3|null,\n
sanitizer: Sanitizer|null, injector: Injector|null): LView {\n const lView =\n ngDevMode ?
cloneToLViewFromTViewBlueprint(tView) : tView.blueprint.slice() as LView;\n lView[HOST] = host;\n
lView[FLAGS] = flags | LViewFlags.CreationMode | LViewFlags.Attached | LViewFlags.FirstLViewPass;\n
resetPreOrderHookFlags(lView);\n ngDevMode && tView.declTNode && parentLView &&
assertTNodeForLView(tView.declTNode, parentLView);\n lView[PARENT] = lView[DECLARATION_VIEW] =

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parentLView;\n IView[CONTEXT] = context;\n IView[RENDERER_FACTORY] = (rendererFactory ||
parentLView && parentLView[RENDERER_FACTORY]);\n ngDevMode &&
assertDefined(IView[RENDERER_FACTORY], 'RendererFactory is required');\n IView[RENDERER] = (renderer
|| parentLView && parentLView[RENDERER]);\n ngDevMode
&& assertDefined(IView[RENDERER], 'Renderer is required');\n IView[SANITIZER] = sanitizer || parentLView
&& parentLView[SANITIZER] || null!;\n IView[INJECTOR as any] = injector || parentLView &&
parentLView[INJECTOR] || null;\n IView[T_HOST] = tHostNode;\n ngDevMode &&\n assertEquals(\n
tView.type == TViewType.Embedded ? parentLView !== null : true, true,\n 'Embedded views must have
parentLView');\n IView[DECLARATION_COMPONENT_VIEW] =\n tView.type == TViewType.Embedded ?
parentLView![DECLARATION_COMPONENT_VIEW] : IView;\n ngDevMode &&
attachLViewDebug(IView);\n return IView;\n}\n\n/**\n * Create and stores the TNode, and hooks it up to the
tree.\n * @param tView The current `TView`.\n * @param index The index at which the TNode should be saved
(null if view, since they are not\n * saved).\n * @param type The type of TNode to create\n * @param native The
native element for this node, if applicable\n * @param name The tag name of the associated native
element, if applicable\n * @param attrs Any attrs for the native element, if applicable\n */\nexport function
getOrCreateTNode(\n tView: TView, index: number, type: TNodeType.Element|TNodeType.Text, name:
string|null,\n attrs: TAttributes|null): TElementNode;\nexport function getOrCreateTNode(\n tView: TView,
index: number, type: TNodeType.Container, name: string|null,\n attrs: TAttributes|null): TContainerNode;\nexport
function getOrCreateTNode(\n tView: TView, index: number, type: TNodeType.Projection, name: null,\n attrs:
TAttributes|null): TProjectionNode;\nexport function getOrCreateTNode(\n tView: TView, index: number, type:
TNodeType.ElementContainer, name: string|null,\n attrs: TAttributes|null): TElementContainerNode;\nexport
function getOrCreateTNode(\n tView: TView, index: number, type: TNodeType.Icu, name: null,\n attrs:
TAttributes|null): TElementContainerNode;\nexport function getOrCreateTNode(\n tView: TView, index:
number, type: TNodeType,
name: string|null, attrs: TAttributes|null):\n
TElementNode&TContainerNode&TElementContainerNode&TProjectionNode&TIcuContainerNode {\n
ngDevMode && index !== 0 && // 0 are bogus nodes and they are OK. See `createContainerRef` in\n
 // `view_engine_compatibility` for additional context.\n assertGreaterThanOrEqual(index,
HEADER_OFFSET, 'TNodes can\\'t be in the LView header.);\n // Keep this function short, so that the VM will
inline it.\n ngDevMode && assertPureTNodeType(type);\n let tNode = tView.data[index] as TNode;\n if (tNode
=== null) {\n tNode = createTNodeAtIndex(tView, index, type, name, attrs);\n if (isInI18nBlock()) {\n // If
we are in i18n block then all elements should be pre declared through `Placeholder`\n // See
`TNodeType.Placeholder` and `LFrame.inI18n` for more context.\n // If the `TNode` was not pre-declared than it
means it was not mentioned which means it was\n // removed, so we mark it
as detached.\n tNode.flags |= TNodeFlags.isDetached;\n }\n } else if (tNode.type & TNodeType.Placeholder)
{\n tNode.type = type;\n tNode.value = name;\n tNode.attrs = attrs;\n const parent =
getCurrentParentTNode();\n tNode.injectorIndex = parent === null ? -1 : parent.injectorIndex;\n ngDevMode
&& assertTNodeForTView(tNode, tView);\n ngDevMode && assertEquals(index, tNode.index, 'Expecting same
index');\n } }\n setCurrentTNode(tNode, true);\n return tNode as TElementNode & TContainerNode &
TElementContainerNode & TProjectionNode &\n TIcuContainerNode;\n}\n\nexport function
createTNodeAtIndex(\n tView: TView, index: number, type: TNodeType, name: string|null, attrs:
TAttributes|null) {\n const currentTNode = getCurrentTNodePlaceholderOk();\n const isParent =
isCurrentTNodeParent();\n const parent = isParent ? currentTNode : currentTNode && currentTNode.parent;\n //
Parents cannot cross component boundaries because components will be used in multiple
places.\n const tNode = tView.data[index] =\n createTNode(tView, parent as TElementNode | TContainerNode,
type, index, name, attrs);\n // Assign a pointer to the first child node of a given view. The first node is not always
the one\n // at index 0, in case of i18n, index 0 can be the instruction `i18nStart` and the first node has\n // the index
1 or more, so we can't just check node index.\n if (tView.firstChild === null) {\n tView.firstChild = tNode;\n }\n}

```

```

if (currentTNode !== null) {\n if (isParent) {\n // FIXME(misko): This logic looks unnecessarily complicated.
 Could we simplify?\n if (currentTNode.child === null && tNode.parent !== null) {\n // We are in the same
 view, which means we are adding content node to the parent view.\n currentTNode.child = tNode;\n }\n }
 else {\n if (currentTNode.next === null) {\n // In the case of i18n the `currentTNode` may already be linked,
 in which case we don't want\n // to
 break the links which i18n created.\n currentTNode.next = tNode;\n }\n }\n return
 tNode;\n}\n\n/**\n * When elements are created dynamically after a view blueprint is created (e.g. through\n * i18nApply()), we need to adjust the blueprint for future\n * template passes.\n * @param tView `TView`\n * associated with `LView`\n * @param lView The `LView` containing the blueprint to adjust\n * @param
 numSlotsToAlloc The number of slots to alloc in the LView, should be >0\n * @param initialValue Initial value to
 store in blueprint\n */\nexport function allocExpando(\n tView: TView, lView: LView, numSlotsToAlloc:
 number, initialValue: any): number {\n if (numSlotsToAlloc === 0) return -1;\n if (ngDevMode) {\n
 assertFirstCreatePass(tView);\n assertSame(tView, lView[TVIEW], "LView` must be associated with
 `TView`!");\n assertEquals(tView.data.length, lView.length, 'Expecting LView to be same size as TView');\n
 assertEquals(\n tView.data.length, tView.blueprint.length,
 'Expecting Blueprint to be same size as TView');\n assertFirstUpdatePass(tView);\n }\n const allocIdx =
 lView.length;\n for (let i = 0; i < numSlotsToAlloc; i++) {\n lView.push(initialValue);\n
 tView.blueprint.push(initialValue);\n tView.data.push(null);\n }\n return
 allocIdx;\n}\n\n////////////////////////\n/// Render\n////////////////////////\n\n/**\n * Processes a view in the creation
 mode. This includes a number of steps in a specific order:\n * - creating view query functions (if any);\n * -
 executing a template function in the creation mode;\n * - updating static queries (if any);\n * - creating child
 components defined in a given view.\n */\nexport function renderView<T>(\n tView: TView, lView: LView, context:
 T): void {\n ngDevMode && assertEquals(isCreationMode(lView), true, 'Should be run in creation mode');\n
 enterView(lView);\n try {\n const viewQuery = tView.viewQuery;\n if (viewQuery !== null) {\n
 executeViewQueryFn(RenderFlags.Create,\n viewQuery, context);\n }\n\n // Execute a template associated with this view, if it exists. A template function
 might not be\n // defined for the root component views.\n const templateFn = tView.template;\n if (templateFn
 !== null) {\n executeTemplate(tView, lView, templateFn, RenderFlags.Create, context);\n }\n\n // This needs
 to be set before children are processed to support recursive components.\n // This must be set to false immediately
 after the first creation run because in an\n // ngFor loop, all the views will be created together before update mode
 runs and turns\n // off firstCreatePass. If we don't set it here, instances will perform directive\n // matching, etc
 again and again.\n if (tView.firstCreatePass) {\n tView.firstCreatePass = false;\n }\n\n // We resolve content
 queries specifically marked as `static` in creation mode. Dynamic\n // content queries are resolved during change
 detection (i.e. update
 mode), after embedded\n // views are refreshed (see block above).\n if (tView.staticContentQueries) {\n
 refreshContentQueries(tView, lView);\n }\n\n // We must materialize query results before child components are
 processed\n // in case a child component has projected a container. The LContainer needs\n // to exist so the
 embedded views are properly attached by the container.\n if (tView.staticViewQueries) {\n
 executeViewQueryFn(RenderFlags.Update, tView.viewQuery!, context);\n }\n\n // Render child component
 views.\n const components = tView.components;\n if (components !== null) {\n
 renderChildComponents(lView, components);\n }\n\n } catch (error) {\n // If we didn't manage to get past the
 first template pass due to\n // an error, mark the view as corrupted so we can try to recover.\n if
 (tView.firstCreatePass) {\n tView.incompleteFirstPass = true;\n }\n throw error;\n } finally {\n
 lView[FLAGS] &= ~LViewFlags.CreationMode;\n
 leaveView();\n }\n}\n\n/**\n * Processes a view in update mode. This includes a number of steps in a specific
 order:\n * - executing a template function in update mode;\n * - executing hooks;\n * - refreshing queries;\n * -
 setting host bindings;\n * - refreshing child (embedded and component) views.\n */\nexport function
 refreshView<T>(\n tView: TView, lView: LView, templateFn: ComponentTemplate<T> | null, context: T) {\n

```

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ngDevMode && assertEquals(isCreationMode(IView), false, 'Should be run in update mode');\n const flags =
IView[FLAGS];\n if ((flags & LViewFlags.Destroyed) === LViewFlags.Destroyed) return;\n enterView(IView);\n
// Check no changes mode is a dev only mode used to verify that bindings have not changed\n // since they were
assigned. We do not want to execute lifecycle hooks in that mode.\n const isInCheckNoChangesPass =
isInCheckNoChangesMode();\n try {\n resetPreOrderHookFlags(IView);\n \n setBindingIndex(tView.bindingStartIndex);\n \n if (templateFn !== null) {\n executeTemplate(tView, IView, templateFn, RenderFlags.Update, context);\n }\n \n const hooksInitPhaseCompleted =\n (flags & LViewFlags.InitPhaseStateMask) ===
InitPhaseState.InitPhaseCompleted;\n \n // execute pre-order hooks (OnInit, OnChanges, DoCheck)\n // PERF
WARNING: do NOT extract this to a separate function without running benchmarks\n if
(!isInCheckNoChangesPass) {\n if (hooksInitPhaseCompleted) {\n const preOrderCheckHooks =
tView.preOrderCheckHooks;\n if (preOrderCheckHooks !== null) {\n executeCheckHooks(IView,
preOrderCheckHooks, null);\n }\n } else {\n const preOrderHooks = tView.preOrderHooks;\n if
(preOrderHooks !== null) {\n executeInitAndCheckHooks(IView, preOrderHooks,
InitPhaseState.OnInitHooksToBeRun, null);\n }\n incrementInitPhaseFlags(IView,
InitPhaseState.OnInitHooksToBeRun);\n }\n }\n \n // First mark transplanted
views that are declared in this IView as needing a refresh at their\n // insertion points. This is needed to avoid the
situation where the template is defined in this\n // `LView` but its declaration appears after the insertion
component.\n markTransplantedViewsForRefresh(IView);\n refreshEmbeddedViews(IView);\n \n // Content
query results must be refreshed before content hooks are called.\n if (tView.contentQueries !== null) {\n \n
refreshContentQueries(tView, IView);\n }\n \n // execute content hooks (AfterContentInit,
AfterContentChecked)\n // PERF WARNING: do NOT extract this to a separate function without running
benchmarks\n if (!isInCheckNoChangesPass) {\n if (hooksInitPhaseCompleted) {\n const
contentCheckHooks = tView.contentCheckHooks;\n if (contentCheckHooks !== null) {\n \n
executeCheckHooks(IView, contentCheckHooks);\n }\n } else {\n const contentHooks =
tView.contentHooks;\n if (contentHooks
!== null) {\n executeInitAndCheckHooks(\n IView, contentHooks,
InitPhaseState.AfterContentInitHooksToBeRun);\n }\n incrementInitPhaseFlags(IView,
InitPhaseState.AfterContentInitHooksToBeRun);\n }\n }\n \n processHostBindingOpCodes(tView,
IView);\n \n // Refresh child component views.\n const components = tView.components;\n if (components !==
null) {\n refreshChildComponents(IView, components);\n }\n \n // View queries must execute after refreshing
child components because a template in this view\n // could be inserted in a child component. If the view query
executes before child component\n // refresh, the template might not yet be inserted.\n const viewQuery =
tView.viewQuery;\n if (viewQuery !== null) {\n executeViewQueryFn(RenderFlags.Update, viewQuery,
context);\n }\n \n // execute view hooks (AfterViewInit, AfterViewChecked)\n // PERF WARNING: do NOT
extract this to a separate function without
running benchmarks\n if (!isInCheckNoChangesPass) {\n if (hooksInitPhaseCompleted) {\n const
viewCheckHooks = tView.viewCheckHooks;\n if (viewCheckHooks !== null) {\n \n
executeCheckHooks(IView, viewCheckHooks);\n }\n } else {\n const viewHooks =
tView.viewHooks;\n if (viewHooks !== null) {\n executeInitAndCheckHooks(IView, viewHooks,
InitPhaseState.AfterViewInitHooksToBeRun);\n }\n incrementInitPhaseFlags(IView,
InitPhaseState.AfterViewInitHooksToBeRun);\n }\n }\n \n if (tView.firstUpdatePass === true) {\n // We
need to make sure that we only flip the flag on successful `refreshView` only\n // Don't do this in `finally`
block.\n // If we did this in `finally` block then an exception could block the execution of styling\n //
instructions which in turn would be unable to insert themselves into the styling linked\n // list. The result of this
would be that if the exception
would not be throw on subsequent CD\n // the styling would be unable to process it data and reflect to the
DOM.\n tView.firstUpdatePass = false;\n }\n \n // Do not reset the dirty state when running in check no

```

```
changes mode. We don't want components\n // to behave differently depending on whether check no changes is enabled or not. For example:\n // Marking an OnPush component as dirty from within the `ngAfterViewInit` hook in order to\n // refresh a `NgClass` binding should work. If we would reset the dirty state in the check\n // no changes cycle, the component would be not be dirty for the next update pass. This would\n // be different in production mode where the component dirty state is not reset.\n if (!isInCheckNoChangesPass) {\n IView[FLAGS] &= ~(LViewFlags.Dirty | LViewFlags.FirstLViewPass);\n }\n if (IView[FLAGS] & LViewFlags.RefreshTransplantedView) {\n IView[FLAGS] &= ~LViewFlags.RefreshTransplantedView;\n updateTransplantedViewCount(IView[PARENT]\n as LContainer, -1);\n }\n } finally {\n leaveView();\n }\n}\n\nexport function renderComponentOrTemplate<T>(\n tView: TView, IView: LView, templateFn: ComponentTemplate<{}>|null,\n context: T) {\n const rendererFactory = IView[RENDERER_FACTORY];\n const normalExecutionPath = !isInCheckNoChangesMode();\n const creationModeIsActive = isCreationMode(IView);\n try {\n if (normalExecutionPath && !creationModeIsActive && rendererFactory.begin) {\n rendererFactory.begin();\n }\n if (creationModeIsActive) {\n renderView(tView, IView, context);\n }\n refreshView(tView, IView, templateFn, context);\n } finally {\n if (normalExecutionPath && !creationModeIsActive && rendererFactory.end) {\n rendererFactory.end();\n }\n }\n}\n\nfunction executeTemplate<T>(\n tView: TView, IView: LView, templateFn: ComponentTemplate<T>, rf: RenderFlags, context: T) {\n const prevSelectedIndex = getSelectedIndex();\n try {\n setSelectedIndex(-1);\n if (rf & RenderFlags.Update && IView.length > HEADER_OFFSET) {\n // When we're updating, inherently select 0 so we don't\n // have to generate that instruction for most update blocks.\n selectIndexInternal(tView, IView, HEADER_OFFSET, isInCheckNoChangesMode());\n }\n templateFn(rf, context);\n } finally {\n setSelectedIndex(prevSelectedIndex);\n }\n}\n\n// Element //\nexport function executeContentQueries(tView: TView, tNode: TNode, IView: LView) {\n if (isContentQueryHost(tNode)) {\n const start = tNode.directiveStart;\n const end = tNode.directiveEnd;\n for (let directiveIndex = start; directiveIndex < end; directiveIndex++) {\n const def = tView.data[directiveIndex] as DirectiveDef<any>;\n if (def.contentQueries) {\n def.contentQueries(RenderFlags.Create, IView[directiveIndex], directiveIndex);\n }\n }\n }\n}\n\n/**\n * Creates directive instances.\n *\n */\nexport function createDirectivesInstances(tView: TView, IView: LView, tNode: TDirectiveHostNode) {\n if (!getBindingsEnabled()) return;\n instantiateAllDirectives(tView, IView, tNode, getNativeByTNode(tNode, IView));\n if ((tNode.flags & TNodeFlags.hasHostBindings) === TNodeFlags.hasHostBindings) {\n invokeDirectivesHostBindings(tView, IView, tNode);\n }\n}\n\n/**\n * Takes a list of local names and indices and pushes the resolved local variable values\n * to LView in the same order as they are loaded in the template with load().\n */\nexport function saveResolvedLocalsInData(\n viewData: LView, tNode: TDirectiveHostNode,\n localRefExtractor: LocalRefExtractor = getNativeByTNode): void {\n const localNames = tNode.localNames;\n if (localNames !== null) {\n let localIndex = tNode.index + 1;\n for (let i = 0; i < localNames.length; i += 2) {\n const index = localNames[i + 1] as number;\n const value = index === -1 ?\n localRefExtractor(\n tNode as TElementNode | TContainerNode | TElementContainerNode, viewData) :\n viewData[index];\n viewData[localIndex++] = value;\n }\n }\n}\n\n/**\n * Gets TView from a template function or creates a new TView\n * if it doesn't already exist.\n */\n@param def ComponentDef\n * @returns TView\n */\nexport function getOrCreateTComponentView(def: ComponentDef<any>): TView {\n const tView = def.tView;\n // Create a TView if there isn't one, or recreate it if the first create pass didn't\n // complete successfully since we can't know for sure whether it's in a usable shape.\n if (tView === null || tView.incompleteFirstPass) {\n // Declaration node here is null since this function is called when we dynamically create a\n // component and hence there is no declaration.\n const declTNode = null;\n return def.tView = createTView(\n TViewType.Component, declTNode, def.template, def.decls, def.vars, def.directiveDefs,\n def.pipeDefs, def.viewQuery, def.schemas, def.consts);\n }\n return tView;\n}\n\n/**\n * Creates a TView instance\n */\n@param type Type of `TView`\n * @param declTNode Declaration location of this `TView`\n *
```

```

@param templateFn Template function\n * @param decls The number of nodes, local refs, and pipes in this
template\n * @param directives Registry of directives for this view\n * @param pipes Registry of pipes for this
view\n * @param viewQuery View queries for this view\n * @param schemas Schemas for this view\n * @param
consts Constants for this view\n * ^\nexport function createTView(\n type: TViewType, declTNode: TNode|null,
templateFn: ComponentTemplate<any>|null, decls: number,\n vars: number, directives:
DirectiveDefListOrFactory|null, pipes: PipeDefListOrFactory|null,\n viewQuery:
ViewQueriesFunction<any>|null, schemas: SchemaMetadata[]|null,\n constsOrFactory:
TConstantsOrFactory|null): TView {\n ngDevMode && ngDevMode.tView++;\n const bindingStartIndex
= HEADER_OFFSET + decls;\n // This length does not yet contain host bindings from child directives because at
this point,\n // we don't know which directives are active on this template. As soon as a directive is matched\n //
that has a host binding, we will update the blueprint with that def's hostVars count.\n const initialViewLength =
bindingStartIndex + vars;\n const blueprint = createViewBlueprint(bindingStartIndex, initialViewLength);\n const
consts = typeof constsOrFactory === 'function' ? constsOrFactory() : constsOrFactory;\n const tView =
blueprint[TVIEW as any] = ngDevMode ?\n new TViewConstructor(\n type, // type: TViewType,\n blueprint, // blueprint: LView,\n templateFn, // template: ComponentTemplate<{}>|null,\n null, //
queries: TQueries|null\n viewQuery, // viewQuery: ViewQueriesFunction<{}>|null,\n declTNode, //
declTNode: TNode|null,\n cloneToTViewData(blueprint).fill(null,
bindingStartIndex), // data: TData,\n bindingStartIndex, // bindingStartIndex:
number,\n initialViewLength, // expandoStartIndex: number,\n null,
// hostBindingOpCodes: HostBindingOpCodes,\n true, // firstCreatePass: boolean,\n
true, // firstUpdatePass: boolean,\n false, // staticViewQueries:
boolean,\n false, // staticContentQueries: boolean,\n null, //
preOrderHooks: HookData|null,\n null, // preOrderCheckHooks: HookData|null,\n
null, // contentHooks: HookData|null,\n null, // contentCheckHooks:
HookData|null,\n null,
// viewHooks: HookData|null,\n null, // viewCheckHooks: HookData|null,\n
null, // destroyHooks: DestroyHookData|null,\n null, // cleanup:
any[]|null,\n null, // contentQueries: number[]|null,\n null, //
components: number[]|null,\n typeof directives === 'function' ? /\n directives() : /\n
directives, // directiveRegistry: DirectiveDefList|null,\n typeof pipes === 'function' ? pipes() :
pipes, // pipeRegistry: PipeDefList|null,\n null, // firstChild: TNode|null,\n
schemas, // schemas: SchemaMetadata[]|null,\n consts, //
consts: TConstants|null\n false, // incompleteFirstPass: boolean\n decls, //
ngDevMode only: decls\n vars, // ngDevMode only: vars\n) : \n {\n
type: type,\n blueprint: blueprint,\n template: templateFn,\n queries: null,\n viewQuery:
viewQuery,\n declTNode: declTNode,\n data: blueprint.slice().fill(null, bindingStartIndex),\n
bindingStartIndex: bindingStartIndex,\n expandoStartIndex: initialViewLength,\n hostBindingOpCodes:
null,\n firstCreatePass: true,\n firstUpdatePass: true,\n staticViewQueries: false,\n
staticContentQueries: false,\n preOrderHooks: null,\n preOrderCheckHooks: null,\n contentHooks:
null,\n contentCheckHooks: null,\n viewHooks: null,\n viewCheckHooks: null,\n destroyHooks:
null,\n
 cleanup: null,\n contentQueries: null,\n components: null,\n directiveRegistry: typeof directives
=== 'function' ? directives() : directives,\n pipeRegistry: typeof pipes === 'function' ? pipes() : pipes,\n
firstChild: null,\n schemas: schemas,\n consts: consts,\n incompleteFirstPass: false\n };\n if
(ngDevMode) {\n // For performance reasons it is important that the tView retains the same shape during
runtime.\n // (To make sure that all of the code is monomorphic.) For this reason we seal the object to\n //
prevent class transitions.\n Object.seal(tView);\n }\n return tView;\n}\n\nfunction

```

```

createViewBlueprint(bindingStartIndex: number, initialViewLength: number): LView {\n const blueprint =
ngDevMode ? new LViewBlueprint() : [];\n for (let i = 0; i < initialViewLength; i++) {\n blueprint.push(i <
bindingStartIndex ? null : NO_CHANGE);\n }\n return blueprint as LView;\n}\n\nfunction createError(text:
string, token: any) {\n return new Error(`Renderer: ${text} [${stringifyForError(token)}]`);\n}\n\nfunction
assertHostNodeExists(rElement: RElement, elementOrSelector: RElement|string) {\n if (!rElement) {\n if (typeof
elementOrSelector === 'string') {\n throw createError('Host node with selector not found.', elementOrSelector);\n
 } else {\n throw createError('Host node is required.', elementOrSelector);\n }\n }\n}\n\n// Locates the
host native element, used for bootstrapping existing nodes into rendering pipeline.\n * @param rendererFactory
Factory function to create renderer instance.\n * @param elementOrSelector Render element or CSS selector to
locate the element.\n * @param encapsulation View Encapsulation defined for component that requests host
element.\n */\n\nexport function locateHostElement(\n renderer: Renderer3, elementOrSelector: RElement|string,\n encapsulation: ViewEncapsulation): RElement {\n if (isProceduralRenderer(renderer))\n {\n // When using native Shadow DOM, do not clear host element to allow native slot projection\n const
preserveContent = encapsulation === ViewEncapsulation.ShadowDom;\n return
renderer.selectRootElement(elementOrSelector, preserveContent);\n }\n let rElement = typeof elementOrSelector
=== 'string' ?\n renderer.querySelector(elementOrSelector)! : elementOrSelector;\n ngDevMode &&
assertHostNodeExists(rElement, elementOrSelector);\n\n // Always clear host element's content when Renderer3 is
in use. For procedural renderer case we\n // make it depend on whether ShadowDom encapsulation is used (in
which case the content should be\n // preserved to allow native slot projection). ShadowDom encapsulation requires
procedural\n // renderer, and procedural renderer case is handled above.\n rElement.textContent = '';\n return
rElement;\n }\n}\n\n// Saves context for this cleanup function in LView.cleanupInstances.\n * On the first
template pass, saves in
TVView.\n * - Cleanup function\n * - Index of context we just saved in LView.cleanupInstances\n */\n\nexport
function storeCleanupWithContext(\n tView: TVView, lView: LView, context: any, cleanupFn: Function): void {\n
const lCleanup = getLCleanup(lView);\n lCleanup.push(context);\n if (tView.firstCreatePass) {\n
getTVViewCleanup(tView).push(cleanupFn, lCleanup.length - 1);\n }\n}\n}\n\n// Constructs a TNode object from
the arguments.\n * @param tView `TVView` to which this `TNode` belongs (used only in `ngDevMode`)\n *
@param tParent Parent `TNode`\n * @param type The type of the node\n * @param index The index of the TNode
in TVView.data, adjusted for HEADER_OFFSET\n * @param tagName The tag name of the node\n * @param attrs
The attributes defined on this node\n * @param tViews Any TVViews attached to this node\n * @returns the TNode
object\n */\n\nexport function createTNode(\n tView: TVView, tParent: TElementNode|TContainerNode|null, type:
TNodeType.Container,\n index:
number, tagName: string|null, attrs: TAttributes|null): TContainerNode;\n\nexport function createTNode(\n tView:
TVView, tParent: TElementNode|TContainerNode|null, type: TNodeType.Element|TNodeType.Text,\n index:
number, tagName: string|null, attrs: TAttributes|null): TElementNode;\n\nexport function createTNode(\n tView:
TVView, tParent: TElementNode|TContainerNode|null, type: TNodeType.ElementContainer,\n index: number,
tagName: string|null, attrs: TAttributes|null): TElementContainerNode;\n\nexport function createTNode(\n tView:
TVView, tParent: TElementNode|TContainerNode|null, type: TNodeType.Icu, index: number,\n tagName:
string|null, attrs: TAttributes|null): TIcuContainerNode;\n\nexport function createTNode(\n tView: TVView, tParent:
TElementNode|TContainerNode|null, type: TNodeType.Projection,\n index: number, tagName: string|null, attrs:
TAttributes|null): TProjectionNode;\n\nexport function createTNode(\n tView: TVView, tParent:
TElementNode|TContainerNode|null,
type: TNodeType, index: number,\n tagName: string|null, attrs: TAttributes|null): TNode;\n\nexport function
createTNode(\n tView: TVView, tParent: TElementNode|TContainerNode|null, type: TNodeType, index: number,\n
value: string|null, attrs: TAttributes|null): TNode {\n ngDevMode && index !== 0 && // 0 are bogus nodes and
they are OK. See `createContainerRef` in\n\n // `view_engine_compatibility` for additional
context.\n assertGreaterThanOrEqual(index, HEADER_OFFSET, 'TNodes can\\'t be in the LView header.);\n ngDevMode &&
assertNotSame(attrs, undefined, '\\`undefined\\` is not valid value for \\`attrs\\`');\n ngDevMode &&

```



```

ngDevMode.tNode++;
ngDevMode && tParent && assertTNodeForTView(tParent, tView);
let injectorIndex = tParent ? tParent.injectorIndex : -1;
const tNode = ngDevMode ? new TNodeDebug(tView, //
tView_: TView, // type: TNodeType, // index:
number, // insertBeforeIndex: null|-1|number, // injectorIndex:
number, // directiveStart: number, // directiveEnd: number, //
directiveStylingLast: number, // propertyBindings: number[]|null, // flags:
TNodeFlags, // providerIndexes: TNodeProviderIndexes, // value: string|null,
attrs, // attrs: (string|AttributeMarker|(string|SelectorFlags)[])|null, // mergedAttrs:
null, // localNames: (string|number[])|null, // initialInputs:
(string[]|null)|null|undefined, // inputs: PropertyAliases|null, // outputs:
PropertyAliases|null, // tViews: ITView|ITView[]|null,
// next: ITNode|null, // projectionNext: ITNode|null, // child: ITNode|null,
tParent, // parent: TElementNode|TContainerNode|null, // projection:
number|(ITNode|RNode[])|null, // styles: string|null, // stylesWithoutHost:
string|null, // residualStyles: string|null, // classes: string|null,
// classesWithoutHost: string|null, // residualClasses: string|null,
// 0 as any, //
classBindings: TStylingRange, // 0 as any, // styleBindings: TStylingRange, //) : { type,
index, // insertBeforeIndex: null, // injectorIndex, // directiveStart: -1, // directiveEnd: -1,
directiveStylingLast: -1, // propertyBindings: null, // flags: 0,
providerIndexes: 0, // value: value, // attrs: attrs, // mergedAttrs: null, // localNames: null,
initialInputs: undefined, // inputs: null, // outputs: null, // tViews: null, // next: null,
projectionNext: null, // child: null, // parent: tParent, // projection: null, // styles: null,
stylesWithoutHost: null, // residualStyles: undefined, // classes: null, // classesWithoutHost: null,
residualClasses: undefined, // classBindings: 0 as any, // styleBindings: 0 as any, // };
if (ngDevMode) {
// For performance reasons it is important that the tNode retains the same shape during runtime.
// (To make sure that all of the code is monomorphic.) For this reason we seal the object to prevent class
transitions.
Object.seal(tNode);
}
return tNode;
}

function generatePropertyAliases(inputAliasMap: {[publicName:
string]: string}, directiveDefIdx: number, propStore: PropertyAliases|null): PropertyAliases|null {
for (let publicName in inputAliasMap) {
if (inputAliasMap.hasOwnProperty(publicName)) {
propStore =
propStore === null ? {} : propStore;
const internalName = inputAliasMap[publicName];
if (propStore.hasOwnProperty(publicName)) {
propStore[publicName].push(directiveDefIdx, internalName);
} else {
propStore[publicName] = [directiveDefIdx, internalName];
}
}
}
return propStore;
}

// Initializes data structures required to work with directive inputs and outputs.
// Initialization is done for all directives matched on a given TNode.
function initializeInputAndOutputAliases(tView: TView, tNode: TNode): void {
ngDevMode &&
assertFirstCreatePass(tView);
const start = tNode.directiveStart;
const end = tNode.directiveEnd;
const tViewData = tView.data;
const tNodeAttrs = tNode.attrs;

const inputsFromAttrs: InitialInputData = ngDevMode ? new TNodeInitialInputs() : [];
let inputsStore: PropertyAliases|null = null;
let outputsStore: PropertyAliases|null = null;
for (let i = start; i < end; i++) {
const directiveDef = tViewData[i] as DirectiveDef<any>;
const directiveInputs = directiveDef.inputs;
// Do not use unbound attributes as inputs to structural directives, since structural
// directive inputs can only be set using microsyntax (e.g. `<div *dir="exp">`).
// TODO(FW-1930): microsyntax expressions may also contain unbound/static attributes, which
// should be set for inline templates.
const initialInputs = (tNodeAttrs !== null && !isInlineTemplate(tNode)) ? generateInitialInputs(directiveInputs, tNodeAttrs) : null;
inputsFromAttrs.push(initialInputs);
inputsStore = generatePropertyAliases(directiveInputs, i, inputsStore);
outputsStore = generatePropertyAliases(directiveDef.outputs,

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i, outputsStore);\n }\n\n if (inputsStore !== null) {\n if (inputsStore.hasOwnProperty('class')) {\n tNode.flags
|= TNodeFlags.hasClassInput;\n }\n if (inputsStore.hasOwnProperty('style')) {\n tNode.flags |=
TNodeFlags.hasStyleInput;\n }\n }\n\n tNode.initialInputs = inputsFromAttrs;\n tNode.inputs = inputsStore;\n
tNode.outputs = outputsStore;\n }\n\n/**\n * Mapping between attributes names that don't correspond to their
element property names.\n */\n * Performance note: this function is written as a series of if checks (instead of, say, a
property\n * object lookup) for performance reasons - the series of `if` checks seems to be the fastest way of\n *
mapping property names. Do NOT change without benchmarking.\n */\n * Note: this mapping has to be kept in sync
with the equally named mapping in the template\n * type-checking machinery of ngts.\n */\n\nfunction
mapPropName(name: string): string {\n if (name === 'class') return 'className';\n if (name === 'for')
return 'htmlFor';\n if (name === 'formaction') return 'formAction';\n if (name === 'innerHTML') return
'innerHTML';\n if (name === 'readonly') return 'readOnly';\n if (name === 'tabindex') return 'tabIndex';\n return
name;\n}\n\n\nexport function elementPropertyInternal<T>(\n tView: TView, tNode: TNode, IView: LView,\n propName: string, value: T, renderer: Renderer3,\n sanitizer: SanitizerFn|null|undefined, nativeOnly: boolean):\n void {\n ngDevMode && assertNotSame(value, NO_CHANGE as any, 'Incoming value should never be
NO_CHANGE.);\n const element = getNativeByTNode(tNode, IView) as RElement | RComment;\n let inputData
= tNode.inputs;\n let dataValue: PropertyAliasValue|undefined;\n if (!nativeOnly && inputData !== null &&
(dataValue = inputData[propName])) {\n setInputsForProperty(tView, IView, dataValue, propName, value);\n if
(isComponentHost(tNode)) markDirtyIfOnPush(IView, tNode.index);\n if (ngDevMode) {\n
setNgReflectProperties(IView, element, tNode.type,\n dataValue, value);\n }\n } else if (tNode.type & TNodeType.AnyRNode) {\n propName =
mapPropName(propName);\n if (ngDevMode) {\n validateAgainstEventProperties(propName);\n if
(!validateProperty(tView, element, propName, tNode)) {\n // Return here since we only log warnings for
unknown properties.\n logUnknownPropertyError(propName, tNode);\n return;\n }\n }\n ngDevMode.rendererSetProperty++;\n }\n // It is assumed that the sanitizer is only added when the compiler
determines that the\n // property is risky, so sanitization can be done without further checks.\n value = sanitizer
!= null ? (sanitizer(value, tNode.value || "", propName) as any) : value;\n if (isProceduralRenderer(renderer)) {\n
renderer.setProperty(element as RElement, propName, value);\n } else if (!isAnimationProp(propName)) {\n
(element as RElement).setProperty ? (element as any).setProperty(propName, value) :\n
 (element as any)[propName] = value;\n }\n } else if (tNode.type & TNodeType.AnyContainer) {\n
// If the node is a container and the property didn't\n // match any of the inputs or schemas we should throw.\n if
(ngDevMode && !matchingSchemas(tView, tNode.value)) {\n logUnknownPropertyError(propName, tNode);\n }\n }\n }\n\n /** If node is an OnPush component, marks its LView dirty. */\n\nfunction markDirtyIfOnPush(IView:
LView, viewIndex: number): void {\n ngDevMode && assertLView(IView);\n const childComponentLView =
getComponentLViewByIndex(viewIndex, IView);\n if (!(childComponentLView[FLAGS] &
LViewFlags.CheckAlways)) {\n childComponentLView[FLAGS] |= LViewFlags.Dirty;\n }\n}\n\nfunction
setNgReflectProperty(\n IView: LView, element: RElement|RComment, type: TNodeType, attrName: string,\n value: any) {\n const renderer = IView[RENDERER];\n attrName = normalizeDebugBindingName(attrName);\n const debugValue = normalizeDebugBindingValue(value);\n\n if (type & TNodeType.AnyRNode) {\n if (value == null) {\n isProceduralRenderer(renderer) ?
renderer.removeAttribute((element as RElement), attrName) :\n
 (element as RElement).removeAttribute(attrName);\n } else {\n isProceduralRenderer(renderer) ?\n
renderer.setAttribute((element as RElement), attrName, debugValue) :\n
 (element as RElement).setAttribute(attrName, debugValue);\n }\n } else {\n const textContent =
`bindings=${JSON.stringify({[attrName]: debugValue}, null, 2)} `;\n if (isProceduralRenderer(renderer)) {\n
renderer.setValue((element as RComment), textContent);\n } else {\n (element as RComment).textContent =
textContent;\n }\n }\n}\n\n\nexport function setNgReflectProperties(\n IView: LView, element:
RElement|RComment, type: TNodeType, dataValue: PropertyAliasValue,\n value: any) {\n if (type &
(TNodeType.AnyRNode | TNodeType.Container)) {\n /**\n * dataValue

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is an array containing runtime input or output names for the directives:\n * i+0: directive instance index\n *
i+1: privateName\n *\n * e.g. [0, 'change', 'change-minified']\n * we want to set the reflected property with
the privateName: dataValue[i+1]\n *\n for (let i = 0; i < dataValue.length; i += 2) {\n
setNgReflectProperty(IView, element, type, dataValue[i + 1] as string, value);\n }\n }\n}\n\nfunction
validateProperty(\n tView: TView, element: RElement|RComment, propName: string, tNode: TNode): boolean {\n
// If `schemas` is set to `null`, that's an indication that this Component was compiled in AOT\n // mode where this
check happens at compile time. In JIT mode, `schemas` is always present and\n // defined as an array (as an empty
array in case `schemas` field is not defined) and we should\n // execute the check below.\n if (tView.schemas ===
null) return true;\n\n // The property is considered valid if the element matches the schema,
it exists on the element\n // or it is synthetic, and we are in a browser context (web worker nodes should be
skipped).\n if (matchingSchemas(tView, tNode.value) || propName in element || isAnimationProp(propName)) {\n
return true;\n }\n\n // Note: `typeof Node` returns 'function' in most browsers, but on IE it is 'object' so we\n // need
to account for both here, while being careful for `typeof null` also returning 'object'.\n return typeof Node ===
'undefined' || Node === null || !(element instanceof Node);\n}\n\nexport function matchingSchemas(tView: TView,
tagName: string|null): boolean {\n const schemas = tView.schemas;\n\n if (schemas !== null) {\n for (let i = 0; i
< schemas.length; i++) {\n const schema = schemas[i];\n if (schema === NO_ERRORS_SCHEMA ||\n
schema === CUSTOM_ELEMENTS_SCHEMA && tagName && tagName.indexOf('-') > -1) {\n return
true;\n }\n }\n }\n\n return false;\n}\n\n/**\n * Logs an error that a property is not
supported on an element.\n * @param propName Name of the invalid property.\n * @param tNode Node on which
we encountered the property.\n */\nfunction logUnknownPropertyError(propName: string, tNode: TNode): void {\n
let message = `Can't bind to '${propName}' since it isn't a known property of '${tNode.value}'.`;\n
console.error(formatRuntimeError(RuntimeErrorCode.UNKNOWN_BINDING, message));\n}\n\n/**\n *
Instantiate a root component.\n */\nexport function instantiateRootComponent<T>(tView: TView, IView: LView,
def: ComponentDef<T>): T {\n const rootTNode = getCurrentTNode();\n if (tView.firstCreatePass) {\n if
(def.providersResolver) def.providersResolver(def);\n const directiveIndex = allocExpando(tView, IView, 1,
null);\n ngDevMode &&\n assertEquals(\n directiveIndex, rootTNode.directiveStart,\n 'Because
this is a root component the allocated expando should match the TNode component.);\n
configureViewWithDirective(tView, rootTNode, IView,
directiveIndex, def);\n }\n const directive =\n getNodeInjectable(IView, tView, rootTNode.directiveStart,
rootTNode as TElementNode);\n attachPatchData(directive, IView);\n const native =
getNativeByTNode(rootTNode, IView);\n if (native) {\n attachPatchData(native, IView);\n }\n return
directive;\n}\n\n/**\n * Resolve the matched directives on a node.\n */\nexport function resolveDirectives(\n
tView: TView, IView: LView, tNode: TElementNode|TContainerNode|TElementContainerNode,\n localRefs:
string[]|null): boolean {\n // Please make sure to have explicit type for `exportsMap`. Inferred type triggers bug in\n
// tsickle.\n ngDevMode && assertFirstCreatePass(tView);\n let hasDirectives = false;\n if
(getBindingsEnabled()) {\n const directiveDefs: DirectiveDef<any>[]|null = findDirectiveDefMatches(tView,
IView, tNode);\n const exportsMap: ({[key: string]: number}|null) = localRefs === null ? null : {'': -1};\n if
(directiveDefs !== null) {\n hasDirectives
= true;\n initTNodeFlags(tNode, tView.data.length, directiveDefs.length);\n // When the same token is
provided by several directives on the same node, some rules apply in\n // the viewEngine:\n // - viewProviders
have priority over providers\n // - the last directive in NgModule.declarations has priority over the previous one\n
 // So to match these rules, the order in which providers are added in the arrays is very\n // important.\n for
(let i = 0; i < directiveDefs.length; i++) {\n const def = directiveDefs[i];\n if (def.providersResolver)
def.providersResolver(def);\n }\n let preOrderHooksFound = false;\n let preOrderCheckHooksFound =
false;\n let directiveIdx = allocExpando(tView, IView, directiveDefs.length, null);\n ngDevMode &&\n
assertSame(\n directiveIdx, tNode.directiveStart,\n 'TNode.directiveStart should point to just
allocated space');\n for

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 (let i = 0; i < directiveDefs.length; i++) {\n const def = directiveDefs[i];\n // Merge the attrs in the order of
matches. This assumes that the first directive is the\n // component itself, so that the component has the least
priority.\n tNode.mergedAttrs = mergeHostAttrs(tNode.mergedAttrs, def.hostAttrs);\n configureViewWithDirective(tView, tNode, IView, directiveIdx, def);\n saveNameToExportMap(directiveIdx,
def, exportsMap);\n if (def.contentQueries !== null) tNode.flags |= TNodeFlags.hasContentQuery;\n if
(def.hostBindings !== null || def.hostAttrs !== null || def.hostVars !== 0)\n tNode.flags |=
TNodeFlags.hasHostBindings;\n const lifeCycleHooks: OnChanges&OnInit&DoCheck =
def.type.prototype;\n // Only push a node index into the preOrderHooks array if this is the first\n // pre-
order hook found on this node.\n if (!preOrderHooksFound &&\n (lifeCycleHooks.ngOnChanges ||
lifeCycleHooks.ngOnInit
|| lifeCycleHooks.ngDoCheck)) {\n // We will push the actual hook function into this array later during dir
instantiation.\n // We cannot do it now because we must ensure hooks are registered in the same\n // order
that directives are created (i.e. injection order).\n (tView.preOrderHooks || (tView.preOrderHooks =
[])).push(tNode.index);\n preOrderHooksFound = true;\n }\n if (!preOrderCheckHooksFound &&
(lifeCycleHooks.ngOnChanges || lifeCycleHooks.ngDoCheck)) {\n (tView.preOrderCheckHooks ||
(tView.preOrderCheckHooks = [])).push(tNode.index);\n preOrderCheckHooksFound = true;\n }\n directiveIdx++;\n }\n initializeInputAndOutputAliases(tView, tNode);\n }\n if (exportsMap)
cacheMatchingLocalNames(tNode, localRefs, exportsMap);\n }\n // Merge the template attrs last so that they have
the highest priority.\n tNode.mergedAttrs = mergeHostAttrs(tNode.mergedAttrs,
tNode.attrs);\n return hasDirectives;\n }\n /**\n * Add `hostBindings` to the `TView.hostBindingOpCodes`\n * @param tView `TView` to which the `hostBindings` should be added.\n * @param tNode `TNode` the element
which contains the directive\n * @param IView `LView` current `LView`\n * @param directiveIdx Directive index
in view.\n * @param directiveVarsIdx Where will the directive's vars be stored\n * @param def
`ComponentDef`/`DirectiveDef`, which contains the `hostVars`/`hostBindings` to add.\n */\n export function
registerHostBindingOpCodes(\n tView: TView, tNode: TNode, IView: LView, directiveIdx: number,
directiveVarsIdx: number,\n def: ComponentDef<any>|DirectiveDef<any>): void {\n ngDevMode &&
assertFirstCreatePass(tView);\n const hostBindings = def.hostBindings;\n if (hostBindings) {\n let
hostBindingOpCodes = tView.hostBindingOpCodes;\n if (hostBindingOpCodes === null) {\n
hostBindingOpCodes = tView.hostBindingOpCodes = [] as any as HostBindingOpCodes;\n
 }\n const elementIdx = ~tNode.index;\n if (lastSelectedElementIdx(hostBindingOpCodes) !== elementIdx)
{\n // Conditionally add select element so that we are more efficient in execution.\n // NOTE: this is strictly
not necessary and it trades code size for runtime perf.\n // (We could just always add it.)\n
hostBindingOpCodes.push(elementIdx);\n }\n hostBindingOpCodes.push(directiveIdx, directiveVarsIdx,
hostBindings);\n }\n }\n /**\n * Returns the last selected element index in the `HostBindingOpCodes`\n * @param hostBindingOpCodes `HostBindingOpCodes`\n * @param For
perf reasons we don't need to update the selected element index in `HostBindingOpCodes` only\n * if it changes.
This method returns the last index (or '0' if not found.)\n * @param Selected element index are only the ones which are
negative.\n */\n function lastSelectedElementIdx(hostBindingOpCodes: HostBindingOpCodes): number {\n let i =
hostBindingOpCodes.length;\n while (i > 0) {\n const value = hostBindingOpCodes[--i];\n
 if (typeof value === 'number' && value < 0) {\n return value;\n }\n }\n return 0;\n }\n /**\n * Instantiate
all the directives that were previously resolved on the current node.\n */\n function instantiateAllDirectives(\n
tView: TView, IView: LView, tNode: TDirectiveHostNode, native: RNode) {\n const start = tNode.directiveStart;\n
 const end = tNode.directiveEnd;\n if (!tView.firstCreatePass) {\n getOrCreateNodeInjectorForNode(tNode,
IView);\n }\n attachPatchData(native, IView);\n const initialInputs = tNode.initialInputs;\n for (let i = start; i <
end; i++) {\n const def = tView.data[i] as DirectiveDef<any>;\n const isComponent = isComponentDef(def);\n
 if (isComponent) {\n ngDevMode && assertTNodeType(tNode, TNodeType.AnyRNode);\n
 addComponentLogic(IView, tNode as TElementNode, def as ComponentDef<any>);\n }\n const directive =
getNodeInjectable(IView, tView, i, tNode);\n attachPatchData(directive, IView);\n if (initialInputs

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 !== null) {\n setInputsFromAttrs(IView, i - start, directive, def, tNode, initialInputs!);\n }\n\n if
(isComponent) {\n const componentView = getComponentLViewByIndex(tNode.index, IView);\n componentView[CONTEXT] = directive;\n }\n }\n\nfunction invokeDirectivesHostBindings(tView: TView,
IView: LView, tNode: TNode) {\n const start = tNode.directiveStart;\n const end = tNode.directiveEnd;\n const
firstCreatePass = tView.firstCreatePass;\n const elementIndex = tNode.index;\n const currentDirectiveIndex =
getCurrentDirectiveIndex();\n try {\n setSelectedIndex(elementIndex);\n for (let dirIndex = start; dirIndex <
end; dirIndex++) {\n const def = tView.data[dirIndex] as DirectiveDef<unknown>;\n const directive =
IView[dirIndex];\n setCurrentDirectiveIndex(dirIndex);\n if (def.hostBindings !== null || def.hostVars !== 0 ||
def.hostAttrs !== null) {\n invokeHostBindingsInCreationMode(def, directive);\n }\n }\n } finally {\n setSelectedIndex(-1);\n setCurrentDirectiveIndex(currentDirectiveIndex);\n }\n }\n\n/**\n *
Invoke the host bindings in creation mode.\n * @param def `DirectiveDef` which may contain the
`hostBindings` function.\n * @param directive Instance of directive.\n */\nexport function
invokeHostBindingsInCreationMode(def: DirectiveDef<any>, directive: any) {\n if (def.hostBindings !== null) {\n
def.hostBindings!(RenderFlags.Create, directive);\n }\n }\n\n/**\n * Matches the current node against all available
selectors.\n * If a component is matched (at most one), it is returned in first position in the array.\n */\nfunction
findDirectiveDefMatches(\n tView: TView, viewData: LView,\n tNode:
TElementNode|TContainerNode|TElementContainerNode): DirectiveDef<any>[]|null {\n ngDevMode &&
assertFirstCreatePass(tView);\n ngDevMode && assertTNodeType(tNode, TNodeType.AnyRNode |
TNodeType.AnyContainer);\n\n const registry = tView.directiveRegistry;\n let matches:
any[]|null = null;\n if (registry) {\n for (let i = 0; i < registry.length; i++) {\n const def = registry[i] as
ComponentDef<any>|DirectiveDef<any>;\n if (isNodeMatchingSelectorList(tNode, def.selectors!, /*
isProjectionMode */ false)) {\n matches || (matches = ngDevMode ? new MatchesArray() : []);\n
diPublicInInjector(getOrCreateNodeInjectorForNode(tNode, viewData), tView, def.type);\n\n if
(isComponentDef(def)) {\n if (ngDevMode) {\n assertTNodeType(\n tNode,
TNodeType.Element,\n `\"${tNode.value}\" tags cannot be used as component hosts. ` +\n
`Please use a different tag to activate the ${stringify(def.type)} component.`);\n\n if (tNode.flags &
TNodeFlags.IsComponentHost) throwMultipleComponentError(tNode);\n }\n markAsComponentHost(tView, tNode);\n // The component is always stored first with directives after.\n
matches.unshift(def);\n }\n }\n }\n }\n }\n return matches;\n }\n\n/**\n * Marks a given
TNode as a component's host. This consists of:\n * - setting appropriate TNode flags;\n * - storing index of
component's host element so it will be queued for view refresh during CD.\n */\nexport function
markAsComponentHost(tView: TView, hostTNode: TNode): void {\n ngDevMode &&
assertFirstCreatePass(tView);\n hostTNode.flags |= TNodeFlags.IsComponentHost;\n (tView.components ||
(tView.components = ngDevMode ? new TViewComponents() : [])).push(hostTNode.index);\n }\n\n/**\n * Caches local names and their matching directive indices for query and template lookups. */\nfunction
cacheMatchingLocalNames(\n tNode: TNode, localRefs: string[]|null, exportsMap: {[key: string]: number}): void
{\n if (localRefs) {\n const localNames: (string|number)[] = tNode.localNames = ngDevMode ? new
TNodeLocalNames() : [];\n // Local names must be stored in tNode
in the same order that localRefs are defined\n // in the template to ensure the data is loaded in the same slots as
their refs\n // in the template (for template queries).\n for (let i = 0; i < localRefs.length; i += 2) {\n const
index = exportsMap[localRefs[i + 1]];\n if (index == null)\n throw new RuntimeError(\n
RuntimeErrorCode.EXPORT_NOT_FOUND, `Export of name '${localRefs[i + 1]}' not found!`);\n
localNames.push(localRefs[i], index);\n }\n }\n\n/**\n * Builds up an export map as directives are created, so
local refs can be quickly mapped\n * to their directive instances.\n */\nfunction saveNameToExportMap(\n
directiveIdx: number, def: DirectiveDef<any>|ComponentDef<any>,\n exportsMap: {[key: string]: number}|null)
{\n if (exportsMap) {\n if (def.exportAs) {\n for (let i = 0; i < def.exportAs.length; i++) {\n
exportsMap[def.exportAs[i]] = directiveIdx;\n }\n }\n if (isComponentDef(def)) exportsMap[""]

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= directiveIdx;\n } }\n\n/**\n * Initializes the flags on the current node, setting all indices to the initial index,\n * the directive count to 0, and adding the isComponent flag.\n * @param index the initial index\n */\nexport function\ninitTNodeFlags(tNode: TNode, index: number, numberOfDirectives: number) {\n ngDevMode &&\n assertNotEqual(\n numberOfDirectives, tNode.directiveEnd - tNode.directiveStart,\n 'Reached the max\n number of directives');\n tNode.flags |= TNodeFlags.isDirectiveHost;\n // When the first directive is created on a\n node, save the index\n tNode.directiveStart = index;\n tNode.directiveEnd = index + numberOfDirectives;\n tNode.providerIndexes = index;\n}\n\n/**\n * Setup directive for instantiation.\n */\n * We need to create a\n * `NodeInjectorFactory` which is then inserted in both the `Blueprint` as well\n * as `LView`. `TVView` gets the\n * `DirectiveDef`. \n * @param tView `TVView`\n * @param tNode `TNode`\n * @param lView `LView`\n * @param directiveIndex Index where the directive will be stored in the Expando.\n * @param def `DirectiveDef`\n */\nfunction configureViewWithDirective<T>(\n tView: TVView, tNode: TNode, lView: LView, directiveIndex:\n number, def: DirectiveDef<T>): void {\n ngDevMode &&\n assertGreaterThanOrEqual(directiveIndex,\n HEADER_OFFSET, 'Must be in Expando section');\n tView.data[directiveIndex] = def;\n const directiveFactory\n =\n def.factory || ((def as {factory: Function}).factory = getFactoryDef(def.type, true));\n const\n nodeInjectorFactory = new NodeInjectorFactory(directiveFactory, isComponentDef(def), null);\n tView.blueprint[directiveIndex] = nodeInjectorFactory;\n lView[directiveIndex] = nodeInjectorFactory;\n\n registerHostBindingOpCodes(\n tView, tNode, lView, directiveIndex, allocExpando(tView, lView, def.hostVars,\n NO_CHANGE),\n def);\n\n function addComponentLogic<T>(lView: LView, hostTNode: TElementNode,\n def: ComponentDef<T>): void {\n const native\n = getNativeByTNode(hostTNode, lView) as RElement;\n const tView = getOrCreateTComponentView(def);\n\n // Only component views should be added to the view tree directly. Embedded views are\n // accessed through their\n containers because they may be removed / re-added later.\n const rendererFactory =\n lView[RENDERER_FACTORY];\n const componentView = addToViewTree(\n lView,\n createLView(\n lView, tView, null, def.onPush ? LViewFlags.Dirty : LViewFlags.CheckAlways, native,\n hostTNode as\n TElementNode, rendererFactory, rendererFactory.createRenderer(native, def),\n null, null));\n\n // Component\n view will always be created before any injected LContainers.\n // so this is a regular element, wrap it with the\n component view\n lView[hostTNode.index] = componentView;\n }\n\n export function elementAttributeInternal(\n tNode: TNode, lView: LView, name: string, value: any, sanitizer: SanitizerFn|null|undefined,\n namespace:\n string|null|undefined) {\n if (ngDevMode) {\n assertNotSame(value, NO_CHANGE as any, 'Incoming value should never be\n NO_CHANGE.);\n validateAgainstEventAttributes(name);\n assertTNodeType(\n tNode,\n TNodeType.Element,\n `Attempted to set attribute \\`$${name}\\` on a container node. ` +\n `Host\n bindings are not valid on ng-container or ng-template.);\n }\n const element = getNativeByTNode(tNode, lView)\n as RElement;\n setElementAttribute(lView[RENDERER], element, namespace, tNode.value, name, value,\n sanitizer);\n\n export function setElementAttribute(\n renderer: Renderer3, element: RElement, namespace:\n string|null|undefined, tagName: string|null,\n name: string, value: any, sanitizer: SanitizerFn|null|undefined) {\n if\n (value == null) {\n ngDevMode && ngDevMode.rendererRemoveAttribute++;\n isProceduralRenderer(renderer) ? renderer.removeAttribute(element, name, namespace) :\n element.removeAttribute(name);\n } else {\n ngDevMode && ngDevMode.rendererSetAttribute++;\n const strValue =\n sanitizer == null ?\n renderStringify(value) : sanitizer(value, tagName || '', name);\n\n if (isProceduralRenderer(renderer)) {\n renderer.setAttribute(element, name, strValue, namespace);\n } else {\n namespace ?\n element.setAttributeNS(namespace, name, strValue) :\n element.setAttribute(name, strValue);\n }\n }\n }\n\n /**\n * Sets initial input properties on directive instances from attribute data\n */\n * @param lView Current\n LView that is being processed.\n * @param directiveIndex Index of the directive in directives array\n * @param\n instance Instance of the directive on which to set the initial inputs\n * @param def The directive def that contains\n the list of inputs\n * @param tNode The static data for this node\n */\n function setInputsFromAttrs<T>(\n lView:\n LView, directiveIndex: number, instance: T, def: DirectiveDef<T>, tNode: TNode,\n initialInputData:

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InitialInputData):

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void {\n const initialInputs: InitialInputs|null = initialInputData![directiveIndex];\n if (initialInputs !== null) {\n const setInput = def.setInput;\n for (let i = 0; i < initialInputs.length; i++) {\n const publicName =\n initialInputs[i++];\n const privateName = initialInputs[i++];\n const value = initialInputs[i++];\n if\n (setInput !== null) {\n def.setInput!(instance, value, publicName, privateName);\n } else {\n (instance as\n any)[privateName] = value;\n }\n if (ngDevMode) {\n const nativeElement = getNativeByTNode(tNode,\n IView) as RElement;\n setNgReflectProperty(IView, nativeElement, tNode.type, privateName, value);\n }\n }\n }\n}\n\n/**\n * Generates initialInputData for a node and stores it in the template's static storage\n * so\n * subsequent template invocations don't have to recalculate it.\n */\n * initialInputData is an array containing values\n * that need to be set as input properties\n * for
```

directives on this node, but only once on creation. We need this array to support\n \* the case where you set an\n \* @Input property of a directive using attribute-like syntax.\n \* e.g. if you have a `name` @Input, you can set it once\n \* like this:\n \* <my-component name="Bess"></my-component>\n \* @param inputs The list of inputs from\n \* the directive def\n \* @param attrs The static attrs on this node\n \*/\nfunction generateInitialInputs(inputs: {[key:\n string]: string}, attrs: TAttributes): InitialInputs\n null {\n let inputsToStore: InitialInputs|null = null;\n let i =\n 0;\n while (i < attrs.length) {\n const attrName = attrs[i];\n if (attrName === AttributeMarker.NamespaceURI)\n {\n // We do not allow inputs on namespaced attributes.\n i += 4;\n continue;\n } else if (attrName ===\n AttributeMarker.ProjectAs)\n {\n // Skip over the `ngProjectAs` value.\n i += 2;\n continue;\n }\n // If\n we hit any other attribute markers, we're done anyway.

None of those are valid inputs.\n if (typeof attrName === 'number') break;\n if\n (inputs.hasOwnProperty(attrName as string)) {\n if (inputsToStore === null) inputsToStore = [];\n inputsToStore.push(attrName as string, inputs[attrName as string],\n attrs[i + 1] as string);\n i += 2;\n }\n return inputsToStore;\n }\n}\n\n// ViewContainer & View\n// Not sure why I\n// need to do `any` here but TS complains later.\nconst LContainerArray: any = ((typeof ngDevMode === 'undefined'\n || ngDevMode) && initNgDevMode()) &&\n createNamedArrayType('LContainer');\n\n \* Creates a\n \* LContainer, either from a container instruction, or for a ViewContainerRef.\n \* @param hostNative The host\n \* element for the LContainer\n \* @param hostTNode The host TNode for the LContainer\n \* @param currentView\n \* The parent view of the LContainer\n \* @param native The native comment element\n \* @param\n \* isForViewContainerRef Optional a

flag indicating the ViewContainerRef case\n \* @returns LContainer\n \*/\nexport function createLContainer(\n hostNative: RElement|RComment|LView, currentView: LView, native: RComment,\n tNode: TNode): LContainer\n {\n ngDevMode && assertLView(currentView);\n ngDevMode &&\n !isProceduralRenderer(currentView[RENDERER]) && assertDomNode(native);\n // https://jsperf.com/array-literal-vs-new-array-really\n const IContainer: LContainer = new (ngDevMode ? LContainerArray : Array)(\n hostNative,\n // host native\n true,\n // Boolean `true` in this position signifies that this is an `LContainer`\n false,\n // has transplanted views\n currentView,\n // parent\n null,\n // next\n 0,\n // transplanted\n views to refresh count\n tNode,\n // t\_host\n native,\n // native\n null,\n // view refs\n null,\n // moved views\n );\n ngDevMode &&\n assertEqual(\n IContainer.length,\n CONTAINER\_HEADER\_OFFSET,\n

'Should allocate correct number of slots for LContainer header.);\n ngDevMode &&\n attachLContainerDebug(IContainer);\n return IContainer;\n }\n}\n\n \* Goes over embedded views (ones created\n \* through ViewContainerRef APIs) and refreshes\n \* them by executing an associated template function.\n \*/\nfunction refreshEmbeddedViews(IView: LView) {\n for (let IContainer = getFirstLContainer(IView);\n IContainer !== null;\n IContainer = getNextLContainer(IContainer)) {\n for (let i =\n CONTAINER\_HEADER\_OFFSET; i < IContainer.length; i++) {\n const embeddedLView = IContainer[i];\n const embeddedTView = embeddedLView[TVIEW];\n ngDevMode && assertDefined(embeddedTView,\n 'TView must be allocated');\n if (viewAttachedToChangeDetector(embeddedLView)) {\n refreshView(embeddedTView, embeddedLView, embeddedTView.template,\n embeddedLView[CONTEXT]);\n }\n }\n }\n}





```
view instances should always be in sync, so the loop here\n * will be skipped. However, consider this case of two components side-by-side:\n * App template:\n * ``\n * <comp></comp>\n * <comp></comp>\n * ``\n * The following will happen:\n * 1. App template begins processing.\n * 2. First <comp> is matched as a component and its LView is created.\n * 3. Second <comp> is matched as a component and its LView is created.\n * 4. App template completes processing,\n * so it's time to check child templates.\n * 5. First <comp> template is checked. It has a directive, so its def is pushed to blueprint.\n * 6. Second <comp> template is checked. Its blueprint has been updated by the first\n * <comp> template, but its LView was created before this update, so it is out of sync.\n *\n * Note that embedded views inside ngFor loops will never be out of sync because these views\n * are processed as soon as they are created.\n *\n * @param tView The `TView` that contains the blueprint for syncing\n * @param lView The view to sync\n *\n * @function syncViewWithBlueprint(tView: TView, lView: LView) {\n * for (let i = lView.length; i < tView.blueprint.length; i++) {\n * lView.push(tView.blueprint[i]);\n * }\n * }\n *\n * Adds LView or LContainer to the end of the current view tree.\n *\n * This structure will be used to traverse through nested views to remove listeners\n * and call onDestroy callbacks.\n *\n * @param lView The view where LView or LContainer should be added\n * @param adjustedHostIndex Index of the view's host node in lView[], adjusted for header\n * @param lViewOrLContainer The LView or LContainer to add to the view tree\n * @returns The state passed in\n *\n * @export function addToViewTree<T extends LView|LContainer>(lView: LView, lViewOrLContainer: T): T {\n * // TODO(benlesh/misko): This implementation is incorrect, because it always adds the LContainer\n * // to the end of the queue, which means if the developer retrieves the LContainers from RNodes out\n * // of order, the change detection will run out of order, as the act of retrieving the\n * // LContainer from the RNode is what adds it to the queue.\n * if (lView[CHILD_HEAD]) {\n * lView[CHILD_TAIL]![NEXT] = lViewOrLContainer;\n * } else {\n * lView[CHILD_HEAD] = lViewOrLContainer;\n * }\n * lView[CHILD_TAIL] = lViewOrLContainer;\n * return lViewOrLContainer;\n * }\n *\n * Change detection\n *\n * Marks current view and all ancestors dirty.\n *\n * Returns the root view because it is found as a byproduct of marking the view tree\n * dirty, and can be used by methods that consume markViewDirty() to easily schedule\n * change detection. Otherwise, such methods would need to traverse up the view tree\n * an additional time to get the root view and schedule a tick on it.\n *\n * @param lView The starting LView to mark dirty\n * @returns the root LView\n *\n * @export function markViewDirty(lView: LView): LView|null {\n * while (lView) {\n * lView[FLAGS] |= LViewFlags.Dirty;\n * const parent = getLViewParent(lView);\n * // Stop traversing up as soon as you find a root view that wasn't attached to any container\n * if (isRootView(lView) && !parent) {\n * return lView;\n * }\n * continue otherwise\n * lView = parent!;\n * }\n * return null;\n * }\n *\n * Used to schedule change detection on the whole application.\n *\n * Unlike `tick`, `scheduleTick` coalesces multiple calls into one change detection run.\n *\n * It is usually called indirectly by calling `markDirty` when the view needs to be\n * re-rendered.\n *\n * Typically `scheduleTick` uses `requestAnimationFrame` to coalesce multiple\n * `scheduleTick` requests. The scheduling function can be overridden in\n * `renderComponent`s `scheduler` option.\n *\n * @export function scheduleTick(rootContext: RootContext, flags: RootContextFlags) {\n * const nothingScheduled = rootContext.flags === RootContextFlags.Empty;\n * if (nothingScheduled && rootContext.clean === _CLEAN_PROMISE) {\n * // https://github.com/angular/angular/issues/39296\n * // should only attach the flags when really scheduling a tick\n * rootContext.flags |= flags;\n * let res: null|((val: null) => void);\n * rootContext.clean = new Promise<null>((r) => res = r);\n * rootContext.scheduler() => {\n * if (rootContext.flags & RootContextFlags.DetectChanges) {\n * rootContext.flags &= ~RootContextFlags.DetectChanges;\n * tickRootContext(rootContext);\n * }\n * if (rootContext.flags & RootContextFlags.FlushPlayers) {\n * rootContext.flags &= ~RootContextFlags.FlushPlayers;\n * const playerHandler = rootContext.playerHandler;\n * if (playerHandler) {\n * playerHandler.flushPlayers();\n * }\n * }\n * rootContext.clean = _CLEAN_PROMISE;\n * res!(null);\n * });\n * }\n * }\n *\n * @export function tickRootContext(rootContext: RootContext) {\n * for (let i = 0; i < rootContext.components.length; i++) {\n * const rootComponent = rootContext.components[i];\n * const lView = readPatchedLView(rootComponent);\n * const tView = lView[TVIEW];\n * renderComponentOrTemplate(tView,
```

```
IView, tView.template, rootComponent);\n }\n}\n\nexport function detectChangesInternal<T>(tView: TView,\nIView: LView, context: T) {\n const rendererFactory = IView[RENDERER_FACTORY];\n if\n(rendererFactory.begin) rendererFactory.begin();\n try {\n refreshView(tView, IView, tView.template, context);\n } catch\n(error) {\n handleError(IView, error);\n throw error;\n } finally {\n if (rendererFactory.end)\nrendererFactory.end();\n }\n}\n\n/**\n * Synchronously perform change detection on a root view and its components.\n *\n * @param IView The view which the change detection should be performed on.\n */\nexport\nfunction detectChangesInRootView(IView: LView): void {\n tickRootContext(IView[CONTEXT] as RootContext);\n}\n\nexport function checkNoChangesInternal<T>(tView: TView, view: LView, context: T) {\n setIsInCheckNoChangesMode(true);\n try {\n detectChangesInternal(tView, view, context);\n } finally {\n setIsInCheckNoChecksMode(false);\n }\n}\n\n/**\n * Checks the change detector on a root view and its components, and throws if any changes are detected.\n *\n * This is used in development mode to verify that running change detection doesn't introduce other changes.\n *\n * @param IView The view which the change detection should be checked on.\n */\nexport function\ncheckNoChangesInRootView(IView: LView): void {\n setIsInCheckNoChangesMode(true);\n try {\n detectChangesInRootView(IView);\n } finally {\n setIsInCheckNoChangesMode(false);\n }\n}\n\nfunction executeViewQueryFn<T>(\n flags: RenderFlags, viewQueryFn: ViewQueriesFunction<>, component: T): void {\n ngDevMode && assertDefined(viewQueryFn, 'View queries function to execute must be defined.');\n setCurrentQueryIndex(0);\n viewQueryFn(flags, component);\n}\n\n// Bindings & interpolations\n\n/**\n * Stores meta-data for a property binding to be used by TestBed's `DebugElement.properties`.\n *\n * In order to support TestBed's `DebugElement.properties` we need to save, for each binding:\n *\n * - a bound property name;\n *\n * - a static parts of interpolated strings;\n *\n * A given property metadata is saved at the binding's index in the `TView.data` (in other words, a property binding metadata will be stored in `TView.data` at the same index as a bound value in `LView`). Metadata are represented as `INTERPOLATION_DELIMITER`- delimited string with the following format:\n *\n * - `propertyName` for bound properties;\n *\n * - `propertyNameprefixinterpolation_static_part1..interpolation_static_partsuffix` for interpolated properties.\n *\n * @param tData `TData` where meta-data will be saved;\n *\n * @param tNode `TNode` that is a target of the binding;\n *\n * @param propertyName bound property name;\n *\n * @param bindingIndex binding index in `LView`\n *\n * @param interpolationParts static interpolation parts (for property interpolations)\n */\nexport\nfunction storePropertyBindingMetadata(\n tData: TData, tNode: TNode, propertyName: string, bindingIndex: number,\n ...interpolationParts: string[]) {\n // Binding meta-data are stored only the first time a given property instruction is processed.\n // Since we don't have a concept of the "first update pass" we need to check for presence of the binding meta-data to decide if one should be stored (or if was stored already).\n if (tData[bindingIndex] === null) {\n if (tNode.inputs == null || !tNode.inputs[propertyName]) {\n const propBindingIdxs = tNode.propertyBindings || (tNode.propertyBindings = []);\n propBindingIdxs.push(bindingIndex);\n let bindingMetadata = propertyName;\n if (interpolationParts.length > 0) {\n bindingMetadata +=\n INTERPOLATION_DELIMITER + interpolationParts.join(INTERPOLATION_DELIMITER);\n }\n tData[bindingIndex] = bindingMetadata;\n }\n }\n}\n\nexport const CLEAN_PROMISE = _CLEAN_PROMISE;\n\nexport function getLCleanup(view: LView): any[] {\n // top level variables should not be exported for performance reasons (PERF_NOTES.md)\n return view[CLEANUP] || (view[CLEANUP] = ngDevMode ? new LCleanup() : []);\n}\n\nfunction getTVIEWCleanup(tView: TView): any[] {\n return tView.cleanup || (tView.cleanup = ngDevMode ? new TCleanup() : []);\n}\n\n/**\n * There are cases where the sub component's renderer needs to be included instead of the current renderer (see the componentSyntheticHost instructions).\n */\nexport function loadComponentRenderer(\n currentDef: DirectiveDef<any> | null, tNode: TNode, IView: LView): Renderer3 {\n // TODO(FW-2043): the `currentDef` is null when host bindings are invoked while creating root component (see packages/core/src/render3/component.ts). This is not consistent with the process of creating inner components,
```

when current directive index is available in the state. In order  
 // to avoid relying on current def being `null` (thus  
 special-casing root component creation), the  
 // process of creating root component should be unified with the  
 process of creating inner  
 // components.  
 if (currentDef === null || isComponentDef(currentDef)) {  
 IView =  
 unwrapLView(IView[tNode.index]);  
 }  
 return IView[RENDERER];  
 }  
 /\*\* Handles an error thrown in an  
 LView.

```

 *^/nextport function handleError(IView: LView, error: any): void {

 const injector = IView[INJECTOR];

 const errorHandler = injector ? injector.get(ErrorHandler, null) : null;

 errorHandler &&

 errorHandler.handleError(error);

 }

 /**

 * Set the inputs of directives at the current node to corresponding

 value.

 *

 * @param tView The current TView

 * @param IView the `LView` which contains the directives.

 * @param inputs mapping between the public `input` name and privately-known,

 possibly minified,

 property names to write to.

 * @param value Value to set.

 *^/nextport function setInputsForProperty(

 tView: TView, IView: LView, inputs: PropertyAliasValue, publicName: string, value: any): void {

 for (let i = 0; i <

 inputs.length; i++) {

 const index = inputs[i] as number;

 const privateName = inputs[i] as string;

 const instance = IView[index];

 ngDevMode && assertIndexInRange(IView, index);

 const def = tView.data[index]

 as DirectiveDef<any>;


```

```

 if (def.setInput !== null) {

 def.setInput!(instance, value, publicName, privateName);

 } else {

 instance[privateName] = value;

 }

 }

 /**

 * Updates a text binding at a given index in a given LView.

 *^/nextport function textBindingInternal(IView: LView, index: number, value: string): void {

 ngDevMode &&

 assertString(value, 'Value should be a string');

 ngDevMode && assertNotSame(value, NO_CHANGE as any,

 'value should not be NO_CHANGE');

 ngDevMode && assertIndexInRange(IView, index);

 const element =

 getNativeByIndex(index, IView) as any as RText;

 ngDevMode && assertDefined(element, 'native element

 should exist');

 updateTextNode(IView[RENDERER], element, value);

 }

 /**

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 * found in the LICENSE file at https://angular.io/license

 */

 import {concatStringsWithSpace} from

```

```

 './util/stringify';

 import {assertFirstCreatePass} from './assert';

 import {AttributeMarker, TAttributes, TNode} from

 './interfaces/node';

 import {getTVIEW} from './state';

 /**

 * Compute the static styling (class/style) from

 `TAttributes`.

 *

 * This function should be called during `firstCreatePass` only.

 *

 * @param tNode The

 `TNode` into which the styling information should be loaded.

 * @param attrs `TAttributes` containing the styling

 information.

 * @param writeToHost Where should the resulting static styles be written?

 * - `false` Write to

 `TNode.stylesWithoutHost` / `TNode.classesWithoutHost`

 * - `true` Write to `TNode.styles` / `TNode.classes`

 *^/nextport function computeStaticStyling(

 tNode: TNode, attrs: TAttributes|null, writeToHost: boolean): void {

 ngDevMode &&

 assertFirstCreatePass(getTVIEW(), 'Expecting to be called in first template pass only');

 let styles: string|null = writeToHost ? tNode.styles : null;

 let classes: string|null =

 writeToHost ? tNode.classes : null;

 let mode: AttributeMarker|0 = 0;

 if (attrs !== null) {

 for (let i = 0; i <

 attrs.length; i++) {

 const value = attrs[i];

 if (typeof value === 'number') {

 mode = value;

 } else

 if (mode === AttributeMarker.Classes) {

 classes = concatStringsWithSpace(classes, value as string);

 }

 else if (mode === AttributeMarker.Styles) {

 const style = value as string;

 const styleValue = attrs[i+1] as

 string;

 styles = concatStringsWithSpace(styles, style + ':' + styleValue + ';');

 }

 }

 writeToHost

 ? tNode.styles = styles : tNode.stylesWithoutHost = styles;

 writeToHost ? tNode.classes = classes :

 tNode.classesWithoutHost = classes;

 }

 }

 /**

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 *

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 * found in the LICENSE file at

 https://angular.io/license

 */

 import {assertDefined}

```

```

 from './util/assert';

 import {getComponentViewByInstance} from './context_discovery';

 import {CONTEXT,

 RootContext, RootContextFlags, TVIEW} from './interfaces/view';

 import {getRootView} from

 './util/view_traversal_utils';

 import {detectChangesInternal, markViewDirty, scheduleTick, tickRootContext} from

 './shared';

 /**

 * Synchronously perform change detection on a component (and possibly its sub-components).

 *

 * This function triggers change detection in a synchronous way on a component.

 *

 * @param component

```

The component which the change detection should be performed on.

```

\n */\nexport function
detectChanges(component: {}): void {\n const view = getComponentViewByInstance(component);\n
detectChangesInternal(view[TVIEW], view, component);\n}\n\n/**\n * Marks the component as dirty (needing
change detection). Marking a component dirty will\n * schedule a change detection on it at some point in the
future.\n *\n * Marking an already dirty component as dirty won't
do anything. Only one outstanding change\n * detection can be scheduled per component tree.\n *\n * @param
component Component to mark as dirty.\n */\nexport function markDirty(component: {}): void {\n ngDevMode
&& assertDefined(component, 'component');\n const rootView =
markViewDirty(getComponentViewByInstance(component));\n\n ngDevMode &&
assertDefined(rootView[CONTEXT], 'rootContext should be defined');\n scheduleTick(rootView[CONTEXT] as
RootContext, RootContextFlags.DetectChanges);\n}\n\n/**\n * Used to perform change detection on the whole
application.\n *\n * This is equivalent to `detectChanges`, but invoked on root component. Additionally, `tick`\n *
executes lifecycle hooks and conditionally checks components based on their\n * `ChangeDetectionStrategy` and
dirtiness.\n *\n * The preferred way to trigger change detection is to call `markDirty`. `markDirty` internally\n *
schedules `tick` using a scheduler in order to coalesce multiple `markDirty` calls into a\n * single
change detection run. By default, the scheduler is `requestAnimationFrame`, but can\n * be changed when calling
`renderComponent` and providing the `scheduler` option.\n */\nexport function tick<T>(component: T): void {\n
const rootView = getRootView(component);\n const rootContext = rootView[CONTEXT] as RootContext;\n
tickRootContext(rootContext);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport { InjectionToken } from './injection_token';\nimport { Injector } from
'./injector';\nimport { InjectorMarkers } from './injector_marker';\n\n\n/**\n * An InjectionToken that gets the
current `Injector` for `createInjector()`-style injectors.\n *\n * Requesting this token instead of `Injector` allows
`StaticInjector` to be tree-shaken from a\n * project.\n *\n * @publicApi\n */\nexport const INJECTOR = new
InjectionToken<Injector>(\n
 'INJECTOR',\n // Dissable tslint because this is const enum which gets inlined not top level prop access.\n //
tslint:disable-next-line: no-toplevel-property-access\n InjectorMarkers.Injector as any, // Special value used by
Ivy to identify `Injector`.)\n);\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport { stringify } from './util/stringify';\nimport { Injector } from
'./injector';\nimport { THROW_IF_NOT_FOUND } from './injector_compatibility';\n\nexport class NullInjector
implements Injector {\n get(token: any, notFoundValue: any = THROW_IF_NOT_FOUND): any {\n if
(notFoundValue === THROW_IF_NOT_FOUND) {\n const error = new Error('NullInjectorError: No provider
for ${stringify(token)}');\n error.name = 'NullInjectorError';\n throw error;\n }\n return
notFoundValue;\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport { InjectionToken } from './injection_token';\n\n\n/**\n * An internal token whose presence in an injector
indicates that the injector should treat itself\n * as a root scoped injector when processing requests for unknown
tokens which may indicate\n * they are provided in the root scope.\n */\nexport const INJECTOR_SCOPE = new
InjectionToken<'root'|'platform'|null>('Set Injector scope.);\n\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport './util/ng_dev_mode';\nimport { OnDestroy } from
'./interface/lifecycle_hooks';\nimport { Type } from './interface/type';\nimport { FactoryFn, getFactoryDef } from
'./render3/definition_factory';\nimport { throwCyclicDependencyError, throwInvalidProviderError,
throwMixedMultiProviderError } from './render3/errors_di';\nimport { deepForEach, newArray } from
'./util/array_utils';\nimport { stringify } from './util/stringify';\n\nimport { resolveForwardRef } from
'./forward_ref';\nimport { InjectionToken } from './injection_token';\nimport { Injector } from './injector';\nimport

```

```

catchInjectorError, injectArgs, NG_TEMP_TOKEN_PATH, setCurrentInjector, THROW_IF_NOT_FOUND,
USE_VALUE, inject} from './injector_compatibility';\nimport {INJECTOR} from './injector_token';\nimport
{getInheritedInjectableDef, getInjectableDef, getInjectorDef, InjectorType, InjectorTypeWithProviders,
InjectableDef} from './interface/defs';\nimport {InjectFlags} from './interface/injector';\nimport {ClassProvider,
ConstructorProvider, ExistingProvider, FactoryProvider, StaticClassProvider, StaticProvider, TypeProvider,
ValueProvider} from './interface/provider';\nimport {NullInjector}
from './null_injector';\nimport {INJECTOR_SCOPE} from './scope';\n\n\n/**\n * Internal type for a single
provider in a deep provider array.\n */\ntype SingleProvider =
TypeProvider|ValueProvider|ClassProvider|ConstructorProvider|ExistingProvider|\n
FactoryProvider|StaticClassProvider;\n\n/**\n * Marker which indicates that a value has not yet been created from
the factory function.\n */\nconst NOT_YET = {};\n\n/**\n * Marker which indicates that the factory function for a
token is in the process of being called.\n */\n * If the injector is asked to inject a token with its value set to
CIRCULAR, that indicates\n * injection of a dependency has recursively attempted to inject the original token, and
there is\n * a circular dependency among the providers.\n */\nconst CIRCULAR = {};\n\nconst EMPTY_ARRAY =
[] as any[];\n\n/**\n * A lazily initialized NullInjector.\n */\nlet NULL_INJECTOR: Injector|undefined =
undefined;\n\nfunction getNullInjector(): Injector {\n if (NULL_INJECTOR
=== undefined) {\n NULL_INJECTOR = new NullInjector();\n }\n return NULL_INJECTOR;\n}\n\n/**\n * An
entry in the injector which tracks information about the given token, including a possible\n * current value.\n */\ninterface Record<T> {\n factory: (() => T)|undefined;\n value: T|{};\n multi: any[]|undefined;\n}\n\n/**\n *
Create a new `Injector` which is configured using a `defType` of `InjectorType<any>`s.\n */\n * @publicApi\n */\nexport function createInjector(\n defType: /* InjectorType<any> */ any, parent: Injector|null = null,\n additionalProviders: StaticProvider[]|null = null, name?: string): Injector {\n const injector =\n createInjectorWithoutInjectorInstances(defType, parent, additionalProviders, name);\n injector._resolveInjectorDefTypes();\n return injector;\n}\n\n/**\n * Creates a new injector without eagerly
resolving its injector types. Can be used in places\n * where resolving the injector types immediately can lead to an
infinite loop. The injector
types\n * should be resolved at a later point by calling `_resolveInjectorDefTypes`.\n */\nexport function
createInjectorWithoutInjectorInstances(\n defType: /* InjectorType<any> */ any, parent: Injector|null = null,\n additionalProviders: StaticProvider[]|null = null, name?: string): R3Injector {\n return new R3Injector(defType,
additionalProviders, parent || getNullInjector(), name);\n}\n\nexport class R3Injector {\n /**\n * Map of tokens to
records which contain the instances of those tokens.\n * - `null` value implies that we don't have the record. Used
by tree-shakable injectors\n * to prevent further searches.\n */\n private records = new
Map<Type<any>|InjectionToken<any>, Record<any>|null>();\n\n /**\n * The transitive set of `InjectorType`s
which define this injector.\n */\n private injectorDefTypes = new Set<InjectorType<any>>();\n\n /**\n * Set of
values instantiated by this injector which contain `ngOnDestroy` lifecycle hooks.\n */\n private
onDestroy = new Set<OnDestroy>();\n\n /**\n * Flag indicating this injector provides the APP_ROOT_SCOPE
token, and thus counts as the\n * root scope.\n */\n private readonly scope: 'root'|'platform'|null;\n\n readonly
source: string|null;\n\n /**\n * Flag indicating that this injector was previously destroyed.\n */\n get destroyed():
boolean {\n return this._destroyed;\n }\n private _destroyed = false;\n\n constructor(\n def:
InjectorType<any>, additionalProviders: StaticProvider[]|null, readonly parent: Injector,\n source: string|null =
null) {\n const dedupStack: InjectorType<any>[] = [];\n\n // Start off by creating Records for every provider
declared in every InjectorType\n // included transitively in additional providers then do the same for `def`. This
order is\n // important because `def` may include providers that override ones in additionalProviders.\n\n additionalProviders &&\n deepForEach(\n additionalProviders,\n
 provider => this.processProvider(provider, def, additionalProviders));\n\n deepForEach([def], injectorDef
=> this.processInjectorType(injectorDef, [], dedupStack));\n\n // Make sure the INJECTOR token provides this
injector.\n this.records.set(INJECTOR, makeRecord(undefined, this));\n\n // Detect whether this injector has the
APP_ROOT_SCOPE token and thus should provide\n // any injectable scoped to APP_ROOT_SCOPE.\n const

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record = this.records.get(INJECTOR_SCOPE);\n this.scope = record != null ? record.value : null;\n\n // Source
name, used for debugging\n this.source = source || (typeof def === 'object' ? null : stringify(def));\n }\n\n /**\n *
Destroy the injector and release references to every instance or provider associated with it.\n *\n * Also calls the
`OnDestroy` lifecycle hooks of every instance that was created for which a\n * hook was found.\n */\n destroy():
void {\n this.assertNotDestroyed();\n\n // Set destroyed
= true first, in case lifecycle hooks re-enter destroy().\n this._destroyed = true;\n try {\n // Call all the
lifecycle hooks.\n this.onDestroy.forEach(service => service.ngOnDestroy());\n } finally {\n // Release all
references.\n this.records.clear();\n this.onDestroy.clear();\n this.injectorDefTypes.clear();\n }\n }\n\n
get<T>(\n token: Type<T>|InjectionToken<T>, notFoundValue: any = THROW_IF_NOT_FOUND,\n flags =
InjectFlags.Default): T {\n this.assertNotDestroyed();\n // Set the injection context.\n const previousInjector =
setCurrentInjector(this);\n try {\n // Check for the SkipSelf flag.\n if (!(flags & InjectFlags.SkipSelf)) {\n
// SkipSelf isn't set, check if the record belongs to this injector.\n let record: Record<T>|undefined|null =
this.records.get(token);\n if (record === undefined) {\n // No record, but maybe the token is scoped to this
injector. Look for an injectable\n
 // def with a scope matching this injector.\n const def = couldBeInjectableType(token) &&
getInjectableDef(token);\n if (def && this.injectableDefInScope(def)) {\n // Found an injectable def and
it's scoped to this injector. Pretend as if it was here\n // all along.\n record =
makeRecord(injectableDefOrInjectorDefFactory(token), NOT_YET);\n } else {\n record = null;\n
 }\n this.records.set(token, record);\n }\n // If a record was found, get the instance for it and return it.\n
 if (record != null /* NOT null || undefined */) {\n return this.hydrate(token, record);\n }\n }\n\n //
Select the next injector based on the Self flag - if self is set, the next injector is\n // the NullInjector, otherwise it's
the parent.\n const nextInjector = !(flags & InjectFlags.Self) ? this.parent : getNullInjector();\n // Set the
notFoundValue
based on the Optional flag - if optional is set and notFoundValue\n // is undefined, the value is null, otherwise
it's the notFoundValue.\n notFoundValue = (flags & InjectFlags.Optional) && notFoundValue ===
THROW_IF_NOT_FOUND ?\n null :\n notFoundValue;\n return nextInjector.get(token,
notFoundValue);\n } catch (e) {\n if (e.name === 'NullInjectorError') {\n const path: any[] =
e[NG_TEMP_TOKEN_PATH] = e[NG_TEMP_TOKEN_PATH] || [];\n path.unshift(stringify(token));\n if
(previousInjector) {\n // We still have a parent injector, keep throwing\n throw e;\n } else {\n //
Format & throw the final error message when we don't have any previous injector\n return
catchInjectorError(e, token, 'R3InjectorError', this.source);\n }\n } else {\n throw e;\n }\n } finally
{\n // Lastly, clean up the state by restoring the previous injector.\n setCurrentInjector(previousInjector);\n
}\n }\n\n /** @internal */\n _resolveInjectorDefTypes() {\n this.injectorDefTypes.forEach(defType =>
this.get(defType));\n }\n\n toString() {\n const tokens = <string[]>[], records = this.records;\n
records.forEach((v, token) => tokens.push(stringify(token)));\n return `R3Injector[${tokens.join(', ')}]`;\n }\n\n
private assertNotDestroyed(): void {\n if (this._destroyed) {\n throw new Error('Injector has already been
destroyed.);\n }\n }\n\n /**\n * Add an `InjectorType` or `InjectorTypeWithProviders` and all of its transitive
providers\n * to this injector.\n *\n * If an `InjectorTypeWithProviders` that declares providers besides the type
is specified,\n * the function will return `"true"` to indicate that the providers of the type definition need\n * to be
processed. This allows us to process providers of injector types after all imports of\n * an injector definition are
processed. (following View Engine semantics:
see FW-1349)\n */\n private processInjectorType(\n defOrWrappedDef:
InjectorType<any>|InjectorTypeWithProviders<any>,\n parents: InjectorType<any>[],\n dedupStack:
InjectorType<any>[]): defOrWrappedDef is InjectorTypeWithProviders<any> {\n defOrWrappedDef =
resolveForwardRef(defOrWrappedDef);\n if (!defOrWrappedDef) return false;\n // Either the
defOrWrappedDef is an InjectorType (with injector def) or an\n // InjectorDefTypeWithProviders (aka
ModuleWithProviders). Detecting either is a megamorphic\n // read, so care is taken to only do the read once.\n\n
// First attempt to read the injector def (`inj`).\n let def = getInjectorDef(defOrWrappedDef);\n\n // If that's not

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present, then attempt to read ngModule from the InjectorDefTypeWithProviders.\n const ngModule =\n (def\n == null) && (defOrWrappedDef as InjectorTypeWithProviders<any>).ngModule || undefined;\n\n // Determine\n the InjectorType. In the case where `defOrWrappedDef`\n is an `InjectorType`,\n // then this is easy. In the case of an InjectorDefTypeWithProviders, then the definition\n type\n // is the `ngModule`.\n const defType: InjectorType<any> =\n (ngModule === undefined) ?\n (defOrWrappedDef as InjectorType<any>) : ngModule;\n\n // Check for circular dependencies.\n if\n (ngDevMode && parents.indexOf(defType) !== -1) {\n const defName = stringify(defType);\n const path =\n parents.map(stringify);\n throwCyclicDependencyError(defName, path);\n }\n\n // Check for multiple\n imports of the same module\n const isDuplicate = dedupStack.indexOf(defType) !== -1;\n\n // Finally, if\n defOrWrappedType was an `InjectorDefTypeWithProviders`, then the actual\n // `InjectorDef` is on its\n `ngModule`.\n if (ngModule !== undefined) {\n def = getInjectorDef(ngModule);\n }\n\n // If no definition\n was found, it might be from exports. Remove it.\n if (def == null) {\n return false;\n }\n\n // Add providers\n in the same way that @NgModule resolution did:\n\n // First, include providers from any imports.\n if\n (def.imports != null && !isDuplicate) {\n // Before processing defType's imports, add it to the set of parents. This\n way, if it ends\n // up deeply importing itself, this can be detected.\n ngDevMode &&\n parents.push(defType);\n\n // Add it to the set of dedups. This way we can detect multiple imports of the same\n module\n dedupStack.push(defType);\n\n let importTypesWithProviders:\n (InjectorTypeWithProviders<any>[] | undefined);\n try {\n deepForEach(def.imports, imported => {\n if\n (this.processInjectorType(imported, parents, dedupStack)) {\n if (importTypesWithProviders === undefined)\n importTypesWithProviders = [];\n\n // If the processed import is an injector type with providers, we store it in\n the\n // list of import types with providers, so that we can process those afterwards.\n importTypesWithProviders.push(imported);\n }\n });\n } finally {\n // Remove it from the parents set when finished.\n ngDevMode &&\n parents.pop();\n }\n\n // Imports which are declared with providers (TypeWithProviders) need to be\n processed\n // after all imported modules are processed. This is similar to how View Engine\n // processes/merges module imports in the metadata resolver. See: FW-1349.\n if (importTypesWithProviders !==\n undefined) {\n for (let i = 0; i < importTypesWithProviders.length; i++) {\n const {ngModule, providers}\n = importTypesWithProviders[i];\n deepForEach(\n providers!,\n provider =>\n this.processProvider(provider, ngModule, providers || EMPTY_ARRAY));\n }\n }\n\n // Track the\n InjectorType and add a provider for it. It's important that this is done after the\n // def's imports.\n this.injectorDefTypes.add(defType);\n this.records.set(defType,\n makeRecord(def.factory, NOT_YET));\n\n // Next, include providers listed on the definition itself.\n const\n defProviders = def.providers;\n if (defProviders != null && !isDuplicate) {\n const injectorType =\n defOrWrappedDef as InjectorType<any>;\n deepForEach(\n defProviders, provider =>\n this.processProvider(provider, injectorType, defProviders));\n }\n\n return (\n ngModule !== undefined\n &&\n (defOrWrappedDef as InjectorTypeWithProviders<any>).providers !== undefined);\n }\n\n /**\n * Process a `SingleProvider` and add it.\n */\n private processProvider(\n provider: SingleProvider,\n ngModuleType: InjectorType<any>, providers: any[]): void {\n // Determine the token from the provider. Either\n it's its own token, or has a {provide: ...}\n // property.\n provider = resolveForwardRef(provider);\n let token:\n any =\n isTypeProvider(provider) ? provider : resolveForwardRef(provider && provider.provide);\n\n // Construct a `Record` for the provider.\n const record = providerToRecord(provider, ngModuleType,\n providers);\n\n if (!isTypeProvider(provider) && provider.multi === true) {\n // If the provider indicates that\n it's a multi-provider, process it specially.\n // First check whether it's been defined already.\n let multiRecord =\n this.records.get(token);\n if (multiRecord) {\n // It has. Throw a nice error if\n if (ngDevMode &&\n multiRecord.multi === undefined) {\n throwMixedMultiProviderError();\n }\n } else {\n multiRecord = makeRecord(undefined, NOT_YET, true);\n multiRecord.factory = () =>\n injectArgs(multiRecord!.multi!);\n this.records.set(token, multiRecord);\n }\n token = provider;\n multiRecord.multi!.push(provider);\n } else {\n const existing = this.records.get(token);\n if (ngDevMode

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&& existing && existing.multi !== undefined) {\n throwMixedMultiProviderError();\n
 }\n }\n this.records.set(token, record);\n }\n\n private hydrate<T>(token: Type<T>|InjectionToken<T>,\n
record: Record<T>): T {\n if (ngDevMode && record.value === CIRCULAR) {\n
throwCyclicDependencyError(stringify(token));\n } else if (record.value === NOT_YET) {\n record.value =\n
CIRCULAR;\n record.value = record.factory!();\n }\n if (typeof record.value === 'object' && record.value\n
&& hasOnDestroy(record.value)) {\n this.onDestroy.add(record.value);\n }\n return record.value as T;\n
}\n\n private injectableDefInScope(def: InjectableDef<any>): boolean {\n if (!def.providedIn) {\n return\n
false;\n } else if (typeof def.providedIn === 'string') {\n return def.providedIn === 'any' || (def.providedIn ===\n
this.scope);\n } else {\n return this.injectorDefTypes.has(def.providedIn);\n }\n }\n }\n\nfunction\n
injectableDefOrInjectorDefFactory(token: Type<any>|InjectionToken<any>): FactoryFn<any> {\n // Most\n
tokens will have an injectable def directly on them, which specifies a factory directly.\n const injectableDef =\n
getInjectableDef(token);\n const factory = injectableDef !== null ? injectableDef.factory :\n
getFactoryDef(token);\n\n if (factory !== null) {\n return factory;\n }\n\n // If the token is an NgModule, it's also\n
injectable but the factory is on its injector def\n // ('inj')\n const injectorDef = getInjectorDef(token);\n if\n
(injectorDef !== null) {\n return injectorDef.factory;\n }\n\n // InjectionTokens should have an injectable def\n
(prov) and thus should be handled above.\n // If it's missing that, it's an error.\n if (token instanceof InjectionToken)\n
{\n throw new Error(`Token ${stringify(token)} is missing a prov definition.`);\n }\n\n // Undecorated types can\n
sometimes be created if they have no constructor arguments.\n if (token instanceof Function) {\n return\n
getUndecoratedInjectableFactory(token);\n }\n\n // There was no way to resolve a\n
factory for this token.\n throw new Error('unreachable');\n }\n\nfunction getUndecoratedInjectableFactory(token:\n
Function) {\n // If the token has parameters then it has dependencies that we cannot resolve implicitly.\n const\n
paramLength = token.length;\n if (paramLength > 0) {\n const args: string[] = newArray(paramLength, '?');\n
throw new Error(`Can't resolve all parameters for ${stringify(token)}: (${args.join(', ')}).`);\n }\n\n // The\n
constructor function appears to have no parameters.\n // This might be because it inherits from a super-class. In\n
which case, use an injectable\n // def from an ancestor if there is one.\n // Otherwise this really is a simple class\n
with no dependencies, so return a factory that\n // just instantiates the zero-arg constructor.\n const\n
inheritedInjectableDef = getInheritedInjectableDef(token);\n if (inheritedInjectableDef !== null) {\n return () =>\n
inheritedInjectableDef.factory(token as Type<any>);\n } else {\n return () => new\n
(token as Type<any>)();\n }\n }\n\nfunction providerToRecord(\n provider: SingleProvider, ngModuleType:\n
InjectorType<any>, providers: any[]): Record<any> {\n if (isValueProvider(provider)) {\n return\n
makeRecord(undefined, provider.useValue);\n } else {\n const factory: (() => any)|undefined =\n
providerToFactory(provider, ngModuleType, providers);\n return makeRecord(factory, NOT_YET);\n }\n }\n\n/**\n * Converts a `SingleProvider` into a factory function.\n * @param provider provider to convert to\n
factory\n */\nexport function providerToFactory(\n provider: SingleProvider, ngModuleType?:\n
InjectorType<any>, providers?: any[]): () => any {\n let factory: (() => any)|undefined = undefined;\n if\n
(isTypeProvider(provider)) {\n const unwrappedProvider = resolveForwardRef(provider);\n return\n
getFactoryDef(unwrappedProvider) || injectableDefOrInjectorDefFactory(unwrappedProvider);\n } else {\n if\n
(isValueProvider(provider)) {\n factory = () => resolveForwardRef(provider.useValue);\n
 }\n else if (isFactoryProvider(provider)) {\n factory = () => provider.useFactory(...injectArgs(provider.deps ||\n
[]));\n } else if (isExistingProvider(provider)) {\n factory = () =>\n
inject(resolveForwardRef(provider.useExisting));\n } else {\n const classRef = resolveForwardRef(\n
provider &&\n ((provider as StaticClassProvider | ClassProvider).useClass || provider.provide));\n if\n
(ngDevMode && !classRef) {\n throwInvalidProviderError(ngModuleType, providers, provider);\n }\n if\n
(hasDeps(provider)) {\n factory = () => new (classRef)(...injectArgs(provider.deps));\n } else {\n return\n
getFactoryDef(classRef) || injectableDefOrInjectorDefFactory(classRef);\n }\n }\n }\n return\n
factory;\n }\n\nfunction makeRecord<T>(\n factory: (() => T)|undefined, value: T|{ }, multi: boolean = false):\n
Record<T> {\n return {\n factory: factory,\n value: value,\n multi: multi

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? [] : undefined;\n };\n}\n\nfunction isValueProvider(value: SingleProvider): value is ValueProvider {\n return
value !== null && typeof value === 'object' && USE_VALUE in value;\n}\n\nfunction isExistingProvider(value:
SingleProvider): value is ExistingProvider {\n return !!(value && (value as
ExistingProvider).useExisting);\n}\n\nfunction isFactoryProvider(value: SingleProvider): value is FactoryProvider
{\n return !!(value && (value as FactoryProvider).useFactory);\n}\n\nexport function isTypeProvider(value:
SingleProvider): value is TypeProvider {\n return typeof value === 'function';\n}\n\nexport function
isClassProvider(value: SingleProvider): value is ClassProvider {\n return !!(value as StaticClassProvider |
ClassProvider).useClass;\n}\n\nfunction hasDeps(value: ClassProvider|ConstructorProvider|\n
StaticClassProvider): value is ClassProvider&{deps: any[]} {\n return !!(value as any).deps;\n}\n\nfunction
hasOnDestroy(value: any): value is OnDestroy {\n
return value !== null && typeof value === 'object' &&\n typeof (value as OnDestroy).ngOnDestroy ===
'function';\n}\n\nfunction couldBeInjectableType(value: any): value is Type<any>|InjectionToken<any> {\n return
(typeof value === 'function') ||\n (typeof value === 'object' && value instanceof InjectionToken);\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AbstractType,
Type } from './interface/type';\nimport { stringify } from './util/stringify';\nimport { resolveForwardRef } from
'./forward_ref';\nimport { InjectionToken } from './injection_token';\nimport { catchInjectorError, formatError,
NG_TEMP_TOKEN_PATH, setCurrentInjector, THROW_IF_NOT_FOUND, USE_VALUE, inject } from
'./injector_compatibility';\nimport { InjectorMarkers } from './injector_marker';\nimport { INJECTOR } from
'./injector_token';\nimport
{ getInjectableDef, defineInjectable } from './interface/defs';\nimport { InjectFlags } from
'./interface/injector';\nimport { ConstructorProvider, ExistingProvider, FactoryProvider, StaticClassProvider,
StaticProvider, ValueProvider } from './interface/provider';\nimport { Inject, Optional, Self, SkipSelf } from
'./metadata';\nimport { NullInjector } from './null_injector';\nimport { createInjector } from './r3_injector';\nimport
{ INJECTOR_SCOPE } from './scope';\n\nexport function INJECTOR_IMPL__PRE_R3__(\n providers:
StaticProvider[], parent: Injector|undefined, name: string) {\n return new StaticInjector(providers, parent,
name);\n}\n\nexport function INJECTOR_IMPL__POST_R3__(\n providers: StaticProvider[], parent:
Injector|undefined, name: string) {\n return createInjector({ name: name }, parent, providers, name);\n}\n\nexport
const INJECTOR_IMPL = INJECTOR_IMPL__PRE_R3__;\n\n/**\n * Concrete injectors implement this interface.
Injectors are configured\n * with [providers](guide/glossary#provider)
that associate\n * dependencies of various types with [injection tokens](guide/glossary#di-token).\n * \n * @see
["DI Providers"] (guide/dependency-injection-providers).\n * @see `StaticProvider`\n * \n * @usageNotes\n * \n *
The following example creates a service injector instance.\n * \n * { @example core/di/ts/provider_spec.ts
region='ConstructorProvider'}\n * \n * ### Usage example\n * \n * { @example core/di/ts/injector_spec.ts
region='Injector'}\n * \n * `Injector` returns itself when given `Injector` as a token:\n * \n * { @example
core/di/ts/injector_spec.ts region='injectInjector'}\n * \n * @publicApi\n */\n\nexport abstract class Injector {\n static
THROW_IF_NOT_FOUND = THROW_IF_NOT_FOUND;\n static NULL: Injector = new NullInjector();\n\n /**\n * Retrieves an instance from the injector based on the provided token.\n * @returns The instance from the
injector if defined, otherwise the `notFoundValue`.\n * @throws When the `notFoundValue` is `undefined` or
`Injector.THROW_IF_NOT_FOUND`.\n
*/\n abstract get<T>(\n token: Type<T>|InjectionToken<T>|AbstractType<T>, notFoundValue?: T, flags?:
InjectFlags): T;\n /**\n * @deprecated from v4.0.0 use Type<T> or InjectionToken<T>\n * @suppress
{duplicate}\n */\n abstract get(token: any, notFoundValue?: any): any;\n /**\n * @deprecated from v5 use the
new signature Injector.create(options)\n */\n static create(providers: StaticProvider[], parent?: Injector):
Injector;\n\n /**\n * Creates a new injector instance that provides one or more dependencies,\n * according to a
given type or types of `StaticProvider`.\n * \n * @param options An object with the following properties:\n * \n *
`providers`: An array of providers of the [StaticProvider type](api/core/StaticProvider).\n * \n * `parent`: (optional) A
parent injector.\n * \n * `name`: (optional) A developer-defined identifying name for the new injector.\n * \n *

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@returns The new injector instance.\n */\n\n static create(options:
 {providers: StaticProvider[], parent?: Injector, name?: string}): Injector;\n\n\n static create(\n options:
 StaticProvider[] | {providers: StaticProvider[], parent?: Injector, name?: string},\n parent?: Injector): Injector {\n if (Array.isArray(options)) {\n return INJECTOR_IMPL(options, parent, '');\n } else {\n return
 INJECTOR_IMPL(options.providers, options.parent, options.name || '');\n }\n}\n\n /** @nocollapse */\n\n static
 prov = defineInjectable({\n token: Injector,\n providedIn: 'any' as any,\n factory: () => inject(INJECTOR),\n});\n\n /**\n * @internal\n * @nocollapse\n */\n\n static __NG_ELEMENT_ID__ =
InjectorMarkers.Injector;\n}\n\n\n\nconst IDENT = function<T>(value: T): T {\n return value;\n};\n\nconst EMPTY
= <any[]>[];\n\nconst CIRCULAR = IDENT;\n\nconst MULTI_PROVIDER_FN = function(): any[] {\n return
 Array.prototype.slice.call(arguments);\n};\n\n\nconst enum OptionFlags {\n Optional = 1 << 0,\n CheckSelf = 1 <<
 1,\n CheckParent = 1 << 2,\n Default = CheckSelf | CheckParent\n}\n\n\nconst NO_NEW_LINE = '';\n\nexport class
StaticInjector implements Injector {\n readonly parent: Injector;\n readonly source: string|null;\n readonly scope:
 string|null;\n\n private _records: Map<any, Record|null>;\n\n constructor(\n providers: StaticProvider[], parent:
 Injector = Injector.NULL, source: string|null = null) {\n this.parent = parent;\n this.source = source;\n const
 records = this._records = new Map<any, Record>();\n records.set(\n Injector, <Record>{token: Injector, fn:
 IDENT, deps: EMPTY, value: this, useNew: false});\n records.set(\n INJECTOR, <Record>{token:
 INJECTOR, fn: IDENT, deps: EMPTY, value: this, useNew: false});\n this.scope =
 recursivelyProcessProviders(records, providers);\n }\n\n get<T>(token: Type<T> | InjectionToken<T>,
 notFoundValue?: T, flags?: InjectFlags): T;\n get(token: any, notFoundValue?: any): any;\n get(token: any,
 notFoundValue?: any,
 flags: InjectFlags = InjectFlags.Default): any {\n const records = this._records;\n let record =
 records.get(token);\n if (record === undefined) {\n // This means we have never seen this record, see if it is tree
 shakable provider.\n const injectableDef = getInjectableDef(token);\n if (injectableDef) {\n const
 providedIn = injectableDef && injectableDef.providedIn;\n if (providedIn === 'any' || providedIn != null &&
 providedIn === this.scope) {\n records.set(\n token,\n record = resolveProvider(\n {provide: token, useFactory: injectableDef.factory, deps: EMPTY}));\n }\n }\n if (record === undefined)
 {\n // Set record to null to make sure that we don't go through expensive lookup above again.\n records.set(token, null);\n }\n }\n let lastInjector = setCurrentInjector(this);\n try {\n return
 tryResolveToken(token, record, records, this.parent, notFoundValue,
 flags);\n } catch (e) {\n return catchInjectorError(e, token, 'StaticInjectorError', this.source);\n } finally {\n setCurrentInjector(lastInjector);\n }\n }\n\n toString() {\n const tokens = <string[]>[], records = this._records;\n records.forEach((v, token) => tokens.push(stringify(token)));\n return `StaticInjector[${tokens.join(', ')}];`\n }\n}\n\n\n type SupportedProvider =\n ValueProvider | ExistingProvider | StaticClassProvider | ConstructorProvider | FactoryProvider;\n\n\n interface Record {\n fn: Function;\n useNew: boolean;\n deps: DependencyRecord[];\n value: any;\n}\n\n\n interface DependencyRecord
 {\n token: any;\n options: number;\n}\n\n\n function resolveProvider(provider: SupportedProvider): Record {\n const
 deps = computeDeps(provider);\n let fn: Function = IDENT;\n let value: any = EMPTY;\n let useNew: boolean =
 false;\n let provide = resolveForwardRef(provider.provider);\n if (USE_VALUE in provider) {\n // We need to
 use USE_VALUE

 in provider since provider.useValue could be defined as undefined.\n value = (provider as
 ValueProvider).useValue;\n } else if ((provider as FactoryProvider).useFactory) {\n fn = (provider as
 FactoryProvider).useFactory;\n } else if ((provider as ExistingProvider).useExisting) {\n // Just use IDENT\n }
 else if ((provider as StaticClassProvider).useClass) {\n useNew = true;\n fn = resolveForwardRef((provider as
 StaticClassProvider).useClass);\n } else if (typeof provide == 'function') {\n useNew = true;\n fn = provide;\n }
 else {\n throw staticError(\n 'StaticProvider does not have [useValue|useFactory|useExisting|useClass] or
 [provide] is not newable',\n provider);\n }\n return {deps, fn, useNew, value};\n}\n\n\n function
 multiProviderMixError(token: any) {\n return staticError('Cannot mix multi providers and regular providers',
 token);\n}\n\n\n function recursivelyProcessProviders(records: Map<any, Record>, provider: StaticProvider): string{\n
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 null {\n let scope: string|null = null;\n if (provider) {\n provider = resolveForwardRef(provider);\n if
(Array.isArray(provider)) {\n // if we have an array recurse into the array\n for (let i = 0; i < provider.length;
i++) {\n scope = recursivelyProcessProviders(records, provider[i]) || scope;\n }\n } else if (typeof provider
=== 'function') {\n // Functions were supported in ReflectiveInjector, but are not here. For safety give useful\n
// error messages\n throw staticError('Function/Class not supported', provider);\n } else if (provider && typeof
provider === 'object' && provider.provide) {\n // At this point we have what looks like a provider: {provide: ?,
....}\n let token = resolveForwardRef(provider.provide);\n const resolvedProvider =
resolveProvider(provider);\n if (provider.multi === true) {\n // This is a multi provider.\n let
multiProvider: Record|undefined = records.get(token);\n
 if (multiProvider) {\n if (multiProvider.fn !== MULTI_PROVIDER_FN) {\n throw
multiProviderMixError(token);\n }\n } else {\n // Create a placeholder factory which will look up the
constituents of the multi provider.\n records.set(token, multiProvider = <Record>{\n token:
provider.provide,\n deps: [],\n useNew: false,\n fn: MULTI_PROVIDER_FN,\n value:
EMPTY\n });\n }\n // Treat the provider as the token.\n token = provider;\n
multiProvider.deps.push({ token, options: OptionFlags.Default});\n }\n const record = records.get(token);\n
if (record && record.fn == MULTI_PROVIDER_FN) {\n throw multiProviderMixError(token);\n }\n if
(token === INJECTOR_SCOPE) {\n scope = resolvedProvider.value;\n }\n records.set(token,
resolvedProvider);\n } else {\n throw staticError('Unexpected provider', provider);\n }\n }\n }\n return scope;\n}\n\nfunction tryResolveToken(\n token: any, record: Record|undefined|null, records:
Map<any, Record|null>, parent: Injector,\n notFoundValue: any, flags: InjectFlags): any {\n try {\n return
resolveToken(token, record, records, parent, notFoundValue, flags);\n } catch (e) {\n // ensure that 'e' is of type
Error.\n if (!(e instanceof Error)) {\n e = new Error(e);\n }\n const path: any[] =
e[NG_TEMP_TOKEN_PATH] = e[NG_TEMP_TOKEN_PATH] || [];\n path.unshift(token);\n if (record &&
record.value == CIRCULAR) {\n // Reset the Circular flag.\n record.value = EMPTY;\n }\n throw e;\n }\n }\n\nfunction resolveToken(\n token: any, record: Record|undefined|null, records: Map<any, Record|null>,
parent: Injector,\n notFoundValue: any, flags: InjectFlags): any {\n let value;\n if (record && !(flags &
InjectFlags.SkipSelf)) {\n // If we don't have a record, this implies that we don't own the provider
hence don't know how\n // to resolve it.\n value = record.value;\n if (value == CIRCULAR) {\n throw
Error(NO_NEW_LINE + 'Circular dependency');\n } else if (value === EMPTY) {\n record.value =
CIRCULAR;\n let obj = undefined;\n let useNew = record.useNew;\n let fn = record.fn;\n let
depRecords = record.deps;\n let deps = EMPTY;\n if (depRecords.length) {\n deps = [];\n for (let i =
0; i < depRecords.length; i++) {\n const depRecord: DependencyRecord = depRecords[i];\n const
options = depRecord.options;\n const childRecord =\n options & OptionFlags.CheckSelf ?
records.get(depRecord.token) : undefined;\n deps.push(tryResolveToken(\n // Current Token to
resolve\n depRecord.token,\n // A record which describes how to resolve the token.\n // If
undefined, this means we don't have such a record\n childRecord,\n
 // Other records we know about.\n records,\n // If we don't know how to resolve dependency
and we should not check parent for it,\n // than pass in Null injector.\n !childRecord && !(options &
OptionFlags.CheckParent) ? Injector.NULL : parent,\n options & OptionFlags.Optional ? null :
Injector.THROW_IF_NOT_FOUND,\n InjectFlags.Default));\n }\n }\n record.value = value =
useNew ? new (fn as any)(...deps) : fn.apply(obj, deps);\n }\n } else if (!(flags & InjectFlags.Self)) {\n value =
parent.get(token, notFoundValue, InjectFlags.Default);\n } else if (!(flags & InjectFlags.Optional)) {\n value =
Injector.NULL.get(token, notFoundValue);\n } else {\n value = Injector.NULL.get(token, typeof notFoundValue
!== 'undefined' ? notFoundValue : null);\n }\n return value;\n }\n }\n\nfunction computeDeps(provider: StaticProvider):
DependencyRecord[] {\n let deps: DependencyRecord[] =
EMPTY;\n const providerDeps: any[] =\n (provider as ExistingProvider & StaticClassProvider &
ConstructorProvider).deps;\n if (providerDeps && providerDeps.length) {\n deps = [];\n for (let i = 0; i <
providerDeps.length; i++) {\n let options = OptionFlags.Default;\n let token =

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resolveForwardRef(providerDeps[i]);\n if (Array.isArray(token)) {\n for (let j = 0, annotations = token; j <
annotations.length; j++) {\n const annotation = annotations[j];\n if (annotation instanceof Optional ||
annotation == Optional) {\n options = options | OptionFlags.Optional;\n } else if (annotation instanceof
SkipSelf || annotation == SkipSelf) {\n options = options & ~OptionFlags.CheckSelf;\n } else if
(annotation instanceof Self || annotation == Self) {\n options = options & ~OptionFlags.CheckParent;\n } else if (annotation instanceof Inject) {\n token = (annotation as Inject).token;\n } else {\n token = resolveForwardRef(annotation);\n }\n }\n deps.push({token,
options});\n } else if ((provider as ExistingProvider).useExisting) {\n const token =
resolveForwardRef((provider as ExistingProvider).useExisting);\n deps = [{token, options:
OptionFlags.Default}];\n } else if (!providerDeps && !(USE_VALUE in provider)) {\n // useValue &
useExisting are the only ones which are exempt from deps all others need it.\n throw staticError(`\\deps\\`
required', provider);\n }\n return deps;\n}\n\nfunction staticError(text: string, obj: any): Error {\n return new
Error(formatError(text, obj, 'StaticInjectorError'));\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from '../di/injector';\nimport {assertEqual}
from '../util/assert';\nimport
{assertLView} from '../assert';\nimport {discoverLocalRefs, getComponentAtNodeIndex,
getDirectivesAtNodeIndex, getLContext} from '../context_discovery';\nimport {NodeInjector} from '../di';\nimport
{buildDebugNode} from '../instructions/lview_debug';\nimport {LContext} from '../interfaces/context';\nimport
{DirectiveDef} from '../interfaces/definition';\nimport {TElementNode, TNode, TNodeProviderIndexes} from
'../interfaces/node';\nimport {isLView} from '../interfaces/type_checks';\nimport {CLEANUP, CONTEXT,
DebugNode, FLAGS, LView, LViewFlags, T_HOST, TVIEW, TViewType} from '../interfaces/view';\nimport
{stringifyForError} from './stringify_utils';\nimport {getLViewParent, getRootContext} from
'./view_traversal_utils';\nimport {getTNode, unwrapRNode} from './view_utils';\n\n\n/**\n * Retrieves the
component instance associated with a given DOM element.\n *\n * @usageNotes\n * Given the following DOM
structure:\n *\n * ```html\n * <my-app>\n * <div>\n * <child-comp></child-comp>\n * </div>\n * </my-app>\n * ```\n *\n * Calling `getComponent` on `<child-comp>` will return the instance of
`ChildComponent`\n * associated with this DOM element.\n *\n * Calling the function on `<my-app>` will return
the `MyApp` instance.\n *\n * @param element DOM element from which the component should be retrieved.\n
*\n * @returns Component instance associated with the element or `null` if there\n * is no component associated with
it.\n *\n * @publicApi\n * @globalApi ng\n */\n\nexport function getComponent<T>(element: Element): T|null {\n
assertDomElement(element);\n const context = loadLContext(element, false);\n if (context === null) return
null;\n\n if (context.component === undefined) {\n context.component =
getComponentAtNodeIndex(context.nodeIndex, context.lview);\n }\n\n return context.component as
T;\n}\n\n\n/**\n * If inside an embedded view (e.g. `*ngIf` or `*ngFor`), retrieves the context of the embedded\n *
view that the element is part
of. Otherwise retrieves the instance of the component whose view\n * owns the element (in this case, the result is
the same as calling `getOwningComponent`).\n *\n * @param element Element for which to get the surrounding
component instance.\n *\n * @returns Instance of the component that is around the element or null if the element isn't\n
*\n * inside any component.\n *\n * @publicApi\n * @globalApi ng\n */\n\nexport function getContext<T>(element:
Element): T|null {\n assertDomElement(element);\n const context = loadLContext(element, false);\n return context
=== null ? null : context.lview[CONTEXT] as T;\n}\n\n\n/**\n * Retrieves the component instance whose view
contains the DOM element.\n *\n * For example, if `<child-comp>` is used in the template of `<app-comp>`\n * (i.e.
a `ViewChild` of `<app-comp>`), calling `getOwningComponent` on `<child-comp>`\n * would return `<app-comp>`\n *\n * @param elementOrDir DOM element, component or directive instance\n * for which to retrieve
the
root components.\n *\n * @returns Component instance whose view owns the DOM element or null if the element is
not\n * part of a component view.\n *\n * @publicApi\n * @globalApi ng\n */\n\nexport function

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getOwningComponent<T>(elementOrDir: Element|{}): T|null {\n const context = loadLContext(elementOrDir, false);\n if (context === null) return null;\n let IView = context.IView;\n let parent: LView|null;\n ngDevMode && assertLView(IView);\n while (IView[TVIEW].type === TViewType.Embedded && (parent = getLViewParent(IView)!)) {\n IView = parent;\n }\n return IView[FLAGS] & LViewFlags.IsRoot ? null : IView[CONTEXT] as T;\n}\n\n/**\n * Retrieves all root components associated with a DOM element, directive or component instance.\n * Root components are those which have been bootstrapped by Angular.\n * @param elementOrDir DOM element, component or directive instance\n * for which to retrieve the root components.\n * @returns Root components associated with the target object.\n\n * @publicApi\n * @globalApi ng\n */\nexport function getRootComponents(elementOrDir: Element|{}): {}[] {\n return [...getRootContext(elementOrDir).components];\n}\n\n/**\n * Retrieves an `Injector` associated with an element, component or directive instance.\n * @param elementOrDir DOM element, component or directive instance for which to\n * retrieve the injector.\n * @returns Injector associated with the element, component or directive instance.\n\n * @publicApi\n * @globalApi ng\n */\nexport function getInjector(elementOrDir: Element|{}): Injector {\n const context = loadLContext(elementOrDir, false);\n if (context === null) return Injector.NULL;\n const tNode = context.IView[TVIEW].data[context.nodeIndex] as TElementNode;\n return new NodeInjector(tNode, context.IView);\n}\n\n/**\n * Retrieve a set of injection tokens at a given DOM node.\n * @param element Element for which the injection tokens should be retrieved.\n */\nexport function getInjectionTokens(element: Element): any[] {\n const context = loadLContext(element, false);\n if (context === null) return [];\n const IView = context.IView;\n const tView = IView[TVIEW];\n const tNode = tView.data[context.nodeIndex] as TNode;\n const providerTokens: any[] = [];\n const startIndex = tNode.providerIndexes & TNodeProviderIndexes.ProvidersStartIndexMask;\n const endIndex = tNode.directiveEnd;\n for (let i = startIndex; i < endIndex; i++) {\n let value = tView.data[i];\n if (isDirectiveDefHack(value)) {\n // The fact that we sometimes store Type and sometimes DirectiveDef in this location is a\n // design flaw. We should always store same type so that we can be monomorphic. The issue\n // is that for Components/Directives we store the def instead the type. The correct behavior\n // is that we should always be storing injectable type in this location.\n value = value.type;\n }\n providerTokens.push(value);\n }\n return providerTokens;\n}\n\n/**\n * Retrieves directive instances associated with a given DOM element. Does not include\n * component instances.\n\n * @usageNotes\n * Given the following DOM structure:\n * <my-app>\n * <button my-button></button>\n * <my-comp></my-comp>\n * </my-app>\n * Calling `getDirectives` on `<button>` will return an array with an instance of the `MyButton` directive that is associated with the DOM element.\n * Calling `getDirectives` on `<my-comp>` will return an empty array.\n * @param element DOM element for which to get the directives.\n * @returns Array of directives associated with the element.\n\n * @publicApi\n * @globalApi ng\n */\nexport function getDirectives(element: Element): {}[] {\n const context = loadLContext(element);\n if (context.directives === undefined) {\n context.directives = getDirectivesAtNodeIndex(context.nodeIndex, context.IView, false);\n }\n // The `directives` in this case are a named array called `LComponentView`.\n Clone the // result so we don't expose an internal data structure in the user's console.\n return context.directives === null ? [] : [...context.directives];\n}\n\n/**\n * Returns LContext associated with a target passed as an argument.\n * Throws if a given target doesn't have associated LContext.\n */\nexport function loadLContext(target: {}): LContext;\nexport function loadLContext(target: {}, throwOnNotFound: false): LContext|null;\nexport function loadLContext(target: {}, throwOnNotFound: boolean = true): LContext|null {\n const context = getLContext(target);\n if (!context && throwOnNotFound) {\n throw new Error(`ngDevMode ? `Unable to find context associated with ${stringifyForError(target)}` : `Invalid ng target`);\n }\n return context;\n}\n\n/**\n * Retrieve map of local references.\n * The references are retrieved as a map of local reference name to element or directive instance.\n * @param target DOM element, component or directive instance for which to retrieve\n * the local references.\n */\nexport function getLocalRefs(target: {}): {[key: string]: any} {\n const context = loadLContext(target, false);\n if (context === null) return {};\n if

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(context.localRefs === undefined) {\n context.localRefs = discoverLocalRefs(context.IView,
context.nodeIndex);\n }\n\n return context.localRefs || {};\n}\n\n/**\n * Retrieves the host element of a component
or directive instance.\n * The host element is the DOM element that matched the selector of the directive.\n *\n * @param componentOrDirective Component or directive instance for which the host\n * element should be
retrieved.\n * @returns Host element of the target.\n *\n * @publicApi\n * @globalApi ng\n */\n\nexport function
getHostElement(componentOrDirective: {}): Element {\n return getLContext(componentOrDirective).native as
never as Element;\n}\n\n/**\n * Retrieves the rendered text for a given component.\n *\n * This function retrieves
the host element of a component and\n * and then returns the `textContent` for that element. This implies\n * that
the text returned will include re-projected content of\n * the component as well.\n *\n * @param component The
component to return the content text for.\n */\n\nexport function getRenderedText(component: any): string {\n const
hostElement = getHostElement(component);\n return hostElement.textContent || '';\n}\n\nexport function
loadLContextFromNode(node: Node): LContext {\n if (!(node instanceof Node)) throw new Error('Expecting
instance of DOM Element');\n return loadLContext(node);\n}\n\n/**\n * Event listener configuration returned from
`getListeners`.\n *\n * @publicApi\n */\n\nexport interface Listener {\n /** Name of the event listener. */\n name:
string;\n /** Element that the listener is bound to. */\n element: Element;\n /** Callback that is invoked when the
event is triggered. */\n callback: (value: any) => any;\n /** Whether the listener is using event capturing.
*/\n useCapture: boolean;\n /**\n * Type of the listener (e.g. a native DOM event or a custom @Output).\n */\n type: 'dom'|'output';\n}\n\n/**\n * Retrieves a list of event listeners associated with a DOM element. The list does
include host\n * listeners, but it does not include event listeners defined outside of the Angular context\n * (e.g.
through `addEventListener`).\n *\n * @usageNotes\n * Given the following DOM structure:\n * ```\n * <my-app>\n * <div (click)="doSomething()"></div>\n * </my-app>\n * ```\n * Calling `getListeners` on `<div>` will
return an object that looks as follows:\n * ```\n * {\n * name: 'click',\n * element: <div>,\n * callback: () =>
doSomething(),\n * useCapture: false\n * }\n * ```\n *\n * @param element Element for which the DOM listeners
should be retrieved.\n * @returns Array of event listeners on the DOM element.\n *\n * @publicApi\n *
@globalApi ng\n */\n\nexport function getListeners(element: Element): Listener[] {\n
 assertDomElement(element);\n const lContext = loadLContext(element, false);\n if (lContext === null) return
[];\n\n const lView = lContext.IView;\n const tView = lView[TVIEW];\n const lCleanup = lView[CLEANUP];\n const
tCleanup = tView.cleanup;\n const listeners: Listener[] = [];\n if (tCleanup && lCleanup) {\n for (let i = 0;
i < tCleanup.length;) {\n const firstParam = tCleanup[i++];\n const secondParam = tCleanup[i++];\n if
(typeof firstParam === 'string') {\n const name: string = firstParam;\n const listenerElement =
unwrapRNode(lView[secondParam]) as any as Element;\n const callback: (value: any) => any =
lCleanup[tCleanup[i++]];\n const useCaptureOrIndx = tCleanup[i++];\n // if useCaptureOrIndx is boolean
then report it as is.\n // if useCaptureOrIndx is positive number then it in unsubscribe method\n // if
useCaptureOrIndx is negative number then it is a Subscription\n const type =\n (typeof useCaptureOrIndx === 'boolean' || useCaptureOrIndx >= 0) ? 'dom' : 'output';\n const useCapture =
typeof useCaptureOrIndx === 'boolean' ? useCaptureOrIndx : false;\n if (element === listenerElement) {\n
 listeners.push({element, name, callback, useCapture, type});\n }\n }\n }\n listeners.sort(sortListeners);\n return listeners;\n }\n\n function sortListeners(a: Listener, b: Listener) {\n if (a.name
=== b.name) return 0;\n return a.name < b.name ? -1 : 1;\n }\n}\n\n/**\n * This function should not exist because it is
megamorphic and only mostly correct.\n *\n * See call site for more info.\n */\n\nfunction isDirectiveDefHack(obj:
any): obj is DirectiveDef<any> {\n return obj.type !== undefined && obj.template !== undefined &&
obj.declaredInputs !== undefined;\n}\n\n/**\n * Returns the attached `DebugNode` instance for an element in the
DOM.\n *\n * @param element DOM element which is owned by an existing component's view.\n */\n\nexport
function
getDebugNode(element: Element): DebugNode|null {\n let debugNode: DebugNode|null = null;\n\n const
lContext = loadLContextFromNode(element);\n const lView = lContext.IView;\n const nodeIndex =
lContext.nodeIndex;\n if (nodeIndex !== -1) {\n const valueInLView = lView[nodeIndex];\n // this means that
value in the lView is a component with its own\n // data. In this situation the TNode is not accessed at the same

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spot.\n const tNode =\n isLView(valueInLView) ? (valueInLView[T_HOST] as TNode) :
getNode(IView[TVIEW], nodeIndex);\n ngDevMode &&\n assertEquals(tNode.index, nodeIndex, 'Expecting
that TNode at index is same as index');\n debugNode = buildDebugNode(tNode, IView);\n }\n\n return
debugNode;\n}\n\n/**\n * Retrieve the component `LView` from component/element.\n * NOTE: `LView` is a
private and should not be leaked outside.\n * Don't export this method to `ng.*` on window.\n *\n * @param
target DOM element or component instance for
 which to retrieve the LView.\n */\nexport function getComponentLView(target: any): LView {\n const IContext =
loadLContext(target);\n const nodeIndx = IContext.nodeIndex;\n const IView = IContext.IView;\n const
componentLView = IView[nodeIndx];\n ngDevMode && assertLView(componentLView);\n return
componentLView;\n}\n\n/** Asserts that a value is a DOM Element. */\nfunction assertDomElement(value: any)
{\n if (typeof Element !== 'undefined' && !(value instanceof Element)) {\n throw new Error('Expecting instance
of DOM Element');\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { detectChanges, markDirty } from
'./instructions/change_detection';\nimport { getRootComponents } from './discovery_utils';\n\n/**\n * Marks a
component for check (in case of OnPush components) and synchronously\n * performs change
detection on the application this component belongs to.\n *\n * @param component Component to { @link
ChangeDetectorRef#markForCheck mark for check }.\n *\n * @publicApi\n * @globalApi ng\n */\nexport function
applyChanges(component: {}): void {\n markDirty(component);\n
getRootComponents(component).forEach(rootComponent => detectChanges(rootComponent));\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { assertDefined }
from './util/assert';\nimport { global } from './util/global';\nimport { applyChanges } from
'./change_detection_utils';\nimport { getComponent, getContext, getDirectives, getHostElement, getInjector,
getListeners, getOwningComponent, getRootComponents } from './discovery_utils';\n\n\n\n/**\n * This file
introduces series of globally accessible debug tools\n * to allow for the Angular debugging
story to function.\n *\n * To see this in action run the following command:\n *\n * bazel run --config=ivy\n *
//packages/core/test/bundling/todo:devserver\n *\n * Then load `localhost:5432` and start using the console tools.\n
*\n\n\n/**\n * This value reflects the property on the window where the dev\n * tools are patched (window.ng).\n *
*/\nexport const GLOBAL_PUBLISH_EXPANDO_KEY = 'ng';\n\nlet _published = false;\n\n/**\n * Publishes a
collection of default debug tools onto `window.ng`.\n *\n * These functions are available globally when Angular is in
development\n * mode and are automatically stripped away from prod mode is on.\n */\nexport function
publishDefaultGlobalUtils() {\n if (!_published) {\n _published = true;\n publishGlobalUtil('getComponent',
getComponent);\n publishGlobalUtil('getContext', getContext);\n publishGlobalUtil('getListeners',
getListeners);\n publishGlobalUtil('getOwningComponent', getOwningComponent);\n
publishGlobalUtil('getHostElement',
getHostElement);\n publishGlobalUtil('getInjector', getInjector);\n publishGlobalUtil('getRootComponents',
getRootComponents);\n publishGlobalUtil('getDirectives', getDirectives);\n publishGlobalUtil('applyChanges',
applyChanges);\n }\n}\n\nexport declare type GlobalDevModeContainer = {\n
[GLOBAL_PUBLISH_EXPANDO_KEY]: {[fnName: string]: Function};\n};\n\n/**\n * Publishes the given
function to `window.ng` so that it can be\n * used from the browser console when an application is not in
production.\n */\nexport function publishGlobalUtil(name: string, fn: Function): void {\n if (typeof COMPILED
=== 'undefined' || !COMPILED) {\n // Note: we can't export `ng` when using closure enhanced optimization as:\n
// - closure declares globals itself for minified names, which sometimes clobber our `ng` global\n // - we can't
declare a closure extern as the namespace `ng` is already used within Google\n // for typings for AngularJS (via
`goog.provide('ng....')`).\n
const w = global as any as GlobalDevModeContainer;\n ngDevMode && assertDefined(fn, 'function not
defined');\n if (w) {\n let container = w[GLOBAL_PUBLISH_EXPANDO_KEY];\n if (!container) {\n

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container = w[GLOBAL_PUBLISH_EXPANDO_KEY] = {};
container[name] = fn;
}
}
"/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is
 * governed by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
We are temporarily importing the existing viewEngine from core so we can be sure we are
correctly implementing its interfaces for backwards compatibility.
import {Injector} from './di/injector';
import {Type} from './interface/type';
import {Sanitizer} from './sanitization/sanitizer';
import {assertDefined,
assertIndexInRange} from './util/assert';
import {assertComponentType} from './assert';
import {getComponentDef} from './definition';
import {diPublicInInjector, getOrCreateNodeInjectorForNode} from './di';
import {throwProviderNotFoundError} from './errors_di';
import {registerPostOrderHooks} from './hooks';
import {addToViewTree, CLEAN_PROMISE,
createView, createTView, getOrCreateTComponentView, getOrCreateTNode, initTNodeFlags,
instantiateRootComponent, invokeHostBindingsInCreationMode, locateHostElement, markAsComponentHost,
refreshView, registerHostBindingOpCodes, renderView} from './instructions/shared';
import {ComponentDef,
ComponentType, RenderFlags} from './interfaces/definition';
import {TElementNode, TNodeType} from './interfaces/node';
import {PlayerHandler} from './interfaces/player';
import {domRendererFactory3, Renderer3,
RendererFactory3} from './interfaces/renderer';
import {RElement} from './interfaces/renderer_dom';
import {CONTEXT, HEADER_OFFSET, LView, LViewFlags, RootContext, RootContextFlags, TVIEW, TViewType}
from './interfaces/view';
import {writeDirectClass, writeDirectStyle} from './node_manipulation';
import {enterView, getCurrentTNode, leaveView, setSelectedIndex} from './state';
import {computeStaticStyling} from './styling/static_styling';
import {setUpAttributes} from './util/attrs_utils';
import {publishDefaultGlobalUtils}
from './util/global_utils';
import {defaultScheduler} from './util/misc_utils';
import {getRootContext} from './util/view_traversal_utils';
import {readPatchedLView} from './util/view_utils';
}
Options that control how the component should be bootstrapped.
export interface CreateComponentOptions {
 /** Which renderer factory to use.
 * rendererFactory?: RendererFactory3;
 * A custom sanitizer instance
 * sanitizer?: Sanitizer;
 * A custom animation player handler
 * playerHandler?: PlayerHandler;
 * Host element on which the component will be bootstrapped. If not specified,
 * the component definition's `tag` is used to query the existing DOM for the
 * element to bootstrap.
 * host?: RElement|string;
 * Module injector for the component. If unspecified, the injector will be
 * NULL_INJECTOR.
 * injector?: Injector;
 * List of features to be applied to the created component.
 * Features are simply
 * functions that decorate a component with a certain behavior.
 * Typically, the
 * features in this list are features that cannot be added to the
 * other features list in the component definition because they rely on other factors.
 * Example: `LifecycleHooksFeature` is a function that adds lifecycle
 * hook capabilities
 * to root components in a tree-shakable way. It cannot be added to the component
 * features
 * list because there's no way of knowing when the component will be used as
 * a root component.
 * hostFeatures?: HostFeature[];
 * A function which is used to schedule change detection work in the
 * future.
 * When marking components as dirty, it is necessary to schedule the work
 * of
 * change detection in the future. This is done to coalesce multiple
 * {@link markDirty} calls into a single
 * changed detection processing.
 * The default value of the scheduler is the `requestAnimationFrame`
 * function.
 * It is also useful to override this function for testing purposes.
 * scheduler?: (work: () => void) => void;
 * See CreateComponentOptions.hostFeatures
 * type HostFeature = (<T>(component: T,
 * componentDef: ComponentDef<T>) => void);
 * TODO: A hack to not pull in the NullInjector from
 * @angular/core.
 * export const NULL_INJECTOR: Injector = {
 * get: (token: any, notFoundValue?: any) => {
 * throwProviderNotFoundError(token, 'NullInjector');
 * }
 * };
 * Bootstraps a Component into an existing
 * host element and returns an instance
 * of the component.
 * Use this function to bootstrap a component into
 * the DOM tree. Each invocation
 * of this function will create a separate tree of components, injectors and
 * change detection cycles and lifetimes. To dynamically insert a new component
 * into an existing tree such that
 * it shares the same injection, change detection
 * and object lifetime, use {@link
 * ViewContainer#createComponent}.
 * @param componentType Component to bootstrap
 * @param options

```



```

Optional parameters which control bootstrapping\n */\nexport function renderComponent<T>(\n componentType:
ComponentType<T>|\n Type<T>/* Type as workaround for: Microsoft/TypeScript/issues/4881 */\n ,\n opts:
CreateComponentOptions = {}): T {\n ngDevMode && publishDefaultGlobalUtils();\n ngDevMode &&
assertComponentType(componentType);\n\n const rendererFactory = opts.rendererFactory ||
domRendererFactory3;\n const sanitizer = opts.sanitizer || null;\n const componentDef =
getComponentDef<T>(componentType)!;\n if (componentDef.type !== componentType) (componentDef as {type:
Type<any>}).type = componentType;\n\n // The first index of the first selector is the tag name.\n const
componentTag = componentDef.selectors![0]![0] as string;\n const hostRenderer =
rendererFactory.createRenderer(null, null);\n const hostRNode =\n locateHostElement(hostRenderer, opts.host ||
componentTag, componentDef.encapsulation);\n const rootFlags = componentDef.onPush ? LViewFlags.Dirty |
LViewFlags.IsRoot :\n LViewFlags.CheckAlways | LViewFlags.IsRoot;\n const
rootContext = createRootContext(opts.scheduler, opts.playerHandler);\n\n const renderer =
rendererFactory.createRenderer(hostRNode, componentDef);\n const rootTView = createTView(TViewType.Root,
null, null, 1, 0, null, null, null, null, null);\n const rootView: LView = createLView(\n null, rootTView,
rootContext, rootFlags, null, null, rendererFactory, renderer, null,\n opts.injector || null);\n enterView(rootView);\n let component: T;\n\n try {\n if (rendererFactory.begin) rendererFactory.begin();\n const componentView = createRootComponentView(\n
 hostRNode, componentDef, rootView, rendererFactory, renderer, sanitizer);\n component =
createRootComponent(\n componentView, componentDef, rootView, rootContext, opts.hostFeatures ||
null);\n\n // create mode pass\n renderView(rootTView, rootView, null);\n // update mode pass\n
refreshView(rootTView, rootView, null, null);\n\n } finally {\n leaveView();\n if (rendererFactory.end)
rendererFactory.end();\n }\n\n return component;\n}\n\n/**\n * Creates the root component view and the root
component node.\n * @param rNode Render host element.\n * @param def ComponentDef\n * @param
rootView The parent view where the host node is stored\n * @param rendererFactory Factory to be used for creating
child renderers.\n * @param hostRenderer The current renderer\n * @param sanitizer The sanitizer, if provided\n
*\n * @returns Component view created\n */\nexport function createRootComponentView(\n rNode:
RElement|null, def: ComponentDef<any>, rootView:
LView,\n rendererFactory: RendererFactory3, hostRenderer: Renderer3, sanitizer?: Sanitizer|null): LView {\n
const tView = rootView[TVIEW];\n const index = HEADER_OFFSET;\n ngDevMode &&
assertIndexInRange(rootView, index);\n rootView[index] = rNode;\n // '#host' is added here as we don't know the
real host DOM name (we don't want to read it) and at\n // the same time we want to communicate the the debug
`TNode` that this is a special `TNode`\n // representing a host element.\n const tNode: TElementNode =
getOrCreateTNode(tView, index, TNodeType.Element, '#host', null);\n const mergedAttrs = tNode.mergedAttrs =
def.hostAttrs;\n if (mergedAttrs !== null) {\n computeStaticStyling(tNode, mergedAttrs, true);\n if (rNode !==
null) {\n setUpAttributes(hostRenderer, rNode, mergedAttrs);\n if (tNode.classes !== null) {\n
writeDirectClass(hostRenderer, rNode, tNode.classes);\n }\n if (tNode.styles !== null) {\n
writeDirectStyle(hostRenderer,
rNode, tNode.styles);\n }\n }\n }\n\n const viewRenderer = rendererFactory.createRenderer(rNode, def);\n
const componentView = createLView(\n rootView, getOrCreateTComponentView(def), null,\n def.onPush ?
LViewFlags.Dirty : LViewFlags.CheckAlways, rootView[index], tNode,\n rendererFactory, viewRenderer,
sanitizer || null, null);\n if (tView.firstCreatePass) {\n
diPublicInInjector(getOrCreateNodeInjectorForNode(tNode, rootView), tView, def.type);\n
markAsComponentHost(tView, tNode);\n initTNodeFlags(tNode, rootView.length, 1);\n }\n\n addToViewTree(rootView, componentView);\n // Store component view at node index, with node as the HOST\n
return rootView[index] = componentView;\n}\n\n/**\n * Creates a root component and sets it up with features and
host bindings. Shared by\n * renderComponent() and ViewContainerRef.createComponent().\n */\nexport function
createRootComponent<T>(\n componentView: LView, componentDef: ComponentDef<T>, rootLView:

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LView, rootContext: RootContext,\n hostFeatures: HostFeature[]|null): any {\n const tView =
rootLView[TVIEW];\n // Create directive instance with factory() and store at next index in viewData\n const
component = instantiateRootComponent(tView, rootLView, componentDef);\n\n
rootContext.components.push(component);\n componentView[CONTEXT] = component;\n\n hostFeatures &&
hostFeatures.forEach((feature) => feature(component, componentDef));\n\n // We want to generate an empty
QueryList for root content queries for backwards\n // compatibility with ViewEngine.\n if
(componentDef.contentQueries) {\n const tNode = getCurrentTNode()!;\n ngDevMode &&
assertDefined(tNode, 'TNode expected');\n componentDef.contentQueries(RenderFlags.Create, component,
tNode.directiveStart);\n } \n\n const rootTNode = getCurrentTNode()!;\n ngDevMode &&
assertDefined(rootTNode, 'TNode should have been already created');\n if (tView.firstCreatePass &&\n
(componentDef.hostBindings !==
null || componentDef.hostAttrs !== null)) {\n setSelectedIndex(rootTNode.index);\n\n const rootTView =
rootLView[TVIEW];\n registerHostBindingOpCodes(\n rootTView, rootTNode, rootLView,
rootTNode.directiveStart, rootTNode.directiveEnd,\n componentDef);\n\n
invokeHostBindingsInCreationMode(componentDef, component);\n } \n return component;\n }\n\n\nexport function
createRootContext(\n scheduler?: (workFn: () => void) => void, playerHandler?: PlayerHandler|null):
RootContext {\n return {\n components: [],\n scheduler: scheduler || defaultScheduler,\n clean:
CLEAN_PROMISE,\n playerHandler: playerHandler || null,\n flags: RootContextFlags.Empty\n };\n }\n\n\n**\n
* Used to enable lifecycle hooks on the root component.\n *\n * Include this feature when calling
`renderComponent` if the root component\n * you are rendering has lifecycle hooks defined. Otherwise, the hooks
won't\n * be called properly.\n *\n * Example:\n *\n * ```\n * renderComponent(AppComponent,
{hostFeatures: [LifecycleHooksFeature]});\n *\n * ```\n *\n\nexport function LifecycleHooksFeature(component: any,
def: ComponentDef<any>): void {\n const lView = readPatchedLView(component)!;\n ngDevMode &&
assertDefined(lView, 'LView is required');\n const tView = lView[TVIEW];\n const tNode =
getCurrentTNode()!;\n ngDevMode && assertDefined(tNode, 'TNode is required');\n
registerPostOrderHooks(tView, tNode);\n }\n\n\n**\n
* Wait on component until it is rendered.\n *\n * This function
returns a `Promise` which is resolved when the component's\n * change detection is executed. This is determined by
finding the scheduler\n * associated with the `component`'s render tree and waiting until the scheduler\n * flushes. If
nothing is scheduled, the function returns a resolved promise.\n *\n * Example:\n *\n * ```\n * await
whenRendered(myComponent);\n *\n * ```\n *\n * @param component Component to wait upon\n * @returns Promise
which resolves when the component is rendered.\n *\n\nexport
function whenRendered(component: any): Promise<null> {\n return
getRootContext(component).clean;\n }\n\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport {Type, Writable} from '../interface/type';\nimport {fillProperties} from
'../util/property';\nimport {EMPTY_ARRAY, EMPTY_OBJ} from '../empty';\nimport {ComponentDef,
ContentQueriesFunction, DirectiveDef, DirectiveDefFeature, HostBindingsFunction, RenderFlags,
ViewQueriesFunction} from '../interfaces/definition';\nimport {TAttributes} from '../interfaces/node';\nimport
{isComponentDef} from '../interfaces/type_checks';\nimport {mergeHostAttrs} from '../util/attrs_utils';\n\nexport
function getSuperType(type: Type<any>): Type<any>&\n {cmp?: ComponentDef<any>, dir?:
DirectiveDef<any>} {\n return Object.getPrototypeOf(type.prototype).constructor;\n }\n\n\ntype
WritableDef = Writable<DirectiveDef<any>|ComponentDef<any>>;\n\n\n**\n
* Merges the definition from a super
class to a sub class.\n *\n * @param definition The definition that is a SubClass of another directive of component\n *\n
* @codeGenApi\n *\n\nexport function InheritDefinitionFeature(definition:
DirectiveDef<any>|ComponentDef<any>): void {\n let superType = getSuperType(definition.type);\n let
shouldInheritFields = true;\n const inheritanceChain: WritableDef[] = [definition];\n\n while (superType) {\n let
superDef: DirectiveDef<any>|ComponentDef<any>|undefined = undefined;\n if (isComponentDef(definition)) {\n
// Don't use getComponentDef/getDirectiveDef. This logic relies on inheritance.\n superDef = superType.cmp

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|| superType.dir;\n } else {\n if (superType.cmp) {\n throw new Error('Directives cannot inherit
Components');\n }\n // Don't use getComponentDef/getDirectiveDef. This logic relies on inheritance.\n superDef = superType.dir;\n }\n if (superDef) {\n if (shouldInheritFields) {\n inheritanceChain.push(superDef);\n // Some
fields in the definition may be empty, if there were no values to put in them that\n // would've justified object
creation. Unwrap them if necessary.\n const writeableDef = definition as WritableDef;\n writeableDef.inputs = maybeUnwrapEmpty(definition.inputs);\n writeableDef.declaredInputs =
maybeUnwrapEmpty(definition.declaredInputs);\n writeableDef.outputs =
maybeUnwrapEmpty(definition.outputs);\n // Merge hostBindings\n const superHostBindings =
superDef.hostBindings;\n superHostBindings && inheritHostBindings(definition, superHostBindings);\n // Merge queries\n const superViewQuery = superDef.viewQuery;\n const superContentQueries =
superDef.contentQueries;\n superViewQuery && inheritViewQuery(definition, superViewQuery);\n superContentQueries && inheritContentQueries(definition,
superContentQueries);\n // Merge inputs and outputs\n fillProperties(definition.inputs,
superDef.inputs);\n fillProperties(definition.declaredInputs, superDef.declaredInputs);\n fillProperties(definition.outputs, superDef.outputs);\n // Merge animations metadata.\n // If `superDef` is a
Component, the `data` field is present (defaults to an empty object).\n if (isComponentDef(superDef) &&
superDef.data.animation) {\n // If super def is a Component, the `definition` is also a Component, since
Directives can\n // not inherit Components (we throw an error above and cannot reach this code).\n const
defData = (definition as ComponentDef<any>).data;\n defData.animation = (defData.animation ||
[]).concat(superDef.data.animation);\n }\n // Run parent features\n const features =
superDef.features;\n if (features) {\n for (let i = 0; i < features.length;
i++) {\n const feature = features[i];\n if (feature && feature.ngInherit) {\n (feature as
DirectiveDefFeature)(definition);\n }\n // If `InheritDefinitionFeature` is a part of the current `superDef`,
it means that this\n // def already has all the necessary information inherited from its super class(es), so we\n
 // can stop merging fields from super classes. However we need to iterate through the\n // prototype chain to
look for classes that might contain other "features" (like\n // NgOnChanges), which we should invoke for the
original `definition`. We set the\n // `shouldInheritFields` flag to indicate that, essentially skipping fields
inheritance\n // logic and only invoking functions from the "features" list.\n if (feature ===
InheritDefinitionFeature) {\n shouldInheritFields = false;\n }\n }\n }\n superType =
Object.getPrototypeOf(superType);\n }\n mergeHostAttrsAcrossInheritance(inheritanceChain);\n }\n // Merge the `hostAttrs` and `hostVars` from
the inherited parent to the base class.\n // @param inheritanceChain A list of `WritableDefs` starting at the top
most type and listing\n // sub-types in order. For each type take the `hostAttrs` and `hostVars` and merge it with the
child\n // type.\n // function mergeHostAttrsAcrossInheritance(inheritanceChain: WritableDef[]) {\n // let hostVars:
number = 0;\n // let hostAttrs: TAttributes|null = null;\n // // We process the inheritance order from the base to the
leaves here.\n // for (let i = inheritanceChain.length - 1; i >= 0; i--) {\n // const def = inheritanceChain[i];\n // // For
each `hostVars`, we need to add the superclass amount.\n // def.hostVars = (hostVars += def.hostVars);\n // // for
each `hostAttrs` we need to merge it with superclass.\n // def.hostAttrs =\n // mergeHostAttrs(def.hostAttrs,
hostAttrs);\n // hostAttrs = mergeHostAttrs(hostAttrs, def.hostAttrs);\n // }\n // }\n // function maybeUnwrapEmpty<T>(value: T[]): T[];\n // function maybeUnwrapEmpty<T>(value: T):
T;\n // function maybeUnwrapEmpty(value: any): any {\n // if (value === EMPTY_OBJ) {\n // return {};\n // } else if
(value === EMPTY_ARRAY) {\n // return [];\n // } else {\n // return value;\n // }\n // }\n // function
inheritViewQuery(definition: WritableDef, superViewQuery: ViewQueriesFunction<any>) {\n // const
prevViewQuery = definition.viewQuery;\n // if (prevViewQuery) {\n // definition.viewQuery = (rf, ctx) => {\n // superViewQuery(rf, ctx);\n // prevViewQuery(rf, ctx);\n // }; \n // } else {\n // definition.viewQuery =
superViewQuery;\n // }\n // }\n // function inheritContentQueries(\n // definition: WritableDef, superContentQueries:
ContentQueriesFunction<any>) {\n // const prevContentQueries = definition.contentQueries;\n // if

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(prevContentQueries) {\n definition.contentQueries = (rf, ctx, directiveIndex) => {\n superContentQueries(rf,
ctx, directiveIndex);\n }; \n } else {\n definition.contentQueries = superContentQueries;\n }\n}\n\nfunction
inheritHostBindings(\n definition: WritableDef, superHostBindings: HostBindingsFunction<any>) {\n const
prevHostBindings = definition.hostBindings;\n if (prevHostBindings) {\n definition.hostBindings = (rf:
RenderFlags, ctx: any) => {\n superHostBindings(rf, ctx);\n prevHostBindings(rf, ctx);\n }; \n } else {\n
definition.hostBindings = superHostBindings;\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\nimport {ComponentDef, DirectiveDef} from
'./interfaces/definition';\nimport {isComponentDef} from './interfaces/type_checks';\nimport {getSuperType}
from './inherit_definition_feature';\n\n/**\n * Fields which exist on either directive or component definitions, and
need to be
copied from\n * parent to child classes by the `CopyDefinitionFeature`\n * \n\nconst COPY_DIRECTIVE_FIELDS:
(keyof DirectiveDef<unknown>)[\n // The child class should use the providers of its parent.\n 'providersResolver',\n \n // Not listed here are any fields which are handled by the `InheritDefinitionFeature`, such\n
 // as inputs, outputs, and host binding functions.\n];\n\n/**\n * Fields which exist only on component definitions,
and need to be copied from parent to child\n * classes by the `CopyDefinitionFeature`\n * \n\n * The type here allows
any field of `ComponentDef` which is not also a property of `DirectiveDef`,\n * since those should go in
`COPY_DIRECTIVE_FIELDS` above.\n * \n\nconst COPY_COMPONENT_FIELDS: Exclude<keyof
ComponentDef<unknown>, keyof DirectiveDef<unknown>>[\n // The child class should use the template
function of its parent, including all template\n // semantics.\n 'template',\n 'decls',\n 'consts',\n 'vars',\n 'onPush',\n
'ngContentSelectors',\n \n // The child class should use the CSS styles of its parent, including all styling semantics.\n 'styles',\n
'encapsulation',\n \n // The child class should be checked by the runtime in the same way as its parent.\n 'schemas',\n];\n\n/**\n * Copies the fields not handled by the `InheritDefinitionFeature` from the supertype of a\n *
definition.\n * \n\n * This exists primarily to support ngcc migration of an existing View Engine pattern, where an\n *
entire decorator is inherited from a parent to a child class. When ngcc detects this case, it\n * generates a skeleton
definition on the child class, and applies this feature.\n * \n\n * The `CopyDefinitionFeature` then copies any needed
fields from the parent class' definition,\n * including things like the component template function.\n * \n\n * @param
definition The definition of a child class which inherits from a parent class with its\n * own definition.\n * \n\n *
@codeGenApi\n * \n\nexport function CopyDefinitionFeature(definition:
DirectiveDef<any>|ComponentDef<any>): void {\n let superType = getSuperType(definition.type)!;\n let
superDef: DirectiveDef<any>|ComponentDef<any>|undefined = undefined;\n if (isComponentDef(definition)) {\n
 // Don't use getComponentDef/getDirectiveDef. This logic relies on inheritance.\n superDef = superType.cmp!;\n
} else {\n // Don't use getComponentDef/getDirectiveDef. This logic relies on inheritance.\n superDef =
superType.dir!;\n }\n \n // Needed because `definition` fields are readonly.\n const defAny = (definition as
any);\n \n // Copy over any fields that apply to either directives or components.\n for (const field of
COPY_DIRECTIVE_FIELDS) {\n defAny[field] = superDef[field];\n }\n \n if (isComponentDef(superDef)) {\n
 // Copy over any component-specific fields.\n for (const field of COPY_COMPONENT_FIELDS) {\n defAny[field] =
superDef[field];\n }\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\nimport {global as _global} from './global';\n\n// When Symbol.iterator doesn't exist,
retrieves the key used in es6-shim\nndeclare const Symbol: any;\nlet _symbolIterator: any = null;\n\nexport function
getSymbolIterator(): string|symbol {\n if (!_symbolIterator) {\n const Symbol = _global['Symbol'];\n if (Symbol
&& Symbol.iterator) {\n _symbolIterator = Symbol.iterator;\n } else {\n // es6-shim specific logic\n
const keys = Object.getOwnPropertyNames(Map.prototype);\n for (let i = 0; i < keys.length; ++i) {\n const
key = keys[i];\n if (key !== 'entries' && key !== 'size' && (Map as any).prototype[key] ===

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Map.prototype['entries']) {\n _symbolIterator = key;\n }\n }\n }\n }\n return\n _symbolIterator);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\nimport {getSymbolIterator} from './util/symbol';\n\nexport function\n devModeEqual(a: any, b: any): boolean {\n const isListLikeIterableA = isListLikeIterable(a);\n const\n isListLikeIterableB = isListLikeIterable(b);\n if (isListLikeIterableA && isListLikeIterableB) {\n return\n areIterablesEqual(a, b, devModeEqual);\n } else {\n const isAObject = a && (typeof a === 'object' || typeof a ===\n 'function');\n const isBObject = b && (typeof b === 'object' || typeof b === 'function');\n if (!isListLikeIterableA\n && isAObject && !isListLikeIterableB && isBObject) {\n return true;\n } else {\n return Object.is(a, b);\n }\n }\n }\n }\n }\n\n/*\n * Indicates that the result of a { @link Pipe } transformation has changed even though the\n * reference has not changed.\n *\n * Wrapped values are unwrapped automatically during the change\n detection, and the unwrapped value\n * is stored.\n *\n * Example:\n *\n * ``\n * if (this._latestValue ===\n this._latestReturnedValue) {\n * return this._latestReturnedValue;\n * } else {\n * this._latestReturnedValue =\n this._latestValue;\n * return WrappedValue.wrap(this._latestValue); // this will force update\n * }\n * ``\n *\n * @publicApi\n * @deprecated from v10 stop using. (No replacement, deemed unnecessary.)\n *\n * export class\n WrappedValue {\n /** @deprecated from 5.3, use `unwrap()` instead - will switch to protected\n wrapped:\n any;\n\n constructor(value: any) {\n this.wrapped = value;\n }\n\n /** Creates a wrapped value. *\n static\n wrap(value: any): WrappedValue {\n return new WrappedValue(value);\n }\n\n /**\n * Returns the underlying\n value of a wrapped value.\n *\n * Returns the given `value` when it is not wrapped.\n *\n * static unwrap(value:\n any): any {\n return WrappedValue.isWrapped(value) ? value.wrapped : value;\n }\n\n /** Returns\n true if `value` is a wrapped value. *\n static isWrapped(value: any): value is WrappedValue {\n return value\n instanceof WrappedValue;\n }\n }\n }\n\nexport function isListLikeIterable(obj: any): boolean {\n if (!isJsObject(obj))\n return false;\n return Array.isArray(obj) ||\n (!obj instanceof Map) && // JS Map are iterables but return\n entries as [k, v]\n getSymbolIterator() in obj); // JS Iterable have a Symbol.iterator prop\n }\n }\n\nexport function\n areIterablesEqual(\n a: any, b: any, comparator: (a: any, b: any) => boolean): boolean {\n const iterator1 =\n a[getSymbolIterator()]();\n const iterator2 = b[getSymbolIterator()]();\n\n while (true) {\n const item1 =\n iterator1.next();\n const item2 = iterator2.next();\n if (item1.done && item2.done) return true;\n if (item1.done\n || item2.done) return false;\n if (!comparator(item1.value, item2.value)) return false;\n }\n }\n }\n\nexport function\n iterateListLike(obj: any, fn: (p: any) => any) {\n if (Array.isArray(obj))\n {\n for (let i = 0; i < obj.length; i++) {\n fn(obj[i]);\n }\n } else {\n const iterator =\n obj[getSymbolIterator()]();\n let item: any;\n while (!(item = iterator.next()).done) {\n fn(item.value);\n }\n }\n }\n }\n\nexport function isJsObject(o: any): boolean {\n return o !== null && (typeof o === 'function' || typeof\n o === 'object');\n }\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source\n code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n */\n\nimport {devModeEqual} from './change_detection/change_detection_util';\nimport {assertIndexInRange,\n assertLessThan, assertNotSame} from './util/assert';\nimport {getExpressionChangedErrorDetails,\n throwErrorIfNoChangesMode} from './errors';\nimport {LView} from './interfaces/view';\nimport\n {isInCheckNoChangesMode} from './state';\nimport {NO_CHANGE} from './tokens';\n\n// TODO(misko):\n consider\n\n inlining\n\n/** Updates binding and returns the value. *\nexport function updateBinding(IView: LView,\n bindingIndex: number, value: any): any {\n return IView[bindingIndex] = value;\n }\n\n\n/** Gets the current\n binding value. *\nexport function getBinding(IView: LView, bindingIndex: number): any {\n ngDevMode &&\n assertIndexInRange(IView, bindingIndex);\n ngDevMode &&\n assertNotSame(IView[bindingIndex],\n NO_CHANGE, 'Stored value should never be NO_CHANGE.);\n return IView[bindingIndex];\n }\n }\n\n\n/*\n * Updates binding if changed, then returns whether it was updated.\n *\n * This function also checks the\n `CheckNoChangesMode` and throws if changes are made.\n *\n * Some changes (Objects/iterables) during\n `CheckNoChangesMode` are exempt to comply with VE\n * behavior.\n *\n * @param IView current `LView`\n *\n * @param bindingIndex The binding in the `LView` to check\n *\n * @param value New value to check against\n
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`lView[bindingIndex]`\n * @returns `true` if the bindings has changed. (Throws
if binding has changed during\n * `CheckNoChangesMode`)\n */\nexport function bindingUpdated(lView:
LView, bindingIndex: number, value: any): boolean {\n ngDevMode && assertNotSame(value, NO_CHANGE,
'Incoming value should never be NO_CHANGE.);\n ngDevMode &&\n assertLessThan(bindingIndex,
lView.length, `Slot should have been initialized to NO_CHANGE`);\n const oldValue = lView[bindingIndex];\n\n if (Object.is(oldValue, value)) {\n return false;\n } else {\n if (ngDevMode && isInCheckNoChangesMode())
{\n // View engine didn't report undefined values as changed on the first checkNoChanges pass\n // (before the
change detection was run).\n const oldValueToCompare = oldValue !== NO_CHANGE ? oldValue :
undefined;\n if (!devModeEqual(oldValueToCompare, value)) {\n const details =\n getExpressionChangedErrorDetails(lView, bindingIndex, oldValueToCompare, value);\n throwErrorIfNoChangesMode(\n oldValue === NO_CHANGE,
details.oldValue, details.newValue, details.propName);\n }\n // There was a change, but the `devModeEqual`
decided that the change is exempt from an error.\n // For this reason we exit as if no change. The early exit is
needed to prevent the changed\n // value to be written into `LView` (If we would write the new value that we
would not see it\n // as change on next CD.)\n return false;\n }\n lView[bindingIndex] = value;\n return
true;\n }\n}\n\n/** Updates 2 bindings if changed, then returns whether either was updated. */\nexport function
bindingUpdated2(lView: LView, bindingIndex: number, exp1: any, exp2: any): boolean {\n const different =
bindingUpdated(lView, bindingIndex, exp1);\n return bindingUpdated(lView, bindingIndex + 1, exp2) ||
different;\n}\n\n/** Updates 3 bindings if changed, then returns whether any was updated. */\nexport function
bindingUpdated3(\n lView: LView, bindingIndex: number, exp1: any, exp2: any, exp3: any):
boolean {\n const different = bindingUpdated2(lView, bindingIndex, exp1, exp2);\n return bindingUpdated(lView,
bindingIndex + 2, exp3) || different;\n}\n\n/** Updates 4 bindings if changed, then returns whether any was updated.
*/\nexport function bindingUpdated4(\n lView: LView, bindingIndex: number, exp1: any, exp2: any, exp3: any,
exp4: any): boolean {\n const different = bindingUpdated2(lView, bindingIndex, exp1, exp2);\n return
bindingUpdated2(lView, bindingIndex + 2, exp3, exp4) || different;\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\nimport {bindingUpdated} from './bindings';\nimport
{SanitizerFn} from './interfaces/sanitization';\nimport {getLView, getSelectedTNode, getTView,
nextBindingIndex} from './state';\nimport {elementAttributeInternal, storePropertyBindingMetadata} from
'./shared';\n\n\n/**\n * Updates the value of or removes a bound attribute on an Element.\n *\n * Used in the case of
`[attr.title]="value"`\n *\n * @param name The name of the attribute.\n *\n * @param value The attribute
is removed when value is `null` or `undefined`\n *\n * Otherwise the attribute value is set to the stringified
value.\n *\n * @param sanitizer An optional function used to sanitize the value.\n *\n * @param namespace Optional
namespace to use when setting the attribute.\n *\n * @codeGenApi\n */\nexport function attribute(\n name: string,
value: any, sanitizer?: SanitizerFn|null,\n namespace?: string): typeOf attribute {\n const lView = getLView();\n
const bindingIndex = nextBindingIndex();\n if (bindingUpdated(lView, bindingIndex, value)) {\n const tView =
getTView();\n const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, lView, name, value,
sanitizer, namespace);\n ngDevMode && storePropertyBindingMetadata(tView.data, tNode, 'attr.'
+ name, bindingIndex);\n }\n return attribute;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport {assertEqual, assertLessThan} from
'./../util/assert';\nimport {bindingUpdated, bindingUpdated2, bindingUpdated3, bindingUpdated4} from
'./bindings';\nimport {LView} from './interfaces/view';\nimport {getBindingIndex, incrementBindingIndex,
nextBindingIndex, setBindingIndex} from './state';\nimport {NO_CHANGE} from './tokens';\nimport
{renderStringify} from './util/stringify_utils';\n\n\n/**\n * Create interpolation bindings with a variable number of
expressions.\n *\n * If there are 1 to 8 expressions `interpolation1()` to `interpolation8()` should be used instead.\n *
Those are faster because there is no need to create an array of expressions and iterate over it.\n *\n * `values`:\n * -

```

has static text

```
at even indexes;\n * - has evaluated expressions at odd indexes.\n * Returns the concatenated string when any of
the arguments changes, `NO_CHANGE` otherwise.\n */\n\nexport function interpolationV(IView: LView, values:
any[]): string|\n NO_CHANGE {\n ngDevMode && assertLessThan(2, values.length, 'should have at least 3
values');\n ngDevMode && assertEqual(values.length % 2, 1, 'should have an odd number of values');\n let
isBindingUpdated = false;\n let bindingIndex = getBindingIndex();\n\n for (let i = 1; i < values.length; i += 2) {\n
// Check if bindings (odd indexes) have changed\n isBindingUpdated = bindingUpdated(IView, bindingIndex++,
values[i]) || isBindingUpdated;\n }\n setBindingIndex(bindingIndex);\n\n if (!isBindingUpdated) {\n return
NO_CHANGE;\n }\n\n // Build the updated content\n let content = values[0];\n for (let i = 1; i < values.length; i
+= 2) {\n content += renderStringify(values[i]) + values[i + 1];\n }\n\n return content;\n}\n\n/**\n * Creates an interpolation binding with 1 expression.\n * @param prefix static value used for concatenation
only.\n * @param v0 value checked for change.\n * @param suffix static value used for concatenation only.\n
*/\n\nexport function interpolation1(IView: LView, prefix: string, v0: any, suffix: string): string|\n NO_CHANGE
{\n const different = bindingUpdated(IView, nextBindingIndex(), v0);\n return different ? prefix +
renderStringify(v0) + suffix : NO_CHANGE;\n}\n\n/**\n * Creates an interpolation binding with 2 expressions.\n
*/\n\nexport function interpolation2(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, suffix: string):
string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n const different = bindingUpdated2(IView,
bindingIndex, v0, v1);\n incrementBindingIndex(2);\n\n return different ? prefix + renderStringify(v0) + i0 +
renderStringify(v1) + suffix : NO_CHANGE;\n}\n\n/**\n * Creates an interpolation binding with 3 expressions.\n
*/\n\nexport
function interpolation3(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any,\n suffix:
string): string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n const different =
bindingUpdated3(IView, bindingIndex, v0, v1, v2);\n incrementBindingIndex(3);\n\n return different ?\n prefix
+ renderStringify(v0) + i0 + renderStringify(v1) + i1 + renderStringify(v2) + suffix :\n
NO_CHANGE;\n}\n\n/**\n * Create an interpolation binding with 4 expressions.\n
*/\n\nexport function
interpolation4(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3:
any, suffix: string): string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n const different =
bindingUpdated4(IView, bindingIndex, v0, v1, v2, v3);\n incrementBindingIndex(4);\n\n return different ? prefix +
renderStringify(v0) + i0 + renderStringify(v1) + i1 +\n renderStringify(v2) + i2 + renderStringify(v3) + suffix
:\n
NO_CHANGE;\n}\n\n/**\n * Creates an interpolation binding with 5 expressions.\n
*/\n\nexport
function interpolation5(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n
v3: any, i3: string, v4: any, suffix: string): string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n let
different = bindingUpdated4(IView, bindingIndex, v0, v1, v2, v3);\n different = bindingUpdated(IView,
bindingIndex + 4, v4) || different;\n incrementBindingIndex(5);\n\n return different ? prefix + renderStringify(v0) +
i0 + renderStringify(v1) + i1 +\n renderStringify(v2) + i2 + renderStringify(v3) + i3 + renderStringify(v4) +
suffix :\n
NO_CHANGE;\n}\n\n/**\n * Creates an interpolation binding with 6 expressions.\n
*/\n\nexport function interpolation6(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any,
i2: string,\n v3: any, i3: string, v4: any, i4: string, v5: any, suffix:
string): string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n let different =
bindingUpdated4(IView, bindingIndex, v0, v1, v2, v3);\n different = bindingUpdated2(IView, bindingIndex + 4,
v4, v5) || different;\n incrementBindingIndex(6);\n\n return different ?\n prefix + renderStringify(v0) + i0 +
renderStringify(v1) + i1 + renderStringify(v2) + i2 +\n renderStringify(v3) + i3 + renderStringify(v4) + i4 +
renderStringify(v5) + suffix :\n
NO_CHANGE;\n}\n\n/**\n * Creates an interpolation binding with 7
expressions.\n
*/\n\nexport function interpolation7(\n IView: LView, prefix: string, v0: any, i0: string, v1: any, i1:
string, v2: any, i2: string,\n v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix:
string):
string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n let different = bindingUpdated4(IView,
bindingIndex, v0, v1, v2, v3);\n different = bindingUpdated3(IView, bindingIndex + 4, v4, v5, v6) ||
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different;\n incrementBindingIndex(7);\n\n return different ? prefix + renderStringify(v0) + i0 +
renderStringify(v1) + i1 +\n renderStringify(v2) + i2 + renderStringify(v3) + i3 + renderStringify(v4) + i4 +\n renderStringify(v5) + i5 + renderStringify(v6) + suffix : \n NO_CHANGE;\n}\n\n/**\n * Creates an
interpolation binding with 8 expressions.\n */\nexport function interpolation8(\n IView: LView, prefix: string, v0:
any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6:
any, i6: string, v7: any,\n suffix: string): string|\n NO_CHANGE {\n const bindingIndex = getBindingIndex();\n let
different = bindingUpdated4(IView, bindingIndex, v0, v1, v2, v3);\n different = bindingUpdated4(IView,
bindingIndex + 4, v4, v5, v6, v7) || different;\n incrementBindingIndex(8);\n\n return different ? prefix +
renderStringify(v0) + i0 + renderStringify(v1) + i1 +\n renderStringify(v2)
+ i2 + renderStringify(v3) + i3 + renderStringify(v4) + i4 +\n renderStringify(v5) + i5 + renderStringify(v6) +
i6 + renderStringify(v7) + suffix : \n NO_CHANGE;\n}\n\n", /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\nimport {SanitizerFn} from '../interfaces/sanitization';\nimport
{getBindingIndex, getLView, getSelectedTNode, getTView} from '../state';\nimport {NO_CHANGE} from
'../tokens';\nimport {interpolation1, interpolation2, interpolation3, interpolation4, interpolation5, interpolation6,
interpolation7, interpolation8, interpolationV} from '../interpolation';\nimport {elementAttributeInternal,
storePropertyBindingMetadata} from './shared';\n\n\n\n/**\n * \n * Update an interpolated attribute on an element
with single bound value surrounded by text.\n * \n * Used when the value passed to
a property has 1 interpolated value in it:\n * \n * ```html\n * <div attr.title="prefix{ v0 }suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n * attributeInterpolate1('title', 'prefix', v0, 'suffix');\n * ```\n * \n * @param attrName The name of the attribute to update\n * @param prefix Static value used for concatenation
only.\n * @param v0 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
@param sanitizer An optional sanitizer function\n * @returns itself, so that it may be chained.\n * @codeGenApi\n */\nexport function attributeInterpolate1(\n attrName: string, prefix: string, v0: any, suffix: string, sanitizer?:
SanitizerFn,\n namespace?: string): typeof attributeInterpolate1 {\n const IView = getLView();\n const
interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n
const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView,
attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n
getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 1, prefix, suffix);\n }\n return
attributeInterpolate1;\n}\n\n\n/**\n * \n * Update an interpolated attribute on an element with 2 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 2 interpolated values in it:\n * \n *
```html\n * <div attr.title="prefix{ {v0} }-{ {v1} }suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n *
```ts\n * attributeInterpolate2('title', 'prefix', v0, '-', v1, 'suffix');\n * ```\n * \n * @param attrName The name of the
attribute to update\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for
change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n *
@param suffix Static value used for concatenation only.\n * @param sanitizer An optional sanitizer
function\n * @returns itself, so that it may be chained.\n * @codeGenApi\n */\nexport function
attributeInterpolate2(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, suffix: string,\n sanitizer?:
SanitizerFn, namespace?: string): typeof attributeInterpolate2 {\n const IView = getLView();\n const
interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n
const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue,
sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTView().data, tNode,
'attr.' + attrName, getBindingIndex() - 2, prefix, i0, suffix);\n }\n return attributeInterpolate2;\n}\n\n\n\n/**\n * \n * Update an interpolated attribute on an element with 3 bound values surrounded by text.\n * \n * Used when the value
passed to a property has 3 interpolated values in it:\n * \n * ```html\n * <div attr.title="prefix{ {v0} }-{ {v1} }-
{ {v2} }suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n * attributeInterpolate3(\n * 'title', 'prefix', v0, '-', v1, '-',
v2, 'suffix');\n * ```\n * \n * @param attrName The name of the attribute to update\n * @param prefix Static value

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used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* ^nexport function attributeInterpolate3(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any,\n suffix: string, sanitizer?: SanitizerFn, namespace?: string): typeof attributeInterpolate3 {\n const IView = getLView();\n\n const interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTVView().data, tNode, 'attr.' + attrName, getBindingIndex() - 3, prefix, i0, i1,\n suffix);\n }\n return attributeInterpolate3;\n }\n\n/\*\*\n \* \n \* Update an interpolated attribute on an element with 4 bound values surrounded by text.\n \* \n \* Used when the value passed to a property has 4 interpolated values in it:\n \* \n \* ```html\n \* <div attr.title="prefix{ {v0} }-{ {v1} }-{ {v2} }-{ {v3} }suffix"></div>\n \* ```\n \* \n \* Its compiled representation is::\n \* \n \* ```ts\n \* attributeInterpolate4(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n \* ```\n \* \n \* @param attrName The name of the attribute to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* ^nexport function attributeInterpolate4(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, suffix: string, sanitizer?: SanitizerFn,\n namespace?: string): typeof attributeInterpolate4 {\n const IView = getLView();\n const interpolatedValue = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tNode = getSelectedTNode();\n\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTVView().data, tNode, 'attr.' + attrName, getBindingIndex() - 4, prefix, i0, i1, i2,\n suffix);\n }\n return attributeInterpolate4;\n }\n\n/\*\*\n \* \n \* Update an interpolated attribute on an element with 5 bound values surrounded by text.\n \* \n \* Used when the value passed to a property has 5 interpolated values in it:\n \* \n \* ```html\n \* <div attr.title="prefix{ {v0} }-{ {v1} }-{ {v2} }-{ {v3} }-{ {v4} }suffix"></div>\n \* ```\n \* \n \* Its compiled representation is::\n \* \n \* ```ts\n \* attributeInterpolate5(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n \* ```\n \* \n \* @param attrName The name of the attribute to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* ^nexport function attributeInterpolate5(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, i3: string, v4: any, suffix: string, sanitizer?: SanitizerFn,\n namespace?: string): typeof attributeInterpolate5 {\n const IView = getLView();\n const interpolatedValue =\n interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tNode = getSelectedTNode();\n\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTVView().data, tNode, 'attr.' + attrName, getBindingIndex() - 5, prefix, i0, i1, i2,\n i3, suffix);\n }\n return attributeInterpolate5;\n }\n\n/\*\*\n \* \n \* Update an interpolated attribute on an element with 6 bound values surrounded by text.\n \* \n \* Used when the value passed to a property

has 6 interpolated values in it:\n \* \n \* ``html\n \* <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}suffix\"></div>\n \* ``\n \* \n \* Its compiled representation is::\n \* \n \* ``ts\n \* attributeInterpolate6(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n \* ``\n \* \n \* @param attrName The name of the attribute to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* /\n \* export function attributeInterpolate6(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, suffix: string, sanitizer?: SanitizerFn, namespace?: string): typeof attributeInterpolate6 {\n const IView = getLView();\n const interpolatedValue =\n interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 6, prefix, i0, i1, i2, i3, i4, suffix);\n }\n return attributeInterpolate6;\n }\n }\n /\*\*\n \* \n \* Update an interpolated attribute on an element with 7 bound values surrounded by text.\n \* \n \* Used when the value passed to a property has 7 interpolated values in it:\n \* \n \* ``html\n \* <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix\"></div>\n \* ``\n \* \n \* Its compiled representation is::\n \* \n \* ``ts\n \* attributeInterpolate7(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n \* ``\n \* \n \* @param attrName The name of the attribute to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* /\n \* export function attributeInterpolate7(\n attrName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix: string, sanitizer?: SanitizerFn, namespace?: string): typeof attributeInterpolate7 {\n const IView = getLView();\n const interpolatedValue =\n interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 7, prefix, i0, i1, i2, i3, i4, i5, suffix);\n }\n return attributeInterpolate7;\n }\n }\n /\*\*\n \* \n \* Update an interpolated attribute on an element with 8 bound values surrounded by text.\n \* \n \* Used when the value passed to a property has 8 interpolated values in it:\n \* \n \* ``html\n \* <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}suffix\"></div>\n \* ``\n \* \n \* Its compiled representation is::\n \* \n \* ``ts\n \* attributeInterpolate8(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n \* ``\n \* \n \* @param attrName The name of the attribute to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for

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concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation
only.\n * @param v5 Value checked for change.\n * @param i5 Static value used for concatenation only.\n *
@param v6 Value checked for change.\n
* @param i6 Static value used for concatenation only.\n * @param v7 Value checked for change.\n * @param
suffix Static value used for concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns
itself, so that it may be chained.\n * @codeGenApi\n */\nexport function attributeInterpolate8(\n attrName: string,
prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, i3: string, v4: any, i4: string, v5:
any, i5: string, v6: any, i6: string, v7: any,\n suffix: string, sanitizer?: SanitizerFn, namespace?: string): typeof
attributeInterpolate8 {\n const IView = getLView();\n const interpolatedValue = interpolation8(\n IView, prefix,
v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n const
tNode = getSelectedTNode();\n elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer,
namespace);\n ngDevMode &&\n storePropertyBindingMetadata(\n
 getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 8, prefix, i0, i1, i2,\n i3, i4, i5, i6,
suffix);\n }\n return attributeInterpolate8;\n}\n\n/**\n * Update an interpolated attribute on an element with 9 or
more bound values surrounded by text.\n * \n * Used when the number of interpolated values exceeds 8.\n * \n *
```html\n * <div\n *   title="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-
{{v9}}suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n * attributeInterpolateV(\n *
'title', ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v9,\n *   'suffix']);\n * ```\n * \n * @param
attrName The name of the attribute to update.\n * @param values The collection of values and the strings in-
between those values, beginning with\n * a string prefix and ending with a string suffix.\n * (e.g. `['prefix', value0, '-
', value1, '-', value2, ..., value99,
'suffix']`)\n * @param sanitizer An optional sanitizer function\n * @returns itself, so that it may be chained.\n *
@codeGenApi\n */\nexport function attributeInterpolateV(\n  attrName: string, values: any[], sanitizer?:
SanitizerFn,\n  namespace?: string): typeof attributeInterpolateV {\n  const IView = getLView();\n  const
interpolated = interpolationV(IView, values);\n  if (interpolated !== NO_CHANGE) {\n    const tNode =
getSelectedTNode();\n    elementAttributeInternal(tNode, IView, attrName, interpolated, sanitizer, namespace);\n
if (ngDevMode) {\n      const interpolationInBetween = [values[0]]; // prefix\n      for (let i = 2; i < values.length; i
+= 2) {\n        interpolationInBetween.push(values[i]);\n      }\n      storePropertyBindingMetadata(\n
getTView().data, tNode, 'attr.' + attrName,\n        getBindingIndex() - interpolationInBetween.length + 1,
...interpolationInBetween);\n    }\n  }\n  return attributeInterpolateV;\n}\n\n"/**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {assertFirstCreatePass} from
'./assert';\nimport {attachPatchData} from './context_discovery';\nimport {registerPostOrderHooks} from
'./hooks';\nimport {ComponentTemplate} from './interfaces/definition';\nimport {LocalRefExtractor, TAttributes,
TContainerNode, TNodeType} from './interfaces/node';\nimport {isDirectiveHost} from
'./interfaces/type_checks';\nimport {HEADER_OFFSET, LView, RENDERER, TView, TViewType} from
'./interfaces/view';\nimport {appendChild} from './node_manipulation';\nimport {getLView, getTView,
setCurrentTNode} from './state';\nimport {getConstant} from './util/view_utils';\nimport {addToViewTree,
createDirectivesInstances, createLContainer, createTView, getOrCreateTNode, resolveDirectives,
saveResolvedLocalsInData} from './shared';\n\n\nfunction templateFirstCreatePass(\n
  index: number, tView: TView, IView: LView, templateFn: ComponentTemplate<any>|null,\n  decls: number,
vars: number, tagName?: string|null, attrsIndex?: number|null,\n  localRefsIndex?: number|null): TContainerNode
{\n  ngDevMode && assertFirstCreatePass(tView);\n  ngDevMode && ngDevMode.firstCreatePass++; \n  const
tViewConsts = tView.consts;\n  // TODO(pk): refactor getOrCreateTNode to have the \"create\" only version\n
const tNode = getOrCreateTNode(\n    tView, index, TNodeType.Container, tagName || null,\n    getConstant<TAttributes>(tViewConsts, attrsIndex));\n  resolveDirectives(tView, IView, tNode,
getConstant<string[]>(tViewConsts, localRefsIndex));\n  registerPostOrderHooks(tView, tNode);\n\n  const
embeddedTView = tNode.tViews = createTView(\n    TViewType.Embedded, tNode, templateFn, decls, vars,

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tView.directiveRegistry,\n    tView.pipeRegistry, null, tView.schemas, tViewConsts);\n\n if (tView.queries !==\n null) {\n  tView.queries.template(tView,\n    tNode);\n  embeddedTView.queries = tView.queries.embeddedTView(tNode);\n  }\n\n return tNode;\n}\n\n/**\n * Creates an LContainer for an ng-template (dynamically-inserted view), e.g.\n * <ng-template #foo>\n * <div></div>\n * </ng-template>\n * @param index The index of the container in the data array\n * @param\n templateFn Inline template\n * @param decls The number of nodes, local refs, and pipes for this template\n * @param vars The number of bindings for this template\n * @param tagName The name of the container element, if\n applicable\n * @param attrsIndex Index of template attributes in the `consts` array.\n * @param localRefs Index of\n the local references in the `consts` array.\n * @param localRefExtractor A function which extracts local-refs values\n from the template.\n * Defaults to the current element associated with the local-ref.\n * @codeGenApi\n *\nexport function template(\n  index: number, templateFn: ComponentTemplate<any>|null, decls:\n  number, vars: number,\n  tagName?: string|null, attrsIndex?: number|null, localRefsIndex?: number|null,\n  localRefExtractor?: LocalRefExtractor) {\n  const lView = getLView();\n  const tView = getTView();\n  const\n adjustedIndex = index + HEADER_OFFSET;\n\n  const tNode = tView.firstCreatePass ? templateFirstCreatePass(\n    adjustedIndex, tView, lView, templateFn, decls, vars,\n    tagName, attrsIndex, localRefsIndex) :\n    tView.data[adjustedIndex] as TContainerNode;\n  setCurrentTNode(tNode, false);\n  const comment = lView[RENDERER].createComment(ngDevMode ?\n    'container' : '');\n  appendChild(tView, lView, comment, tNode);\n  attachPatchData(comment, lView);\n  addToViewTree(lView, lView[adjustedIndex] = createLContainer(comment, lView, comment, tNode));\n\n  if\n (isDirectiveHost(tNode)) {\n    createDirectivesInstances(tView, lView, tNode);\n  }\n\n  if (localRefsIndex\n    != null) {\n    saveResolvedLocalsInData(lView, tNode, localRefExtractor);\n  }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {HEADER_OFFSET, LView,\n TView} from '../interfaces/view';\nimport {getContextLView} from '../state';\nimport {load} from\n '../util/view_utils';\n\n/** Store a value in the `data` at a given `index`. *\nexport function store<T>(tView:\n TView, lView: LView, index: number, value: T): void {\n  // We don't store any static data for local variables, so the\n first time\n  // we see the template, we should store as null to avoid a sparse array\n  if (index >= tView.data.length)\n  {\n    tView.data[index] = null;\n    tView.blueprint[index] = null;\n  }\n  lView[index] = value;\n}\n\n/**\n * Retrieves a local reference from the current contextViewData.\n * If the reference to retrieve\n is in a parent view, this instruction is used in conjunction\n * with a nextContext() call, which walks up the tree and\n updates the contextViewData instance.\n * @param index The index of the local ref in contextViewData.\n * @codeGenApi\n *\nexport function reference<T>(index: number) {\n  const contextLView =\n getContextLView();\n  return load<T>(contextLView, HEADER_OFFSET + index);\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Type} from\n '.././interface/type';\nimport {isForwardRef, resolveForwardRef} from '../forward_ref';\nimport {inject,\n invalidFactoryDep} from '../injector_compatibility';\nimport {getInjectableDef, getInjectorDef, defineInjectable,\n defineInjector} from '../interface/defs';\n\n/** A mapping of the @angular/core API surface used in\n generated expressions to the\n actual symbols.\n * This should be kept up to date with the public exports of @angular/core.\n *\nexport const\n angularCoreDiEnv: {[name: string]: Function} = {\n  'defineInjectable': defineInjectable,\n  'defineInjector':\n defineInjector,\n  'inject': inject,\n  'getFactoryOf': getFactoryOf,\n  'invalidFactoryDep':\n invalidFactoryDep,\n};\n\nfunction getFactoryOf<T>(type: Type<any>): ((type?: Type<T>) => T)|null {\n  const\n typeAny = type as any;\n\n  if (isForwardRef(type)) {\n    return () => {\n      const factory =\n getFactoryOf<T>(resolveForwardRef(typeAny));\n      return factory ? factory() : null;\n    }\n  }\n\n  const def = getInjectableDef<T>(typeAny) || getInjectorDef<T>(typeAny);\n  if (!def || def.factory ===\n undefined) {\n    return null;\n  }\n  return def.factory;\n}\n\n"/**\n * @license\n * Copyright Google LLC All\n Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found

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in the LICENSE file at https://angular.io/license\n * \n\nimport {getCompilerFacade, R3InjectableMetadataFacade}
from '.././compiler/compiler_facade';\nimport {Type} from '.././interface/type';\nimport {NG_FACTORY_DEF}
from '.././render3/fields';\nimport {getClosureSafeProperty} from '.././util/property';\nimport {resolveForwardRef}
from '.././forward_ref';\nimport {Injectable} from './injectable';\nimport {NG_PROV_DEF} from
'./interface/defs';\nimport {ClassSansProvider, ExistingSansProvider, FactorySansProvider, ValueProvider,
ValueSansProvider} from './interface/provider';\n\nimport {angularCoreDiEnv} from './environment';\nimport
{convertDependencies, reflectDependencies} from './util';\n\n\n\n * \n * Compile an Angular injectable according
to its `Injectable` metadata, and patch the resulting\n * injectable def (`prov`) onto the injectable type.\n * \n\nexport
function compileInjectable(type: Type<any>, srcMeta?: Injectable): void {\n  let ngInjectableDef: any = null;\n  let
ngFactoryDef: any = null;\n\n  // if NG_PROV_DEF is already defined on this class then don't overwrite it\n  if
(!type.hasOwnProperty(NG_PROV_DEF)) {\n    Object.defineProperty(type, NG_PROV_DEF, {\n      get: () =>
{\n        if (ngInjectableDef === null) {\n          ngInjectableDef = getCompilerFacade().compileInjectable(\n
angularCoreDiEnv, `ng:///${type.name}/prov.js`,\n          getInjectableMetadata(type, srcMeta));\n        }\n
return ngInjectableDef;\n      },\n      {\n        enumerable: true,\n        configurable: true,\n        writable:
false\n      }\n    });\n  }\n\n  // if NG_FACTORY_DEF is already defined on this class then don't
overwrite it\n  if (!type.hasOwnProperty(NG_FACTORY_DEF)) {\n    Object.defineProperty(type,
NG_FACTORY_DEF, {\n      get: () => {\n        if (ngFactoryDef === null) {\n          const metadata =
getInjectableMetadata(type, srcMeta);\n          const compiler = getCompilerFacade();\n          ngFactoryDef =
compiler.compileFactory(angularCoreDiEnv, `ng:///${type.name}/fac.js`, {\n            name: metadata.name,\n
            type: metadata.type,\n            typeArgumentCount: metadata.typeArgumentCount,\n            deps:
reflectDependencies(type),\n            injectFn: 'inject',\n            target: compiler.R3FactoryTarget.Injectable\n
          });\n        }\n        return ngFactoryDef;\n      },\n      {\n        enumerable: true,\n        configurable:
true,\n        writable: false\n      }\n    });\n  }\n\n  type useClassProvider =
Injectable&ClassSansProvider&{\n    deps?: any[];\n  }\n\n  const USE_VALUE =\n  getClosureSafeProperty<ValueProvider>({\n    provide: String,\n    useValue: getClosureSafeProperty\n  });\n\n  function
isUseClassProvider(meta: Injectable): meta is UseClassProvider {\n    return (meta as UseClassProvider).useClass
!== undefined;\n  }\n\n  function isUseValueProvider(meta: Injectable): meta is Injectable&ValueSansProvider {\n
return USE_VALUE in meta;\n  }\n\n  function isUseFactoryProvider(meta: Injectable): meta is
Injectable&FactorySansProvider {\n    return
(meta as FactorySansProvider).useFactory !== undefined;\n  }\n\n  function isUseExistingProvider(meta: Injectable):
meta is Injectable&ExistingSansProvider {\n    return (meta as ExistingSansProvider).useExisting !==
undefined;\n  }\n\n  function getInjectableMetadata(type: Type<any>, srcMeta?: Injectable):
R3InjectableMetadataFacade {\n    // Allow the compilation of a class with a `@Injectable()` decorator without
parameters\n    const meta: Injectable = srcMeta || {providedIn: null};\n    const compilerMeta:
R3InjectableMetadataFacade = {\n      name: type.name,\n      type: type,\n      typeArgumentCount: 0,\n      providedIn:
meta.providedIn,\n      userDeps: undefined,\n    };\n    if ((isUseClassProvider(meta) || isUseFactoryProvider(meta)) &&
meta.deps !== undefined) {\n      compilerMeta.userDeps = convertDependencies(meta.deps);\n    }\n    if
(isUseClassProvider(meta)) {\n      // The user explicitly specified useClass, and may or may not have provided
deps.\n      compilerMeta.useClass = resolveForwardRef(meta.useClass);\n    }\n    else if (isUseValueProvider(meta)) {\n      // The user explicitly specified useValue.\n      compilerMeta.useValue =
resolveForwardRef(meta.useValue);\n    }\n    else if (isUseFactoryProvider(meta)) {\n      // The user explicitly
specified useFactory.\n      compilerMeta.useFactory = meta.useFactory;\n    }\n    else if (isUseExistingProvider(meta)) {\n      // The
user explicitly specified useExisting.\n      compilerMeta.useExisting = resolveForwardRef(meta.useExisting);\n    }\n
return compilerMeta;\n  }\n\n  `"/**\n * \n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\nimport {Type} from '.././interface/type';\nimport {ReflectionCapabilities} from
'./reflection/reflection_capabilities';\nimport {getClosureSafeProperty} from '.././util/property';\nimport
{resolveForwardRef} from '.././forward_ref';\nimport {injectArgs, inject} from './injector_compatibility';\nimport

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{ClassSansProvider, ConstructorSansProvider, ExistingSansProvider, FactorySansProvider,
StaticClassSansProvider, ValueProvider, ValueSansProvider} from './interface/provider';\n\nconst USE_VALUE
=\n  getClosureSafeProperty<ValueProvider>({provide: String, useValue: getClosureSafeProperty});\n\nconst
EMPTY_ARRAY: any[] = [];\n\nexport function convertInjectableProviderToFactory(\n  type: Type<any>,\n  provider?: ValueSansProvider|ExistingSansProvider|StaticClassSansProvider|\n  ConstructorSansProvider|FactorySansProvider|ClassSansProvider): () => any {\n  if (!provider) {\n    const
reflectionCapabilities = new ReflectionCapabilities();\n    const deps = reflectionCapabilities.parameters(type);\n    //
TODO - convert to flags.\n    return () => new type(...injectArgs(deps as any[]));\n  }\n\n  if (USE_VALUE in
provider) {\n    const valueProvider = (provider as ValueSansProvider);\n    return () => valueProvider.useValue;\n  }
else if ((provider as ExistingSansProvider).useExisting)\n    {\n    const existingProvider = (provider as ExistingSansProvider);\n    return () =>
inject(resolveForwardRef(existingProvider.useExisting));\n  } else if ((provider as
FactorySansProvider).useFactory) {\n    const factoryProvider = (provider as FactorySansProvider);\n    return () =>
factoryProvider.useFactory(...injectArgs(factoryProvider.deps || EMPTY_ARRAY));\n  } else if ((provider as
StaticClassSansProvider | ClassSansProvider).useClass) {\n    const classProvider = (provider as
StaticClassSansProvider | ClassSansProvider);\n    let deps = (provider as StaticClassSansProvider).deps;\n    if
(!deps) {\n    const reflectionCapabilities = new ReflectionCapabilities();\n    deps =
reflectionCapabilities.parameters(type);\n    }\n    return () => new
(resolveForwardRef(classProvider.useClass))(...injectArgs(deps));\n  } else {\n    let deps = (provider as
ConstructorSansProvider).deps;\n    if (!deps) {\n    const reflectionCapabilities = new ReflectionCapabilities();\n
    deps = reflectionCapabilities.parameters(type);\n    }\n    return () => new type(...injectArgs(deps!));\n
  }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Type} from './interface/type';\nimport {makeDecorator, TypeDecorator} from
'./util/decorators';\n\nimport {getInjectableDef, InjectableType, defineInjectable} from './interface/defs';\nimport
{ClassSansProvider, ConstructorSansProvider, ExistingSansProvider, FactorySansProvider,
StaticClassSansProvider, ValueSansProvider} from './interface/provider';\nimport {compileInjectable as
render3CompileInjectable} from './jit/injectable';\nimport {convertInjectableProviderToFactory} from
'./util';\n\n\n/**\n * Injectable providers used in `@Injectable` decorator.\n *\n * @publicApi\n */\n\nexport type
InjectableProvider = ValueSansProvider|ExistingSansProvider|StaticClassSansProvider|\n
ConstructorSansProvider|FactorySansProvider|ClassSansProvider;\n\n/**\n * Type of the Injectable decorator /
constructor function.\n *\n * @publicApi\n */\n\nexport interface InjectableDecorator {\n  /**\n   * Decorator that
marks a class as available to be\n   * provided and injected as a dependency.\n   *\n   * @see [Introduction to
Services and DI](guide/architecture-services)\n   * @see [Dependency Injection Guide](guide/dependency-
injection)\n   *\n   * @usageNotes\n   * Marking a class with `@Injectable` ensures that the compiler\n   * will
generate the necessary metadata to create the class's\n   * dependencies when the class is injected.\n   *\n   * The
following example shows how a service class is properly\n   * marked so that a supporting service can be injected
upon creation.\n   *\n   * <code-example path="core/di/ts/metadata_spec.ts" region="Injectable"></code-
example>\n   *\n   */\n  ((): TypeDecorator);\n  (options?:\n    {\n      providedIn: Type<any>|'root'|'platform'|'any'|null}&\n      InjectableProvider): TypeDecorator;\n  new(): Injectable;\n  new(options?: {\n    providedIn: Type<any>|'root'|'platform'|'any'|null}&\n    InjectableProvider): Injectable;\n}\n\n/**\n * Type of the Injectable metadata.\n *\n * @publicApi\n */\n\nexport interface Injectable {\n  /**\n   * Determines
which injectors will provide the injectable,\n   * by either associating it with an `@NgModule` or other
`InjectorType`,\n   * or by specifying that this injectable should be provided in one of the following injectors:\n   * -
'root': The application-level injector in most apps.\n   * - 'platform': A special singleton platform injector shared by
all\n   * applications on the page.\n   * - 'any': Provides a unique instance in each lazy loaded module while all
eagerly loaded\n   * modules share one instance.\n   *\n   */\n  providedIn?:\n    Type<any>|'root'|'platform'|'any'|null;\n}\n\n/**\n * Injectable decorator and metadata.\n *\n * @Annotation\n

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@publicApi\n *\\nexport const Injectable: InjectableDecorator = makeDecorator(\\n   'Injectable', undefined,\nundefined, undefined,\\n   (type: Type<any>, meta: Injectable) => SWITCH_COMPILE_INJECTABLE(type as\nany, meta));\\n\\n\\n/**\\n * Supports @Injectable() in JIT mode for Render2.\\n */\\nfunction\nrender2CompileInjectable(\\n   injectableType: Type<any>,\\n   options?: {providedIn?:\nType<any>|'root'|'platform'|'any'|null}&InjectableProvider): void {\\n   if (options && options.providedIn !==\nundefined && !getInjectableDef(injectableType)) {\\n     (injectableType as InjectableType<any>).prov =\ndefineInjectable({\\n       token: injectableType,\\n       providedIn: options.providedIn,\\n       factory:\nconvertInjectableProviderToFactory(injectableType, options),\\n     });\\n   }\\n}\\n\\n\\nexport const\nSWITCH_COMPILE_INJECTABLE__POST_R3__ = render3CompileInjectable;\\nconst\nSWITCH_COMPILE_INJECTABLE__PRE_R3__ = render2CompileInjectable;\\nconst\nSWITCH_COMPILE_INJECTABLE: typeof render3CompileInjectable\n=\\n   SWITCH_COMPILE_INJECTABLE__PRE_R3__;\\n","/*\\n * @license\\n * Copyright Google LLC All\nRights Reserved.\\n *\\n * Use of this source code is governed by an MIT-style license that can be\\n * found in the\nLICENSE file at https://angular.io/license\\n */\\nimport {Type} from './interface/type';\\nimport\n{ERROR_ORIGINAL_ERROR, wrappedError} from './util/errors';\\nimport {stringify} from\n'./util/stringify';\\nimport {ReflectiveInjector} from './reflective_injector';\\nimport {ReflectiveKey} from\n'./reflective_key';\\n\\nfunction findFirstClosedCycle(keys: any[]): any[] {\\n   const res: any[] = [];\nfor (let i = 0; i <\nkeys.length; ++i) {\\n     if (res.indexOf(keys[i]) > -1) {\\n       res.push(keys[i]);\\n       return res;\\n     }\nres.push(keys[i]);\\n   }\\n   return res;\\n}\\n\\nfunction constructResolvingPath(keys: any[]): string {\\n   if (keys.length >\n1) {\\n     const reversed = findFirstClosedCycle(keys.slice().reverse());\\n     const tokenStrs = reversed.map(k =>\nstringify(k.token));\\n\nreturn '(' + tokenStrs.join(' -> ') + ');\\n   }\\n}\\n\\nreturn '';}\\n\\nexport interface InjectionError extends Error {\\n\nkeys: ReflectiveKey[];\\n injectors: ReflectiveInjector[];\\n constructResolvingMessage: (keys: ReflectiveKey[]) =>\nstring;\\n addKey(injector: ReflectiveInjector, key: ReflectiveKey): void;\\n}\\n\\nfunction injectionError(\\n   injector:\nReflectiveInjector, key: ReflectiveKey,\\n   constructResolvingMessage: (keys: ReflectiveKey[]) => string,\\n   originalError?: Error): InjectionError {\\n   const keys = [key];\\n   const errMsg =\nconstructResolvingMessage(keys);\\n   const error =\\n     (originalError ? wrappedError(errMsg, originalError) :\nError(errMsg)) as InjectionError;\\n   error.addKey = addKey;\\n   error.keys = keys;\\n   error.injectors = [injector];\\n\nerror.constructResolvingMessage = constructResolvingMessage;\\n   (error as any)[ERROR_ORIGINAL_ERROR] =\noriginalError;\\n   return error;\\n}\\n\\nfunction addKey(this: InjectionError, injector: ReflectiveInjector,\nkey: ReflectiveKey): void {\\n   this.injectors.push(injector);\\n   this.keys.push(key);\\n   // Note: This updated message\nwon't be reflected in the `stack` property\\n   this.message = this.constructResolvingMessage(this.keys);\\n}\\n\\n/**\\n *\nThrown when trying to retrieve a dependency by key from { @link Injector}, but the { @link Injector} does not\nhave a { @link Provider} for the given key.\\n */\\n * @usageNotes\\n * #### Example\\n */\\n * ```typescript\\n * class A\n{\\n *   constructor(b:B) {}\\n * }\\n * \\n * expect(() => Injector.resolveAndCreate([A])).toThrowError();\\n * ```\\n\n*/\\nexport function noProviderError(injector: ReflectiveInjector, key: ReflectiveKey): InjectionError {\\n   return\ninjectionError(injector, key, function(keys: ReflectiveKey[]) {\\n     const first = stringify(keys[0].token);\\n     return\n`No provider for ${first}!${constructResolvingPath(keys)}`;\\n   });\\n}\\n\\n/**\\n *\nThrown when dependencies form a cycle.\\n */\\n * @usageNotes\\n * #### Example\\n */\\n * ```typescript\\n *\nvar injector = Injector.resolveAndCreate([\\n *   {provide: \"one\", useFactory: (two) => \"two\", deps: [[new\nInject(\"two\")]]},\\n *   {provide: \"two\", useFactory: (one) => \"one\", deps: [[new Inject(\"one\")]]}]\\n * ));\\n * \\n *\nexpect(() => injector.get(\"one\")).toThrowError();\\n * ```\\n */\\n * Retrieving `A` or `B` throws a\n`CyclicDependencyError` as the graph above cannot be constructed.\\n */\\nexport function\ncyclicDependencyError(\\n   injector: ReflectiveInjector, key: ReflectiveKey): InjectionError {\\n   return\ninjectionError(injector, key, function(keys: ReflectiveKey[]) {\\n     return `Cannot instantiate cyclic\ndependency!${constructResolvingPath(keys)}`;\\n   });\\n}\\n\\n/**\\n *\nThrown when a constructing type returns with\nan Error.\\n */\\n * The `InstantiationError` class contains the original error plus the dependency graph which caused\\n\nthis object to be instantiated.\\n */\\n * @usageNotes\\n * #### Example\\n */\\n * ```typescript\\n * class A {\\n *
```

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constructor() {\n *   throw
  new Error('message');\n *   }\n * }\n *\n * var injector = Injector.resolveAndCreate([A]);\n *\n * try {\n *
injector.get(A);\n * } catch (e) {\n *   expect(e instanceof InstantiationException).toBe(true);\n *
expect(e.originalException.message).toEqual('message');\n *   expect(e.originalStack).toBeDefined();\n * }\n *
```\n *\n * export function instantiationError(\n   injector: ReflectiveInjector, originalException: any, originalStack:
any,\n key: ReflectiveKey): InjectionError {\n return injectionError(injector, key, function(keys: ReflectiveKey[])
{\n const first = stringify(keys[0].token);\n return `${originalException.message}: Error during instantiation of
${first}!${\n constructResolvingPath(keys)}.`; \n }, originalException);\n }\n *\n * Thrown when an object
other then { @link Provider } (or `Type`) is passed to { @link Injector}\n * creation.\n *\n * @usageNotes\n * ###
Example\n *\n * ```typescript\n * expect(() => Injector.resolveAndCreate([\"not a type\"]))toThrowError();\n *
```\n *\n * export function invalidProviderError(provider: any) {\n   return Error(\n     `Invalid provider - only
instances of Provider and Type are allowed, got: ${provider}`);\n }\n *\n * Thrown when the class has no
annotation information.\n *\n * Lack of annotation information prevents the { @link Injector} from determining
which dependencies\n * need to be injected into the constructor.\n *\n * @usageNotes\n * ### Example\n *\n *
```\n * class A {\n *   constructor(b) {\n *   }\n * }\n *\n * expect(() =>
Injector.resolveAndCreate([A])).toThrowError();\n *
```\n *\n * This error is also thrown when the class not marked
with { @link Injectable} has parameter types.\n *\n * ```typescript\n * class B {\n *\n * class A {\n *
constructor(b:B) {\n * // no information about the parameter types of A is available at runtime.\n * }\n *\n * expect(()
=> Injector.resolveAndCreate([A,B])).toThrowError();\n *
```\n *\n * export function
noAnnotationError(typeOrFunc: Type<any>|Function,
 params: any[]): Error {\n const signature: string[] = [];\n for (let i = 0, ii = params.length; i < ii; i++) {\n const
parameter = params[i];\n if (!parameter || parameter.length == 0) {\n signature.push('?');\n } else {\n
signature.push(parameter.map(stringify).join(' '));\n }\n }\n return Error(\n `Cannot resolve all parameters for
${stringify(typeOrFunc)} + ${signature.join(' ')} + '.\n ' +\n `Make sure that all the parameters are
decorated with Inject or have valid type annotations and that ${stringify(typeOrFunc)} + '' is decorated with
Injectable.`);\n }\n *\n * Thrown when getting an object by index.\n *\n * @usageNotes\n * ### Example\n *\n *
```\n * class A {\n *\n * var injector = Injector.resolveAndCreate([A]);\n *\n * expect(() =>
injector.getAt(100)).toThrowError();\n *
```\n *\n * export function outOfBoundsError(index: number) {\n   return
Error(`Index ${index} is out-of-bounds.`);\n }\n *\n *
TODO: add a working example after alpha38 is released\n *\n * Thrown when a multi provider and a regular
provider are bound to the same token.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * expect(() =>
Injector.resolveAndCreate([\n * { provide: 'Strings', useValue: 'string1', multi: true },\n * { provide:
'Strings', useValue: 'string2', multi: false }\n *])).toThrowError();\n *
```\n *\n * export function
mixingMultiProvidersWithRegularProvidersError(\n   provider1: any, provider2: any): Error {\n   return
Error(`Cannot mix multi providers and regular providers, got: ${provider1} ${provider2}`);\n }\n *\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n * import {stringify} from
'./util/stringify';\n * import {resolveForwardRef} from './forward_ref';\n *\n * A unique object used for retrieving
items from the { @link ReflectiveInjector}.\n *\n * Keys have:\n * - a system-wide unique `id`.\n * - a `token`.\n *\n * `Key` is used internally by { @link ReflectiveInjector} because its system-wide unique `id` allows\n * the\n * injector to store created objects in a more efficient way.\n *\n * `Key` should not be created directly. { @link
ReflectiveInjector} creates keys automatically when\n * resolving\n * providers.\n *\n * @deprecated No
replacement\n * @publicApi\n * export class ReflectiveKey {\n   public readonly displayName: string;\n *\n * Private\n * constructor(public token: Object, public id: number) {\n     if (!token) {\n       throw new Error('Token
must be defined!');\n     }\n     this.displayName = stringify(this.token);\n   }\n *\n * Retrieves a `Key` for a
token.\n *\n * static get(token: Object): ReflectiveKey {\n     return
_globalKeyRegistry.get(resolveForwardRef(token));\n   }\n *\n * @returns the number of keys registered in the
system.\n

```



```

    * \n static get numberofKeys(): number {\n    return _globalKeyRegistry.numberofKeys;\n  }\n}\n\nexport class
KeyRegistry {\n  private _allKeys = new Map<Object, ReflectiveKey>();\n\n  get(token: Object): ReflectiveKey {\n
    if (token instanceof ReflectiveKey) return token;\n\n    if (this._allKeys.has(token)) {\n      return
this._allKeys.get(token)!;\n    }\n\n    const newKey = new ReflectiveKey(token, ReflectiveKey.numberofKeys);\n
    this._allKeys.set(token, newKey);\n    return newKey;\n  }\n\n  get numberofKeys(): number {\n    return
this._allKeys.size;\n  }\n}\n\nconst _globalKeyRegistry = new KeyRegistry();\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from '../interface/type';\nimport
{PlatformReflectionCapabilities} from './platform_reflection_capabilities';\nimport {GetterFn, MethodFn,
SetterFn} from './types';\n\nexport {PlatformReflectionCapabilities};\n\nexport {GetterFn, MethodFn,
SetterFn};\n\n/**\n * Provides access to reflection data about symbols. Used internally by Angular\n * to power
dependency injection and compilation.\n */\nexport class Reflector {\n  constructor(public reflectionCapabilities:
PlatformReflectionCapabilities) {}\n\n  updateCapabilities(caps: PlatformReflectionCapabilities) {\n
    this.reflectionCapabilities = caps;\n  }\n\n  factory(type: Type<any>): Function {\n    return
this.reflectionCapabilities.factory(type);\n  }\n\n  parameters(typeOrFunc: Type<any>): any[][] {\n    return
this.reflectionCapabilities.parameters(typeOrFunc);\n  }\n\n  annotations(typeOrFunc: Type<any>): any[] {\n
    return this.reflectionCapabilities.annotations(typeOrFunc);\n  }\n\n  propMetadata(typeOrFunc: Type<any>): {[key:
string]: any[]} {\n    return this.reflectionCapabilities.propMetadata(typeOrFunc);\n  }\n\n  hasLifecycleHook(type:
any, lcProperty: string):
boolean {\n    return this.reflectionCapabilities.hasLifecycleHook(type, lcProperty);\n  }\n\n  getter(name: string):
GetterFn {\n    return this.reflectionCapabilities.getter(name);\n  }\n\n  setter(name: string): SetterFn {\n
    return this.reflectionCapabilities.setter(name);\n  }\n\n  method(name: string): MethodFn {\n    return
this.reflectionCapabilities.method(name);\n  }\n\n  importUri(type: any): string {\n    return
this.reflectionCapabilities.importUri(type);\n  }\n\n  resourceUri(type: any): string {\n    return
this.reflectionCapabilities.resourceUri(type);\n  }\n\n  resolveIdentifier(name: string, moduleUrl: string, members:
string[], runtime: any): any {\n    return this.reflectionCapabilities.resolveIdentifier(name, moduleUrl, members,
runtime);\n  }\n\n  resolveEnum(identifier: any, name: string): any {\n    return
this.reflectionCapabilities.resolveEnum(identifier, name);\n  }\n}\n\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * \n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {ReflectionCapabilities} from './reflection_capabilities';\nimport
{Reflector} from './reflector';\n\nexport {Reflector} from './reflector';\n\n/**\n * The { @link Reflector} used
internally in Angular to access metadata\n * about symbols.\n */\nexport const reflector = new Reflector(new
ReflectionCapabilities());\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Type} from '../interface/type';\nimport {reflector} from
'../reflection/reflection';\nimport {resolveForwardRef} from './forward_ref';\nimport {InjectionToken} from
'./injection_token';\nimport {ClassProvider, ExistingProvider, FactoryProvider, Provider, TypeProvider,
ValueProvider} from './interface/provider';\nimport
{Inject, Optional, Self, SkipSelf} from './metadata';\nimport {invalidProviderError,
mixingMultiProvidersWithRegularProvidersError, noAnnotationError} from './reflective_errors';\nimport
{ReflectiveKey} from './reflective_key';\n\ninterface NormalizedProvider extends TypeProvider, ValueProvider,
ClassProvider, ExistingProvider,\n    FactoryProvider {}\n\n/**\n * `Dependency` is used by
the framework to extend DI.\n * This is internal to Angular and should not be used directly.\n */\nexport class
ReflectiveDependency {\n  constructor(\n    public key: ReflectiveKey, public optional: boolean, public visibility:
Self|SkipSelf|null) {}\n\n  static fromKey(key: ReflectiveKey): ReflectiveDependency {\n    return new
ReflectiveDependency(key, false, null);\n  }\n}\n\nconst _EMPTY_LIST: any[] = [];\n\n/**\n * An internal resolved
representation of a `Provider` used by the `Injector`.\n * \n * @usageNotes\n * This is usually created automatically

```

by `Injector.resolveAndCreate`.\n

```
*\n * It can be created manually, as follows:\n *\n * ### Example\n *\n * ```typescript\n * var resolvedProviders =  
Injector.resolve([ { provide: 'message', useValue: 'Hello' } ]);\n * var injector =  
Injector.fromResolvedProviders(resolvedProviders);\n *\n * expect(injector.get('message')).toEqual('Hello');\n *\n * ```\n *\n * @publicApi\n */\nexport interface ResolvedReflectiveProvider {\n /**\n * A key, usually a\n * `Type<any>`.\n */\n key: ReflectiveKey;\n /**\n * Factory function which can return an instance of an object  
represented by a key.\n */\n resolvedFactories: ResolvedReflectiveFactory[];\n /**\n * Indicates if the provider  
is a multi-provider or a regular provider.\n */\n multiProvider: boolean;\n}\n\nexport class  
ResolvedReflectiveProvider_ implements ResolvedReflectiveProvider {\n readonly resolvedFactory:  
ResolvedReflectiveFactory;\n\n constructor(\n public key: ReflectiveKey, public resolvedFactories:  
ResolvedReflectiveFactory[],\n
```

```
public multiProvider: boolean) {\n this.resolvedFactory = this.resolvedFactories[0];\n }\n}\n\n/**\n * An  
internal resolved representation of a factory function created by resolving `Provider`.\n */\n@publicApi\nexport  
class ResolvedReflectiveFactory {\n constructor(\n /**\n * Factory function which can return an instance of  
an object represented by a key.\n */\n public factory: Function,\n /**\n * Arguments (dependencies)  
to the `factory` function.\n */\n public dependencies: ReflectiveDependency[] ) {\n }\n\n /**\n * Resolve a  
single provider.\n */\nfunction resolveReflectiveFactory(provider: NormalizedProvider): ResolvedReflectiveFactory  
{\n let factoryFn: Function;\n let resolvedDeps: ReflectiveDependency[];\n if (provider.useClass) {\n const  
useClass = resolveForwardRef(provider.useClass);\n factoryFn = reflector.factory(useClass);\n resolvedDeps =  
_dependenciesFor(useClass);\n } else if (provider.useExisting)  
{\n factoryFn = (aliasInstance: any) => aliasInstance;\n resolvedDeps =  
[ReflectiveDependency.fromKey(ReflectiveKey.get(provider.useExisting))];\n } else if (provider.useFactory) {\n  
factoryFn = provider.useFactory;\n resolvedDeps = constructDependencies(provider.useFactory, provider.deps);\n } else {\n factoryFn = () => provider.useValue;\n resolvedDeps = _EMPTY_LIST;\n }\n return new  
ResolvedReflectiveFactory(factoryFn, resolvedDeps);\n }\n\n /**\n * Converts the `Provider` into  
`ResolvedProvider`.\n */\n *\n * `Injector` internally only uses `ResolvedProvider`, `Provider` contains convenience  
provider\n */\n *\n * syntax.\n */\nfunction resolveReflectiveProvider(provider: NormalizedProvider):  
ResolvedReflectiveProvider {\n return new ResolvedReflectiveProvider_(\n ReflectiveKey.get(provider.provide), [resolveReflectiveFactory(provider)],\n provider.multi || false);\n }\n}\n\n/**\n * Resolve a list of Providers.\n */\nexport function resolveReflectiveProviders(providers:  
Provider[]): ResolvedReflectiveProvider[] {\n const normalized = _normalizeProviders(providers, []);\n const  
resolved = normalized.map(resolveReflectiveProvider);\n const resolvedProviderMap =  
mergeResolvedReflectiveProviders(resolved, new Map());\n return  
Array.from(resolvedProviderMap.values());\n }\n\n /**\n * Merges a list of ResolvedProviders into a list where each  
key is contained exactly once and\n */\n *\n * multi providers have been merged.\n */\nexport function  
mergeResolvedReflectiveProviders(\n providers: ResolvedReflectiveProvider[],\n normalizedProvidersMap:  
Map<number, ResolvedReflectiveProvider>): Map<number, ResolvedReflectiveProvider> {\n for (let i = 0; i <  
providers.length; i++) {\n const provider = providers[i];\n const existing =  
normalizedProvidersMap.get(provider.key.id);\n if (existing) {\n if (provider.multiProvider !==  
existing.multiProvider) {\n throw mixingMultiProvidersWithRegularProvidersError(existing, provider);\n }\n if (provider.multiProvider) {\n for (let j = 0; j < provider.resolvedFactories.length; j++) {\n  
existing.resolvedFactories.push(provider.resolvedFactories[j]);\n }\n } else {\n  
normalizedProvidersMap.set(provider.key.id, provider);\n }\n } else {\n let resolvedProvider:  
ResolvedReflectiveProvider;\n if (provider.multiProvider) {\n resolvedProvider = new  
ResolvedReflectiveProvider_(\n provider.key, provider.resolvedFactories.slice(), provider.multiProvider);\n } else {\n resolvedProvider = provider;\n }\n normalizedProvidersMap.set(provider.key.id,  
resolvedProvider);\n }\n }\n return normalizedProvidersMap;\n }\n\nfunction _normalizeProviders(\n providers:  
Provider[], res: NormalizedProvider[]): NormalizedProvider[] {\n providers.forEach(b => {\n if (b instanceof
```

```

Type) {\n    res.push({provide: b, useClass: b} as NormalizedProvider);\n\n    } else if (b && typeof b === 'object'
    && (b as any).provide !== undefined) {\n    res.push(b as NormalizedProvider);\n\n    } else if (Array.isArray(b))
    {\n    _normalizeProviders(b, res);\n\n    } else {\n    throw invalidProviderError(b);\n    }\n    });\n\n    return
    res;\n}\n\nexport function constructDependencies(\n    typeOrFunc: any, dependencies?: any[]):
    ReflectiveDependency[] {\n    if (!dependencies) {\n    return _dependenciesFor(typeOrFunc);\n    } else {\n    const
    params: any[][] = dependencies.map(t => [t]);\n    return dependencies.map(t => _extractToken(typeOrFunc, t,
    params));\n    }\n}\n\nfunction _dependenciesFor(typeOrFunc: any): ReflectiveDependency[] {\n    const params =
    reflector.parameters(typeOrFunc);\n\n    if (!params) return [];\n    if (params.some(p => p === null)) {\n    throw
    noAnnotationError(typeOrFunc, params);\n    }\n    return params.map(p => _extractToken(typeOrFunc, p,
    params));\n}\n\nfunction _extractToken(\n    typeOrFunc: any, metadata: any[]|any, params: any[][]):
    ReflectiveDependency {\n
    let token: any = null;\n    let optional = false;\n\n    if (!Array.isArray(metadata)) {\n    if (metadata instanceof Inject)
    {\n    return _createDependency(metadata.token, optional, null);\n    } else {\n    return
    _createDependency(metadata, optional, null);\n    }\n    }\n\n    let visibility: Self|SkipSelf|null = null;\n\n    for (let i = 0;
    i < metadata.length; ++i) {\n    const paramMetadata = metadata[i];\n\n    if (paramMetadata instanceof Type) {\n
    token = paramMetadata;\n    } else if (paramMetadata instanceof Inject) {\n    token = paramMetadata.token;\n\n
    } else if (paramMetadata instanceof Optional) {\n    optional = true;\n\n    } else if (paramMetadata instanceof Self
    || paramMetadata instanceof SkipSelf) {\n    visibility = paramMetadata;\n    } else if (paramMetadata instanceof
    InjectionToken) {\n    token = paramMetadata;\n    }\n    }\n\n    token = resolveForwardRef(token);\n\n    if (token !==
    null) {\n    return _createDependency(token, optional, visibility);\n
    } else {\n    throw noAnnotationError(typeOrFunc, params);\n    }\n}\n\nfunction _createDependency(\n    token:
    any, optional: boolean, visibility: Self|SkipSelf|null): ReflectiveDependency {\n    return new
    ReflectiveDependency(ReflectiveKey.get(token), optional, visibility);\n}\n\n"/**\n * @license\n * Copyright
    Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
    * found in the LICENSE file at https://angular.io/license\n * \n\nimport {Injector} from './injector';\nimport
    {THROW_IF_NOT_FOUND} from './injector_compatibility';\nimport {Provider} from
    './interface/provider';\nimport {Self, SkipSelf} from './metadata';\nimport {cyclicDependencyError,
    instantiationError, noProviderError, outOfBoundsError} from './reflective_errors';\nimport {ReflectiveKey} from
    './reflective_key';\nimport {ReflectiveDependency, ResolvedReflectiveFactory, ResolvedReflectiveProvider,
    resolveReflectiveProviders} from './reflective_provider';\n\n\n//
    Threshold for the dynamic version\nconst UNDEFINED = {};\n\n/**\n * A ReflectiveDependency injection
    container used for instantiating objects and resolving\n * dependencies.\n * \n * An `Injector` is a replacement for a
    `new` operator, which can automatically resolve the\n * constructor dependencies.\n * \n * In typical use, application
    code asks for the dependencies in the constructor and they are\n * resolved by the `Injector`.\n * \n * @usageNotes\n
    * ### Example\n * \n * The following example creates an `Injector` configured to create `Engine` and `Car`.\n * \n *
    ```typescript\n * @Injectable()\n * class Engine {\n * }\n * \n * @Injectable()\n * class Car {\n *   constructor(public
 engine: Engine) {\n * }\n * }\n * \n * var injector = ReflectiveInjector.resolveAndCreate([Car, Engine]);\n * \n * var car =
 injector.get(Car);\n * \n * expect(car instanceof Car).toBe(true);\n * \n * expect(car.engine instanceof Engine).toBe(true);\n *
    ```\n * \n * Notice, we don't use the `new` operator because we explicitly
    want to have the `Injector`\n * resolve all of the object's dependencies automatically.\n * \n * @deprecated from v5 -
    slow and brings in a lot of code, Use `Injector.create` instead.\n * \n * @publicApi\n */\nexport abstract class
    ReflectiveInjector implements Injector {\n    /**\n     * Turns an array of provider definitions into an array of resolved
    providers.\n     * \n     * A resolution is a process of flattening multiple nested arrays and converting individual\n     *
    providers into an array of `ResolvedReflectiveProvider`s.\n     * \n     * @usageNotes\n     * ### Example\n     * \n
    ```typescript\n     * @Injectable()\n     * class Engine {\n     * }\n     * \n     * @Injectable()\n     * class Car {\n     *
 constructor(public engine: Engine) {\n * }\n * }\n * \n * var providers = ReflectiveInjector.resolve([Car,
 [[Engine]]]);\n * \n * expect(providers.length).toEqual(2);\n * \n * expect(providers[0] instanceof
 ResolvedReflectiveProvider).toBe(true);\n * \n * expect(providers[0].key.displayName).toBe("Car");\n

```

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 * expect(providers[0].dependencies.length).toEqual(1);\n * expect(providers[0].factory).toBeDefined();\n *\n * expect(providers[1].key.displayName).toBe("Engine");\n * });\n * ```\n *\n * /\n static resolve(providers: Provider[]): ResolvedReflectiveProvider[] {\n return resolveReflectiveProviders(providers);\n }\n /\n *\n Resolves an array of providers and creates an injector from those providers.\n *\n * The passed-in providers can be an array of `Type`, `Provider`,\n * or a recursive array of more providers.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n *\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var injector = ReflectiveInjector.resolveAndCreate([Car, Engine]);\n * expect(injector.get(Car) instanceof Car).toBe(true);\n *\n * ```\n *\n * /\n static resolveAndCreate(providers: Provider[], parent?: Injector): ReflectiveInjector {\n const ResolvedReflectiveProviders = ReflectiveInjector.resolve(providers);\n return ReflectiveInjector.fromResolvedProviders(ResolvedReflectiveProviders, parent);\n }\n /\n *\n Creates an injector from previously resolved providers.\n *\n * This API is the recommended way to construct injectors in performance-sensitive parts.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n *\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var providers = ReflectiveInjector.resolve([Car, Engine]);\n * var injector = ReflectiveInjector.fromResolvedProviders(providers);\n * expect(injector.get(Car) instanceof Car).toBe(true);\n *\n * ```\n *\n * /\n static fromResolvedProviders(providers: ResolvedReflectiveProvider[], parent?: Injector): ReflectiveInjector {\n return new ReflectiveInjector_(providers, parent);\n }\n /\n *\n Parent of this injector.\n *\n * <!-- TODO: Add a link to the section of the user guide talking about hierarchical injection.\n * -->\n * /\n abstract get parent(): Injector|null;\n /\n *\n Resolves an array of providers and creates a child injector from those providers.\n *\n * <!-- TODO: Add a link to the section of the user guide talking about hierarchical injection.\n * -->\n *\n * The passed-in providers can be an array of `Type`, `Provider`,\n * or a recursive array of more providers.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * class ParentProvider {\n * }\n *\n * class ChildProvider {\n * }\n *\n * var parent = ReflectiveInjector.resolveAndCreate([ParentProvider]);\n * var child = parent.resolveAndCreateChild([ChildProvider]);\n * expect(child.get(ParentProvider) instanceof ParentProvider).toBe(true);\n * expect(child.get(ChildProvider) instanceof ChildProvider).toBe(true);\n * expect(child.get(ParentProvider)).toBe(parent.get(ParentProvider));\n *\n * ```\n *\n * /\n abstract resolveAndCreateChild(providers: Provider[]): ReflectiveInjector;\n /\n *\n Creates a child injector from previously resolved providers.\n *\n * <!-- TODO: Add a link to the section of the user guide talking about hierarchical injection.\n * -->\n *\n * This API is the recommended way to construct injectors in performance-sensitive parts.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * class ParentProvider {\n * }\n *\n * class ChildProvider {\n * }\n *\n * var parentProviders = ReflectiveInjector.resolve([ParentProvider]);\n * var childProviders = ReflectiveInjector.resolve([ChildProvider]);\n * var parent = ReflectiveInjector.fromResolvedProviders(parentProviders);\n * var child = parent.createChildFromResolved(childProviders);\n * expect(child.get(ParentProvider) instanceof ParentProvider).toBe(true);\n * expect(child.get(ChildProvider) instanceof ChildProvider).toBe(true);\n * expect(child.get(ParentProvider)).toBe(parent.get(ParentProvider));\n *\n * ```\n *\n * /\n abstract createChildFromResolved(providers: ResolvedReflectiveProvider[]): ReflectiveInjector;\n /\n *\n Resolves a provider and instantiates an object in the context of the injector.\n *\n * The created object does not get cached by the injector.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n *\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var injector = ReflectiveInjector.resolveAndCreate([Engine]);\n * var car = injector.resolveAndInstantiate(Car);\n * expect(car.engine).toBe(injector.get(Engine));\n * expect(car).not.toBe(injector.resolveAndInstantiate(Car));\n *\n * ```\n *\n * /\n abstract resolveAndInstantiate(provider: Provider): any;\n /\n *\n Instantiates an object using a resolved provider in the context of the injector.\n *\n * The created

```

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object does not get cached by the injector.\n * \n * @usageNotes\n * ### Example\n * \n * ```typescript\n * @Injectable()\n * class Engine {\n * } \n * \n * @Injectable()\n * class Car {\n * constructor(public\n engine:Engine) {\n * } \n * \n * var injector = ReflectiveInjector.resolveAndCreate([Engine]);\n * var\n carProvider = ReflectiveInjector.resolve([Car])[0];\n * var car = injector.instantiateResolved(carProvider);\n * expect(car.engine).toBe(injector.get(Engine));\n * expect(car).not.toBe(injector.instantiateResolved(carProvider));\n * ```\n * \n * \n * abstract\n instantiateResolved(provider: ResolvedReflectiveProvider): any;\n\n abstract get(token: any, notFoundValue?:\n any): any;\n}\n\nexport class ReflectiveInjector_ implements ReflectiveInjector {\n private static INJECTOR_KEY\n = ReflectiveKey.get(Injector);\n /** @internal */\n _constructionCounter: number = 0;\n /** @internal */\n public _providers: ResolvedReflectiveProvider[];\n public\n readonly parent: Injector|null;\n keyIds: number[];\n objs: any[];\n /**\n * Private\n */\n constructor(_providers: ResolvedReflectiveProvider[], _parent?: Injector) {\n this._providers = _providers;\n this.parent = _parent || null;\n const len = _providers.length;\n this.keyIds = [];\n this.objs = [];\n for\n (let i = 0; i < len; i++) {\n this.keyIds[i] = _providers[i].key.id;\n this.objs[i] = UNDEFINED;\n }\n }\n get(token: any, notFoundValue: any = THROW_IF_NOT_FOUND): any {\n return\n this._getByKey(ReflectiveKey.get(token), null, notFoundValue);\n }\n resolveAndCreateChild(providers:\n Provider[]): ReflectiveInjector {\n const ResolvedReflectiveProviders = ReflectiveInjector.resolve(providers);\n return this.createChildFromResolved(ResolvedReflectiveProviders);\n }\n createChildFromResolved(providers:\n ResolvedReflectiveProvider[]): ReflectiveInjector {\n const inj = new ReflectiveInjector_(providers);\n (inj\n as {parent: Injector | null}).parent = this;\n return inj;\n }\n resolveAndInstantiate(provider: Provider): any {\n return this.instantiateResolved(ReflectiveInjector.resolve([provider])[0]);\n }\n instantiateResolved(provider:\n ResolvedReflectiveProvider): any {\n return this._instantiateProvider(provider);\n }\n getProviderAtIndex(index: number): ResolvedReflectiveProvider {\n if (index < 0 || index >=\n this._providers.length) {\n throw outOfBoundsError(index);\n }\n return this._providers[index];\n }\n /**\n * @internal\n */\n _new(provider: ResolvedReflectiveProvider): any {\n if (this._constructionCounter++ >\n this._getMaxNumberOfObjects()) {\n throw cyclicDependencyError(this, provider.key);\n }\n return\n this._instantiateProvider(provider);\n }\n private _getMaxNumberOfObjects(): number {\n return\n this.objs.length;\n }\n private _instantiateProvider(provider: ResolvedReflectiveProvider): any {\n if\n (provider.multiProvider)\n {\n const res = [];\n for (let i = 0; i < provider.resolvedFactories.length; ++i) {\n res[i] =\n this._instantiate(provider, provider.resolvedFactories[i]);\n }\n return res;\n } else {\n return\n this._instantiate(provider, provider.resolvedFactories[0]);\n }\n }\n private _instantiate(\n provider:\n ResolvedReflectiveProvider,\n ResolvedReflectiveFactory: ResolvedReflectiveFactory): any {\n const factory\n = ResolvedReflectiveFactory.factory;\n let deps: any[];\n try {\n deps =\n ResolvedReflectiveFactory.dependencies.map(dep => this._getByReflectiveDependency(dep));\n } catch (e) {\n if (e.addKey) {\n e.addKey(this, provider.key);\n }\n throw e;\n }\n let obj: any;\n try {\n obj =\n factory(...deps);\n } catch (e) {\n throw instantiationError(this, e, e.stack, provider.key);\n }\n return\n obj;\n }\n private _getByReflectiveDependency(dep: ReflectiveDependency):\n any {\n return this._getByKey(dep.key, dep.visibility, dep.optional ? null : THROW_IF_NOT_FOUND);\n }\n private _getByKey(key: ReflectiveKey, visibility: Self|SkipSelf|null, notFoundValue: any): any {\n if (key ===\n ReflectiveInjector_.INJECTOR_KEY) {\n return this;\n }\n if (visibility instanceof Self) {\n return\n this._getByKeySelf(key, notFoundValue);\n }\n } else {\n return this._getByKeyDefault(key, notFoundValue,\n visibility);\n }\n }\n private _getObjByKeyId(keyId: number): any {\n for (let i = 0; i < this.keyIds.length;\n i++) {\n if (this.keyIds[i] === keyId) {\n if (this.objs[i] === UNDEFINED) {\n this.objs[i] =\n this._new(this._providers[i]);\n }\n return this.objs[i];\n }\n }\n return UNDEFINED;\n }\n /**\n * @internal\n */\n _throwOrNull(key: ReflectiveKey, notFoundValue: any): any {\n if (notFoundValue !==\n THROW_IF_NOT_FOUND) {\n return notFoundValue;\n } else {\n \n

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 @param token the type or token to inject\n * @param flags Injection flags\n * @returns the value from the injector
 or `null` when not found\n * \n * @codeGenApi\n * \nexport function directiveInject<T>(token:
Type<T>|InjectionToken<T>): T;\nexport function directiveInject<T>(token: Type<T>|InjectionToken<T>, flags:
InjectFlags): T;\nexport function directiveInject<T>(\n token: Type<T>|InjectionToken<T>, flags =
InjectFlags.Default): T|null {\n const IView = getLView();\n // Fall back to inject() if view hasn't been created.
This situation can happen in tests\n // if inject utilities are used before bootstrapping.\n if (IView === null) {\n //
Verify that we will not get into infinite loop.\n ngDevMode &&
assertInjectImplementationNotEqual(directiveInject);\n return inject(token, flags);\n }\n const tNode =
getCurrentTNode();\n return getOrCreateInjectable<T>(\n tNode as TDirectiveHostNode, IView,
resolveForwardRef(token), flags);\n }\n\n/**\n * Facade for
the attribute injection from DI.\n * \n * @codeGenApi\n * \nexport function injectAttribute(attrNameToInject:
string): string|null {\n return injectAttributeImpl(getCurrentTNode()!, attrNameToInject);\n}\n\n/**\n * Throws an
error indicating that a factory function could not be generated by the compiler for a\n * particular class.\n * \n * This
instruction allows the actual error message to be optimized away when ngDevMode is turned\n * off, saving bytes of
generated code while still providing a good experience in dev mode.\n * \n * The name of the class is not mentioned
here, but will be in the generated factory function name\n * and thus in the stack trace.\n * \n * @codeGenApi\n
*\nexport function invalidFactory(): never {\n const msg =\n ngDevMode ? `This constructor was not
compatible with Dependency Injection.` : 'invalid';\n throw new Error(msg);\n}\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n * \nimport {bindingUpdated} from
'./bindings';\nimport {TNode} from './interfaces/node';\nimport {SanitizerFn} from
'./interfaces/sanitization';\nimport {LView, RENDERER, TView} from './interfaces/view';\nimport {getLView,
getSelectedTNode, getTView, nextBindingIndex} from './state';\nimport {elementPropertyInternal,
setInputsForProperty, storePropertyBindingMetadata} from './shared';\n\n\n/**\n * Update a property on a selected
element.\n * \n * Operates on the element selected by index via the { @link select } instruction.\n * \n * If the property
name also exists as an input property on one of the element's directives,\n * the component property will be set
instead of the element property. This check must\n * be conducted at runtime so child components that add new
`@Inputs` don't have to be re-compiled\n * \n * @param propName Name of property. Because it is going to DOM,
this is not subject to\n
* renaming as part of minification.\n * @param value New value to write.\n * @param sanitizer An optional
function used to sanitize the value.\n * @returns This function returns itself so that it may be chained\n * (e.g.
`property('name', ctx.name)('title', ctx.title)`)\n * \n * @codeGenApi\n * \nexport function property<T>(\n
propName: string, value: T, sanitizer?: SanitizerFn|null): typeof property {\n const IView = getLView();\n const
bindingIndex = nextBindingIndex();\n if (bindingUpdated(IView, bindingIndex, value)) {\n const tView =
getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView,
propName, value, IView[RENDERER], sanitizer, false);\n ngDevMode &&
storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);\n }\n return property;\n}\n\n\n/**\n *
Given `

` and `MyDir` with `@Input('style')` we need to write to\n * directive input.\n
*\nexport function setDirectiveInputsWhichShadowsStyling(\n
tView: TView, tNode: TNode, IView: LView, value: any, isClassBased: boolean) {\n const inputs =
tNode.inputs!;\n const property = isClassBased ? 'class' : 'style';\n // We support both 'class' and `className` hence
the fallback.\n setInputsForProperty(tView, IView, inputs[property], property, value);\n}\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \nimport {assertDefined, assertEqual,
assertIndexInRange} from './util/assert';\nimport {assertFirstCreatePass, assertHasParent} from './assert';\nimport
{attachPatchData} from './context_discovery';\nimport {formatRuntimeError, RuntimeErrorCode} from
'./error_code';\nimport {registerPostOrderHooks} from './hooks';\nimport {hasClassInput, hasStyleInput,
TAttributes, TElementNode, TNode, TNodeFlags, TNodeType} from './interfaces/node';\nimport


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{RElement} from '../interfaces/renderer_dom';\nimport {isContentQueryHost, isDirectiveHost} from
'../interfaces/type_checks';\nimport {HEADER_OFFSET, LView, RENDERER, TView} from
'../interfaces/view';\nimport {assertTNodeType} from '../node_assert';\nimport {appendChild, createElementNode,
writeDirectClass, writeDirectStyle} from '../node_manipulation';\nimport {decreaseElementDepthCount,
getBindingIndex, getCurrentTNode, getElementDepthCount, getLView, getNamespace, getTView,
increaseElementDepthCount, isCurrentTNodeParent, setCurrentTNode, setCurrentTNodeAsNotParent} from
'../state';\nimport {computeStaticStyling} from '../styling/static_styling';\nimport {setUpAttributes} from
'../util/attrs_utils';\nimport {getConstant} from '../util/view_utils';\nimport
{setDirectiveInputsWhichShadowsStyling} from '../property';\nimport {createDirectivesInstances,
executeContentQueries, getOrCreateTNode, matchingSchemas, resolveDirectives, saveResolvedLocalsInData}
from '../shared';\n\n\nfunction
elementStartFirstCreatePass(\n index: number, tView: TView, IView: LView, native: RElement, name: string,\n attrsIndex?: number|null, localRefsIndex?: number): TElementNode {\n ngDevMode &&
assertFirstCreatePass(tView);\n ngDevMode && ngDevMode.firstCreatePass++;\n const tViewConsts =
tView.consts;\n const attrs = getConstant<TAttributes>(tViewConsts, attrsIndex);\n const tNode =
getOrCreateTNode(tView, index, TNodeType.Element, name, attrs);\n const hasDirectives =\n resolveDirectives(tView, IView, tNode, getConstant<string[]>(tViewConsts, localRefsIndex));\n ngDevMode &&
logUnknownElementError(tView, native, tNode, hasDirectives);\n if (tNode.attrs !== null) {\n
computeStaticStyling(tNode, tNode.attrs, false);\n }\n if (tNode.mergedAttrs !== null) {\n
computeStaticStyling(tNode, tNode.mergedAttrs, true);\n }\n if (tView.queries !== null) {\n
tView.queries.elementStart(tView, tNode);\n }\n return tNode;\n}\n\n/**\n * Create
DOM element. The instruction must later be followed by `elementEnd()` call.\n * @param index Index of the
element in the LView array\n * @param name Name of the DOM Node\n * @param attrsIndex Index of the
element's attributes in the `consts` array.\n * @param localRefsIndex Index of the element's local references in the
`consts` array.\n * @param Attributes and localRefs are passed as an array of strings where elements with an even
index\n * hold an attribute name and elements with an odd index hold an attribute value, ex.: ['id', 'warning5',
'class', 'alert']\n * @codeGenApi\n */\nexport function elementStart(\n index: number, name: string,
attrsIndex?: number|null, localRefsIndex?: number): void {\n const IView = getLView();\n const tView =
getTView();\n const adjustedIndex = HEADER_OFFSET + index;\n ngDevMode &&\n assertEquals(\n
getBindingIndex(), tView.bindingStartIndex,\n 'elements should be created before any bindings');\n
ngDevMode
&& assertIndexInRange(IView, adjustedIndex);\n const renderer = IView[RENDERER];\n const native =
IView[adjustedIndex] = createElementNode(renderer, name, getNamespace());\n const tNode =
tView.firstCreatePass ?\n elementStartFirstCreatePass(\n adjustedIndex, tView, IView, native, name,
attrsIndex, localRefsIndex) :\n tView.data[adjustedIndex] as TElementNode;\n setCurrentTNode(tNode,
true);\n const mergedAttrs = tNode.mergedAttrs;\n if (mergedAttrs !== null) {\n setUpAttributes(renderer,
native, mergedAttrs);\n }\n const classes = tNode.classes;\n if (classes !== null) {\n writeDirectClass(renderer,
native, classes);\n }\n const styles = tNode.styles;\n if (styles !== null) {\n writeDirectStyle(renderer, native,
styles);\n }\n if ((tNode.flags & TNodeFlags.isDetached) !== TNodeFlags.isDetached) {\n // In the i18n case,
the translation may have removed this element, so only add it if it is not\n // detached. See
`TNodeType.Placeholder`
and `LFrame.inI18n` for more context.\n appendChild(tView, IView, native, tNode);\n }\n // any immediate
children of a component or template container must be pre-emptively\n // monkey-patched with the component
view data so that the element can be inspected\n // later on using any element discovery utility methods (see
`element_discovery.ts`)\n if (getElementDepthCount() === 0) {\n attachPatchData(native, IView);\n }\n
increaseElementDepthCount();\n if (isDirectiveHost(tNode)) {\n createDirectivesInstances(tView, IView,
tNode);\n executeContentQueries(tView, tNode, IView);\n }\n if (localRefsIndex !== null) {\n
saveResolvedLocalsInData(IView, tNode);\n }\n}\n\n/**\n * Mark the end of the element.\n * @codeGenApi\n

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*\/nexport function elementEnd(): void {\n let currentTNode = getCurrentTNode(!);\n ngDevMode &&
assertDefined(currentTNode, 'No parent node to close.');
```

if (isCurrentTNodeParent()) {\n

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setCurrentTNodeAsNotParent();\n } else
{\n ngDevMode && assertHasParent(getCurrentTNode());\n currentTNode = currentTNode.parent!;\n
setCurrentTNode(currentTNode, false);\n }\n\n const tNode = currentTNode;\n ngDevMode &&
assertTNodeType(tNode, TNodeType.AnyRNode);\n\n\n decreaseElementDepthCount();\n\n const tView =
getTView();\n if (tView.firstCreatePass) {\n registerPostOrderHooks(tView, currentTNode);\n if
(isContentQueryHost(currentTNode)) {\n tView.queries!.elementEnd(currentTNode);\n }\n }\n\n if
(tNode.classesWithoutHost != null && hasClassInput(tNode)) {\n
setDirectiveInputsWhichShadowsStyling(tView, tNode, getLView(), tNode.classesWithoutHost, true);\n }\n\n if
(tNode.stylesWithoutHost != null && hasStyleInput(tNode)) {\n setDirectiveInputsWhichShadowsStyling(tView,
tNode, getLView(), tNode.stylesWithoutHost, false);\n }\n}\n\n**\n * Creates an empty element using { @link
elementStart} and { @link elementEnd}\n * \n * @param index Index of the element in the data array\n * @param
name Name of the DOM Node\n * @param attrsIndex Index of the element's attributes in the `const`s array.\n *
@param localRefsIndex Index of the element's local references in the `const`s array.\n * \n * @codeGenApi\n
*\/nexport function element(\n index: number, name: string, attrsIndex?: number|null, localRefsIndex?: number):
void {\n elementStart(index, name, attrsIndex, localRefsIndex);\n elementEnd();\n }\n\nfunction
logUnknownElementError(\n tView: TView, element: RElement, tNode: TNode, hasDirectives: boolean): void {\n
const schemas = tView.schemas;\n\n // If `schemas` is set to `null`, that's an indication that this Component was
compiled in AOT\n // mode where this check happens at compile time. In JIT mode, `schemas` is always present
and\n // defined as an array (as an empty array in case `schemas` field is not defined) and we should\n // execute
the check below.\n if (schemas === null) return;\n\n const tagName = tNode.value;\n\n // If the element
matches any directive, it's considered as valid.\n if (!hasDirectives && tagName !== null) {\n // The element is
unknown if it's an instance of HTMLUnknownElement or it isn't registered\n // as a custom element. Note that
unknown elements with a dash in their name won't be instances\n // of HTMLUnknownElement in browsers that
support web components.\n const isUnknown =\n // Note that we can't check for `typeof
HTMLUnknownElement === 'function`,\n // because while most browsers return 'function', IE returns
'object'.\n (typeof HTMLUnknownElement !== 'undefined' && HTMLUnknownElement &&\n element
instanceof HTMLUnknownElement) ||\n (typeof customElements !== 'undefined' && tagName.indexOf('-') > -1
&&\n !customElements.get(tagName));\n\n if (isUnknown && !matchingSchemas(tView, tagName)) {\n
let message = `${tagName}` is not a known element:\n\n\n message += `1. If `${tagName}` is an
Angular component, then
verify that it is part of this module.\n\n\n if (tagName && tagName.indexOf('-') > -1) {\n message += `2. If
`${tagName}` is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the
'@NgModule.schemas' of this component to suppress this message.`;\n } else {\n message +=\n\n\n `2. To
allow any element add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.`;\n }\n\n
console.error(formatRuntimeError(RuntimeErrorCode.UNKNOWN_ELEMENT, message);\n }\n }\n }\n\n", /**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {assertEqual,
assertIndexInRange} from '../util/assert';\nimport {assertHasParent} from './assert';\nimport {attachPatchData}
from './context_discovery';\nimport {registerPostOrderHooks} from './hooks';\nimport {TAttributes,
TElementContainerNode,
TNodeType} from './interfaces/node';\nimport {isContentQueryHost, isDirectiveHost} from
'./interfaces/type_checks';\nimport {HEADER_OFFSET, LView, RENDERER, T_HOST, TView} from
'./interfaces/view';\nimport {assertTNodeType} from './node_assert';\nimport {appendChild} from
'./node_manipulation';\nimport {getBindingIndex, getCurrentTNode, getLView, getTView, isCurrentTNodeParent,
setCurrentTNode, setCurrentTNodeAsNotParent} from './state';\nimport {computeStaticStyling} from
'./styling/static_styling';\nimport {getConstant} from '../util/view_utils';\nimport {createDirectivesInstances,
```

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executeContentQueries, getOrCreateTNode, resolveDirectives, saveResolvedLocalsInData} from
'./shared';\n\nfunction elementContainerStartFirstCreatePass(\n index: number, tView: TView, lView: LView,
attrsIndex?: number|null,\n localRefsIndex?: number): TElementContainerNode {\n ngDevMode &&
ngDevMode.firstCreatePass++;\n\n const tViewConsts = tView.consts;\n const attrs =
getConstant<TAttributes>(tViewConsts,
 attrsIndex);\n const tNode = getOrCreateTNode(tView, index, TNodeType.ElementContainer, 'ng-container',
attrs);\n\n // While ng-container doesn't necessarily support styling, we use the style context to identify\n // and
execute directives on the ng-container.\n if (attrs !== null) {\n computeStaticStyling(tNode, attrs, true);\n }\n\n const localRefs = getConstant<string[]>(tViewConsts, localRefsIndex);\n resolveDirectives(tView, lView, tNode,
localRefs);\n\n if (tView.queries !== null) {\n tView.queries.elementStart(tView, tNode);\n }\n\n return
tNode;\n}\n\n/**\n * Creates a logical container for other nodes (<ng-container>) backed by a comment node in the
DOM.\n * The instruction must later be followed by `elementContainerEnd()` call.\n *\n * @param index Index of
the element in the LView array\n * @param attrsIndex Index of the container attributes in the `consts` array.\n *
@param localRefsIndex Index of the container's local references
in the `consts` array.\n *\n * Even if this instruction accepts a set of attributes no actual attribute values are
propagated to\n * the DOM (as a comment node can't have attributes). Attributes are here only for directive\n *
matching purposes and setting initial inputs of directives.\n *\n * @codeGenApi\n */\n\nexport function
elementContainerStart(\n index: number, attrsIndex?: number|null, localRefsIndex?: number): void {\n const
lView = getLView();\n const tView = getTView();\n const adjustedIndex = index + HEADER_OFFSET;\n\n ngDevMode && assertIndexInRange(lView, adjustedIndex);\n ngDevMode &&\n assertEquals(\n
getBindingIndex(), tView.bindingStartIndex,\n 'element containers should be created before any
bindings');\n\n const tNode = tView.firstCreatePass ?\n elementContainerStartFirstCreatePass(\n
adjustedIndex, tView, lView, attrsIndex, localRefsIndex) :\n tView.data[adjustedIndex] as
TElementContainerNode;\n setCurrentTNode(tNode,
 true);\n\n ngDevMode && ngDevMode.rendererCreateComment++;\n const native = lView[adjustedIndex] =\n lView[RENDERER].createComment(ngDevMode ? 'ng-container' : '');\n appendChild(tView, lView, native,
tNode);\n attachPatchData(native, lView);\n\n if (isDirectiveHost(tNode)) {\n createDirectivesInstances(tView,
lView, tNode);\n executeContentQueries(tView, tNode, lView);\n }\n\n if (localRefsIndex !== null) {\n
saveResolvedLocalsInData(lView, tNode);\n }\n}\n\n/**\n * Mark the end of the <ng-container>.\n *\n *
@codeGenApi\n */\n\nexport function elementContainerEnd(): void {\n let currentTNode = getCurrentTNode();\n
const tView = getTView();\n if (isCurrentTNodeParent()) {\n setCurrentTNodeAsNotParent();\n } else {\n
ngDevMode && assertHasParent(currentTNode);\n currentTNode = currentTNode.parent!;\n
setCurrentTNode(currentTNode, false);\n }\n\n ngDevMode && assertTNodeType(currentTNode,
TNodeType.ElementContainer);\n\n if (tView.firstCreatePass)
{\n registerPostOrderHooks(tView, currentTNode);\n if (isContentQueryHost(currentTNode)) {\n
tView.queries!.elementEnd(currentTNode);\n }\n }\n}\n\n/**\n * Creates an empty logical container using
{@link elementContainerStart}\n * and {@link elementContainerEnd}\n *\n * @param index Index of the element
in the LView array\n * @param attrsIndex Index of the container attributes in the `consts` array.\n * @param
localRefsIndex Index of the container's local references in the `consts` array.\n *\n * @codeGenApi\n */\n\nexport
function elementContainer(\n index: number, attrsIndex?: number|null, localRefsIndex?: number): void {\n
elementContainerStart(index, attrsIndex, localRefsIndex);\n elementContainerEnd();\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {OpaqueViewState} from
'./interfaces/view';\nimport
{getLView} from './state';\n\n/**\n * Returns the current OpaqueViewState instance.\n *\n * Used in conjunction
with the restoreView() instruction to save a snapshot\n * of the current view and restore it when listeners are
invoked. This allows\n * walking the declaration view tree in listeners to get vars from parent views.\n *\n *
@codeGenApi\n */\n\nexport function getCurrentView(): OpaqueViewState {\n return getLView() as any as

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OpaqueViewState;\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { Observable } from 'rxjs';\n\n/**\n * Determine if the argument is shaped
like a Promise\n */\nexport function isPromise<T = any>(obj: any): obj is Promise<T> {\n // allow any Promise/A+
compliant thenable.\n // It's up to the caller to ensure that obj.then conforms to the spec\n return !!obj
&& typeof obj.then === 'function';\n}\n\n/**\n * Determine if the argument is an Observable\n *\n * Strictly this
tests that the `obj` is `Subscribable`, since `Observable`\n * types need additional methods, such as `lift()`. But it is
adequate for our\n * needs since within the Angular framework code we only ever need to use the\n * `subscribe()`
method, and RxJS has mechanisms to wrap `Subscribable` objects\n * into `Observable` as needed.\n */\nexport
function isObservable(obj: any|Observable<any>): obj is Observable<any> {\n return !!obj && typeof
obj.subscribe === 'function';\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { assertIndexInRange } from '../util/assert';\nimport { isObservable } from
'../util/lang';\nimport { EMPTY_OBJ } from '../empty';\nimport { PropertyAliasValue, TNode, TNodeFlags,
TNodeType }
from '../interfaces/node';\nimport { GlobalTargetResolver, isProceduralRenderer, Renderer3 } from
'../interfaces/renderer';\nimport { RElement } from '../interfaces/renderer_dom';\nimport { isDirectiveHost } from
'../interfaces/type_checks';\nimport { CLEANUP, FLAGS, LView, LViewFlags, RENDERER, TView } from
'../interfaces/view';\nimport { assertTNodeType } from '../node_assert';\nimport { getCurrentDirectiveDef,
getCurrentTNode, getLView, getTVView } from '../state';\nimport { getComponentLViewByIndex,
getNativeByTNode, unwrapRNode } from '../util/view_utils';\n\nimport { getLCleanup, handleError,
loadComponentRenderer, markViewDirty } from '../shared';\n\n\n\n/**\n * Adds an event listener to the current
node.\n *\n * If an output exists on one of the node's directives, it also subscribes to the output\n * and saves the
subscription for later cleanup.\n *\n * @param eventName Name of the event\n * @param listenerFn The function
to be called when event emits\n * @param useCapture Whether or not
to use capture in event listener\n * @param eventTargetResolver Function that returns global target information in
case this listener\n * should be attached to a global object like window, document or body\n *\n * @codeGenApi\n */\nexport function listener(\n eventName: string, listenerFn: (e?: any) => any, useCapture = false,\n
eventTargetResolver?: GlobalTargetResolver): typeof listener {\n const lView = getLView();\n const tView =
getTVView();\n const tNode = getCurrentTNode();\n listenerInternal(\n tView, lView, lView[RENDERER],
tNode, eventName, listenerFn, useCapture, eventTargetResolver);\n return listener;\n}\n\n\n/**\n * Registers a
synthetic host listener (e.g. `(@foo.start)`) on a component or directive.\n *\n * This instruction is for compatibility
purposes and is designed to ensure that a\n * synthetic host listener (e.g. `@HostListener('@foo.start')`) properly
gets rendered\n * in the component's renderer. Normally all host listeners are evaluated with
the\n * parent component's renderer, but, in the case of animation @triggers, they need\n * to be evaluated with the
sub component's renderer (because that's where the\n * animation triggers are defined).\n *\n * Do not use this
instruction as a replacement for `listener`. This instruction\n * only exists to ensure compatibility with the
ViewEngine's host binding behavior.\n *\n * @param eventName Name of the event\n * @param listenerFn The
function to be called when event emits\n * @param useCapture Whether or not to use capture in event listener\n *
@param eventTargetResolver Function that returns global target information in case this listener\n * should be
attached to a global object like window, document or body\n *\n * @codeGenApi\n */\nexport function
syntheticHostListener(\n eventName: string, listenerFn: (e?: any) => any, useCapture = false,\n
eventTargetResolver?: GlobalTargetResolver): typeof syntheticHostListener {\n const tNode =
getCurrentTNode();\n const lView
= getLView();\n const tView = getTVView();\n const currentDef = getCurrentDirectiveDef(tView.data);\n const
renderer = loadComponentRenderer(currentDef, tNode, lView);\n listenerInternal(\n tView, lView, renderer,
tNode, eventName, listenerFn, useCapture, eventTargetResolver);\n return syntheticHostListener;\n}\n\n\n\n/**\n * A
utility function that checks if a given element has already an event handler registered for an\n * event with a

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specified name. The TView.cleanup data structure is used to find out which events\n * are registered for a given
element.\n */\nfunction findExistingListener(\n tView: TView, IView: LView, eventName: string, tNodeIdx:
number): ((e?: any) => any)|null {\n const tCleanup = tView.cleanup;\n if (tCleanup != null) {\n for (let i = 0; i <
tCleanup.length - 1; i += 2) {\n const cleanupEventName = tCleanup[i];\n if (cleanupEventName ===
eventName && tCleanup[i + 1] === tNodeIdx) {\n // We have found a matching event name on
the same node but it might not have been\n // registered yet, so we must explicitly verify entries in the LView
cleanup data\n // structures.\n const lCleanup = IView[CLEANUP]!;\n const listenerIdxInLCleanup =
tCleanup[i + 2];\n return lCleanup.length > listenerIdxInLCleanup ? lCleanup[listenerIdxInLCleanup] : null;\n
 }\n // TView.cleanup can have a mix of 4-elements entries (for event handler cleanups) or\n // 2-element
entries (for directive and queries destroy hooks). As such we can encounter\n // blocks of 4 or 2 items in the
tView.cleanup and this is why we iterate over 2 elements\n // first and jump another 2 elements if we detect
listeners cleanup (4 elements). Also check\n // documentation of TView.cleanup for more details of this data
structure layout.\n if (typeof cleanupEventName === 'string') {\n i += 2;\n }\n }\n return
null;\n }\n}\n\nfunction listenerInternal(\n tView: TView, IView:
LView, renderer: Renderer3, tNode: TNode, eventName: string,\n listenerFn: (e?: any) => any, useCapture =
false,\n eventTargetResolver?: GlobalTargetResolver): void {\n const isTNodeDirectiveHost =
isDirectiveHost(tNode);\n const firstCreatePass = tView.firstCreatePass;\n const tCleanup: false|any[] =
firstCreatePass && (tView.cleanup || (tView.cleanup = []));\n // When the listener instruction was generated and
is executed we know that there is either a\n // native listener or a directive output on this element. As such we we
know that we will have to\n // register a listener and store its cleanup function on LView.\n const lCleanup =
getLCleanup(IView);\n ngDevMode && assertTNodeType(tNode, TNodeType.AnyRNode |
TNodeType.AnyContainer);\n let processOutputs = true;\n // add native event listener - applicable to elements
only\n if (tNode.type & TNodeType.AnyRNode) {\n const native = getNativeByTNode(tNode, IView) as
RElement;\n const resolved = eventTargetResolver
? eventTargetResolver(native) : EMPTY_OBJ as any;\n const target = resolved.target || native;\n const
lCleanupIndex = lCleanup.length;\n const idxOrTargetGetter = eventTargetResolver ? (\n (_IView: LView) =>
eventTargetResolver(unwrapRNode(_IView[tNode.index])).target : (\n tNode.index;\n)\n) : tNode.index;\n // In order to match
current behavior, native DOM event listeners must be added for all\n // events (including outputs).\n if
(isProceduralRenderer(renderer)) {\n // There might be cases where multiple directives on the same element try
to register an event\n // handler function for the same event. In this situation we want to avoid registration of\n
// several native listeners as each registration would be intercepted by NgZone and\n // trigger change detection.
This would mean that a single user action would result in several\n // change detections being invoked. To avoid
this situation we want to have only one call to\n // native
handler registration (for the same element and same type of event).\n //\n // In order to have just one native
event handler in presence of multiple handler functions,\n // we just register a first handler function as a native
event listener and then chain\n // (coalesce) other handler functions on top of the first native handler function.\n
let existingListener = null;\n // Please note that the coalescing described here doesn't happen for events
specifying an\n // alternative target (ex. (document:click)) - this is to keep backward compatibility with the\n
// view engine.\n // Also, we don't have to search for existing listeners is there are no directives\n // matching
on a given node as we can't register multiple event handlers for the same event in\n // a template (this would
mean having duplicate attributes).\n if (!eventTargetResolver && isTNodeDirectiveHost) {\n existingListener = findExistingListener(tView, IView,
eventName, tNode.index);\n }\n if (existingListener !== null) {\n // Attach a new listener to coalesced
listeners list, maintaining the order in which\n // listeners are registered. For performance reasons, we keep a
reference to the last\n // listener in that list (in `__ngLastListenerFn__` field), so we can avoid going through\n
// the entire set each time we need to add a new listener.\n const lastListenerFn =
(<any>existingListener).__ngLastListenerFn__ || existingListener;\n lastListenerFn.__ngNextListenerFn__ =
listenerFn;\n (<any>existingListener).__ngLastListenerFn__ = listenerFn;\n processOutputs = false;\n }

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else {\n // The first argument of `listen` function in Procedural Renderer is:\n // - either a target name (as a string) in case of global target (window, document, body)\n // - or element reference (in all other cases)\n listenerFn = wrapListener(tNode, IView, listenerFn,\n false /** preventDefault */);\n const cleanupFn = renderer.listen(resolved.name || target, eventName,\n listenerFn);\n ngDevMode && ngDevMode.rendererAddEventListener++;\n lCleanup.push(listenerFn,\n cleanupFn);\n tCleanup && tCleanup.push(eventName, idxOrTargetGetter, lCleanupIndex, lCleanupIndex +\n 1);\n }\n } else {\n listenerFn = wrapListener(tNode, IView, listenerFn, true /** preventDefault */);\n target.addEventListener(eventName, listenerFn, useCapture);\n ngDevMode &&\n ngDevMode.rendererAddEventListener++;\n lCleanup.push(listenerFn);\n tCleanup &&\n tCleanup.push(eventName, idxOrTargetGetter, lCleanupIndex, useCapture);\n }\n }\n // subscribe to directive\n outputs\n const outputs = tNode.outputs;\n let props: PropertyAliasValue|undefined;\n if (processOutputs &&\n outputs !== null && (props = outputs[eventName])) {\n const propsLength = props.length;\n if (propsLength)\n {\n for (let i = 0; i < propsLength;\n i += 2) {\n const index = props[i] as number;\n ngDevMode && assertIndexInRange(IView, index);\n const minifiedName = props[i + 1];\n const directiveInstance = IView[index];\n const output =\n directiveInstance[minifiedName];\n if (ngDevMode && !isObservable(output)) {\n throw new\n Error(`@Output ${minifiedName} not initialized in '${\n directiveInstance.constructor.name}'.`);\n }\n const subscription = output.subscribe(listenerFn);\n const idx = lCleanup.length;\n lCleanup.push(listenerFn, subscription);\n tCleanup && tCleanup.push(eventName, tNode.index, idx, -(idx +\n 1));\n }\n }\n }\n function executeListenerWithErrorHandling(\n IView: LView, listenerFn: (e?: any) =>\n any, e: any): boolean {\n try {\n // Only explicitly returning false from a listener should preventDefault\n return\n listenerFn(e) !== false;\n } catch (error) {\n handleError(IView, error);\n }\n return false;\n }\n }\n /**\n * Wraps an event listener with a function that marks ancestors dirty and prevents\n * default behavior,\n * if applicable.\n * @param tNode The TNode associated with this listener\n * @param\n * IView The LView that contains this listener\n * @param listenerFn The listener function to call\n * @param\n * wrapWithPreventDefault Whether or not to prevent default behavior\n * (the procedural renderer does this already,\n * so in those cases, we should skip)\n */\n function wrapListener(\n tNode: TNode, IView: LView, listenerFn: (e?:\n any) => any,\n wrapWithPreventDefault: boolean): EventListener {\n // Note: we are performing most of the\n work in the listener function itself\n // to optimize listener registration.\n return function\n wrapListenerIn_markDirtyAndPreventDefault(e: any) {\n // Ivy uses `Function` as a special token that allows us to\n unwrap the function\n // so that it can be invoked programmatically by `DebugNode.triggerEventHandler`.\n if (e === Function) {\n return listenerFn;\n }\n // In order to be backwards compatible with View Engine,\n events on component host nodes\n // must also mark the component view itself dirty (i.e. the view that it owns).\n const startView = tNode.flags & TNodeFlags.isComponentHost ?\n getComponentLViewByIndex(tNode.index,\n IView) :\n IView;\n // See interfaces/view.ts for more on LViewFlags.ManualOnPush\n if\n ((IView[FLAGS] & LViewFlags.ManualOnPush) === 0) {\n markViewDirty(startView);\n }\n let result =\n executeListenerWithErrorHandling(IView, listenerFn, e);\n // A just-invoked listener function might have\n coalesced listeners so we need to check for\n // their presence and invoke as needed.\n let nextListenerFn =\n (<any>wrapListenerIn_markDirtyAndPreventDefault).__ngNextListenerFn__;\n while (nextListenerFn) {\n //\n We should prevent default if any of the listeners explicitly return false\n result =\n executeListenerWithErrorHandling(IView,\n nextListenerFn, e) && result;\n nextListenerFn = (<any>nextListenerFn).__ngNextListenerFn__;\n }\n if\n (wrapWithPreventDefault && result === false) {\n e.preventDefault();\n // Necessary for legacy browsers that\n don't support preventDefault (e.g. IE)\n e.returnValue = false;\n }\n return result;\n };\n }\n /**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-\n * style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n namespaceHTML, namespaceMathML, namespaceSVG } from './state';\n /**\n *\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
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* found in the LICENSE file at https://angular.io/license\n *
import { nextContextImpl } from './state';\n\n/**\n *
Retrieves a context at the level specified and saves it as the global, contextViewData.\n
* Will get the next level up if level is not specified.\n * This is used to save contexts of parent views so they can
be bound in embedded views, or\n * in conjunction with reference() to bind a ref from a parent view.\n *\n *
@param level The relative level of the view from which to grab context compared to contextViewData\n * @returns
context\n *\n * @codeGenApi\n */\nexport function nextContext<T = any>(level: number = 1): T {\n return
nextContextImpl(level);\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport { newArray } from './util/array_utils';\nimport { TAttributes, TElementNode,
TNode, TNodeFlags, TNodeType } from './interfaces/node';\nimport { ProjectionSlots } from
'./interfaces/projection';\nimport { DECLARATION_COMPONENT_VIEW, HEADER_OFFSET, T_HOST } from
'./interfaces/view';\nimport
{ applyProjection } from './node_manipulation';\nimport { getProjectAsAttrValue, isNodeMatchingSelectorList,
isSelectorInSelectorList } from './node_selector_matcher';\nimport { getLView, getTView,
setCurrentTNodeAsNotParent } from './state';\nimport { getOrCreateTNode } from './shared';\n\n\n/**\n * Checks a
given node against matching projection slots and returns the\n * determined slot index. Returns \"null\" if no slot
matched the given node.\n *\n * This function takes into account the parsed ngProjectAs selector from the\n * node's
attributes. If present, it will check whether the ngProjectAs selector\n * matches any of the projection slot
selectors.\n */\nexport function matchingProjectionSlotIndex(tNode: TNode, projectionSlots: ProjectionSlots):
number|\n null {\n let wildcardNgContentIndex = null;\n const ngProjectAsAttrVal =
getProjectAsAttrValue(tNode);\n for (let i = 0; i < projectionSlots.length; i++) {\n const slotValue =
projectionSlots[i];\n // The last wildcard
projection slot should match all nodes which aren't matching\n // any selector. This is necessary to be backwards
compatible with view engine.\n if (slotValue === '*') {\n wildcardNgContentIndex = i;\n continue;\n }\n // If we ran into an `ngProjectAs` attribute, we should match its parsed selector\n // to the list of selectors,
otherwise we fall back to matching against the node.\n if (ngProjectAsAttrVal === null ?\n isNodeMatchingSelectorList(tNode, slotValue, /* isProjectionMode */ true) :\n isSelectorInSelectorList(ngProjectAsAttrVal, slotValue)) {\n return i; // first matching selector \"captures\" a
given node\n }\n }\n return wildcardNgContentIndex;\n }\n\n\n/**\n * Instruction to distribute projectable nodes
among <ng-content> occurrences in a given template.\n * It takes all the selectors from the entire component's
template and decides where\n * each projected node belongs (it re-distributes nodes among \"buckets\"
where each \"bucket\" is\n * backed by a selector).\n *\n * This function requires CSS selectors to be provided in 2
forms: parsed (by a compiler) and text,\n * un-parsed form.\n *\n * The parsed form is needed for efficient matching
of a node against a given CSS selector.\n * The un-parsed, textual form is needed for support of the ngProjectAs
attribute.\n *\n * Having a CSS selector in 2 different formats is not ideal, but alternatives have even more\n *
drawbacks:\n * - having only a textual form would require runtime parsing of CSS selectors;\n * - we can't have
only a parsed as we can't re-construct textual form from it (as entered by a\n * template author).\n *\n * @param
projectionSlots? A collection of projection slots. A projection slot can be based\n * on a parsed CSS selectors or
set to the wildcard selector (\"*\") in order to match\n * all nodes which do not match any selector. If not
specified, a single wildcard\n * selector projection slot will be
defined.\n *\n * @codeGenApi\n */\nexport function projectionDef(projectionSlots?: ProjectionSlots): void {\n
const componentNode = getLView()[DECLARATION_COMPONENT_VIEW][T_HOST] as TElementNode;\n\nif (!componentNode.projection) {\n // If no explicit projection slots are defined, fall back to a single\n //
projection slot with the wildcard selector.\n const numProjectionSlots = projectionSlots ? projectionSlots.length :
1;\n const projectionHeads: (TNode|null)[] = componentNode.projection =\n newArray(numProjectionSlots,
null! as TNode);\n const tails: (TNode|null)[] = projectionHeads.slice();\n\n let componentChild: TNode|null =
componentNode.child;\n\n while (componentChild !== null) {\n const slotIndex =\n projectionSlots ?
matchingProjectionSlotIndex(componentChild, projectionSlots) : 0;\n\n if (slotIndex !== null) {\n if

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(tails[slotIndex]) {\n tails[slotIndex]!.projectionNext = componentChild;\n } else {\n projectionHeads[slotIndex] = componentChild;\n }\n tails[slotIndex] = componentChild;\n }\n\n componentChild = componentChild.next;\n }\n }\n}\n\n**\n * Inserts previously re-distributed projected nodes. This instruction must be preceded by a call\n * to the projectionDef instruction.\n * @param nodeIndex\n * @param selectorIndex\n * - 0 when the selector is `` (or unspecified as this is the default value),\n * - 1 based index of the selector from the { @link projectionDef }\n * @codeGenApi\n * ^\nexport function projection(\n nodeIndex: number, selectorIndex: number = 0, attrs?: TAttributes): void {\n const IView = getLView();\n const tView = getTView();\n const tProjectionNode =\n getOrCreateTNode(tView, HEADER_OFFSET + nodeIndex, TNodeType.Projection, null, attrs || null);\n // We can't use viewData[HOST_NODE] because projection nodes can be nested in embedded views.\n if (tProjectionNode.projection === null)\n tProjectionNode.projection = selectorIndex;\n // `<ng-content>` has no content\n setCurrentTNodeAsNotParent();\n if ((tProjectionNode.flags & TNodeFlags.isDetached) !== TNodeFlags.isDetached) {\n // re-distribution of projectable nodes is stored on a component's view level\n applyProjection(tView, IView, tProjectionNode);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {SanitizerFn} from './interfaces/sanitization';\nimport {RENDERER} from './interfaces/view';\nimport {getBindingIndex, getLView, getSelectedTNode, getTView} from './state';\nimport {NO_CHANGE} from './tokens';\nimport {interpolation1, interpolation2, interpolation3, interpolation4, interpolation5, interpolation6, interpolation7, interpolation8, interpolationV} from './interpolation';\nimport {elementPropertyInternal, storePropertyBindingMetadata} from './shared';\n\n**\n * Update an interpolated property on an element with a lone bound value\n * Used when the value passed to a property has 1 interpolated value in it, an no additional text\n * surrounds that interpolated value:\n * ``html\n * <div title="{ {v0} }"></div>\n * ``\n * Its compiled representation is::\n * ``ts\n * propertyInterpolate('title', v0);\n * ``\n * If the property name also exists as an input property on one of the element's directives,\n * the component property will be set instead of the element property. This check must\n * be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n * @param propName The name of the property to update\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns\n * itself, so that it may be chained.\n * @codeGenApi\n * ^\nexport function propertyInterpolate(\n propName: string, v0: any, sanitizer?: SanitizerFn): typeof propertyInterpolate {\n propertyInterpolate1(propName, "", v0, "", sanitizer);\n return propertyInterpolate;\n}\n\n**\n * Update an interpolated property on an element with single bound value surrounded by text.\n * Used when the value passed to a property has 1 interpolated value in it:\n * ``html\n * <div title="prefix{ {v0} }suffix"></div>\n * ``\n * Its compiled representation is::\n * ``ts\n * propertyInterpolate1('title', 'prefix', v0, 'suffix');\n * ``\n * If the property name also exists as an input property on one of the element's directives,\n * the component property will be set instead of the element property. This check must\n * be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n * @param propName The name of the property to update\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns\n * itself, so that it may be chained.\n * @codeGenApi\n * ^\nexport function propertyInterpolate1(\n propName: string, prefix: string, v0: any, suffix: string,\n sanitizer?: SanitizerFn): typeof propertyInterpolate1 {\n const IView = getLView();\n const interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 1, prefix, suffix);\n }\n return propertyInterpolate1;\n}\n\n**\n * Update

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an interpolated property on an element with 2 bound values surrounded by text.  
 \* Used when the value passed to a property has 2 interpolated values in it:  
 \* `<div title="prefix{ {v0}}-{ {v1}}suffix"></div>`  
 \* Its compiled representation is:  
 \* `propertyInterpolate2('title', 'prefix', v0, '-', v1, 'suffix');`  
 \* If the property name also exists as an input property on one of the element's directives, the component property will be set instead of the element property. This check must be conducted at runtime so child components that add new `@Inputs`` don't have to be re-compiled.  
 \* @param propName The name of the property to update  
 \* @param prefix Static value used for concatenation only.  
 \* @param v0 Value checked for change.  
 \* @param i0 Static value used for concatenation only.  
 \* @param v1 Value checked for change.  
 \* @param suffix Static value used for concatenation only.  
 \* @param sanitizer An optional sanitizer function  
 \* @returns itself, so that it may be chained.  
 \* @codeGenApi\n \* ^nexport function propertyInterpolate2(\n propName: string, prefix: string, v0: any, i0: string, v1: any, suffix: string,\n sanitizer?: SanitizerFn): typeof propertyInterpolate2 {\n const IView = getLView();\n const interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 2, prefix, i0, suffix);\n }\n return propertyInterpolate2;\n }\n\n \* Update an interpolated property on an element with 3 bound values surrounded by text.  
 \* Used when the value passed to a property has 3 interpolated values in it:  
 \* `<div title="prefix{ {v0}}-{ {v1}}-{ {v2}}suffix"></div>`  
 \* Its compiled representation is:  
 \* `propertyInterpolate3(\n 'title', 'prefix', v0, '-', v1, '-', v2, 'suffix');`  
 \* If the property name also exists as an input property on one of the element's directives, the component property will be set instead of the element property. This check must be conducted at runtime so child components that add new `@Inputs`` don't have to be re-compiled.  
 \* @param propName The name of the property to update  
 \* @param prefix Static value used for concatenation only.  
 \* @param v0 Value checked for change.  
 \* @param i0 Static value used for concatenation only.  
 \* @param v1 Value checked for change.  
 \* @param i1 Static value used for concatenation only.  
 \* @param v2 Value checked for change.  
 \* @param suffix Static value used for concatenation only.  
 \* @param sanitizer An optional sanitizer function  
 \* @returns itself, so that it may be chained.  
 \* @codeGenApi\n \* ^nexport function propertyInterpolate3(\n propName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any,\n suffix: string, sanitizer?: SanitizerFn): typeof propertyInterpolate3 {\n const IView = getLView();\n const interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 3, prefix, i0, i1, suffix);\n }\n return propertyInterpolate3;\n }\n\n \* Update an interpolated property on an element with 4 bound values surrounded by text.  
 \* Used when the value passed to a property has 4 interpolated values in it:  
 \* `<div title="prefix{ {v0}}-{ {v1}}-{ {v2}}-{ {v3}}suffix"></div>`  
 \* Its compiled representation is:  
 \* `propertyInterpolate4(\n 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');`  
 \* If the property name also exists as an input property on one of the element's directives, the component property will be set instead of the element property. This check must be conducted at runtime so child components that add new `@Inputs`` don't have to be re-compiled.  
 \* @param propName The name of the property to update  
 \* @param prefix Static value used for concatenation only.  
 \* @param v0 Value checked for change.  
 \* @param i0 Static value used for concatenation only.  
 \* @param v1 Value checked for change.  
 \* @param i1 Static value used for concatenation only.  
 \* @param v2 Value checked for change.  
 \* @param i2 Static value used for concatenation only.  
 \* @param v3 Value checked for change.  
 \* @param suffix Static value used for concatenation only.  
 \* @param sanitizer An optional sanitizer function  
 \* @returns itself, so that it may be chained.  
 \* @codeGenApi\n \* ^nexport function propertyInterpolate4(\n propName: string, prefix: string, v0:



any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, suffix: string, sanitizer?: SanitizerFn): typeof propertyInterpolate4 {\n const IView = getLView();\n const interpolatedValue = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 4, prefix, i0, i1, i2, suffix);\n }\n return propertyInterpolate4;\n}\n\n/\*\*\n \* Update an interpolated property on an element with 5 bound

values surrounded by text.\n \*\n \* Used when the value passed to a property has 5 interpolated values in it:\n \*\n \* ```html\n \* <div title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* propertyInterpolate5(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n \* ```\n \*\n \* If the property name also exists as an input property on one of the element's directives,\n \* the component property will be set instead of the element property. This check must\n \* be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n \*\n \* @param propName The name of the property to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked

for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \*/\nexport function propertyInterpolate5(\n propName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, suffix: string, sanitizer?: SanitizerFn): typeof propertyInterpolate5 {\n const IView = getLView();\n const interpolatedValue =\n interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 5, prefix, i0, i1, i2, i3, suffix);\n }\n return propertyInterpolate5;\n}\n\n/\*\*\n \* Update an

interpolated property on an element with 6 bound values surrounded by text.\n \*\n \* Used when the value passed to a property has 6 interpolated values in it:\n \*\n \* ```html\n \* <div title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* propertyInterpolate6(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n \* ```\n \*\n \* If the property name also exists as an input property on one of the element's directives,\n \* the component property will be set instead of the element property. This check must\n \* be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n \*\n \* @param propName The name

of the property to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \*/\nexport function propertyInterpolate6(\n propName: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, suffix: string,\n

sanitizer?: SanitizerFn): typeof propertyInterpolate6 {\n const IView = getLView();\n const interpolatedValue =\n interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n

```

elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer,
false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName,
getBindingIndex() - 6, prefix, i0, i1, i2, i3, i4, suffix);\n }\n return propertyInterpolate6;\n}\n\n/**\n * Update
an interpolated property on an element with 7 bound values surrounded by text.\n * Used when the value passed
to a property has 7 interpolated values in it:\n * ``html\n * <div title="prefix{ {v0} }-{ {v1} }-{ {v2} }-{ {v3} }-
{ {v4} }-{ {v5} }-{ {v6} }suffix"></div>\n * ``\n * Its compiled representation is:\n * ``ts\n
* propertyInterpolate7(\n * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n * ``\n * If
the property name also exists as an input property on one of the element's directives,\n * the component property
will be set instead of the element property. This check must\n * be conducted at runtime so child components that
add new `@Inputs` don't have to be re-compiled.\n * @param propName The name of the property to update\n *
@param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0
Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value
used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for
concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for concatenation
only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation
only.\n * @param v5 Value checked for change.\n * @param i5 Static value used for concatenation only.\n *
@param v6 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @param
sanitizer An optional sanitizer function\n * @returns itself, so that it may be chained.\n * @codeGenApi\n
*/\nexport function propertyInterpolate7(\n propName: string, prefix: string, v0: any, i0: string, v1: any, i1: string,
v2: any, i2: string,\n v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix: string,\n sanitizer?:
SanitizerFn): typeof propertyInterpolate7 {\n const IView = getLView();\n const interpolatedValue =\n interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n if (interpolatedValue !==
NO_CHANGE) {\n const tView = getTView();\n const tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName, interpolatedValue, IView[RENDERER],
sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(\n tView.data, tNode, propName,
getBindingIndex() - 7, prefix, i0, i1, i2, i3, i4, i5,\n suffix);\n }\n return propertyInterpolate7;\n}\n\n/**\n * Update
an interpolated property on an element with 8 bound values surrounded by text.\n * Used when the
value passed to a property has 8 interpolated values in it:\n * ``html\n * <div title="prefix{ {v0} }-{ {v1} }-
{ {v2} }-{ {v3} }-{ {v4} }-{ {v5} }-{ {v6} }-{ {v7} }suffix"></div>\n * ``\n * Its compiled representation is:\n *
``ts\n * propertyInterpolate8(\n * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n *
``\n * If the property name also exists as an input property on one of the element's directives,\n * the component
property will be set instead of the element property. This check must\n * be conducted at runtime so child
components that add new `@Inputs` don't
have to be re-compiled.\n * @param propName The name of the property to update\n * @param prefix Static
value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for
concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation
only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n *
@param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4
Value checked for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked
for change.\n * @param i5 Static value used for concatenation only.\n * @param v6 Value checked for change.\n *
@param i6 Static value used for concatenation only.\n * @param v7 Value checked for change.\n * @param suffix
Static value used for concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns itself, so
that it
may be chained.\n * @codeGenApi\n */\nexport function propertyInterpolate8(\n propName: string, prefix:
string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, i3: string, v4: any, i4: string, v5: any, i5:
string, v6: any, i6: string, v7: any,\n suffix: string, sanitizer?: SanitizerFn): typeof propertyInterpolate8 {\n const
IView = getLView();\n const interpolatedValue = interpolation8(\n IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4,
i4, v5, i5, v6, i6, v7, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n const tView = getTView();\n const

```

```

tNode = getSelectedTNode();\n elementPropertyInternal(\n tView, tNode, IView, propName,
interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n
storePropertyBindingMetadata(\n tView.data, tNode, propName, getBindingIndex() - 8, prefix, i0, i1, i2, i3,
i4, i5, i6,\n suffix);\n }\n return propertyInterpolate8;\n}\n\n/**\n * Update
an interpolated property on an element with 9 or more bound values surrounded by text.\n *\n * Used when the
number of interpolated values exceeds 8.\n *\n * ```html\n * <div\n * title=\`prefix{ {v0}}-{ {v1}}-{ {v2}}-{ {v3}}-{
{v4}}-{ {v5}}-{ {v6}}-{ {v7}}-{ {v8}}-{ {v9}}\`suffix\n * ></div>\n * ```\n *\n * Its compiled representation is:\n *\n *
```ts\n * propertyInterpolateV(\n *   'title', ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v9,\n *
'suffix']);\n * ```\n *\n * If the property name also exists as an input property on one of the element's directives,\n *
the component property will be set instead of the element property. This check must\n * be conducted at runtime so
child components that add new `@Inputs` don't have to be re-compiled.\n *\n * @param propName The name of the
property to update.\n * @param values The collection of values and the strings inbetween those values, beginning
with a\n * string prefix and ending with a string suffix.\n * (e.g.
`['prefix', value0, '-', value1, '-', value2, ..., value99, 'suffix']`)\n *\n * @param sanitizer An optional sanitizer function\n
* @returns itself, so that it may be chained.\n *\n * @codeGenApi\n */\nexport function propertyInterpolateV(\n
propName: string, values: any[], sanitizer?: SanitizerFn): typeof propertyInterpolateV {\n  const IView =
getLView();\n  const interpolatedValue = interpolationV(IView, values);\n  if (interpolatedValue !==
NO_CHANGE) {\n    const tView = getTView();\n    const tNode = getSelectedTNode();\n
elementPropertyInternal(\n      tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer,
false);\n    if (ngDevMode) {\n      const interpolationInBetween = [values[0]]; // prefix\n      for (let i = 2; i <
values.length; i += 2) {\n        interpolationInBetween.push(values[i]);\n      }\n      storePropertyBindingMetadata(\n
        tView.data, tNode, propName, getBindingIndex() - interpolationInBetween.length + 1,\n
        ...interpolationInBetween);\n    }\n  }\n  return propertyInterpolateV;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport {initNgDevMode} from './ng_dev_mode';\n\n/**\n * This file contains
reuseable \"empty\" symbols that can be used as default return values\n * in different parts of the rendering code.
Because the same symbols are returned, this\n * allows for identity checks against these values to be consistently
used by the framework\n * code.\n *\n */\nexport const EMPTY_OBJ: {} = {};\nexport const EMPTY_ARRAY:
any[] = [];\n\n// freezing the values prevents any code from accidentally inserting new values in\nif ((typeof
ngDevMode === 'undefined' || ngDevMode) && initNgDevMode()) {\n  // These property accesses can be ignored
because ngDevMode will be set to false\n  // when optimizing code and the whole if statement
will be dropped.\n  // tslint:disable-next-line:no-toplevel-property-access\n  Object.freeze(EMPTY_OBJ);\n  //
tslint:disable-next-line:no-toplevel-property-access\n  Object.freeze(EMPTY_ARRAY);\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {KeyValueArray,
keyValueArrayIndexOf} from '../util/array_utils';\nimport {assertEqual, assertIndexInRange, assertNotEqual}
from '../util/assert';\nimport {assertFirstUpdatePass} from './assert';\nimport {TNode} from
'./interfaces/node';\nimport {getTStylingRangeNext, getTStylingRangePrev, setTStylingRangeNext,
setTStylingRangeNextDuplicate, setTStylingRangePrev, setTStylingRangePrevDuplicate, toTStylingRange,
TStylingKey, TStylingKeyPrimitive, TStylingRange} from './interfaces/styling';\nimport {TData} from
'./interfaces/view';\nimport {getTView} from './state';\n\n\n/**\n
* NOTE: The word `styling` is used interchangeably as style or class styling.\n *\n * This file contains code to link
styling instructions together so that they can be replayed in\n * priority order. The file exists because Ivy styling
instruction execution order does not match\n * that of the priority order. The purpose of this code is to create a
linked list so that the\n * instructions can be traversed in priority order when computing the styles.\n *\n * Assume
we are dealing with the following code:\n *\n * ```\n * @Component({\n *   template: `<my-cmp [style]=\"
{color: '#001'} \"\n *     [style.color]=\" #002 \"\n *     dir-style-color-1\n *     dir-style-color-2>`\n *

```

```

})\n * class ExampleComponent {\n *   static ngComp = ... {\n *     ...\n *     // Compiler ensures that `styleProp` is
after `styleMap`\n *     styleMap({color: '#001'});\n *     styleProp('color', '#002');\n *     ...\n *   }\n * }\n *
@Directive({\n *   selector:
`[dir-style-color-1]',\n * })\n * class Style1Directive {\n *   @HostBinding('style') style = {color: '#005'};\n *
@HostBinding('style.color') color = '#006';\n *   static ngDir = ... {\n *     ...\n *     // Compiler ensures that
`styleProp` is after `styleMap`\n *     styleMap({color: '#005'});\n *     styleProp('color', '#006');\n *     ...\n *   }\n *
}\n *
@Directive({\n *   selector: `[dir-style-color-2]',\n * })\n * class Style2Directive {\n *
@HostBinding('style') style = {color: '#007'};\n *   @HostBinding('style.color') color = '#008';\n *   static ngDir
= ... {\n *     ...\n *     // Compiler ensures that `styleProp` is after `styleMap`\n *     styleMap({color: '#007'});\n *
styleProp('color', '#008');\n *     ...\n *   }\n * }\n *
}\n *
@Directive({\n *   selector: `my-cmp',\n * })\n * class
MyComponent {\n *   @HostBinding('style') style = {color: '#003'};\n *   @HostBinding('style.color') color =
'#004';\n *   static ngComp =
... {\n *     ...\n *     // Compiler ensures that `styleProp` is after `styleMap`\n *     styleMap({color: '#003'});\n *
styleProp('color', '#004');\n *     ...\n *   }\n * }\n *
```\n *
The Order of instruction execution is:\n *
NOTE:
the comment binding location is for illustrative purposes only.\n *
```\n *
// Template: (ExampleComponent)\n *
styleMap({color: '#001'}); // Binding index: 10\n *
styleProp('color', '#002'); // Binding index: 12\n *
//
MyComponent\n *
styleMap({color: '#003'}); // Binding index: 20\n *
styleProp('color', '#004'); // Binding
index: 22\n *
// Style1Directive\n *
styleMap({color: '#005'}); // Binding index: 24\n *
styleProp('color',
'#006'); // Binding index: 26\n *
// Style2Directive\n *
styleMap({color: '#007'}); // Binding index: 28\n *
styleProp('color', '#008'); // Binding index: 30\n *
```\n *
The correct priority order of concatenation is:\n *
\n *
```\n *
// MyComponent\n
*
styleMap({color: '#003'}); // Binding index: 20\n *
styleProp('color', '#004'); // Binding index: 22\n *
//
Style1Directive\n *
styleMap({color: '#005'}); // Binding index: 24\n *
styleProp('color', '#006'); // Binding
index: 26\n *
// Style2Directive\n *
styleMap({color: '#007'}); // Binding index: 28\n *
styleProp('color',
'#008'); // Binding index: 30\n *
// Template: (ExampleComponent)\n *
styleMap({color: '#001'}); // Binding
index: 10\n *
styleProp('color', '#002'); // Binding index: 12\n *
```\n *
What color should be rendered?\n *
\n *
*
Once the items are correctly sorted in the list, the answer is simply the last item in the\n *
concatenation list which
is `#002`.\n *
\n *
To do so we keep a linked list of all of the bindings which pertain to this element.\n *
Notice that
the bindings are inserted in the order of execution, but the `TVView.data` allows\n *
us to traverse them in the order
of priority.\n
*\n *
|Idx|`TVView.data`|`LView` | Notes\n *
|---|-----|-----|-----|-----\n *
|...| | | | |
|\n *
|10|`null` |`{color: '#001'}|`styleMap('color', {color: '#001'})`\n *
|11|`30 | 12` |`...` |\n *
|12|`color` |`'#002` |`styleProp('color', '#002')`\n *
|13|`10 | 0` |`...` |\n *
|...| | | | |
|\n *
|20|`null` |`'#004` |`styleProp('color', '#004')`\n *
|21|`0 | 22` |`...` |\n *
|22|`color` |`'#004` |`styleProp('color', '#004')`\n *
|23|`20 | 24` |`...` |\n *
|24|`null` |`{color: '#005'}|`styleMap('color',
{color: '#005'})`\n *
|25|`22 | 26` |`...` |\n *
|26|`color` |`'#006` |`styleProp('color', '#006')`\n *
|27|`24 | 28` |`...` |\n *
|28|`null` |`{color: '#007'}|`styleMap('color', {color: '#007'})`\n *
|29|`26 | 30` |`...` |
|\n *
|30|`color` |`'#008` |`styleProp('color', '#008')`\n *
|31|`28 | 10` |`...` |
|\n *
\n *
The above
data structure allows us to re-concatenate the styling no matter which data binding\n *
changes.\n *
\n *
NOTE: in
addition to keeping track of next/previous index the `TVView.data` also stores prev/next\n *
duplicate bit. The
duplicate bit if true says there either is a binding with the same name or\n *
there is a map (which may contain the
name). This information is useful in knowing if other\n *
styles with higher priority need to be searched for
overwrites.\n *
\n *
NOTE: See `should support example in 'tnode_linked_list.ts' documentation` in\n *
`tnode_linked_list_spec.ts` for working example.\n *
\n *
nlet
__unused_const_as_closure_does_not_like_standalone_comment_blocks__: undefined;\n *
\n *
\n *
Insert new
`tStyleValue` at `TData` and link existing style bindings such that we maintain linked\n *
list of styles and compute
the duplicate flag.\n *
\n *

```

Note: this function is executed during `firstUpdatePass` only to populate the `TView.data`. The function works by keeping track of `tStylingRange` which contains two pointers pointing to the head/tail of the template portion of the styles. - if `isHost === false` (we are template) then insertion is at tail of `TStylingRange` - if `isHost === true` (we are host binding) then insertion is at head of `TStylingRange`.

@param tData The `TData` to insert into.

@param tNode `TNode` associated with the styling element.

@param tStylingKey See `TStylingKey`.

@param index location of where `tStyleValue` should be stored (and linked into list).

@param isHostBinding `true` if the insertion is for a `hostBinding`. (insertion is in front of template.)

@param isClassBinding True if the associated `tStylingKey` as a `class` styling.

`tNode.classBindings` should be used (or `tNode.styleBindings` otherwise).

```

function insertTStylingBinding(
 tData: TData, tNode: TNode, tStylingKeyWithStatic: TStylingKey, index:
 number, isHostBinding: boolean, isClassBinding: boolean): void {
 ngDevMode &&
 assertFirstUpdatePass(getTView());
 let tBindings = isClassBinding ? tNode.classBindings :
 tNode.styleBindings;
 let tmplHead = getTStylingRangePrev(tBindings);
 let tmplTail =
 getTStylingRangeNext(tBindings);
 tData[index] = tStylingKeyWithStatic;
 let isKeyDuplicateOfStatic =
 false;
 let tStylingKey: TStylingKeyPrimitive;
 if (Array.isArray(tStylingKeyWithStatic)) {
 // We are case
 when the `TStylingKey` contains static fields as well.
 const staticKeyValueArray = tStylingKeyWithStatic as
 KeyValueArray<any>;
 tStylingKey = staticKeyValueArray[1]; // unwrap.
 // We need to check if our key is
 present in the static so that we can mark it as duplicate.
 if (tStylingKey === null ||
 keyValueArrayIndexOf(staticKeyValueArray, tStylingKey as string)
 > 0) {
 // tStylingKey is present in the statics, need to mark it as duplicate.
 isKeyDuplicateOfStatic =
 true;
 } else {
 tStylingKey = tStylingKeyWithStatic;
 }
 if (isHostBinding) {
 // We are inserting
 host bindings
 // If we don't have template bindings then `tail` is 0.
 const hasTemplateBindings = tmplTail
 !== 0;
 // This is important to know because that means that the `head` can't point to the first
 // template
 bindings (there are none.) Instead the head points to the tail of the template.
 if (hasTemplateBindings) {
 // template
 head's `prev` will point to last host binding or to 0 if no host bindings yet
 const previousNode =
 getTStylingRangePrev(tData[tmplHead + 1] as TStylingRange);
 tData[index + 1] =
 toTStylingRange(previousNode, tmplHead);
 // if a host binding has already been registered, we need to update
 the next of that host
 // binding to point to this one
 if (previousNode
 !== 0) {
 // We need to update the template-tail value to point to us.
 tData[previousNode + 1] =
 setTStylingRangeNext(tData[previousNode + 1] as TStylingRange, index);
 // The `previous` of the
 template binding head should point to this host binding
 tData[tmplHead + 1] =
 setTStylingRangePrev(tData[tmplHead + 1] as TStylingRange, index);
 } else {
 tData[index + 1] =
 toTStylingRange(tmplHead, 0);
 // if a host binding has already been registered, we need to update the next of
 that host
 // binding to point to this one
 if (tmplHead !== 0) {
 // We need to update the template-tail
 value to point to us.
 tData[tmplHead + 1] = setTStylingRangeNext(tData[tmplHead + 1] as TStylingRange,
 index);
 }
 // if we don't have template, the head points to template-tail, and needs to be advanced.
 tmplHead = index;
 }
 } else {
 // We are inserting in template section.
 // We need to set this binding's `previous` to the current template tail
 tData[index + 1] =
 toTStylingRange(tmplTail, 0);
 ngDevMode &&
 assertEquals(
 tmplHead !== 0 && tmplTail ===
 0, false,
 'Adding template bindings after hostBindings is not allowed.
 ');
 if (tmplHead === 0) {
 tmplHead = index;
 } else {
 // We need to update the previous value `next` to point to this binding
 tData[tmplTail + 1] = setTStylingRangeNext(tData[tmplTail + 1] as TStylingRange, index);
 }
 tmplTail =
 index;
 }
 // Now we need to update / compute the duplicates.
 // Starting with our location search towards
 head (least priority)
 if (isKeyDuplicateOfStatic) {
 tData[index + 1] =
 setTStylingRangePrevDuplicate(tData[index + 1] as TStylingRange);
 }
 markDuplicates(tData, tStylingKey,
 index, true, isClassBinding);
 markDuplicates(tData, tStylingKey, index, false, isClassBinding);
 markDuplicateOfResidualStyling(tNode,

```

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tStylingKey, tData, index, isClassBinding);\n\n tBindings = toTStylingRange(tmplHead, tmplTail);\n if
(isClassBinding) {\n tNode.classBindings = tBindings;\n } else {\n tNode.styleBindings = tBindings;\n
}\n}\n\n/*\n * Look into the residual styling to see if the current `tStylingKey` is duplicate of residual.\n *\n *
@param tNode `TNode` where the residual is stored.\n * @param tStylingKey `TStylingKey` to store.\n * @param
tData `TData` associated with the current `LView`.\n * @param index location of where `tStyleValue` should be
stored (and linked into list).\n * @param isClassBinding True if the associated `tStylingKey` as a `class` styling.\n *
`tNode.classBindings` should be used (or `tNode.styleBindings` otherwise).\n */\nfunction
markDuplicateOfResidualStyling(\n tNode: TNode, tStylingKey: TStylingKey, tData: TData, index: number,
isClassBinding: boolean) {\n const residual = isClassBinding ? tNode.residualClasses : tNode.residualStyles;\n
 if (residual != null /* or undefined */ && typeof tStylingKey == 'string' &&\n keyValueArrayIndexOf(residual,
tStylingKey) >= 0) {\n // We have duplicate in the residual so mark ourselves as duplicate.\n tData[index + 1] =
setTStylingRangeNextDuplicate(tData[index + 1] as TStylingRange);\n }\n}\n\n/*\n * Marks `TStyleValue`s as
duplicates if another style binding in the list has the same\n * `TStyleValue`.\n *\n * NOTE: this function is
intended to be called twice once with `isPrevDir` set to `true` and once\n * with it set to `false` to search both the
previous as well as next items in the list.\n *\n * No duplicate case\n * ```\n * [style.color]\n * [style.width.px]
<<- index\n * [style.height.px]\n * ```\n *\n * In the above case adding `[style.width.px]` to the existing
`[style.color]` produces no\n * duplicates because `width` is not found in any other part of the linked list.\n *\n *
Duplicate case\n * ```\n * [style.color]\n * [style.width.em]\n * [style.width.px] <<- index\n * ```\n *\n * In the above case adding `[style.width.px]` will produce a duplicate with
`[style.width.em]`\n * because `width` is found in the chain.\n *\n * Map case 1\n * ```\n * [style.width.px]\n * [style.color]\n * [style] <<- index\n * ```\n *\n * In the above case adding `[style]` will produce a duplicate with any
other bindings because\n * `[style]` is a Map and as such is fully dynamic and could produce `color` or `width`.\n
*\n * Map case 2\n * ```\n * [style]\n * [style.width.px]\n * [style.color] <<- index\n * ```\n *\n * In the above case
adding `[style.color]` will produce a duplicate because there is already a\n * `[style]` binding which is a Map and as
such is fully dynamic and could produce `color` or\n * `width`.\n *\n * NOTE: Once `[style]` (Map) is added into
the system all things are mapped as duplicates.\n * NOTE: We use `style` as example, but same logic is applied to
`class`es as well.\n *\n * @param tData `TData` where the
linked list is stored.\n * @param tStylingKey `TStylingKeyPrimitive` which contains the value to compare to other
keys in\n * the linked list.\n * @param index Starting location in the linked list to search from\n * @param
isPrevDir Direction.\n * - `true` for previous (lower priority);\n * - `false` for next (higher priority).\n
*/\nfunction markDuplicates(\n tData: TData, tStylingKey: TStylingKeyPrimitive, index: number, isPrevDir:
boolean,\n isClassBinding: boolean) {\n const tStylingAtIndex = tData[index + 1] as TStylingRange;\n const
isMap = tStylingKey === null;\n let cursor =\n isPrevDir ? getTStylingRangePrev(tStylingAtIndex) :\n getTStylingRangeNext(tStylingAtIndex);\n let foundDuplicate = false;\n // We keep iterating as long as we have a
cursor\n // AND either:\n // - we found what we are looking for, OR\n // - we are a map in which case we have to
continue searching even after we find what we were\n // looking for since we are a wild
card and everything needs to be flipped to duplicate.\n while (cursor !== 0 && (foundDuplicate === false ||
isMap)) {\n ngDevMode && assertIndexInRange(tData, cursor);\n const tStylingValueAtCursor = tData[cursor]
as TStylingKey;\n const tStyleRangeAtCursor = tData[cursor + 1] as TStylingRange;\n if
(isStylingMatch(tStylingValueAtCursor, tStylingKey)) {\n foundDuplicate = true;\n tData[cursor + 1] =
isPrevDir ? setTStylingRangeNextDuplicate(tStyleRangeAtCursor) :\n setTStylingRangePrevDuplicate(tStyleRangeAtCursor);\n }\n cursor = isPrevDir ?
getTStylingRangePrev(tStyleRangeAtCursor) :\n getTStylingRangeNext(tStyleRangeAtCursor);\n }\n if (foundDuplicate) {\n // if we found a duplicate, than mark ourselves.\n tData[index + 1] = isPrevDir ?
setTStylingRangePrevDuplicate(tStylingAtIndex) :\n setTStylingRangeNextDuplicate(tStylingAtIndex);\n }\n}\n\n/*\n *
Determines if two `TStylingKey`s are a match.\n *\n * When computing whether a binding contains a duplicate,
we need to compare if the instruction\n * `TStylingKey` has a match.\n *\n * Here are examples of `TStylingKey`s

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which match given `tStylingKeyCursor` is:\n * - `color`\n * - `color` // Match another color\n * - `null` //
That means that `tStylingKey` is a `classMap`/`styleMap` instruction\n * - `[`, `color`, `other`, `true`] // wrapped
`color` so match\n * - `[`, `null`, `other`, `true`] // wrapped `null` so match\n * - `[`, `width`, `color`, `value`] //
wrapped static value contains a match on `color`\n * - `null` // `tStylingKeyCursor` always match as it is
`classMap`/`styleMap` instruction\n * \n * @param tStylingKeyCursor\n * @param tStylingKey\n * \nfunction
isStylingMatch(tStylingKeyCursor: TStylingKey, tStylingKey: TStylingKeyPrimitive) {\n ngDevMode &&\n
assertNotEqual(\n Array.isArray(tStylingKey), true, 'Expected that
\\`tStylingKey\\` has been unwrapped');\n if (\n tStylingKeyCursor === null || // If the cursor is `null` it means
that we have map at that\n // location so we must assume that we have a match.\n
tStylingKey === null || // If `tStylingKey` is `null` then it is a map therefor assume that it\n //
contains a match.\n (Array.isArray(tStylingKeyCursor) ? tStylingKeyCursor[1] : tStylingKeyCursor) ===\n
tStylingKey // If the keys match explicitly than we are a match.\n) {\n return true;\n } else if
(Array.isArray(tStylingKeyCursor) && typeof tStylingKey === 'string') {\n // if we did not find a match, but
`tStylingKeyCursor` is `KeyValueArray` that means cursor has\n // statics and we need to check those as well.\n
return keyValueArrayIndexOf(tStylingKeyCursor, tStylingKey) >= 0; // see if we are matching the key\n }\n
return false;\n }\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\nimport {assertEqual, throwError} from
'../util/assert';\nimport {CharCode} from '../util/char_code';\n\n/**\n * Stores the locations of key/value indexes
while parsing styling.\n *\n * In case of `cssText` parsing the indexes are like so:\n * ```\n * `key1: value1; key2:
value2; key3: value3`\n * ^ ^ ^ ^ ^\n * | | | | | +-- textEnd\n * | | +----- valueEnd\n * | | +----- value\n * | +-----
keyEnd\n * +----- key\n * ```\n *\n * In case of `className` parsing the indexes are
like so:\n * ```\n * `key1 key2 key3`\n * ^ ^ ^\n * | | +-- textEnd\n * | +-----
keyEnd\n * +----- key\n * ```\n *\n * NOTE: `value` and `valueEnd` are used only for styles,
not classes.\n *\ninterface ParserState {\n textEnd: number;\n key: number;\n keyEnd: number;\n value:
number;\n valueEnd: number;\n}\n\n// Global state of the parser. (This makes parser non-reentrant, but that is not an
issue)\nconst parserState: ParserState = {\n textEnd: 0,\n key: 0,\n keyEnd: 0,\n value: 0,\n valueEnd:
0,\n};\n\n/**\n * Retrieves the last parsed `key` of style.\n * @param text the text to substring the key from.\n
*\nexport function getLastParsedKey(text: string): string {\n return text.substring(parserState.key,
parserState.keyEnd);\n}\n\n/**\n * Retrieves the last parsed `value` of style.\n * @param text the text to substring
the key from.\n *\nexport function getLastParsedValue(text: string): string {\n return
text.substring(parserState.value, parserState.valueEnd);\n}\n\n/**\n * Initializes `className` string
for parsing and parses the first token.\n *\n * This function is intended to be used in this format:\n * ```\n * for (let i
= parseClassName(text); i >= 0; i = parseClassNameNext(text, i)) {\n * const key = getLastParsedKey();\n * ... \n
* }\n * ```\n *\n * @param text `className` to parse\n * @returns index where the next invocation of
`parseClassNameNext` should resume.\n *\nexport function parseClassName(text: string): number {\n
resetParserState(text);\n return parseClassNameNext(text, consumeWhitespace(text, 0,
parserState.textEnd));\n}\n\n/**\n * Parses next `className` token.\n *\n * This function is intended to be used in
this format:\n * ```\n * for (let i = parseClassName(text); i >= 0; i = parseClassNameNext(text, i)) {\n * const key =
getLastParsedKey();\n * ... \n * }\n * ```\n *\n * @param text `className` to parse\n * @param index where the
parsing should resume.\n * @returns index where the next invocation of `parseClassNameNext` should resume.\n
*\nexport function
parseClassNameNext(text: string, index: number): number {\n const end = parserState.textEnd;\n if (end ===
index) {\n return -1;\n }\n index = parserState.keyEnd = consumeClassToken(text, parserState.key = index,
end);\n return consumeWhitespace(text, index, end);\n}\n\n/**\n * Initializes `cssText` string for parsing and parses
the first key/values.\n *\n * This function is intended to be used in this format:\n * ```\n * for (let i =
parseStyle(text); i >= 0; i = parseStyleNext(text, i)) {\n * const key = getLastParsedKey();\n * const value =

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getLastParsedValue();\n * ... \n * } \n * ```\n * @param text `cssText` to parse\n * @returns index where the next
invocation of `parseStyleNext` should resume.\n */\n\nexport function parseStyle(text: string): number {\n
resetParserState(text);\n return parseStyleNext(text, consumeWhitespace(text, 0, parserState.textEnd));\n}\n\n/**\n
* Parses the next `cssText` key/values.\n * \n * This function is intended to be used in this format:\n
* ```\n * for (let i = parseStyle(text); i >= 0; i = parseStyleNext(text, i)) {\n * const key = getLastParsedKey();\n *
const value = getLastParsedValue();\n * ... \n * } \n * \n * @param text `cssText` to parse\n * @param index where
the parsing should resume.\n * @returns index where the next invocation of `parseStyleNext` should resume.\n
*/\n\nexport function parseStyleNext(text: string, startIndex: number): number {\n const end = parserState.textEnd;\n
let index = parserState.key = consumeWhitespace(text, startIndex, end);\n if (end === index) {\n // we reached an
end so just quit\n return -1;\n }\n index = parserState.keyEnd = consumeStyleKey(text, index, end);\n index =
consumeSeparator(text, index, end, CharCode.COLON);\n index = parserState.value = consumeWhitespace(text,
index, end);\n index = parserState.valueEnd = consumeStyleValue(text, index, end);\n return
consumeSeparator(text, index, end, CharCode.SEMI_COLON);\n}\n\n/**\n
* Reset the global state
of the styling parser.\n * @param text The styling text to parse.\n */\n\nexport function resetParserState(text: string):
void {\n parserState.key = 0;\n parserState.keyEnd = 0;\n parserState.value = 0;\n parserState.valueEnd = 0;\n
parserState.textEnd = text.length;\n}\n\n/**\n
* Returns index of next non-whitespace character.\n * \n * @param
text Text to scan\n * @param startIndex Starting index of character where the scan should start.\n * @param
endIndex Ending index of character where the scan should end.\n * @returns Index of next non-whitespace
character (May be the same as `start` if no whitespace at\n * that location.)\n */\n\nexport function
consumeWhitespace(text: string, startIndex: number, endIndex: number): number {\n while (startIndex < endIndex
&& text.charCodeAtAt(startIndex) <= CharCode.SPACE) {\n startIndex++;\n }\n return startIndex;\n}\n\n/**\n
* Returns index of last char in class token.\n * \n * @param text Text to scan\n * @param startIndex Starting
index of character where the scan should start.\n * @param endIndex Ending index of character where the scan
should end.\n * @returns Index after last char in class token.\n */\n\nexport function consumeClassToken(text: string,
startIndex: number, endIndex: number): number {\n while (startIndex < endIndex && text.charCodeAtAt(startIndex)
> CharCode.SPACE) {\n startIndex++;\n }\n return startIndex;\n}\n\n/**\n
* Consumes all of the characters
belonging to style key and token.\n * \n * @param text Text to scan\n * @param startIndex Starting index of
character where the scan should start.\n * @param endIndex Ending index of character where the scan should end.\n
* @returns Index after last style key character.\n */\n\nexport function consumeStyleKey(text: string, startIndex:
number, endIndex: number): number {\n let ch: number;\n while (startIndex < endIndex && ((ch =
text.charCodeAtAt(startIndex)) === CharCode.DASH || ch === CharCode.UNDERSCORE ||\n ((ch &
CharCode.UPPER_CASE)
>= CharCode.A && (ch & CharCode.UPPER_CASE) <= CharCode.Z) ||\n ((ch >= CharCode.ZERO && ch
<= CharCode.NINE))) {\n startIndex++;\n }\n return startIndex;\n}\n\n/**\n
* Consumes all whitespace and the
separator `:` after the style key.\n * \n * @param text Text to scan\n * @param startIndex Starting index of character
where the scan should start.\n * @param endIndex Ending index of character where the scan should end.\n *
@returns Index after separator and surrounding whitespace.\n */\n\nexport function consumeSeparator(\n text:
string, startIndex: number, endIndex: number, separator: number): number {\n startIndex =
consumeWhitespace(text, startIndex, endIndex);\n if (startIndex < endIndex) {\n if (ngDevMode &&
text.charCodeAtAt(startIndex) !== separator) {\n malformedStyleError(text, String.fromCharCode(separator),
startIndex);\n }\n startIndex++;\n }\n return startIndex;\n}\n\n/**\n
* Consumes style value honoring `url()`
and `\"\"` text.\n
* \n * @param text Text to scan\n * @param startIndex Starting index of character where the scan should start.\n *
@param endIndex Ending index of character where the scan should end.\n * @returns Index after last style value
character.\n */\n\nexport function consumeStyleValue(text: string, startIndex: number, endIndex: number): number
{\n let ch1 = -1; // 1st previous character\n let ch2 = -1; // 2nd previous character\n let ch3 = -1; // 3rd previous
character\n let i = startIndex;\n let lastChIndex = i;\n while (i < endIndex) {\n const ch: number =
text.charCodeAtAt(i++);\n if (ch === CharCode.SEMI_COLON) {\n return lastChIndex;\n } else if (ch ===

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CharCode.DOUBLE_QUOTE || ch === CharCode.SINGLE_QUOTE) {\n lastChIndex = i =
consumeQuotedText(text, ch, i, endIndex);\n } else if (\n startIndex ===\n i - 4 && // We have seen
only 4 characters so far \"URL(\" (Ignore \"foo_URL()\")\n ch3 === CharCode.U &&\n ch2 ===
CharCode.R &&
ch1 === CharCode.L && ch === CharCode.OPEN_PAREN) {\n lastChIndex = i = consumeQuotedText(text,
CharCode.CLOSE_PAREN, i, endIndex);\n } else if (ch > CharCode.SPACE) {\n // if we have a non-
whitespace character then capture its location\n lastChIndex = i;\n }\n ch3 = ch2;\n ch2 = ch1;\n ch1 = ch
& CharCode.UPPER_CASE;\n }\n return lastChIndex;\n}\n\n/**\n * Consumes all of the quoted characters.\n *\n * @param text Text to scan\n * @param quoteCharCode CharCode of either `\"` or `` quote or `)` for `url(...)`.\n * @param startIndex Starting index of character where the scan should start.\n * @param endIndex Ending index of
character where the scan should end.\n * @returns Index after quoted characters.\n */\nexport function
consumeQuotedText(\n text: string, quoteCharCode: number, startIndex: number, endIndex: number): number {\n
let ch1 = -1; // 1st previous character\n let index = startIndex;\n while (index < endIndex) {\n const ch =
text.charCodeAtAt(index++);\n
 if (ch === quoteCharCode && ch1 !== CharCode.BACK_SLASH) {\n return index;\n }\n if (ch ===
CharCode.BACK_SLASH && ch1 === CharCode.BACK_SLASH) {\n // two back slashes cancel each other
out. For example `\"\\\\\\\\\"` should properly end the\n // quotation. (It should not assume that the last `` is
escaped.)\n ch1 = 0;\n } else {\n ch1 = ch;\n }\n }\n throw ngDevMode ? malformedStyleError(text,
String.fromCharCode(quoteCharCode), endIndex) : \n new Error();\n}\n\nfunction
malformedStyleError(text: string, expecting: string, index: number): never {\n ngDevMode && assertEquals(typeof
text === 'string', true, 'String expected here');\n throw throwError(\n `Malformed style at location ${index} in
string ` + text.substring(0, index) + '>>' + \n text.substring(index, index + 1) + '<<' + text.substr(index + 1) + \n
`. Expecting '${expecting}'.`);\n}\n\n\"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {SafeValue, unwrapSafeValue} from
'./../sanitization/bypass';\nimport {KeyValueArray, keyValueArrayGet, keyValueArraySet} from
'./../util/array_utils';\nimport {assertDefined, assertEquals, assertLessThan, assertNotEqual, throwError} from
'./../util/assert';\nimport {EMPTY_ARRAY} from './../util/empty';\nimport {concatStringsWithSpace, stringify}
from './../util/stringify';\nimport {assertFirstUpdatePass} from './assert';\nimport {bindingUpdated} from
'./bindings';\nimport {DirectiveDef} from './interfaces/definition';\nimport {AttributeMarker, TAttributes, TNode,
TNodeFlags, TNodeType} from './interfaces/node';\nimport {Renderer3} from './interfaces/renderer';\nimport
{RElement} from './interfaces/renderer_dom';\nimport {getTStylingRangeNext, getTStylingRangeNextDuplicate,
getTStylingRangePrev, getTStylingRangePrevDuplicate,
TStylingKey, TStylingRange} from './interfaces/styling';\nimport {LView, RENDERER, TData, TView} from
'./interfaces/view';\nimport {applyStyling} from './node_manipulation';\nimport {getCurrentDirectiveDef,
getLView, getSelectedIndex, getTView, incrementBindingIndex} from './state';\nimport {insertTStylingBinding}
from './styling/style_binding_list';\nimport {getLastParsedKey, getLastParsedValue, parseClassName,
parseClassNameNext, parseStyle, parseStyleNext} from './styling/styling_parser';\nimport {NO_CHANGE} from
'./tokens';\nimport {getNativeByIndex} from './util/view_utils';\nimport
{setDirectiveInputsWhichShadowsStyling} from './property';\n\n\n/**\n * Update a style binding on an element with
the provided value.\n *\n * If the style value is falsy then it will be removed from the element\n * (or assigned a
different value depending if there are any styles placed\n * on the element with `styleMap` or any static styles that
are\n * present from when the
element was created with `styling`).\n *\n * Note that the styling element is updated as part of `stylingApply`.\n *\n
* @param prop A valid CSS property.\n * @param value New value to write (null or an empty string to
remove).\n * @param suffix Optional suffix. Used with scalar values to add unit such as `px`.\n *\n * Note that this
will apply the provided style value to the host element if this function is called\n * within a host binding function.\n
*\n * @codeGenApi\n */\nexport function styleProp(\n prop: string, value:

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string|number|SafeValue|undefined|null,\n suffix?: string|null): typeof styleProp {\n checkStylingProperty(prop,
value, suffix, false);\n return styleProp;\n}\n\n/**\n * Update a class binding on an element with the provided
value.\n *\n * This instruction is meant to handle the `[class.foo]="exp"` case and,\n * therefore, the class binding
itself must already be allocated using\n * `styling` within the creation block.\n *\n * @param prop A valid
CSS class (only one).\n * @param value A true/false value which will turn the class on or off.\n *\n * Note that this
will apply the provided class value to the host element if this function\n * is called within a host binding function.\n
*\n * @codeGenApi\n */\n\nexport function classProp(className: string, value: boolean|undefined|null): typeof
classProp {\n checkStylingProperty(className, value, null, true);\n return classProp;\n}\n\n\n/**\n * Update style
bindings using an object literal on an element.\n *\n * This instruction is meant to apply styling via the
`[style]="exp"` template bindings.\n * When styles are applied to the element they will then be updated with
respect to\n * any styles/classes set via `styleProp`. If any styles are set to falsy\n * then they will be removed from
the element.\n *\n * Note that the styling instruction will not be applied until `stylingApply` is called.\n *\n *
@param styles A key/value style map of the styles that will be applied to
the given element.\n * Any missing styles (that have already been applied to the element beforehand) will be\n
* removed (unset) from the element's styling.\n *\n * Note that this will apply the provided styleMap value to
the host element if this function\n * is called within a host binding.\n *\n * @codeGenApi\n */\n\nexport function
styleMap(styles: {[styleName: string]: any}|string|undefined|null): void {\n
 checkStylingMap(styleKeyValueArraySet, styleStringParser, styles, false);\n}\n\n\n/**\n * Parse text as style and
add values to KeyValueArray.\n *\n * This code is pulled out to a separate function so that it can be tree shaken
away if it is not\n * needed. It is only referenced from `styleMap`.\n *\n * @param keyValueArray KeyValueArray
to add parsed values to.\n * @param text text to parse.\n */\n\nexport function styleStringParser(keyValueArray:
KeyValueArray<any>, text: string): void {\n for (let i = parseStyle(text); i >= 0; i = parseStyleNext(text, i)) {\n
 styleKeyValueArraySet(keyValueArray, getLastParsedKey(text), getLastParsedValue(text));\n }\n}\n\n\n/**\n *
Update class bindings using an object literal or class-string on an element.\n *\n * This instruction is meant to apply
styling via the `[class]="exp"` template bindings.\n * When classes are applied to the element they will then be
updated with\n * respect to any styles/classes set via `classProp`. If any\n * classes are set to falsy then they will be
removed from the element.\n *\n * Note that the styling instruction will not be applied until `stylingApply` is
called.\n * Note that this will the provided classMap value to the host element if this function is called\n * within a
host binding.\n *\n * @param classes A key/value map or string of CSS classes that will be added to the\n *
given element. Any missing classes (that have already been applied to the element\n * beforehand) will be
removed (unset) from the element's list of CSS classes.\n *\n * @codeGenApi\n */\n\nexport function classMap(classes: {[className: string]: boolean|undefined|null}|string|undefined|null): void {\n
 checkStylingMap(keyValueArraySet, classStringParser, classes, true);\n}\n\n\n/**\n * Parse text as
class and add values to KeyValueArray.\n *\n * This code is pulled out to a separate function so that it can be tree
shaken away if it is not\n * needed. It is only referenced from `classMap`.\n *\n * @param keyValueArray
KeyValueArray to add parsed values to.\n * @param text text to parse.\n */\n\nexport function
classStringParser(keyValueArray: KeyValueArray<any>, text: string): void {\n for (let i = parseClassName(text); i
>= 0; i = parseClassNameNext(text, i)) {\n keyValueArraySet(keyValueArray, getLastParsedKey(text), true);\n }\n}\n\n\n/**\n * Common code between `classProp` and `styleProp`.\n *\n * @param prop property name.\n *
@param value binding value.\n * @param suffix suffix for the property (e.g. `em` or `px`)\n * @param
isClassBased `true` if `class` change (`false` if `style`)\n */\n\nexport function checkStylingProperty(\n prop: string,
value: any|NO_CHANGE, suffix: string|undefined|null,\n isClassBased: boolean): void {\n const IView =
getLView();\n const tView = getTView();\n // Styling instructions use 2 slots per binding.\n // 1. one for the value /
TStylingKey\n // 2. one for the intermittent-value / TStylingRange\n const bindingIndex =
incrementBindingIndex(2);\n if (tView.firstUpdatePass) {\n stylingFirstUpdatePass(tView, prop, bindingIndex,
isClassBased);\n }\n if (value !== NO_CHANGE && bindingUpdated(IView, bindingIndex, value)) {\n const
tNode = tView.data[getSelectedIndex()] as TNode;\n updateStyling(\n tView, tNode, IView,\n IView[RENDERER], prop,\n IView[bindingIndex + 1] = normalizeSuffix(value, suffix), isClassBased,

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==== null && !isHostBindings) {\n // `tStylingKey` === null` implies that we are either `[style]` or `[class]`
binding.\n // If there is a directive which uses `@Input('style')` or `@Input('class')` than\n // we need to
neutralize this binding since that directive is shadowing it.\n // We turn this into a noop by setting the key to
`false`\n tStylingKey = false;\n }\n tStylingKey = wrapInStaticStylingKey(tData, tNode, tStylingKey,
isClassBased);\n insertTStylingBinding(tData, tNode, tStylingKey, bindingIndex, isHostBindings,
isClassBased);\n }\n}\n\n/**\n * Adds static styling information to the binding if applicable.\n * \n * The linked list
of styles not only stores the list and keys, but also stores static styling\n * information on some of the keys. This
function determines if the key should contain the styling\n * information and computes it.\n * \n * See
`TStylingStatic` for more details.\n * \n * @param tData `TData` where the linked list is stored.\n
* @param tNode `TNode` for which the styling is being computed.\n * @param stylingKey
`TStylingKeyPrimitive` which may need to be wrapped into `TStylingKey`\n * @param isClassBased `true` if
`class` (`false` if `style`)\n */\nexport function wrapInStaticStylingKey(\n tData: TData, tNode: TNode,
stylingKey: TStylingKey, isClassBased: boolean): TStylingKey {\n const hostDirectiveDef =
getCurrentDirectiveDef(tData);\n let residual = isClassBased ? tNode.residualClasses : tNode.residualStyles;\n if
(hostDirectiveDef === null) {\n // We are in template node.\n // If template node already had styling instruction
then it has already collected the static\n // styling and there is no need to collect them again. We know that we are
the first styling\n // instruction because the `TNode.*Bindings` points to 0 (nothing has been inserted yet).\n
const isFirstStylingInstructionInTemplate =\n (isClassBased ? tNode.classBindings : tNode.styleBindings) as
any as number

 === 0;\n if (isFirstStylingInstructionInTemplate) {\n // It would be nice to be able to get the statics from
`mergeAttrs`, however, at this point\n // they are already merged and it would not be possible to figure which
property belongs where\n // in the priority.\n stylingKey = collectStylingFromDirectives(null, tData, tNode,
stylingKey, isClassBased);\n stylingKey = collectStylingFromTAttrs(stylingKey, tNode.attrs, isClassBased);\n
// We know that if we have styling binding in template we can't have residual.\n residual = null;\n } \n } else
{\n // We are in host binding node and there was no binding instruction in template node.\n // This means that we
need to compute the residual.\n const directiveStylingLast = tNode.directiveStylingLast;\n const
isFirstStylingInstructionInHostBinding =\n directiveStylingLast === -1 || tData[directiveStylingLast] !==
hostDirectiveDef;\n if (isFirstStylingInstructionInHostBinding) {\n
 stylingKey =\n collectStylingFromDirectives(hostDirectiveDef, tData, tNode, stylingKey, isClassBased);\n
 if (residual === null) {\n // - If `null` than either:\n // - Template styling instruction already ran and it
has consumed the static\n // styling into its `TStylingKey` and so there is no need to update residual.
Instead\n // we need to update the `TStylingKey` associated with the first template node\n //
instruction. OR\n // - Some other styling instruction ran and determined that there are no residuals\n let
templateStylingKey = getTemplateHeadTStylingKey(tData, tNode, isClassBased);\n if (templateStylingKey
!== undefined && Array.isArray(templateStylingKey)) {\n // Only recompute if `templateStylingKey` had
static values. (If no static value found\n // then there is nothing to do since this operation can only produce less
static keys, not\n // more.)\n
 templateStylingKey = collectStylingFromDirectives(\n null, tData, tNode, templateStylingKey[1] /*
unwrap previous statics */,\n isClassBased);\n templateStylingKey =\n collectStylingFromTAttrs(templateStylingKey, tNode.attrs, isClassBased);\n
 setTemplateHeadTStylingKey(tData, tNode, isClassBased, templateStylingKey);\n } \n } else {\n // We
only need to recompute residual if it is not `null`.\n // - If existing residual (implies there was no template
styling). This means that some of\n // the statics may have moved from the residual to the `stylingKey` and so
we have to\n // recompute.\n // - If `undefined` this is the first time we are running.\n residual =
collectResidual(tData, tNode, isClassBased);\n } \n } \n } \n if (residual !== undefined) {\n isClassBased ?
(tNode.residualClasses = residual) : (tNode.residualStyles = residual);\n } \n return stylingKey;\n} \n\n/**\n * Retrieve the `TStylingKey` for the template styling instruction.\n * \n * This is needed since `hostBinding` styling
instructions are inserted after the template\n * instruction. While the template instruction needs to update the

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residual in `TNode` the\n * `hostBinding` instructions need to update the `TStylingKey` of the template instruction
because\n * the template instruction is downstream from the `hostBindings` instructions.\n *\n * @param tData
`TData` where the linked list is stored.\n * @param tNode `TNode` for which the styling is being computed.\n *
@param isClassBased `true` if `class` (`false` if `style`)\n * @return `TStylingKey` if found or `undefined` if not
found.\n */\nfunction getTemplateHeadTStylingKey(tData: TData, tNode: TNode, isClassBased: boolean):
TStylingKey|\n undefined {\n const bindings = isClassBased ? tNode.classBindings : tNode.styleBindings;\n if
(getTStylingRangeNext(bindings) === 0) {\n // There does not seem to be a styling
instruction in the `template`.\n return undefined;\n }\n return tData[getTStylingRangePrev(bindings)] as
TStylingKey;\n }\n\n/**\n * Update the `TStylingKey` of the first template instruction in `TNode`.\n *\n * Logically
`hostBindings` styling instructions are of lower priority than that of the template.\n * However, they execute after
the template styling instructions. This means that they get inserted\n * in front of the template styling instructions.\n
*\n * If we have a template styling instruction and a new `hostBindings` styling instruction is\n * executed it means
that it may need to steal static fields from the template instruction. This\n * method allows us to update the first
template instruction `TStylingKey` with a new value.\n *\n * Assume:\n * <div my-dir style=\"color: red\"
[style.color]=\"tmplExp\"></div>\n *\n * @Directive({\n * host: {\n * 'style': 'width: 100px',\n *
[style.color]: 'dirExp',\n * }\n * })\n * class MyDir {\n * ``\n *\n * when `[style.color]=\"tmplExp\"` executes it creates this data structure.\n * ``\n * [\", 'color', 'color', 'red', 'width',
'100px'],\n * ``\n *\n * The reason for this is that the template instruction does not know if there are styling\n *
instructions and must assume that there are none and must collect all of the static styling.\n * (both\n * `color` and
`width`)\n *\n * When `[style.color]: 'dirExp',` executes we need to insert a new data into the linked list.\n * ``\n * [\", 'color', 'width', '100px'], // newly inserted\n * [\", 'color', 'color', 'red', 'width', '100px'], // this is wrong\n * ``\n
*\n * Notice that the template statics is now wrong as it incorrectly contains `width` so we need to\n * update it like
so:\n * ``\n * [\", 'color', 'width', '100px'],\n * [\", 'color', 'color', 'red'], // UPDATE\n * ``\n *\n * @param tData
`TData` where the linked list is stored.\n * @param tNode `TNode` for which the styling is being computed.\n *
@param isClassBased `true`
if `class` (`false` if `style`)\n * @param tStylingKey New `TStylingKey` which is replacing the old one.\n
*/\nfunction setTemplateHeadTStylingKey(\n tData: TData, tNode: TNode, isClassBased: boolean, tStylingKey:
TStylingKey): void {\n const bindings = isClassBased ? tNode.classBindings : tNode.styleBindings;\n ngDevMode
&&\n assertNotEqual(\n getTStylingRangeNext(bindings), 0,\n 'Expecting to have at least one
template styling binding.);\n tData[getTStylingRangePrev(bindings)] = tStylingKey;\n}\n\n/**\n * Collect all static
values after the current `TNode.directiveStylingLast` index.\n *\n * Collect the remaining styling information which
has not yet been collected by an existing\n * styling instruction.\n *\n * @param tData `TData` where the
`DirectiveDefs` are stored.\n * @param tNode `TNode` which contains the directive range.\n * @param
isClassBased `true` if `class` (`false` if `style`)\n */\nfunction collectResidual(tData: TData, tNode: TNode,
isClassBased: boolean): KeyValueTypeArray<any>|\n null {\n let residual: KeyValueTypeArray<any>|null|undefined =
undefined;\n const directiveEnd = tNode.directiveEnd;\n ngDevMode &&\n assertNotEqual(\n tNode.directiveStylingLast, -1,\n 'By the time this function gets called at least one hostBindings-node styling
instruction must have executed.);\n // We add `1 + tNode.directiveStart` because we need to skip the current
directive (as we are\n // collecting things after the last `hostBindings` directive which had a styling instruction.))\n
for (let i = 1 + tNode.directiveStylingLast; i < directiveEnd; i++) {\n const attrs = (tData[i] as
DirectiveDef<any>).hostAttrs;\n residual = collectStylingFromTAttrs(residual, attrs, isClassBased) as
KeyValueTypeArray<any>|\n null;\n }\n return collectStylingFromTAttrs(residual, tNode.attrs, isClassBased) as
KeyValueTypeArray<any>|\n null;\n}\n\n/**\n * Collect the static styling information with lower priority than
`hostDirectiveDef`.\n *\n * (This is opposite of residual styling.)\n *\n * @param hostDirectiveDef `DirectiveDef` for which we want to
collect lower priority static\n * styling. (Or `null` if template styling)\n *\n * @param tData `TData` where the
linked list is stored.\n * @param tNode `TNode` for which the styling is being computed.\n * @param stylingKey
Existing `TStylingKey` to update or wrap.\n * @param isClassBased `true` if `class` (`false` if `style`)\n

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*function collectStylingFromDirectives(\n hostDirectiveDef: DirectiveDef<any>|null, tData: TData, tNode:
TNode, stylingKey: TStylingKey,\n isClassBased: boolean): TStylingKey {\n // We need to loop because there
can be directives which have `hostAttrs` but don't have\n // `hostBindings` so this loop catches up to the current
directive..\n let currentDirective: DirectiveDef<any>|null = null;\n const directiveEnd = tNode.directiveEnd;\n let
directiveStylingLast = tNode.directiveStylingLast;\n if (directiveStylingLast === -1)
{\n directiveStylingLast = tNode.directiveStart;\n } else {\n directiveStylingLast++;\n }\n while
(directiveStylingLast < directiveEnd) {\n currentDirective = tData[directiveStylingLast] as DirectiveDef<any>;\n
ngDevMode && assertDefined(currentDirective, 'expected to be defined');\n stylingKey =
collectStylingFromTAttrs(stylingKey, currentDirective.hostAttrs, isClassBased);\n if (currentDirective ===
hostDirectiveDef) break;\n directiveStylingLast++;\n }\n if (hostDirectiveDef !== null) {\n // we only advance
the styling cursor if we are collecting data from host bindings.\n // Template executes before host bindings and so
if we would update the index,\n // host bindings would not get their statics.\n tNode.directiveStylingLast =
directiveStylingLast;\n }\n return stylingKey;\n}\n\n**\n * Convert `TAttrs` into `TStylingStatic`.\n *\n *
@param stylingKey existing `TStylingKey` to update or wrap.\n * @param attrs `TAttributes` to process.\n *
@param
isClassBased `true` if `class` (`false` if `style`)\n *\nfunction collectStylingFromTAttrs(\n stylingKey:
TStylingKey|undefined, attrs: TAttributes|null,\n isClassBased: boolean): TStylingKey {\n const desiredMarker =
isClassBased ? AttributeMarker.Classes : AttributeMarker.Styles;\n let currentMarker =
AttributeMarker.ImplicitAttributes;\n if (attrs !== null) {\n for (let i = 0; i < attrs.length; i++) {\n const item =
attrs[i] as number | string;\n if (typeof item === 'number') {\n currentMarker = item;\n } else {\n if
(currentMarker === desiredMarker) {\n if (!Array.isArray(stylingKey)) {\n stylingKey = stylingKey
=== undefined ? [] : [' ', stylingKey] as any;\n }\n keyValueArraySet(\n stylingKey as
KeyValueArray<any>, item, isClassBased ? true : attrs[++i]);\n }\n }\n }\n }\n return stylingKey ===
undefined ? null : stylingKey;\n}\n\n**\n * Convert user input to `KeyValueArray`.\n
*\n * This function takes user input which could be `string`, Object literal, or iterable and converts\n * it into a
consistent representation. The output of this is `KeyValueArray` (which is an array\n * where\n * even indexes
contain keys and odd indexes contain values for those keys).\n * The advantage of converting to
`KeyValueArray` is that we can perform diff in an input\n * independent\n * way.\n * (ie we can compare `foo bar`
to `['bar', 'baz']` and determine a set of changes which need to be\n * applied)\n * The fact that `KeyValueArray`
is sorted is very important because it allows us to compute the\n * difference in linear fashion without the need to
allocate any additional data.\n * For example if we kept this as a `Map` we would have to iterate over previous
`Map` to determine\n * which values need to be deleted, over the new `Map` to determine additions, and we would
have to\n * keep additional `Map` to keep track of duplicates or items which have
not yet been visited.\n * @param keyValueArraySet (See `keyValueArraySet` in `util/array_utils`) Gets
passed in as a\n * function so that `style` can be processed. This is done\n * for tree shaking purposes.\n *
@param stringParser The parser is passed in so that it will be tree shakable. See\n * `styleStringParser` and
`classStringParser`\n * @param value The value to parse/convert to `KeyValueArray`\n *\nexport function
toStylingKeyValueArray(\n keyValueArraySet: (keyValueArray: KeyValueArray<any>, key: string, value: any)
=> void,\n stringParser: (styleKeyValueArray: KeyValueArray<any>, text: string) => void,\n value:
string|string[]|{[key: string]: any}|SafeValue|null|undefined): KeyValueArray<any> {\n if (value == null /\n * || value
=== undefined /\n * || value === '') return EMPTY_ARRAY as any;\n const styleKeyValueArray:
KeyValueArray<any> = [] as any;\n const unwrappedValue = unwrapSafeValue(value) as string | string[] | {[key:
string]: any};\n if (Array.isArray(unwrappedValue)) {\n for (let i = 0; i < unwrappedValue.length; i++) {\n
keyValueArraySet(styleKeyValueArray, unwrappedValue[i], true);\n }\n } else if (typeof unwrappedValue ===
'object') {\n for (const key in unwrappedValue) {\n if (unwrappedValue.hasOwnProperty(key)) {\n
keyValueArraySet(styleKeyValueArray, key, unwrappedValue[key]);\n }\n }\n } else if (typeof
unwrappedValue === 'string') {\n stringParser(styleKeyValueArray, unwrappedValue);\n } else {\n

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ngDevMode && \n throwError('Unsupported styling type ' + typeof unwrappedValue + ': ' +
unwrappedValue);\n } \n return styleKeyValueArray;\n }\n\n/**\n * Set a `value` for a `key`. \n * \n * See:
`keyValueArraySet` for details\n * \n * @param keyValueArray KeyValueArray to add to.\n * @param key Style
key to add.\n * @param value The value to set.\n */\nexport function styleKeyValueArraySet(keyValueArray:
KeyValueArray<any>, key: string, value: any) {\n keyValueArraySet(keyValueArray,
key, unwrapSafeValue(value));\n }\n\n/**\n * Update map based styling.\n * \n * Map based styling could be
anything which contains more than one binding. For example `string`, \n * or object literal. Dealing with all of these
types would complicate the logic so \n * instead this function expects that the complex input is first converted into
normalized\n * `KeyValueArray`. The advantage of normalization is that we get the values sorted, which makes it\n
* very cheap to compute deltas between the previous and current value.\n * \n * @param tView Associated
`TView.data` contains the linked list of binding priorities.\n * @param tNode `TNode` where the binding is
located.\n * @param lView `LView` contains the values associated with other styling binding at this `TNode`. \n
* @param renderer Renderer to use if any updates.\n * @param oldKeyValueArray Previous value represented as
`KeyValueArray` \n * @param newKeyValueArray Current value represented as `KeyValueArray` \n * @param
isClassBased `true` if `class` (`false` if `style`) \n * @param bindingIndex Binding index of the binding.\n
*/\nfunction updateStylingMap(\n tView: TView, tNode: TNode, lView: LView, renderer: Renderer3,\n oldKeyValueArray: KeyValueArray<any>, newKeyValueArray: KeyValueArray<any>,\n isClassBased: boolean,
bindingIndex: number) {\n if (oldKeyValueArray as KeyValueArray<any>| NO_CHANGE === NO_CHANGE)\n {\n // On first execution the oldKeyValueArray is NO_CHANGE => treat it as empty KeyValueArray.\n
oldKeyValueArray = EMPTY_ARRAY as any;\n }\n let oldIndex = 0;\n let newIndex = 0;\n let oldKey:
string|null = 0 < oldKeyValueArray.length ? oldKeyValueArray[0] : null;\n let newKey: string|null = 0 <
newKeyValueArray.length ? newKeyValueArray[0] : null;\n while (oldKey !== null || newKey !== null) {\n
ngDevMode && assertLessThan(oldIndex, 999, 'Are we stuck in infinite loop?');\n ngDevMode &&
assertLessThan(newIndex, 999, 'Are we stuck in infinite loop?');\n const
oldValue = \n oldIndex < oldKeyValueArray.length ? oldKeyValueArray[oldIndex + 1] : undefined;\n const
newValue = \n newIndex < newKeyValueArray.length ? newKeyValueArray[newIndex + 1] : undefined;\n let
setKey: string|null = null;\n let setValue: any = undefined;\n if (oldKey === newKey) {\n // UPDATE: Keys
are equal => new value is overwriting old value.\n oldIndex += 2;\n newIndex += 2;\n if (oldValue !==
newValue) {\n setKey = newKey;\n setValue = newValue;\n }\n } else if (newKey === null || oldKey
!== null && oldKey < newKey!) {\n // DELETE: oldKey key is missing or we did not find the oldKey in the
newValue\n // (because the keyValueArray is sorted and `newKey` is found later alphabetically).\n //
`"background" < "color"` so we need to delete `"background"` because it is not found in the\n // new array.\n
oldIndex += 2;\n setKey = oldKey;\n } else {\n // CREATE: newKey's
is earlier alphabetically than oldKey's (or no oldKey) => we have new key.\n // `"color" > "background"` so
we need to add `color` because it is in new array but not in\n // old array.\n ngDevMode &&
assertDefined(newKey, 'Expecting to have a valid key');\n newIndex += 2;\n setKey = newKey;\n setValue
= newValue;\n }\n if (setKey !== null) {\n updateStyling(tView, tNode, lView, renderer, setKey, setValue,
isClassBased, bindingIndex);\n }\n oldKey = oldIndex < oldKeyValueArray.length ?
oldKeyValueArray[oldIndex] : null;\n newKey = newIndex < newKeyValueArray.length ?
newKeyValueArray[newIndex] : null;\n }\n }\n\n/**\n * Update a simple (property name) styling.\n * \n * This
function takes `prop` and updates the DOM to that value. The function takes the binding\n * value as well as binding
priority into consideration to determine which value should be written\n * to DOM. (For example it may be
determined that there is a higher priority
overwrite which blocks\n * the DOM write, or if the value goes to `undefined` a lower priority overwrite may be
consulted.)\n * \n * @param tView Associated `TView.data` contains the linked list of binding priorities.\n
* @param tNode `TNode` where the binding is located.\n * @param lView `LView` contains the values associated
with other styling binding at this `TNode`. \n * @param renderer Renderer to use if any updates.\n * @param prop
Either style property name or a class name.\n * @param value Either style value for `prop` or `true` / `false` if `prop`

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is class.\n * @param isClassBased `true` if `class` (`false` if `style`)\n * @param bindingIndex Binding index of the
binding.\n */\nfunction updateStyling(\n tView: TView, tNode: TNode, IView: LView, renderer: Renderer3, prop:
string,\n value: string|undefined|null|boolean, isClassBased: boolean, bindingIndex: number) {\n if (!(tNode.type
& TNodeType.AnyRNode)) {\n // It is possible to have styling on non-elements (such
as ng-container).\n // This is rare, but it does happen. In such a case, just ignore the binding.\n return;\n }\n const tData = tView.data;\n const tRange = tData[bindingIndex + 1] as TStylingRange;\n const higherPriorityValue
= getTStylingRangeNextDuplicate(tRange) ?\n findStylingValue(tData, tNode, IView, prop,
getTStylingRangeNext(tRange), isClassBased) :\n undefined;\n if (!isStylingValuePresent(higherPriorityValue))
{\n // We don't have a next duplicate, or we did not find a duplicate value.\n if (!isStylingValuePresent(value))
{\n // We should delete current value or restore to lower priority value.\n if
(getTStylingRangePrevDuplicate(tRange)) {\n // We have a possible prev duplicate, let's retrieve it.\n value
= findStylingValue(tData, null, IView, prop, bindingIndex, isClassBased);\n }\n }\n const rNode =
getNativeByIndex(getSelectedIndex(), IView) as RElement;\n applyStyling(renderer, isClassBased, rNode, prop,
value);\n }

```

}

}

\* Search for styling value with higher priority which is overwriting current value, or a value of lower priority to which we should fall back if the value is `undefined`.

\* When value is being applied at a location, related values need to be consulted.

\* - If there is a higher priority binding, we should be using that one instead.

\* For example `

\* - If there is a lower priority binding and we are changing to `undefined`

\* For example `

NOTE: The styling stores two values.

1. The raw value which came from the application is stored at `index + 0` location. (This value is used for dirty checking).

2. The normalized value is stored at `index + 1`.

\* @param tData `TData` used for traversing the priority.

\* @param tNode `TNode` to use for resolving static styling. Also controls search direction.

\* - `TNode` search next and quit as soon as `isStylingValuePresent(value)` is true.

\* If no value found consult `tNode.residualStyle`/`tNode.residualClass` for default value.

\* - `null` search prev and go all the way to end. Return last value where `isStylingValuePresent(value)` is true.

\* @param IView `LView` used for retrieving the actual values.

\* @param prop Property which we are interested in.

\* @param index Starting index in the linked list of styling bindings where the search should start.

\* @param isClassBased `true` if `class` (`false` if `style`)

\*/

function findStylingValue(\n tData: TData, tNode: TNode|null, IView: LView, prop: string, index: number,\n isClassBased: boolean): any {\n // `TNode` to use for resolving static styling.

Also controls search direction.

// - `TNode` search next and quit as soon as `isStylingValuePresent(value)` is true.

// If no value found consult `tNode.residualStyle`/`tNode.residualClass` for default value.

// - `null` search prev and go all the way to end. Return last value where `isStylingValuePresent(value)` is true.

const isPrevDirection = tNode === null;\n let value: any = undefined;\n while (index > 0) {\n const rawKey = tData[index] as TStylingKey;\n const containsStatics = Array.isArray(rawKey);\n // Unwrap the key if we contain static values.\n const key = containsStatics ? (rawKey as string[])[1] : rawKey;\n const isStylingMap = key === null;\n let valueAtLViewIndex = IView[index + 1];\n if (valueAtLViewIndex === NO\_CHANGE) {\n // In firstUpdatePass the styling instructions create a linked list of styling.\n // On subsequent passes it is possible for a styling instruction to try to read a binding\n // which\n // has not yet executed. In that case we will find `NO\_CHANGE` and we should assume that\n // we have `undefined` (or empty array in case of styling-map instruction) instead. This\n // allows the resolution to apply the value (which may later be overwritten when the\n // binding actually executes.)\n valueAtLViewIndex = isStylingMap ? EMPTY\_ARRAY : undefined;\n }\n let currentValue = isStylingMap ? key\n ? key === prop ? valueAtLViewIndex : undefined;\n if (containsStatics && !isStylingValuePresent(currentValue)) {\n currentValue = key\n ? key === prop ? valueAtLViewIndex : undefined;\n if (isStylingValuePresent(currentValue)) {\n

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 value = currentValue;\n if (isPrevDirection) {\n return value;\n }\n } \n const tRange = tData[index +
1] as TStylingRange;\n index = isPrevDirection ? getTStylingRangePrev(tRange) :
getTStylingRangeNext(tRange);\n
 }\n if (tNode !== null) {\n // in case where we are going in next direction AND we did not find anything, we
need to\n // consult residual styling\n let residual = isClassBased ? tNode.residualClasses :
tNode.residualStyles;\n if (residual !== null /** OR residual !== undefined */) {\n value =
keyValueArrayGet(residual!, prop);\n }\n }\n return value;\n}\n\n/**\n * Determines if the binding value should
be used (or if the value is 'undefined' and hence priority\n * resolution should be used.)\n * \n * @param value
Binding style value.\n */\nfunction isStylingValuePresent(value: any): boolean {\n // Currently only `undefined`
value is considered non-binding. That is `undefined` says I don't\n // have an opinion as to what this binding should
be and you should consult other bindings by\n // priority to determine the valid value.\n // This is extracted into a
single function so that we have a single place to control this.\n return value !== undefined;\n}\n\n/**\n *
Normalizes and/or adds a suffix to the value.\n * \n * If value is `null`/`undefined` no suffix is added\n * \n * @param
value\n * \n * @param suffix\n */\nfunction normalizeSuffix(value: any, suffix: string|undefined|null):
string|null|undefined|boolean {\n if (value == null /** || value === undefined */) {\n // do nothing\n } else if
(typeof suffix === 'string') {\n value = value + suffix;\n } else if (typeof value === 'object') {\n value =
stringify(unwrapSafeValue(value));\n }\n return value;\n}\n\n/**\n * Tests if the `TNode` has input shadow.\n * \n *
An input shadow is when a directive steals (shadows) the input by using `@Input('style')` or\n * \n *
`@Input('class')` as input.\n * \n * @param tNode `TNode` which we would like to see if it has shadow.\n * \n * @param
isClassBased `true` if `class` `false` if `style`\n */\nfunction hasStylingInputShadow(tNode: TNode,
isClassBased: boolean) {\n return (tNode.flags & (isClassBased ? TNodeFlags.hasClassInput
: TNodeFlags.hasStyleInput)) !== 0;\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport {assertEqual, assertIndexInRange} from '../util/assert';\nimport
{TElementNode, TNodeType} from '../interfaces/node';\nimport {HEADER_OFFSET, RENDERER, T_HOST}
from '../interfaces/view';\nimport {appendChild, createTextNode} from '../node_manipulation';\nimport
{getBindingIndex, getLView, getTView, setCurrentTNode} from '../state';\nimport {getOrCreateTNode} from
'./shared';\n\n/**\n * Create static text node\n * \n * @param index Index of the node in the data array\n * \n *
@param value Static string value to write.\n * \n * @codeGenApi\n */\nfunction text(index: number, value:
string = ""): void {\n const lView = getLView();\n const tView = getTView();\n const adjustedIndex = index +
HEADER_OFFSET;\n\n ngDevMode &&\n assertEquals(\n getBindingIndex(), tView.bindingStartIndex,\n 'text nodes should be created before
any bindings');\n ngDevMode && assertIndexInRange(lView, adjustedIndex);\n\n const tNode =
tView.firstCreatePass ?\n getOrCreateTNode(tView, adjustedIndex, TNodeType.Text, value, null) :\n tView.data[adjustedIndex] as TElementNode;\n\n const textNative = lView[adjustedIndex] =
createTextNode(lView[RENDERER], value);\n appendChild(tView, lView, textNative, tNode);\n\n // Text nodes
are self closing.\n setCurrentTNode(tNode, false);\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport {getLView, getSelectedIndex} from '../state';\nimport
{NO_CHANGE} from '../tokens';\nimport {interpolation1, interpolation2, interpolation3, interpolation4,
interpolation5, interpolation6, interpolation7,
interpolation8, interpolationV} from '../interpolation';\nimport {textBindingInternal} from './shared';\n\n/**\n *
Update text content with a lone bound value\n * \n * Used when a text node has 1 interpolated value in it, an no
additional text\n * surrounds that interpolated value.\n * \n * ``html\n * <div>{{ v0 }}</div>\n * ```\n * \n * Its
compiled representation is:\n * \n * ``ts\n * textInterpolate(v0);\n * ```\n * \n * @returns itself, so that it may be
chained.\n * \n * @see textInterpolateV\n * \n * @codeGenApi\n */\nfunction textInterpolate(v0: any): typeof
textInterpolate {\n textInterpolate1("", v0, "");\n return textInterpolate;\n}\n\n/**\n * Update text content with
single bound value surrounded by other text.\n * \n * Used when a text node has 1 interpolated value in it:\n * \n *

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`html\n * <div>prefix{ {v0}}suffix</div>\n * ```\n * Its compiled representation is:\n * ``ts\n *
textInterpolate1(prefix, v0, 'suffix');\n * ```\n * @returns itself, so
that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n * ^\nexport function textInterpolate1(\n
prefix: string, v0: any, suffix: string): typeof textInterpolate1 {\n const IView = getLView();\n const interpolated =
interpolation1(IView, prefix, v0, suffix);\n if (interpolated !== NO_CHANGE) {\n textBindingInternal(IView,
getSelectedIndex(), interpolated as string);\n }\n return textInterpolate1;\n}\n\n/**\n * \n * Update text content with
2 bound values surrounded by other text.\n * \n * Used when a text node has 2 interpolated values in it:\n * \n *
`html\n * <div>prefix{ {v0}}-{ {v1}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ``ts\n *
textInterpolate2(prefix, v0, '-', v1, 'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see
textInterpolateV\n * @codeGenApi\n * ^\nexport function textInterpolate2(\n prefix: string, v0: any, i0: string, v1:
any, suffix: string): typeof textInterpolate2 {\n const IView
= getLView();\n const interpolated = interpolation2(IView, prefix, v0, i0, v1, suffix);\n if (interpolated !==
NO_CHANGE) {\n textBindingInternal(IView, getSelectedIndex(), interpolated as string);\n }\n return
textInterpolate2;\n}\n\n/**\n * \n * Update text content with 3 bound values surrounded by other text.\n * \n * Used
when a text node has 3 interpolated values in it:\n * \n * ``html\n * <div>prefix{ {v0}}-{ {v1}}-
{ {v2}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ``ts\n *
textInterpolate3(\n * 'prefix', v0, '-', v1, '-', v2, 'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n *
@codeGenApi\n * ^\nexport function textInterpolate3(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2:
any,\n suffix: string): typeof textInterpolate3 {\n const IView = getLView();\n const interpolated =
interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n if (interpolated !== NO_CHANGE) {\n
textBindingInternal(IView, getSelectedIndex(), interpolated as string);\n }\n return textInterpolate3;\n}\n\n/**\n *
\n * Update text content with 4 bound values surrounded by other text.\n * \n * Used when a text node has 4
interpolated values in it:\n * \n * ``html\n * <div>prefix{ {v0}}-{ {v1}}-{ {v2}}-{ {v3}}suffix</div>\n * ```\n * \n *
Its compiled representation is:\n * \n * ``ts\n *
textInterpolate4(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n * ^\nexport function
textInterpolate4(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any,\n suffix:
string): typeof textInterpolate4 {\n const IView = getLView();\n const interpolated = interpolation4(IView, prefix,
v0, i0, v1, i1, v2, i2, v3, suffix);\n if (interpolated !== NO_CHANGE) {\n textBindingInternal(IView,
getSelectedIndex(), interpolated as string);\n }\n return
textInterpolate4;\n}\n\n/**\n * \n * Update text content with 5 bound values surrounded by other text.\n * \n * Used
when a text node has 5 interpolated values in it:\n * \n * ``html\n * <div>prefix{ {v0}}-{ {v1}}-{ {v2}}-{ {v3}}-
{ {v4}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ``ts\n *
textInterpolate5(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n *
@codeGenApi\n * ^\nexport function textInterpolate5(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2:
any, i2: string, v3: any,\n i3: string, v4: any, suffix: string): typeof textInterpolate5 {\n const IView =
getLView();\n const interpolated = interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n if
(interpolated !== NO_CHANGE) {\n textBindingInternal(IView, getSelectedIndex(), interpolated as string);\n }\n
return textInterpolate5;\n}\n\n/**\n * \n * Update
text content with 6 bound values surrounded by other text.\n * \n * Used when a text node has 6 interpolated values
in it:\n * \n * ``html\n * <div>prefix{ {v0}}-{ {v1}}-{ {v2}}-{ {v3}}-{ {v4}}-{ {v5}}suffix</div>\n * ```\n * \n *
Its compiled representation is:\n * \n * ``ts\n *
textInterpolate6(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5,
'suffix');\n * ```\n * \n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked for
change. @returns itself, so that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n * ^\nexport
function textInterpolate6(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any,\n i3:
string, v4: any, i4: string, v5: any, suffix: string): typeof textInterpolate6 {\n const IView = getLView();\n const
interpolated =\n interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n if (interpolated
!== NO_CHANGE) {\n textBindingInternal(IView,

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representation is:\n * \n * ``ts\n * classMapInterpolate2('prefix', v0, '-', v1, 'suffix');\n * ``\n * \n * @param prefix
Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value
used for concatenation only.\n * @param v1 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n * \nexport function classMapInterpolate2(\n prefix: string, v0: any, i0:
string, v1: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =
interpolation2(IView, prefix, v0, i0, v1, suffix);\n checkStylingMap(keyValueArraySet, classStringParser,
interpolatedValue, true);\n}\n\n/**\n * \n * Update an interpolated class on an element with 3 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 3 interpolated values in it:\n * \n *
``html\n * <div class="prefix{{ v0 }}-{{ v1 }}-{{ v2 }}suffix"></div>\n * ``\n * \n * Its compiled representation
is:\n
\n * \n * ``ts\n * classMapInterpolate3(\n * 'prefix', v0, '-', v1, '-', v2, 'suffix');\n * ``\n * \n * @param prefix Static
value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for
concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation
only.\n * @param v2 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
\n * @codeGenApi\n * \nexport function classMapInterpolate3(\n prefix: string, v0: any, i0: string, v1: any, i1: string,
v2: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue = interpolation3(IView,
prefix, v0, i0, v1, i1, v2, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue,
true);\n}\n\n/**\n * \n * Update an interpolated class on an element with 4 bound values surrounded by text.\n * \n *
Used when the value passed to a property has 4 interpolated values in it:\n * \n *
\n * \n * ``html\n * <div class="prefix{{ v0 }}-{{ v1 }}-{{ v2 }}-{{ v3 }}suffix"></div>\n * ``\n * \n * Its compiled
representation is:\n * \n * ``ts\n * classMapInterpolate4(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n * ``\n * \n *
\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0
Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value
used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for
concatenation only.\n * @param v3 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n * \nexport function classMapInterpolate4(\n prefix: string, v0: any, i0:
string, v1: any, i1: string, v2: any, i2: string, v3: any, suffix: string): void {\n const IView = getLView();\n
const interpolatedValue = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n checkStylingMap(keyValueArraySet,
classStringParser, interpolatedValue, true);\n}\n\n/**\n * \n * Update an interpolated class on an element with 5
bound values surrounded by text.\n * \n * Used when the value passed to a property has 5 interpolated values in it:\n
\n * \n * ``html\n * <div class="prefix{{ v0 }}-{{ v1 }}-{{ v2 }}-{{ v3 }}-{{ v4 }}suffix"></div>\n * ``\n * \n * Its
compiled representation is:\n * \n * ``ts\n * classMapInterpolate5(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4,
'suffix');\n * ``\n * \n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for
change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n *
\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2
Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value
used for concatenation only.\n * @param v4 Value checked for change.\n *
\n * @param suffix Static value used for concatenation only.\n * @codeGenApi\n * \nexport function
classMapInterpolate5(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3:
string, v4: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =\n interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n checkStylingMap(keyValueArraySet,
classStringParser, interpolatedValue, true);\n}\n\n/**\n * \n * Update an interpolated class on an element with 6
bound values surrounded by text.\n * \n * Used when the value passed to a property has 6 interpolated values in it:\n
\n * \n * ``html\n * <div class="prefix{{ v0 }}-{{ v1 }}-{{ v2 }}-{{ v3 }}-{{ v4 }}-{{ v5 }}suffix"></div>\n * ``\n * \n *
\n * Its compiled representation is:\n * \n * ``ts\n * classMapInterpolate6(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-',
v5, 'suffix');\n * ``\n * \n * @param prefix Static value used for concatenation only.\n

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\* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \*/\nexport function classMapInterpolate6(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =\n interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n}\n\n/\*\*\n \* Update an interpolated class on an element with 7 bound values surrounded by text.\n \* Used when the value passed to a property has 7 interpolated values in it:\n \* ``html\n \* <div class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix"></div>\n \* ``\n \* Its compiled representation is:\n \* ``ts\n \* classMapInterpolate7(\n \* 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n \* ``\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \*/\nexport function classMapInterpolate7(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =\n interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n}\n\n/\*\*\n \* Update an interpolated class on an element with 8 bound values surrounded by text.\n \* Used when the value passed to a property has 8 interpolated values in it:\n \* ``html\n \* <div class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}suffix"></div>\n \* ``\n \* Its compiled representation is:\n \* ``ts\n \* classMapInterpolate8(\n \* 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n \* ``\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param i6 Static value used for concatenation only.\n \* @param v7 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \*/\nexport function classMapInterpolate8(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, i6: string, v7: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =\n interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n}\n\n/\*\*\n \* Update an interpolated class on an element with 9 or more bound values surrounded by text.\n \* Used when the number of interpolated values exceeds 8.\n \* ``html\n \* <div\n \* class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-{{v9}}suffix"></div>\n \* ``\n \* Its compiled representation is:\n \* ``ts\n \* classMapInterpolateV(\n \* ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v8, '-', v9, 'suffix'];\n \* ``\n \* @param values The collection of values and the strings in-between those values, beginning with\n \* a string prefix and ending with a string suffix.\n \* (e.g. `['prefix',

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value0, '-', value1, '-', value2, ..., value99, 'suffix']`)\n * @codeGenApi\n * \nexport function
classMapInterpolateV(values: any[]): void {\n const IView = getLView();\n const interpolatedValue =
interpolationV(IView, values);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue,
true);\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { getLView } from './state';\nimport { interpolation1, interpolation2, interpolation3, interpolation4,
interpolation5, interpolation6, interpolation7, interpolation8, interpolationV } from './interpolation';\nimport
{ styleMap } from './styling';\n\n\n/**\n * \n * Update an interpolated style on an element with single bound value
surrounded by text.\n * \n * Used when the value passed to a property has 1 interpolated value in it:\n * \n * ``html\n
* <div style=\"key: { {v0}} suffix\"></div>\n * ``\n * \n * Its compiled representation is:\n * \n * ``ts\n
* styleMapInterpolate1('key: ', v0, 'suffix');\n * ``\n * \n * @param prefix Static value used for concatenation only.\n *
@param v0 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
@codeGenApi\n * \nexport function styleMapInterpolate1(prefix: string, v0: any, suffix: string): void {\n const
IView = getLView();\n const interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n
styleMap(interpolatedValue);\n}\n\n\n/**\n * \n * Update an interpolated style on an element with 2 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 2 interpolated values in it:\n
* \n * ``html\n
* <div style=\"key: { {v0}}; key1: { {v1}} suffix\"></div>\n * ``\n * \n * Its compiled representation
is:\n * \n * ``ts\n
* styleMapInterpolate2('key: ', v0, '; key1: ', v1, 'suffix');\n * ``\n * \n * @param prefix Static value
used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for
concatenation only.\n * @param v1 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n * \nexport function styleMapInterpolate2(\n prefix: string, v0: any, i0:
string, v1: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue =
interpolation2(IView, prefix, v0, i0, v1, suffix);\n styleMap(interpolatedValue);\n}\n\n\n/**\n * \n * Update an
interpolated style on an element with 3 bound values surrounded by text.\n * \n * Used when the value passed to a
property has 3 interpolated values in it:\n * \n * ``html\n
* <div style=\"key: { {v0}}; key2: { {v1}}; key2:
{ {v2}} suffix\"></div>\n
* ``\n * \n * Its compiled representation is:\n * \n * ``ts\n
* styleMapInterpolate3(\n * 'key: ', v0, '; key1: ', v1, ';
key2: ', v2, 'suffix');\n * ``\n * \n * @param prefix Static value used for concatenation only.\n * @param v0 Value
checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for
change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n *
@param suffix Static value used for concatenation only.\n * @codeGenApi\n * \nexport function
styleMapInterpolate3(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, suffix: string): void {\n
const IView = getLView();\n const interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n
styleMap(interpolatedValue);\n}\n\n\n/**\n * \n * Update an interpolated style on an element with 4 bound values
surrounded by text.\n * \n * Used when the value passed to a property has
4 interpolated values in it:\n * \n * ``html\n
* <div style=\"key: { {v0}}; key1: { {v1}}; key2: { {v2}}; key3:
{ {v3}} suffix\"></div>\n * ``\n * \n * Its compiled representation is:\n * \n * ``ts\n
* styleMapInterpolate4(\n * 'key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, 'suffix');\n * ``\n *
* \n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0
Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used
for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation
only.\n * @param v3 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
@codeGenApi\n * \nexport function styleMapInterpolate4(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2:
any, i2: string, v3: any,\n suffix: string): void {\n const IView = getLView();\n const interpolatedValue
= interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n styleMap(interpolatedValue);\n}\n\n\n/**\n *
* \n * Update an interpolated style on an element with 5 bound values surrounded by text.\n * \n * Used when the
value passed to a property has 5 interpolated values in it:\n * \n * ``html\n
* <div style=\"key: { {v0}}; key1: { {v1}};
key2: { {v2}}; key3: { {v3}}; key4: { {v4}} suffix\"></div>\n * ``\n * \n * Its compiled representation is:\n *
* \n *

```

```
`ts\n * styleMapInterpolate5(\n * `key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, '; key4: ', v4, 'suffix');\n *\n```\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @codegenApi\n */\nextport function styleMapInterpolate5(\n prefix: string,\n v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any,\n i3: string, v4: any, suffix: string): void {\nconst IView = getLView();\n const interpolatedValue =\n interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3,\n i3, v4, suffix);\n styleMap(interpolatedValue);}\n}/\n`*\n * Update an interpolated style on an element with 6 bound values surrounded by text.\n * Used when the value passed to a property has 6 interpolated values in it:\n *\n * ``html\n * <div style=`key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}};\n * key5: {{v5}}suffix`\"></div>\n * ```\n * Its compiled representation is:\n * ``ts\n * styleMapInterpolate6(\n * `key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: '\n * , v3, '; key4: ', v4, '; key5: ', v5,\n * `suffix');\n * ```\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @codegenApi\n */\nextport function styleMapInterpolate6(\n prefix: string,\n v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any,\n i3: string, v4: any, i4: string, v5: any, suffix: string): void {\nconst IView = getLView();\n const interpolatedValue =\n interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n styleMap(interpolatedValue);}\n}/\n`*\n * Update an interpolated style on an element with 7 bound values surrounded by text.\n * Used when the value passed to a property has 7 interpolated values in it:\n *\n * ``html\n * <div style=`key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}};\n * key6: {{v6}}suffix`\"></div>\n * ```\n * Its compiled representation is:\n * ``ts\n * styleMapInterpolate7(\n * `key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, '; key4: ', v4, '; key5: ', v5,\n * `';\n * key6: ', v6, 'suffix');\n * ```\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked for change.\n * @param i5 Static value used for concatenation only.\n * @param v6 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @codegenApi\n */\nextport function styleMapInterpolate7(\n prefix: string,\n v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any,\n i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix: string): void {\nconst IView = getLView();\n const interpolatedValue =\n interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n styleMap(interpolatedValue);}\n}/\n`*\n * Update an interpolated style on an element with 8 bound values surrounded by text.\n * Used when the value passed to a property has 8 interpolated values in it:\n *\n * ``html\n * <div style=`key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}};\n * key6: {{v6}}; key7: {{v7}}suffix`\">></div>\n * ```\n * Its compiled representation is:\n * ``ts\n * styleMapInterpolate8(\n * `key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, '; key4: ', v4, '; key5: ', v5,\n * `'; key6: ', v6, '; key7: ', v7, 'suffix');\n * ```\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for
```

concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param i6 Static value used for concatenation only.\n \* @param v7 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \* ^\nexport function styleMapInterpolate8(\n prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, i6: string, v7: any, suffix: string): void {\n const IView = getLView();\n const interpolatedValue = interpolation8(\n IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n styleMap(interpolatedValue);\n }\n\n/\*\*\n \* Update an interpolated style on an element with 9 or more bound values surrounded by text.\n \*\n \* Used when the number of interpolated values exceeds 8.\n \*\n \* ```html\n \* <div\n \* class=\"key: {{v0}};\n \* key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}};\n \* key6: {{v6}}; key7: {{v7}}; key8: {{v8}}; key9: {{v9}}\n \* suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* styleMapInterpolateV(\n \* ['key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, '; key4: ', v4, '; key5: ', v5,\n \* key6: ', v6, '; key7: ', v7, '; key8: ', v8, '; key9: ', v9, 'suffix'];\n \* )\n \* ```\n \*\n \* @param values The collection of values and the strings in-between those values, beginning with\n \* a string prefix and ending with a string suffix.\n \* (e.g. `[prefix, value0, '; key2: ', value1, '; key2: ', value2, ..., value99, 'suffix']`)\n \* @codeGenApi\n \* ^\nexport function styleMapInterpolateV(values: any[]): void {\n const IView = getLView();\n const interpolatedValue = interpolationV(IView, values);\n styleMap(interpolatedValue);\n }\n\n"/>\*\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \*\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at <https://angular.io/license>\n \*\n \* ^\nimport {getLView,} from './state';\nimport {interpolation1, interpolation2, interpolation3, interpolation4, interpolation5, interpolation6, interpolation7, interpolation8, interpolationV} from './interpolation';\nimport {checkStylingProperty} from './styling';\n\n/\*\*\n \* Update an interpolated style property on an element with single bound value surrounded by text.\n \*\n \* Used when the value passed to a property has 1 interpolated value in it.\n \*\n \* ```html\n \* <div style.color=\"prefix{{v0}}suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* stylePropInterpolate1(0, 'prefix', v0, 'suffix');\n \* ```\n \*\n \* @param styleIndex Index of style to update. This index value refers to the\n \* index of the style in the style bindings array that was passed into\n \* `styling`.\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* ^\nexport function stylePropInterpolate1(\n prop: string, prefix: string, v0: any, suffix: string,\n valueSuffix?: string|null): typeof stylePropInterpolate1 {\n const IView = getLView();\n const interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n return stylePropInterpolate1;\n }\n\n/\*\*\n \* Update an interpolated style property on an element with 2 bound values surrounded by text.\n \*\n \* Used when the value passed to a property has 2 interpolated values in it.\n \*\n \* ```html\n \* <div style.color=\"prefix{{v0}}-{{v1}}suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* stylePropInterpolate2(0, 'prefix', v0, '-', v1, 'suffix');\n \* ```\n \*\n \* @param styleIndex Index of style to update. This index value refers to the\n \* index of the style in the style bindings array that was passed into\n \* `styling`.\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \* ^\nexport function stylePropInterpolate2(\n prop: string, prefix: string, v0: any, i0: string, v1: any, suffix: string,\n valueSuffix?: string|null): typeof stylePropInterpolate2 {\n const IView = getLView();\n const interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n checkStylingProperty(prop, interpolatedValue, valueSuffix,



```

false);\n return stylePropInterpolate2;\n}\n\n/**\n * \n * Update an interpolated style property on an element with 3
bound values surrounded by text.\n * \n * Used when the value passed to a property has 3 interpolated values in it:\n
*\n * ```html\n * <div style.color=\"prefix{{v0}}-{{v1}}-{{v2}}suffix\"></div>\n * ```\n * \n * Its compiled
representation is:\n * \n * ```ts\n * stylePropInterpolate3(0, 'prefix', v0, '-', v1, '-', v2, 'suffix');\n * ```\n * \n * @param
styleIndex Index of style to update. This index value refers to the\n * index of the style in the style bindings
array that was passed into\n * `styling`.\n * \n * @param prefix Static value used for concatenation only.\n *
\n * @param v0 Value checked for change.\n * \n * @param i0 Static value used for concatenation only.\n * \n * @param v1
Value checked for change.\n * \n * @param i1 Static value used for concatenation only.\n * \n * @param v2 Value checked
for change.\n * \n * @param suffix Static value used for concatenation only.\n
\n * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n * \n * @returns itself, so that
it may be chained.\n * \n * @codeGenApi\n * \n * @nexport function stylePropInterpolate3(\n prop: string, prefix: string,
v0: any, i0: string, v1: any, i1: string, v2: any, suffix: string,\n valueSuffix?: string|null): typeof
stylePropInterpolate3 {\n const IView = getLView();\n const interpolatedValue = interpolation3(IView, prefix, v0,
i0, v1, i1, v2, suffix);\n checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n return
stylePropInterpolate3;\n}\n\n/**\n * \n * Update an interpolated style property on an element with 4 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 4 interpolated values in it:\n * \n *
```html\n * <div style.color=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}suffix\"></div>\n * ```\n * \n * Its compiled
representation is:\n * \n * ```ts\n * stylePropInterpolate4(0, 'prefix', v0, '-', v1, '-', v2, '-',
v3, 'suffix');\n * ```\n * \n * @param styleIndex Index of style to update. This index value refers to the\n *      index
of the style in the style bindings array that was passed into\n *      `styling`.\n * \n * @param prefix Static value used
for concatenation only.\n * \n * @param v0 Value checked for change.\n * \n * @param i0 Static value used for
concatenation only.\n * \n * @param v1 Value checked for change.\n * \n * @param i1 Static value used for concatenation
only.\n * \n * @param v2 Value checked for change.\n * \n * @param i2 Static value used for concatenation only.\n *
\n * @param v3 Value checked for change.\n * \n * @param suffix Static value used for concatenation only.\n * \n * @param
valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n * \n * @returns itself, so that it may be
chained.\n * \n * @codeGenApi\n * \n * @nexport function stylePropInterpolate4(\n   prop: string, prefix: string, v0: any, i0:
string, v1: any, i1: string, v2: any, i2: string,\n   v3: any, suffix: string, valueSuffix?:
string|null): typeof stylePropInterpolate4 {\n   const IView = getLView();\n   const interpolatedValue =
interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n   checkStylingProperty(prop, interpolatedValue,
valueSuffix, false);\n   return stylePropInterpolate4;\n}\n\n/**\n * \n * Update an interpolated style property on an
element with 5 bound values surrounded by text.\n * \n * Used when the value passed to a property has 5 interpolated
values in it:\n * \n * ```html\n * <div style.color=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}suffix\"></div>\n *
``` \n * \n * Its compiled representation is:\n * \n * ```ts\n * stylePropInterpolate5(0, 'prefix', v0, '-', v1, '-', v2, '-', v3, '-
', v4, 'suffix');\n * ```\n * \n * @param styleIndex Index of style to update. This index value refers to the\n *
index of the style in the style bindings array that was passed into\n * `styling`.\n * \n * @param prefix Static value
used for concatenation only.\n * \n * @param v0 Value checked for
change.\n * \n * @param i0 Static value used for concatenation only.\n * \n * @param v1 Value checked for change.\n *
\n * @param i1 Static value used for concatenation only.\n * \n * @param v2 Value checked for change.\n * \n * @param i2
Static value used for concatenation only.\n * \n * @param v3 Value checked for change.\n * \n * @param i3 Static value
used for concatenation only.\n * \n * @param v4 Value checked for change.\n * \n * @param suffix Static value used for
concatenation only.\n * \n * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n *
\n * @returns itself, so that it may be chained.\n * \n * @codeGenApi\n * \n * @nexport function stylePropInterpolate5(\n prop:
string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string,\n v3: any, i3: string, v4: any, suffix:
string,\n valueSuffix?: string|null): typeof stylePropInterpolate5 {\n const IView = getLView();\n const
interpolatedValue =\n interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4,
suffix);\n checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n return
stylePropInterpolate5;\n}\n\n/**\n * \n * Update an interpolated style property on an element with 6 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 6 interpolated values in it:\n * \n *

```

```

```html\n * <div style.color=\`"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}suffix\`"></div>\n * ```\n * \n *
Its compiled representation is:\n * \n * ```\n * stylePropInterpolate6(0, 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5,
'suffix');\n * ```\n * \n * @param styleIndex Index of style to update. This index value refers to the\n *      index of
the style in the style bindings array that was passed into\n *      `styling`.\n * @param prefix Static value used for
concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation
only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for concatenation
only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n *
@param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4
Value checked for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked
for change.\n * @param suffix Static value used for concatenation only.\n * @param valueSuffix Optional suffix.
Used with scalar values to add unit such as `px`.\n * @returns itself, so that it may be chained.\n * @codeGenApi\n
*/\nexport function stylePropInterpolate6(\n  prop: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2:
any, i2: string,\n  v3: any, i3: string, v4: any, i4: string, v5: any, suffix: string,\n  valueSuffix?: string|null): typeof
stylePropInterpolate6 {\n  const IView = getLView();\n  const interpolatedValue =\n    interpolation6(IView,
prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n  checkStylingProperty(prop,
interpolatedValue, valueSuffix, false);\n  return stylePropInterpolate6;\n}\n\n/**\n * \n * Update an interpolated
style property on an element with 7 bound values surrounded by text.\n * \n * Used when the value passed to a
property has 7 interpolated values in it:\n * \n * ```\n * \n * ```\n * \n * Its compiled representation is:\n * \n * ```\n * \n *
stylePropInterpolate7(\n *      0, 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n * \n * ```\n * \n * @param
styleIndex Index of style to update. This index value refers to the\n *      index of the style in the style bindings
array that was passed into\n *      `styling`.\n * @param prefix Static value used for concatenation only.\n *
@param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1
Value checked for change.\n * @param i1 Static value used for concatenation
only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n *
@param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4
Value checked for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked
for change.\n * @param i5 Static value used for concatenation only.\n * @param v6 Value checked for change.\n *
@param suffix Static value used for concatenation only.\n * @param valueSuffix Optional suffix. Used with scalar
values to add unit such as `px`.\n * @returns itself, so that it may be chained.\n * @codeGenApi\n
*/\nexport function stylePropInterpolate7(\n  prop: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2:
string,\n  v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, suffix: string,\n  valueSuffix?:
string|null): typeof stylePropInterpolate7 {\n  const IView = getLView();\n  const interpolatedValue
=\n    interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n  checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n  return stylePropInterpolate7;\n}\n\n/**\n * \n * Update an interpolated style property on an element with 8 bound values surrounded by text.\n * \n * Used when the
value passed to a property has 8 interpolated values in it:\n * \n * ```\n * \n * ```\n * \n * Its compiled representation
is:\n * \n * ```\n * \n * ```\n * \n * stylePropInterpolate8(0, 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6,\n * \n * '-', v7,
'suffix');\n * \n * ```\n * \n * @param styleIndex Index of style to update. This index value refers to the\n *      index of
the style in the style bindings array that was passed into\n *      `styling`.\n * @param prefix Static value used for
concatenation only.\n * @param v0 Value checked for change.\n *
@param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1
Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value
used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for
concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation
only.\n * @param v5 Value checked for change.\n * @param i5 Static value used for concatenation only.\n *
@param v6 Value checked for change.\n * @param i6 Static value used for concatenation only.\n * @param v7

```

Value checked for change.

`@param suffix` Static value used for concatenation only.

`@param valueSuffix` Optional suffix. Used with scalar values to add unit such as ``px``.

`@returns` itself, so that it may be chained.

`@codeGenApi`

`export function stylePropInterpolate8(
 prop: string, prefix: string, v0: any, i0: string, v1: any, i1: string, v2: any, i2: string, v3: any, i3: string, v4: any, i4: string, v5: any, i5: string, v6: any, i6: string, v7: any, i7: string, v8: any, i8: string, v9: any, i9: string,
 suffix: string, valueSuffix?: string|null): typeof stylePropInterpolate8 {
 const IView = getLView();
 const interpolatedValue = interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, i7, v8, i8, v9, i9, suffix);
 checkStylingProperty(prop, interpolatedValue, valueSuffix, false);
 return stylePropInterpolate8;
}`

`Update an interpolated style property on an element with 9 or more bound values surrounded by`

`text`

`Used when the number of interpolated values exceeds 8.`

`html`

`<div style.color="prefix{v0}-{v1}-{v2}-{v3}-{v4}-{v5}-{v6}-{v7}-{v8}-{v9}suffix">
 </div>
 Its compiled representation is:
 ts
 stylePropInterpolateV(
 0, ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v8, '-', v9, 'suffix']);
 @param styleIndex` Index of style to update. This index value refers to the index of the style in the style bindings array that was passed into `styling``.

`@param values` The collection of values and the strings in-between those values, beginning with a string prefix and ending with a string suffix. (e.g. `['prefix', value0, '-', value1, '-', value2, ..., value99, 'suffix']`)

`@param valueSuffix` Optional suffix. Used with scalar values to add unit such as ``px``.

`@returns` itself, so that it may be chained.

`@codeGenApi`

`export function stylePropInterpolateV(
 prop: string, values: any[], valueSuffix?: string|null): typeof stylePropInterpolateV {
 const IView = getLView();
 const interpolatedValue = interpolationV(IView, values);
 checkStylingProperty(prop, interpolatedValue, valueSuffix, false);
 return stylePropInterpolateV;
}`

`"/**`

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`import {bindingUpdated} from '../bindings';`

`import {SanitizerFn} from '../interfaces/sanitization';`

`import {RENDERER} from '../interfaces/view';`

`import {getCurrentDirectiveDef, getLView, getSelectedTNode, getTView, nextBindingIndex} from '../state';`

`import {NO_CHANGE} from '../tokens';`

`import {elementPropertyInternal, loadComponentRenderer, storePropertyBindingMetadata} from '../shared';`

`Update a property on a host element. Only applies to native node properties, not inputs.`

`Operates on the element selected by index via the { @link select } instruction.`

`@param propName` Name of property. Because it is going to DOM, this is not subject to renaming as part of minification.

`@param value` New value to write.

`@param sanitizer` An optional function used to sanitize the value.

`@returns` This function returns itself so that it may be chained (e.g. `property('name', ctx.name)('title', ctx.title)``)

`@codeGenApi`

`export function hostProperty<T>(
 propName: string, value: T, sanitizer?: SanitizerFn|null): typeof hostProperty {
 const IView = getLView();
 const bindingIndex = nextBindingIndex();
 if (bindingUpdated(IView, bindingIndex, value)) {
 const tView = getTView();
 const tNode = getSelectedTNode();
 elementPropertyInternal(tView, tNode, IView, propName, value, IView[RENDERER], sanitizer, true);
 ngDevMode && storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);
 }
 return hostProperty;
}`

`Updates a synthetic host binding (e.g. `[@foo]`) on a component or directive.`

`This instruction is for compatibility purposes and is designed to ensure that a synthetic host binding (e.g. `@HostBinding('@foo')`) properly gets rendered in the component's renderer. Normally all host bindings are evaluated with the parent component's renderer, but, in the case of animation @triggers, they need to be evaluated with the sub component's renderer (because that's where the animation triggers are defined).`

`Do not use this instruction as a replacement for elementProperty`. This instruction only exists to ensure compatibility with the ViewEngine's host binding behavior.`

`@param index` The index of the element to update in the data array

`@param propName` Name of property. Because it is going to DOM, this is not subject to renaming as part of minification.

`@param value` New value to write.

`@param sanitizer` An optional function used to sanitize the value.

`@codeGenApi`

`export function syntheticHostProperty<T>(
 propName: string,`

```

typeof sanitizer?: SanitizerFn|null): typeof syntheticHostProperty {
  const lView =
getLView();
  const bindingIndex = nextBindingIndex();
  if (bindingUpdated(lView, bindingIndex,
    value)) {
    const tView = getTView();
    const tNode = getSelectedTNode();
    const currentDef =
getCurrentDirectiveDef(tView.data);
    const renderer = loadComponentRenderer(currentDef, tNode, lView);
    elementPropertyInternal(tView, tNode, lView, propName, value, renderer, sanitizer, true);
    ngDevMode &&
storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);
  }
  return
syntheticHostProperty;
}
}
"/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this
source code is governed by an MIT-style license that can be
 * found in the LICENSE file at
https://angular.io/license
 */
import {global} from './global';
declare global {
  const ngI18nClosureMode:
boolean;
}
/**
 * NOTE: changes to the `ngI18nClosureMode` name must be synced with `compiler-
src/tooling.ts`.
 */
if (typeof ngI18nClosureMode === 'undefined') {
  // These property accesses can be
ignored because ngI18nClosureMode will be set
to false
// when optimizing code and the whole if statement will be dropped.
// Make sure to refer to
ngI18nClosureMode as ['ngI18nClosureMode'] for closure.
// NOTE: we need to have it in IIFE so that the tree-
shaker is happy.
(function() {
  // tslint:disable-next-line:no-toplevel-property-access
  global['ngI18nClosureMode'] =
    // TODO(FW-1250): validate that this actually, you know, works.
    // tslint:disable-next-line:no-toplevel-property-access
    typeof goog !== 'undefined' && typeof goog.getMsg ===
'function';
})();
}
"/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this
source code is governed by an MIT-style license that can be
 * found in the LICENSE file at
https://angular.io/license
 */
// THIS CODE IS GENERATED - DO NOT MODIFY
// See angular/tools/gulp-
tasks/cldr/extract.js
const u = undefined;
function plural(n: number): number {
  let i =
Math.floor(Math.abs(n)), v = n.toString().replace(/^[^.]*/,
'').length;
  if (i === 1 && v === 0) return 1;
  return 5;
}
export default [
  'en',
  ['a', 'p'], ['AM', 'PM'],
u,
  ['AM', 'PM', u, u],
  [
    'S', 'M', 'T', 'W', 'T', 'F', 'S', ['Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat'],
    'Sunday', 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday'],
  ['Su', 'Mo', 'Tu', 'We', 'Th', 'Fr', 'Sa'],
  u,
  [
    'J', 'F', 'M', 'A', 'M', 'J', 'J', 'A', 'S', 'O', 'N', 'D',
    'Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec'],
  [
    'January', 'February', 'March', 'April', 'May', 'June', 'July', 'August', 'September',
    'October', 'November', 'December'
  ],
  u,
  [
    'B', 'A', 'BC', 'AD', ['Before Christ', 'Anno Domini'],
    0,
    [6, 0],
    ['M/d/yy', 'MMM d, y', 'MMMM d, y', 'EEEE, MMMM d, y'],
    ['h:mm a', 'h:mm:ss a', 'h:mm:ss a z', 'h:mm:ss a zzzz'],
    [
      {1}, {0}, u, {1}
    ],
    ['at', {0}],
    u,
    [':', ',', ';', '%', '+', '-', 'E', 'x', '%o', '"', 'NaN', ':'],
    ['#', ##0.###, '#', ##0%, 'x', ##0.00, '#E0'],
    'USD',
    '$',
    'US Dollar',
    {}
  ],
  'ltr',
  plural
];
}
"/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this
source code is governed by an MIT-style license that can be
 * found in the LICENSE file at
https://angular.io/license
 */
import {global} from './util/global';
import localeEn from './locale_en';
/**
This const is used to store the locale data registered with `registerLocaleData`
let LOCALE_DATA: {[localeId: string]: any} = {};
/**
Register locale data to be used internally by Angular. See the
["I18n guide"]
(guide/i18n#i18n-pipes) to know how to import additional locale data.
The signature `registerLocaleData(data: any, extraData?: any)` is deprecated since v5.1
export function registerLocaleData(data: any, localeId?: string|any, extraData?: any): void {
  if (typeof localeId !== 'string') {
    extraData = localeId;
    localeId = data[LocaleDataIndex.LocaleId];
  }
  localeId =
localeId.toLowerCase().replace(/_/g, '-');
  LOCALE_DATA[localeId] = data;
  if (extraData) {
    LOCALE_DATA[localeId][LocaleDataIndex.ExtraData] = extraData;
  }
}
/**
Finds the locale data for a given locale.
@param locale The locale code.
@returns The locale data.
@see [Internationalization (i18n) Guide]
(https://angular.io/guide/i18n)
export function findLocaleData(locale: string): any {
  const normalizedLocale = normalizeLocale(locale);
  let match = getLocaleData(normalizedLocale);
  if (match) {
    return match;
  }
  // let's try to find a parent locale
  const parentLocale = normalizedLocale.split('-')[0];
  match = getLocaleData(parentLocale);
  if (match) {
    return match;
  }
  if (parentLocale === 'en') {
    return localeEn;
  }
  throw new Error(`Missing locale data for the locale "${locale}"`);
}

```

```

* Retrieves the default currency code for the given locale.\n * The default is defined as the first currency which
is still in use.\n * @param locale The code of the locale whose currency code we want.\n * @returns The code
of the default currency for the given locale.\n * \nexport function getLocaleCurrencyCode(locale: string):
string|null {\n  const data = findLocaleData(locale);\n  return data[LocaleDataIndex.CurrencyCode] ||
null;\n}\n\n/**\n * Retrieves the plural function used by ICU expressions to determine the plural case to use\n * for
a given locale.\n * @param locale A locale code for the locale format rules to use.\n * @returns The plural function
for the locale.\n * @see `NgPlural`\n * @see [Internationalization (i18n) Guide](https://angular.io/guide/i18n)\n
*/\nexport function getLocalePluralCase(locale: string): (value: number) => number {\n  const data =
findLocaleData(locale);\n  return data[LocaleDataIndex.PluralCase];\n}\n\n\n/**\n * Helper function to
get the given `normalizedLocale` from `LOCALE_DATA`\n * or from the global `ng.common.locale`.\n */\nexport
function getLocaleData(normalizedLocale: string): any {\n  if (!(normalizedLocale in LOCALE_DATA)) {\n
    LOCALE_DATA[normalizedLocale] = global.ng && global.ng.common && global.ng.common.locales &&\n
    global.ng.common.locales[normalizedLocale];\n  }\n  return LOCALE_DATA[normalizedLocale];\n}\n\n\n/**\n *
Helper function to remove all the locale data from `LOCALE_DATA`.\n */\nexport function
unregisterAllLocaleData() {\n  LOCALE_DATA = {};\n}\n\n\n/**\n * Index of each type of locale data from the
locale data array\n */\nexport enum LocaleDataIndex {\n  LocaleId = 0,\n  DayPeriodsFormat,\n
DayPeriodsStandalone,\n  DaysFormat,\n  DaysStandalone,\n  MonthsFormat,\n  MonthsStandalone,\n  Eras,\n
FirstDayOfWeek,\n  WeekendRange,\n  DateFormat,\n  TimeFormat,\n  DateTimeFormat,\n  NumberSymbols,\n
NumberFormats,\n  CurrencyCode,\n  CurrencySymbol,\n  CurrencyName,\n  Currencies,\n
Directionality,\n  PluralCase,\n  ExtraData\n}\n\n\n/**\n * Index of each type of locale data from the extra locale
data array\n */\nexport const enum ExtraLocaleDataIndex {\n  ExtraDayPeriodFormats = 0,\n
ExtraDayPeriodStandalone,\n  ExtraDayPeriodsRules\n}\n\n\n/**\n * Index of each value in currency data (used to
describe CURRENCIES_EN in currencies.ts)\n */\nexport const enum CurrencyIndex {\n  Symbol = 0,\n
SymbolNarrow,\n  NbOfDigits\n}\n\n\n/**\n * Returns the canonical form of a locale name - lowercase with ` `
replaced with `.`\n */\nfunction normalizeLocale(locale: string): string {\n  return
locale.toLowerCase().replace(/_/g, '.');\n}\n\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {getLocalePluralCase} from './locale_data_api';\n\nconst pluralMapping =
['zero', 'one', 'two', 'few', 'many'];\n\n\n/**\n * Returns the plural case based on the locale\n */\nexport function getPluralCase(value: string, locale: string): string
{\n  const plural = getLocalePluralCase(locale)(parseInt(value, 10));\n  const result = pluralMapping[plural];\n
return (result !== undefined) ? result : 'other';\n}\n\n\n/**\n * The locale id that the application is using by default (for
translations and ICU expressions).\n */\nexport const DEFAULT_LOCALE_ID = 'en-US';\n\n\n/**\n * USD currency
code that the application uses by default for CurrencyPipe when no\n * DEFAULT_CURRENCY_CODE is
provided.\n */\nexport const USD_CURRENCY_CODE = 'USD';\n\n\n\n/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport {SanitizerFn} from './sanitization';\n\n\n\n/**\n * Stores
a list of nodes which need to be removed.\n */\n * Numbers are indexes into the `LView`\n * - index > 0:
`removeRNode(IView[0])`\n\n
* - index < 0: `removeICU(~IView[0])`\n */\nexport interface I18nRemoveOpCodes extends Array<number> {\n
  __brand__: 'I18nRemoveOpCodes';\n}\n\n\n\n/**\n * `I18nMutateOpCode` defines OpCodes for `I18nMutateOpCodes`
array.\n */\n * OpCodes are efficient operations which can be applied to the DOM to update it. (For example to\n *
update to a new ICU case requires that we clean up previous elements and create new ones.)\n */\n * OpCodes
contain three parts:\n * 1) Parent node index offset. (p)\n * 2) Reference node index offset. (r)\n * 3) The
instruction to execute. (i)\n */\n * pppp pppp pppp pppp rrrr rrrr rrrr rrrr\n * 3322 2222 2222 1111 1111 1110 0000
0000\n * 1098 7654 3210 9876 5432 1098 7654 3210\n */\n * ```\n * var parent = IView[opCode >>>
SHIFT_PARENT];\n * var refNode = IView[((opCode & MASK_REF) >>> SHIFT_REF)];\n * var instruction =
opCode & MASK_OPCODE;\n * ```\n */\n * See: `I18nCreateOpCodes` for example of usage.\n */\nexport const

```

enum IcuCreateOpCode

```
{\n /**\n  * Stores shift amount for bits 17-3 that contain reference index.\n  */\n SHIFT_REF = 1,\n /**\n  * Stores shift amount for bits 31-17 that contain parent index.\n  */\n SHIFT_PARENT = 17,\n /**\n  * Mask for OpCode\n  */\n MASK_INSTRUCTION = 0b1,\n /**\n  * Mask for the Reference node (bits 16-3)\n  */\n MASK_REF = 0b1111111111111110,\n // 11111110000000000\n // 65432109876543210\n /**\n  * Instruction to append the current node to `PARENT`.\n  */\n AppendChild = 0b0,\n /**\n  * Instruction to set the attribute of a node.\n  */\n Attr = 0b1,\n /**\n  * Array storing OpCode for dynamically creating `i18n` blocks.\n  */\n Example:\n * ``ts\n * <I18nCreateOpCode>\n * // For adding text nodes\n * // -----  
\n * // Equivalent to:\n * // IView[1].appendChild(IView[0] = document.createTextNode('xyz'));\n * 'xyz', 0, 1 << SHIFT_PARENT | 0 << SHIFT_REF | AppendChild,\n * // For adding element nodes\n * // -----  
\n * // Equivalent to:\n * // IView[1].appendChild(IView[0] = document.createElement('div'));\n * ELEMENT_MARKER, 'div', 0, 1 << SHIFT_PARENT | 0 << SHIFT_REF | AppendChild,\n * // For adding comment nodes\n * // -----  
\n * // Equivalent to:\n * // IView[1].appendChild(IView[0] = document.createComment(''));\n * ICU_MARKER, '', 0, 1 << SHIFT_PARENT | 0 << SHIFT_REF | AppendChild,\n * // For moving existing nodes to a different location\n * // -----  
\n * // Equivalent to:\n * // const node = IView[1];\n * // IView[2].appendChild(node);\n * 1 << SHIFT_REF | Select, 2 << SHIFT_PARENT | 0 << SHIFT_REF | AppendChild,\n * // For removing existing nodes\n * // -----  
\n * // const node = IView[1];\n * // removeChild(tView.data(1), node, IView);\n * 1 << SHIFT_REF | Remove,\n * // For writing attributes\n * // -----  
\n * // const node = IView[1];\n * // node.setAttribute('attr', 'value');\n * 1 << SHIFT_REF | Attr, 'attr', 'value'\n * ];\n * ``\n */\n\nexport interface IcuCreateOpCodes extends Array<number|string|ELEMENT_MARKER|ICU_MARKER|null>,\n  I18nDebug {\n  __brand__: 'I18nCreateOpCodes';\n }\n\nexport const enum I18nUpdateOpCode {\n  /**\n   * Stores shift amount for bits 17-2 that contain reference index.\n   */\n  SHIFT_REF = 2,\n  /**\n   * Mask for OpCode\n   */\n  MASK_OPCODE = 0b11,\n  /**\n   * Instruction to update a text node.\n   */\n  Text = 0b00,\n  /**\n   * Instruction to update a attribute of a node.\n   */\n  Attr = 0b01,\n  /**\n   * Instruction to switch the current ICU case.\n   */\n  IcuSwitch = 0b10,\n  /**\n   * Instruction to update the current ICU case.\n   */\n  IcuUpdate = 0b11,\n  /**\n   * Marks that the next string is an element name.\n   */\n  See `I18nMutateOpCodes` documentation.\n }\n\nexport const ELEMENT_MARKER: ELEMENT_MARKER = {\n  marker: 'element'\n};\n\nexport interface ELEMENT_MARKER {\n  marker: 'element';\n }\n\n/**\n * Marks that the next string is comment text need for ICU.\n */\nexport const ICU_MARKER: ICU_MARKER = {\n  marker: 'ICU'\n};\n\nexport interface ICU_MARKER {\n  marker: 'ICU';\n }\n\nexport interface I18nDebug {\n  /**\n   * Human readable representation of the OpCode arrays.\n   */\n  NOTE: This property only exists if `ngDevMode` is set to `true` and it is not present in production. Its presence is purely to help debug issue in development, and should not be relied on in production application.\n  debug?: string[];\n }\n\n/**\n * Array storing OpCode for dynamically creating `i18n` translation DOM elements.\n */\n * This array creates a sequence of `Text` and `Comment` (as ICU anchor) DOM elements. It consists of a pair of `number` and `string` pairs which encode the operations for the creation of the translated block.\n */\n * The number is shifted and encoded according to `I18nCreateOpCode`\n */\n * Pseudocode:\n * ``ts\n * const i18nCreateOpCodes = [\n * 10 << I18nCreateOpCode.SHIFT, \"Text Node add to DOM\", \n * 11 << I18nCreateOpCode.SHIFT | I18nCreateOpCode.COMMENT, \"Comment Node add to DOM\", \n * 12 << I18nCreateOpCode.SHIFT | I18nCreateOpCode.APPEND_LATER, \"Text Node added later\", \n * ];\n * for (var i=0; i<i18nCreateOpCodes.length; i++) {\n *   const opcode = i18nCreateOpCodes[i++];\n *   const index = opcode >> I18nCreateOpCode.SHIFT;\n *   const text = i18nCreateOpCodes[i];\n *   let node: Text|Comment;\n *   if (opcode & I18nCreateOpCode.COMMENT === I18nCreateOpCode.COMMENT) {\n *     node = IView[~index] = document.createComment(text);\n *   } else {\n *     node = IView[index] = document.createTextNode(text);\n *   }\n * }
```

```
I18nDebug {\n  __brand__: 'I18nCreateOpCodes';\n }\n\nexport const enum I18nUpdateOpCode {\n  /**\n   * Stores shift amount for bits 17-2 that contain reference index.\n   */\n  SHIFT_REF = 2,\n  /**\n   * Mask for OpCode\n   */\n  MASK_OPCODE = 0b11,\n  /**\n   * Instruction to update a text node.\n   */\n  Text = 0b00,\n  /**\n   * Instruction to update a attribute of a node.\n   */\n  Attr = 0b01,\n  /**\n   * Instruction to switch the current ICU case.\n   */\n  IcuSwitch = 0b10,\n  /**\n   * Instruction to update the current ICU case.\n   */\n  IcuUpdate = 0b11,\n  /**\n   * Marks that the next string is an element name.\n   */\n  See `I18nMutateOpCodes` documentation.\n }\n\nexport const ELEMENT_MARKER: ELEMENT_MARKER = {\n  marker: 'element'\n};\n\nexport interface ELEMENT_MARKER {\n  marker: 'element';\n }\n\n/**\n * Marks that the next string is comment text need for ICU.\n */\nexport const ICU_MARKER: ICU_MARKER = {\n  marker: 'ICU'\n};\n\nexport interface ICU_MARKER {\n  marker: 'ICU';\n }\n\nexport interface I18nDebug {\n  /**\n   * Human readable representation of the OpCode arrays.\n   */\n  NOTE: This property only exists if `ngDevMode` is set to `true` and it is not present in production. Its presence is purely to help debug issue in development, and should not be relied on in production application.\n  debug?: string[];\n }\n\n/**\n * Array storing OpCode for dynamically creating `i18n` translation DOM elements.\n */\n * This array creates a sequence of `Text` and `Comment` (as ICU anchor) DOM elements. It consists of a pair of `number` and `string` pairs which encode the operations for the creation of the translated block.\n */\n * The number is shifted and encoded according to `I18nCreateOpCode`\n */\n * Pseudocode:\n * ``ts\n * const i18nCreateOpCodes = [\n * 10 << I18nCreateOpCode.SHIFT, \"Text Node add to DOM\", \n * 11 << I18nCreateOpCode.SHIFT | I18nCreateOpCode.COMMENT, \"Comment Node add to DOM\", \n * 12 << I18nCreateOpCode.SHIFT | I18nCreateOpCode.APPEND_LATER, \"Text Node added later\", \n * ];\n * for (var i=0; i<i18nCreateOpCodes.length; i++) {\n *   const opcode = i18nCreateOpCodes[i++];\n *   const index = opcode >> I18nCreateOpCode.SHIFT;\n *   const text = i18nCreateOpCodes[i];\n *   let node: Text|Comment;\n *   if (opcode & I18nCreateOpCode.COMMENT === I18nCreateOpCode.COMMENT) {\n *     node = IView[~index] = document.createComment(text);\n *   } else {\n *     node = IView[index] = document.createTextNode(text);\n *   }\n * }
```

```
if (opcode & I18nCreateOpCode.APPEND_EAGERLY !== I18nCreateOpCode.APPEND_EAGERLY)
{
    parentNode.appendChild(node);
}

export interface I18nCreateOpCodes extends Array<number|string>, I18nDebug {
    __brand__: 'I18nCreateOpCodes';
}

See `I18nCreateOpCodes`

export enum I18nCreateOpCode {
    /**
     * Number of bits to shift index so that it can be combined with the
     * `APPEND_EAGERLY` and
     * `COMMENT`.
     */
    SHIFT = 2,
    /**
     * Should the node be appended to
     * parent immediately after creation.
     */
    APPEND_EAGERLY = 0b01,
    /**
     * If set the node should be
     * comment (rather than a text) node.
     */
    COMMENT = 0b10,
}

Stores DOM operations which need to be applied to update DOM render tree due to changes in expressions.

The basic idea is that `i18nExp` OpCodes capture expression changes and update a change mask bit. (Bit 1 for expression 1, bit 2 for expression 2 etc..., bit 32 for expression 32 and higher.) The OpCodes then compare its own change mask against the expression change mask to determine if the OpCodes should execute.

NOTE: 32nd bit is special as it says 32nd or higher. This way if we have more than 32 bindings the code still works, but with lower efficiency. (it is unlikely that a translation would have more than 32 bindings.)

These OpCodes can be used by both the i18n block as well as ICU sub-block.

### Example

Assume `ts` if `(rf & RenderFlags.Update)`

{
    i18nExp(ctx.exp1); // If changed set mask bit 1
    i18nExp(ctx.exp2); // If changed set mask bit 2
    i18nExp(ctx.exp3); // If changed set mask bit 3
    i18nExp(ctx.exp4); // If changed set mask bit 4
    i18nApply(0); // Apply all changes by executing the OpCodes.
}

We can assume that each call to `i18nExp` sets an internal `changeMask` bit depending on the index of `i18nExp`.

#### OpCodes

`<I18nUpdateOpCodes>`

// The following OpCodes represent:

`<div i18n-title=\`pre\${exp1}\`in\${exp2}\`post\`>`

// If `changeMask & 0b11` has changed then execute update OpCodes.

// has NOT changed then skip `8` values and start processing next OpCodes.

0b11, 8, // Concatenate `newValue = 'pre'+IView[bindIndex-4]+'in'+IView[bindIndex-3]+'post';`

'pre', -4, 'in', -3, 'post', // Update attribute: `elementAttribute(1, 'title', sanitizerFn(newValue));`

1 << SHIFT_REF | Attr, 'title', sanitizerFn,

// The following OpCodes represent:

`<div i18n>Hello \${exp3}\`!>`

// If `changeMask & 0b100` has changed then execute update OpCodes.

// has NOT changed then skip `4` values and start processing next OpCodes.

0b100, 4, // Concatenate `newValue = 'Hello ' + IView[bindIndex -2] + '!';`

'Hello ', -2, '!', // Update text: `IView[1].textContent = newValue;`

1 << SHIFT_REF | Text,

// The following OpCodes represent:

`<div i18n>\${exp4, plural, ... }\`>`

// If `changeMask & 0b1000` has changed then execute update OpCodes.

// has NOT changed then skip `2` values and start processing next OpCodes.

0b1000, 2, // Concatenate `newValue = IView[bindIndex -1];`

-1, // Switch ICU: `icuSwitchCase(IView[1], 0, newValue);`

0 << SHIFT_ICU | 1 << SHIFT_REF | IcuSwitch,

// Note `changeMask & -1` is always true, so the IcuUpdate will always execute.

-1, 1, // Update ICU: `icuUpdateCase(IView[1], 0);`

0 << SHIFT_ICU | 1 << SHIFT_REF | IcuUpdate,

];

export interface I18nUpdateOpCodes extends Array<string|number|SanitizerFn|null>, I18nDebug {
    __brand__: 'I18nUpdateOpCodes';
}

Store information for the i18n translation block.

export interface TI18n {
    /**
     * A set of OpCodes which will create the Text Nodes and ICU anchors for the translation blocks.
     */
}

NOTE: The ICU anchors are filled in with ICU Update OpCode.

create: I18nCreateOpCodes;

A set of OpCodes which will be executed on each change detection to determine if any changes to DOM are required.

update: I18nUpdateOpCodes;

Defines the ICU type of `select` or `plural`

export const enum IcuType {
    select = 0,
    plural = 1,
}

export interface TIcu {
    /**
     * Defines the ICU type of `select` or `plural`
     */
    type: IcuType;
    /**
     * Index in `LView` where the anchor node is stored.
     */
    anchorIdx: number;
    /**
     * Currently selected ICU case pointer.
     */
    IView[currentCaseLViewIndex] stores the currently selected case. This is needed to know how to clean up the current case when transitioning to the new case.

    If the value stored is `null`: No current case selected.

    `<0` : A flag which means that the ICU just switched and that `icuUpdate`
```

```

must be executed\n *      regardless of the `mask`. (After the execution the flag is cleared)\n *      `>=0` A
currently selected case index.\n * /\n currentCaseLViewIndex: number;\n\n /**\n * A list of case values which
the current ICU will try to match.\n * \n * The last value is `other`\n * /\n cases: any[];\n\n /**\n * A set of
OpCodes to apply in order to build up the DOM render tree for the ICU\n * /\n create: IcuCreateOpCodes[];\n\n
/**\n * A set of OpCodes to apply in order to destroy the DOM render tree for the ICU.\n * /\n remove:
I18nRemoveOpCodes[];\n\n /**\n * A set of OpCodes to apply in order to update the DOM render tree for the
ICU bindings.\n * /\n update: I18nUpdateOpCodes[];\n\n\n// Note: This hack is necessary so we don't erroneously
get a circular dependency\n// failure based on types.\nexport const unusedValueExportToPlacateAjd = 1;\n\n/**\n *
Parsed ICU expression\n * /\nexport interface IcuExpression {\n type: IcuType;\n mainBinding:
number;\n cases: string[];\n values: (string|IcuExpression)[][];\n}\n\n", "/*\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n * /\n\nimport {DEFAULT_LOCALE_ID} from
'./../i18n/localization';\nimport {assertDefined} from './../util/assert';\n\n\n/**\n * The locale id that the application
is currently using (for translations and ICU expressions).\n * This is the ivy version of `LOCALE_ID` that was
defined as an injection token for the view engine\n * but is now defined as a global value.\n * /\nlet LOCALE_ID =
DEFAULT_LOCALE_ID;\n\n/**\n * Sets the locale id that will be used for translations and ICU expressions.\n *
This is the ivy version of `LOCALE_ID` that was defined as an injection token for the view engine\n * but is now
defined as a global value.\n * \n * @param localeId\n * /\nexport function setLocaleId(localeId: string)
{\n assertDefined(localeId, `Expected localeId to be defined`);\n if (typeof localeId === 'string') {\n
LOCALE_ID = localeId.toLowerCase().replace(/_/g, '-');\n }\n}\n\n\n/**\n * Gets the locale id that will be used for
translations and ICU expressions.\n * This is the ivy version of `LOCALE_ID` that was defined as an injection
token for the view engine\n * but is now defined as a global value.\n * /\nexport function getLocaleId(): string {\n
return LOCALE_ID;\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * /\n\nimport {assertDomNode, assertIndexInRange} from './util/assert';\nimport
{TNode, TNodeFlags, TNodeType} from './interfaces/node';\nimport {Renderer3} from
'./interfaces/renderer';\nimport {RElement, RNode} from './interfaces/renderer_dom';\nimport {LView} from
'./interfaces/view';\nimport {getInsertInFrontOfRNodeWithNoI18n,
nativeInsertBefore} from './node_manipulation';\nimport {unwrapRNode} from './util/view_utils';\n\n\n/**\n * Find
a node in front of which `currentTNode` should be inserted (takes i18n into account).\n * \n * This method
determines the `RNode` in front of which we should insert the `currentRNode`. This\n * takes
`TNode.insertBeforeIndex` into account.\n * \n * @param parentTNode parent `TNode`\n * @param currentTNode
current `TNode` (The node which we would like to insert into the DOM)\n * @param lView current `LView`\n
* /\nexport function getInsertInFrontOfRNodeWithI18n(\n parentTNode: TNode, currentTNode: TNode, lView:
LView): RNode|null {\n const tNodeInsertBeforeIndex = currentTNode.insertBeforeIndex;\n const
insertBeforeIndex =\n Array.isArray(tNodeInsertBeforeIndex) ? tNodeInsertBeforeIndex[0] :\n
tNodeInsertBeforeIndex;\n if (insertBeforeIndex === null) {\n return
getInsertInFrontOfRNodeWithNoI18n(parentTNode, currentTNode, lView);\n } else {\n
ngDevMode && assertIndexInRange(lView, insertBeforeIndex);\n return
unwrapRNode(lView[insertBeforeIndex]);\n }\n}\n\n\n/**\n * Process `TNode.insertBeforeIndex` by adding i18n
text nodes.\n * \n * See `TNode.insertBeforeIndex`\n * /\nexport function processI18nInsertBefore(\n renderer:
Renderer3, childTNode: TNode, lView: LView, childRNode: RNode|RNode[],\n parentRElement:
RElement|null): void {\n const tNodeInsertBeforeIndex = childTNode.insertBeforeIndex;\n if
(Array.isArray(tNodeInsertBeforeIndex)) {\n // An array indicates that there are i18n nodes that need to be added
as children of this\n // `childRNode`. These i18n nodes were created before this `childRNode` was available and
so\n // only now can be added. The first element of the array is the normal index where we should\n // insert the
`childRNode`. Additional elements are the extra nodes to be added as children of\n // `childRNode`.\n
ngDevMode && assertDomNode(childRNode);\n let i18nParent: RElement|null

```



```

= childRNode as RElement;\n  let anchorRNode: RNode|null = null;\n  if (!(childTNode.type &
TNodeType.AnyRNode)) {\n    anchorRNode = i18nParent;\n    i18nParent = parentRElement;\n  }\n  if
(i18nParent !== null && (childTNode.flags & TNodeFlags.isComponentHost) === 0) {\n    for (let i = 1; i <
tNodeInsertBeforeIndex.length; i++) {\n      // No need to `unwrapRNode` because all of the indexes point to i18n
text nodes.\n      // see `assertDomNode` below.\n      const i18nChild = IView[tNodeInsertBeforeIndex[i]];\n      nativeInsertBefore(renderer, i18nParent, i18nChild, anchorRNode, false);\n    }\n  }\n  }\n  }\n  }"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nimport {assertEqual}
from '../util/assert';\nimport {TNode, TNodeType} from '../interfaces/node';\nimport {setI18nHandling} from
'../node_manipulation';\nimport {getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore} from
'../node_manipulation_i18n';\n\n/**\n * Add `tNode` to `previousTNodes` list and update relevant `TNode`s in
`previousTNodes` list\n * `tNode.insertBeforeIndex`.\n * \n * Things to keep in mind:\n * 1. All i18n text nodes are
encoded as `TNodeType.Element` and are created eagerly by the\n * `i18nStart` instruction.\n * 2. All
`TNodeType.Placeholder` `TNodes` are elements which will be created later by\n * `elementStart` instruction.\n *
3. `elementStart` instruction will create `TNode`s in the ascending `TNode.index` order. (So a\n * smaller index
`TNode` is guaranteed to be created before a larger one)\n * \n * We use the above three invariants to determine
`TNode.insertBeforeIndex`.\n * \n * In an ideal world `TNode.insertBeforeIndex` would always be
`TNode.next.index`. However,\n * this will not work because `TNode.next.index` may be larger than `TNode.index`
which means that\n
* the next node is not yet created and therefore we can't insert in front of it.\n * \n * Rule1:
`TNode.insertBeforeIndex = null` if `TNode.next === null` (Initial condition, as we don't\n * know if there will
be further `TNode`s inserted after.)\n * Rule2: If `previousTNode` is created after the `tNode` being inserted, then\n
* `previousTNode.insertBeforeIndex = tNode.index` (So when a new `tNode` is added we check\n *
previous to see if we can update its `insertBeforeIndex`)\n * \n * See `TNode.insertBeforeIndex` for more
context.\n * \n * @param previousTNodes A list of previous TNodes so that we can easily traverse `TNode`s in\n *
reverse order. (If `TNode` would have `previous` this would not be necessary.)\n * \n * @param newTNode A TNode to
add to the `previousTNodes` list.\n * \n\nexport function addTNodeAndUpdateInsertBeforeIndex(previousTNodes:
TNode[], newTNode: TNode) {\n  // Start with Rule1\n  ngDevMode &&\n
assertEqual(newTNode.insertBeforeIndex,
null, 'We expect that insertBeforeIndex is not set');\n  previousTNodes.push(newTNode);\n  if
(previousTNodes.length > 1) {\n    for (let i = previousTNodes.length - 2; i >= 0; i--) {\n      const existingTNode =
previousTNodes[i];\n      // Text nodes are created eagerly and so they don't need their `indexBeforeIndex`
updated.\n      // It is safe to ignore them.\n      if (!isI18nText(existingTNode)) {\n        if
(isNewTNodeCreatedBefore(existingTNode, newTNode) &&\n          getInsertBeforeIndex(existingTNode) ===
null) {\n          // If it was created before us in time, (and it does not yet have `insertBeforeIndex`)\n          // then add
the `insertBeforeIndex`.\n          setInsertBeforeIndex(existingTNode, newTNode.index);\n        }\n      }\n    }\n  }\n\nfunction isI18nText(tNode: TNode): boolean {\n  return !(tNode.type &
TNodeType.Placeholder);\n}\n\nfunction isNewTNodeCreatedBefore(existingTNode: TNode, newTNode: TNode):
boolean {\n  return isI18nText(newTNode) ||
existingTNode.index > newTNode.index;\n}\n\nfunction getInsertBeforeIndex(tNode: TNode): number|null {\n
const index = tNode.insertBeforeIndex;\n  return Array.isArray(index) ? index[0] : index;\n}\n\nfunction
setInsertBeforeIndex(tNode: TNode, value: number): void {\n  const index = tNode.insertBeforeIndex;\n  if
(Array.isArray(index)) {\n    // Array is stored if we have to insert child nodes. See `TNode.insertBeforeIndex`\n
index[0] = value;\n  } else {\n    setI18nHandling(getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore);\n
tNode.insertBeforeIndex = value;\n  }\n}\n  }"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
* \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\nimport {assertEqual, assertGreaterThan, assertGreaterThanOrEqual, throwError}
from '../util/assert';\nimport {assertTNode, assertTNode} from '../assert';\nimport {createTNodeAtIndex} from

```

```

'./instructions/shared';\nimport
{IcuCreateOpCode, TIcu} from './interfaces/i18n';\nimport {TIcuContainerNode, TNode, TNodeType} from
'./interfaces/node';\nimport {LView, TView} from './interfaces/view';\nimport {assertTNodeType} from
'./node_assert';\nimport {setI18nHandling} from './node_manipulation';\nimport
{getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore} from './node_manipulation_i18n';\nimport
{addTNodeAndUpdateInsertBeforeIndex} from './i18n_insert_before_index';\n\n\n * Retrieve `TIcu` at a given
`index`. \n * \n * The `TIcu` can be stored either directly (if it is nested ICU) OR \n * it is stored inside tho
`TIcuContainer` if it is top level ICU. \n * \n * The reason for this is that the top level ICU need a `TNode` so that
they are part of the render \n * tree, but nested ICU's have no TNode, because we don't know ahead of time if the
nested ICU is \n * expressed (parent ICU may have selected a case which does not contain it.) \n * \n * @param tView
Current `TView`. \n
 * @param index Index where the value should be read from. \n */\nexport function getTIcu(tView: TView, index:
number): TIcu | null {\n  const value = tView.data[index] as null | TIcu | TIcuContainerNode | string;\n  if (value ===
null || typeof value === 'string') return null;\n  if (ngDevMode &&\n    !(value.hasOwnProperty('tViews') ||
value.hasOwnProperty('currentCaseLViewIndex')))\n    {\n      throwError('We expect to get
\\'null\\'\\'\\'TIcu\\'\\'\\'TIcuContainer\\'', but got: ' + value);\n    }\n  // Here the
`value.hasOwnProperty('currentCaseLViewIndex')` is a polymorphic read as it can be \n // either TIcu or
TIcuContainerNode. This is not ideal, but we still think it is OK because it \n // will be just two cases which fits into
the browser inline cache (inline cache can take up to \n // 4) \n  const tIcu =
value.hasOwnProperty('currentCaseLViewIndex') ? value as TIcu : \n                                     (value
as TIcuContainerNode).value;\n  ngDevMode && assertTIcu(tIcu);\n
  return tIcu;\n}\n\n\n * Store `TIcu` at a give `index`. \n * \n * The `TIcu` can be stored either directly (if it is
nested ICU) OR \n * it is stored inside tho `TIcuContainer` if it is top level ICU. \n * \n * The reason for this is that
the top level ICU need a `TNode` so that they are part of the render \n * tree, but nested ICU's have no TNode,
because we don't know ahead of time if the nested ICU is \n * expressed (parent ICU may have selected a case which
does not contain it.) \n * \n * @param tView Current `TView`. \n * \n * @param index Index where the value should be
stored at in `Tview.data` \n * \n * @param tIcu The TIcu to store. \n */\nexport function setTIcu(tView: TView, index:
number, tIcu: TIcu): void {\n  const tNode = tView.data[index] as null | TIcuContainerNode;\n  ngDevMode &&\n
  assertEqual(\n    tNode === null || tNode.hasOwnProperty('tViews'), true, \n    'We expect to get
\\'null\\'\\'\\'TIcuContainer\\'');\n  if (tNode === null) {\n    tView.data[index]
= tIcu;\n  } else {\n    ngDevMode && assertTNodeType(tNode, TNodeType.Icu);\n    tNode.value = tIcu;\n
  }\n}\n\n\n * Set `TNode.insertBeforeIndex` taking the `Array` into account. \n * \n * See
`TNode.insertBeforeIndex` \n */\nexport function setTNodeInsertBeforeIndex(tNode: TNode, index: number) {\n
  ngDevMode && assertTNode(tNode);\n  let insertBeforeIndex = tNode.insertBeforeIndex;\n  if (insertBeforeIndex
=== null) {\n    setI18nHandling(getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore);\n
  insertBeforeIndex = tNode.insertBeforeIndex = \n    [null!/* may be updated to number later */, index];\n  } else
{\n    assertEqual(Array.isArray(insertBeforeIndex), true, 'Expecting array here');\n    (insertBeforeIndex as
number[]).push(index);\n  }\n}\n\n\n * Create `TNode.type=TNodeType.Placeholder` node. \n * \n * See
`TNodeType.Placeholder` for more information. \n */\nexport function createTNodePlaceholder(\n  tView: TView,
previousTNodes: TNode[], index: number): TNode
{\n  const tNode = createTNodeAtIndex(tView, index, TNodeType.Placeholder, null, null);\n
  addTNodeAndUpdateInsertBeforeIndex(previousTNodes, tNode);\n  return tNode;\n}\n\n\n * Returns current
ICU case. \n * \n * ICU cases are stored as index into the `TIcu.cases`. \n * \n * At times it is necessary to communicate
that the ICU case just switched and that next ICU update \n * should update all bindings regardless of the mask. In
such a case the we store negative numbers \n * for cases which have just been switched. This function removes the
negative flag. \n */\nexport function getCurrentICUCaseIndex(tIcu: TIcu, lView: LView) {\n  const currentCase:
number | null = lView[tIcu.currentCaseLViewIndex];\n  return currentCase === null ? currentCase : (currentCase < 0
? ~currentCase : currentCase);\n}\n\n\nexport function getParentFromIcuCreateOpCode(mergedCode: number):

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number {\n return mergedCode >>> IcuCreateOpCode.SHIFT_PARENT;\n}\n\nexport function
getRefFromIcuCreateOpCode(mergedCode: number):
  number {\n return (mergedCode & IcuCreateOpCode.MASK_REF) >>>
IcuCreateOpCode.SHIFT_REF;\n}\n\nexport function getInstructionFromIcuCreateOpCode(mergedCode: number):
number {\n return mergedCode & IcuCreateOpCode.MASK_INSTRUCTION;\n}\n\nexport function
icuCreateOpCode(opCode: IcuCreateOpCode, parentIdx: number, refIdx: number) {\n ngDevMode &&
assertGreaterThanOrEqual(parentIdx, 0, 'Missing parent index');\n ngDevMode && assertGreaterThan(refIdx, 0,
'Missing ref index');\n return opCode | parentIdx << IcuCreateOpCode.SHIFT_PARENT | refIdx <<
IcuCreateOpCode.SHIFT_REF;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {getPluralCase} from './i18n/localization';\nimport {assertDefined,
assertDomNode, assertEqual, assertGreaterThan, assertIndexInRange, throwError} from './util/assert';\nimport
{assertIndexInExpandoRange,
assertTlIcu} from './assert';\nimport {attachPatchData} from './context_discovery';\nimport
{elementPropertyInternal, setElementAttribute} from './instructions/shared';\nimport {ELEMENT_MARKER,
I18nCreateOpCode, I18nCreateOpCodes, I18nUpdateOpCode, I18nUpdateOpCodes, ICU_MARKER,
IcuCreateOpCode, IcuCreateOpCodes, IcuType, TI18n, TIcu} from './interfaces/i18n';\nimport {TNode} from
'./interfaces/node';\nimport {RElement, RNode, RText} from './interfaces/renderer_dom';\nimport {SanitizerFn}
from './interfaces/sanitization';\nimport {HEADER_OFFSET, LView, RENDERER, TView} from
'./interfaces/view';\nimport {createCommentNode, createElementNode, createTextNode, nativeInsertBefore,
nativeParentNode, nativeRemoveNode, updateTextNode} from './node_manipulation';\nimport {getBindingIndex}
from './state';\nimport {renderStringify} from './util/stringify_utils';\nimport {getNativeByIndex, unwrapRNode}
from './util/view_utils';\nimport {getLocaleId} from './i18n_locale_id';\nimport
{getCurrentICUCaseIndex, getParentFromIcuCreateOpCode, getRefFromIcuCreateOpCode, getTIcu} from
'./i18n_util';\n\n\n/**\n * Keep track of which input bindings in `i18nExp` have changed.\n *\n * This is used to
efficiently update expressions in i18n only when the corresponding input has\n * changed.\n *\n * 1) Each bit
represents which of the `i18nExp` has changed.\n * 2) There are 32 bits allowed in JS.\n * 3) Bit 32 is special as it is
shared for all changes past 32. (In other words if you have more\n * than 32 `i18nExp` then all changes past 32nd
`i18nExp` will be mapped to same bit. This means\n * that we may end up changing more than we need to. But i18n
expressions with 32 bindings is rare\n * so in practice it should not be an issue.)\n */\nlet changeMask =
0b0;\n\n/**\n * Keeps track of which bit needs to be updated in `changeMask`\n *\n * This value gets incremented
on every call to `i18nExp`\n */\nlet changeMaskCounter = 0;\n\n/**\n * Keep track
of which input bindings in `i18nExp` have changed.\n *\n * `setMaskBit` gets invoked by each call to `i18nExp`.\n
*\n * @param hasChange did `i18nExp` detect a change.\n */\nexport function setMaskBit(hasChange: boolean) {\n
if (hasChange) {\n changeMask = changeMask | (1 << Math.min(changeMaskCounter, 31));\n }\n
changeMaskCounter++;\n}\n\nexport function applyI18n(tView: TView, IView: LView, index: number) {\n if
(changeMaskCounter > 0) {\n ngDevMode && assertDefined(tView, `tView should be defined`);\n const tI18n
= tView.data[index] as TI18n | I18nUpdateOpCodes;\n // When `index` points to an `i18nAttributes` then we have
an array otherwise `TI18n`\n const updateOpCodes: I18nUpdateOpCodes =\n Array.isArray(tI18n) ? tI18n as
I18nUpdateOpCodes : (tI18n as TI18n).update;\n const bindingsStartIndex = getBindingIndex() -
changeMaskCounter - 1;\n applyUpdateOpCodes(tView, IView, updateOpCodes, bindingsStartIndex,
changeMask);\n }\n // Reset changeMask
& maskBit to default for the next update cycle\n changeMask = 0b0;\n changeMaskCounter = 0;\n}\n\n\n/**\n *
Apply `I18nCreateOpCodes` op-codes as stored in `TI18n.create`.\n *\n * Creates text (and comment) nodes which
are internationalized.\n *\n * @param IView Current IView\n *\n * @param createOpCodes Set of op-codes to apply\n
*\n * @param parentRNode Parent node (so that direct children can be added eagerly) or `null` if it is\n * a root
node.\n *\n * @param insertInFrontOf DOM node that should be used as an anchor.\n */\nexport function
applyCreateOpCodes(IView: LView, createOpCodes: I18nCreateOpCodes, parentRNode: RElement|null,\n

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insertInFrontOf: RElement|null): void {\n  const renderer = IView[RENDERER];\n  for (let i = 0; i <
createOpCodes.length; i++) {\n    const opCode = createOpCodes[i++] as any;\n    const text = createOpCodes[i] as
string;\n    const isComment = (opCode & I18nCreateOpCode.COMMENT) ===
I18nCreateOpCode.COMMENT;\n    const appendNow =\n      (opCode
& I18nCreateOpCode.APPEND_EAGERLY) === I18nCreateOpCode.APPEND_EAGERLY;\n    const index =
opCode >>> I18nCreateOpCode.SHIFT;\n    let rNode = IView[index];\n    if (rNode === null) {\n      // We only
create new DOM nodes if they don't already exist: If ICU switches case back to a\n      // case which was already
instantiated, no need to create new DOM nodes.\n      rNode = IView[index] =\n        isComment ?
renderer.createComment(text) : createTextNode(renderer, text);\n    }\n    if (appendNow && parentRNode !==
null) {\n      nativeInsertBefore(renderer, parentRNode, rNode, insertInFrontOf, false);\n    }\n  }\n}\n\n/*\n *
Apply `I18nMutateOpCodes` OpCodes.\n * @param tView Current `TVView`\n * @param mutableOpCodes
Mutable OpCodes to process\n * @param IView Current `LView`\n * @param anchorRNode place where the i18n
node should be inserted.\n */\nexport function applyMutableOpCodes(\n  tView: TVView, mutableOpCodes:
IcuCreateOpCodes, IView: LView, anchorRNode: RNode):
void {\n  ngDevMode && assertDomNode(anchorRNode);\n  const renderer = IView[RENDERER];\n  // `rootIdx`
represents the node into which all inserts happen.\n  let rootIdx: number|null = null;\n  // `rootRNode` represents the
real node into which we insert. This can be different from\n  // `IView[rootIdx]` if we have projection.\n  // - null we
don't have a parent (as can be the case in when we are inserting into a root of\n  // `LView` which has no parent.)\n  // - `RElement` The element representing the root after taking projection into account.\n  let rootRNode!:
RElement|null;\n  for (let i = 0; i < mutableOpCodes.length; i++) {\n    const opCode = mutableOpCodes[i];\n    if
(typeof opCode === 'string') {\n      const textNodeIndex = mutableOpCodes[++i] as number;\n      if
(IView[textNodeIndex] === null) {\n        ngDevMode && ngDevMode.rendererCreateTextNode++;\n        ngDevMode && assertIndexInRange(IView, textNodeIndex);\n        IView[textNodeIndex] =
createTextNode(renderer,
opCode);\n      }\n    } else if (typeof opCode === 'number') {\n      switch (opCode &
IcuCreateOpCode.MASK_INSTRUCTION) {\n        case IcuCreateOpCode.AppendChild:\n          const parentIdx =
getParentFromIcuCreateOpCode(opCode);\n          if (rootIdx === null) {\n            // The first operation should save
the `rootIdx` because the first operation\n            // must insert into the root. (Only subsequent operations can insert
into a dynamic\n            // parent)\n            rootIdx = parentIdx;\n            rootRNode = nativeParentNode(renderer,
anchorRNode);\n          }\n          let insertInFrontOf: RNode|null;\n          let parentRNode: RElement|null;\n          if
(parentIdx === rootIdx) {\n            insertInFrontOf = anchorRNode;\n            parentRNode = rootRNode;\n          }
else {\n            insertInFrontOf = null;\n            parentRNode = unwrapRNode(IView[parentIdx]) as RElement;\n          }\n          // FIXME(misko): Refactor with `processI18nText`\n          if (parentRNode !== null) {\n            // This can happen if the `LView` we are adding to is not attached to a
parent `LView`.\n            // In such a case there is no `\"root\"` we can attach to. This is fine, as we still need to\n            // create the elements. When the `LView` gets later added to a parent these `\"root\"` nodes\n            // get picked up
and added.\n            ngDevMode && assertDomNode(parentRNode);\n            const refIdx =
getRefFromIcuCreateOpCode(opCode);\n            ngDevMode && assertGreaterThan(refIdx, HEADER_OFFSET,
'Missing ref');\n            // `unwrapRNode` is not needed here as all of these point to RNodes as part of the i18n\n            // which can't have components.\n            const child = IView[refIdx] as RElement;\n            ngDevMode &&
assertDomNode(child);\n            nativeInsertBefore(renderer, parentRNode, child, insertInFrontOf, false);\n          }\n          const tIcu = getTICu(tView, refIdx);\n          if (tIcu
!== null && typeof tIcu === 'object') {\n            // If we just added a comment node which has ICU then that ICU
may have already been\n            // rendered and therefore we need to re-add it here.\n            ngDevMode &&
assertTICu(tIcu);\n            const caseIndex = getCurrentICUCaseIndex(tIcu, IView);\n            if (caseIndex !==
null) {\n              applyMutableOpCodes(tView, tIcu.create[caseIndex], IView, IView[tIcu.anchorIdx]);\n            }\n          }\n          break;\n        case IcuCreateOpCode.Attr:\n          const elementNodeIndex = opCode
>>> IcuCreateOpCode.SHIFT_REF;\n          const attrName = mutableOpCodes[++i] as string;\n          const

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```
// This code is used for ICU expressions only, since we don't
support\n      // directives/components in ICUs, we don't need to worry about inputs here\n
setElementAttribute(\n          renderer, getNativeByIndex(elementNodeIndex,\n    IView) as RElement, null, null, attrName,\n          attrValue, null);\n          break;\n          default:\n              throw new\nError(`Unable to determine the type of mutate operation for \"${opCode}\"`);\n        }\n    } else {\n        switch\n(opCode) {\n            case ICU_MARKER:\n                const commentValue = mutableOpCodes[++i] as string;\nconst commentNodeIndex = mutableOpCodes[++i] as number;\n                if (IView[commentNodeIndex] === null) {\n                    ngDevMode &&\n                        assertEquals(\n                            typeof commentValue, 'string',\n`Expected \"${commentValue}\" to be a comment node value`);\n                    ngDevMode &&\nngDevMode.rendererCreateComment++;\n                    ngDevMode && assertIndexInExpandoRange(IView,\ncommentNodeIndex);\n                    const commentRNode = IView[commentNodeIndex] =\ncreateCommentNode(renderer, commentValue);\n                    // FIXME(misko): Attaching patch data is only needed for\nthe root (Also add tests)\n                    attachPatchData(commentRNode, IView);\n                }\n                break;\n            case\nELEMENT_MARKER:\n                const tagName = mutableOpCodes[++i] as string;\n                const elementNodeIndex\n= mutableOpCodes[++i] as number;\n                if (IView[elementNodeIndex] === null) {\n                    ngDevMode &&\n                        assertEquals(\n                            typeof tagName, 'string',\n`Expected \"${tagName}\" to be an element\nnode tag name`);\n                    ngDevMode && ngDevMode.rendererCreateElement++;\n                    ngDevMode &&\nassertIndexInExpandoRange(IView, elementNodeIndex);\n                    const elementRNode =\nIView[elementNodeIndex] =\ncreateElementNode(renderer, tagName, null);\n                    // FIXME(misko):\nAttaching patch data is only needed for the root (Also add tests)\n                    attachPatchData(elementRNode, IView);\n                }\n                break;\n            default:\n                ngDevMode &&\n                    throwError(`Unable\nto determine the type of mutate operation for \"${opCode}\"`);\n        }\n    }\n}\n\n**\n * Apply\n`I18nUpdateOpCodes` OpCodes\n * @param tView Current `TView`\n * @param IView Current `LView`\n * @param updateOpCodes OpCodes to process\n * @param bindingsStartIndex Location of the first `i18nApply`\n * @param changeMask Each bit corresponds to a `i18nExp` (Counting backwards from\n * `bindingsStartIndex`)\n */\nexport function applyUpdateOpCodes(\n    tView: TView, IView: LView, updateOpCodes:\nI18nUpdateOpCodes, bindingsStartIndex: number,\n    changeMask: number) {\n    for (let i = 0; i <\nupdateOpCodes.length; i++) {\n        // bit code to check if we should apply the next update\n        const checkBit =\nupdateOpCodes[i] as number;\n        // Number of opCodes to skip until next set of update codes\n        const skipCodes =\nupdateOpCodes[++i] as number;\n        if (checkBit & changeMask) {\n            // The value has been updated since last\nchecked\n            let value = '';\n\n            for (let j = i + 1; j <= (i + skipCodes); j++) {\n                const opCode = updateOpCodes[j];\n                if (typeof opCode\n=== 'string') {\n                    value += opCode;\n                } else if (typeof opCode === 'number') {\n                    if (opCode < 0) {\n                        // Negative opCode represent `i18nExp` values offset.\n                        value +=\renderStringify(IView[bindingsStartIndex - opCode]);\n                    } else {\n                        const nodeIndex = (opCode >>>\nI18nUpdateOpCode.SHIFT_REF);\n                        switch (opCode & I18nUpdateOpCode.MASK_OPCODE) {\n                            case I18nUpdateOpCode.Attr:\n                                const propName = updateOpCodes[++j] as string;\n                                const\nsanitizeFn = updateOpCodes[++j] as SanitizerFn | null;\n                                const tNodeOrTagName =\ntView.data[nodeIndex] as TNode | string;\n                                ngDevMode && assertDefined(tNodeOrTagName, 'Expecting\nTNode or string');\n                                if (typeof tNodeOrTagName === 'string') {\n                                    // IF we don't have a `TNode`,\nthen we are an element in ICU (as ICU content does\n                                    // not have TNode), in which case we know that\nthere are no directives, and hence\n                                    // we use attribute setting.\n                                    setElementAttribute(\n                                        IView[RENDERER], IView[nodeIndex], null, tNodeOrTagName, propName, value,\n                                        sanitizeFn);\n                                } else {\n                                    elementPropertyInternal(\n                                        tView, tNodeOrTagName,\n                                        IView, propName, value, IView[RENDERER], sanitizeFn,\n                                        false);\n                                }\n                                break;\n                            case I18nUpdateOpCode.Text:\n                                const rText = IView[nodeIndex] as RText | null;\n                                rText\n!== null && updateTextNode(IView[RENDERER], rText, value);\n                                break;\n                            case\nI18nUpdateOpCode.IcuSwitch:\n                                applyIcuSwitchCase(tView, getTicu(tView, nodeIndex)!, IView,
```



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index;\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{assertDomNode, assertNumber, assertNumberInRange} from '../util/assert';\nimport {assertTlCicu,
assertTNodeForLView} from '../assert';\nimport {EMPTY_ARRAY} from './empty';\nimport
{getCurrentICUCaseIndex} from './i18n/i18n_util';\nimport {I18nRemoveOpCodes, TlCicu} from
'./interfaces/i18n';\nimport {TlCicuContainerNode} from './interfaces/node';\nimport {RNode} from
'./interfaces/renderer_dom';\nimport {LView, TVIEW} from './interfaces/view';\n\nexport function
loadIcuContainerVisitor() {\n  const _stack: any[] = [];\n  let _index: number = -1;\n  let _lView: LView;\n  let
_remove: I18nRemoveOpCodes;\n\n  /**\n   * Retrieves a set of root nodes from `TlCicu.remove`. Used by
`TNode.Type.ICUContainer`\n   * to determine which root belong to the ICU.\n   * \n   * Example of usage.\n   * ```\n   * const nextRNode = icuContainerIteratorStart(tlCicuContainerNode, lView);\n   * let
rNode: RNode|null;\n   * while(rNode = nextRNode()) {\n   *   console.log(rNode);\n   * }\n   * ```\n   * \n   *
@param tlCicuContainerNode Current `TlCicuContainerNode`\n   * @param lView `LView` where the `RNode`s
should be looked up.\n   */\n  function icuContainerIteratorStart(tlCicuContainerNode: TlCicuContainerNode, lView:
LView): () => RNode | null {\n    _lView = lView;\n    while (_stack.length) _stack.pop();\n    ngDevMode &&
assertTNodeForLView(tlCicuContainerNode, lView);\n    enterIcu(tlCicuContainerNode.value, lView);\n    return
icuContainerIteratorNext();\n  }\n\n  function enterIcu(tlCicu: TlCicu, lView: LView) {\n    _index = 0;\n    const
currentCase = getCurrentICUCaseIndex(tlCicu, lView);\n    if (currentCase !== null) {\n      ngDevMode &&
assertNumberInRange(currentCase, 0, tlCicu.cases.length - 1);\n      _remove = tlCicu.remove[currentCase];\n    } else
{\n      _remove = EMPTY_ARRAY as any;\n    }\n\n    function icuContainerIteratorNext(): RNode | null {\n      if (_index
< _remove.length) {\n        const removeOpCode = _remove[_index++] as number;\n        ngDevMode &&
assertNumber(removeOpCode, 'Expecting OpCode number');\n        if (removeOpCode > 0) {\n          const rNode =
_lView[removeOpCode];\n          ngDevMode && assertDomNode(rNode);\n          return rNode;\n        } else {\n         
_stack.push(_index, _remove);\n          // ICUs are represented by negative indices\n          const tlCicuIndex =
~removeOpCode;\n          const tlCicu = _lView[TVIEW].data[tlCicuIndex] as TlCicu;\n          ngDevMode &&
assertTlCicu(tlCicu);\n          enterIcu(tlCicu, _lView);\n          return icuContainerIteratorNext();\n        }\n      } else {\n        if
(_stack.length === 0) {\n          return null;\n        } else {\n          _remove = _stack.pop();\n          _index =
_stack.pop();\n          return icuContainerIteratorNext();\n        }\n      }\n    }\n\n    return
icuContainerIteratorStart;\n  }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{assertNumber, assertString} from '../util/assert';\nimport {ELEMENT_MARKER, I18nCreateOpCode,
I18nCreateOpCodes, I18nRemoveOpCodes, I18nUpdateOpCode, I18nUpdateOpCodes, ICU_MARKER,
IcuCreateOpCode, IcuCreateOpCodes} from './interfaces/i18n';\n\nimport {getInstructionFromIcuCreateOpCode,
getParentFromIcuCreateOpCode, getRefFromIcuCreateOpCode} from './i18n_util';\n\n/**\n * Converts
`I18nCreateOpCodes` array into a human readable format.\n * \n * This function is attached to the
`I18nCreateOpCodes.debug` property if `ngDevMode` is enabled.\n * This function provides a human readable view
of the opcodes. This is useful when debugging the\n * application as well as writing more readable tests.\n * \n *
@param this `I18nCreateOpCodes` if attached as a method.\n * @param opcodes `I18nCreateOpCodes` if invoked
as a function.\n */\nexport function i18nCreateOpCodesToString(\n  this: I18nCreateOpCodes | void, opcodes?: I18nCreateOpCodes): string[] {\n  const createOpCodes:
I18nCreateOpCodes = opcodes || (Array.isArray(this) ? this : [] as any);\n  let lines: string[] = [];\n  for (let i = 0; i <
createOpCodes.length; i++) {\n    const opCode = createOpCodes[i] as any;\n    const text = createOpCodes[i] as
string;\n    const isComment = (opCode & I18nCreateOpCode.COMMENT) ===
I18nCreateOpCode.COMMENT;\n    const appendNow =\n      (opCode &
I18nCreateOpCode.APPEND_EAGERLY) === I18nCreateOpCode.APPEND_EAGERLY;\n    const index =

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opCode >>> I18nCreateOpCode.SHIFT;\n  lines.push(`IView[${index}] = document.${isComment ?
'createComment' : 'createText'}(${JSON.stringify(text)});`);\n  if (appendNow) {\n
lines.push(`parent.appendChild(IView[${index}]);`);\n  }\n  return lines;\n}\n\n/**\n * Converts
`I18nUpdateOpCodes` array into a human readable format.\n *\n * This function is attached to the
`I18nUpdateOpCodes.debug` property if
`ngDevMode` is enabled.\n *\n * This function provides a human readable view of the opcodes. This is useful when
debugging the\n * application as well as writing more readable tests.\n *\n * @param this `I18nUpdateOpCodes` if
attached as a method.\n * @param opcodes `I18nUpdateOpCodes` if invoked as a function.\n */\nexport function
i18nUpdateOpCodesToString(\n  this: I18nUpdateOpCodes|void, opcodes?: I18nUpdateOpCodes): string[] {\n
const parser = new OpCodeParser(opcodes || (Array.isArray(this) ? this : []));\n  let lines: string[] = [];\n\n  function
consumeOpCode(value: number): string {\n    const ref = value >>> I18nUpdateOpCode.SHIFT_REF;\n    const
opCode = value & I18nUpdateOpCode.MASK_OPCODE;\n    switch (opCode) {\n      case
I18nUpdateOpCode.Text:\n        return `(IView[${ref}] as Text).textContent = $$$`;\n      case
I18nUpdateOpCode.Attr:\n        const attrName = parser.consumeString();\n        const sanitizationFn =
parser.consumeFunction();\n        const value = sanitizationFn
? `(${sanitizationFn})($$$)` : `$$$`;\n        return `(IView[${ref}] as Element).setAttribute('${attrName}',
${value})`;\n      case I18nUpdateOpCode.IcuSwitch:\n        return `icuSwitchCase(${ref}, $$$)`;\n      case
I18nUpdateOpCode.IcuUpdate:\n        return `icuUpdateCase(${ref})`;\n    }\n    throw new Error('unexpected
OpCode');\n  }\n\n  while (parser.hasMore()) {\n    let mask = parser.consumeNumber();\n    let size =
parser.consumeNumber();\n    const end = parser.i + size;\n    const statements: string[] = [];\n    let statement = ";\n
while (parser.i < end) {\n      let value = parser.consumeNumberOrString();\n      if (typeof value === 'string') {\n
statement += value;\n      } else if (value < 0) {\n        // Negative numbers are ref indexes\n        // Here `i` refers to
current binding index. It is to signify that the value is relative,\n        // rather than absolute.\n        statement +=
`${IView[i] + value + '}`;\n      } else {\n
        // Positive numbers are operations.\n        const opCodeText = consumeOpCode(value);\n
statements.push(opCodeText.replace('$$$', '' + statement + '') + `);\n        statement = ";\n      }\n    }\n
lines.push(`if (mask & 0b${mask.toString(2)}) { ${statements.join(' ')} }`);\n  }\n  return lines;\n}\n\n/**\n *
Converts `I18nCreateOpCodes` array into a human readable format.\n *\n * This function is attached to the
`I18nCreateOpCodes.debug` if `ngDevMode` is enabled. This\n * function provides a human readable view of the
opcodes. This is useful when debugging the\n * application as well as writing more readable tests.\n *\n * @param
this `I18nCreateOpCodes` if attached as a method.\n * @param opcodes `I18nCreateOpCodes` if invoked as a
function.\n */\nexport function icuCreateOpCodesToString(\n  this: IcuCreateOpCodes|void, opcodes?:
IcuCreateOpCodes): string[] {\n  const parser = new OpCodeParser(opcodes || (Array.isArray(this) ? this : []));\n  let
lines: string[] =
[\n\n    function consumeOpCode(opCode: number): string {\n      const parent =
getParentFromIcuCreateOpCode(opCode);\n      const ref = getRefFromIcuCreateOpCode(opCode);\n      switch
(getInstructionFromIcuCreateOpCode(opCode)) {\n        case IcuCreateOpCode.AppendChild:\n          return
`(IView[${parent}] as Element).appendChild(IView[${lastRef}])`;\n        case IcuCreateOpCode.Attr:\n          return
`(IView[${ref}] as Element).setAttribute("${parser.consumeString()}", "${\n
parser.consumeString()})"`;\n      }\n      throw new Error('Unexpected OpCode: ' +
getInstructionFromIcuCreateOpCode(opCode));\n    }\n\n    let lastRef = -1;\n    while (parser.hasMore()) {\n      let value
= parser.consumeNumberStringOrMarker();\n      if (value === ICU_MARKER) {\n        const text =
parser.consumeString();\n        lastRef = parser.consumeNumber();\n        lines.push(`IView[${lastRef}] =
document.createComment("${text}")`);\n      } else if (value === ELEMENT_MARKER) {\n        const text =
parser.consumeString();\n
        lastRef = parser.consumeNumber();\n        lines.push(`IView[${lastRef}] =
document.createElement("${text}")`);\n      } else if (typeof value === 'string') {\n        lastRef =
parser.consumeNumber();\n        lines.push(`IView[${lastRef}] = document.createTextNode("${value}")`);\n      }

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else if (typeof value === 'number') {\n    const line = consumeOpCode(value);\n    line && lines.push(line);\n }
else {\n    throw new Error('Unexpected value');\n }\n }\n\n return lines;\n}\n\n/**\n * Converts
`I18nRemoveOpCodes` array into a human readable format.\n *\n * This function is attached to the
`I18nRemoveOpCodes.debug` if `ngDevMode` is enabled. This\n * function provides a human readable view of the
opcodes. This is useful when debugging the\n * application as well as writing more readable tests.\n *\n * @param
this `I18nRemoveOpCodes` if attached as a method.\n * @param opcodes `I18nRemoveOpCodes` if invoked as a
function.\n */\nexport function i18nRemoveOpCodesToString(\n
  this: I18nRemoveOpCodes|void, opcodes?: I18nRemoveOpCodes): string[] {\n  const removeCodes = opcodes ||
(Array.isArray(this) ? this : []);\n  let lines: string[] = [];\n\n  for (let i = 0; i < removeCodes.length; i++) {\n    const
nodeOrIcuIndex = removeCodes[i] as number;\n    if (nodeOrIcuIndex > 0) {\n      // Positive numbers are
`RNode`s.\n      lines.push(`remove(IView[${nodeOrIcuIndex}])`);\n    } else {\n      // Negative numbers are ICUs\n
      lines.push(`removeNestedICU(${~nodeOrIcuIndex})`);\n    }\n  }\n\n  return lines;\n}\n\n\nclass OpCodeParser
{\n  i: number = 0;\n  codes: any[];\n\n  constructor(codes: any[]) {\n    this.codes = codes;\n  }\n\n  hasMore() {\n
return this.i < this.codes.length;\n }\n\n  consumeNumber(): number {\n    let value = this.codes[this.i++];\n
assertNumber(value, 'expecting number in OpCode');\n    return value;\n }\n\n  consumeString(): string {\n    let
value = this.codes[this.i++];\n    assertString(value, 'expecting
string in OpCode');\n    return value;\n }\n\n  consumeFunction(): Function|null {\n    let value =
this.codes[this.i++];\n    if (value === null || typeof value === 'function') {\n      return value;\n    }\n
throw new Error('expecting function in OpCode');\n }\n\n  consumeNumberOrString(): number|string {\n    let value =
this.codes[this.i++];\n    if (typeof value === 'string') {\n      return value;\n    }\n    assertNumber(value, 'expecting
number or string in OpCode');\n    return value;\n }\n\n  consumeNumberStringOrMarker():
number|string|ICU_MARKER|ELEMENT_MARKER {\n    let value = this.codes[this.i++];\n    if (typeof value ===
'string' || typeof value === 'number' || value == ICU_MARKER ||\n      value == ELEMENT_MARKER) {\n
return value;\n    }\n    assertNumber(value, 'expecting number, string, ICU_MARKER or ELEMENT_MARKER in
OpCode');\n    return value;\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\nimport '../util/ng_dev_mode';\nimport '../util/ng_i18n_closure_mode';\n\nimport {getTemplateContent,
SRCSET_ATTRS, URI_ATTRS, VALID_ATTRS, VALID_ELEMENTS} from
'../sanitization/html_sanitizer';\nimport {getInertBodyHelper} from '../sanitization/inert_body';\nimport
{ _sanitizeUrl, sanitizeSrcset} from '../sanitization/url_sanitizer';\nimport {assertDefined, assertEqual,
assertGreaterThanOrEqual, assertOneOf, assertString} from '../util/assert';\nimport {CharCode} from
'../util/char_code';\nimport {loadIcuContainerVisitor} from '../instructions/i18n_icu_container_visitor';\nimport
{allocExpando, createTNodeAtIndex} from '../instructions/shared';\nimport {getDocument} from
'../interfaces/document';\nimport {ELEMENT_MARKER, I18nCreateOpCode, I18nCreateOpCodes,
I18nRemoveOpCodes, I18nUpdateOpCode, I18nUpdateOpCodes, ICU_MARKER, IcuCreateOpCode,
IcuCreateOpCodes,
IcuExpression, IcuType, TI18n, TIcu} from '../interfaces/i18n';\nimport {TNode, TNodeType} from
'../interfaces/node';\nimport {SanitizerFn} from '../interfaces/sanitization';\nimport {HEADER_OFFSET, LView,
TView} from '../interfaces/view';\nimport {getCurrentParentTNode, getCurrentTNode, setCurrentTNode} from
'../state';\nimport {attachDebugGetter} from '../util/debug_utils';\n\nimport {i18nCreateOpCodesToString,
i18nRemoveOpCodesToString, i18nUpdateOpCodesToString, icuCreateOpCodesToString} from
'./i18n_debug';\nimport {addTNodeAndUpdateInsertBeforeIndex} from './i18n_insert_before_index';\nimport
{ensureIcuContainerVisitorLoaded} from './i18n_tree_shaking';\nimport {createTNodePlaceholder,
icuCreateOpCode, setTIcu, setTNodeInsertBeforeIndex} from './i18n_util';\n\n\nconst BINDING_REGEXP =
/((\\d+):?\\d*/gi);\nconst ICU_REGEXP = /(\\{\\s*\\d+?:?\\d*\\s*,\\s*\\s{6}\\s*,[\\s|\\S]*\\})/gi;\nconst NESTED_ICU =
/((\\d+);/;\nconst ICU_BLOCK_REGEXP = /^\\s*(\\d+?:?\\d*)\\s*,\\s*(select|plural)\\s*,/;\n\nconst

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MARKER = ``;\nconst SUBTEMPLATE_REGEX = /\|/?\|*(\|d+:\|d+)/gi;\nconst PH_REGEX =
/(\|/?\|[#*]\|d+):?\|d*/gi;\n\n/**\n * Angular Dart introduced &ngsp; as a placeholder for non-removable space, see:\n
 * https://github.com/dart-
lang/angular/blob/0bb611387d29d65b5af7f9d2515ab571fd3fbee4/_tests/test/compiler/preserve_whitespace_test.dart
#L25-L32\n * In Angular Dart &ngsp; is converted to the 0xE500 PUA (Private Use Areas) unicode character\n *
and later on replaced by a space. We are re-implementing the same idea here, since translations\n * might contain
this special character.\n */\nconst NGSP_UNICODE_REGEX = /\|uE500/g;\nfunction replaceNgsp(value: string):
string {\n  return value.replace(NGSP_UNICODE_REGEX, ' ');}\n\n/**\n * Create dynamic nodes from i18n
translation block.\n */\n * - Text nodes are created synchronously\n * - TNodes are linked into tree lazily\n */\n *
@param tView Current `TVView`\n * @parentTNodeIndex index to the parent TNode of this
i18n block\n * @param IView Current `LView`\n * @param index Index of `i18nStart` instruction.\n * @param
message Message to translate.\n * @param subTemplateIndex Index into the sub template of message translation.
(ie in case of\n * `ngIf`) (-1 otherwise)\n */\nexport function i18nStartFirstCreatePass(\n  tView: TVView,\n
parentTNodeIndex: number, IView: LView, index: number, message: string,\n  subTemplateIndex: number) {\n
  const rootTNode = getCurrentParentTNode();\n  const createOpCodes: I18nCreateOpCodes = [] as any;\n  const
updateOpCodes: I18nUpdateOpCodes = [] as any;\n  const existingTNodeStack: TNode[][] = [];\n  if
(ngDevMode) {\n    attachDebugGetter(createOpCodes, i18nCreateOpCodesToString);\n    attachDebugGetter(updateOpCodes, i18nUpdateOpCodesToString);\n  }\n\n  message =
getTranslationForTemplate(message, subTemplateIndex);\n  const msgParts =
replaceNgsp(message).split(PH_REGEX);\n  for (let i = 0; i < msgParts.length; i++) {\n    let value =
msgParts[i];\n
    if ((i & 1) === 0) {\n      // Even indexes are text (including bindings & ICU expressions)\n      const parts =
i18nParseTextIntoPartsAndICU(value);\n      for (let j = 0; j < parts.length; j++) {\n        let part = parts[j];\n        if
((j & 1) === 0) {\n          // `j` is odd therefore `part` is string\n          const text = part as string;\n          ngDevMode
&& assertString(text, 'Parsed ICU part should be string');\n          if (text !== '') {\n
i18nStartFirstCreatePassProcessTextNode(\n            tView, rootTNode, existingTNodeStack[0], createOpCodes,\n
updateOpCodes, IView, text);\n          }\n        } else {\n          // `j` is Even therefor `part` is an `ICUExpression`\n
          const icuExpression: IcuExpression = part as IcuExpression;\n          // Verify that ICU expression has the right
shape. Translations might contain invalid\n          // constructions (while original messages were correct), so ICU
parsing at runtime may\n          // not
succeed (thus `icuExpression` remains a string).\n          // Note: we intentionally retain the error here by not using
`ngDevMode`, because\n          // the value can change based on the locale and users aren't guaranteed to hit\n
// an invalid string while they're developing.\n          if (typeof icuExpression !== 'object') {\n            throw new
Error(`Unable to parse ICU expression in \"${message}\" message.`);\n          }\n          const icuContainerTNode =
createTNodeAndAddOpCode(\n            tView, rootTNode, existingTNodeStack[0], IView, createOpCodes,\n            ngDevMode ? `ICU ${index}:${icuExpression.mainBinding}` : '', true);\n          const icuNodeIndex =
icuContainerTNode.index;\n          ngDevMode &&\n            assertGreaterThanOrEqual(\n              icuNodeIndex, HEADER_OFFSET, 'Index must be in absolute LView offset');\n          icuStart(tView, IView,\n
updateOpCodes, parentTNodeIndex, icuExpression, icuNodeIndex);\n          }\n        }\n      }\n    } else {\n      // Odd indexes are placeholders (elements and sub-templates)\n      // At this point value is
something like: `/#1:2` (originally coming from `/#1:2`)\n      const isClosing = value.charCodeAt(0) ===
CharCode.SLASH;\n      const type = value.charCodeAt(isClosing ? 1 : 0);\n      ngDevMode && assertOneOf(type,\n
CharCode.STAR, CharCode.HASH);\n      const index = HEADER_OFFSET +
Number.parseInt(value.substring((isClosing ? 2 : 1)));\n      if (isClosing) {\n        existingTNodeStack.shift();\n
setCurrentTNode(getCurrentParentTNode()!, false);\n      } else {\n        const tNode =
createTNodePlaceholder(tView, existingTNodeStack[0], index);\n        existingTNodeStack.unshift([]);\n
setCurrentTNode(tNode, true);\n      }\n    }\n  }\n  tView.data[index] = <T18n>{\n    create: createOpCodes,\n
update: updateOpCodes,\n  };\n}\n\n/**\n * Allocate space in i18n Range add create OpCode instruction to crete a

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text or comment node.\n * \n * @param tView

Current `TVView` needed to allocate space in i18n range.\n * @param rootTNode Root `TNode` of the i18n block. This node determines if the new TNode will be\n * added as part of the `i18nStart` instruction or as part of the `TNode.insertBeforeIndex`.\n * @param existingTNodes internal state for

`addTNodeAndUpdateInsertBeforeIndex`.\n * @param IView Current `LView` needed to allocate space in i18n range.\n * @param createOpCodes Array storing `I18nCreateOpCodes` where new opCodes will be added.\n * @param text Text to be added when the `Text` or `Comment` node will be created.\n * @param isICU true if a `Comment` node for ICU (instead of `Text`) node should be created.\n */\nfunction createTNodeAndAddOpCode(\n tView: TVView, rootTNode: TNode|null, existingTNodes: TNode[], IView: LView,\n createOpCodes: I18nCreateOpCodes, text: string|null, isICU: boolean): TNode {\n const i18nNodeIdx = allocExpando(tView, IView, 1, null);\n let opCode = i18nNodeIdx << I18nCreateOpCode.SHIFT;\n

let parentTNode = getCurrentParentTNode();\n\n if (rootTNode === parentTNode) {\n // FIXME(misko): A null `parentTNode` should represent when we fall off the `LView` boundary.\n // (there is no parent), but in some circumstances (because we are inconsistent about how we set\n // `previousOrParentTNode`) it could point to `rootTNode` So this is a work around.\n parentTNode = null;\n }\n if (parentTNode === null) {\n // If we don't have a parent that means that we can eagerly add nodes.\n // If we have a parent than these nodes can't be added now (as the parent has not been created\n // yet) and instead the `parentTNode` is responsible for adding it. See\n // `TNode.insertBeforeIndex`\n opCode |= I18nCreateOpCode.APPEND_EAGERLY;\n }\n if (isICU) {\n opCode |= I18nCreateOpCode.COMMENT;\n ensureIcuContainerVisitorLoaded(loadIcuContainerVisitor);\n }\n createOpCodes.push(opCode, text === null ? '' : text);\n // We store `{{}}` so that when looking at debug `TNodeType.template` we can see where the\n // bindings are.\n const tNode = createTNodeAtIndex(\n tView, i18nNodeIdx, isICU ? TNodeType.Icu : TNodeType.Text,\n text === null ? (ngDevMode ? '{{}}' : '') : text, null);\n addTNodeAndUpdateInsertBeforeIndex(existingTNodes, tNode);\n const tNodeIdx = tNode.index;\n setCurrentTNode(tNode, false /* Text nodes are self closing */);\n if (parentTNode !== null && rootTNode !== parentTNode) {\n // We are a child of deeper node (rather than a direct child of `i18nStart` instruction.)\n // We have to make sure to add ourselves to the parent.\n setTNodeInsertBeforeIndex(parentTNode, tNodeIdx);\n }\n\n return tNode;\n}\n\n/**\n * Processes text node in i18n block.\n * \n * Text nodes can have:\n * - Create instruction in `createOpCodes` for creating the text node.\n * - Allocate spec for text node in i18n range of `LView`\n * - If contains binding:\n * - bindings => allocate space in i18n range of `LView` to store

the binding value.\n * - populate `updateOpCodes` with update instructions.\n * \n * @param tView Current `TVView`\n * @param rootTNode Root `TNode` of the i18n block. This node determines if the new TNode will\n * be added as part of the `i18nStart` instruction or as part of the\n * `TNode.insertBeforeIndex`.\n * @param existingTNodes internal state for `addTNodeAndUpdateInsertBeforeIndex`.\n * @param createOpCodes Location where the creation OpCodes will be stored.\n * @param IView Current `LView`\n * @param text The translated text (which may contain binding)\n */\nfunction i18nStartFirstCreatePassProcessTextNode(\n tView: TVView, rootTNode: TNode|null, existingTNodes: TNode[], createOpCodes: I18nCreateOpCodes,\n updateOpCodes: I18nUpdateOpCodes, IView: LView, text: string): void {\n const hasBinding = text.match(BINDING_REGEX);\n const tNode = createTNodeAndAddOpCode(\n tView, rootTNode, existingTNodes, IView, createOpCodes, hasBinding ? null : text, false);\n

if (hasBinding) {\n generateBindingUpdateOpCodes(updateOpCodes, text, tNode.index);\n }\n}\n\n/**\n * See `i18nAttributes` above.\n */\nexport function i18nAttributesFirstPass(tView: TVView, index: number, values: string[]) {\n const previousElement = getCurrentTNode()!;\n const previousElementIndex = previousElement.index;\n const updateOpCodes: I18nUpdateOpCodes = [] as any;\n if (ngDevMode) {\n attachDebugGetter(updateOpCodes, i18nUpdateOpCodesToString);\n }\n if (tView.firstCreatePass && tView.data[index] === null) {\n for (let i = 0; i < values.length; i += 2) {\n const attrName = values[i];\n const message = values[i + 1];\n if (message !== '') {\n // Check if attribute value contains an ICU and throw an error if that's the case.\n // ICUs in element attributes are not supported.\n // Note: we intentionally retain the error here by not using `ngDevMode`, because\n // the `value` can change based on the locale and

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aren't guaranteed to hit\n    // an invalid string while they're developing.\n        if (ICU_REGEX.test(message))\n{\n    throw new Error(\n        `ICU expressions are not supported in attributes. Message:\n\n"${message}"`);\n}\n// i18n attributes that hit this code path are guaranteed to have bindings,\nbecause\n// the compiler treats static i18n attributes as regular attribute bindings.\ngenerateBindingUpdateOpCodes(updateOpCodes, message, previousElementIndex, attrName);\n}\n}\n\n\tview.data[index] = updateOpCodes;\n}\n}\n\n/**\n * Generate the OpCodes to update the bindings of a\nstring.\n *\n * @param updateOpCodes Place where the update opcodes will be stored.\n * @param str The string\ncontaining the bindings.\n * @param destinationNode Index of the destination node which will receive the\nbinding.\n * @param attrName Name of the attribute, if the string belongs to an attribute.\n * @param sanitizeFn Sanitization
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template message, ignore all sub-templates\n  return removeInnerTemplateTranslation(message);\n } else {\n  //
We want a specific sub-template\n  const start =\n    message.indexOf(`${subTemplateIndex}${MARKER}`)
+ 2 + subTemplateIndex.toString().length;\n  const end = message.search(new
RegExp(`${MARKER}\\\\\\\\\\\\\\\\*\\\\\\\\\\\\\\\\d+:${subTemplateIndex}${MARKER}`));\n  return
removeInnerTemplateTranslation(message.substring(start, end));\n }\n\n/**\n * Generate the OpCodes for ICU
expressions.\n *\n * @param icuExpression\n * @param index Index where the anchor is stored and an optional
`TicuContainerNode`\n * - `IView[anchorIdx]` points to a `Comment` node representing the anchor for the ICU.\n
* - `tView.data[anchorIdx]` points to the `TicuContainerNode` if ICU is root (`null` otherwise)\n *\nexport
function icuStart(\n  tView: TView, IView: LView, updateOpCodes: I18nUpdateOpCodes, parentIdx: number,\n
icuExpression: IcuExpression, anchorIdx: number) {\n  ngDevMode && assertDefined(icuExpression, 'ICU
expression must be defined');\n  let bindingMask = 0;\n  const tIcu: Ticu = {\n    type: icuExpression.type,\n
currentCaseLViewIndex: allocExpando(tView, IView, 1, null),\n
    anchorIdx,\n
    cases: [],\n
    create: [],\n
    remove: [],\n
    update: []\n  };\n  addUpdateIcuSwitch(updateOpCodes,
icuExpression, anchorIdx);\n  setTicu(tView, anchorIdx, tIcu);\n  const values = icuExpression.values;\n  for (let i =
0; i < values.length; i++) {\n    // Each value is an array of strings & other ICU expressions\n    const valueArr =
values[i];\n    const nestedIcus: IcuExpression[] = [];\n    for (let j = 0; j < valueArr.length; j++) {\n      const value =
valueArr[j];\n      if (typeof value !== 'string') {\n        // It is an nested ICU expression\n        const icuIndex =
nestedIcus.push(value as IcuExpression) - 1;\n        // Replace nested ICU expression by a comment node\n
valueArr[j] = `<!--${icuIndex}-->`;\n      }\n    }\n    bindingMask = parseIcuCase(\n      tView, tIcu,
IView, updateOpCodes, parentIdx, icuExpression.cases[i],\n      valueArr.join(""), nestedIcus)\n    }\n  }\n  bindingMask;\n }\n\n if (bindingMask)\n  {\n    addUpdateIcuUpdate(updateOpCodes, bindingMask, anchorIdx);\n  }\n\n\n/**\n * Parses text containing an
ICU expression and produces a JSON object for it.\n *\n * Original code from closure library, modified for Angular.\n
*\n * @param pattern Text containing an ICU expression that needs to be parsed.\n *\n */\nexport function
parseICUBlock(pattern: string): IcuExpression {\n  const cases = [];\n  const values: (string|IcuExpression)[][] =
[];\n  let icuType = IcuType.plural;\n  let mainBinding = 0;\n  pattern = pattern.replace(ICU_BLOCK_REGEXP,
function(str: string, binding: string, type: string) {\n    if (type === 'select') {\n      icuType = IcuType.select;\n    }
else {\n      icuType = IcuType.plural;\n    }\n    mainBinding = parseInt(binding.substr(1), 10);\n    return `";\n
  });\n  const parts = i18nParseTextIntoPartsAndICU(pattern) as string[];\n  // Looking for (key block)+ sequence.
One of the keys has to be "other".\n  for (let pos = 0; pos < parts.length; ) {\n    let key = parts[pos++].trim();\n    if (icuType === IcuType.plural) {\n      // Key can be "=x", we just want "x"\n
      key = key.replace(/\\s*(?:=)?(\\w+)\\s*/, '$1');\n    }\n    if (key.length) {\n      cases.push(key);\n    }\n    const
blocks = i18nParseTextIntoPartsAndICU(parts[pos++]) as string[];\n    if (cases.length > values.length) {\n
      values.push(blocks);\n    }\n  }\n  // TODO(ocombe): support ICU expressions in attributes, see #21615\n  return
{type: icuType, mainBinding: mainBinding, cases, values};\n }\n\n\n/**\n * Breaks pattern into strings and top level
{...} blocks.\n *\n * Can be used to break a message into text and ICU expressions, or to break an ICU expression\n
* into keys and cases. Original code from closure library, modified for Angular.\n *\n * @param pattern (sub)Pattern
to be broken.\n *\n * @returns An `Array<string|IcuExpression>` where:\n * - odd positions: `string` => text between
ICU expressions\n * - even positions: `ICUExpression` => ICU expression
parsed into `ICUExpression` record.\n *\n */\nexport function i18nParseTextIntoPartsAndICU(pattern: string):
(string|IcuExpression)[] {\n  if (!pattern) {\n    return [];\n  }\n  let prevPos = 0;\n  const braceStack = [];\n  const
results: (string|IcuExpression)[] = [];\n  const braces = /[{]/g;\n  // lastIndex doesn't get set to 0 so we have to.\n
braces.lastIndex = 0;\n  let match;\n  while (match = braces.exec(pattern)) {\n    const pos = match.index;\n    if
(match[0] === '}') {\n      braceStack.pop();\n      if (braceStack.length === 0) {\n        // End of the block.\n        const
block = pattern.substring(prevPos, pos);\n        if (ICU_BLOCK_REGEXP.test(block)) {\n
          results.push(parseICUBlock(block));\n        } else {\n          results.push(block);\n        }\n        prevPos = pos +
1;\n      }\n    } else {\n      if (braceStack.length === 0) {\n        const substring = pattern.substring(prevPos, pos);\n
        results.push(substring);\n        prevPos

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= pos + 1;\n    }\n    braceStack.push('{});\n    }\n}\n\nconst substring = pattern.substring(prevPos);\nresults.push(substring);\nreturn results;\n}\n\n/n/**\n * Parses a node, its children and its siblings, and generates  
the mutate & update OpCodes.\n */\nexport function parseIcuCase(\n  tView: TView, tIcu: TIcu, IView:  
LView, updateOpCodes: I18nUpdateOpCodes, parentIdX: number,\n  caseName: string, unsafeCaseHtml: string,  
nestedIcus: IcuExpression[]): number {\n  const create: IcuCreateOpCodes = [] as any;\n  const remove:  
I18nRemoveOpCodes = [] as any;\n  const update: I18nUpdateOpCodes = [] as any;\n  if (ngDevMode) {\n    attachDebugGetter(create, icuCreateOpCodesToString);\n    attachDebugGetter(remove,  
i18nRemoveOpCodesToString);\n    attachDebugGetter(update, i18nUpdateOpCodesToString);\n  }\n  tIcu.cases.push(caseName);\n  tIcu.create.push(create);\n  tIcu.remove.push(remove);\n  tIcu.update.push(update);\n\n  const inertBodyHelper = getInertBodyHelper(getDocument());\n  const inertBodyElement = inertBodyHelper.getInertBodyElement(unsafeCaseHtml);\n  ngDevMode &&  
assertDefined(inertBodyElement, 'Unable to generate inert body element');\n  const inertRootNode =  
getTemplateContent(inertBodyElement!) as Element | InertBodyElement;\n  if (inertRootNode) {\n    return  
walkIcuTree(\n      tView, tIcu, IView, updateOpCodes, create, remove, update, inertRootNode, parentIdX,\n      nestedIcus, 0);\n  } else {\n    return 0;\n  }\n}\n\nfunction walkIcuTree(\n  tView: TView, tIcu: TIcu, IView:  
LView, sharedUpdateOpCodes: I18nUpdateOpCodes,\n  create: IcuCreateOpCodes, remove:  
I18nRemoveOpCodes, update: I18nUpdateOpCodes,\n  parentNode: Element, parentIdX: number, nestedIcus:  
IcuExpression[], depth: number): number {\n  let bindingMask = 0;\n  let currentNode = parentNode.firstChild;\n  while (currentNode) {\n    const newIndex = allocExpando(tView, IView, 1, null);\n    switch  
(currentNode.nodeType) {\n      case Node.ELEMENT_NODE:\n        const element = currentNode as Element;\n        const tagName = element.tagName.toLowerCase();\n        if  
(VALID_ELEMENTS.hasOwnProperty(tagName)) {\n          addCreateNodeAndAppend(create,  
ELEMENT_MARKER, tagName, parentIdX, newIndex);\n          tView.data[newIndex] = tagName;\n          const  
elAttrs = element.attributes;\n          for (let i = 0; i < elAttrs.length; i++) {\n            const attr = elAttrs.item(i)!;\n            const lowerAttrName = attr.name.toLowerCase();\n            const hasBinding =  
!!attr.value.match(BINDING_REGEXP);\n            // we assume the input string is safe, unless it's using a binding\n            if (hasBinding) {\n              if (VALID_ATTRS.hasOwnProperty(lowerAttrName)) {\n                if  
(URI_ATTRS[lowerAttrName]) {\n                  generateBindingUpdateOpCodes(\n                    update, attr.value,  
newIndex, attr.name, _sanitizeUrl);\n                } else if (SRCSET_ATTRS[lowerAttrName]) {\n                  generateBindingUpdateOpCodes(\n                    update, attr.value, newIndex, attr.name, sanitizeSrcset);\n                } else {\n                  generateBindingUpdateOpCodes(update, attr.value, newIndex, attr.name);\n                }\n              } else {\n                ngDevMode &&\n                console.warn(\n                  `WARNING: ignoring unsafe attribute value ` +\n                    `${lowerAttrName} on element ${tagName} (see http://g.co/ng/security#xss)`);\n              }\n            } else {\n              addCreateAttribute(create, newIndex, attr);\n            }\n          }\n          // Parse the children of this  
node (if any)\n          bindingMask = walkIcuTree(\n            tView, tIcu, IView, sharedUpdateOpCodes,  
create, remove, update,\n            currentNode as Element, newIndex, nestedIcus, depth + 1) |\n            bindingMask;\n          addRemoveNode(remove, newIndex, depth);\n        }\n        break;\n      case Node.TEXT_NODE:\n        const value = currentNode.textContent || '';\n        const hasBinding =  
value.match(BINDING_REGEXP);\n        addCreateNodeAndAppend(create, null, hasBinding ? '' : value,  
parentIdX, newIndex);\n        addRemoveNode(remove, newIndex, depth);\n        if (hasBinding) {\n          bindingMask = generateBindingUpdateOpCodes(update, value, newIndex) | bindingMask;\n        }\n        break;\n      case Node.COMMENT_NODE:\n        // Check if the comment node is a placeholder for a nested ICU\n        const  
isNestedIcu = NESTED_ICU.exec(currentNode.textContent || '');\n        if (isNestedIcu) {\n          const  
nestedIcuIndex = parseInt(isNestedIcu[1], 10);\n          const icuExpression: IcuExpression =  
nestedIcus[nestedIcuIndex];\n          // Create the comment node that will anchor the ICU expression\n          addCreateNodeAndAppend(\n            create, ICU_MARKER, ngDevMode ? `nested ICU ${nestedIcuIndex}` : '',  
parentIdX,\n
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newIndex);\n      icuStart(tView, IView, sharedUpdateOpCodes, parentIdX, icuExpression, newIndex);\n    addRemoveNestedIcu(remove, newIndex, depth);\n    }\n    break;\n  }\n  currentNode =\n  currentNode.nextSibling;\n}\n\nreturn bindingMask;\n}\n\nfunction addRemoveNode(remove:\nI18NRemoveOpCodes, index: number, depth: number) {\n  if (depth === 0) {\n    remove.push(index);\n  }\n}\n\nfunction addRemoveNestedIcu(remove: I18NRemoveOpCodes, index: number, depth: number) {\n  if\n(depth === 0) {\n    remove.push(~index); // remove ICU at `index`\n    remove.push(index); // remove ICU\ncomment at `index`\n  }\n}\n\nfunction addUpdateIcuSwitch(\n  update: I18NUpdateOpCodes, icuExpression:\nIcuExpression, index: number) {\n  update.push(\n    toMaskBit(icuExpression.mainBinding), 2, -1 -\nicuExpression.mainBinding,\n    index << I18NUpdateOpCode.SHIFT_REF |\nI18NUpdateOpCode.IcuSwitch);\n}\n\nfunction addUpdateIcuUpdate(update: I18NUpdateOpCodes, bindingMask:\nnumber, index: number) {\n  update.push(bindingMask, 1, index << I18NUpdateOpCode.SHIFT_REF |\nI18NUpdateOpCode.IcuUpdate);\n}\n\nfunction addCreateNodeAndAppend(\n  create: IcuCreateOpCodes,\nmarker: null|ICU_MARKER|ELEMENT_MARKER, text: string,\n  appendToParentIdx: number, createAtIdx:\nnumber) {\n  if (marker !== null) {\n    create.push(marker);\n  }\n  create.push(\n    text, createAtIdx,\nicuCreateOpCode(IcuCreateOpCode.AppendChild, appendToParentIdx, createAtIdx));\n}\n\nfunction\naddCreateAttribute(create: IcuCreateOpCodes, newIndex: number, attr: Attr) {\n  create.push(newIndex <<\nIcuCreateOpCode.SHIFT_REF | IcuCreateOpCode.Attr, attr.name, attr.value);\n}\n\n"/**\n * @license\n *\nCopyright Google LLC All Rights Reserved.\n*\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nconst\nROOT_TEMPLATE_ID = 0;\nconst PP_MULTI_VALUE_PLACEHOLDERS_REGEXP = /\n((.+?))\n/;\nconst\nPP_PLACEHOLDERS_REGEXP = /\n((.+?))\n(\\w+)?\n(d+)\n/g;\nconst PP_ICU_VARS_REGEXP =\n/(({s*)(VAR_(PLURAL|SELECT)(_\n(d+)?)\n(s*))\n/g;\nconst PP_ICU_PLACEHOLDERS_REGEXP = /\n(({A-Z0-9\n_+)\n})\n/g;\nconst PP_ICUS_REGEXP = /\nI18N_EXP_(ICU(_\n(d+)?)\n/g;\nconst PP_CLOSE_TEMPLATE_REGEXP\n= /\n*\n/;\nconst PP_TEMPLATE_ID_REGEXP = /\n(d+\n)\n/;\n\n// Parsed placeholder structure used in\npostprocessing (within `i18NPostprocess` function)\n// Contains the following fields: [templateId,\nisCloseTemplateTag, placeholder]\ntype PostprocessPlaceholder = [number, boolean, string];\n\n/**\n * Handles\nmessage string post-processing for internationalization.\n */\n/**\n * Handles message string post-processing by\ntransforming it from intermediate\n * format (that might contain some markers that we need to replace) to the final\n * form, consumable by i18NStart instruction. Post processing steps include:\n */\n1. Resolve all multi-value cases\n(like [*1:1#2:1#4:1]5])\n */\n2. Replace\nall ICU vars (like "VAR_PLURAL")\n */\n3. Replace all placeholders used inside ICUs in a form of\n{PLACEHOLDER}\n */\n4. Replace all ICU references with corresponding values (like ICU_EXP_ICU_1)\n */\nin case multiple ICUs have the same placeholder name\n */\n@param message Raw translation string for post\nprocessing\n */\n@param replacements Set of replacements that should be applied\n */\n */\n@returns Transformed\nstring that can be consumed by i18NStart instruction\n */\n */\n@codegenApi\n */\nexport function i18NPostprocess(\n  message: string, replacements: {[key: string]: (string|string[])} = {}): string {\n    /**\n     * Step 1: resolve all multi-\nvalue placeholders like [#5[*1:1#2:1#4:1]]\n     */\n     * Note: due to the way we process nested templates (BFS), multi-\nvalue placeholders are typically\n     * grouped by templates, for example: [#5[#6[#1:1#3:2]] where #5 and #6 belong\nto root\n     * template, #1:1 belong to nested template with index 1 and #1:2 - nested\ntemplate with index\n     * 3. However in real templates the order might be different: i.e. #1:1 and/or #3:2 may go\nin\n     * front of #6. The post processing step restores the right order by keeping track of the\n     * template id stack\nand looks for placeholders that belong to the currently active template.\n     */\nlet result: string = message;\nif\n(PP_MULTI_VALUE_PLACEHOLDERS_REGEXP.test(message)) {\n  const matches: {[key: string]:\nPostprocessPlaceholder[]} = {};\n  const templateIdsStack: number[] = [ROOT_TEMPLATE_ID];\n  result =\nresult.replace(PP_PLACEHOLDERS_REGEXP, (m: any, phs: string, tpl: string): string => {\n    const content =\nphs || tpl;\n    const placeholders: PostprocessPlaceholder[] = matches[content] || [];\n    if (!placeholders.length)\n{\n      content.split('').forEach((placeholder: string) => {\n        const match =\nplaceholder.match(PP_TEMPLATE_ID_REGEXP);\n        const templateId = match ? parseInt(match[1], 10) :
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ROOT_TEMPLATE_ID;\n
    const isCloseTemplateTag = PP_CLOSE_TEMPLATE_REGEXP.test(placeholder);\n
    placeholders.push([templateId, isCloseTemplateTag, placeholder]);\n    });\n    matches[content] =\n    placeholders;\n    }\n    if (!placeholders.length) {\n        throw new Error(`i18n postprocess: unmatched\nplaceholder - ${content}`);\n    }\n    const currentTemplateId = templateIdsStack[templateIdsStack.length -\n1];\n    let idx = 0;\n    // find placeholder index that matches current template id\n    for (let i = 0; i <\nplaceholders.length; i++) {\n        if (placeholders[i][0] === currentTemplateId) {\n            idx = i;\n            break;\n        }\n    }\n    // update template id stack based on the current tag extracted\n    const [templateId,\nisCloseTemplateTag, placeholder] = placeholders[idx];\n    if (isCloseTemplateTag) {\n        templateIdsStack.pop();\n    } else if (currentTemplateId !== templateId) {\n        templateIdsStack.push(templateId);\n    }\n    // remove processed tag from the list\n    placeholders.splice(idx, 1);\n    return placeholder;\n    });\n}\n\n// return current result if no replacements specified\nif (!Object.keys(replacements).length) {\n    return\nresult;\n}\n\n/**\n * Step 2: replace all ICU vars (like "VAR_PLURAL")\n */\nresult =\nresult.replace(PP_ICU_VARS_REGEXP, (match, start, key, _type, _idx, end): string => {\n    return\nreplacements.hasOwnProperty(key) ? `${start}${replacements[key]}${end}` : match;\n});\n\n/**\n * Step 3:\nreplace all placeholders used inside ICUs in a form of {PLACEHOLDER}\n */\nresult =\nresult.replace(PP_ICU_PLACEHOLDERS_REGEXP, (match, key): string => {\n    return\nreplacements.hasOwnProperty(key) ? replacements[key] as string : match;\n});\n\n/**\n * Step 4: replace all\nICU references with corresponding values (like ICU_EXP_ICU_1) in case\n * multiple ICUs have the same\nplaceholder name\n */\nresult = result.replace(PP_ICUS_REGEXP,\n(match, key): string => {\n    if (replacements.hasOwnProperty(key)) {\n        const list = replacements[key] as\nstring[];\n        if (!list.length) {\n            throw new Error(`i18n postprocess: unmatched ICU - ${match} with key:\n${key}`);\n        }\n        return list.shift();\n    }\n    return match;\n});\n\nreturn result;\n}\n\n"/**\n * @license\n *\nCopyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport '../util/ng_dev_mode';\nimport\n'../util/ng_i18n_closure_mode';\nimport {assertDefined} from '../util/assert';\nimport {bindingUpdated} from\n'../bindings';\nimport {applyCreateOpCodes, applyI18n, setMaskBit} from './i18n/i18n_apply';\nimport\n{i18nAttributesFirstPass, i18nStartFirstCreatePass} from './i18n/i18n_parse';\nimport {i18nPostprocess} from\n'./i18n/i18n_postprocess';\nimport {TI18n} from './interfaces/i18n';\nimport\n{TElementNode, TNodeType} from './interfaces/node';\nimport {HEADER_OFFSET, T_HOST} from\n'./interfaces/view';\nimport {getClosestRElement} from './node_manipulation';\nimport {getCurrentParentTNode,\ngetLView, getTView, nextBindingIndex, setInI18nBlock} from './state';\nimport {getConstant} from\n'../util/view_utils';\n\n/**\n * Marks a block of text as translatable.\n */\n * The instructions `i18nStart` and\n`i18nEnd`\nmark the translation block in the template.\n * The translation `message` is the value which is locale\nspecific. The translation string may\n * contain placeholders which associate inner elements and sub-templates\nwithin the translation.\n * The translation `message` placeholders are:\n * - `{index}(:{block})`: *Binding\nPlaceholder*: Marks a location where an expression will be\n * interpolated into. The placeholder `index` points to\nthe expression binding index. An optional\n * `block` that matches the sub-template in which it was declared.\n * -\n`#{index}(:{block})`/`#{index}(:{block})`:\n *Element Placeholder*: Marks the beginning\n * and end of DOM element that were embedded in the original\ntranslation block. The placeholder\n * `index` points to the element index in the template instructions set. An\noptional `block` that\n * matches the sub-template in which it was declared.\n */\n\n`#{index}:{block}`/`#{index}:{block}`: *Sub-template Placeholder*: Sub-templates must be\n * split up and\ntranslated separately in each angular template function. The `index` points to the\n * `template` instruction index.\nA `block`\nthat matches the sub-template in which it was declared.\n */\n * @param index A unique index of the\ntranslation in the static block.\n * @param messageIndex An index of the translation message from the `def.consts`\narray.\n * @param subTemplateIndex Optional sub-template index in the `message`.\n */\n * @codeGenApi\n
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*^nextport function i18nStart(\n  index: number, messageIndex: number, subTemplateIndex:
  number = -1): void {\n  const tView = getTView();\n  const IView = getLView();\n  const adjustedIndex =
  HEADER_OFFSET + index;\n  ngDevMode && assertDefined(tView, `tView should be defined`);\n  const
  message = getConstant<string>(tView.consts, messageIndex);\n  const parentTNode = getCurrentParentTNode() as
  TElementNode | null;\n  if (tView.firstCreatePass) {\n    i18nStartFirstCreatePass(\n      tView, parentTNode ===
  null ? 0 : parentTNode.index, IView, adjustedIndex, message,\n      subTemplateIndex);\n  }\n  const tI18n =
  tView.data[adjustedIndex] as TI18n;\n  const sameViewParentTNode = parentTNode === IView[T_HOST] ? null :
  parentTNode;\n  const parentRNode = getClosestRElement(tView, sameViewParentTNode, IView);\n  // If
  `parentTNode` is an `ElementContainer` than it has `<!--ng-container-->`.\n  // When we do inserts we have to
  make sure to insert in front of `<!--ng-container-->`.\n  const insertInFrontOf = parentTNode &&
  (parentTNode.type & TNodeType.ElementContainer)

  ?\n  IView[parentTNode.index] :\n  null;\n  applyCreateOpCodes(IView, tI18n.create, parentRNode,
  insertInFrontOf);\n  setInI18nBlock(true);\n}\n\n\n\n**\n * Translates a translation block marked by `i18nStart` and
  `i18nEnd`. It inserts the text/ICU nodes\n * into the render tree, moves the placeholder nodes and removes the
  deleted nodes.\n *\n * @codeGenApi\n *^nextport function i18nEnd(): void {\n  setInI18nBlock(false);\n}\n\n\n**\n
  *\n * Use this instruction to create a translation block that doesn't contain any placeholder.\n * It calls both { @link
  i18nStart} and { @link i18nEnd} in one instruction.\n *\n * The translation `message` is the value which is locale
  specific. The translation string may\n * contain placeholders which associate inner elements and sub-templates
  within the translation.\n *\n * The translation `message` placeholders are:\n * - `{index}(:{block})`: *Binding
  Placeholder*: Marks a location where an expression will be\n * interpolated into. The
  placeholder `index` points to the expression binding index. An optional\n * `block` that matches the sub-template
  in which it was declared.\n * - `#{index}(:{block})`/^/#{index}(:{block})`: *Element Placeholder*: Marks the
  beginning\n * and end of DOM element that were embedded in the original translation block. The placeholder\n *
  `index` points to the element index in the template instructions set. An optional `block` that\n * matches the sub-
  template in which it was declared.\n * - `*{index}:{block}`/^/*{index}:{block}`: *Sub-template Placeholder*: Sub-
  templates must be\n * split up and translated separately in each angular template function. The `index` points to
  the\n * `template` instruction index. A `block` that matches the sub-template in which it was declared.\n *\n *
  @param index A unique index of the translation in the static block.\n * @param messageIndex An index of the
  translation message from the `def.consts` array.\n * @param subTemplateIndex Optional
  sub-template index in the `message`.\n *\n * @codeGenApi\n *^nextport function i18n(index: number,
  messageIndex: number, subTemplateIndex?: number): void {\n  i18nStart(index, messageIndex,
  subTemplateIndex);\n  i18nEnd();\n}\n\n\n**\n * Marks a list of attributes as translatable.\n *\n * @param index A
  unique index in the static block\n * @param values\n *\n * @codeGenApi\n *^nextport function
  i18nAttributes(index: number, attrsIndex: number): void {\n  const tView = getTView();\n  ngDevMode &&
  assertDefined(tView, `tView should be defined`);\n  const attrs = getConstant<string[]>(tView.consts,
  attrsIndex);\n  i18nAttributesFirstPass(tView, index + HEADER_OFFSET, attrs);\n}\n\n\n**\n * Stores the values
  of the bindings during each update cycle in order to determine if we need to\n * update the translated nodes.\n *\n *
  @param value The binding's value\n * @returns This function returns itself so that it may be chained\n * (e.g.
  `i18nExp(ctx.name)(ctx.title)`)\n *\n * @codeGenApi\n
  *^nextport function i18nExp<T>(value: T): typeof i18nExp {\n  const IView = getLView();\n
  setMaskBit(bindingUpdated(IView, nextBindingIndex(), value));\n  return i18nExp;\n}\n\n\n**\n * Updates a
  translation block or an i18n attribute when the bindings have changed.\n *\n * @param index Index of either { @link
  i18nStart} (translation block) or { @link i18nAttributes}\n * (i18n attribute) on which it should update the content.\n
  *\n * @codeGenApi\n *^nextport function i18nApply(index: number) {\n  applyI18n(getTView(), getLView(),
  index + HEADER_OFFSET);\n}\n\n\n**\n * Handles message string post-processing for internationalization.\n *\n *
  Handles message string post-processing by transforming it from intermediate\n * format (that might contain some
  markers that we need to replace) to the final\n * form, consumable by i18nStart instruction. Post processing steps
  include:\n *\n * 1. Resolve all multi-value cases (like [*1:1#2:1|4:1|5])\n * 2. Replace all ICU vars

```

(like `"VAR_PLURAL"`)
 3. Replace all placeholders used inside ICUs in a form of `{PLACEHOLDER}`
 4. Replace all ICU references with corresponding values (like `ICU_EXP_ICU_1`) in case multiple ICUs have the same placeholder name
 * `@param` message Raw translation string for post processing
 * `@param` replacements Set of replacements that should be applied
 * `@returns` Transformed string that can be consumed by `i18nStart` instruction
 * `@codeGenApi`
 * `export function i18nPostprocess(message: string, replacements: {[key: string]: (string|string[]) => string}): string {`
 * `return i18nPostprocess(message, replacements);`
 * `},`
 * `"/**`
 * `@license`
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at <https://angular.io/license>
 * This file re-exports all symbols contained in this directory.
 * Why is this file not `index.ts`?
 * There seems to be an inconsistent path resolution of an `index.ts` file when only the parent directory is referenced. This could be due to the node module resolution configuration differing from rollup and/or typescript.
 * With commit <https://github.com/angular/angular/commit/d5e3f2c64bd13ce83e7c70788b7fc514ca4a9918> the `instructions.ts` file was moved to `instructions/instructions.ts` and an `index.ts` file was used to re-export everything. Having had file names that were importing from `instructions` directly (not the from the sub file or the `index.ts` file) caused strange CI issues. `index.ts` had to be renamed to `all.ts` for this to work.
 * Jira Issue = FW-1184
 * `export * from './attribute';`
 * `export * from './attribute_interpolation';`
 * `export * from './change_detection';`
 * `export * from './template';`
 * `export * from './storage';`
 * `export * from './di';`
 * `export * from './element';`
 * `export * from './element_container';`
 * `export * from './get_current_view';`
 * `export * from './listener';`
 * `export * from './namespace';`
 * `export * from './next_context';`
 * `export * from './projection';`
 * `export * from './property';`
 * `export * from './property_interpolation';`
 * `export * from './advance';`
 * `export * from './styling';`
 * `export * from './text';`
 * `export * from './text_interpolation';`
 * `export * from './class_map_interpolation';`
 * `export * from './style_map_interpolation';`
 * `export * from './style_prop_interpolation';`
 * `export * from './host_property';`
 * `export * from './i18n';`
 * `"/**`
 * `@license`
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at <https://angular.io/license>
 * `import {resolveForwardRef} from './di/forward_ref';`
 * `import {ClassProvider, Provider} from './di/interface/provider';`
 * `import {isClassProvider, isTypeProvider, providerToFactory} from './di/r3_injector';`
 * `import {assertDefined} from './util/assert';`
 * `import {diPublicInInjector, getNodeInjectable, getOrCreateNodeInjectorForNode} from './di';`
 * `import {directiveInject} from './instructions/all';`
 * `import {DirectiveDef} from './interfaces/definition';`
 * `import {NodeInjectorFactory} from './interfaces/injector';`
 * `import {TContainerNode, TDirectiveHostNode, TElementContainerNode, TElementNode, TNodeProviderIndexes} from './interfaces/node';`
 * `import {isComponentDef} from './interfaces/type_checks';`
 * `import {DestroyHookData, LView, TData, TVIEW, TView} from './interfaces/view';`
 * `import {getCurrentTNode, getLView, getTView} from './state';`
 * `/**`
 * `Resolves the providers which are defined in the DirectiveDef.`
 * `When inserting the tokens and the factories in their respective arrays, we can assume that this method is called first for the component (if any), and then for other directives on the same node.`
 * `As a consequence, the providers are always processed in that order:`
 * `1) The view providers of the component`
 * `2) The providers of the component`
 * `3) The providers of the other directives`
 * `This matches the structure of the injectables arrays of a view (for each node).`
 * `So the tokens and the factories can be pushed at the end of the arrays, except in one case for multi providers.`
 * `@param def the directive definition`
 * `@param providers: Array of `providers``
 * `@param viewProviders: Array of `viewProviders``
 * `export function providersResolver<T>(<T> def: DirectiveDef<T>, providers: Provider[], viewProviders: Provider[]): void {`
 * `const tView = getTView();`
 * `if (tView.firstCreatePass) {`
 * `const isComponent = isComponentDef(def);`
 * `// The list of view providers is processed first, and the flags are updated`
 * `resolveProvider(viewProviders, tView.data, tView.blueprint, isComponent, true);`
 * `// Then, the list of providers is processed, and the flags are updated`
 * `resolveProvider(providers, tView.data, tView.blueprint, isComponent, false);`
 * `}`
 * `/**`
 * `Resolves`

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a provider and publishes it to the DI system.\n */\nfunction resolveProvider(\n  provider: Provider, tInjectables:
TData, IInjectablesBlueprint: NodeInjectorFactory[],\n  isComponent: boolean, isViewProvider: boolean): void {\n
  provider = resolveForwardRef(provider);\n  if (Array.isArray(provider)) {\n    // Recursively call `resolveProvider`\n    // Recursion is OK in this case because this code will not be in hot-path once we implement\n    // cloning of the
initial state.\n    for (let i = 0; i < provider.length; i++) {\n      resolveProvider(\n        provider[i], tInjectables,
IInjectablesBlueprint, isComponent, isViewProvider);\n    } } else {\n    const tView = getTView();\n    const
IView = getLView();\n    let token: any = isTypeProvider(provider) ? provider :
resolveForwardRef(provider.provider);\n    let providerFactory: () => any = providerToFactory(provider);\n    const
tNode = getCurrentTNode();\n    const beginIndex = tNode.providerIndexes &
TNodeProviderIndexes.ProvidersStartIndexMask;\n
    const endIndex = tNode.directiveStart;\n    const cptViewProvidersCount =\n      tNode.providerIndexes >>
TNodeProviderIndexes.CptViewProvidersCountShift;\n    if (isTypeProvider(provider) || !provider.multi) {\n      //
Single provider case: the factory is created and pushed immediately\n      const factory = new
NodeInjectorFactory(providerFactory, isViewProvider, directiveInject);\n      const existingFactoryIndex =
indexOf(\n        token, tInjectables, isViewProvider ? beginIndex : beginIndex + cptViewProvidersCount,\n
endIndex);\n      if (existingFactoryIndex === -1) {\n        diPublicInInjector(\n
getOrCreateNodeInjectorForNode(\n          tNode as TElementNode | TContainerNode |
TElementContainerNode, IView),\n          tView, token);\n        registerDestroyHooksIfSupported(tView, provider,
tInjectables.length);\n        tInjectables.push(token);\n        tNode.directiveStart++;\n        tNode.directiveEnd++;\n
        if (isViewProvider) {\n          tNode.providerIndexes +=
TNodeProviderIndexes.CptViewProvidersCountShifter;\n        }\n        IInjectablesBlueprint.push(factory);\n
IView.push(factory);\n      } else {\n        IInjectablesBlueprint[existingFactoryIndex] = factory;\n
IView[existingFactoryIndex] = factory;\n      }\n    } else {\n      // Multi provider case:\n      // We create a multi
factory which is going to aggregate all the values.\n      // Since the output of such a factory depends on content or
view injection,\n      // we create two of them, which are linked together.\n      // The first one (for view
providers) is always in the first block of the injectables array,\n      // and the second one (for providers) is always in
the second block.\n      // This is important because view providers have higher priority. When a multi token\n      //
is being looked up, the view providers should be found first.\n      // Note that it is not possible
to have a multi factory in the third block (directive block).\n      // The algorithm to process multi providers is
as follows:\n      // 1) If the multi provider comes from the `viewProviders` of the component:\n      // a) If the
special view providers factory doesn't exist, it is created and pushed.\n      // b) Else, the multi provider is added to
the existing multi factory.\n      // 2) If the multi provider comes from the `providers` of the component or of
another\n      // directive:\n      // a) If the multi factory doesn't exist, it is created and provider pushed into it.\n      //
b) Else, the multi provider is added to the existing multi factory.\n      const existingProvidersFactoryIndex =\n        indexOf(token, tInjectables,
beginIndex + cptViewProvidersCount, endIndex);\n      const existingViewProvidersFactoryIndex =\n        indexOf(token, tInjectables,
beginIndex, beginIndex + cptViewProvidersCount);\n      const doesProvidersFactoryExist =
existingProvidersFactoryIndex >= 0 &&\n        IInjectablesBlueprint[existingProvidersFactoryIndex];\n      const
doesViewProvidersFactoryExist = existingViewProvidersFactoryIndex >= 0 &&\n        IInjectablesBlueprint[existingViewProvidersFactoryIndex];\n      if (isViewProvider &&
!doesViewProvidersFactoryExist ||\n        !isViewProvider && !doesProvidersFactoryExist) {\n        // Cases 1.a
and 2.a\n        diPublicInInjector(\n          getOrCreateNodeInjectorForNode(\n            tNode as TElementNode |
TContainerNode | TElementContainerNode, IView),\n            tView, token);\n        const factory = multiFactory(\n
          isViewProvider ? multiViewProvidersFactoryResolver : multiProvidersFactoryResolver,\n
IInjectablesBlueprint.length, isViewProvider, isComponent, providerFactory);\n        if (!isViewProvider &&
doesViewProvidersFactoryExist) {\n

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@InjectablesBlueprint[existingViewProvidersFactoryIndex].providerFactory = factory;\n    }\n
registerDestroyHooksIfSupported(tView, provider, tInjectables.length, 0);\n    tInjectables.push(token);\n
tNode.directiveStart++;\n    tNode.directiveEnd++;\n    if (isViewProvider) {\n        tNode.providerIndexes +=
TNodeProviderIndexes.CptViewProvidersCountShifter;\n    }\n    lInjectablesBlueprint.push(factory);\n
lView.push(factory);\n    } else {\n        // Cases 1.b and 2.b\n        const indexInFactory = multiFactoryAdd(\n
lInjectablesBlueprint!\n        [isViewProvider ? existingViewProvidersFactoryIndex :\n
existingProvidersFactoryIndex],\n        providerFactory, !isViewProvider && isComponent);\n
registerDestroyHooksIfSupported(\n        tView, provider,\n        existingProvidersFactoryIndex > -1 ?
existingProvidersFactoryIndex :\n
        existingViewProvidersFactoryIndex,\n        indexInFactory);\n    }\n    if (!isViewProvider &&
isComponent && doesViewProvidersFactoryExist) {\n
lInjectablesBlueprint[existingViewProvidersFactoryIndex].componentProviders!++; \n    }\n    }\n }\n }\n\n/**\n *
Registers the `ngOnDestroy` hook of a provider, if the provider supports destroy hooks.\n * @param tView `TVIEW`
in which to register the hook.\n * @param provider Provider whose hook should be registered.\n * @param
contextIndex Index under which to find the context for the hook when it's being invoked.\n * @param
indexInFactory Only required for `multi` providers. Index of the provider in the multi\n * provider factory.\n
*/\nfunction registerDestroyHooksIfSupported(\n    tView: TVIEW, provider: Exclude<Provider, any>[],
contextIndex: number,\n    indexInFactory?: number) {\n    const providerIsTypeProvider =
isTypeProvider(provider);\n    if (providerIsTypeProvider || isClassProvider(provider)) {\n
        const prototype = ((provider as ClassProvider).useClass || provider).prototype;\n        const ngOnDestroy =
prototype.ngOnDestroy;\n        if (ngOnDestroy) {\n            const hooks = tView.destroyHooks || (tView.destroyHooks =
[]);\n            if (!providerIsTypeProvider && ((provider as ClassProvider)).multi) {\n                ngDevMode &&\n
assertDefined(\n                    indexInFactory, 'indexInFactory when registering multi factory destroy hook');\n
const existingCallbacksIndex = hooks.indexOf(contextIndex);\n                if (existingCallbacksIndex === -1) {\n
hooks.push(contextIndex, [indexInFactory, ngOnDestroy]);\n                } else {\n                    (hooks[existingCallbacksIndex +
1] as DestroyHookData).push(indexInFactory!, ngOnDestroy);\n                }\n            } else {\n
hooks.push(contextIndex, ngOnDestroy);\n            }\n        }\n    }\n }\n\n/**\n * Add a factory in a multi factory.\n *
@returns Index at which the factory was inserted.\n */\nfunction multiFactoryAdd(\n    multiFactory:
NodeInjectorFactory, factory: () => any, isComponentProvider: boolean): number {\n    if (isComponentProvider)
{\n        multiFactory.componentProviders!++;\n    }\n    return multiFactory.multi!.push(factory) - 1;\n }\n\n/**\n *
Returns the index of item in the array, but only in the begin to end range.\n */\nfunction indexOf(item: any, arr:
any[], begin: number, end: number) {\n    for (let i = begin; i < end; i++) {\n        if (arr[i] === item) return i;\n    }\n
return -1;\n }\n\n/**\n * Use this with `multi` `providers`.\n */\nfunction multiProvidersFactoryResolver(\n    this:
NodeInjectorFactory, _: undefined, tData: TData, lData: LView,\n    tNode: TDirectiveHostNode): any[] {\n    return
multiResolve(this.multi!, []);\n }\n\n/**\n * Use this with `multi` `viewProviders`.\n */\n * This factory knows how to
concatenate itself with the existing `multi` `providers`.\n */\nfunction multiViewProvidersFactoryResolver(\n    this:
NodeInjectorFactory, _: undefined, tData: TData, lView: LView,\n    tNode:
TDirectiveHostNode): any[] {\n    const factories = this.multi!;\n    let result: any[];\n    if (this.providerFactory) {\n
const componentCount = this.providerFactory.componentProviders!;\n        const multiProviders =\n
getNodeInjectable(lView, lView[TVIEW], this.providerFactory!.index!, tNode);\n        // Copy the section of the array
which contains `multi` `providers` from the component\n        result = multiProviders.slice(0, componentCount);\n        //
Insert the `viewProvider` instances.\n        multiResolve(factories, result);\n        // Copy the section of the array
which contains `multi` `providers` from other directives\n        for (let i = componentCount; i < multiProviders.length; i++)
{\n            result.push(multiProviders[i]);\n        }\n    } else {\n        result = [];\n        // Insert the `viewProvider` instances.\n
multiResolve(factories, result);\n    }\n    return result;\n }\n\n/**\n * Maps an array of factories into an array of
values.\n */\nfunction multiResolve(factories: Array<() => any>,
result: any[]): any[] {\n    for (let i = 0; i < factories.length; i++) {\n        const factory = factories[i]! as () => null;\n
result.push(factory());\n    }\n    return result;\n }\n\n/**\n * Creates a multi factory.\n */\nfunction multiFactory(\n

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factoryFn: (\n      this: NodeInjectorFactory, _: undefined, tData: TData, lData: LView,\n      tNode: TDirectiveHostNode) => any,\n  index: number, isViewProvider: boolean, isComponent: boolean,\n  f: () => any): NodeInjectorFactory {\n  const factory = new NodeInjectorFactory(factoryFn, isViewProvider, directiveInject);\n  factory.multi = [];\n  factory.index = index;\n  factory.componentProviders = 0;\n  multiFactoryAdd(factory, f, isComponent && !isViewProvider);\n  return factory;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ProcessProvidersFunction, Provider}\n\nfrom './di/interface/provider';\nimport {providersResolver} from './di_setup';\nimport {DirectiveDef} from './interfaces/definition';\n\n/**\n * This feature resolves the providers of a directive (or component),\n * and publishes them into the DI system, making it visible to others for injection.\n * For example:\n * \n * class\n * ComponentWithProviders {\n *   constructor(private greeter: GreeterDE) {}\n *   static cmp =\n *     defineComponent({\n *       type: ComponentWithProviders,\n *       selectors: [['component-with-providers']],\n *       factory: () => new ComponentWithProviders(directiveInject(GreeterDE as any)),\n *       decls: 1,\n *       vars: 1,\n *       template: function(fs: RenderFlags, ctx: ComponentWithProviders) {\n *         if (fs & RenderFlags.Create) {\n *           text(0);\n *         }\n *         if (fs & RenderFlags.Update) {\n *           textInterpolate(ctx.greeter.greet());\n *         }\n *       },\n *       features: [ProvidersFeature([GreeterDE])]\n *     });\n * }\n * \n * @param definition\n * @codeGenApi\n */\nexport function ProvidersFeature<T>(providers: Provider[], viewProviders: Provider[] = []) {\n  return (definition: DirectiveDef<T>) => {\n    definition.providersResolver =\n      (def: DirectiveDef<T>, processProvidersFn?: ProcessProvidersFunction) => {\n        return providersResolver(\n          def,\n          /\n          processProvidersFn ? processProvidersFn(providers) : providers, /\n          viewProviders);\n      };\n  };\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ChangeDetectorRef} from './change_detection/change_detection';\nimport {Injector} from './di/injector';\nimport {Type} from './interface/type';\nimport {ElementRef} from './element_ref';\nimport {NgModuleRef}\n\nfrom './ng_module_factory';\nimport {ViewRef} from './view_ref';\n\n/**\n * Represents a component created by a `ComponentFactory`.\n * Provides access to the component instance and related objects,\n * and provides the means of destroying the instance.\n * \n * @publicApi\n */\nexport abstract class ComponentRef<C> {\n  /**\n   * The host or anchor [element](guide/glossary#element) for this component instance.\n   */\n  abstract get location(): ElementRef;\n  /**\n   * The [dependency injector](guide/glossary#injector) for this component instance.\n   */\n  abstract get injector(): Injector;\n  /**\n   * This component instance.\n   */\n  abstract get instance(): C;\n  /**\n   * The [host view](guide/glossary#view-tree) defined by the template\n   * for this component instance.\n   */\n  abstract get hostView(): ViewRef;\n  /**\n   * The change detector for this component instance.\n   */\n  abstract get changeDetectorRef(): ChangeDetectorRef;\n  /**\n   * The type of this component (as created by a `ComponentFactory` class).\n   */\n  abstract get componentType(): Type<any>;\n  /**\n   * Destroys the component instance and all of the data structures associated with it.\n   */\n  abstract destroy(): void;\n  /**\n   * A lifecycle hook that provides additional developer-defined cleanup\n   * functionality for the component.\n   * @param callback A handler function that cleans up developer-defined data\n   * associated with this component. Called when the `destroy()` method is invoked.\n   */\n  abstract onDestroy(callback: Function): void;\n}\n\n/**\n * Base class for a factory that can create a component dynamically.\n * Instantiate a factory for a given type of component with `resolveComponentFactory()`.\n * Use the resulting `ComponentFactory.create()` method to create a component of that type.\n * \n * @see [Dynamic Components](guide/dynamic-component-loader)\n * \n * @publicApi\n */\nexport abstract class ComponentFactory<C> {\n  /**\n   * The component's HTML selector.\n   */\n  abstract get selector(): string;\n  /**\n   * The type of component the factory will create.\n   */\n  abstract get componentType(): Type<any>;\n  /**\n   * Selector for all <ng-content>

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elements in the component.\n  */\n  abstract get ngContentSelectors(): string[];\n  /**\n   * The inputs of the
component.\n  */\n  abstract get inputs(): {propName: string, templateName: string}[];\n  /**\n   * The outputs of
the component.\n  */\n  abstract get outputs(): {propName: string, templateName: string}[];\n  /**\n   * Creates a
new component.\n  */\n  abstract create(\n    injector: Injector, projectableNodes?: any[][], rootSelectorOrNode?:
string|any,\n    ngModule?: NgModuleRef<any>): ComponentRef<C>;\n}\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from
'../di/injector';\nimport {Type} from '../interface/type';\nimport {stringify} from '../util/stringify';\n\nimport
{ComponentFactory, ComponentRef} from './component_factory';\nimport {NgModuleRef} from
'./ng_module_factory';\n\nexport function noComponentFactoryError(component: Function) {\n  const error =
Error(`No component factory found for ${\n    stringify(component)}. Did you add it to
@NgModule.entryComponents?`);\n  (error as any)[ERROR_COMPONENT] = component;\n  return
error;\n}\n\nconst ERROR_COMPONENT = 'ngComponent';\n\nexport function getComponent(error: Error):
Type<any> {\n  return (error as any)[ERROR_COMPONENT];\n}\n\n\nexport class _NullComponentFactoryResolver
implements ComponentFactoryResolver {\n  resolveComponentFactory<T>(component: {new(...args: any[]): T}):
ComponentFactory<T> {\n    throw noComponentFactoryError(component);\n  }\n}\n\n\n/**\n * A simple registry
that maps `Components` to generated `ComponentFactory` classes\n * that can be used to create instances
of components.\n * Use to obtain the factory for a given component type,\n * then use the factory's `create()`
method to create a component of that type.\n */\n * @see [Dynamic Components](guide/dynamic-component-
loader)\n * @publicApi\n */\nexport abstract class ComponentFactoryResolver {\n  static NULL:
ComponentFactoryResolver = new _NullComponentFactoryResolver();\n  /**\n   * Retrieves the factory object that
creates a component of the given type.\n   * @param component The component type.\n   */\n  abstract
resolveComponentFactory<T>(component: Type<T>): ComponentFactory<T>;\n}\n\n\nexport class
CodegenComponentFactoryResolver implements ComponentFactoryResolver {\n  private _factories = new
Map<any, ComponentFactory<any>>();\n\n  constructor(\n    factories: ComponentFactory<any>[], private
_parent: ComponentFactoryResolver,\n    private _ngModule: NgModuleRef<any>) {\n    for (let i = 0; i <
factories.length; i++) {\n      const factory = factories[i];\n      this._factories.set(factory.componentType,
factory);\n    }\n  }\n\n  resolveComponentFactory<T>(component: {new(...args: any[]): T}):
ComponentFactory<T> {\n    let factory = this._factories.get(component);\n    if (!factory && this._parent) {\n
factory = this._parent.resolveComponentFactory(component);\n    }\n    if (!factory) {\n      throw
noComponentFactoryError(component);\n    }\n    return new ComponentFactoryBoundToModule(factory,
this._ngModule);\n  }\n}\n\n\nexport class ComponentFactoryBoundToModule<C> extends ComponentFactory<C>
{\n  readonly selector: string;\n  readonly componentType: Type<any>;\n  readonly ngContentSelectors: string[];\n
readonly inputs: {propName: string, templateName: string}[];\n  readonly outputs: {propName: string,
templateName: string}[];\n\n  constructor(private factory: ComponentFactory<C>, private ngModule:
NgModuleRef<any>) {\n    super();\n    this.selector = factory.selector;\n    this.componentType =
factory.componentType;\n    this.ngContentSelectors
= factory.ngContentSelectors;\n    this.inputs = factory.inputs;\n    this.outputs = factory.outputs;\n  }\n\n  create(\n
injector: Injector, projectableNodes?: any[][], rootSelectorOrNode?: string|any,\n    ngModule?:
NgModuleRef<any>): ComponentRef<C> {\n    return this.factory.create(\n      injector, projectableNodes,
rootSelectorOrNode, ngModule || this.ngModule);\n  }\n}\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nexport function noop(...args: any[]): any {\n  // Do
nothing.\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {TNode} from '../render3/interfaces/node';\nimport {RElement} from
'../render3/interfaces/renderer_dom';\nimport

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```
{LView} from '../render3/interfaces/view';\nimport {getCurrentTNode, getLView} from '../render3/state';\nimport
{getNativeByTNode} from '../render3/util/view_utils';\nimport {noop} from '../util/noop';\n\n/**\n * Creates an
ElementRef from the most recent node.\n *\n * @returns The ElementRef instance to use\n */\nexport function
injectElementRef(): ElementRef {\n  return createElementRef(getCurrentTNode(), getLView());\n}\n\n/**\n *
Creates an ElementRef given a node.\n *\n * @param tNode The node for which you'd like an ElementRef\n *
@param lView The view to which the node belongs\n * @returns The ElementRef instance to use\n */\nexport
function createElementRef(tNode: TNode, lView: LView): ElementRef {\n  return new
ElementRef(getNativeByTNode(tNode, lView) as RElement);\n}\n\nexport const
SWITCH_ELEMENT_REF_FACTORY__POST_R3__ = injectElementRef;\n\nconst
SWITCH_ELEMENT_REF_FACTORY__PRE_R3__ = noop;\n\nconst SWITCH_ELEMENT_REF_FACTORY:
typeof injectElementRef = SWITCH_ELEMENT_REF_FACTORY__PRE_R3__;\n\n/**\n
* A wrapper around a native element inside of a View.\n *\n * An `ElementRef` is backed by a render-specific
element. In the browser, this is usually a DOM\n * element.\n *\n * @security Permitting direct access to the DOM
can make your application more vulnerable to\n * XSS attacks. Carefully review any use of `ElementRef` in your
code. For more detail, see the\n * [Security Guide](http://g.co/ng/security).\n *\n * @publicApi\n */\n\n// Note: We
don't expose things like `Injector`, `ViewContainer`, ... here,\n // i.e. users have to ask for what they need. With that,
we can build better analysis tools\n // and could do better codegen in the future.\n\nexport class ElementRef<T = any>
{\n  /**\n   * The underlying native element or `null` if direct access to native elements is not supported\n   * (e.g.
when the application runs in a web worker).\n   *\n   * <div class="callout is-critical">\n   *   <header>Use with
caution</header>\n   *   <p>\n   *     Use this API
as the last resort when direct access to DOM is needed. Use templating and\n   *     data-binding provided by
Angular instead. Alternatively you can take a look at { @link\n   *     Renderer2 }\n   *     which provides API that can
safely be used even when direct access to native elements is not\n   *     supported.\n   *   </p>\n   *   <p>\n   *
Relying on direct DOM access creates tight coupling between your application and rendering\n   *     layers which
will make it impossible to separate the two and deploy your application into a\n   *     web worker.\n   *   </p>\n   *
</div>\n   *\n   */\n   public nativeElement: T;\n\n   constructor(nativeElement: T) {\n     this.nativeElement =
nativeElement;\n   }\n\n   /**\n    * @internal\n    * @nocollapse\n    */\n   static __NG_ELEMENT_ID__: () =>
ElementRef = SWITCH_ELEMENT_REF_FACTORY;\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {InjectionToken} from '../di/injection_token';\nimport
{isProceduralRenderer} from '../render3/interfaces/renderer';\nimport {isLView} from
'../render3/interfaces/type_checks';\nimport {LView, RENDERER} from '../render3/interfaces/view';\nimport
{getCurrentTNode, getLView} from '../render3/state';\nimport {getComponentLViewByIndex} from
'../render3/util/view_utils';\nimport {noop} from '../util/noop';\nimport {RendererStyleFlags2, RendererType2} from
'../api_flags';\n\nexport const Renderer2Interceptor = new
InjectionToken<Renderer2[]>('Renderer2Interceptor');\n\n\n/**\n * Creates and initializes a custom renderer that
implements the `Renderer2` base class.\n *\n * @publicApi\n */\n\nexport abstract class RendererFactory2 {\n  /**\n
* Creates and initializes a custom renderer for a host DOM element.\n   *\n   * @param hostElement The element to
render.\n   *\n   * @param type The base class to implement.\n   *\n   * @returns The new custom renderer
instance.\n   */\n   abstract createRenderer(hostElement: any, type: RendererType2|null): Renderer2;\n\n  /**\n   * A
callback invoked when rendering has begun.\n   */\n   abstract begin?(): void;\n\n  /**\n   * A callback invoked when
rendering has completed.\n   */\n   abstract end?(): void;\n\n  /**\n   * Use with animations test-only mode. Notifies the
test when rendering has completed.\n   */\n   @returns The asynchronous result of the developer-defined function.\n
\n   /**\n   * abstract whenRenderingDone?(): Promise<any>;\n }\n\n\n/**\n * Extend this base class to implement custom
rendering. By default, Angular\n * renders a template into DOM. You can use custom rendering to intercept\n *
rendering calls, or to render to something other than DOM.\n *\n * Create your custom renderer using
`RendererFactory2`.\n *\n * Use a custom renderer to bypass Angular's templating and\n * make custom UI changes
that can't be expressed declaratively.\n * For example if you need to set a property or an attribute
```

whose name is\n * not statically known, use the `setProperty()` or\n * `setAttribute()` method.\n *\n * @publicApi\n */\nexport abstract class Renderer2 {\n /**\n * Use to store arbitrary developer-defined data on a\n renderer instance,\n * as an object containing key-value pairs.\n * This is useful for renderers that delegate to\n other renderers.\n */\n abstract get data(): {[key: string]: any};\n /**\n * Implement this callback to destroy the\n renderer or the host element.\n */\n abstract destroy(): void;\n /**\n * Implement this callback to create an\n instance of the host element.\n * @param name An identifying name for the new element, unique within the\n namespace.\n * @param namespace The namespace for the new element.\n * @returns The new element.\n */\n abstract createElement(name: string, namespace?: string|null): any;\n /**\n * Implement this callback to add a\n comment to the DOM of the host element.\n * @param value The comment text.\n * @returns\n The modified element.\n */\n abstract createComment(value: string): any;\n /**\n * Implement this callback to\n add text to the DOM of the host element.\n * @param value The text string.\n * @returns The modified\n element.\n */\n abstract createText(value: string): any;\n /**\n * If null or undefined, the view engine won't call\n it.\n * This is used as a performance optimization for production mode.\n */\n // TODO(issue/24571): remove\n '!\n destroyNode!': ((node: any) => void)|null;\n /**\n * Appends a child to a given parent node in the host\n element DOM.\n * @param parent The parent node.\n * @param newChild The new child node.\n */\n abstract\n appendChild(parent: any, newChild: any): void;\n /**\n * Implement this callback to insert a child node at a given\n position in a parent node\n * in the host element DOM.\n * @param parent The parent node.\n * @param\n newChild The new child nodes.\n * @param refChild The existing child node before which\n `newChild` is inserted.\n * @param isMove Optional argument which signifies if the current `insertBefore` is a\n result of a\n * move. Animation uses this information to trigger move animations. In the past the Animation\n * would always assume that any `insertBefore` is a move. This is not strictly true because\n * with runtime i18n it is possible to invoke `insertBefore` as a result of i18n and it should\n * not trigger an animation move.\n */\n abstract\n insertBefore(parent: any, newChild: any, refChild: any, isMove?: boolean): void;\n /**\n * Implement this\n callback to remove a child node from the host element's DOM.\n * @param parent The parent node.\n * @param\n oldChild The child node to remove.\n * @param isHostElement Optionally signal to the renderer whether this\n element is a host element\n * or not\n */\n abstract\n removeChild(parent: any, oldChild: any, isHostElement?:\n boolean): void;\n /**\n * Implement this callback to prepare an element\n to be bootstrapped\n * as a root element, and return the element instance.\n * @param selectorOrNode The DOM\n element.\n * @param preserveContent Whether the contents of the root element\n * should be preserved, or\n cleared upon bootstrap (default behavior).\n * Use with `ViewEncapsulation.ShadowDom` to allow simple native\n * content projection via `` elements.\n * @returns The root element.\n */\n abstract\n selectRootElement(selectorOrNode: string|any, preserveContent?: boolean): any;\n /**\n * Implement this\n callback to get the parent of a given node\n * in the host element's DOM.\n * @param node The child node to\n query.\n * @returns The parent node, or null if there is no parent.\n * For WebWorkers, always returns true.\n * This is because the check is synchronous,\n * and the caller can't rely on checking for null.\n */\n abstract\n parentNode(node: any): any;\n /**\n * Implement this callback to get the next sibling node of a given node\n * in the host element's DOM.\n * @returns The sibling node, or null if there is no sibling.\n * For WebWorkers,\n always returns a value.\n * This is because the check is synchronous,\n * and the caller can't rely on checking for\n null.\n */\n abstract\n nextSibling(node: any): any;\n /**\n * Implement this callback to set an attribute value for\n an element in the DOM.\n * @param el The element.\n * @param name The attribute name.\n * @param value\n The new value.\n * @param namespace The namespace.\n */\n abstract\n setAttribute(el: any, name: string, value:\n string, namespace?: string|null): void;\n /**\n * Implement this callback to remove an attribute from an element\n in the DOM.\n * @param el The element.\n * @param name The attribute name.\n * @param namespace The\n namespace.\n */\n abstract\n removeAttribute(el: any, name: string, namespace?: string|null): void;\n /**\n * Implement this callback to add a class to an element in the DOM.\n * @param\n el The element.\n * @param name The class name.\n */\n abstract\n addClass(el: any, name: string): void;\n /**\n * Implement this callback to remove a class from an element in the DOM.\n * @param el The element.\n * @param\n name The class name.\n */\n abstract\n removeClass(el: any, name: string): void;\n /**\n * Implement


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this callback to set a CSS style for an element in the DOM.\n * @param el The element.\n * @param style The
name of the style.\n * @param value The new value.\n * @param flags Flags for style variations. No flags are set
by default.\n */\n abstract setStyle(el: any, style: string, value: any, flags?: RendererStyleFlags2): void;\n\n /**\n * Implement this callback to remove the value from a CSS style for an element in the DOM.\n * @param el The
element.\n * @param style The name of the style.\n * @param flags Flags for style variations to remove, if set.
???\n */\n abstract removeStyle(el: any, style: string, flags?: RendererStyleFlags2):
void;\n\n /**\n * Implement this callback to set the value of a property of an element in the DOM.\n * @param
el The element.\n * @param name The property name.\n * @param value The new value.\n */\n abstract
setProperty(el: any, name: string, value: any): void;\n\n /**\n * Implement this callback to set the value of a node
in the host element.\n * @param node The node.\n * @param value The new value.\n */\n abstract
setValue(node: any, value: string): void;\n\n /**\n * Implement this callback to start an event listener.\n *
@param target The context in which to listen for events. Can be\n * the entire window or document, the body of
the document, or a specific\n * DOM element.\n * @param eventName The event to listen for.\n * @param
callback A handler function to invoke when the event occurs.\n * @returns An \"unlisten\" function for disposing
of this handler.\n */\n abstract listen(\n   target: 'window'|'document'|'body'|any,\n   eventName: string,\n   callback: (event: any) => boolean | void): () => void;\n\n /**\n * @internal\n *
@nocollapse\n */\n static __NG_ELEMENT_ID__: () => Renderer2 = () =>
SWITCH_RENDERER2_FACTORY();\n\n\nexport const SWITCH_RENDERER2_FACTORY__POST_R3__
= injectRenderer2;\nconst SWITCH_RENDERER2_FACTORY__PRE_R3__ = noop;\nconst
SWITCH_RENDERER2_FACTORY: typeof injectRenderer2 =
SWITCH_RENDERER2_FACTORY__PRE_R3__;\n\n/** Returns a Renderer2 (or throws when application was
bootstrapped with Renderer3) */\nfunction getOrCreateRenderer2(IView: LView): Renderer2 {\n   const renderer =
IView[RENDERER];\n   if (ngDevMode && !isProceduralRenderer(renderer)) {\n     throw new Error('Cannot inject
Renderer2 when the application uses Renderer3!');\n   }\n   return renderer as Renderer2;\n}\n\n/** Injects a
Renderer2 for the current component. */\nexport function injectRenderer2(): Renderer2 {\n   // We need the Renderer
to be based on the component that it's being injected into, however
since\n   // DI happens before we've entered its view, `getLView` will return the parent view instead.\n   const IView
= getLView();\n   const tNode = getCurrentTNode();\n   const nodeAtIndex =
getComponentLViewByIndex(tNode.index, IView);\n   return getOrCreateRenderer2(isLView(nodeAtIndex) ?
nodeAtIndex : IView);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { defineInjectable } from './di/interface/defs';\nimport { SecurityContext }
from './security';\n\n/**\n * Sanitizer is used by the views to sanitize potentially dangerous values.\n */\n *
@publicApi\n */\nexport abstract class Sanitizer {\n   abstract sanitize(context: SecurityContext, value:
{ } | string | null): string | null;\n   /**\n    @nocollapse\n    */\n   static prov = defineInjectable({\n     token: Sanitizer,\n     providedIn: 'root',\n     factory: () => null,\n   });\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n *
@description Represents the version of Angular\n */\n * @publicApi\n */\nexport class Version {\n   public readonly
major: string;\n   public readonly minor: string;\n   public readonly patch: string;\n\n   constructor(public full: string)
{\n     this.major = full.split('.')[0];\n     this.minor = full.split('.')[1];\n     this.patch = full.split('.')[2].slice(2).join('.');\n   }\n}\n\n/**\n * @publicApi\n */\nexport const VERSION = new Version('11.0.2');\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { stringify } from
'./../util/stringify';\nimport { isListLikeIterable, iterateListLike } from './change_detection_util';\nimport
{ IterableChangeRecord, IterableChanges, IterableDiffer, IterableDifferFactory, NgIterable, TrackByFunction } from
'./iterable_differs';\n\nexport class DefaultIterableDifferFactory implements IterableDifferFactory {\n   constructor() {}
\n   supports(obj: Object | null | undefined): boolean {\n     return isListLikeIterable(obj);\n   }\n}\n

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create<V>(trackByFn?: TrackByFunction<V>): DefaultIterableDiffer<V> {\n  return new
DefaultIterableDiffer<V>(trackByFn);\n }\n}\n\nconst trackByIdentity = (index: number, item: any) =>
item;\n\n/**\n * @deprecated v4.0.0 - Should not be part of public API.\n * @publicApi\n */\nexport class
DefaultIterableDiffer<V> implements IterableDiffer<V>, IterableChanges<V> {\n  public readonly length: number
= 0;\n  // TODO(issue/24571): remove '!'.\n  public readonly collection!: V[]\n  public readonly Iterable<V>|null;\n  // Keeps track of
the used records at any point in time (during & across `_check()` calls)\n  private _linkedRecords:
_DuplicateMap<V>|null
= null;\n  // Keeps track of the removed records at any point in time during `_check()` calls.\n  private
_unlinkedRecords: _DuplicateMap<V>|null = null;\n  private _previousItHead: IterableChangeRecord_<V>|null =
null;\n  private _itHead: IterableChangeRecord_<V>|null = null;\n  private _itTail: IterableChangeRecord_<V>|null
= null;\n  private _additionsHead: IterableChangeRecord_<V>|null = null;\n  private _additionsTail:
IterableChangeRecord_<V>|null = null;\n  private _movesHead: IterableChangeRecord_<V>|null = null;\n  private
_movesTail: IterableChangeRecord_<V>|null = null;\n  private _removalsHead: IterableChangeRecord_<V>|null =
null;\n  private _removalsTail: IterableChangeRecord_<V>|null = null;\n  // Keeps track of records where custom
track by is the same, but item identity has changed\n  private _identityChangesHead:
IterableChangeRecord_<V>|null = null;\n  private _identityChangesTail: IterableChangeRecord_<V>|null = null;\n
private _trackByFn: TrackByFunction<V>;\n\n  constructor(trackByFn?: TrackByFunction<V>) {\n    this._trackByFn = trackByFn || trackByIdentity;\n  }\n\n  forEachItem(fn: (record: IterableChangeRecord_<V>) => void) {\n    let record: IterableChangeRecord_<V>|null;\n    for (record = this._itHead; record !== null; record = record._next) {\n      fn(record);\n    }\n  }\n\n  forEachOperation((n    fn: (item: IterableChangeRecord<V>, previousIndex: number|null, currentIndex:
number|null) =>\n      void) {\n    let nextIt = this._itHead;\n    let nextRemove = this._removalsHead;\n    let
addRemoveOffset = 0;\n    let moveOffsets: number[]|null = null;\n    while (nextIt || nextRemove) {\n      // Figure
out which is the next record to process\n      // Order: remove, add, move\n      const record:
IterableChangeRecord<V> = !nextRemove ||\n          nextIt &&\n          nextIt.currentIndex! <\n
getPreviousIndex(nextRemove, addRemoveOffset, moveOffsets) ?\n          nextIt! : \n          nextRemove;\n
      const adjPreviousIndex = getPreviousIndex(record, addRemoveOffset, moveOffsets);\n      const currentIndex =
record.currentIndex;\n      // consume the item, and adjust the addRemoveOffset and update moveDistance if
necessary\n      if (record === nextRemove) {\n        addRemoveOffset--;\n        nextRemove =
nextRemove._nextRemoved;\n      } else {\n        nextIt = nextIt!._next;\n        if (record.previousIndex == null) {\n
          addRemoveOffset++;\n        } else {\n          // INVARIANT: currentIndex < previousIndex\n          if
(!moveOffsets) moveOffsets = [];\n          const localMovePreviousIndex = adjPreviousIndex - addRemoveOffset;\n
          const localCurrentIndex = currentIndex! - addRemoveOffset;\n          if (localMovePreviousIndex !=
localCurrentIndex) {\n            for (let i = 0; i < localMovePreviousIndex; i++) {\n              const offset = i <
moveOffsets.length ? moveOffsets[i] : (moveOffsets[i] = 0);\n              const index = offset
+ i;\n              if (localCurrentIndex <= index && index < localMovePreviousIndex) {\n                moveOffsets[i] =
offset + 1;\n              }\n            }\n            const previousIndex = record.previousIndex;\n
            moveOffsets[previousIndex] = localCurrentIndex - localMovePreviousIndex;\n          }\n        }\n      }\n      if
(adjPreviousIndex !== currentIndex) {\n        fn(record, adjPreviousIndex, currentIndex);\n      }\n    }\n  }\n\n  forEachPreviousItem(fn: (record: IterableChangeRecord_<V>) => void) {\n    let record:
IterableChangeRecord_<V>|null;\n    for (record = this._previousItHead; record !== null; record =
record._nextPrevious) {\n      fn(record);\n    }\n  }\n\n  forEachAddedItem(fn: (record: IterableChangeRecord_<V>)
=> void) {\n    let record: IterableChangeRecord_<V>|null;\n    for (record = this._additionsHead; record !== null;
record = record._nextAdded) {\n      fn(record);\n    }\n  }\n\n  forEachMovedItem(fn: (record:
IterableChangeRecord_<V>)
=> void) {\n    let record: IterableChangeRecord_<V>|null;\n    for (record = this._movesHead; record !== null;
record = record._nextMoved) {\n      fn(record);\n    }\n  }\n\n  forEachRemovedItem(fn: (record:
IterableChangeRecord_<V>) => void) {\n    let record: IterableChangeRecord_<V>|null;\n    for (record =

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this._removalsHead; record !== null; record = record._nextRemoved) {\n  fn(record);\n  }\n }\n\nforEachIdentityChange(fn: (record: IterableChangeRecord_<V>) => void) {\n  let record:
IterableChangeRecord_<V>|null;\n  for (record = this._identityChangesHead; record !== null; record =
record._nextIdentityChange) {\n    fn(record);\n    }\n }\n\n diff(collection: NgIterable<V>|null|undefined):
DefaultIterableDiffer<V>|null {\n  if (collection === null) collection = [];\n  if (!isListLikeIterable(collection)) {\n
    throw new Error(\n      `Error trying to diff '${stringify(collection)}'. Only arrays and iterables are allowed`);\n
  }\n\n  if
    (this.check(collection)) {\n    return this;\n  } else {\n    return null;\n  }\n }\n\n  onDestroy() {\n\n
check(collection: NgIterable<V>): boolean {\n  this._reset();\n\n  let record: IterableChangeRecord_<V>|null =
this._itHead;\n  let maybeDirty: boolean = false;\n  let index: number;\n  let item: V;\n  let itemTrackBy:
any;\n  if (Array.isArray(collection)) {\n    (this as {length: number}).length = collection.length;\n    for (let
index = 0; index < this.length; index++) {\n      item = collection[index];\n      itemTrackBy =
this._trackByFn(index, item);\n      if (record === null || !Object.is(record.trackById, itemTrackBy)) {\n
record = this._mismatch(record, item, itemTrackBy, index);\n      maybeDirty = true;\n      } else {\n      if
(maybeDirty) {\n        // TODO(misko): can we limit this to duplicates only?\n        record =
this._verifyReinsertion(record, item, itemTrackBy, index);\n      }\n      if (!Object.is(record.item, item)) this._addIdentityChange(record, item);\n      }\n\n      record = record._next;\n
    }\n  } else {\n    index = 0;\n    iterateListLike(collection, (item: V) => {\n      itemTrackBy =
this._trackByFn(index, item);\n      if (record === null || !Object.is(record.trackById, itemTrackBy)) {\n
record = this._mismatch(record, item, itemTrackBy, index);\n      maybeDirty = true;\n      } else {\n      if
(maybeDirty) {\n        // TODO(misko): can we limit this to duplicates only?\n        record =
this._verifyReinsertion(record, item, itemTrackBy, index);\n      }\n      if (!Object.is(record.item, item))
this._addIdentityChange(record, item);\n      }\n      record = record._next;\n      index++;\n    });\n    (this as
{length: number}).length = index;\n    }\n\n    this._truncate(record);\n    (this as {collection: V[] |
Iterable<V>}).collection = collection;\n    return this.isDirty;\n  }\n }\n\n  /* CollectionChanges is considered dirty if it has any additions, moves, removals, or identity\n  * changes.\n  */\n  get isDirty(): boolean {\n    return this._additionsHead !== null || this._movesHead !== null ||\n    this._removalsHead !== null || this._identityChangesHead !== null;\n  }\n\n  /**\n   * Reset the state of the change
objects to show no changes. This means set previousKey to\n   * currentKey, and clear all of the queues (additions,
moves, removals).\n   * Set the previousIndexes of moved and added items to their currentIndexes\n   * Reset the list
of additions, moves and removals\n   */\n   * @internal\n   */\n   _reset() {\n    if (this.isDirty) {\n      let record:
IterableChangeRecord_<V>|null;\n      for (record = this._previousItHead = this._itHead; record !== null; record =
record._next) {\n        record._nextPrevious = record._next;\n      }\n      for (record = this._additionsHead; record
!== null; record = record._nextAdded) {\n        record.previousIndex
= record.currentIndex;\n      }\n      this._additionsHead = this._additionsTail = null;\n      for (record =
this._movesHead; record !== null; record = record._nextMoved) {\n        record.previousIndex =
record.currentIndex;\n      }\n      this._movesHead = this._movesTail = null;\n      this._removalsHead =
this._removalsTail = null;\n      this._identityChangesHead = this._identityChangesTail = null;\n      //
TODO(vicb): when assert gets supported\n      // assert(!this.isDirty);\n      }\n    }\n\n    /**\n     * This is the core
function which handles differences between collections.\n     *\n     * - `record` is the record which we saw at this
position last time. If null then it is a new\n     * item.\n     * - `item` is the current item in the collection\n     * - `index`
is the position of the item in the collection\n     */\n     * @internal\n     */\n     _mismatch(record:
IterableChangeRecord_<V>|null, item: V, itemTrackBy: any, index: number):\n     IterableChangeRecord_<V> {\n
      //
      The previous record after which we will append the current one.\n      let previousRecord:
IterableChangeRecord_<V>|null;\n      if (record === null) {\n        previousRecord = this._itTail;\n      } else {\n
previousRecord = record._prev;\n      // Remove the record from the collection since we know it does not match the
item.\n      this._remove(record);\n      }\n      // Attempt to see if we have seen the item before.\n      record =

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this._linkedRecords === null ? null : this._linkedRecords.get(itemTrackBy, index);\n  if (record !== null) {\n    //
We have seen this before, we need to move it forward in the collection.\n    // But first we need to check if identity
changed, so we can update in view if necessary\n    if (!Object.is(record.item, item))
this._addIdentityChange(record, item);\n    this._moveAfter(record, previousRecord, index);\n  } else {\n    //
Never seen it, check evicted list.\n    record = this._unlinkedRecords === null ? null :
this._unlinkedRecords.get(itemTrackBy,
null);\n    if (record !== null) {\n      // It is an item which we have evicted earlier: reinsert it back into the list.\n
      // But first we need to check if identity changed, so we can update in view if necessary\n      if
(!Object.is(record.item, item)) this._addIdentityChange(record, item);\n      this._reinsertAfter(record,
previousRecord, index);\n    } else {\n      // It is a new item: add it.\n      record =\n        this._addAfter(new
IterableChangeRecord_<V>(item, itemTrackBy), previousRecord, index);\n    }\n    return record;\n  }\n\n
/**\n * This check is only needed if an array contains duplicates. (Short circuit of nothing dirty)\n * Use
case: `[a, a] => [b, a, a]`\n * If we did not have this check then the insertion of `b` would:\n * 1) evict first
`a`\n * 2) insert `b` at `0` index.\n * 3) leave `a` at index `1` as is. <-- this is wrong!\n * 3) reinsert `a` at
index 2. <-- this
is wrong!\n * The correct behavior is:\n * 1) evict first `a`\n * 2) insert `b` at `0` index.\n * 3) reinsert
`a` at index 1.\n * 3) move `a` at from `1` to `2`.\n * Double check that we have not evicted a duplicate
item. We need to check if the item type may\n * have already been removed:\n * The insertion of b will evict the
first 'a'. If we don't reinsert it now it will be reinserted\n * at the end. Which will show up as the two 'a's switching
position. This is incorrect, since a\n * better way to think of it is as insert of 'b' rather than switch 'a' with 'b' and
then add 'a'\n * at the end.\n * @internal\n */\n _verifyReinsertion(record: IterableChangeRecord_<V>,
item: V, itemTrackBy: any, index: number):\n  IterableChangeRecord_<V> {\n    let reinsertRecord:
IterableChangeRecord_<V>|null =\n      this._unlinkedRecords === null ? null :
this._unlinkedRecords.get(itemTrackBy, null);\n    if (reinsertRecord !== null) {\n
      record = this._reinsertAfter(reinsertRecord, record._prev!, index);\n    } else if (record.currentIndex !== index) {\n
      record.currentIndex = index;\n      this._addToMoves(record, index);\n    }\n    return record;\n  }\n\n
/**\n * Get rid of any excess {@link IterableChangeRecord_}s from the previous collection\n * - `record` The first excess
{@link IterableChangeRecord_}.\n * @internal\n */\n _truncate(record: IterableChangeRecord_<V>|null)
{\n  // Anything after that needs to be removed;\n  while (record !== null) {\n    const nextRecord:
IterableChangeRecord_<V>|null = record._next;\n    this._addToRemovals(this._unlink(record));\n    record =
nextRecord;\n  }\n  if (this._unlinkedRecords !== null) {\n    this._unlinkedRecords.clear();\n  }\n  if
(this._additionsTail !== null) {\n    this._additionsTail._nextAdded = null;\n  }\n  if (this._movesTail !== null)
{\n    this._movesTail._nextMoved = null;\n  }\n  if (this._itTail
!== null) {\n    this._itTail._next = null;\n  }\n  if (this._removalsTail !== null) {\n
this._removalsTail._nextRemoved = null;\n  }\n  if (this._identityChangesTail !== null) {\n
this._identityChangesTail._nextIdentityChange = null;\n  }\n}\n\n/** @internal */\n _reinsertAfter(\n  record:
IterableChangeRecord_<V>, prevRecord: IterableChangeRecord_<V>|null,\n  index: number):
IterableChangeRecord_<V> {\n  if (this._unlinkedRecords !== null) {\n
this._unlinkedRecords.remove(record);\n  }\n  const prev = record._prevRemoved;\n  const next =
record._nextRemoved;\n  if (prev === null) {\n    this._removalsHead = next;\n  } else {\n
prev._nextRemoved = next;\n  }\n  if (next === null) {\n    this._removalsTail = prev;\n  } else {\n
next._prevRemoved = prev;\n  }\n  this._insertAfter(record, prevRecord, index);\n  this._addToMoves(record,
index);\n  return record;\n}\n\n/** @internal */\n _moveAfter(\n
record: IterableChangeRecord_<V>, prevRecord: IterableChangeRecord_<V>|null,\n  index: number):
IterableChangeRecord_<V> {\n  this._unlink(record);\n  this._insertAfter(record, prevRecord, index);\n
this._addToMoves(record, index);\n  return record;\n}\n\n/** @internal */\n _addAfter(\n  record:
IterableChangeRecord_<V>, prevRecord: IterableChangeRecord_<V>|null,\n  index: number):
IterableChangeRecord_<V> {\n  this._insertAfter(record, prevRecord, index);\n  if (this._additionsTail ===

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null) {\n    // TODO(vicb):\n    // assert(this._additionsHead === null);\n    this._additionsTail =
this._additionsHead = record;\n  } else {\n    // TODO(vicb):\n    // assert(_additionsTail._nextAdded ===
null);\n    // assert(record._nextAdded === null);\n    this._additionsTail = this._additionsTail._nextAdded =
record;\n  }\n  return record;\n }\n\n /** @internal */\n _insertAfter(\n    record: IterableChangeRecord_<V>,\n    prevRecord:
IterableChangeRecord_<V>|null,\n    index: number): IterableChangeRecord_<V> {\n    // TODO(vicb):\n    //
assert(record != prevRecord);\n    // assert(record._next === null);\n    // assert(record._prev === null);\n\n    const
next: IterableChangeRecord_<V>|null =\n        prevRecord === null ? this._itHead : prevRecord._next;\n    //
TODO(vicb):\n    // assert(next != record);\n    // assert(prevRecord != record);\n    record._next = next;\n
record._prev = prevRecord;\n    if (next === null) {\n        this._itTail = record;\n    } else {\n        next._prev =
record;\n    }\n    if (prevRecord === null) {\n        this._itHead = record;\n    } else {\n        prevRecord._next =
record;\n    }\n\n    if (this._linkedRecords === null) {\n        this._linkedRecords = new _DuplicateMap<V>();\n    }\n
this._linkedRecords.put(record);\n\n    record.currentIndex = index;\n    return record;\n }\n\n /** @internal
*/\n _remove(record: IterableChangeRecord_<V>): IterableChangeRecord_<V>
{\n    return this._addToRemovals(this._unlink(record));\n }\n\n /** @internal */\n _unlink(record:
IterableChangeRecord_<V>): IterableChangeRecord_<V> {\n    if (this._linkedRecords !== null) {\n
this._linkedRecords.remove(record);\n    }\n\n    const prev = record._prev;\n    const next = record._next;\n\n    //
TODO(vicb):\n    // assert((record._prev = null) === null);\n    // assert((record._next = null) === null);\n\n    if (prev
=== null) {\n        this._itHead = next;\n    } else {\n        prev._next = next;\n    }\n    if (next === null) {\n
this._itTail = prev;\n    } else {\n        next._prev = prev;\n    }\n\n    return record;\n }\n\n /** @internal */\n
_addToMoves(record: IterableChangeRecord_<V>, toIndex: number): IterableChangeRecord_<V> {\n    //
TODO(vicb):\n    // assert(record._nextMoved === null);\n    if (record.previousIndex === toIndex) {\n        return
record;\n    }\n\n    if (this._movesTail === null) {\n        // TODO(vicb):\n        // assert(_movesHead
=== null);\n        this._movesTail = this._movesHead = record;\n    } else {\n        // TODO(vicb):\n        //
assert(_movesTail._nextMoved === null);\n        this._movesTail = this._movesTail._nextMoved = record;\n    }\n\n
return record;\n }\n\n private _addToRemovals(record: IterableChangeRecord_<V>): IterableChangeRecord_<V>
{\n    if (this._unlinkedRecords === null) {\n        this._unlinkedRecords = new _DuplicateMap<V>();\n    }\n\n
this._unlinkedRecords.put(record);\n    record.currentIndex = null;\n    record._nextRemoved = null;\n\n    if
(this._removalsTail === null) {\n        // TODO(vicb):\n        // assert(_removalsHead === null);\n        this._removalsTail =
this._removalsHead = record;\n        record._prevRemoved = null;\n    } else {\n        //
TODO(vicb):\n        // assert(_removalsTail._nextRemoved === null);\n        // assert(record._nextRemoved ===
null);\n        record._prevRemoved = this._removalsTail;\n        this._removalsTail = this._removalsTail._nextRemoved
= record;\n    }\n    return record;\n }\n\n /** @internal */\n _addIdentityChange(record:
IterableChangeRecord_<V>, item: V) {\n    record.item = item;\n    if (this._identityChangesTail === null) {\n
this._identityChangesTail = this._identityChangesHead = record;\n    } else {\n        this._identityChangesTail =
this._identityChangesTail._nextIdentityChange = record;\n    }\n    return record;\n }\n}\n\nexport class
IterableChangeRecord_<V> implements IterableChangeRecord<V> {\n    currentIndex: number|null = null;\n
previousIndex: number|null = null;\n\n    /** @internal */\n    _nextPrevious: IterableChangeRecord_<V>|null =
null;\n    /** @internal */\n    _prev: IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _next:
IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _prevDup: IterableChangeRecord_<V>|null = null;\n
/** @internal */\n    _nextDup: IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _prevRemoved:
IterableChangeRecord_<V>|null = null;\n\n    /** @internal */\n    _nextRemoved: IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _nextAdded:
IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _nextMoved: IterableChangeRecord_<V>|null =
null;\n    /** @internal */\n    _nextIdentityChange: IterableChangeRecord_<V>|null = null;\n\n\n    constructor(public
item: V, public trackById: any) {\n    }\n\n\n    // A linked list of IterableChangeRecords with the same
IterableChangeRecord_item\n    class _DuplicateItemRecordList<V> {\n    /** @internal */\n    _head:
IterableChangeRecord_<V>|null = null;\n    /** @internal */\n    _tail: IterableChangeRecord_<V>|null = null;\n\n

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    /**\n * Append the record to the list of duplicates.\n */\n * Note: by design all records in the list of duplicates\n hold the same value in record.item.\n */\n add(record: IterableChangeRecord_<V>): void {\n if (this._head ===\n null) {\n this._head = this._tail = record;\n record._nextDup = null;\n record._prevDup = null;\n } else\n {\n // TODO(vicb):\n // assert(record.item == _head.item ||\n // record.item is num && record.item.isNaN\n && _head.item is num && _head.item.isNaN);\n this._tail!._nextDup = record;\n record._prevDup =\n this._tail;\n record._nextDup = null;\n this._tail = record;\n }\n }\n\n // Returns a IterableChangeRecord_\n having IterableChangeRecord_.trackById == trackById and\n // IterableChangeRecord_.currentIndex >=\n atOrAfterIndex\n get(trackById: any, atOrAfterIndex: number|null): IterableChangeRecord_<V>|null {\n let\n record: IterableChangeRecord_<V>|null;\n for (record = this._head; record !== null; record = record._nextDup)\n {\n if ((atOrAfterIndex === null || atOrAfterIndex <= record.currentIndex!) &&\n Object.is(record.trackById, trackById)) {\n return record;\n }\n }\n return null;\n }\n\n /**\n *\n Remove one { @link IterableChangeRecord_} from the list of duplicates.\n *\n * Returns whether the list of\n duplicates\n is empty.\n */\n remove(record: IterableChangeRecord_<V>): boolean {\n // TODO(vicb):\n // assert()\n // verify that the record being removed is in the list.\n // for (IterableChangeRecord_ cursor = _head; cursor !=\n null; cursor = cursor._nextDup) {\n // if (identical(cursor, record)) return true;\n // }\n // return false;\n //});\n const prev: IterableChangeRecord_<V>|null = record._prevDup;\n const next:\n IterableChangeRecord_<V>|null = record._nextDup;\n if (prev === null) {\n this._head = next;\n } else {\n prev._nextDup = next;\n }\n if (next === null) {\n this._tail = prev;\n } else {\n next._prevDup = prev;\n }\n return this._head === null;\n }\n}\n\nclass _DuplicateMap<V> {\n map = new Map<any,\n _DuplicateItemRecordList<V>>();\n put(record: IterableChangeRecord_<V>) {\n const key =\n record.trackById;\n let duplicates = this.map.get(key);\n if (!duplicates) {\n duplicates\n = new _DuplicateItemRecordList<V>();\n this.map.set(key, duplicates);\n }\n duplicates.add(record);\n }\n\n /**\n *\n Retrieve the `value` using key. Because the IterableChangeRecord_ value may be one which we\n have already iterated over, we use the `atOrAfterIndex` to pretend it is not there.\n *\n * Use case: `[a, b, c, a, a]`\n if we are at index `3` which is the second `a` then asking if we\n * have any more `a`s needs to return the second\n `a`.\n */\n get(trackById: any, atOrAfterIndex: number|null): IterableChangeRecord_<V>|null {\n const key =\n trackById;\n const recordList = this.map.get(key);\n return recordList ? recordList.get(trackById,\n atOrAfterIndex) : null;\n }\n\n /**\n *\n Removes a { @link IterableChangeRecord_} from the list of duplicates.\n *\n * The list of duplicates also is removed from the map if it gets empty.\n */\n remove(record:\n IterableChangeRecord_<V>): IterableChangeRecord_<V> {\n const key = record.trackById;\n const recordList: _DuplicateItemRecordList<V> = this.map.get(key)!;\n // Remove the list of duplicates when it\n gets empty\n if (recordList.remove(record)) {\n this.map.delete(key);\n }\n return record;\n }\n\n get\n isEmpty(): boolean {\n return this.map.size === 0;\n }\n clear() {\n this.map.clear();\n }\n }\n\n function\n getPreviousIndex(item: any, addRemoveOffset: number, moveOffsets: number[]|null): number {\n const\n previousIndex = item.previousIndex;\n if (previousIndex === null) return previousIndex;\n let moveOffset = 0;\n if (moveOffsets && previousIndex < moveOffsets.length) {\n moveOffset = moveOffsets[previousIndex];\n }\n return previousIndex + addRemoveOffset + moveOffset;\n }\n\n"}\n\n/**\n *\n @license\n *\n Copyright Google LLC All\n Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n found in the\n LICENSE file at https://angular.io/license\n */\n\nimport {stringify} from '../util/stringify';\nimport\n {isObject} from '../change_detection_util';\nimport {KeyValueChangeRecord, KeyValueChanges,\n KeyValueDiffer, KeyValueDifferFactory} from './keyvalue_differs';\n\nexport class\n DefaultKeyValueDifferFactory<K, V> implements KeyValueDifferFactory {\n constructor() {\n supports(obj:\n any): boolean {\n return obj instanceof Map || isObject(obj);\n }\n }\n\n create<K, V>(): KeyValueDiffer<K, V>\n {\n return new DefaultKeyValueDiffer<K, V>();\n }\n }\n\nexport class DefaultKeyValueDiffer<K, V>\n implements KeyValueDiffer<K, V>, KeyValueChanges<K, V> {\n private _records = new Map<K,\n KeyValueChangeRecord_<K, V>>();\n private _mapHead: KeyValueChangeRecord_<K, V>|null = null;\n //

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_appendAfter is used in the check loop\n private _appendAfter: KeyValueChangeRecord_<K, V>|null = null;\n
private _previousMapHead: KeyValueChangeRecord_<K, V>|null = null;\n private _changesHead:
KeyValueChangeRecord_<K, V>|null = null;\n private _changesTail: KeyValueChangeRecord_<K, V>|null
= null;\n private _additionsHead: KeyValueChangeRecord_<K, V>|null = null;\n private _additionsTail:
KeyValueChangeRecord_<K, V>|null = null;\n private _removalsHead: KeyValueChangeRecord_<K, V>|null =
null;\n private _removalsTail: KeyValueChangeRecord_<K, V>|null = null;\n\n get isDirty(): boolean {\n return
this._additionsHead !== null || this._changesHead !== null ||\n this._removalsHead !== null;\n }\n\n
forEachItem(fn: (r: KeyValueChangeRecord<K, V>) => void) {\n let record: KeyValueChangeRecord_<K,
V>|null;\n for (record = this._mapHead; record !== null; record = record._next) {\n fn(record);\n }\n }\n\n
forEachPreviousItem(fn: (r: KeyValueChangeRecord<K, V>) => void) {\n let record:
KeyValueChangeRecord_<K, V>|null;\n for (record = this._previousMapHead; record !== null; record =
record._nextPrevious) {\n fn(record);\n }\n }\n\n forEachChangedItem(fn: (r: KeyValueChangeRecord<K,
V>) => void) {\n let record: KeyValueChangeRecord_<K,
V>|null;\n for (record = this._changesHead; record !== null; record = record._nextChanged) {\n fn(record);\n
}\n }\n\n forEachAddedItem(fn: (r: KeyValueChangeRecord<K, V>) => void) {\n let record:
KeyValueChangeRecord_<K, V>|null;\n for (record = this._additionsHead; record !== null; record =
record._nextAdded) {\n fn(record);\n }\n }\n\n forEachRemovedItem(fn: (r: KeyValueChangeRecord<K, V>)
=> void) {\n let record: KeyValueChangeRecord_<K, V>|null;\n for (record = this._removalsHead; record !==
null; record = record._nextRemoved) {\n fn(record);\n }\n }\n\n diff(map?: Map<any, any>|{[k: string]:
any}|null): any {\n if (!map) {\n map = new Map();\n } else if (!(map instanceof Map || isJsObject(map))) {\n
throw new Error(\n `Error trying to diff '${stringify(map)}'. Only maps and objects are allowed`);\n }\n\n
return this.check(map) ? this : null;\n }\n\n onDestroy() {\n\n /**\n * Check the current
state of the map vs the previous.\n * The algorithm is optimised for when the keys do no change.\n */\n
check(map: Map<any, any>|{[k: string]: any}): boolean {\n this._reset();\n let insertBefore =
this._mapHead;\n this._appendAfter = null;\n this._forEach(map, (value: any, key: any) => {\n if
(insertBefore && insertBefore.key === key) {\n this._maybeAddToChanges(insertBefore, value);\n
this._appendAfter = insertBefore;\n insertBefore = insertBefore._next;\n } else {\n const record =
this._getOrCreateRecordForKey(key, value);\n insertBefore = this._insertBeforeOrAppend(insertBefore,
record);\n }\n });\n\n // Items remaining at the end of the list have been deleted\n if (insertBefore) {\n if
(insertBefore._prev) {\n insertBefore._prev._next = null;\n }\n\n this._removalsHead = insertBefore;\n\n
for (let record: KeyValueChangeRecord_<K, V>|null = insertBefore; record !== null;\n
record = record._nextRemoved) {\n if (record === this._mapHead) {\n this._mapHead = null;\n
}\n\n this._records.delete(record.key);\n record._nextRemoved = record._next;\n record.previousValue =
record.currentValue;\n record.currentValue = null;\n record._prev = null;\n record._next = null;\n
}\n }\n\n // Make sure tails have no next records from previous runs\n if (this._changesTail)\n this._changesTail._nextChanged = null;\n if (this._additionsTail) this._additionsTail._nextAdded = null;\n\n
return this.isDirty;\n }\n\n /**\n * Inserts a record before `before` or append at the end of the list when `before` is
null.\n *\n * Notes:\n * - This method appends at `this._appendAfter`,\n * - This method updates
`this._appendAfter`,\n * - The return value is the new value for the insertion pointer.\n */\n private
_insertBeforeOrAppend(\n before: KeyValueChangeRecord_<K, V>|null,\n
record: KeyValueChangeRecord_<K, V>): KeyValueChangeRecord_<K, V>|null {\n if (before) {\n const
prev = before._prev;\n record._next = before;\n record._prev = prev;\n before._prev = record;\n if (prev)\n {\n prev._next = record;\n }\n if (before === this._mapHead) {\n this._mapHead = record;\n }\n\n
this._appendAfter = before;\n return before;\n }\n\n if (this._appendAfter) {\n this._appendAfter._next =
record;\n record._prev = this._appendAfter;\n } else {\n this._mapHead = record;\n }\n\n
this._appendAfter = record;\n return null;\n }\n\n private _getOrCreateRecordForKey(key: K, value: V):
KeyValueChangeRecord_<K, V> {\n if (this._records.has(key)) {\n const record = this._records.get(key)!;\n
this._maybeAddToChanges(record, value);\n const prev = record._prev;\n const next = record._next;\n if

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(prev) {\n    prev._next = next;\n    }\n    if (next)
{\n    next._prev = prev;\n    }\n    record._next = null;\n    record._prev = null;\n\n    return record;\n    }\n\n    const record = new KeyValueChangeRecord_<K, V>(key);\n    this._records.set(key, record);\n    record.currentValue = value;\n    this._addToAdditions(record);\n    return record;\n    }\n\n    /** @internal */\n    _reset() {\n    if (this.isDirty) {\n    let record: KeyValueChangeRecord_<K, V>|null;\n    // let
`_previousMapHead` contain the state of the map before the changes\n    this._previousMapHead =
this._mapHead;\n    for (record = this._previousMapHead; record !== null; record = record._next) {\n
record._nextPrevious = record._next;\n    }\n\n    // Update `record.previousValue` with the value of the item
before the changes\n    // We need to update all changed items (that's those which have been added and changed)\n
for (record = this._changesHead; record !== null; record = record._nextChanged) {\n    record.previousValue
= record.currentValue;\n    }\n    for (record = this._additionsHead; record !== null; record = record._nextAdded)
{\n    record.previousValue = record.currentValue;\n    }\n\n    this._changesHead = this._changesTail = null;\n
    this._additionsHead = this._additionsTail = null;\n    this._removalsHead = null;\n    }\n    }\n\n    // Add the record
or a given key to the list of changes only when the value has actually changed\n    private
_maybeAddToChanges(record: KeyValueChangeRecord_<K, V>, newValue: any): void {\n    if
(!Object.is(newValue, record.currentValue)) {\n    record.previousValue = record.currentValue;\n
record.currentValue = newValue;\n    this._addToChanges(record);\n    }\n    }\n\n    private _addToAdditions(record:
KeyValueChangeRecord_<K, V>) {\n    if (this._additionsHead === null) {\n    this._additionsHead =
this._additionsTail = record;\n    } else {\n    this._additionsTail!._nextAdded = record;\n    this._additionsTail =
record;\n
}\n    }\n\n    private _addToChanges(record: KeyValueChangeRecord_<K, V>) {\n    if (this._changesHead === null)
{\n    this._changesHead = this._changesTail = record;\n    } else {\n    this._changesTail!._nextChanged =
record;\n    this._changesTail = record;\n    }\n    }\n\n    /** @internal */\n    private _forEach<K, V>(obj: Map<K,
V>|{[k: string]: V}, fn: (v: V, k: any) => void) {\n    if (obj instanceof Map) {\n    obj.forEach(fn);\n    } else {\n
Object.keys(obj).forEach(k => fn(obj[k], k));\n    }\n    }\n\n    }\n\n    class KeyValueChangeRecord_<K, V> implements
KeyValueChangeRecord<K, V> {\n    previousValue: V|null = null;\n    currentValue: V|null = null;\n\n    /** @internal
*/\n    _nextPrevious: KeyValueChangeRecord_<K, V>|null = null;\n    /** @internal */\n    _next:
KeyValueChangeRecord_<K, V>|null = null;\n    /** @internal */\n    _prev: KeyValueChangeRecord_<K, V>|null =
null;\n    /** @internal */\n    _nextAdded: KeyValueChangeRecord_<K, V>|null = null;\n    /** @internal */\n
_nextRemoved:
KeyValueChangeRecord_<K, V>|null = null;\n    /** @internal */\n    _nextChanged: KeyValueChangeRecord_<K,
V>|null = null;\n\n    constructor(public key: K) {\n    }\n\n    /** @license\n    * Copyright Google LLC All Rights
Reserved.\n    * Use of this source code is governed by an MIT-style license that can be\n    * found in the
LICENSE file at https://angular.io/license\n    */\n\n    import {defineInjectable} from '../di/interface/defs';\n    import
{StaticProvider} from '../di/interface/provider';\n    import {Optional, SkipSelf} from '../di/metadata';\n    import
{DefaultIterableDifferFactory} from '../differs/default_iterable_differ';\n\n    /**\n    * A type describing supported
iterable types.\n    */\n    * @publicApi\n    * export type NgIterable<T> = Array<T>|Iterable<T>;\n\n    /**\n    * A strategy
for tracking changes over time to an iterable. Used by { @link NgForOf } to\n    * respond to changes in an iterable by
effecting equivalent changes in the DOM.\n    */\n    * @publicApi\n    * export interface IterableDiffer<V>
{\n    /**\n    * Compute a difference between the previous state and the new `object` state.\n    */\n    * @param object
containing the new value.\n    * @returns an object describing the difference. The return value is only valid until the
next\n    * `diff()` invocation.\n    */\n    diff(object: NgIterable<V>|undefined|null):
IterableChanges<V>|null;\n    }\n\n    /**\n    * An object describing the changes in the `Iterable` collection since last
time\n    * `IterableDiffer#diff()` was invoked.\n    */\n    * @publicApi\n    * export interface IterableChanges<V> {\n
/**\n    * Iterate over all changes. `IterableChangeRecord` will contain information about changes\n    * to each
item.\n    */\n    * foreachItem(fn: (record: IterableChangeRecord<V>) => void): void;\n\n    /**\n    * Iterate over a set of
operations which when applied to the original `Iterable` will produce the\n    * new `Iterable`.\n    */\n    * NOTE:
These are not necessarily the actual operations which were applied to the original\n    * `Iterable`, rather

```


these are a set of computed operations which may not be the same as the ones applied. @param record A change which needs to be applied @param previousIndex The `IterableChangeRecord#previousIndex` of the `record` refers to the original `Iterable` location, where as `previousIndex` refers to the transient location of the item, after applying the operations up to this point. @param currentIndex The `IterableChangeRecord#currentIndex` of the `record` refers to the original `Iterable` location, where as `currentIndex` refers to the transient location of the item, after applying the operations up to this point.

forEachOperation(fn: (record: IterableChangeRecord<V>, previousIndex: number|null, currentIndex: number|null) => void): void; /** Iterate over changes in the order of original `Iterable` showing where the original items have moved.

forEachPreviousItem(fn: (record: IterableChangeRecord<V>) => void): void; /** Iterate over all added items.

forEachAddedItem(fn: (record: IterableChangeRecord<V>) => void): void; /** Iterate over all moved items.

forEachMovedItem(fn: (record: IterableChangeRecord<V>) => void): void; /** Iterate over all removed items.

forEachRemovedItem(fn: (record: IterableChangeRecord<V>) => void): void; /** Iterate over all items which had their identity (as computed by the `TrackByFunction`) changed.

forEachIdentityChange(fn: (record: IterableChangeRecord<V>) => void): void; /** Record representing the item change information.

@publicApi @export interface IterableChangeRecord<V> { /** Current index of the item in `Iterable` or null if removed. readonly currentIndex: number|null; /** Previous index of the item in `Iterable` or null if added. readonly previousIndex: number|null; /** The item. readonly item: V; /** Track by identity as computed by the `TrackByFunction`. readonly trackById: any; } /** An optional function passed into the `NgForOf` directive that defines how to track changes for items in an iterable. The function takes the iteration index and item ID. When supplied, Angular tracks changes by the return value of the function.

@publicApi @export interface TrackByFunction<T> { (index: number, item: T): any; } /** Provides a factory for { @link IterableDiffer }. @publicApi @export interface IterableDifferFactory { supports(objects: any): boolean; create<V>(trackByFn?: TrackByFunction<V>): IterableDiffer<V>; } /** A repository of different iterable diffing strategies used by NgFor, NgClass, and others.

@publicApi @export class IterableDifferers { /** @nocollapse static prov = defineInjectable({ token: IterableDifferers, providedIn: 'root', factory: () => new IterableDifferers([new DefaultIterableDifferFactory()]); } /** @deprecated v4.0.0 - Should be private factories: IterableDifferFactory[]; constructor(factories: IterableDifferFactory[]) { this.factories = factories; } static create(factories: IterableDifferFactory[], parent?: IterableDifferers): IterableDifferers { if (parent != null) { const copied = parent.factories.slice(); factories = factories.concat(copied); } return new IterableDifferers(factories); } /** Takes an array of { @link IterableDifferFactory } and returns a provider used to extend the inherited { @link IterableDifferers } instance with the provided factories and return a new { @link IterableDifferers } instance.

@usageNotes ### Example The following example shows how to extend an existing list of factories, which will only be applied to the injector for this component and its children.

This step is all that's required to make a new { @link IterableDiffer } available.

@Component({ viewProviders: [IterableDifferers.extend([new ImmutableListDiffer()])] }) static extend(factories: IterableDifferFactory[]): StaticProvider { return { provide: IterableDifferers, useFactory: (parent: IterableDifferers) => { if (!parent) { // Typically would occur when calling IterableDifferers.extend inside of dependencies passed // to bootstrap(), which would override default pipes instead of extending them. throw new Error('Cannot extend IterableDifferers without a parent injector'); } return IterableDifferers.create(factories, parent); }, // Dependency technically isn't optional, but we can provide a better error message this way. deps: [[IterableDifferers, new SkipSelf(), new Optional()]] } } find(iterable: any): IterableDifferFactory { const factory = this.factories.find(f => f.supports(iterable)); if (factory != null) { return factory; } else { throw new Error(`Cannot find a differ supporting object '\${iterable}' of type '\${iterable.getTypeNameForDebugging(iterable)}'`); } } } @export function

```

getTypeNameForDebugging(type: any): string {\n  return type['name'] || typeof type;\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { Optional, SkipSelf,\n  StaticProvider, defineInjectable } from '././di';\nimport { DefaultKeyValueDifferFactory } from\n  './default_keyvalue_differ';\n\n/**\n * A differ that tracks changes made to an object over time.\n */\n\n@publicApi\nexport interface KeyValueDiffer<K, V> {\n  /**\n   * Compute a difference between the previous\n   state and\n   the new `object` state.\n   * @param object containing the new value.\n   * @returns an object describing the\n   difference. The return value is only valid until the next\n   * `diff()` invocation.\n   */\n  diff(object: Map<K, V>):\n  KeyValueChanges<K, V>|null;\n\n  /**\n   * Compute a difference between the previous state and the new `object`\n   state.\n   * @param object containing the new value.\n   * @returns an object describing the difference. The\n   return value is only valid until the next\n   * `diff()` invocation.\n   */\n  diff(object: {[key: string]: V}):\n  KeyValueChanges<string, V>|null;\n  // TODO(TS2.1): diff<KP extends string>(this: KeyValueDiffer<KP, V>,\n  object: Record<KP, V>);\n  // KeyValueDiffer<KP, V>;\n\n  /**\n   * An object describing the changes in the\n   `Map` or `{[k:string]: string}` since last time\n   * `KeyValueDiffer#diff()` was invoked.\n   */\n  @publicApi\n  export interface KeyValueChanges<K, V> {\n    /**\n     * Iterate over all changes. `KeyValueChangeRecord`\n     will contain information about changes\n     * to each item.\n     */\n    forEachItem(fn: (r: KeyValueChangeRecord<K,\n      V>) => void): void;\n\n    /**\n     * Iterate over changes in the order of original Map showing where the original\n     items\n     * have moved.\n     */\n    forEachPreviousItem(fn: (r: KeyValueChangeRecord<K, V>) => void): void;\n\n    /**\n     * Iterate over all keys for which values have changed.\n     */\n    forEachChangedItem(fn: (r:\n      KeyValueChangeRecord<K, V>) => void): void;\n\n    /**\n     * Iterate over all added items.\n     */\n    forEachAddedItem(fn: (r: KeyValueChangeRecord<K, V>) => void): void;\n\n    /**\n     * Iterate over all removed\n     items.\n     */\n    forEachRemovedItem(fn: (r: KeyValueChangeRecord<K, V>) => void): void;\n  }\n\n  /**\n   * Record\n   representing the item change information.\n   */\n  @publicApi\n  export interface KeyValueChangeRecord<K,\n    V> {\n    /**\n     * Current key in the Map.\n     */\n    readonly key: K;\n\n    /**\n     * Current value for the key or `null`\n     if removed.\n     */\n    readonly currentValue: V|null;\n\n    /**\n     * Previous value for the key or `null` if added.\n     */\n    readonly\n    previousValue: V|null;\n  }\n\n  /**\n   * Provides a factory for { @link KeyValueDiffer }.\n   */\n  @publicApi\n  export interface KeyValueDifferFactory {\n    /**\n     * Test to see if the differ knows how to diff this kind of\n     object.\n     */\n    supports(objects: any): boolean;\n\n    /**\n     * Create a `KeyValueDiffer`.\n     */\n    create<K, V>():\n    KeyValueDiffer<K, V>;\n  }\n\n  /**\n   * A repository of different Map diffing strategies used by NgClass, NgStyle,\n   and others.\n   */\n  @publicApi\n  export class KeyValueDifferers {\n    /**\n     * @nocollapse\n     */\n    static prov =\n    defineInjectable({\n      token: KeyValueDifferers,\n      providedIn: 'root',\n      factory: () => new KeyValueDifferers([new\n        DefaultKeyValueDifferFactory()])\n    });\n\n    /**\n     * @deprecated v4.0.0 - Should be private.\n     */\n    static factories:\n    KeyValueDifferFactory[];\n\n    constructor(factories: KeyValueDifferFactory[]) {\n      this.factories\n      = factories;\n    }\n\n    static create<S>(factories: KeyValueDifferFactory[], parent?:\n    KeyValueDifferers):\n    KeyValueDifferers {\n      if (parent) {\n        const copied = parent.factories.slice();\n        factories =\n        factories.concat(copied);\n      }\n      return new KeyValueDifferers(factories);\n    }\n\n    /**\n     * Takes an array of\n     { @link KeyValueDifferFactory } and returns a provider used to extend the\n     * inherited { @link KeyValueDifferers }\n     instance with the provided factories and return a new\n     * { @link KeyValueDifferers } instance.\n     */\n    @usageNotes\n    * ### Example\n    * The following example shows how to extend an existing list of\n    factories,\n    * which will only be applied to the injector for this component and its children.\n    * This step is all\n    that's required to make a new { @link KeyValueDiffer } available.\n    * \n    * @Component({\n    *   viewProviders: [\n    *     KeyValueDifferers.extend([new ImmutableMapDiffer()])\n    *   ]\n    * })\n    * \n    * static extend<S>(factories: KeyValueDifferFactory[]): StaticProvider {\n    *   return {\n    *     provide:\n    KeyValueDifferers,\n    *     useFactory: (parent: KeyValueDifferers) => {\n    *       if (!parent) {\n    *         // Typically would\n    occur when calling KeyValueDifferers.extend inside of dependencies passed\n    *         // to bootstrap(), which would\n    override default pipes instead of extending them.\n    *         throw new Error('Cannot extend KeyValueDifferers without

```

```

a parent injector');\n    }\n    return KeyValueDiffers.create(factories, parent);\n  },\n  // Dependency
technically isn't optional, but we can provide a better error message this way.\n  deps: [[KeyValueDiffers, new
SkipSelf(), new Optional()]]\n  ];\n  }\n\n  find(kv: any): KeyValueDifferFactory {\n    const factory =
this.factories.find(f => f.supports(kv));\n    if (factory) {\n      return factory;\n    }\n    throw new Error(`Cannot find
a differ supporting object '${kv}'`);\n  }\n}\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {assertDefined} from
'./util/assert';\nimport {IcuContainerIterate} from './i18n/i18n_tree_shaking';\nimport
{CONTAINER_HEADER_OFFSET} from './interfaces/container';\nimport {TElementNode, TIcuContainerNode,
TNode, TNodeType} from './interfaces/node';\nimport {RNode} from './interfaces/renderer_dom';\nimport
{isLContainer} from './interfaces/type_checks';\nimport {DECLARATION_COMPONENT_VIEW, LView,
T_HOST, TVIEW, TView} from './interfaces/view';\nimport {assertTNodeType} from './node_assert';\nimport
{getLViewParent} from './util/view_traversal_utils';\nimport {unwrapRNode} from './util/view_utils';\n\n\nexport
function collectNativeNodes(\n  tView: TView, IView: LView, tNode: TNode|null, result: any[],\n  isProjection:
boolean = false): any[] {\n  while (tNode !== null) {\n    ngDevMode
&&\n    assertTNodeType(\n      tNode,\n      TNodeType.AnyRNode | TNodeType.AnyContainer |
TNodeType.Projection | TNodeType.Icu);\n    const lNode = IView[tNode.index];\n    if (lNode !== null) {\n
result.push(unwrapRNode(lNode));\n    }\n\n    // A given lNode can represent either a native node or a LContainer
(when it is a host of a\n    // ViewContainerRef). When we find a LContainer we need to descend into it to collect
root nodes\n    // from the views in this container.\n    if (isLContainer(lNode)) {\n      for (let i =
CONTAINER_HEADER_OFFSET; i < lNode.length; i++) {\n        const lViewInAContainer = lNode[i];\n
const lViewFirstChildTNode = lViewInAContainer[TVIEW].firstChild;\n        if (lViewFirstChildTNode !== null)
{\n          collectNativeNodes(\n            lViewInAContainer[TVIEW], lViewInAContainer, lViewFirstChildTNode,
result);\n        }\n      }\n      const tNodeType = tNode.type;\n      if (tNodeType &
TNodeType.ElementContainer) {\n        collectNativeNodes(tView, IView, tNode.child, result);\n      } else if (tNodeType & TNodeType.Icu) {\n
const nextRNode = icuContainerIterate(tNode as TIcuContainerNode, IView);\n      let rNode: RNode|null;\n
while (rNode = nextRNode()) {\n        result.push(rNode);\n      }\n      } else if (tNodeType &
TNodeType.Projection) {\n        const componentView = IView[DECLARATION_COMPONENT_VIEW];\n
const componentHost = componentView[T_HOST] as TElementNode;\n        const slotIdx = tNode.projection as
number;\n        ngDevMode &&\n        assertDefined(\n          componentHost.projection,\n          'Components
with projection nodes (<ng-content>) must have projection slots defined.);\n        const nodesInSlot =
componentHost.projection![slotIdx];\n        if (Array.isArray(nodesInSlot)) {\n          result.push(...nodesInSlot);\n        }
else {\n          const parentView = getLViewParent(componentView);\n          ngDevMode &&\n
assertDefined(\n            parentView,\n            'Component views should always have a parent view (component\'s host
view)');\n          collectNativeNodes(parentView[TVIEW], parentView, nodesInSlot, result, true);\n        }\n      }\n
tNode = isProjection ? tNode.projectionNext : tNode.next;\n    }\n\n    return result;\n  }\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ChangeDetectorRef as
viewEngine_ChangeDetectorRef} from './change_detection/change_detector_ref';\nimport {ViewContainerRef as
viewEngine_ViewContainerRef} from './linker/view_container_ref';\nimport {EmbeddedViewRef as
viewEngine_EmbeddedViewRef, InternalViewRef as viewEngine_InternalViewRef, ViewRefTracker} from
'./linker/view_ref';\nimport {collectNativeNodes} from './collect_native_nodes';\nimport
{checkNoChangesInRootView, checkNoChangesInternal,
detectChangesInRootView, detectChangesInternal, markViewDirty, storeCleanupWithContext} from
'./instructions/shared';\nimport {CONTEXT, FLAGS, LView, LViewFlags, TVIEW} from
'./interfaces/view';\nimport {destroyLView, renderDetachView} from './node_manipulation';\n\n\n// Needed due to

```

tsickle downleveling where multiple `implements` with classes creates multiple @extends in Closure annotations, which is illegal. This workaround fixes the multiple @extends by making the annotation @implements instead.

```

nexport interface viewEngine_ChangeDetectorRef_interface extends
viewEngine_ChangeDetectorRef {}
nexport class ViewRef<T> implements viewEngine_EmbeddedViewRef<T>,
viewEngine_InternalViewRef,
viewEngine_ChangeDetectorRef_interface {
  private
  _appRef: ViewRefTracker|null = null;
  private _viewContainerRef: viewEngine_ViewContainerRef|null =
  null;

  get rootNodes(): any[] {
    const IView = this._IView;
    const tView = IView[TVIEW];
    return collectNativeNodes(tView, IView, tView.firstChild, []);
  }

  constructor(
    /** This
    represents `LView` associated with the component when ViewRef is a ChangeDetectorRef.
    * When
    ViewRef is created for a dynamic component, this also represents the `LView` for the
    * component.
    * For a "regular" ViewRef created for an embedded view, this is the `LView` for the embedded
    * view.
    * @internal
    */
    private _IView: LView,
    /** This represents the `LView` associated
    with the point where `ChangeDetectorRef` was
    * requested.
    * This may be different from
    `_IView` if the `_cdRefInjectingView` is an embedded view.
    */
    private _cdRefInjectingView?: LView) {
    get context(): T {
      return this._IView[CONTEXT] as T;
    }
    get destroyed(): boolean {
      return
      (this._IView[FLAGS] & LViewFlags.Destroyed) === LViewFlags.Destroyed;
    }
    destroy(): void {
      if (this._appRef) {
        this._appRef.detachView(this);
      } else if
      (this._viewContainerRef) {
        const index = this._viewContainerRef.indexOf(this);
        if (index > -1) {
          this._viewContainerRef.detach(index);
        }
        this._viewContainerRef = null;
      }
      destroyLView(this._IView[TVIEW], this._IView);
    }
    onDestroy(callback: Function) {
      storeCleanupWithContext(this._IView[TVIEW], this._IView, null, callback);
    }
    /** Marks a view and all
    of its ancestors dirty.
    * It also triggers change detection by calling `scheduleTick` internally, which
    coalesces
    * multiple `markForCheck` calls to into one change detection run.
    * This can be used to ensure
    an { @link ChangeDetectionStrategy#OnPush OnPush } component is
    * checked when it needs to be re-rendered
    but the two normal triggers haven't marked it
    * dirty (i.e. inputs haven't changed and events haven't fired in the
    view).
    * <!-- TODO: Add a link to a chapter on OnPush components -->
    * @usageNotes
    * ###
    Example
    * ```typescript
    * @Component({
    *   selector: 'my-app',
    *   template: `Number of ticks:
    {{numberOfTicks}}`
    *   changeDetection: ChangeDetectionStrategy.OnPush,
    * })
    * class AppComponent
    {
    *   numberOfTicks = 0;
    *   constructor(private ref: ChangeDetectorRef) {
    *     setInterval(() => {
    *       this.numberOfTicks++;
    *       // the following is required, otherwise the view will not be updated
    *       this.ref.markForCheck();
    *     }, 1000);
    *   }
    *   markForCheck(): void {
    markViewDirty(this._cdRefInjectingView || this._IView);
    }
    }
    * ```
    * Detaches the view from the change
    detection tree.
    * Detached views will not be checked during change detection runs until they are
    * re-
    attached, even if they are dirty. `detach` can be used in combination with
    * { @link ChangeDetectorRef#detectChanges detectChanges } to implement local change
    * detection checks.
    * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->
    * <!-- TODO: Add a live demo
    once ref.detectChanges is merged into master -->
    * @usageNotes
    * ### Example
    * The
    following example defines a component with a large list of readonly data.
    * Imagine the data changes constantly,
    many times per second. For performance reasons,
    * we want to check and update the list every five seconds. We
    can do that by detaching
    * the component's change detector and doing a local check every five seconds.
    * ```typescript
    * class DataProvider {
    *   // in a real application the returned data will be different every time
    *   get data() {
    *     return [1,2,3,4,5];
    *   }
    * }
    * @Component({
    *   selector: 'giant-list',
    *   template: `
    *     <li *ngFor="let d of dataProvider.data">Data
    {{d}}</li>
    *   `
    * })
    * class GiantList {
    *   constructor(private ref: ChangeDetectorRef, private
    dataProvider: DataProvider) {
    *     ref.detach();
    *     setInterval(() => {
    *       this.ref.detectChanges();
    *     }, 5000);
    *   }
    * }
    * @Component({
    *   selector: 'app',
    *   providers: [DataProvider],
    *   template: `
    *     <giant-list><giant-list>
    *   `
    * })
    * class App {
    *   detach(): void
    {
    this._IView[FLAGS] &= ~LViewFlags.Attached;
    }
    }
    * Re-attaches a view to the change detection

```

tree.
 * This can be used to re-attach views that were previously detached from the tree
 * using { @link ChangeDetectorRef#detach detach}. Views are attached to the tree by default.
 * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->
 * @usageNotes
 * ### Example
 * The following example creates a component displaying

```
`live` data. The component will detach its change detector from the main change detector tree when the
component's live property is set to false.
`typescript`
class DataProvider {
  data = 1;
  constructor() {
    setInterval(() => {
      this.data = this.data * 2;
    }, 500);
  }
  @Component({
    selector: 'live-data',
    inputs: ['live'],
    template: 'Data:
    {{dataProvider.data}}'
  })
  class LiveData {
    constructor(private ref: ChangeDetectorRef, private
    dataProvider: DataProvider) {}
    set live(value) {
      if (value) {
        this.ref.reattach();
      }
      else {
        this.ref.detach();
      }
    }
    @Component({
      selector: 'my-app',
      providers: [DataProvider],
      template: `
      Live Update: <input type="checkbox" [(ngModel)]="live">
      * <live-data [live]="live"><live-data>
      * `
    })
    class AppComponent {
      live = true;
    }
  }
  reattach(): void {
    this._View[FLAGS] |= LViewFlags.Attached;
  }
  /** Checks the view and its children.
  * This can also be used in combination with { @link ChangeDetectorRef#detach detach} to implement
  * local change detection checks.
  * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->
  * <!-- TODO: Add a live demo once ref.detectChanges is merged into master -->
  * @usageNotes
  * ### Example
  * The following example defines a component with a large list of readonly data.
  * Imagine, the data changes
  * constantly, many times per second. For performance reasons,
  * we want to check and update the list every five
  * seconds.
  * We can do that by detaching the component's change detector and doing a local change
  * detection
  * check every five seconds.
  * See { @link ChangeDetectorRef#detach
  * detach} for more information.
  * detectChanges(): void {
    detectChangesInternal(this._View[TVIEW],
    this._View, this.context);
  }
  /** Checks the change detector and its children, and throws if any changes
  * are detected.
  * This is used in development mode to verify that running change detection doesn't
  * introduce other changes.
  * checkNoChanges(): void {
    checkNoChangesInternal(this._View[TVIEW],
    this._View, this.context);
  }
  attachToViewContainerRef(vcRef: viewEngine_ViewContainerRef) {
    if
    (this._appRef) {
      throw new Error('This view is already attached directly to the ApplicationRef!');
    }
    this._viewContainerRef = vcRef;
  }
  detachFromAppRef() {
    this._appRef = null;
  }
  renderDetachView(this._View[TVIEW], this._View);
  attachToAppRef(appRef: ViewRefTracker) {
    if
    (this._viewContainerRef) {
      throw new Error('This view is already attached to a ViewContainer!');
    }
    this._appRef = appRef;
  }
  /** @internal */
  @ngexport class RootViewRef<T> extends ViewRef<T> {
    constructor(public _view: LView) {
      super(_view);
    }
    detectChanges(): void {
      detectChangesInRootView(this._view);
    }
    checkNoChanges(): void {
      checkNoChangesInRootView(this._view);
    }
    get context(): T {
      return null;
    }
  }
  /** @license
  * Copyright Google LLC All Rights Reserved.
  * Use of this source code is governed by an MIT-style license
  * that can be
  * found in the LICENSE file at https://angular.io/license
  */
  @ngimport { TNode, TNodeType } from
  './render3/interfaces/node';
  @ngimport { isComponentHost } from './render3/interfaces/type_checks';
  @ngimport { DECLARATION_COMPONENT_VIEW, LView } from './render3/interfaces/view';
  @ngimport { getCurrentTNode,
  getLView } from './render3/state';
  @ngimport { getComponentLViewByIndex } from './render3/util/view_utils';
  @ngimport { ViewRef as R3_ViewRef } from './render3/view_ref';
  @ngimport { noop } from './util/noop';
  @ngexport const SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__ =
  injectChangeDetectorRef;
  @ngconst SWITCH_CHANGE_DETECTOR_REF_FACTORY__PRE_R3__ =
  noop;
  @ngconst SWITCH_CHANGE_DETECTOR_REF_FACTORY: typeof injectChangeDetectorRef =
  SWITCH_CHANGE_DETECTOR_REF_FACTORY__PRE_R3__;
  /** Base class that provides change
  * detection functionality.
  * A change-detection tree collects all views that are to be checked for changes.
  * Use the
  * methods to add and remove views from the tree, initiate change-detection,
  * and explicitly mark views as _dirty_,
  * meaning that they have changed and need to be re-rendered.
  * @see [Using change detection
```

`hooks](guide/lifecycle-hooks#using-change-detection-hooks)\n * @see [Defining custom change detection](guide/lifecycle-hooks#defining-custom-change-detection)\n *\n * The following examples demonstrate how to modify default change-detection behavior\n * to perform explicit detection when needed.\n`

`\n * ### Use `markForCheck()` with `CheckOnce` strategy\n *\n * The following example sets the `OnPush` change-detection strategy for a component\n * (`CheckOnce`, rather than the default `CheckAlways`), then forces a second check\n * after an interval. See [live demo](http://plnr.co/edit/GC512b?p=preview).\n *\n * <code-example path=\"core/ts/change_detect/change-detection.ts\" \n * region=\"mark-for-check\"></code-example>\n *\n * ### Detach change detector to limit how often check occurs\n *\n * The following example defines a component with a large list of read-only data\n * that is expected to change constantly, many times per second.\n * To improve performance, we want to check and update the list\n * less often than the changes actually occur. To do that, we detach\n * the component's change detector and perform an explicit local check every five seconds.\n *\n * <code-example path=\"core/ts/change_detect/change-detection.ts\" \n * region=\"detach\"></code-example>\n *\n * ### Reattaching a detached component\n *\n * The following example creates a component displaying live data.\n * The component detaches its change detector from the main change detector tree\n * when the `live` property is set to false, and reattaches it when the property\n * becomes true.\n *\n * <code-example path=\"core/ts/change_detect/change-detection.ts\" \n * region=\"reattach\"></code-example>\n *`

@publicApi

```
//\nexport abstract class ChangeDetectorRef {\n  /**\n   * When a view uses the {@link\n   * ChangeDetectionStrategy#OnPush OnPush} (checkOnce)\n   * change detection strategy, explicitly marks the view as changed so that\n   * it can be checked again.\n   *\n   * Components are normally marked as dirty (in need of rerendering) when inputs\n   * have changed or events have fired in the view. Call this method to ensure that\n   * a component is checked even if these triggers have not occurred.\n   *\n   * <!-- TODO: Add a link to a chapter on OnPush components -->\n   */\n  markForCheck(): void;\n\n  /**\n   * Detaches this view from the change-detection tree.\n   * A detached view is not checked until it is reattached.\n   * Use in combination with `detectChanges()` to implement local change detection checks.\n   *\n   * Detached views are not checked during change detection runs until they are\n   * re-attached, even if they are marked as dirty.\n   *\n   * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->\n   * <!-- TODO: Add a live demo once ref.detectChanges is merged into master -->\n   */\n  detach(): void;\n\n  /**\n   * Checks this view and its children. Use in combination with {@link\n   * ChangeDetectorRef#detach detach}\n   * to implement local change detection checks.\n   *\n   * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->\n   * <!-- TODO: Add a live demo once ref.detectChanges is merged into master -->\n   */\n  detectChanges(): void;\n\n  /**\n   * Checks the change detector and its children, and throws if any changes are detected.\n   *\n   * Use in development mode to verify that running change detection doesn't introduce\n   * other changes.\n   */\n  abstract checkNoChanges(): void;\n\n  /**\n   * Re-attaches the previously detached view to the change detection tree.\n   * Views are attached to the tree by default.\n   *\n   * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->\n   */\n  abstract reattach(): void;\n\n  /**\n   * @internal\n   * @nocollapse\n   */\n  static __NG_ELEMENT_ID__: () => ChangeDetectorRef = SWITCH_CHANGE_DETECTOR_REF_FACTORY;\n\n  /**\n   * This marker is need so that the JIT compiler can correctly identify this class as special.\n   *\n   * @internal\n   * @nocollapse\n   */\n  static __ChangeDetectorRef__ = true;\n\n  /**\n   * Returns a ChangeDetectorRef (a.k.a. a ViewRef)\n   */\n  export function injectChangeDetectorRef(isPipe = false): ChangeDetectorRef {\n    return\n      createViewRef(getCurrentTNode(),\n        getLView(), isPipe);\n  }\n\n  /**\n   * Creates a ViewRef and stores it on the injector as ChangeDetectorRef (public alias).\n   *\n   * @param tNode The node that is requesting a ChangeDetectorRef\n   * @param IView The view to which the node belongs\n   * @param isPipe Whether the view is being injected into a pipe.\n   * @returns The ChangeDetectorRef to use\n   */\n  function createViewRef(tNode: TNode, IView: LView, isPipe: boolean):\n    ChangeDetectorRef {\n      // `isComponentView` will be true for Component and Directives (but not for Pipes).\n      // See https://github.com/angular/angular/pull/33072 for proper fix\n      const isComponentView = !isPipe &&
```

```

isComponentHost(tNode);\n if (isComponentView) {\n // The LView represents the location where the
component is declared.\n // Instead we want the LView for the component View and so we need to look it up.\n
const componentView = getComponentLViewByIndex(tNode.index, IView); // look down\n return new
R3_ViewRef(componentView, componentView);\n
} else if (tNode.type & (TNodeType.AnyRNode | TNodeType.AnyContainer | TNodeType.Icu)) {\n // The
LView represents the location where the injection is requested from.\n // We need to locate the containing LView
(in case where the `IView` is an embedded view)\n const hostComponentView =
IView[DECLARATION_COMPONENT_VIEW]; // look up\n return new R3_ViewRef(hostComponentView,
IView);\n }\n return null!;\n}", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nimport { DefaultIterableDifferFactory } from
'./differs/default_iterable_differ';\nimport { DefaultKeyValueDifferFactory } from
'./differs/default_keyvalue_differ';\nimport { IterableDifferFactory, IterableDiffers } from
'./differs/iterable_differs';\nimport { KeyValueDifferFactory, KeyValueDiffers } from
'./differs/keyvalue_differs';\n\nexport { SimpleChange,
SimpleChanges } from './interface/simple_change';\nexport { devModeEqual, WrappedValue } from
'./change_detection_util';\nexport { ChangeDetectorRef } from './change_detector_ref';\nexport
{ ChangeDetectionStrategy, ChangeDetectorStatus, isDefaultChangeDetectionStrategy } from './constants';\nexport
{ DefaultIterableDifferFactory } from './differs/default_iterable_differ';\nexport { DefaultIterableDiffer } from
'./differs/default_iterable_differ';\nexport { DefaultKeyValueDifferFactory } from
'./differs/default_keyvalue_differ';\nexport { IterableChangeRecord, IterableChanges, IterableDiffer,
IterableDifferFactory, IterableDiffers, NgIterable, TrackByFunction } from './differs/iterable_differs';\nexport
{ KeyValueChangeRecord, KeyValueChanges, KeyValueDiffer, KeyValueDifferFactory, KeyValueDiffers } from
'./differs/keyvalue_differs';\nexport { PipeTransform } from './pipe_transform';\n\n\n/*\n * Structural diffing for
`Object`s and `Map`s.\n *\nconst keyValDiff: KeyValueDifferFactory[] = [new
DefaultKeyValueDifferFactory()];\n\n\n/*\n
* Structural diffing for `Iterable` types such as `Array`s.\n *\nconst iterableDiff: IterableDifferFactory[] = [new
DefaultIterableDifferFactory()];\n\nexport const defaultIterableDiffers = new IterableDiffers(iterableDiff);\n\nexport
const defaultKeyValueDiffers = new KeyValueDiffers(keyValDiff);\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\nimport { assertLContainer } from './render3/assert';\nimport
{ createLView, renderView } from './render3/instructions/shared';\nimport { TContainerNode, TNode, TNodeType }
from './render3/interfaces/node';\nimport { DECLARATION_LCONTAINER, LView, LViewFlags, QUERIES,
TView } from './render3/interfaces/view';\nimport { getCurrentTNode, getLView } from './render3/state';\nimport
{ ViewRef as R3_ViewRef } from './render3/view_ref';\nimport { assertDefined }
from './util/assert';\nimport { noop } from './util/noop';\nimport { createElementRef, ElementRef } from
'./element_ref';\nimport { EmbeddedViewRef } from './view_ref';\n\n\nexport const
SWITCH_TEMPLATE_REF_FACTORY__POST_R3__ = injectTemplateRef;\nconst
SWITCH_TEMPLATE_REF_FACTORY__PRE_R3__ = noop;\nconst SWITCH_TEMPLATE_REF_FACTORY:
typeof injectTemplateRef = SWITCH_TEMPLATE_REF_FACTORY__PRE_R3__;\n\n\n/*\n * Represents an
embedded template that can be used to instantiate embedded views.\n * To instantiate embedded views based on a
template, use the `ViewContainerRef`\n * method `createEmbeddedView()`. \n *\n * Access a `TemplateRef`
instance by placing a directive on an ``\n * element (or directive prefixed with `*`). The
`TemplateRef` for the embedded view\n * is injected into the constructor of the directive,\n * using the
`TemplateRef` token.\n *\n * You can also use a `Query` to find a `TemplateRef` associated with\n * a component
or a directive.\n *\n * @see `ViewContainerRef`\n\n
* @see [Navigate the Component Tree with DI](guide/dependency-injection-navtree)\n *\n * @publicApi\n
*\n\nexport abstract class TemplateRef<C> {\n /*\n * The anchor element in the parent view for this embedded

```

```

view.\n * The data-binding and injection contexts of embedded views created from this `TemplateRef` \n *
inherit from the contexts of this location.\n * Typically new embedded views are attached to the view
container of this location, but in \n * advanced use-cases, the view can be attached to a different container while
keeping the \n * data-binding and injection context from the original location.\n * \n // TODO(i): rename to
anchor or location\n abstract getElementRef(): ElementRef;\n\n /**\n * Instantiates an embedded view based on
this template.\n * and attaches it to the view container.\n * @param context The data-binding context of the
embedded view, as declared \n * in the `<ng-template>` usage.\n * @returns The
new embedded view object.\n */\n abstract createEmbeddedView(context: C): EmbeddedViewRef<C>;\n\n /**\n
* @internal\n * @nocollapse\n */\n static __NG_ELEMENT_ID__: () => TemplateRef<any> | null =
SWITCH_TEMPLATE_REF_FACTORY;\n}\n\nconst ViewEngineTemplateRef = TemplateRef;\n\nconst
R3TemplateRef = class TemplateRef<T> extends ViewEngineTemplateRef<T> {\n  constructor(\n    private
_declarationLView: LView, private _declarationTContainer: TContainerNode,\n    public elementRef:
ElementRef) {\n    super();\n  }\n\n  createEmbeddedView(context: T): EmbeddedViewRef<T> {\n    const
embeddedTVView = this._declarationTContainer.tViews as TVView;\n    const embeddedLView = createLView(\n
this._declarationLView, embeddedTVView, context, LViewFlags.CheckAlways, null,\n
embeddedTVView.declTNode, null, null, null, null);\n    const declarationLContainer =
this._declarationLView[this._declarationTContainer.index];\n    ngDevMode &&
assertLContainer(declarationLContainer);\n
    embeddedLView[DECLARATION_LCONTAINER] = declarationLContainer;\n\n    const
declarationViewLQueries = this._declarationLView[QUERIES];\n    if (declarationViewLQueries !== null) {\n
embeddedLView[QUERIES] = declarationViewLQueries.createEmbeddedView(embeddedTVView);\n    }\n\n
renderView(embeddedTVView, embeddedLView, context);\n\n    return new R3_ViewRef<T>(embeddedLView);\n
}\n};\n\n/**\n * Creates a TemplateRef given a node.\n */\n * @returns The TemplateRef instance to use\n
*/\n\nexport function injectTemplateRef<T>(): TemplateRef<T> | null {\n  return
createTemplateRef<T>(getCurrentTNode()!, getLView());\n}\n\n/**\n * Creates a TemplateRef and stores it on the
injector.\n */\n * @param hostTNode The node on which a TemplateRef is requested\n * @param hostLView The
`LView` to which the node belongs\n * @returns The TemplateRef instance or null if we can't create a TemplateRef
on a given node type\n */\n\nexport function createTemplateRef<T>(hostTNode: TNode, hostLView: LView):
TemplateRef<T> | null {\n  if (hostTNode.type & TNodeType.Container) {\n    ngDevMode &&
assertDefined(hostTNode.tViews, 'TVView must be allocated');\n    return new R3TemplateRef(\n      hostLView,
hostTNode as TContainerNode, createElementRef(hostTNode, hostLView));\n    }\n  return null;\n}\n\n"/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from
'./di/injector';\nimport {Type} from './interface/type';\nimport {ComponentFactoryResolver} from
'./component_factory_resolver';\n\n/**\n * Represents an instance of an `NgModule` created by an
`NgModuleFactory`.\n * Provides access to the `NgModule` instance and related objects.\n */\n * @publicApi\n
*/\n\nexport abstract class NgModuleRef<T> {\n  /**\n   * The injector that contains all of the providers of the
`NgModule`.\n   */\n  abstract get injector(): Injector;\n\n  /**\n   * The resolver that can retrieve the component factories\n   * declared in the `entryComponents` property of
the module.\n   */\n  abstract get componentFactoryResolver(): ComponentFactoryResolver;\n\n  /**\n   * The
`NgModule` instance.\n   */\n  abstract get instance(): T;\n\n  /**\n   * Destroys the module instance and all of the
data structures associated with it.\n   */\n  abstract destroy(): void;\n\n  /**\n   * Registers a callback to be executed
when the module is destroyed.\n   */\n  abstract onDestroy(callback: () => void): void;\n}\n\nexport interface
InternalNgModuleRef<T> extends NgModuleRef<T> {\n  // Note: we are using the prefix _ as NgModuleData is an
NgModuleRef and therefore directly\n  // exposed to the user.\n  _bootstrapComponents: Type<any>[];\n}\n\n/**\n
* @publicApi\n */\n\nexport abstract class NgModuleFactory<T> {\n  abstract get moduleType(): Type<T>;\n
  abstract create(parentInjector: Injector | null): NgModuleRef<T>;\n}\n\n"/**\n
* @license\n

```



```

* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {Injector} from
'./di/injector';\nimport {assertNodeInjector} from './render3/assert';\nimport {getParentInjectorLocation,
NodeInjector} from './render3/di';\nimport {addToViewTree, createLContainer} from
'./render3/instructions/shared';\nimport {CONTAINER_HEADER_OFFSET, LContainer, NATIVE, VIEW_REFS}
from './render3/interfaces/container';\nimport {NodeInjectorOffset} from './render3/interfaces/injector';\nimport
{TContainerNode, TDirectiveHostNode, TElementContainerNode, TElementNode, TNodeType} from
'./render3/interfaces/node';\nimport {RComment, RElement} from './render3/interfaces/renderer_dom';\nimport
{isLContainer} from './render3/interfaces/type_checks';\nimport {LView, PARENT, RENDERER, T_HOST,
TVIEW} from './render3/interfaces/view';\nimport {assertTNodeType} from './render3/node_assert';\nimport
{addViewToContainer, destroyLView, detachView, getBeforeNodeForView, insertView, nativeInsertBefore,
nativeNextSibling, nativeParentNode} from './render3/node_manipulation';\nimport {getCurrentTNode, getLView}
from './render3/state';\nimport {getParentInjectorIndex, getParentInjectorView, hasParentInjector} from
'./render3/util/injector_utils';\nimport {getNativeByTNode, unwrapRNode, viewAttachedToContainer} from
'./render3/util/view_utils';\nimport {ViewRef as R3ViewRef} from './render3/view_ref';\nimport {addToArray,
removeFromArray} from './util/array_utils';\nimport {assertEqual, assertGreaterThan, assertLessThan} from
'./util/assert';\nimport {noop} from './util/noop';\nimport {ComponentFactory, ComponentRef} from
'./component_factory';\nimport {createElementRef, ElementRef} from './element_ref';\nimport {NgModuleRef}
from './ng_module_factory';\nimport {TemplateRef} from './template_ref';\nimport {EmbeddedViewRef, ViewRef}
from './view_ref';\n\n\nexport
const SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__ = injectViewContainerRef;\nconst
SWITCH_VIEW_CONTAINER_REF_FACTORY__PRE_R3__ = noop as typeof injectViewContainerRef;\nconst
SWITCH_VIEW_CONTAINER_REF_FACTORY: typeof injectViewContainerRef =\n
SWITCH_VIEW_CONTAINER_REF_FACTORY__PRE_R3__;\n\n\n/**\n * Represents a container where one or
more views can be attached to a component.\n *\n * Can contain *host views* (created by instantiating a\n *
component with the `createComponent()` method), and *embedded views*\n * (created by instantiating a
`TemplateRef` with the `createEmbeddedView()` method).\n *\n * A view container instance can contain other view
containers,\n * creating a [view hierarchy](guide/glossary#view-tree).\n *\n * @see `ComponentRef`\n * @see
`EmbeddedViewRef`\n *\n * @publicApi\n */\n\nexport abstract class ViewContainerRef {\n\n  /**\n   * Anchor
element that specifies the location of this container in the containing view.\n   * Each view container can have
only one anchor element, and each anchor element\n   * can have only a single view container.\n   *\n   * Root
elements of views attached to this container become siblings of the anchor element in\n   * the rendered view.\n   *
\n   * Access the `ViewContainerRef` of an element by placing a `Directive` injected\n   * with `ViewContainerRef` on
the element, or use a `ViewChild` query.\n   *\n   * <!-- TODO: rename to anchorElement -->\n   */\n   abstract get
element(): ElementRef;\n\n  /**\n   * The [dependency injector](guide/glossary#injector) for this view container.\n   */\n   abstract get injector(): Injector;\n\n  /**\n   * @deprecated No replacement\n   */\n   abstract get parentInjector():
Injector;\n\n  /**\n   * Destroys all views in this container.\n   */\n   abstract clear(): void;\n\n  /**\n   * Retrieves a
view from this container.\n   * @param index The 0-based index of the view to retrieve.\n   * @returns The
`ViewRef` instance, or null if the index is out of range.\n   */\n   abstract
get(index: number): ViewRef|null;\n\n  /**\n   * Reports how many views are currently attached to this container.\n   */\n   * @returns The number of views.\n   */\n   abstract get length(): number;\n\n  /**\n   * Instantiates an embedded
view and inserts it\n   * into this container.\n   * @param templateRef The HTML template that defines the view.\n   *
\n   * @param index The 0-based index at which to insert the new view into this container.\n   * If not specified,
appends the new view as the last entry.\n   *\n   * @returns The `ViewRef` instance for the newly created view.\n   */\n   abstract createEmbeddedView<C>(templateRef: TemplateRef<C>, context?: C, index?: number):\n
EmbeddedViewRef<C>;\n\n  /**\n   * Instantiates a single component and inserts its host view into this container.\n   */\n   * @param componentFactory The factory to use.\n   * @param index The index at which to insert the new
component's host view into this container.\n   * If not specified, appends the new view as the last

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entry.\n * @param injector The injector to use as the parent for the new component.\n * @param
projectableNodes\n * @param ngModule\n * \n * @returns The new component instance, containing the host
view.\n * \n * \n abstract createComponent<C>(\n    componentFactory: ComponentFactory<C>, index?:
number, injector?: Injector,\n    projectableNodes?: any[], ngModule?: NgModuleRef<any>):
ComponentRef<C>;\n\n /**\n * Inserts a view into this container.\n * @param viewRef The view to insert.\n *
@param index The 0-based index at which to insert the view.\n * If not specified, appends the new view as the last
entry.\n * @returns The inserted `ViewRef` instance.\n * \n * \n abstract insert(viewRef: ViewRef, index?:
number): ViewRef;\n\n /**\n * Moves a view to a new location in this container.\n * @param viewRef The view
to move.\n * @param index The 0-based index of the new location.\n * @returns The moved `ViewRef`
instance.\n * \n * \n abstract move(viewRef:
ViewRef, currentIndex: number): ViewRef;\n\n /**\n * Returns the index of a view within the current container.\n
@param viewRef The view to query.\n * @returns The 0-based index of the view's position in this container,\n
* or `-1` if this container doesn't contain the view.\n * \n * \n abstract indexOf(viewRef: ViewRef): number;\n\n /**\n
* Destroys a view attached to this container\n * @param index The 0-based index of the view to destroy.\n * If
not specified, the last view in the container is removed.\n * \n * \n abstract remove(index?: number): void;\n\n /**\n
* Detaches a view from this container without destroying it.\n * Use along with `insert()` to move a view within the
current container.\n * @param index The 0-based index of the view to detach.\n * If not specified, the last view in
the container is detached.\n * \n * \n abstract detach(index?: number): ViewRef|null;\n\n /**\n * @internal\n *
@nocollapse\n * \n static __NG_ELEMENT_ID__:
() => ViewContainerRef = SWITCH_VIEW_CONTAINER_REF_FACTORY;\n\n\n /**\n * Creates a
ViewContainerRef and stores it on the injector. Or, if the ViewContainerRef\n * already exists, retrieves the existing
ViewContainerRef.\n * \n * \n * @returns The ViewContainerRef instance to use\n * \n * \n export function
injectViewContainerRef(): ViewContainerRef {\n    const previousTNode = getCurrentTNode() as TElementNode |
TElementContainerNode | TContainerNode;\n    return createContainerRef(previousTNode, getLView());\n\n\n const
VE_ViewContainerRef = ViewContainerRef;\n\n const R3ViewContainerRef = class ViewContainerRef extends
VE_ViewContainerRef {\n    constructor(\n        private _lContainer: LContainer,\n        private _hostTNode:
TElementNode|TContainerNode|TElementContainerNode,\n        private _hostLView: LView) {\n        super();\n    }\n\n    get element(): ElementRef {\n        return createElementRef(this._hostTNode, this._hostLView);\n    }\n\n    get
injector(): Injector {\n        return new NodeInjector(this._hostTNode,
this._hostLView);\n    }\n\n    /** @deprecated No replacement */\n    get parentInjector(): Injector {\n        const
parentLocation = getParentInjectorLocation(this._hostTNode, this._hostLView);\n        if
(hasParentInjector(parentLocation)) {\n            const parentView = getParentInjectorView(parentLocation,
this._hostLView);\n            const injectorIndex = getParentInjectorIndex(parentLocation);\n            ngDevMode &&
assertNodeInjector(parentView, injectorIndex);\n            const parentTNode =\nparentView[TVIEW].data[injectorIndex + NodeInjectorOffset.TNODE] as TElementNode;\n            return new
NodeInjector(parentTNode, parentView);\n        } else {\n            return new NodeInjector(null, this._hostLView);\n        }\n    }\n\n    clear(): void {\n        while (this.length > 0) {\n            this.remove(this.length - 1);\n        }\n    }\n\n    get(index:
number): ViewRef|null {\n        const viewRefs = getViewRefs(this._lContainer);\n        return viewRefs !== null &&
viewRefs[index] || null;\n    }\n\n    get length(): number
{\n        return this._lContainer.length - CONTAINER_HEADER_OFFSET;\n    }\n\n    createEmbeddedView<C>(templateRef: TemplateRef<C>, context?: C, index?: number);\n
EmbeddedViewRef<C> {\n        const viewRef = templateRef.createEmbeddedView(context || <any>{});\n        this.insert(viewRef, index);\n        return viewRef;\n    }\n\n    createComponent<C>(\n        componentFactory:
ComponentFactory<C>, index?: number|undefined,\n        injector?: Injector|undefined, projectableNodes?:
any[]|undefined,\n        ngModuleRef?: NgModuleRef<any>|undefined): ComponentRef<C> {\n        const
contextInjector = injector || this.parentInjector;\n        if (!ngModuleRef && (componentFactory as any).ngModule ==
null && contextInjector) {\n            // DO NOT REFACTOR. The code here used to have a `value || undefined`
expression\n            // which seems to cause internal google apps to fail. This is documented in the\n            // following

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internal bug issue: go/b/142967802\n    const result = contextInjector.get(NgModuleRef, null);\n    if (result) {\n        ngModuleRef = result;\n    }\n    const componentRef =\ncomponentFactory.create(contextInjector, projectableNodes, undefined, ngModuleRef);\nthis.insert(componentRef.hostView, index);\n    return componentRef;\n}\n\ninsert(viewRef: ViewRef, index?:\nnumber): ViewRef {\n    const IView = (viewRef as R3ViewRef<any>)._IView!;\n    const tView =\nIView[TVIEW];\n    if (ngDevMode && viewRef.destroyed) {\n        throw new Error('Cannot insert a destroyed\nView in a ViewContainer!');\n    }\n    if (viewAttachedToContainer(IView)) {\n        // If view is already attached,\ndetach it first so we clean up references appropriately.\n        const prevIdx = this.indexOf(viewRef);\n        // A\nview might be attached either to this or a different container. The `prevIdx` for\n        // those cases will be:\n        // equal to -1 for views attached to this ViewContainerRef\n        // >= 0 for views attached to a different\nViewContainerRef\n        if (prevIdx !== -1) {\n            this.detach(prevIdx);\n        } else {\n            const prevLContainer = IView[PARENT] as\nLContainer;\n            ngDevMode &&\n                assertEqual(\n                    isLContainer(prevLContainer), true,\n                    'An attached view should have its PARENT point to a container.);\n            // We need to re-create a\nR3ViewContainerRef instance since those are not stored on\n            // LView (nor anywhere else).\n            const\nprevVCREf = new R3ViewContainerRef(\n                prevLContainer, prevLContainer[T_HOST] as\nTDirectiveHostNode, prevLContainer[PARENT]);\n            prevVCREf.detach(prevVCREf.indexOf(viewRef));\n        }\n        // Logical operation of adding `LView` to `LContainer`\n        const adjustedIdx =\nthis._adjustIndex(index);\n        const IContainer = this._IContainer;\n        insertView(tView, IView, IContainer,\nadjustedIdx);\n        // Physical operation of adding the DOM nodes.\n        const beforeNode =\ngetBeforeNodeForView(adjustedIdx, IContainer);\n        const renderer = IView[RENDERER];\n        const parentRNode = nativeParentNode(renderer,\nIContainer[NATIVE] as RElement | RComment);\n        if (parentRNode !== null) {\n            addViewToContainer(tView,\nIContainer[T_HOST], renderer, IView, parentRNode, beforeNode);\n        }\n        (viewRef as\nR3ViewRef<any>).attachToViewContainerRef(this);\n        addToArray(getOrCreateViewRefs(IContainer),\nadjustedIdx, viewRef);\n        return viewRef;\n    }\n    move(viewRef: ViewRef, newIndex: number): ViewRef {\n        if (ngDevMode && viewRef.destroyed) {\n            throw new Error('Cannot move a destroyed View in a\nViewContainer!');\n        }\n        return this.insert(viewRef, newIndex);\n    }\n    indexOf(viewRef: ViewRef): number\n{\n    const viewRefsArr = getViewRefs(this._IContainer);\n    return viewRefsArr !== null ?\nviewRefsArr.indexOf(viewRef) : -1;\n}\n    remove(index?: number): void {\n        const adjustedIdx =\nthis._adjustIndex(index, -1);\n        const detachedView = detachView(this._IContainer, adjustedIdx);\n        if (detachedView) {\n            // Before destroying the view, remove it from the container's array of `ViewRef`s.\n            // This ensures the view container length is updated before calling\n            // `destroyLView`, which could recursively\ncall view container methods that\n            // rely on an accurate container length.\n            // (e.g. a method on this view\ncontainer being called by a child directive's OnDestroy\n            // lifecycle hook)\nremoveFromArray(getOrCreateViewRefs(this._IContainer), adjustedIdx);\n            destroyLView(detachedView[TVIEW], detachedView);\n        }\n        detach(index?: number): ViewRef|null {\n            const adjustedIdx = this._adjustIndex(index, -1);\n            const view = detachView(this._IContainer, adjustedIdx);\n            const wasDetached =\n                view && removeFromArray(getOrCreateViewRefs(this._IContainer), adjustedIdx) !=\n                null;\n            return wasDetached ? new R3ViewRef(view!) : null;\n        }\n        private _adjustIndex(index?: number, shift:\nnumber = 0)\n{\n    if (index === null) {\n        return this.length + shift;\n    }\n    if (ngDevMode) {\n        assertGreaterThan(index, -\n1, `ViewRef index must be positive, got ${index}`);\n        // +1 because it's legal to insert at the end.\n        assertLessThan(index, this.length + 1 + shift, 'index');\n    }\n    return index;\n}\n}\n\nfunction\ngetViewRefs(IContainer: LContainer): ViewRef[]|null {\n    return IContainer[VIEW_REFS] as\nViewRef[];\n}\n\nfunction\ngetOrCreateViewRefs(IContainer: LContainer): ViewRef[] {\n    return\n(IContainer[VIEW_REFS] || (IContainer[VIEW_REFS] = [])) as ViewRef[];\n}\n\n/**\n * Creates a\nViewContainerRef and stores it on the injector.\n * @param ViewContainerRefToken The ViewContainerRef

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type\n * @param ElementRefToken The ElementRef type\n * @param hostTNode The node that is requesting a
ViewContainerRef\n * @param hostLView The view to which the node belongs\n * @returns The
ViewContainerRef instance to use\n */\nexport function createContainerRef(\n  hostTNode:
TElementNode|TContainerNode|TElementContainerNode,\n  hostLView: LView): ViewContainerRef {\n
  ngDevMode && assertTNodeType(hostTNode, TNodeType.AnyContainer | TNodeType.AnyRNode);\n\n  let
  lContainer: LContainer;\n  const slotValue = hostLView[hostTNode.index];\n  if (isLContainer(slotValue)) {\n    //
  If the host is a container, we don't need to create a new LContainer\n    lContainer = slotValue;\n  } else {\n    let
  commentNode: RComment;\n    // If the host is an element container, the native host element is guaranteed to be a\n
    // comment and we can reuse that comment as anchor element for the new LContainer.\n    // The comment node in
  question is already part of the DOM structure so we don't need to append\n    // it again.\n    if (hostTNode.type &
  TNodeType.ElementContainer) {\n      commentNode = unwrapRNode(slotValue) as RComment;\n    } else {\n      //
  If the host is a regular element, we have to insert a comment node manually which will\n      // be used as
  an anchor when inserting elements. In this specific case we use low-level DOM\n      // manipulation to insert it.\n
  const renderer = hostLView[RENDERER];\n      ngDevMode && ngDevMode.rendererCreateComment++;\n
  commentNode = renderer.createComment(ngDevMode ? 'container' : '');\n      const hostNative =
  getNativeByTNode(hostTNode, hostLView)!;\n      const parentOfHostNative = nativeParentNode(renderer,
  hostNative);\n      nativeInsertBefore(\n        renderer, parentOfHostNative!, commentNode,
  nativeNextSibling(renderer, hostNative),\n        false);\n    }\n\n    hostLView[hostTNode.index] = lContainer =\n
  createLContainer(slotValue, hostLView, commentNode, hostTNode);\n\n    addToViewTree(hostLView,
  lContainer);\n  }\n\n  return new R3ViewContainerRef(lContainer, hostTNode, hostLView);\n}\n\n",/**\n *
  @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
  style license that can be\n * found in the LICENSE
  file at https://angular.io/license\n */\n\nimport {getDebugContext} from '../errors';\nimport
  {ERROR_DEBUG_CONTEXT, ERROR_LOGGER} from '../util/errors';\nimport {DebugContext} from
  './types';\n\nexport function expressionChangedAfterItHasBeenCheckedError(\n  context: DebugContext,
  oldValue: any, currValue: any, isFirstCheck: boolean): Error {\n  let msg =\n
  `ExpressionChangedAfterItHasBeenCheckedError: Expression has changed after it was checked. Previous value:
  '${\n    oldValue}'. Current value: '${currValue}'.`;\n  if (isFirstCheck) {\n    msg +=\n
  ` It seems like the
  view has been created after its parent and its children have been dirty checked.` +\n
  ` Has it been created in a
  change detection hook ?`;\n  }\n  return viewDebugError(msg, context);\n}\n\nexport function
  viewWrappedDebugError(err: any, context: DebugContext): Error {\n  if (!(err instanceof Error)) {\n    // errors that
  are not Error instances don't have a stack,\n    // so it is ok to wrap
  them into a new Error object...\n    err = new Error(err.toString());\n  }\n  _addDebugContext(err, context);\n  return
  err;\n}\n\nexport function viewDebugError(msg: string, context: DebugContext): Error {\n  const err = new
  Error(msg);\n  _addDebugContext(err, context);\n  return err;\n}\n\nfunction _addDebugContext(err: Error, context:
  DebugContext) {\n  (err as any)[ERROR_DEBUG_CONTEXT] = context;\n  (err as any)[ERROR_LOGGER] =
  context.logError.bind(context);\n}\n\nexport function isViewDebugError(err: Error): boolean {\n  return
  !!getDebugContext(err);\n}\n\nexport function viewDestroyedError(action: string): Error {\n  return new
  Error(`ViewDestroyedError: Attempt to use a destroyed view: ${action}`);\n}\n\n",/**\n *
  @license\n * Copyright
  Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
  * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from '../di';\nimport
  {ErrorHandler} from
  '../error_handler';\nimport {Type} from '../interface/type';\nimport {ComponentFactory} from
  '../linker/component_factory';\nimport {NgModuleRef} from '../linker/ng_module_factory';\nimport {QueryList}
  from '../linker/query_list';\nimport {TemplateRef} from '../linker/template_ref';\nimport {ViewContainerRef} from
  '../linker/view_container_ref';\nimport {Renderer2, RendererFactory2} from '../render/api';\nimport
  {RendererType2} from '../render/api_flags';\nimport {Sanitizer} from '../sanitization/sanitizer';\nimport
  {SecurityContext} from '../sanitization/security';\n\n\n// -----
  \n// Defs\n// -----

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-----\n\n/**\n * Factory for ViewDefinitions/NgModuleDefinitions.\n * We use a function so we can
reexeute it in case an error happens and use the given logger\n * function to log the error from the definition of the
node, which is shown in all browser\n * logs.\n */\nexport interface DefinitionFactory<D extends Definition<any>>
{\n
  (logger: NodeLogger): D;\n}\n\n/**\n * Function to call console.error at the right source location. This is an
indirection\n * via another function as browser will log the location that actually called\n * `console.error`.\n */\nexport interface NodeLogger {\n (): () => void;\n}\n\nexport interface Definition<DF extends
DefinitionFactory<any>> {\n factory: DF|null;\n}\n\nexport interface NgModuleDefinition extends
Definition<NgModuleDefinitionFactory> {\n providers: NgModuleProviderDef[];\n providersByKey: {[tokenKey:
string]: NgModuleProviderDef};\n modules: any[];\n scope: 'root'|'platform'|null;\n}\n\nexport interface
NgModuleDefinitionFactory extends DefinitionFactory<NgModuleDefinition> {\n}\n\nexport interface
ViewDefinition extends Definition<ViewDefinitionFactory> {\n flags: ViewFlags;\n updateDirectives:
ViewUpdateFn;\n updateRenderer: ViewUpdateFn;\n handleEvent: ViewHandleEventFn;\n /**\n * Order: Depth
first.\n * Especially providers are before elements / anchors.\n
*/\n nodes: NodeDef[];\n /** aggregated NodeFlags for all nodes */\n nodeFlags: NodeFlags;\n
rootNodeFlags: NodeFlags;\n lastRenderRootNode: NodeDef|null;\n bindingCount: number;\n outputCount:
number;\n /**\n * Binary or of all query ids that are matched by one of the nodes.\n * This includes query ids
from templates as well.\n * Used as a bloom filter.\n */\n nodeMatchedQueries: number;\n}\n\nexport interface
ViewDefinitionFactory extends DefinitionFactory<ViewDefinition> {\n}\n\nexport interface ViewUpdateFn {\n
(check: NodeCheckFn, view: ViewData): void;\n}\n\n// helper functions to create an overloaded function
type.\nexport interface NodeCheckFn {\n (view: ViewData, nodeIndex: number, argStyle:
ArgumentType.Dynamic, values: any[]): any;\n (view: ViewData, nodeIndex: number, argStyle:
ArgumentType.Inline, v0?: any, v1?: any, v2?: any, v3?: any, v4?: any, v5?: any, v6?: any, v7?: any, v8?: any,
v9?: any): any;\n}\n\nexport const enum ArgumentType
{\n Inline = 0,\n Dynamic = 1\n}\n\nexport interface ViewHandleEventFn {\n (view: ViewData, nodeIndex:
number, eventName: string, event: any): boolean;\n}\n\n/**\n * Bitmask for ViewDefinition.flags.\n */\nexport
const enum ViewFlags {\n None = 0,\n OnPush = 1 << 1,\n}\n\n/**\n * A node definition in the view.\n */\n *
Note: We use one type for all nodes so that loops that loop over all nodes\n * of a ViewDefinition stay
monomorphic!\n */\nexport interface NodeDef {\n flags: NodeFlags;\n // Index of the node in view data and view
definition (those are the same)\n nodeIndex: number;\n // Index of the node in the check functions\n // Differ from
nodeIndex when nodes are added or removed at runtime (ie after compilation)\n checkIndex: number;\n parent:
NodeDef|null;\n renderParent: NodeDef|null;\n /** this is checked against NgContentDef.index to find matched
nodes */\n ngContentIndex: number|null;\n /** number of transitive children */\n childCount: number;\n /**
aggregated
NodeFlags for all transitive children (does not include self) */\n childFlags: NodeFlags;\n /** aggregated
NodeFlags for all direct children (does not include self) */\n directChildFlags: NodeFlags;\n\n bindingIndex:
number;\n bindings: BindingDef[];\n bindingFlags: BindingFlags;\n outputIndex: number;\n outputs:
OutputDef[];\n /**\n * references that the user placed on the element\n */\n references: {[refId: string]:
QueryValueType};\n /**\n * ids and value types of all queries that are matched by this node.\n */\n
matchedQueries: {[queryId: number]: QueryValueType};\n /** Binary or of all matched query ids of this node. */\n
matchedQueryIds: number;\n /**\n * Binary or of all query ids that are matched by one of the children.\n * This
includes query ids from templates as well.\n * Used as a bloom filter.\n */\n childMatchedQueries: number;\n
element: ElementDef|null;\n provider: ProviderDef|null;\n text: TextDef|null;\n query: QueryDef|null;\n
ngContent: NgContentDef|null;\n}\n\n/**\n * Bitmask for NodeDef.flags.\n * Naming convention:\n * - `Type...`:
flags that are mutually exclusive\n * - `Cat...`: union of multiple `Type...` (short for category).\n */\nexport const
enum NodeFlags {\n None = 0,\n TypeElement = 1 << 0,\n TypeText = 1 << 1,\n ProjectedTemplate = 1 << 2,\n
CatRenderNode = TypeElement | TypeText,\n TypeNgContent = 1 << 3,\n TypePipe = 1 << 4,\n TypePureArray =
1 << 5,\n TypePureObject = 1 << 6,\n TypePurePipe = 1 << 7,\n CatPureExpression = TypePureArray |

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TypePureObject | TypePurePipe,\n TypeValueProvider = 1 << 8,\n TypeClassProvider = 1 << 9,\n
TypeFactoryProvider = 1 << 10,\n TypeUseExistingProvider = 1 << 11,\n LazyProvider = 1 << 12,\n
PrivateProvider = 1 << 13,\n TypeDirective = 1 << 14,\n Component = 1 << 15,\n CatProviderNoDirective =\n
TypeValueProvider | TypeClassProvider | TypeFactoryProvider | TypeUseExistingProvider,\n CatProvider =
CatProviderNoDirective | TypeDirective,\n
  OnInit = 1 << 16,\n  OnDestroy = 1 << 17,\n  DoCheck = 1 << 18,\n  OnChanges = 1 << 19,\n  AfterContentInit =
  1 << 20,\n  AfterContentChecked = 1 << 21,\n  AfterViewInit = 1 << 22,\n  AfterViewChecked = 1 << 23,\n
  EmbeddedViews = 1 << 24,\n  ComponentView = 1 << 25,\n  TypeContentQuery = 1 << 26,\n  TypeViewQuery =
  1 << 27,\n  StaticQuery = 1 << 28,\n  DynamicQuery = 1 << 29,\n  TypeNgModule = 1 << 30,\n  CatQuery =
  TypeContentQuery | TypeViewQuery,\n\n // mutually exclusive values...\n Types = CatRenderNode |
TypeNgContent | TypePipe | CatPureExpression | CatProvider | CatQuery\n}\n\nexport interface BindingDef {\n
flags: BindingFlags;\n ns: string|null;\n name: string|null;\n nonMinifiedName: string|null;\n securityContext:
SecurityContext|null;\n suffix: string|null;\n}\n\nexport const enum BindingFlags {\n TypeElementAttribute = 1 <<
0,\n TypeElementClass = 1 << 1,\n TypeElementStyle = 1 << 2,\n TypeProperty = 1 << 3,\n SyntheticProperty =
1 << 4,\n SyntheticHostProperty
= 1 << 5,\n CatSyntheticProperty = SyntheticProperty | SyntheticHostProperty,\n\n // mutually exclusive
values...\n Types = TypeElementAttribute | TypeElementClass | TypeElementStyle | TypeProperty\n}\n\nexport
interface OutputDef {\n type: OutputType;\n target: 'window'|'document'|'body'|'component'|null;\n eventName:
string;\n propName: string|null;\n}\n\nexport const enum OutputType {\n ElementOutput,\n
DirectiveOutput\n}\n\nexport const enum QueryValueType {\n ElementRef = 0,\n RenderElement = 1,\n
TemplateRef = 2,\n ViewContainerRef = 3,\n Provider = 4\n}\n\nexport interface ElementDef {\n // set to null for
`<ng-container>`\n name: string|null;\n ns: string|null;\n /** ns, name, value */\n attrs: [string, string,
string][]|null;\n template: ViewDefinition|null;\n componentProvider: NodeDef|null;\n componentRendererType:
RendererType2|null;\n // closure to allow recursive components\n componentView: ViewDefinitionFactory|null;\n
/**\n * visible
public providers for DI in the view,\n * as see from this element. This does not include private providers.\n */\n
publicProviders: {[tokenKey: string]: NodeDef}|null;\n /**\n * same as visiblePublicProviders, but also includes
private providers\n * that are located on this element.\n */\n allProviders: {[tokenKey: string]: NodeDef}|null;\n
handleEvent: ElementHandleEventFn|null;\n}\n\nexport interface ElementHandleEventFn {\n (view: ViewData,
eventName: string, event: any): boolean;\n}\n\nexport interface ProviderDef {\n token: any;\n value: any;\n deps:
DepDef[];\n}\n\nexport interface NgModuleProviderDef {\n flags: NodeFlags;\n index: number;\n token: any;\n
value: any;\n deps: DepDef[];\n}\n\nexport interface DepDef {\n flags: DepFlags;\n token: any;\n tokenKey:
string;\n}\n\n/**\n * Bitmask for DI flags\n */\nexport const enum DepFlags {\n None = 0,\n SkipSelf = 1 << 0,\n
Optional = 1 << 1,\n Self = 1 << 2,\n Value = 1 << 3,\n}\n\nexport interface
TextDef {\n prefix: string;\n}\n\nexport interface QueryDef {\n id: number;\n // variant of the id that can be used
to check against NodeDef.matchedQueryIds, ...\n filterId: number;\n bindings: QueryBindingDef[];\n}\n\nexport
interface QueryBindingDef {\n propName: string;\n bindingType: QueryBindingType;\n}\n\nexport const enum
QueryBindingType {\n First = 0,\n All = 1\n}\n\nexport interface NgContentDef {\n /**\n * this index is checked
against NodeDef.ngContentIndex to find the nodes\n * that are matched by this ng-content.\n * Note that a
NodeDef with an ng-content can be reprojected, i.e.\n * have a ngContentIndex on its own.\n */\n index:
number;\n}\n\n// -----Data\n\nexport interface
NgModuleData extends Injector, NgModuleRef<any> {\n // Note: we are using the prefix _ as NgModuleData is an
NgModuleRef and therefore directly\n // exposed to the user.\n _def: NgModuleDefinition;\n
  _parent: Injector;\n  _providers: any[];\n}\n\n/**\n * View instance data.\n * Attention: Adding fields to this is
performance sensitive!\n */\nexport interface ViewData {\n def: ViewDefinition;\n root: RootData;\n renderer:
Renderer2;\n // index of component provider / anchor.\n parentNodeDef: NodeDef|null;\n parent: ViewData|null;\n
viewContainerParent: ViewData|null;\n component: any;\n context: any;\n // Attention: Never loop over this, as
this will\n // create a polymorphic usage site.\n // Instead: Always loop over ViewDefinition.nodes,\n // and call

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the right accessor (e.g. `elementData`) based on
// the NodeType.
nodes: {[key: number]: NodeData};
state: ViewState;
oldValues: any[];
disposables: DisposableFn[]|null;
initIndex: number;
}

// Bitmask of states
export const enum ViewState {
  BeforeFirstCheck = 1 << 0,
  FirstCheck = 1 << 1,
  Attached = 1 << 2,
  ChecksEnabled = 1 << 3,
  IsProjectedView = 1 << 4,
  CheckProjectedView = 1 << 5,
  CheckProjectedViews = 1 << 6,
  Destroyed = 1 << 7,
}

// InitState Uses 3 bits
InitState_Mask = 7 << 8,
InitState_BeforeInit = 0 << 8,
InitState_CallingOnInit = 1 << 8,
InitState_CallingAfterContentInit = 2 << 8,
InitState_CallingAfterViewInit = 3 << 8,
InitState_AfterInit = 4 << 8,

CatDetectChanges = Attached | ChecksEnabled,
CatInit = BeforeFirstCheck | CatDetectChanges | InitState_BeforeInit

// Called before each cycle of a view's check to detect whether this is in the
// initState for which we need to call ngOnInit, ngAfterContentInit or ngAfterViewInit
// lifecycle methods. Returns true if this check cycle should call
// lifecycle methods.
export function shiftInitState(
  view: ViewData, priorInitState: ViewState, newInitState: ViewState): boolean {
  // Only update the InitState if we are currently in the prior state.
  // For example, only move into CallingInit if we are in BeforeInit. Only
  // move into CallingContentInit if we are in CallingInit. Normally this will
  // always be true because of how checkCycle is called in checkAndUpdateView.
  // However, if checkAndUpdateView is called recursively or if an exception is
  // thrown while checkAndUpdateView is running, checkAndUpdateView starts over
  // from the beginning. This ensures the state is monotonically increasing,
  // terminating in the AfterInit state, which ensures the Init methods
  // are called at least once and only once.
  const state = view.state;
  const initState = state & ViewState.InitState_Mask;
  if (initState === priorInitState) {
    view.state = (state & ~ViewState.InitState_Mask) | newInitState;
    view.initIndex = -1;
    return true;
  }
  return initState === newInitState;
}

// Returns true if the lifecycle init method should be called for the node with
// the given init index.
export function shouldCallLifecycleInitHook(
  view: ViewData, initState: ViewState, index: number): boolean {
  if ((view.state & ViewState.InitState_Mask) === initState && view.initIndex <= index) {
    view.initIndex = index + 1;
    return true;
  }
  return false;
}

export interface DisposableFn {
  (): void;
}

// Node instance data.
// We have a separate type per NodeType to save memory
// (TextData | ElementData | ProviderData | PureExpressionData | QueryList<any>).
// To keep our code monomorphic, we prohibit using `NodeData` directly but enforce the use of accessors
// (asElementData, ...).
// This way, no usage site can get a `NodeData` from view.nodes and then use it for different
// purposes.
export class NodeData {
  private __brand: any;
}

// Data for an instantiated NodeType.Text.
// Attention: Adding fields to this is performance sensitive!
export interface TextData {
  renderText: any;
}

// Accessor for view.nodes, enforcing that every usage site stays monomorphic.
export function asTextData(
  view: ViewData, index: number): TextData {
  return <any>view.nodes[index];
}

// Data for an instantiated NodeType.Element.
// Attention: Adding fields to this is performance sensitive!
export interface ElementData {
  renderElement: any;
  componentView: ViewData;
  viewContainer: ViewContainerData|null;
  template: TemplateData;
}

export interface ViewContainerData extends ViewContainerRef {
  // Note: we are using the prefix _ as ViewContainerData is a ViewContainerRef and therefore
  // directly exposed to the user.
  _embeddedViews: ViewData[];
}

export interface TemplateData extends TemplateRef<any> {
  // views that have been created from the template
  // of this element, but inserted into the embeddedViews of another element.
  // By default, this is undefined.
  // Note: we are using the prefix _ as TemplateData is a TemplateRef and therefore directly
  // exposed to the user.
  _projectedViews: ViewData[];
}

// Accessor for view.nodes, enforcing that every usage site stays monomorphic.
export function asElementData(
  view: ViewData, index: number): ElementData {
  return <any>view.nodes[index];
}

// Data for an instantiated NodeType.Provider.
// Attention: Adding fields to this is performance sensitive!
export interface ProviderData {
  instance: any;
}

// Accessor for view.nodes, enforcing that every usage site stays monomorphic.
export function asProviderData(
  view: ViewData, index: number): ProviderData {
  return <any>view.nodes[index];
}

// Data for an instantiated NodeType.PureExpression.
// Attention:

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Adding fields to this is performance sensitive!\n */\nexport interface PureExpressionData {\n  value:
any;\n}\n\n/**\n * Accessor for view.nodes, enforcing that every usage site stays monomorphic.\n */\nexport
function asPureExpressionData(view: ViewData, index: number): PureExpressionData {\n  return
<any>view.nodes[index];\n}\n\n/**\n
* Accessor for view.nodes, enforcing that every usage site stays monomorphic.\n */\nexport function
asQueryList(view: ViewData, index: number): QueryList<any> {\n  return <any>view.nodes[index];\n}\n\nexport
interface RootData {\n  injector: Injector;\n  ngModule: NgModuleRef<any>;\n  projectableNodes: any[][];\n
selectorOrNode: any;\n  renderer: Renderer2;\n  rendererFactory: RendererFactory2;\n  errorHandler:
ErrorHandler;\n  sanitizer: Sanitizer;\n}\n\nexport abstract class DebugContext {\n  abstract get view(): ViewData;\n
abstract get nodeIndex(): number|null;\n  abstract get injector(): Injector;\n  abstract get component(): any;\n
abstract get providerTokens(): any[];\n  abstract get references(): {[key: string]: any};\n  abstract get context():
any;\n  abstract get componentRenderElement(): any;\n  abstract get renderNode(): any;\n  abstract
logError(console: Console, ...values: any[]): void;\n}\n\n// ----- \n// Other \n// -----
-----\n\nexport
const enum CheckType {\n  CheckAndUpdate,\n  CheckNoChanges\n}\n\nexport interface ProviderOverride {\n
token: any;\n  flags: NodeFlags;\n  value: any;\n  deps: ([DepFlags, any]|any)[];\n  deprecatedBehavior:
boolean;\n}\n\nexport interface Services {\n  setCurrentNode(view: ViewData, nodeIndex: number): void;\n
createRootView(\n    injector: Injector, projectableNodes: any[][], rootSelectorOrNode: string|any,\n    def:
ViewDefinition, ngModule: NgModuleRef<any>, context?: any): ViewData;\n  createEmbeddedView(parent:
ViewData, anchorDef: NodeDef, viewDef: ViewDefinition, context?: any):\n    ViewData;\n  createComponentView(\n    parentView: ViewData, nodeDef: NodeDef, viewDef: ViewDefinition, hostElement:
any): ViewData;\n  createNgModuleRef(\n    moduleType: Type<any>, parent: Injector, bootstrapComponents:
Type<any>[],\n    def: NgModuleDefinition): NgModuleRef<any>;\n  overrideProvider(override:
ProviderOverride): void;\n  overrideComponentView(compType:
Type<any>, compFactory: ComponentFactory<any>): void;\n  clearOverrides(): void;\n  checkAndUpdateView(view: ViewData): void;\n  checkNoChangesView(view: ViewData): void;\n
destroyView(view: ViewData): void;\n  resolveDep(\n    view: ViewData, elDef: NodeDef|null,
allowPrivateServices: boolean, depDef: DepDef,\n    notFoundValue?: any): any;\n  createDebugContext(view:
ViewData, nodeIndex: number): DebugContext;\n  handleEvent: ViewHandleEventFn;\n  updateDirectives: (view:
ViewData, checkType: CheckType) => void;\n  updateRenderer: (view: ViewData, checkType: CheckType) =>
void;\n  dirtyParentQueries: (view: ViewData) => void;\n}\n\n/**\n * This object is used to prevent cycles in the
source files and to have a place where\n * debug mode can hook it. It is lazily filled when `isDevMode` is known.\n
*/\nexport const Services: Services = {\n  setCurrentNode: undefined!,\n  createRootView: undefined!,\n
createEmbeddedView: undefined!,\n  createComponentView: undefined!,\n
createNgModuleRef: undefined!,\n  overrideProvider: undefined!,\n  overrideComponentView: undefined!,\n
clearOverrides: undefined!,\n  checkAndUpdateView: undefined!,\n  checkNoChangesView: undefined!,\n
destroyView: undefined!,\n  resolveDep: undefined!,\n  createDebugContext: undefined!,\n  handleEvent:
undefined!,\n  updateDirectives: undefined!,\n  updateRenderer: undefined!,\n  dirtyParentQueries:
undefined!,\n};\n", "/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {devModeEqual, WrappedValue} from '../change_detection/change_detection';\nimport {SOURCE}
from '../di/injector_compatibility';\nimport {ViewEncapsulation} from '../metadata/view';\nimport {RendererType2}
from '../render/api_flags';\nimport {stringify} from '../util/stringify';\n\nimport
{expressionChangedAfterItHasBeenCheckedError} from './errors';\nimport
{asElementData, asTextData, BindingDef, BindingFlags, Definition, DefinitionFactory, DepDef, DepFlags,
ElementData, NodeDef, NodeFlags, QueryValueType, Services, ViewData, ViewDefinition,
ViewDefinitionFactory, ViewFlags, ViewState} from './types';\n\nexport const NOOP: any = () => {};\n\nconst
_tokenKeyCache = new Map<any, string>();\n\nexport function tokenKey(token: any): string {\n  let key =

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_tokenKeyCache.get(token);\n if (!key) {\n   key = stringify(token) + '_' + _tokenKeyCache.size;\n   _tokenKeyCache.set(token, key);\n } }\n return key;\n}\n\nexport function unwrapValue(view: ViewData, nodeId: number, bindingIdx: number, value: any): any {\n  if (WrappedValue.isWrapped(value)) {\n    value = WrappedValue.unwrap(value);\n    const globalBindingIdx = view.def.nodes[nodeId].bindingIndex + bindingIdx;\n    const oldValue = WrappedValue.unwrap(view.oldValues[globalBindingIdx]);\n    view.oldValues[globalBindingIdx] = new WrappedValue(oldValue);\n  }\n  return value;\n}\n\nconst UNDEFINED_RENDERER_TYPE_ID = '$$undefined';\nconst EMPTY_RENDERER_TYPE_ID = '$$empty';\n\n// Attention: this function is called as top level function.\n// Putting any logic in here will destroy closure tree shaking!\n\nexport function createRendererType2(values: {\n  styles: (string|any[])[];\n  encapsulation: ViewEncapsulation;\n  data: {[kind: string]: any}[];\n}): RendererType2 {\n  return {\n    id: UNDEFINED_RENDERER_TYPE_ID,\n    styles: values.styles,\n    encapsulation: values.encapsulation,\n    data: values.data\n  };\n}\n\nlet _renderCompCount = 0;\n\nexport function resolveRendererType2(type?: RendererType2|null): RendererType2|null {\n  if (type && type.id === UNDEFINED_RENDERER_TYPE_ID) {\n    // first time we see this RendererType2. Initialize it...\n    const isFilled = (\n      ((type.encapsulation !== null && type.encapsulation !== ViewEncapsulation.None) ||\n        type.styles.length || Object.keys(type.data).length);\n    if (isFilled) {\n      type.id = `c$_renderCompCount++`;\n    } else {\n      type.id = EMPTY_RENDERER_TYPE_ID;\n    }\n  }\n  if (type && type.id === EMPTY_RENDERER_TYPE_ID) {\n    type = null;\n  }\n  return type || null;\n}\n\nexport function checkBinding(\n  view: ViewData, def: NodeDef, bindingIdx: number, value: any): boolean {\n  const oldValues = view.oldValues;\n  if ((view.state & ViewState.FirstCheck) ||\n    !Object.is(oldValues[def.bindingIndex + bindingIdx], value)) {\n    return true;\n  }\n  return false;\n}\n\nexport function checkAndUpdateBinding(\n  view: ViewData, def: NodeDef, bindingIdx: number, value: any): boolean {\n  if (checkBinding(view, def, bindingIdx, value)) {\n    view.oldValues[def.bindingIndex + bindingIdx] = value;\n    return true;\n  }\n  return false;\n}\n\nexport function checkBindingNoChanges(\n  view: ViewData, def: NodeDef, bindingIdx: number, value: any) {\n  const oldValue = view.oldValues[def.bindingIndex + bindingIdx];\n  if ((view.state & ViewState.BeforeFirstCheck) ||\n    !devModeEqual(oldValue, value)) {\n    const bindingName = def.bindings[bindingIdx].name;\n    throw expressionChangedAfterItHasBeenCheckedError(\n      Services.createDebugContext(view, def.nodeIndex),\n      `${bindingName}: ${oldValue}`, \n      `${bindingName}: ${value}`, \n      (view.state & ViewState.BeforeFirstCheck) !== 0);\n  }\n}\n\nexport function markParentViewsForCheck(view: ViewData) {\n  let currView: ViewData|null = view;\n  while (currView) {\n    if (currView.def.flags & ViewFlags.OnPush) {\n      currView.state |= ViewState.ChecksEnabled;\n    }\n    currView = currView.viewContainerParent || currView.parent;\n  }\n}\n\nexport function markParentViewsForCheckProjectedViews(view: ViewData, endView: ViewData) {\n  let currView: ViewData|null = view;\n  while (currView && currView !== endView) {\n    currView.state |= ViewState.CheckProjectedViews;\n    currView = currView.viewContainerParent || currView.parent;\n  }\n}\n\nexport function dispatchEvent(\n  view: ViewData, nodeIndex: number, eventName: string, event: any): boolean|undefined {\n  try {\n    const nodeDef = view.def.nodes[nodeIndex];\n    const startView = nodeDef.flags & NodeFlags.ComponentView ?\n      asElementData(view, nodeIndex).componentView : view;\n    markParentViewsForCheck(startView);\n    return Services.handleEvent(view, nodeIndex, eventName, event);\n  } catch (e) {\n    // Attention: Don't rethrow, as it would cancel Observable subscriptions!\n    view.root.errorHandler.handleError(e);\n  }\n}\n\nexport function declaredViewContainer(view: ViewData): ElementData|null {\n  if (view.parent) {\n    const parentView = view.parent;\n    return asElementData(parentView, view.parentNodeDef!.nodeIndex);\n  }\n  return null;\n}\n\n// * for component views, this is the host element.\n// * for embedded views, this is the index of the parent node * that contains the view container.\n\nexport function viewParentEl(view: ViewData): NodeDef|null {\n  const parentView = view.parent;\n  if (parentView) {\n    return view.parentNodeDef!.parent;\n  } else {\n    return null;\n  }\n}\n\nexport function renderNode(view: ViewData, def: NodeDef): any {\n  switch (def.flags &

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NodeFlags.Types) {\n  case NodeFlags.TypeElement:\n    return asElementData(view,
def.nodeIndex).renderElement;\n  case NodeFlags.TypeText:\n    return asTextData(view,
def.nodeIndex).renderText;\n } }\n\nexport function elementEventFullName(target: string|null, name: string):
string {\n  return target ? `${target}:${name}` : name;\n }\n\nexport function isComponentView(view: ViewData):
boolean {\n  return !!view.parent && !(view.parentNodeDef!.flags & NodeFlags.Component);\n }\n\nexport
function isEmbeddedView(view: ViewData): boolean {\n  return !!view.parent && !(view.parentNodeDef!.flags &
NodeFlags.Component);\n }\n\nexport function filterQueryId(queryId: number): number {\n  return 1 << (queryId %
32);\n }\n\nexport function splitMatchedQueriesDsl(matchedQueriesDsl: [string|number,
QueryValueType][]|null): {\n  matchedQueries: {[queryId: string]: QueryValueType},\n  references: {[refId:
string]: QueryValueType},\n  matchedQueryIds: number\n } {\n  const matchedQueries: {[queryId: string]:
QueryValueType} = {};\n  let matchedQueryIds = 0;\n  const references: {[refId: string]: QueryValueType} = {};\n
if (matchedQueriesDsl) {\n  matchedQueriesDsl.forEach(([queryId, valueType]) => {\n    if (typeof queryId ===
'number') {\n      matchedQueries[queryId] = valueType;\n      matchedQueryIds |= filterQueryId(queryId);\n    }
else {\n      references[queryId] = valueType;\n    }\n  });\n }\n  return {matchedQueries, references,
matchedQueryIds};\n }\n\nexport function splitDepsDsl(deps: ([DepFlags, any]|any)[], sourceName?: string):
DepDef[] {\n  return deps.map(value => {\n    let token: any;\n    let flags: DepFlags;\n    if (Array.isArray(value))
{\n      [flags, token] = value;\n    } else {\n      flags = DepFlags.None;\n      token = value;\n    }\n    if (token && (typeof token === 'function' || typeof token === 'object') && sourceName) {\n
Object.defineProperty(token, SOURCE, {value: sourceName, configurable: true});\n    }\n    return {flags, token,
tokenKey: tokenKey(token)};\n  });\n }\n\nexport function getParentRenderElement(view: ViewData, renderHost:
any, def: NodeDef): any {\n  let renderParent = def.renderParent;\n  if (renderParent) {\n    if ((renderParent.flags &
NodeFlags.TypeElement) === 0 ||\n      (renderParent.flags & NodeFlags.ComponentView) === 0 ||\n      (renderParent.element!.componentRendererType &&\n
(renderParent.element!.componentRendererType!.encapsulation ===\n        ViewEncapsulation.ShadowDom ||\n
      // TODO(FW-2290): remove the `encapsulation === 1` fallback logic in v12.\n
      renderParent.element!.componentRendererType!.encapsulation === 1))) {\n      // only children of non components,
or children of components with native encapsulation should\n
      // be attached.\n      return asElementData(view, def.renderParent!.nodeIndex).renderElement;\n    }\n  } else {\n
return renderHost;\n  }\n }\n\nconst DEFINITION_CACHE = new WeakMap<any, Definition<any>>>();\n\nexport
function resolveDefinition<D extends Definition<any>>>(factory: DefinitionFactory<D>): D {\n  let value =
DEFINITION_CACHE.get(factory)! as D;\n  if (!value) {\n    value = factory() => NOOP;\n    value.factory =
factory;\n    DEFINITION_CACHE.set(factory, value);\n  }\n  return value;\n }\n\nexport function
rootRenderNodes(view: ViewData): any[] {\n  const renderNodes: any[] = [];\n  visitRootRenderNodes(view,
RenderNodeAction.Collect, undefined, undefined, renderNodes);\n  return renderNodes;\n }\n\nexport const enum
RenderNodeAction {\n  Collect,\n  AppendChild,\n  InsertBefore,\n  RemoveChild\n }\n\nexport function
visitRootRenderNodes(\n  view: ViewData, action: RenderNodeAction, parentNode: any, nextSibling: any, target?:
any[]) {\n  // We need to re-compute the
parent node in case the nodes have been moved around manually\n  if (action ===
RenderNodeAction.RemoveChild) {\n    parentNode = view.renderer.parentNode(renderNode(view,
view.def.lastRenderRootNode!));\n  }\n  visitSiblingRenderNodes(\n    view, action, 0, view.def.nodes.length - 1,
parentNode, nextSibling, target);\n }\n\nexport function visitSiblingRenderNodes(\n  view: ViewData, action:
RenderNodeAction, startIndex: number, endIndex: number, parentNode: any,\n  nextSibling: any, target?: any[])
{\n  for (let i = startIndex; i <= endIndex; i++) {\n    const nodeDef = view.def.nodes[i];\n    if (nodeDef.flags &
(NodeFlags.TypeElement | NodeFlags.TypeText | NodeFlags.TypeNgContent)) {\n      visitRenderNode(view,
nodeDef, action, parentNode, nextSibling, target);\n    }\n    // jump to next sibling\n    i += nodeDef.childCount;\n  }\n }\n\nexport function visitProjectedRenderNodes(\n  view: ViewData, ngContentIndex: number, action:
RenderNodeAction, parentNode: any,\n  nextSibling:

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any, target?: any[]) {\n let compView: ViewData|null = view;\n while (compView &&
!isComponentView(compView)) {\n compView = compView.parent;\n }\n const hostView =
compView!.parent;\n const hostElDef = viewParentEl(compView!);\n const startIndex = hostElDef!.nodeIndex +
1;\n const endIndex = hostElDef!.nodeIndex + hostElDef!.childCount;\n for (let i = startIndex; i <= endIndex; i++)
{\n const nodeDef = hostView!.def.nodes[i];\n if (nodeDef.ngContentIndex === ngContentIndex) {\n
visitRenderNode(hostView!, nodeDef, action, parentNode, nextSibling, target);\n }\n // jump to next sibling\n i
+= nodeDef.childCount;\n }\n if (!hostView!.parent) {\n // a root view\n const projectedNodes =
view.root.projectableNodes[ngContentIndex];\n if (projectedNodes) {\n for (let i = 0; i <
projectedNodes.length; i++) {\n execRenderNodeAction(view, projectedNodes[i], action, parentNode,
nextSibling, target);\n }\n }\n }\n }\n\nfunction
visitRenderNode(\n view: ViewData, nodeDef: NodeDef, action: RenderNodeAction, parentNode: any,
nextSibling: any,\n target?: any[]) {\n if (nodeDef.flags & NodeFlags.TypeNgContent) {\n
visitProjectedRenderNodes(\n view, nodeDef.ngContent!.index, action, parentNode, nextSibling, target);\n }
else {\n const rn = renderNode(view, nodeDef);\n if (action === RenderNodeAction.RemoveChild &&
(nodeDef.flags & NodeFlags.ComponentView) &&\n (nodeDef.bindingFlags &
BindingFlags.CatSyntheticProperty)) {\n // Note: we might need to do both actions.\n if
(nodeDef.bindingFlags & (BindingFlags.SyntheticProperty)) {\n execRenderNodeAction(view, rn, action,
parentNode, nextSibling, target);\n }\n if (nodeDef.bindingFlags & (BindingFlags.SyntheticHostProperty))
{\n const compView = asElementData(view, nodeDef.nodeIndex).componentView;\n
execRenderNodeAction(compView, rn, action, parentNode, nextSibling, target);\n }\n } else
{\n execRenderNodeAction(view, rn, action, parentNode, nextSibling, target);\n }\n if (nodeDef.flags &
NodeFlags.EmbeddedViews) {\n const embeddedViews = asElementData(view,
nodeDef.nodeIndex).viewContainer!._embeddedViews;\n for (let k = 0; k < embeddedViews.length; k++) {\n
visitRootRenderNodes(embeddedViews[k], action, parentNode, nextSibling, target);\n }\n }\n if
(nodeDef.flags & NodeFlags.TypeElement && !nodeDef.element!.name) {\n visitSiblingRenderNodes(\n
view, action, nodeDef.nodeIndex + 1, nodeDef.nodeIndex + nodeDef.childCount, parentNode,\n nextSibling,
target);\n }\n }\n }\n\nfunction execRenderNodeAction(\n view: ViewData, renderNode: any, action:
RenderNodeAction, parentNode: any, nextSibling: any,\n target?: any[]) {\n const renderer = view.renderer;\n
switch (action) {\n case RenderNodeAction.AppendChild:\n renderer.appendChild(parentNode, renderNode);\n
break;\n case RenderNodeAction.InsertBefore:\n
renderer.insertBefore(parentNode, renderNode, nextSibling);\n break;\n case
RenderNodeAction.RemoveChild:\n renderer.removeChild(parentNode, renderNode);\n break;\n case
RenderNodeAction.Collect:\n target!.push(renderNode);\n break;\n }\n }\n\nconst NS_PREFIX_RE =
/^(?:[^\:]+\:)?$/;\n\nexport function splitNamespace(name: string): string[] {\n if (name[0] === ':') {\n const
match = name.match(NS_PREFIX_RE);\n return [match[1], match[2]];\n }\n return ['', name];\n }\n\nexport
function calcBindingFlags(bindings: BindingDef[]): BindingFlags {\n let flags = 0;\n for (let i = 0; i <
bindings.length; i++) {\n flags |= bindings[i].flags;\n }\n return flags;\n }\n\nexport function
interpolate(valueCount: number, constAndInterp: string[]): string {\n let result = '';\n for (let i = 0; i < valueCount *
2; i = i + 2) {\n result = result + constAndInterp[i] + _toStringWithNull(constAndInterp[i + 1]);\n }\n return
result
+ constAndInterp[valueCount * 2];\n }\n\nexport function inlineInterpolate(\n valueCount: number, c0: string, a1:
any, c1: string, a2?: any, c2?: string, a3?: any, c3?: string, a4?: any, c4?: string, a5?: any, c5?: string, a6?: any,
c6?: string, a7?: any, c7?: string, a8?: any, c8?: string, a9?: any, c9?: string): string {\n switch (valueCount) {\n
case 1:\n return c0 + _toStringWithNull(a1) + c1;\n case 2:\n return c0 + _toStringWithNull(a1) + c1 +
_toStringWithNull(a2) + c2;\n case 3:\n return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2
+ _toStringWithNull(a3) +\n c3;\n case 4:\n return c0 + _toStringWithNull(a1) + c1 +
_toStringWithNull(a2) + c2 + _toStringWithNull(a3) +\n c3 + _toStringWithNull(a4) + c4;\n case 5:\n
return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) +\n c3 +

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_toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5;\n  case 6:\n
    return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) +\n      c3 +
_toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 + _toStringWithNull(a6) + c6;\n  case 7:\n    return c0
+ _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) +\n      c3 +
_toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 + _toStringWithNull(a6) +\n      c6 +
_toStringWithNull(a7) + c7;\n  case 8:\n    return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2
+ _toStringWithNull(a3) +\n      c3 + _toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 +
_toStringWithNull(a6) +\n      c6 + _toStringWithNull(a7) + c7 + _toStringWithNull(a8) + c8;\n  case 9:\n
return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) +\n      c3 +
_toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 + _toStringWithNull(a6) +\n      c6 +
_toStringWithNull(a7) + c7 +
_toStringWithNull(a8) + c8 + _toStringWithNull(a9) + c9;\n  default:\n    throw new Error(`Does not support
more than 9 expressions`);\n  }\n}\n\nfunction _toStringWithNull(v: any): string {\n  return v != null ? v.toString() :
";\n}\n\n\nexport const EMPTY_ARRAY: any[] = [];\nexport const EMPTY_MAP: {[key: string]: any} =
{};\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {resolveForwardRef} from './di/forward_ref';\nimport {Injector} from './di/injector';\nimport
{setCurrentInjector} from './di/injector_compatibility';\nimport {INJECTOR} from './di/injector_token';\nimport
{getInjectableDef, InjectableDef} from './di/interface/defs';\nimport {INJECTOR_SCOPE} from
'./di/scope';\nimport {NgModuleRef} from './linker/ng_module_factory';\nimport {newArray} from
'./util/array_utils';\nimport {stringify}
from './util/stringify';\n\nimport {DepDef, DepFlags, NgModuleData, NgModuleDefinition,
NgModuleProviderDef, NodeFlags} from './types';\nimport {splitDepsDsl, tokenKey} from './util';\n\nconst
UNDEFINED_VALUE = {};\n\nconst InjectorRefTokenKey = tokenKey(Injector);\nconst
INJECTORRefTokenKey = tokenKey(INJECTOR);\nconst NgModuleRefTokenKey =
tokenKey(NgModuleRef);\n\nexport function moduleProvideDef(\n  flags: NodeFlags, token: any, value: any,
deps: ([DepFlags, any]|any|[]): NgModuleProviderDef {\n  // Need to resolve forwardRefs as e.g. for `useValue`
we\n  // lowered the expression and then stopped evaluating it,\n  // i.e. also didn't unwrap it.\n  value =
resolveForwardRef(value);\n  const depDefs = splitDepsDsl(deps, stringify(token));\n  return {\n    // will be set by
the module definition\n    index: -1,\n    deps: depDefs,\n    flags,\n    token,\n    value\n  };\n}\n\nexport function
moduleDef(providers: NgModuleProviderDef[]): NgModuleDefinition {\n  const providersByKey:
{[key: string]: NgModuleProviderDef} = {};\n  const modules = [];\n  let scope: 'root'|'platform'|null = null;\n  for
(let i = 0; i < providers.length; i++) {\n    const provider = providers[i];\n    if (provider.token ===
INJECTOR_SCOPE) {\n      scope = provider.value;\n    }\n    if (provider.flags & NodeFlags.TypeNgModule) {\n
modules.push(provider.token);\n    }\n    provider.index = i;\n    providersByKey[tokenKey(provider.token)] =
provider;\n  }\n  return {\n    // Will be filled later...\n    factory: null,\n    providersByKey,\n    providers,\n
modules,\n    scope: scope,\n  };\n}\n\nexport function initNgModule(data: NgModuleData) {\n  const def =
data._def;\n  const providers = data._providers = newArray(def.providers.length);\n  for (let i = 0; i <
def.providers.length; i++) {\n    const provDef = def.providers[i];\n    if (!(provDef.flags &
NodeFlags.LazyProvider)) {\n      // Make sure the provider has not been already initialized outside this loop.\n      if
(providers[i] === undefined) {\n        providers[i] = _createProviderInstance(data, provDef);\n      }\n    }\n  }\n}\n\nexport function resolveNgModuleDep(\n  data: NgModuleData, depDef: DepDef, notFoundValue: any =
Injector.THROW_IF_NOT_FOUND): any {\n  const former = setCurrentInjector(data);\n  try {\n    if (depDef.flags
& DepFlags.Value) {\n      return depDef.token;\n    }\n    if (depDef.flags & DepFlags.Optional) {\n
notFoundValue = null;\n    }\n    if (depDef.flags & DepFlags.SkipSelf) {\n      return data._parent.get(depDef.token,
notFoundValue);\n    }\n    const tokenKey = depDef.tokenKey;\n    switch (tokenKey) {\n      case
InjectorRefTokenKey:\n      case INJECTORRefTokenKey:\n      case NgModuleRefTokenKey:\n        return data;\n    }\n    const providerDef = data._def.providersByKey[tokenKey];\n    let injectableDef: InjectableDef<any>|null;\n

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if (providerDef) {\n    let providerInstance = data._providers[providerDef.index];\n    if (providerInstance
=== undefined) {\n        providerInstance = data._providers[providerDef.index] =\n        _createProviderInstance(data, providerDef);\n    }\n    return providerInstance === UNDEFINED_VALUE ?
undefined : providerInstance;\n    } else if (\n        (injectableDef = getInjectableDef(depDef.token)) &&
targetsModule(data, injectableDef)) {\n        const index = data._providers.length;\n        data._def.providers[index] =
data._def.providersByKey[depDef.tokenKey] = {\n            flags: NodeFlags.TypeFactoryProvider |
NodeFlags.LazyProvider,\n            value: injectableDef.factory,\n            deps: [],\n            index,\n            token:
depDef.token,\n        };\n        data._providers[index] = UNDEFINED_VALUE;\n        return (\n
data._providers[index] =\n            _createProviderInstance(data, data._def.providersByKey[depDef.tokenKey]);\n
        )\n    } else if (depDef.flags & DepFlags.Self) {\n        return notFoundValue;\n    }\n    return
data._parent.get(depDef.token, notFoundValue);\n    }\n    finally {\n        setCurrentInjector(former);\n    }\n}\n\nfunction moduleTransitivelyPresent(ngModule: NgModuleData,
scope: any): boolean {\n    return ngModule._def.modules.indexOf(scope) > -1;\n}\n\nfunction
targetsModule(ngModule: NgModuleData, def: InjectableDef<any>): boolean {\n    const providedIn =
def.providedIn;\n    return providedIn != null &&\n        (providedIn === 'any' || providedIn === ngModule._def.scope
||\n            moduleTransitivelyPresent(ngModule, providedIn));\n}\n\nfunction _createProviderInstance(ngModule:
NgModuleData, providerDef: NgModuleProviderDef): any {\n    let injectable: any;\n    switch (providerDef.flags &
NodeFlags.Types) {\n        case NodeFlags.TypeClassProvider:\n            injectable = _createClass(ngModule,
providerDef.value, providerDef.deps);\n            break;\n        case NodeFlags.TypeFactoryProvider:\n            injectable =
_callFactory(ngModule, providerDef.value, providerDef.deps);\n            break;\n        case
NodeFlags.TypeUseExistingProvider:\n            injectable = resolveNgModuleDep(ngModule,
providerDef.deps[0]);\n            break;\n        case NodeFlags.TypeValueProvider:\n            injectable = providerDef.value;\n
            break;\n    }\n    // The read of `ngOnDestroy` here is slightly expensive as it's megamorphic, so it should be\n
// avoided if possible. The sequence of checks here determines whether ngOnDestroy needs to be\n
// checked. It might not if the `injectable` isn't an object or if NodeFlags.OnDestroy is already\n
// set (ngOnDestroy was detected statically).\n    if (injectable !== UNDEFINED_VALUE && injectable !== null && typeof injectable === 'object'
&&\n        !(providerDef.flags & NodeFlags.OnDestroy) && typeof injectable.ngOnDestroy === 'function') {\n        providerDef.flags |= NodeFlags.OnDestroy;\n    }\n    return injectable === undefined ? UNDEFINED_VALUE :
injectable;\n}\n\nfunction _createClass(ngModule: NgModuleData, ctor: any, deps: DepDef[]): any {\n    const len =
deps.length;\n    switch (len) {\n        case 0:\n            return new ctor();\n        case 1:\n
            return new ctor(resolveNgModuleDep(ngModule, deps[0]));\n        case 2:\n            return new
ctor(resolveNgModuleDep(ngModule, deps[0]), resolveNgModuleDep(ngModule, deps[1]));\n        case 3:\n            return
new ctor(\n                resolveNgModuleDep(ngModule, deps[0]), resolveNgModuleDep(ngModule, deps[1]),\n                resolveNgModuleDep(ngModule, deps[2]));\n        default:\n            const depValues = [];\n            for (let i = 0; i < len; i++)
{\n                depValues[i] = resolveNgModuleDep(ngModule, deps[i]);\n            }\n            return new ctor(...depValues);\n    }\n}\n\nfunction _callFactory(ngModule: NgModuleData, factory: any, deps: DepDef[]): any {\n    const len =
deps.length;\n    switch (len) {\n        case 0:\n            return factory();\n        case 1:\n            return
factory(resolveNgModuleDep(ngModule, deps[0]));\n        case 2:\n            return
factory(resolveNgModuleDep(ngModule, deps[0]), resolveNgModuleDep(ngModule, deps[1]));\n        case 3:\n            return
factory(\n                resolveNgModuleDep(ngModule, deps[0]),\n                resolveNgModuleDep(ngModule, deps[1]),\n                resolveNgModuleDep(ngModule, deps[2]));\n        default:\n            const depValues = [];\n            for (let i = 0; i < len; i++) {\n                depValues[i] = resolveNgModuleDep(ngModule,
deps[i]);\n            }\n            return factory(...depValues);\n    }\n}\n\nexport function callNgModuleLifecycle(ngModule:
NgModuleData, lifecycles: NodeFlags) {\n    const def = ngModule._def;\n    const destroyed = new Set<any>();\n    for
(let i = 0; i < def.providers.length; i++) {\n        const provDef = def.providers[i];\n        if (provDef.flags &
NodeFlags.OnDestroy) {\n            const instance = ngModule._providers[i];\n            if (instance && instance !==
UNDEFINED_VALUE) {\n                const onDestroy: Function|undefined = instance.ngOnDestroy;\n                if (typeof
onDestroy === 'function' && !destroyed.has(instance)) {\n                    onDestroy.apply(instance);\n

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destroyed.add(instance);\n    }\n    }\n    }\n    }\n    }"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {addToArray, removeFromArray} from './util/array_utils';\nimport {ElementData, NodeDef, NodeFlags, Services, ViewData, ViewDefinition, ViewState} from './types';\nimport {declaredViewContainer, renderNode, RenderNodeAction, visitRootRenderNodes} from './util';\n\nexport function attachEmbeddedView(\n  parentView: ViewData,\n  elementData: ElementData, viewIndex: number|undefined|null,\n  view: ViewData) {\n  let embeddedViews = elementData.viewContainer!._embeddedViews;\n  if (viewIndex === null || viewIndex === undefined) {\n    viewIndex = embeddedViews.length;\n  }\n  view.viewContainerParent = parentView;\n  addToArray(embeddedViews, viewIndex!, view);\n  attachProjectedView(elementData, view);\n  Services.dirtyParentQueries(view);\n\n  const prevView = viewIndex! > 0 ? embeddedViews[viewIndex! - 1] : null;\n  renderAttachEmbeddedView(elementData, prevView, view);\n\n  function attachProjectedView(vcElementData: ElementData, view: ViewData) {\n    const dvcElementData = declaredViewContainer(view);\n    if (!dvcElementData || dvcElementData === vcElementData ||\n      view.state & ViewState.IsProjectedView) {\n      return;\n    }\n    // Note: For performance reasons, we\n    // - add a view to template._projectedViews only 1x throughout its lifetime,\n    // - and remove it not until the view is destroyed.\n    // (hard, as when a parent view is attached/detached we would need to attach/detach all\n    // nested projected views as well, even across component boundaries).\n    // - don't track the insertion order of views in the projected views array\n    // (hard, as when the views of the same template are inserted different view containers)\n    view.state |= ViewState.IsProjectedView;\n    let projectedViews = dvcElementData.template._projectedViews;\n    if (!projectedViews) {\n      projectedViews = dvcElementData.template._projectedViews = [];\n    }\n    projectedViews.push(view);\n    // Note: we are changing the NodeDef here as we cannot calculate\n    // the fact whether a template is used for projection during compilation.\n    markNodeAsProjectedTemplate(view.parent!.def, view.parentNodeDef!);\n\n    function markNodeAsProjectedTemplate(viewDef: ViewDefinition, nodeDef: NodeDef) {\n      if (nodeDef.flags & NodeFlags.ProjectedTemplate) {\n        return;\n      }\n      viewDef.nodeFlags |= NodeFlags.ProjectedTemplate;\n      nodeDef.flags |= NodeFlags.ProjectedTemplate;\n      let parentNodeDef = nodeDef.parent;\n      while (parentNodeDef) {\n        parentNodeDef.childFlags |= NodeFlags.ProjectedTemplate;\n        parentNodeDef = parentNodeDef.parent;\n      }\n    }\n\n    export function detachEmbeddedView(elementData: ElementData, viewIndex?: number): ViewData|null {\n      const embeddedViews = elementData.viewContainer!._embeddedViews;\n      if (viewIndex == null || viewIndex >= embeddedViews.length) {\n        viewIndex = embeddedViews.length - 1;\n      }\n      if (viewIndex < 0) {\n        return null;\n      }\n      const view = embeddedViews[viewIndex];\n      view.viewContainerParent = null;\n      removeFromArray(embeddedViews, viewIndex);\n      // See attachProjectedView for why we don't update projectedViews here.\n      Services.dirtyParentQueries(view);\n      renderDetachView(view);\n      return view;\n    }\n\n    export function detachProjectedView(view: ViewData) {\n      if (!(view.state & ViewState.IsProjectedView)) {\n        return;\n      }\n      const dvcElementData = declaredViewContainer(view);\n      if (dvcElementData) {\n        const projectedViews = dvcElementData.template._projectedViews;\n        if (projectedViews) {\n          removeFromArray(projectedViews, projectedViews.indexOf(view));\n          Services.dirtyParentQueries(view);\n        }\n      }\n\n      export function moveEmbeddedView(\n        elementData: ElementData, oldViewIndex: number, newViewIndex: number): ViewData {\n        const embeddedViews = elementData.viewContainer!._embeddedViews;\n        const view = embeddedViews[oldViewIndex];\n        removeFromArray(embeddedViews, oldViewIndex);\n        if (newViewIndex == null) {\n          newViewIndex = embeddedViews.length;\n        }\n        addToArray(embeddedViews, newViewIndex, view);\n        // Note: Don't need to change projectedViews as the order in there\n        // as always invalid...\n        Services.dirtyParentQueries(view);\n        renderDetachView(view);\n        const prevView = newViewIndex > 0 ? embeddedViews[newViewIndex - 1] : null;\n        renderAttachEmbeddedView(elementData, prevView, view);\n        return view;\n      }\n\n      function renderAttachEmbeddedView(\n        elementData: ElementData, prevView: ViewData|null, view: ViewData) {\n

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const prevRenderNode =\n    prevView ? renderNode(prevView, prevView.def.lastRenderRootNode!) :
elementData.renderElement;\n const parentNode = view.renderer.parentNode(prevRenderNode);\n const
nextSibling = view.renderer.nextSibling(prevRenderNode);\n // Note: We can't check if `nextSibling` is present, as
on WebWorkers it will always be!\n // However, browsers
automatically do `appendChild` when there is no `nextSibling`.\n visitRootRenderNodes(view,
RenderNodeAction.InsertBefore, parentNode, nextSibling, undefined);\n}\n\nexport function
renderDetachView(view: ViewData) {\n visitRootRenderNodes(view, RenderNodeAction.RemoveChild, null, null,
undefined);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { ChangeDetectorRef } from '../change_detection/change_detection';\nimport { Injector } from
'../di/injector';\nimport { InjectFlags } from '../di/interface/injector';\nimport { Type } from '../interface/type';\nimport
{ ComponentFactory, ComponentRef } from '../linker/component_factory';\nimport
{ ComponentFactoryBoundToModule, ComponentFactoryResolver } from
'../linker/component_factory_resolver';\nimport { ElementRef } from '../linker/element_ref';\nimport
{ InternalNgModuleRef,
NgModuleRef } from '../linker/ng_module_factory';\nimport { TemplateRef } from '../linker/template_ref';\nimport
{ ViewContainerRef } from '../linker/view_container_ref';\nimport { EmbeddedViewRef, InternalViewRef, ViewRef,
ViewRefTracker } from '../linker/view_ref';\nimport { stringify } from '../util/stringify';\nimport { VERSION } from
'../version';\nimport { callNgModuleLifecycle, initNgModule, resolveNgModuleDep } from '../ng_module';\nimport
{ asElementData, asProviderData, asTextData, DepFlags, ElementData, NgModuleData, NgModuleDefinition,
NodeDef, NodeFlags, Services, TemplateData, ViewContainerData, ViewData, ViewDefinitionFactory, ViewState }
from '../types';\nimport { markParentViewsForCheck, resolveDefinition, rootRenderNodes, tokenKey, viewParentEl }
from '../util';\nimport { attachEmbeddedView, detachEmbeddedView, moveEmbeddedView, renderDetachView }
from '../view_attach';\n\nconst EMPTY_CONTEXT = {};\n\n// Attention: this function is called as top level
function.\n\n// Putting any logic in
here will destroy closure tree shaking!\n\nexport function createComponentFactory(\n    selector: string,
componentType: Type<any>, viewDefFactory: ViewDefinitionFactory,\n    inputs: {[propName: string]:
string}|null, outputs: {[propName: string]: string},\n    ngContentSelectors: string[]): ComponentFactory<any> {\n
return new ComponentFactory_(\n    selector, componentType, viewDefFactory, inputs, outputs,
ngContentSelectors);\n}\n\nexport function getComponentViewDefinitionFactory(componentFactory:
ComponentFactory<any>):\n    ViewDefinitionFactory {\n    return (componentFactory as
ComponentFactory_).viewDefFactory;\n}\n\nnclass ComponentFactory_ extends ComponentFactory<any> {\n    /**\n
* @internal\n
* \n viewDefFactory: ViewDefinitionFactory;\n\n    constructor(\n        public selector: string, public
componentType: Type<any>,\n        viewDefFactory: ViewDefinitionFactory, private _inputs: {[propName: string]:
string}|null,\n        private _outputs: {[propName: string]: string}, public
ngContentSelectors: string[]) {\n        // Attention: this ctor is called as top level function.\n        // Putting any logic in
here will destroy closure tree shaking!\n        super();\n        this.viewDefFactory = viewDefFactory;\n    }\n\n    get inputs()
{\n        const inputsArr: {propName: string, templateName: string}[] = [];\n        const inputs = this._inputs!;\n        for (let
propName in inputs) {\n            const templateName = inputs[propName];\n            inputsArr.push({propName,
templateName});\n        }\n        return inputsArr;\n    }\n\n    get outputs() {\n        const outputsArr: {propName: string,
templateName: string}[] = [];\n        for (let propName in this._outputs) {\n            const templateName =
this._outputs[propName];\n            outputsArr.push({propName, templateName});\n        }\n        return outputsArr;\n    }\n\n
/**\n
* Creates a new component.\n
* \n create(\n    injector: Injector, projectableNodes?: any[][],
rootSelectorOrNode?: string|any,\n    ngModule?: NgModuleRef<any>): ComponentRef<any> {\n
        if (!ngModule) {\n            throw new Error('ngModule should be provided');\n        }\n        const viewDef =
resolveDefinition(this.viewDefFactory);\n        const componentNodeIndex =
viewDef.nodes[0].element!.componentProvider!.nodeIndex;\n        const view = Services.createRootView(\n
            injector, projectableNodes || [], rootSelectorOrNode, viewDef, ngModule, EMPTY_CONTEXT);\n        const

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component = asProviderData(view, componentNodeIndex).instance;\n  if (rootSelectorOrNode) {\n
view.renderer.setAttribute(asElementData(view, 0).renderElement, 'ng-version', VERSION.full);\n  }\n\n  return
new ComponentRef_(view, new ViewRef_(view), component);\n  }\n}\n\nclass ComponentRef_ extends
ComponentRef<any> {\n  public readonly hostView: ViewRef;\n  public readonly instance: any;\n  public readonly
changeDetectorRef: ChangeDetectorRef;\n  private _elDef: NodeDef;\n  constructor(private _view: ViewData,
private _viewRef: ViewRef, private _component: any) {\n    super();\n    this._elDef =
this._view.def.nodes[0];\n    this.hostView = _viewRef;\n    this.changeDetectorRef = _viewRef;\n    this.instance =
_component;\n  }\n  get location(): ElementRef {\n    return new ElementRef(asElementData(this._view,
this._elDef.nodeIndex).renderElement);\n  }\n  get injector(): Injector {\n    return new Injector_(this._view,
this._elDef);\n  }\n  get componentType(): Type<any> {\n    return <any>this._component.constructor;\n  }\n\n  destroy(): void {\n    this._viewRef.destroy();\n  }\n  onDestroy(callback: Function): void {\n
this._viewRef.onDestroy(callback);\n  }\n}\n\n\nexport function createViewContainerData(\n  view: ViewData,
elDef: NodeDef, elData: ElementData): ViewContainerData {\n  return new ViewContainerRef_(view, elDef,
elData);\n}\n\nclass ViewContainerRef_ implements ViewContainerData {\n  /**\n   * @internal\n   */\n  _embeddedViews: ViewData[] = [];\n  constructor(private _view: ViewData, private _elDef: NodeDef, private
_data: ElementData) {\n  }\n\n  get element():
ElementRef {\n    return new ElementRef(this._data.renderElement);\n  }\n\n  get injector(): Injector {\n    return
new Injector_(this._view, this._elDef);\n  }\n\n  /** @deprecated No replacement */\n  get parentInjector(): Injector
{\n    let view = this._view;\n    let elDef = this._elDef.parent;\n    while (!elDef && view) {\n      elDef =
viewParentEl(view);\n      view = view.parent!;\n    }\n\n    return view ? new Injector_(view, elDef) : new
Injector_(this._view, null);\n  }\n\n  clear(): void {\n    const len = this._embeddedViews.length;\n    for (let i = len -
1; i >= 0; i--) {\n      const view = detachEmbeddedView(this._data, i!);\n      Services.destroyView(view);\n    }\n  }\n\n  get(index: number): ViewRef|null {\n    const view = this._embeddedViews[index];\n    if (view) {\n      const
ref = new ViewRef_(view);\n      ref.attachToViewContainerRef(this);\n      return ref;\n    }\n    return null;\n  }\n\n  get length(): number {\n    return this._embeddedViews.length;\n  }\n\n  createEmbeddedView<C>(<templateRef: TemplateRef<C>, context?: C, index?: number):\n  EmbeddedViewRef<C> {\n    const viewRef = templateRef.createEmbeddedView(context || <any>{});\n
this.insert(viewRef, index);\n    return viewRef;\n  }\n\n  createComponent<C>(\n    componentFactory:
ComponentFactory<C>, index?: number, injector?: Injector,\n    projectableNodes?: any[][], ngModuleRef?:
NgModuleRef<any>): ComponentRef<C> {\n    const contextInjector = injector || this.parentInjector;\n    if
(!ngModuleRef && !(componentFactory instanceof ComponentFactoryBoundToModule)) {\n      ngModuleRef =
contextInjector.get(NgModuleRef);\n    }\n    const componentRef =\n
componentFactory.create(contextInjector, projectableNodes, undefined, ngModuleRef);\n
this.insert(componentRef.hostView, index);\n    return componentRef;\n  }\n\n  insert(viewRef: ViewRef, index?:
number): ViewRef {\n    if (viewRef.destroyed) {\n      throw new Error('Cannot insert a destroyed
View in a ViewContainer!');\n    }\n    const viewRef_ = <ViewRef_>viewRef;\n    const viewData =
viewRef_._view;\n    attachEmbeddedView(this._view, this._data, index, viewData);\n
viewRef_.attachToViewContainerRef(this);\n    return viewRef;\n  }\n\n  move(viewRef: ViewRef_, currentIndex:
number): ViewRef {\n    if (viewRef.destroyed) {\n      throw new Error('Cannot move a destroyed View in a
ViewContainer!');\n    }\n    const previousIndex = this._embeddedViews.indexOf(viewRef._view);\n
moveEmbeddedView(this._data, previousIndex, currentIndex);\n    return viewRef;\n  }\n\n  indexOf(viewRef:
ViewRef): number {\n    return this._embeddedViews.indexOf(<<ViewRef_>viewRef)._view);\n  }\n\n  remove(index?: number): void {\n    const viewData = detachEmbeddedView(this._data, index);\n    if (viewData)
{\n      Services.destroyView(viewData);\n    }\n  }\n\n  detach(index?: number): ViewRef|null {\n    const view =
detachEmbeddedView(this._data, index);\n    return view ? new ViewRef_(view)
: null;\n  }\n}\n\n\nexport function createChangeDetectorRef(view: ViewData): ChangeDetectorRef {\n  return new
ViewRef_(view);\n}\n\n\nexport class ViewRef_ implements EmbeddedViewRef<any>, InternalViewRef {\n  /**
@internal */\n  _view: ViewData;\n  private _viewContainerRef: ViewContainerRef|null;\n  private _appRef:

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ViewRefTracker|null;\n\n constructor(_view: ViewData) {\n  this._view = _view;\n  this._viewContainerRef =
null;\n  this._appRef = null;\n }\n\n get rootNodes(): any[] {\n  return rootRenderNodes(this._view);\n }\n\n get
context() {\n  return this._view.context;\n }\n\n get destroyed(): boolean {\n  return (this._view.state &
ViewState.Destroyed) !== 0;\n }\n\n markForCheck(): void {\n  markParentViewsForCheck(this._view);\n }\n
detach(): void {\n  this._view.state &= ~ViewState.Attached;\n }\n\n detectChanges(): void {\n  const fs =
this._view.root.rendererFactory;\n  if (fs.begin) {\n    fs.begin();\n  }\n  try {\n
Services.checkAndUpdateView(this._view);\n
    } finally {\n    if (fs.end) {\n      fs.end();\n    }\n  }\n }\n\n checkNoChanges(): void {\n
Services.checkNoChangesView(this._view);\n }\n\n reattach(): void {\n  this._view.state |=
ViewState.Attached;\n }\n\n onDestroy(callback: Function) {\n  if (!this._view.disposables) {\n
this._view.disposables = [];\n  }\n  this._view.disposables.push(<any>callback);\n }\n\n destroy() {\n  if
(this._appRef) {\n    this._appRef.detachView(this);\n  } else if (this._viewContainerRef) {\n
this._viewContainerRef.detach(this._viewContainerRef.indexOf(this));\n  }\n
Services.destroyView(this._view);\n }\n\n detachFromAppRef() {\n  this._appRef = null;\n
renderDetachView(this._view);\n  Services.dirtyParentQueries(this._view);\n }\n\n attachToAppRef(appRef:
ViewRefTracker) {\n  if (this._viewContainerRef) {\n    throw new Error("This view is already attached to a
ViewContainer!");\n  }\n  this._appRef
= appRef;\n }\n\n attachToViewContainerRef(vcRef: ViewContainerRef) {\n  if (this._appRef) {\n    throw new
Error("This view is already attached directly to the ApplicationRef!");\n  }\n  this._viewContainerRef = vcRef;\n
}\n\n\nexport function createTemplateData(view: ViewData, def: NodeDef): TemplateData {\n  return new
TemplateRef_(view, def);\n }\n\n\nclass TemplateRef_ extends TemplateRef<any> implements TemplateData {\n
/**\n  * @internal\n  */\n  // TODO(issue/24571): remove '!'.\n  _projectedViews!: ViewData[];\n\n
constructor(private _parentView: ViewData, private _def: NodeDef) {\n  super();\n }\n\n
createEmbeddedView(context: any): EmbeddedViewRef<any> {\n  return new
ViewRef_(Services.createEmbeddedView(\n    this._parentView, this._def, this._def.element!.template !,
context));\n }\n\n get elementRef(): ElementRef {\n  return new ElementRef(asElementData(this._parentView,
this._def.nodeIndex).renderElement);\n }\n }\n\n\nexport function createInjector(view:
ViewData, elDef: NodeDef): Injector {\n  return new Injector_(view, elDef);\n }\n\n\nclass Injector_ implements
Injector {\n  constructor(private view: ViewData, private elDef: NodeDef|null) {\n  }\n  get(token: any, notFoundValue:
any = Injector.THROW_IF_NOT_FOUND): any {\n    const allowPrivateServices =\n      this.elDef ?
(this.elDef.flags & NodeFlags.ComponentView) !== 0 : false;\n    return Services.resolveDep(\n      this.view,
this.elDef, allowPrivateServices,\n      { flags: DepFlags.None, token, tokenKey: tokenKey(token) },
notFoundValue);\n  }\n }\n\n\nexport function nodeValue(view: ViewData, index: number): any {\n  const def =
view.def.nodes[index];\n  if (def.flags & NodeFlags.TypeElement) {\n    const elData = asElementData(view,
def.nodeIndex);\n    return def.element!.template ? elData.template : elData.renderElement;\n  } else if (def.flags &
NodeFlags.TypeText) {\n    return asTextData(view, def.nodeIndex).renderText;\n  } else if (def.flags &
(NodeFlags.CatProvider
| NodeFlags.TypePipe)) {\n    return asProviderData(view, def.nodeIndex).instance;\n  }\n  throw new Error(`Illegal
state: read nodeValue for node index ${index}`);\n }\n\n\nexport function createNgModuleRef(\n  moduleType:
Type<any>, parent: Injector, bootstrapComponents: Type<any>[],\n  def: NgModuleDefinition):
NgModuleRef<any> {\n  return new NgModuleRef_(moduleType, parent, bootstrapComponents, def);\n }\n\n\nclass
NgModuleRef_ implements NgModuleData, InternalNgModuleRef<any> {\n  private _destroyListeners: (() =>
void)[] = [];\n  private _destroyed: boolean = false;\n  /** @internal */\n  // TODO(issue/24571): remove '!'.\n  _providers!: any[];\n  /** @internal */\n  // TODO(issue/24571): remove '!'.\n  _modules!: any[];\n\n  readonly
injector: Injector = this;\n\n  constructor(\n    private _moduleType: Type<any>, public _parent: Injector,\n    public _bootstrapComponents: Type<any>[], public _def: NgModuleDefinition) {\n    initNgModule(this);\n  }\n\n
get(token:

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any, notFoundValue: any = Injector.THROW_IF_NOT_FOUND,\n    injectFlags: InjectFlags =
InjectFlags.Default): any {\n    let flags = DepFlags.None;\n    if (injectFlags & InjectFlags.SkipSelf) {\n        flags |=
DepFlags.SkipSelf;\n    } else if (injectFlags & InjectFlags.Self) {\n        flags |= DepFlags.Self;\n    }\n    return
resolveNgModuleDep(\n        this, {token: token, tokenKey: tokenKey(token), flags: flags}, notFoundValue);\n
}\n\n    get instance() {\n        return this.get(this._moduleType);\n    }\n\n    get componentFactoryResolver() {\n        return
this.get(ComponentFactoryResolver);\n    }\n\n    destroy(): void {\n        if (this._destroyed) {\n            throw new Error(\n
`The ng module ${stringify(this.instance.constructor)} has already been destroyed.`);\n        }\n        this._destroyed =
true;\n        callNgModuleLifecycle(this, NodeFlags.OnDestroy);\n        this._destroyListeners.forEach((listener) =>
listener());\n    }\n\n    onDestroy(callback: () => void): void {\n        this._destroyListeners.push(callback);\n
    }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {ChangeDetectorRef, SimpleChange, SimpleChanges, WrappedValue} from
'./change_detection/change_detection';\nimport {INJECTOR, Injector, resolveForwardRef} from './di';\nimport
{ElementRef} from './linker/element_ref';\nimport {TemplateRef} from './linker/template_ref';\nimport
{ViewContainerRef} from './linker/view_container_ref';\nimport {Renderer2} from './render/api';\nimport
{isObservable} from './util/lang';\nimport {stringify} from './util/stringify';\n\nimport {createChangeDetectorRef,
createInjector} from './refs';\nimport {asElementData, asProviderData, BindingDef, BindingFlags, DepDef,
DepFlags, NodeDef, NodeFlags, OutputDef, OutputType, ProviderData, QueryValueType, Services,
shouldCallLifecycleInitHook, ViewData, ViewFlags,
ViewState} from './types';\nimport {calcBindingFlags, checkBinding, dispatchEvent, isComponentView,
splitDepsDsl, splitMatchedQueriesDsl, tokenKey, viewParentEl} from './util';\n\nconst Renderer2TokenKey =
tokenKey(Renderer2);\nconst ElementRefTokenKey = tokenKey(ElementRef);\nconst ViewContainerRefTokenKey =
tokenKey(ViewContainerRef);\nconst TemplateRefTokenKey = tokenKey(TemplateRef);\nconst
ChangeDetectorRefTokenKey = tokenKey(ChangeDetectorRef);\nconst InjectorRefTokenKey =
tokenKey(Injector);\nconst INJECTORRefTokenKey = tokenKey(INJECTOR);\n\nexport function directiveDef(\n
checkIndex: number, flags: NodeFlags, matchedQueries: null|[string | number, QueryValueType][],\n    childCount:
number, ctor: any, deps: ([DepFlags, any]|any)[],\n    props?: null|[{name: string}: [number, string]],\n    outputs?:
null|[{name: string}: string]): NodeDef {\n    const bindings: BindingDef[] = [];\n    if (props) {\n        for (let prop in
props) {\n            const [bindingIndex, nonMinifiedName]
= props[prop];\n            bindings[bindingIndex] = {\n                flags: BindingFlags.TypeProperty,\n                name: prop,\n
nonMinifiedName,\n                ns: null,\n                securityContext: null,\n                suffix: null\n            };\n        }\n    }\n    const
outputDefs: OutputDef[] = [];\n    if (outputs) {\n        for (let propName in outputs) {\n            outputDefs.push(\n
{type: OutputType.DirectiveOutput, propName, target: null, eventName: outputs[propName]});\n        }\n    }\n    flags |=
NodeFlags.TypeDirective;\n    return _def(\n        checkIndex, flags, matchedQueries, childCount, ctor, ctor, deps,
bindings, outputDefs);\n}\n\nexport function pipeDef(flags: NodeFlags, ctor: any, deps: ([DepFlags, any]|any)[]):
NodeDef {\n    flags |= NodeFlags.TypePipe;\n    return _def(-1, flags, null, 0, ctor, ctor, deps);\n}\n\nexport function
providerDef(\n    flags: NodeFlags, matchedQueries: null|[string | number, QueryValueType][],\n    token: any,\n    value: any,
deps: ([DepFlags, any]|any)[]): NodeDef {\n    return _def(-1,
flags, matchedQueries, 0, token, value, deps);\n}\n\nexport function _def(\n    checkIndex: number, flags:
NodeFlags, matchedQueriesDsl: [string|number, QueryValueType][]|null,\n    childCount: number, token: any,
value: any, deps: ([DepFlags, any]|any)[],\n    bindings?: BindingDef[], outputs?: OutputDef[]): NodeDef {\n    const
{matchedQueries, references, matchedQueryIds} = splitMatchedQueriesDsl(matchedQueriesDsl);\n    if (!outputs)\n        {\n            outputs = [];\n        }\n    if (!bindings) {\n        bindings = [];\n    }\n    // Need to resolve forwardRefs as e.g. for
`useValue` we\n    // lowered the expression and then stopped evaluating it,\n    // i.e. also didn't unwrap it.\n    value =
resolveForwardRef(value);\n    const depDefs = splitDepsDsl(deps, stringify(token));\n    return {\n        // will bet set
by the view definition\n        nodeIndex: -1,\n        parent: null,\n        renderParent: null,\n        bindingIndex: -1,\n
        outputIndex: -1,\n        // regular values\n        checkIndex,\n        flags,\n        childFlags:

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0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries,\n matchedQueryIds,\n
references,\n ngContentIndex: -1,\n childCount,\n bindings,\n bindingFlags: calcBindingFlags(bindings),\n
outputs,\n element: null,\n provider: {token, value, deps: depDefs},\n text: null,\n query: null,\n ngContent:
null\n };\n}\n\nexport function createProviderInstance(view: ViewData, def: NodeDef): any {\n return
_createProviderInstance(view, def);\n}\n\nexport function createPipeInstance(view: ViewData, def: NodeDef): any
{\n // deps are looked up from component.\n let compView = view;\n while (compView.parent &&
!isComponentView(compView)) {\n compView = compView.parent;\n }\n // pipes can see the private services of
the component\n const allowPrivateServices = true;\n // pipes are always eager and classes!\n return createClass(\n
compView.parent!, viewParentEl(compView)!, allowPrivateServices, def.provider!.value,\n
def.provider!.deps);\n}\n\nexport
function createDirectiveInstance(view: ViewData, def: NodeDef): any {\n // components can see other private
services, other directives can't.\n const allowPrivateServices = (def.flags & NodeFlags.Component) > 0;\n //
directives are always eager and classes!\n const instance =\n createClass(view, def.parent!, allowPrivateServices,
def.provider!.value, def.provider!.deps);\n if (def.outputs.length) {\n for (let i = 0; i < def.outputs.length; i++) {\n
const output = def.outputs[i];\n const outputObservable = instance[output.propName!];\n if
(isObservable(outputObservable)) {\n const subscription = outputObservable.subscribe(\n
eventHandlerClosure(view, def.parent!.nodeIndex, output.eventName));\n view.disposables![def.outputIndex +
i] = subscription.unsubscribe.bind(subscription);\n } else {\n throw new Error(\n `@Output
${output.propName} not initialized in '${instance.constructor.name}'`);\n
}\n }\n }\n return instance;\n}\n\nfunction eventHandlerClosure(view: ViewData, index: number,
eventName: string) {\n return (event: any) => dispatchEvent(view, index, eventName, event);\n}\n\nexport function
checkAndUpdateDirectiveInline(\n view: ViewData, def: NodeDef, v0: any, v1: any, v2: any, v3: any, v4: any, v5:
any, v6: any,\n v7: any, v8: any, v9: any): boolean {\n const providerData = asProviderData(view,
def.nodeIndex);\n const directive = providerData.instance;\n let changed = false;\n let changes: SimpleChanges =
undefined;\n const bindLen = def.bindings.length;\n if (bindLen > 0 && checkBinding(view, def, 0, v0)) {\n
changed = true;\n changes = updateProp(view, providerData, def, 0, v0, changes);\n }\n if (bindLen > 1 &&
checkBinding(view, def, 1, v1)) {\n changed = true;\n changes = updateProp(view, providerData, def, 1, v1,
changes);\n }\n if (bindLen > 2 && checkBinding(view, def, 2, v2)) {\n changed = true;\n changes
= updateProp(view, providerData, def, 2, v2, changes);\n }\n if (bindLen > 3 && checkBinding(view, def, 3, v3))
{\n changed = true;\n changes = updateProp(view, providerData, def, 3, v3, changes);\n }\n if (bindLen > 4 &&
checkBinding(view, def, 4, v4)) {\n changed = true;\n changes = updateProp(view, providerData, def, 4, v4,
changes);\n }\n if (bindLen > 5 && checkBinding(view, def, 5, v5)) {\n changed = true;\n changes =
updateProp(view, providerData, def, 5, v5, changes);\n }\n if (bindLen > 6 && checkBinding(view, def, 6, v6)) {\n
changed = true;\n changes = updateProp(view, providerData, def, 6, v6, changes);\n }\n if (bindLen > 7 &&
checkBinding(view, def, 7, v7)) {\n changed = true;\n changes = updateProp(view, providerData, def, 7, v7,
changes);\n }\n if (bindLen > 8 && checkBinding(view, def, 8, v8)) {\n changed = true;\n changes =
updateProp(view, providerData, def, 8, v8, changes);\n }\n if (bindLen > 9 && checkBinding(view,
def, 9, v9)) {\n changed = true;\n changes = updateProp(view, providerData, def, 9, v9, changes);\n }\n if
(changes) {\n directive.ngOnChanges(changes);\n }\n if ((def.flags & NodeFlags.OnInit) &&\n
shouldCallLifecycleInitHook(view, ViewState.InitState_CallingOnInit, def.nodeIndex)) {\n
directive.ngOnInit();\n }\n if (def.flags & NodeFlags.DoCheck) {\n directive.ngDoCheck();\n }\n return
changed;\n}\n\nexport function checkAndUpdateDirectiveDynamic(\n view: ViewData, def: NodeDef, values:
any[]): boolean {\n const providerData = asProviderData(view, def.nodeIndex);\n const directive =
providerData.instance;\n let changed = false;\n let changes: SimpleChanges = undefined;\n for (let i = 0; i <
values.length; i++) {\n if (checkBinding(view, def, i, values[i])) {\n changed = true;\n changes =
updateProp(view, providerData, def, i, values[i], changes);\n }\n }\n if (changes) {\n
directive.ngOnChanges(changes);\n }\n if ((def.flags

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& NodeFlags.OnInit) &&\n    shouldCallLifecycleInitHook(view, ViewState.InitState_CallingOnInit,
def.nodeIndex)) {\n    directive.ngOnInit();\n } \n if (def.flags & NodeFlags.DoCheck) {\n
directive.ngDoCheck();\n } \n return changed;\n } \n\nfunction _createProviderInstance(view: ViewData, def:
NodeDef): any {\n // private services can see other private services\n const allowPrivateServices = (def.flags &
NodeFlags.PrivateProvider) > 0;\n const providerDef = def.provider;\n switch (def.flags & NodeFlags.Types) {\n
case NodeFlags.TypeClassProvider:\n    return createClass(\n        view, def.parent!, allowPrivateServices,
providerDef!.value, providerDef!.deps);\n case NodeFlags.TypeFactoryProvider:\n    return callFactory(\n
view, def.parent!, allowPrivateServices, providerDef!.value, providerDef!.deps);\n case
NodeFlags.TypeUseExistingProvider:\n    return resolveDep(view, def.parent!, allowPrivateServices,
providerDef!.deps[0]);\n case NodeFlags.TypeValueProvider:\n
return providerDef!.value;\n } \n } \n\nfunction createClass(\n    view: ViewData, elDef: NodeDef,
allowPrivateServices: boolean, ctor: any, deps: DepDef[]): any {\n const len = deps.length;\n switch (len) {\n
case 0:\n    return new ctor();\n case 1:\n    return new ctor(resolveDep(view, elDef, allowPrivateServices,
deps[0]));\n case 2:\n    return new ctor(\n        resolveDep(view, elDef, allowPrivateServices, deps[0]),\n
resolveDep(view, elDef, allowPrivateServices, deps[1]));\n case 3:\n    return new ctor(\n        resolveDep(view,
elDef, allowPrivateServices, deps[0]),\n        resolveDep(view, elDef, allowPrivateServices, deps[1]),\n
resolveDep(view, elDef, allowPrivateServices, deps[2]));\n default:\n    const depValues = [];\n    for (let i = 0; i
< len; i++) {\n        depValues.push(resolveDep(view, elDef, allowPrivateServices, deps[i]));\n    } \n    return new
ctor(...depValues);\n } \n } \n\nfunction
callFactory(\n    view: ViewData, elDef: NodeDef, allowPrivateServices: boolean, factory: any, \n    deps:
DepDef[]): any {\n const len = deps.length;\n switch (len) {\n case 0:\n    return factory();\n case 1:\n
return factory(resolveDep(view, elDef, allowPrivateServices, deps[0]));\n case 2:\n    return factory(\n
resolveDep(view, elDef, allowPrivateServices, deps[0]),\n        resolveDep(view, elDef, allowPrivateServices,
deps[1]));\n case 3:\n    return factory(\n        resolveDep(view, elDef, allowPrivateServices, deps[0]),\n
resolveDep(view, elDef, allowPrivateServices, deps[1]),\n        resolveDep(view, elDef, allowPrivateServices,
deps[2]));\n default:\n    const depValues = [];\n    for (let i = 0; i < len; i++) {\n
depValues.push(resolveDep(view, elDef, allowPrivateServices, deps[i]));\n    } \n    return factory(...depValues);\n
} \n } \n\n// This default value is when checking the hierarchy for
a token.\n\n// It means both:\n// - the token is not provided by the current injector,\n// - only the element injectors
should be checked (ie do not check module injectors)\n\n// mod1\n//    /\n//    el1 mod2\n//    /\n//    el2\n\n// When requesting el2.injector.get(token), we should check in the following order and return the\n// first
found value:\n// - el2.injector.get(token, default)\n// - el1.injector.get(token,
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) -> do not check the module\n// -
mod2.injector.get(token, default)\n\nexport const NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR =
{ };\n\nexport function resolveDep(\n    view: ViewData, elDef: NodeDef, allowPrivateServices: boolean, depDef:
DepDef, \n    notFoundValue: any = Injector.THROW_IF_NOT_FOUND): any {\n if (depDef.flags &
DepFlags.Value) {\n    return depDef.token;\n } \n const startView = view;\n if (depDef.flags &
DepFlags.Optional) {\n    notFoundValue = null;\n } \n const tokenKey = depDef.tokenKey;\n
if (tokenKey === ChangeDetectorRefTokenKey) {\n // directives on the same element as a component should be
able to control the change detector\n // of that component as well.\n    allowPrivateServices = !(elDef &&
elDef.element!.componentView);\n } \n\n if (elDef && (depDef.flags & DepFlags.SkipSelf)) {\n
allowPrivateServices = false;\n    elDef = elDef.parent!;\n } \n\n let searchView: ViewData|null = view;\n while
(searchView) {\n    if (elDef) {\n        switch (tokenKey) {\n case Renderer2TokenKey: {\n const
compView = findCompView(searchView, elDef, allowPrivateServices);\n            return compView.renderer;\n
} \n case ElementRefTokenKey:\n            return new ElementRef(asElementData(searchView,
elDef.nodeIndex).renderElement);\n case ViewContainerRefTokenKey:\n            return
asElementData(searchView, elDef.nodeIndex).viewContainer;\n case TemplateRefTokenKey: {\n if
(elDef.element!.template) {\n

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        return asElementData(searchView, elDef.nodeIndex).template;\n        }\n        break;\n    }\n    case
ChangeDetectorRefTokenKey: {\n        let cdView = findCompView(searchView, elDef, allowPrivateServices);\n        return createChangeDetectorRef(cdView);\n    }\n    case InjectorRefTokenKey:\n    case
INJECTORRefTokenKey:\n        return createInjector(searchView, elDef);\n    default:\n        const
providerDef =\n            (allowPrivateServices ? elDef.element!.allProviders :\n            elDef.element!.publicProviders)![tokenKey];\n        if (providerDef) {\n            let providerData =
asProviderData(searchView, providerDef.nodeIndex);\n            if (!providerData) {\n                providerData =
{instance: _createProviderInstance(searchView, providerDef)};\n            }\n            searchView.nodes[providerDef.nodeIndex] = providerData as any;\n            }\n            return
providerData.instance;\n        }\n    }\n    }\n    allowPrivateServices = isComponentView(searchView);\n    elDef =
viewParentEl(searchView)!;\n    searchView = searchView.parent!;\n    if (depDef.flags & DepFlags.Self) {\n
searchView = null;\n    }\n    }\n    const value = startView.root.injector.get(depDef.token,
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR);\n    if (value !==
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR ||\n        notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n        // Return the value from the root element injector
when\n        // - it provides it\n        // (value !== NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n        // - the
module injector should not be checked\n        // (notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n        return value;\n    }\n    }\n    return
startView.root.ngModule.injector.get(depDef.token, notFoundValue);\n    }\n    }\n    function findCompView(view:
ViewData, elDef: NodeDef, allowPrivateServices: boolean) {\n        let compView: ViewData;\n        if
(allowPrivateServices) {\n            compView
= asElementData(view, elDef.nodeIndex).componentView;\n        } else {\n            compView = view;\n            while
(compView.parent && !isComponentView(compView)) {\n                compView = compView.parent;\n            }\n        }\n        return
compView;\n    }\n    }\n    function updateProp(\n        view: ViewData, providerData: ProviderData, def: NodeDef,
bindingIdx: number, value: any,\n        changes: SimpleChanges): SimpleChanges {\n        if (def.flags &
NodeFlags.Component) {\n            const compView = asElementData(view, def.parent!.nodeIndex).componentView;\n            if (compView.def.flags & ViewFlags.OnPush) {\n                compView.state |= ViewState.ChecksEnabled;\n            }\n        }\n        const binding = def.bindings[bindingIdx];\n        const propName = binding.name!;\n        // Note: This is still safe with
Closure Compiler as\n        // the user passed in the property name as an object has to `providerDef`,\n        // so Closure
Compiler will have renamed the property correctly already.\n        providerData.instance[propName] = value;\n        if
(def.flags & NodeFlags.OnChanges) {\n            changes = changes || {};\n            const oldValue = WrappedValue.unwrap(view.oldValues[def.bindingIndex +
bindingIdx]);\n            const binding = def.bindings[bindingIdx];\n            changes[binding.nonMinifiedName!] =\n                new
SimpleChange(oldValue, value, (view.state & ViewState.FirstCheck) !== 0);\n        }\n        view.oldValues[def.bindingIndex + bindingIdx] = value;\n        return changes;\n    }\n    }\n    // This function calls the
ngAfterContentCheck, ngAfterContentInit,\n    // ngAfterViewCheck, and ngAfterViewInit lifecycle hooks (depending
on the node\n    // flags in lifecycle). Unlike ngDoCheck, ngOnChanges and ngOnInit, which are\n    // called during a
pre-order traversal of the view tree (that is calling the\n    // parent hooks before the child hooks) these events are sent
in using a\n    // post-order traversal of the tree (children before parents). This changes the\n    // meaning of initIndex in
the view state. For ngOnInit, initIndex tracks the\n    // expected nodeIndex which a ngOnInit should be called. When
sending\n    // ngAfterContentInit
and ngAfterViewInit it is the expected count of\n    // ngAfterContentInit or ngAfterViewInit methods that have been
called. This\n    // ensure that despite being called recursively or after picking up after an\n    // exception, the
ngAfterContentInit or ngAfterViewInit will be called on the\n    // correct nodes. Consider for example, the following
(where E is an element\n    // and D is a directive)\n    // Tree:      pre-order index  post-order index\n    // E1      0
6\n    // E2      1          1\n    // D3      2          0\n    // E4      3          5\n    // E5      4          4\n    // E6      5          2\n    // E7      6          3\n    // As can be seen, the post-order index has an unclear relationship to

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the\n// pre-order index (postOrderIndex === preOrderIndex - parentCount +\n// childCount). Since number of calls to ngAfterContentInit and ngAfterViewInit\n// are stable (will be the same for the same view regardless of exceptions

or\n// recursion) we just need to count them which will roughly correspond to the\n// post-order index (it skips elements and directives that do not have\n// lifecycle hooks).\n//\n// For example, if an exception is raised in the E6.onAfterViewInit() the\n// initIndex is left at 3 (by shouldCallLifecycleInitHook() which set it to\n// initIndex + 1). When checkAndUpdateView() is called again D3, E2 and E6 will\n// not have their ngAfterViewInit() called but, starting with E7, the rest of\n// the view will begin getting ngAfterViewInit() called until a check and\n// pass is complete.\n//\n// This algorithm also handles recursion. Consider if E4's ngAfterViewInit()\n// indirectly calls E1's ChangeDetectorRef.detectChanges(). The expected\n// initIndex is set to 6, the recursive checkAndUpdateView() starts walk again.\n// D3, E2, E6, E7, E5 and E4 are skipped, ngAfterViewInit() is called on E1.\n// When the recursion returns the initIndex will be 7 so E1 is skipped as it\n// has already

been called in the recursively called checkAnUpdateView().\nexport function callLifecycleHooksChildrenFirst(view: ViewData, lifecycles: NodeFlags) {\n if (!(view.def.nodeFlags & lifecycles)) {\n return;\n }\n const nodes = view.def.nodes;\n let initIndex = 0;\n for (let i = 0; i < nodes.length; i++) {\n const nodeDef = nodes[i];\n let parent = nodeDef.parent;\n if (!parent && nodeDef.flags & lifecycles) {\n // matching root node (e.g. a pipe)\n callProviderLifecycles(view, i, nodeDef.flags & lifecycles, initIndex++);\n }\n if ((nodeDef.childFlags & lifecycles) === 0) {\n // no child matches one of the lifecycles\n i += nodeDef.childCount;\n }\n while (parent && (parent.flags & NodeFlags.TypeElement) &&\n i === parent.nodeIndex + parent.childCount) {\n // last child of an element\n if (parent.directChildFlags & lifecycles) {\n initIndex = callElementProvidersLifecycles(view, parent, lifecycles, initIndex);\n

\n parent = parent.parent;\n }\n }\n}\n\nfunction callElementProvidersLifecycles(\n view: ViewData, elDef: NodeDef, lifecycles: NodeFlags, initIndex: number): number {\n for (let i = elDef.nodeIndex + 1; i <= elDef.nodeIndex + elDef.childCount; i++) {\n const nodeDef = view.def.nodes[i];\n if (nodeDef.flags & lifecycles) {\n callProviderLifecycles(view, i, nodeDef.flags & lifecycles, initIndex++);\n }\n // only visit direct children\n i += nodeDef.childCount;\n }\n return initIndex;\n}\n\nfunction callProviderLifecycles(\n view: ViewData, index: number, lifecycles: NodeFlags, initIndex: number) {\n const providerData = asProviderData(view, index);\n if (!providerData) {\n return;\n }\n const provider = providerData.instance;\n if (!provider) {\n return;\n }\n Services.setCurrentNode(view, index);\n if (lifecycles & NodeFlags.AfterContentInit &&\n shouldCallLifecycleInitHook(view, ViewState.InitState_CallingAfterContentInit, initIndex)) {\n provider.ngAfterContentInit();\n }\n if (lifecycles & NodeFlags.AfterContentChecked) {\n provider.ngAfterContentChecked();\n }\n if (lifecycles & NodeFlags.AfterViewInit &&\n shouldCallLifecycleInitHook(view, ViewState.InitState_CallingAfterViewInit, initIndex)) {\n provider.ngAfterViewInit();\n }\n if (lifecycles & NodeFlags.AfterViewChecked) {\n provider.ngAfterViewChecked();\n }\n if (lifecycles & NodeFlags.OnDestroy) {\n provider.ngOnDestroy();\n }\n}\n\n", "/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at <https://angular.io/license>\n

*\n\nimport { ChangeDetectorRef as ViewEngine_ChangeDetectorRef } from './change_detection/change_detector_ref';\nimport { InjectionToken } from './di/injection_token';\nimport { Injector } from './di/injector';\nimport { InjectFlags } from './di/interface/injector';\nimport { Type } from './interface/type';\nimport { ComponentFactory as viewEngine_ComponentFactory, ComponentRef as viewEngine_ComponentRef } from './linker/component_factory';\nimport { ComponentFactoryResolver as viewEngine_ComponentFactoryResolver } from './linker/component_factory_resolver';\nimport { createElementRef, ElementRef as viewEngine_ElementRef } from './linker/element_ref';\nimport { NgModuleRef as viewEngine_NgModuleRef } from './linker/ng_module_factory';\nimport { RendererFactory2 } from './render/api';\nimport { Sanitizer } from './sanitization/sanitizer';\nimport { VERSION } from './version';\nimport

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{NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR} from './view/provider';\nimport
{assertComponentType} from './assert';\nimport {createRootComponent, createRootComponentView,
createRootContext, LifecycleHooksFeature} from './component';\nimport {getComponentDef} from
'./definition';\nimport {NodeInjector} from './di';\nimport {createLView, createTView, locateHostElement,
renderView} from './instructions/shared';\nimport
{ComponentDef} from './interfaces/definition';\nimport {TContainerNode, TElementContainerNode,
TElementNode, TNode} from './interfaces/node';\nimport {domRendererFactory3, RendererFactory3} from
'./interfaces/renderer';\nimport {RNode} from './interfaces/renderer_dom';\nimport {HEADER_OFFSET, LView,
LViewFlags, TViewType} from './interfaces/view';\nimport {MATH_ML_NAMESPACE, SVG_NAMESPACE}
from './namespaces';\nimport {createElementNode, writeDirectClass} from './node_manipulation';\nimport
{extractAttrsAndClassesFromSelector, stringifyCSSSelectorList} from './node_selector_matcher';\nimport
{enterView, leaveView} from './state';\nimport {setUpAttributes} from './util/attrs_utils';\nimport
{defaultScheduler} from './util/misc_utils';\nimport {getTNode} from './util/view_utils';\nimport {RootViewRef,
ViewRef} from './view_ref';\n\nexport class ComponentFactoryResolver extends
viewEngine_ComponentFactoryResolver {\n  /**\n   * @param ngModule The NgModuleRef to which all
resolved factories are bound.\n   */\n  constructor(private ngModule?: viewEngine_NgModuleRef<any>) {\n
super();\n  }\n\n  resolveComponentFactory<T>(component: Type<T>): viewEngine_ComponentFactory<T> {\n
ngDevMode && assertComponentType(component);\n  const componentDef = getComponentDef(component);\n
return new ComponentFactory(componentDef, this.ngModule);\n  }\n\n  toRefArray(map: {[key: string]:
string}): {propName: string; templateName: string;}[] {\n    const array: {propName: string; templateName: string;}[]
= [];\n    for (let nonMinified in map) {\n      if (map.hasOwnProperty(nonMinified)) {\n        const minified =
map[nonMinified];\n        array.push({propName: minified, templateName: nonMinified});\n      }\n    }\n    return
array;\n  }\n\n  getNamespace(elementName: string): string|null {\n    const name =
elementName.toLowerCase();\n    return name === 'svg' ? SVG_NAMESPACE : (name === 'math' ?
MATH_ML_NAMESPACE : null);\n  }\n\n  /**\n   * A change detection scheduler
token for {@link RootContext}. This token is the default value used\n   * for the default `RootContext` found in the
{@link ROOT_CONTEXT} token.\n   */\n  export const SCHEDULER = new InjectionToken<((fn: () => void) =>
void)>('SCHEDULER_TOKEN', {\n    providedIn: 'root',\n    factory: () => defaultScheduler,\n  });\n\n  function
createChainedInjector(rootViewInjector: Injector, moduleInjector: Injector): Injector {\n    return {\n      get:
<T>(token: Type<T>|InjectionToken<T>, notFoundValue?: T, flags?: InjectFlags): T => {\n        const value =
rootViewInjector.get(token, NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR as T, flags);\n        if (value
!== NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR ||\n            notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n          // Return the value from the root element
injector when\n          // - it provides it\n          // (value !==
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n          // - the module injector should not be checked\n
          // (notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n          return value;\n        }\n        return
moduleInjector.get(token, notFoundValue, flags);\n      }\n    };\n  }\n\n  /**\n   * Render3 implementation of {@link
viewEngine_ComponentFactory}.\n   */\n  export class ComponentFactory<T> extends
viewEngine_ComponentFactory<T> {\n    selector: string;\n    componentType: Type<any>;\n    ngContentSelectors:
string[];\n    isBoundToModule: boolean;\n\n    get inputs(): {propName: string; templateName: string;}[] {\n      return
toRefArray(this.componentDef.inputs);\n    }\n\n    get outputs(): {propName: string; templateName: string;}[] {\n
return toRefArray(this.componentDef.outputs);\n    }\n  }\n\n  /**\n   * @param componentDef The component
definition.\n   * @param ngModule The NgModuleRef to which the factory is bound.\n   */\n  constructor(\n
private componentDef: ComponentDef<any>, private ngModule?: viewEngine_NgModuleRef<any>) {\n
super();\n    this.componentType = componentDef.type;\n    this.selector =
stringifyCSSSelectorList(componentDef.selectors);\n

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    this.ngContentSelectors =\n      componentDef.ngContentSelectors ? componentDef.ngContentSelectors : [];\n
    this.isBoundToModule = !!ngModule;\n  }\n\n  create(\n    injector: Injector, projectableNodes?: any[][]|undefined,\n    rootSelectorOrNode?: any,\n    ngModule?: viewEngine_NgModuleRef<any>|undefined):\n    viewEngine_ComponentRef<T> {\n      ngModule = ngModule || this.ngModule;\n\n      const rootViewInjector =\n        ngModule ? createChainedInjector(injector, ngModule.injector) : injector;\n\n      const rendererFactory =\n        rootViewInjector.get(RendererFactory2, domRendererFactory3) as RendererFactory3;\n\n      const sanitizer =\n        rootViewInjector.get(Sanitizer, null);\n\n      const hostRenderer = rendererFactory.createRenderer(null,\n        this.componentDef);\n\n      // Determine a tag name used for creating host elements when this component is created\n      // dynamically. Default to 'div' if this component did not specify any tag name in its\n      selector.\n      const elementName = this.componentDef.selectors[0][0] as string || 'div';\n      const hostRNode =\n        rootSelectorOrNode ?\n          locateHostElement(hostRenderer, rootSelectorOrNode,\n            this.componentDef.encapsulation) :\n          createElementNode(\n            rendererFactory.createRenderer(null,\n              this.componentDef), elementName,\n              getNamespace(elementName));\n\n      const rootFlags =\n        this.componentDef.onPush ? LViewFlags.Dirty | LViewFlags.IsRoot :\n        LViewFlags.CheckAlways | LViewFlags.IsRoot;\n\n      const rootContext = createRootContext();\n\n      // Create the\n      root view. Uses empty TView and ContentTemplate.\n      const rootTVView = createTVView(TViewType.Root, null,\n        null, 1, 0, null, null, null, null);\n      const rootLView = createLView(\n        null, rootTVView, rootContext,\n        rootFlags, null, null, rendererFactory, hostRenderer,\n        sanitizer, rootViewInjector);\n\n      // rootView is the\n      parent when bootstrapping\n\n      // TODO(misko): it looks like we are entering view here but we don't really need to as\n      // `renderView` does\n      that. However as the code is written it is needed because\n      // `createRootComponentView` and\n      `createRootComponent` both read global state. Fixing those\n      // issues would allow us to drop this.\n      enterView(rootLView);\n\n      let component: T;\n      let tElementNode: TElementNode;\n\n      try {\n        const\n        componentView = createRootComponentView(\n          hostRNode, this.componentDef, rootLView,\n          rendererFactory, hostRenderer);\n\n        if (hostRNode) {\n          if (rootSelectorOrNode) {\n            setUpAttributes(hostRenderer, hostRNode, ['ng-version', VERSION.full]);\n          } else {\n            // If host element is\n            created as a part of this function call (i.e. `rootSelectorOrNode`\n            // is not defined), also apply attributes and\n            classes extracted from component selector.\n            // Extract attributes and classes from the first selector only to\n            match\n            VE behavior.\n            const {attrs, classes} =\n              extractAttrsAndClassesFromSelector(this.componentDef.selectors[0]);\n\n            if (attrs) {\n              setUpAttributes(hostRenderer, hostRNode, attrs);\n            }\n\n            if (classes && classes.length > 0) {\n              writeDirectClass(hostRenderer, hostRNode, classes.join(' '));\n            }\n          }\n\n          tElementNode =\n            getTNode(rootTVView, HEADER_OFFSET) as TElementNode;\n\n          if (projectableNodes !== undefined) {\n            const projection: (TNode|RNode[]|null)[] = tElementNode.projection = [];\n\n            for (let i = 0; i <\n              this.ngContentSelectors.length; i++) {\n              const nodesforSlot = projectableNodes[i];\n\n              // Projectable nodes\n              can be passed as array of arrays or an array of iterables (ngUpgrade\n              // case). Here we do normalize passed\n              data structure to be an array of arrays to avoid\n              // complex checks down the line.\n              // We also normalize\n              the length\n              of the passed in projectable nodes (to match the number of\n              // <ng-container> slots defined by a\n              component).\n              projection.push(nodesforSlot != null ? Array.from(nodesforSlot) : null);\n            }\n\n            //\n            TODO: should LifecycleHooksFeature and other host features be generated by the compiler and\n            // executed\n            here?\n            // Angular 5 reference: https://stackblitz.com/edit/lifecycle-hooks-vcref\n            component =\n              createRootComponent(\n                componentView, this.componentDef, rootLView, rootContext,\n                [LifecycleHooksFeature]);\n\n            renderView(rootTVView, rootLView, null);\n          } finally {\n            leaveView();\n          }\n\n          return new ComponentRef(\n            this.componentType, component, createElementRef(tElementNode,\n              rootLView), rootLView,\n            tElementNode);\n        }\n      }\n\n      const componentFactoryResolver:\n        ComponentFactoryResolver = new ComponentFactoryResolver();\n\n      // **\n      * Creates a ComponentFactoryResolver

```


and stores it on the injector. Or, if the

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* ComponentFactoryResolver\n * already exists, retrieves the existing ComponentFactoryResolver.\n *\n * @returns The ComponentFactoryResolver instance to use\n */\nexport function injectComponentFactoryResolver():\n  viewEngine_ComponentFactoryResolver {\n    return componentFactoryResolver;\n  }\n\n/**\n * Represents an\n instance of a Component created via a { @link ComponentFactory}.\n *\n * `ComponentRef` provides access to the\n Component Instance as well other objects related to this\n * Component Instance and allows you to destroy the\n Component Instance via the { @link #destroy}\n * method.\n *\n * ^\nexport class ComponentRef<T> extends\n  viewEngine_ComponentRef<T> {\n    destroyCbs: (() => void)[]|null = [];\n    instance: T;\n    hostView:\n      ViewRef<T>;\n    changeDetectorRef: ViewEngine_ChangeDetectorRef;\n    componentType: Type<T>;\n\n    constructor(\n      componentType: Type<T>, instance: T, public location: viewEngine_ElementRef,\n      private\n        _rootLView: LView,\n        private _tNode: TElementNode|TContainerNode|TElementContainerNode\n    ) {\n      super();\n      this.instance = instance;\n      this.hostView = this.changeDetectorRef = new\n        RootViewRef<T>(_rootLView);\n      this.componentType = componentType;\n    }\n\n    get injector(): Injector {\n      return new NodeInjector(this._tNode, this._rootLView);\n    }\n\n    destroy(): void {\n      if (this.destroyCbs) {\n        this.destroyCbs.forEach(fn => fn());\n        this.destroyCbs = null;\n        !this.hostView.destroyed &&\n          this.hostView.destroy();\n      }\n    }\n\n    onDestroy(callback: () => void): void {\n      if (this.destroyCbs) {\n        this.destroyCbs.push(callback);\n      }\n    }\n  }\n\n"/**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\nimport {Type} from './interface/type';\nimport {noSideEffects}\n from './util/closure';\n\ninterface TypeWithMetadata extends Type<any> {\n  decorators?:\n    any[];\n  ctorParameters?: () => any[];\n  propDecorators?: {[field: string]: any};\n}\n\n/**\n * Adds decorator,\n constructor, and property metadata to a given type via static metadata fields\n * on the type.\n *\n * These metadata\n fields can later be read with Angular's `ReflectionCapabilities` API.\n *\n * Calls to `setClassMetadata` can be\n marked as pure, resulting in the metadata assignments being\n * tree-shaken away during production builds.\n *\n * ^\nexport function setClassMetadata(\n  type: Type<any>, decorators: any[]|null, ctorParameters: () =>\n  any[]|null,\n  propDecorators: {[field: string]: any}|null): void {\n    return noSideEffects(() => {\n      const\n        clazz = type as TypeWithMetadata;\n\n      if (decorators !== null) {\n        if\n          (clazz.hasOwnProperty('decorators') && clazz.decorators !== undefined) {\n            clazz.decorators.push(...decorators);\n          } else {\n            clazz.decorators = decorators;\n          }\n\n        if (ctorParameters !== null) {\n          // Rather than merging, clobber the existing parameters. If\n          other projects exist which\n          // use tsickle-style annotations and reflect over them in the same way, this\n          could\n          // cause issues, but that is vanishingly unlikely.\n          clazz.ctorParameters = ctorParameters;\n        }\n\n        if (propDecorators !== null) {\n          // The property decorator objects are merged as it is possible\n          different fields have\n          // different decorator types. Decorators on individual fields are not merged, as it's\n          // also incredibly unlikely that a field will be decorated both with an Angular\n          // decorator and a non-\n          Angular decorator that's also been downleveled.\n          if (clazz.hasOwnProperty('propDecorators') &&\n            clazz.propDecorators !== undefined) {\n            clazz.propDecorators = {...clazz.propDecorators,\n              ...propDecorators};\n          }\n        } else {\n          clazz.propDecorators = propDecorators;\n        }\n      }\n    }) as never;\n  }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-\n style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from\n './interface/type';\nimport {NgModuleType} from './metadata/ng_module_def';\nimport {autoRegisterModuleById,\n  getNgModuleDef} from './render3/definition';\nimport {maybeUnwrapFn} from './render3/util/misc_utils';\nimport {stringify}\n from './util/stringify';\nimport {NgModuleFactory} from './ng_module_factory';\n\n/**\n * Map of\n module-id to the corresponding NgModule.\n *\n * - In pre Ivy we track NgModuleFactory,\n * - In post Ivy we track\n the NgModuleType\n */\nconst modules = new Map<string, NgModuleFactory<any>|NgModuleType>();\n\n/**\n * Registers a loaded module. Should only be called from generated NgModuleFactory code.\n * @publicApi\n */
```

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*/\nexport function registerModuleFactory(id: string, factory: NgModuleFactory<any>) {\n  const existing =
modules.get(id) as NgModuleFactory<any>;\n  assertSameOrNotExisting(id, existing && existing.moduleType,
factory.moduleType);\n  modules.set(id, factory);\n}\n\nfunction assertSameOrNotExisting(id: string, type:
Type<any>|null, incoming: Type<any>): void {\n  if (type && type !== incoming) {\n    throw new Error(\n
`Duplicate module registered for ${id} - ${stringify(type)} vs ${stringify(type.name)}`);\n  }\n}\n\nexport function
registerNgModuleType(ngModuleType: NgModuleType): void {\n  const visited = new Set<NgModuleType>;\n  recurse(ngModuleType);\n  function recurse(ngModuleType: NgModuleType): void {\n    // The imports array of an
NgModule must refer to other NgModules,\n    // so an error is thrown if no module definition is available.\n    const
def = getNgModuleDef(ngModuleType, /* throwNotFound */ true);\n    const id = def.id;\n    if (id !== null)
{\n      const existing = modules.get(id) as NgModuleType | null;\n      assertSameOrNotExisting(id, existing,
ngModuleType);\n      modules.set(id, ngModuleType);\n    }\n\n    const imports = maybeUnwrapFn(def.imports) as
NgModuleType[];\n    for (const i of imports) {\n      if (!visited.has(i)) {\n        visited.add(i);\n        recurse(i);\n      }\n    }\n  }\n}\n\nexport function clearModulesForTest(): void {\n  modules.clear();\n}\n\nexport function
getRegisteredNgModuleType(id: string) {\n  return modules.get(id) || autoRegisterModuleById[id];\n}\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from
'./di/injector';\nimport {INJECTOR} from './di/injector_token';\nimport {InjectFlags} from
'./di/interface/injector';\nimport {createInjectorWithoutInjectorInstances, R3Injector} from
'./di/r3_injector';\nimport
{Type} from './interface/type';\nimport {ComponentFactoryResolver as viewEngine_ComponentFactoryResolver}
from './linker/component_factory_resolver';\nimport {InternalNgModuleRef, NgModuleFactory as
viewEngine_NgModuleFactory, NgModuleRef as viewEngine_NgModuleRef} from
'./linker/ng_module_factory';\nimport {registerNgModuleType} from
'./linker/ng_module_factory_registration';\nimport {NgModuleType} from './metadata/ng_module_def';\nimport
{assertDefined} from './util/assert';\nimport {stringify} from './util/stringify';\nimport
{ComponentFactoryResolver} from './component_ref';\nimport {getNgLocaleIdDef, getNgModuleDef} from
'./definition';\nimport {setLocaleId} from './i18n/i18n_locale_id';\nimport {maybeUnwrapFn} from
'./util/misc_utils';\n\nexport class NgModuleRef<T> extends viewEngine_NgModuleRef<T> implements
InternalNgModuleRef<T> {\n  // tslint:disable-next-line:require-internal-with-underscore\n  _bootstrapComponents:
Type<any>[] = [];\n  // tslint:disable-next-line:require-internal-with-underscore\n  _r3Injector: R3Injector;\n  injector: Injector = this;\n  instance: T;\n  destroyCbs: (() => void)[]|null = [];\n\n  //
When bootstrapping a module we have a dependency graph that looks like this:\n  // ApplicationRef ->
ComponentFactoryResolver -> NgModuleRef. The problem is that if the\n  // module being resolved tries to inject
the ComponentFactoryResolver, it'll create a\n  // circular dependency which will result in a runtime error, because
the injector doesn't\n  // exist yet. We work around the issue by creating the ComponentFactoryResolver ourselves\n  // and providing it, rather than letting the injector resolve it.\n  readonly componentFactoryResolver:
ComponentFactoryResolver = new ComponentFactoryResolver(this);\n\n  constructor(ngModuleType: Type<T>,\n  public _parent: Injector|null) {\n    super();\n    const ngModuleDef = getNgModuleDef(ngModuleType);\n    ngDevMode &&\n    assertDefined(\n      ngModuleDef,\n      `NgModule '${stringify(ngModuleType)}' is not a subtype of 'NgModuleType'.`);\n\n    const ngLocaleIdDef
= getNgLocaleIdDef(ngModuleType);\n    ngLocaleIdDef && setLocaleId(ngLocaleIdDef);\n    this._bootstrapComponents = maybeUnwrapFn(ngModuleDef!.bootstrap);\n    this._r3Injector =
createInjectorWithoutInjectorInstances(\n      ngModuleType, _parent,\n      [\n        {provide: viewEngine_NgModuleRef, useValue: this}, {\n          provide:
viewEngine_ComponentFactoryResolver,\n            useValue: this.componentFactoryResolver\n        },\n        {\n          provide: R3Injector,\n            provide:
stringify(ngModuleType)) as R3Injector;\n      ]\n    );\n\n    // We need to
resolve the injector types separately from the injector creation, because\n    // the module might be trying to use this
ref in its constructor for DI which will cause a\n    // circular error that will

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eventually error out, because the injector isn't created yet.\n  this._r3Injector._resolveInjectorDefTypes();\n
this.instance = this.get(ngModuleType);\n }\n\n get(token: any, notFoundValue: any =
Injector.THROW_IF_NOT_FOUND,\n  injectFlags: InjectFlags = InjectFlags.Default): any {\n  if (token ===
Injector || token === viewEngine_NgModuleRef || token === INJECTOR) {\n    return this;\n  }\n  return
this._r3Injector.get(token, notFoundValue, injectFlags);\n }\n\n destroy(): void {\n  ngDevMode &&
assertDefined(this.destroyCbs, 'NgModule already destroyed');\n  const injector = this._r3Injector;\n
!injector.destroyed && injector.destroy();\n  this.destroyCbs!.forEach(fn => fn());\n  this.destroyCbs = null;\n
}\n\n onDestroy(callback: () => void): void {\n  ngDevMode && assertDefined(this.destroyCbs, 'NgModule already
destroyed');\n  this.destroyCbs!.push(callback);\n }\n}\n\nexport class NgModuleFactory<T> extends
viewEngine_NgModuleFactory<T> {\n
  constructor(public moduleType: Type<T>) {\n    super();\n\n    const ngModuleDef =
getNgModuleDef(moduleType);\n    if (ngModuleDef !== null) {\n      // Register the NgModule with Angular's
module registry. The location (and hence timing) of\n      // this call is critical to ensure this works correctly
(modules get registered when expected)\n      // without bloating bundles (modules are registered when otherwise not
referenced).\n      /\n      // In View Engine, registration occurs in the .ngfactory.js file as a side effect. This has\n
// several practical consequences:\n      /\n      // - If an .ngfactory file is not imported from, the module won't be
registered (and can be\n      // tree shaken).\n      // - If an .ngfactory file is imported from, the module will be
registered even if an instance\n      // is not actually created (via `create` below).\n      // - Since an .ngfactory file in
View Engine references the .ngfactory files of the NgModule's\n      // imports,\n
      /\n      // In Ivy, things are a bit different. .ngfactory files still exist for compatibility, but are\n      // not a
required API to use - there are other ways to obtain an NgModuleFactory for a given\n      // NgModule. Thus,
relying on a side effect in the .ngfactory file is not sufficient. Instead,\n      // the side effect of registration is added
here, in the constructor of NgModuleFactory,\n      // ensuring no matter how a factory is created, the module is
registered correctly.\n      /\n      // An alternative would be to include the registration side effect inline following the
actual\n      // NgModule definition. This also has the correct timing, but breaks tree-shaking - modules\n      // will
be registered and retained even if they're otherwise never referenced.\n      registerNgModuleType(moduleType as
NgModuleType);\n    }\n  }\n\n  create(parentInjector: Injector|null): viewEngine_NgModuleRef<T> {\n    return
new NgModuleRef(this.moduleType, parentInjector);\n
  }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {assertIndexInRange} from '../util/assert';\nimport {bindingUpdated, bindingUpdated2,
bindingUpdated3, bindingUpdated4, getBinding, updateBinding} from './bindings';\nimport {LView} from
'./interfaces/view';\nimport {getBindingRoot, getLView} from './state';\nimport {NO_CHANGE} from
'./tokens';\n\n\n/*\n * Bindings for pure functions are stored after regular bindings.\n * |-----decls-----|-----
vars-----|\n * |----- hostVars (dir1) -----|\n * |-----\n * | nodes/refs/pipes | bindings | fn slots | injector | dir1 | host bindings | host slots |\n * |-----\n * |-----\n *
^          ^\n *   TView.bindingStartIndex   TView.expandoStartIndex\n * Pure function
instructions are given an offset from the binding root. Adding the offset to the\n * binding root gives the first index
where the bindings are stored. In component views, the binding\n * root is the bindingStartIndex. In host bindings,
the binding root is the expandoStartIndex +\n * any directive instances + any hostVars in directives evaluated before
it.\n * See VIEW_DATA.md for more information about host binding resolution.\n * If the value
hasn't been saved, calls the pure function to store and return the\n * value. If it has been saved, returns the saved
value.\n * @param slotOffset the offset from binding root to the reserved slot\n * @param pureFn Function that
returns a value\n * @param thisArg Optional calling context of pureFn\n * @returns value\n * @codeGenApi\n
*/\n\nexport function pureFunction0<T>(slotOffset: number, pureFn:
() => T, thisArg?: any): T {\n  const bindingIndex = getBindingRoot() + slotOffset;\n  const lView = getLView();\n
return lView[bindingIndex] === NO_CHANGE ?\n    updateBinding(lView, bindingIndex, thisArg ?

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pureFn(exp1, exp2, exp3, exp4, exp5, exp6)) : \n getBinding(LView, bindingIndex + 6); \n} \n \n /** \n * If the value of any provided exp has changed, calls the pure function to return \n * an updated value. Or if no values have changed, returns cached value. \n * \n * @param slotOffset the offset from binding root to the reserved slot \n * @param pureFn \n * @param exp1 \n * @param exp2 \n * @param exp3 \n * @param exp4 \n * @param exp5 \n * @param exp6 \n * @param exp7 \n * @param thisArg Optional calling context of pureFn \n * @returns Updated or cached value \n * \n * @codeGenApi \n * \nexport function pureFunction7(\n slotOffset: number, \n pureFn: (v1: any, v2: any, v3: any, v4:

any, v5: any, v6: any, v7: any) => any, exp1: any, \n exp2: any, exp3: any, exp4: any, exp5: any, exp6: any, exp7: any, thisArg?: any): any {\n const bindingIndex = getBindingRoot() + slotOffset; \n const LView = getLView(); \n let different = bindingUpdated4(LView, bindingIndex, exp1, exp2, exp3, exp4); \n return bindingUpdated3(LView, bindingIndex + 4, exp5, exp6, exp7) || different ? \n updateBinding(\n LView, bindingIndex + 7, \n thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4, exp5, exp6, exp7) : \n pureFn(exp1, exp2, exp3, exp4, exp5, exp6, exp7)) : \n getBinding(LView, bindingIndex + 7); \n} \n \n /** \n * If the value of any provided exp has changed, calls the pure function to return \n * an updated value. Or if no values have changed, returns cached value. \n * \n * @param slotOffset the offset from binding root to the reserved slot \n * @param pureFn \n * @param exp1 \n * @param exp2 \n * @param exp3 \n * @param exp4 \n * @param exp5 \n * @param exp6 \n * @param exp7 \n * @param exp8 \n * @param thisArg Optional calling context of pureFn \n * @returns Updated or cached value \n * \n * @codeGenApi \n * \nexport function pureFunction8(\n slotOffset: number, \n pureFn: (v1: any, v2: any, v3: any, v4: any, v5: any, v6: any, v7: any, v8: any) => any, \n exp1: any, exp2: any, exp3: any, exp4: any, exp5: any, exp6: any, exp7: any, exp8: any, \n thisArg?: any): any {\n const bindingIndex = getBindingRoot() + slotOffset; \n const LView = getLView(); \n const different = bindingUpdated4(LView, bindingIndex, exp1, exp2, exp3, exp4); \n return bindingUpdated4(LView, bindingIndex + 4, exp5, exp6, exp7, exp8) || different ? \n updateBinding(\n LView, bindingIndex + 8, \n thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4, exp5, exp6, exp7, exp8) : \n pureFn(exp1, exp2, exp3, exp4, exp5, exp6, exp7, exp8)) : \n getBinding(LView, bindingIndex + 8); \n} \n \n \n /** \n * pureFunction instruction that can support any number of bindings. \n * \n * If the value of any provided exp has changed, calls the pure function to return \n * an updated value. Or if no values have changed, returns cached value. \n * \n * @param slotOffset the offset from binding root to the reserved slot \n * @param pureFn A pure function that takes binding values and builds an object or array \n * containing those values. \n * @param exps An array of binding values \n * @param thisArg Optional calling context of pureFn \n * @returns Updated or cached value \n * \n * @codeGenApi \n * \nexport function pureFunctionV(\n slotOffset: number, pureFn: (...v: any[]) => any, exps: any[], thisArg?: any): any {\n return pureFunctionVInternal(getLView(), getBindingRoot(), slotOffset, pureFn, exps, thisArg); \n} \n \n \n /** \n * Results of a pure function invocation are stored in LView in a dedicated slot that is initialized \n * to NO_CHANGE. In rare situations a pure pipe might throw an exception on the very first \n * invocation

and not produce any valid results. In this case LView would keep holding the NO_CHANGE \n * value. The NO_CHANGE is not something that we can use in expressions / bindings thus we convert \n * it to `undefined`. \n * \nexport function getPureFunctionReturnValue(LView: LView, returnValueIndex: number) {\n ngDevMode && assertIndexInRange(LView, returnValueIndex); \n const lastReturnValue = LView[returnValueIndex]; \n return lastReturnValue === NO_CHANGE ? undefined : lastReturnValue; \n} \n \n \n /** \n * If the value of the provided exp has changed, calls the pure function to return \n * an updated value. Or if the value has not changed, returns cached value. \n * \n * @param LView LView in which the function is being executed. \n * @param bindingRoot Binding root index. \n * @param slotOffset the offset from binding root to the reserved slot \n * @param pureFn Function that returns an updated value \n * @param exp Updated expression value \n * @param thisArg Optional calling context of pureFn \n * @returns Updated

or cached value \n * \nexport function pureFunction1Internal(\n LView: LView, bindingRoot: number, slotOffset: number, pureFn: (v: any) => any, exp: any, \n thisArg?: any): any {\n const bindingIndex = bindingRoot + slotOffset; \n return bindingUpdated(LView, bindingIndex, exp) ? \n updateBinding(LView, bindingIndex + 1,

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thisArg ? pureFn.call(thisArg, exp) : pureFn(exp)) : \n    getPureFunctionReturnValue(IView, bindingIndex +
1);\n}\n\n/**\n * If the value of any provided exp has changed, calls the pure function to return\n * an updated
value. Or if no values have changed, returns cached value.\n *\n * @param IView LView in which the function is
being executed.\n * @param bindingRoot Binding root index.\n * @param slotOffset the offset from binding root to
the reserved slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param thisArg Optional calling
context of pureFn\n * @returns Updated or cached value\n */\nexport function pureFunction2Internal(\n    IView:
LView, bindingRoot: number, slotOffset: number, pureFn: (v1: any, v2: any) => any,\n    exp1: any, exp2: any,
thisArg?: any): any {\n    const bindingIndex = bindingRoot + slotOffset;\n    return bindingUpdated2(IView,
bindingIndex, exp1, exp2) ?\n        updateBinding(\n            IView, bindingIndex + 2,\n            thisArg ?
pureFn.call(thisArg, exp1, exp2) : pureFn(exp1, exp2)) : \n            getPureFunctionReturnValue(IView, bindingIndex +
2);\n}\n\n/**\n * If the value of any provided exp has changed, calls the pure function to return\n * an updated
value. Or if no values have changed, returns cached value.\n *\n * @param IView LView in which the function is
being executed.\n * @param bindingRoot Binding root index.\n * @param slotOffset the offset from binding root to
the reserved slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param exp3\n * @param thisArg
Optional calling context of pureFn\n * @returns Updated or cached value\n */\nexport function
pureFunction3Internal(\n    IView: LView, bindingRoot: number, slotOffset: number,\n    pureFn: (v1: any, v2: any, v3: any) => any, exp1:
any, exp2: any, exp3: any,\n    thisArg?: any): any {\n    const bindingIndex = bindingRoot + slotOffset;\n    return
bindingUpdated3(IView, bindingIndex, exp1, exp2, exp3) ?\n        updateBinding(\n            IView, bindingIndex + 3,\n            thisArg ?
pureFn.call(thisArg, exp1, exp2, exp3) : pureFn(exp1, exp2, exp3)) : \n            getPureFunctionReturnValue(IView, bindingIndex + 3);\n}\n\n/**\n * If the value of any provided exp has
changed, calls the pure function to return\n * an updated value. Or if no values have changed, returns cached
value.\n *\n * @param IView LView in which the function is being executed.\n * @param bindingRoot Binding
root index.\n * @param slotOffset the offset from binding root to the reserved slot\n * @param pureFn\n * @param
exp1\n * @param exp2\n * @param exp3\n * @param exp4\n * @param thisArg Optional calling context of
pureFn\n * @returns Updated or
cached value\n */\nexport function pureFunction4Internal(\n    IView: LView, bindingRoot: number, slotOffset:
number,\n    pureFn: (v1: any, v2: any, v3: any, v4: any) => any, exp1: any, exp2: any, exp3: any, exp4: any,\n    thisArg?: any): any {\n    const bindingIndex = bindingRoot + slotOffset;\n    return bindingUpdated4(IView,
bindingIndex, exp1, exp2, exp3, exp4) ?\n        updateBinding(\n            IView, bindingIndex + 4,\n            thisArg ?
pureFn.call(thisArg, exp1, exp2, exp3, exp4) : pureFn(exp1, exp2, exp3, exp4)) : \n            getPureFunctionReturnValue(IView, bindingIndex + 4);\n}\n\n/**\n * pureFunction instruction that can support any
number of bindings.\n *\n * If the value of any provided exp has changed, calls the pure function to return\n * an
updated value. Or if no values have changed, returns cached value.\n *\n * @param IView LView in which the
function is being executed.\n * @param bindingRoot Binding root index.\n * @param slotOffset the offset from
binding root
to the reserved slot\n * @param pureFn A pure function that takes binding values and builds an object or array\n *
containing those values.\n * @param exps An array of binding values\n * @param thisArg Optional calling context
of pureFn\n * @returns Updated or cached value\n */\nexport function pureFunctionVInternal(\n    IView: LView,
bindingRoot: number, slotOffset: number, pureFn: (...v: any[]) => any,\n    exps: any[], thisArg?: any): any {\n    let
bindingIndex = bindingRoot + slotOffset;\n    let different = false;\n    for (let i = 0; i < exps.length; i++) {\n
bindingUpdated(IView, bindingIndex++, exps[i]) && (different = true);\n    }\n    return different ?
updateBinding(IView, bindingIndex, pureFn.apply(thisArg, exps)) : \n        getPureFunctionReturnValue(IView, bindingIndex);\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { WrappedValue } from '../change_detection/change_detection_util';\nimport { PipeTransform } from
'../change_detection/pipe_transform';\nimport { setInjectImplementation } from '../di/inject_switch';\nimport

```


acts as a guard to { @link PipeTransform#transform } invoking\n * the pipe only when an input to the pipe changes.\n * \n * @param index Pipe index where the pipe was stored on creation.\n * @param slotOffset the offset in the reserved slot space\n * @param v1 1st argument to { @link PipeTransform#transform }.\n * @param v2 2nd argument to { @link PipeTransform#transform }.\n * @param v3 4rd argument to { @link PipeTransform#transform }.\n * \n * @codeGenApi\n * \nexport function pipeBind3(index: number, slotOffset: number, v1: any, v2: any, v3: any): any {\n const adjustedIndex = index + HEADER_OFFSET;\n const IView = getLView();\n const pipeInstance = load<PipeTransform>(IView, adjustedIndex);\n return unwrapValue(\n IView,\n isPure(IView, adjustedIndex) ? pureFunction3Internal(\n IView, getBindingRoot(), slotOffset,\n pipeInstance.transform, v1, v2, v3, pipeInstance) :\n

pipeInstance.transform(v1, v2, v3));\n }\n\n/**\n * Invokes a pipe with 4 arguments.\n * \n * This instruction acts as a guard to { @link PipeTransform#transform } invoking\n * the pipe only when an input to the pipe changes.\n * \n * @param index Pipe index where the pipe was stored on creation.\n * @param slotOffset the offset in the reserved slot space\n * @param v1 1st argument to { @link PipeTransform#transform }.\n * @param v2 2nd argument to { @link PipeTransform#transform }.\n * @param v3 3rd argument to { @link PipeTransform#transform }.\n * @param v4 4th argument to { @link PipeTransform#transform }.\n * \n * @codeGenApi\n * \nexport function pipeBind4(\n index: number, slotOffset: number, v1: any, v2: any, v3: any, v4: any): any {\n const adjustedIndex = index + HEADER_OFFSET;\n const IView = getLView();\n const pipeInstance = load<PipeTransform>(IView, adjustedIndex);\n return unwrapValue(\n IView,\n isPure(IView, adjustedIndex) ? pureFunction4Internal(\n

IView, getBindingRoot(), slotOffset,\n pipeInstance.transform, v1, v2, v3, v4, pipeInstance) :\n pipeInstance.transform(v1, v2, v3, v4));\n }\n\n/**\n * Invokes a pipe with variable number of arguments.\n * \n * This instruction acts as a guard to { @link PipeTransform#transform } invoking\n * the pipe only when an input to the pipe changes.\n * \n * @param index Pipe index where the pipe was stored on creation.\n * @param slotOffset the offset in the reserved slot space\n * @param values Array of arguments to pass to { @link PipeTransform#transform } method.\n * \n * @codeGenApi\n * \nexport function pipeBindV(index: number, slotOffset: number, values: [any, ...any[]]): any {\n const adjustedIndex = index + HEADER_OFFSET;\n const IView = getLView();\n const pipeInstance = load<PipeTransform>(IView, adjustedIndex);\n return unwrapValue(\n IView,\n isPure(IView, adjustedIndex)

?\n pureFunctionVInternal(\n IView, getBindingRoot(), slotOffset, pipeInstance.transform, values, pipeInstance) :\n pipeInstance.transform.apply(pipeInstance, values));\n }\n\nfunction isPure(IView: LView, index: number): boolean {\n return (<PipeDef<any>>IView[TVIEW].data[index]).pure;\n }\n\n/**\n * Unwrap the output of a pipe transformation.\n * \n * In order to trick change detection into considering that the new value is always different from\n * the old one, the old value is overwritten by NO_CHANGE.\n * \n * @param newValue the pipe transformation output.\n * \nfunction unwrapValue(IView: LView, newValue: any): any {\n if (WrappedValue.isWrapped(newValue)) {\n newValue = WrappedValue.unwrap(newValue);\n // The NO_CHANGE value needs to be written at the index where the impacted binding value is\n // stored\n const bindingToInvalidateIdx = getBindingIndex();\n IView[bindingToInvalidateIdx] = NO_CHANGE;\n }\n return newValue;\n }\n\n", "/*\n

* @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at <https://angular.io/license>\n * \n</reference types='\"rxjs\"' />\nimport { Subject, Subscription } from 'rxjs';\n\n/**\n * Use in components with the `@Output` directive to emit custom events\n * synchronously or asynchronously, and register handlers for those events\n * by subscribing to an instance.\n * \n * @usageNotes\n * \n * Extends\n * [RxJS `Subject`](<https://rxjs.dev/api/index/class/Subject>)\n * for Angular by adding the `emit()` method.\n * \n * In the following example, a component defines two output properties\n * that create event emitters. When the title is clicked, the emitter\n * emits an open or close event to toggle the current visibility state.\n * \n * ``html\n *


```

@Component({\n * selector: 'zippy',\n * template: `
  <div class="zippy">\n *   <div
(click)="toggle()">Toggle</div>\n *
  *   <div [hidden]="!visible">\n *     <ng-content></ng-content>\n *   </div>\n * </div>` })\n * export class
Zippy {\n *   visible: boolean = true;\n *   @Output() open: EventEmitter<any> = new EventEmitter();\n *
  @Output() close: EventEmitter<any> = new EventEmitter();\n *   toggle() {\n *     this.visible = !this.visible;\n *
    if (this.visible) {\n *       this.open.emit(null);\n *     } else {\n *       this.close.emit(null);\n *     }\n *   }\n *
  ``\n *   * Access the event object with the `Sevent` argument passed to the output event\n * handler:\n *   *
  ``html\n *   <zippy (open)="onOpen($event)" (close)="onClose($event)"></zippy>\n *   ``\n *   * @see
[Observables in Angular](guide/observables-in-angular)\n *   * @publicApi\n *   * \nexport interface EventEmitter<T>
extends Subject<T> {\n *   /**\n *   * @internal\n *   * \n __isAsync: boolean;\n *   * \n /**\n *   * Creates an instance of this
class that can\n *   * deliver events synchronously or asynchronously.\n *   * \n
  *   * @param [isAsync=false] When true, deliver events asynchronously.\n *   * \n *   * \n new(isAsync?: boolean):
EventEmitter<T>;\n *   * \n /**\n *   * Emits an event containing a given value.\n *   * @param value The value to emit.\n *
  *   * \n emit(value?: T): void;\n *   * \n /**\n *   * Registers handlers for events emitted by this instance.\n *   * @param
generatorOrNext When supplied, a custom handler for emitted events.\n *   * @param error When supplied, a custom
handler for an error notification\n *   * from this emitter.\n *   * @param complete When supplied, a custom handler for
a completion\n *   * notification from this emitter.\n *   * \n subscribe(generatorOrNext?: any, error?: any, complete?:
any): Subscription;\n *   * \n\nclass EventEmitter_ extends Subject<any> {\n *   __isAsync: boolean; // tslint:disable-
line\n *   * \n constructor(isAsync: boolean = false) {\n *     super();\n *     this.__isAsync = isAsync;\n *   }\n *   * \n emit(value?:
any) {\n *     super.next(value);\n *   }\n *   * \n subscribe(generatorOrNext?: any, error?: any, complete?:
any): Subscription {\n *     let schedulerFn: (t: any) => any;\n *     let errorFn = (err: any): any => null;\n *     let
completeFn = (): any => null;\n *     if (generatorOrNext && typeof generatorOrNext === 'object') {\n *
       schedulerFn = this.__isAsync ? (value: any) => {\n *         setTimeout(() => generatorOrNext.next(value));\n *       } :
(value: any) => {\n *         generatorOrNext.next(value);\n *       };\n *       if (generatorOrNext.error) {\n *         errorFn =
this.__isAsync ? (err) => {\n *           setTimeout(() => generatorOrNext.error(err));\n *         } : (err) => {\n *
           generatorOrNext.error(err);\n *         };\n *       }\n *       if (generatorOrNext.complete) {\n *         completeFn =
this.__isAsync ? () => {\n *           setTimeout(() => generatorOrNext.complete());\n *         } : () => {\n *
           generatorOrNext.complete();\n *         };\n *       }\n *     } else {\n *       schedulerFn = this.__isAsync ? (value: any) => {\n *
         setTimeout(() => generatorOrNext(value));\n *       } : (value: any)
=> {\n *         generatorOrNext(value);\n *       };\n *       if (error) {\n *         errorFn = this.__isAsync ? (err) => {\n *
           setTimeout(() => error(err));\n *         } : (err) => {\n *           error(err);\n *         };\n *       }\n *       if (complete) {\n *
         completeFn = this.__isAsync ? () => {\n *           setTimeout(() => complete());\n *         } : () => {\n *
           complete();\n *         };\n *       }\n *     }\n *     const sink = super.subscribe(schedulerFn, errorFn, completeFn);\n *     if (generatorOrNext
instanceof Subscription) {\n *       generatorOrNext.add(sink);\n *     }\n *     return sink;\n *   }\n *   * \n /**\n *   * @publicApi\n *   * \nexport const EventEmitter: {\n *   new (isAsync?: boolean): EventEmitter<any>; new<T>(isAsync?: boolean):
EventEmitter<T>;\n *   readonly prototype: EventEmitter<any>;\n * } = EventEmitter_ as any;\n *   * \n /**\n *   * @license\n *   *
  Copyright Google LLC All Rights Reserved.\n *   * \n *   * Use of this source code is governed by an MIT-style license
that can be\n *   * found in the LICENSE file
  *   * \n
  *   * at https://angular.io/license\n *   * \nimport {Observable} from 'rxjs';\n *   * \nimport {EventEmitter} from
'./event_emitter';\n *   * \nimport {flatten} from './util/array_utils';\n *   * \nimport {getSymbolIterator} from
'./util/symbol';\n *   * \nfunction symbolIterator<T>(this: QueryList<T>): Iterator<T> {\n *   * return ((this as any as
{ _results: Array<T> })._results as any)[getSymbolIterator]());\n *   * \n *   * \n /**\n *   * An unmodifiable list of items that
Angular keeps up to date when the state\n *   * of the application changes.\n *   * \n *   * The type of object that { @link
ViewChildren }, { @link ContentChildren }, and { @link QueryList }\n *   * provide.\n *   * \n *   * Implements an iterable
interface, therefore it can be used in both ES6\n *   * javascript `for (var i of items)` loops as well as in Angular
templates with\n *   * `*ngFor`="let i of myList".\n *   * \n *   * Changes can be observed by subscribing to the changes
`Observable`.\n *   * \n *   * NOTE: In the future this class will implement an `Observable` interface.\n *   * \n
  *   * \n
  *   * @usageNotes\n *   * ### Example\n

```

```

* ``typescript\n * @Component({ ... })\n * class Container {\n *   @ViewChild(Item) items: QueryList<Item>;\n * }\n * ``\n * \n * @publicApi\n * ^\nexport class QueryList<T> implements Iterable<T> {\n  public readonly dirty = true;\n  private _results: Array<T> = [];\n  public readonly changes: Observable<any> = new EventEmitter();\n  \n  readonly length: number = 0;\n  // TODO(issue/24571): remove '!'.\n  readonly first!: T;\n  // TODO(issue/24571): remove '!'.\n  readonly last!: T;\n  \n  constructor() {\n    // This function should be declared on the prototype, but doing so there will cause the class\n    // declaration to have side-effects and become not tree-shakable. For this reason we do it in\n    // the constructor.\n    // [getSymbolIterator()](): Iterator<T> { ... }\n    const symbol = getSymbolIterator();\n    const proto = QueryList.prototype as any;\n    if (!proto[symbol]) proto[symbol] = symbolIterator;\n  }\n  \n  /**\n   * See\n   * [Array.map](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/map)\n   *\n   * map<U>(fn: (item: T, index: number, array: T[]) => U): U[] {\n    return this._results.map(fn);\n  }\n  \n  /**\n   * See\n   * [Array.filter](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/filter)\n   *\n   * filter(fn: (item: T, index: number, array: T[]) => boolean): T[] {\n    return this._results.filter(fn);\n  }\n  \n  /**\n   * See\n   * [Array.find](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/find)\n   *\n   * find(fn: (item: T, index: number, array: T[]) => boolean): T | undefined {\n    return this._results.find(fn);\n  }\n  \n  /**\n   * See\n   * [Array.reduce](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/reduce)\n   *\n   * reduce<U>(fn: (prevValue: U, curValue: T, curIndex: number, array: T[]) => U, init: U): U {\n    return this._results.reduce(fn, init);\n  }\n  \n  /**\n   * See\n   * [Array.forEach](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/forEach)\n   *\n   * forEach(fn: (item: T, index: number, array: T[]) => void): void {\n    this._results.forEach(fn);\n  }\n  \n  /**\n   * See\n   * [Array.some](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/some)\n   *\n   * some(fn: (value: T, index: number, array: T[]) => boolean): boolean {\n    return this._results.some(fn);\n  }\n  \n  /**\n   * Returns a copy of the internal results list as an Array.\n   * \n   * toArray(): T[] {\n    return this._results.slice();\n  }\n  \n  toString(): string {\n    return this._results.toString();\n  }\n  \n  /**\n   * Updates the stored data of the query list, and resets the `dirty` flag to `false`, so that\n   * on change detection, it will not notify of changes to the queries, unless a new change\n   * occurs.\n   * \n   * @param resultsTree The query results to store\n   * \n   * reset(resultsTree: Array<T> | any[]): void {\n    this._results = flatten(resultsTree);\n    (this as {dirty: boolean}).dirty = false;\n    (this as {length: number}).length = this._results.length;\n    (this as {last: T}).last = this._results[this.length - 1];\n    (this as {first: T}).first = this._results[0];\n  }\n  \n  /**\n   * Triggers a change event by emitting on the `changes` @link EventEmitter.\n   * \n   * notifyOnChanges(): void {\n    (this.changes as EventEmitter<any>).emit(this);\n  }\n  \n  /**\n   * internal\n   * \n   * setDirty() {\n    (this as {dirty: boolean}).dirty = true;\n  }\n  \n  /**\n   * internal\n   * \n   * destroy(): void {\n    (this.changes as EventEmitter<any>).complete();\n    (this.changes as EventEmitter<any>).unsubscribe();\n  }\n  \n  // The implementation of `Symbol.iterator` should be declared here, but this would cause\n  // tree-shaking issues with `QueryList`. So instead, it's added in the constructor (see comments\n  // there) and this declaration is left here to ensure that TypeScript considers QueryList to\n  // implement the Iterable interface. This is required for template type-checking of NgFor loops\n  // over QueryLists to work correctly, since QueryList must be assignable to NgIterable.\n  [Symbol.iterator]!: () => Iterator<T>;\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ProcessProvidersFunction} from '../di/interface/provider';\nimport {Type} from '../di/interface/type';\nimport {SchemaMetadata} from '../metadata/schema';\nimport {ViewEncapsulation} from '../metadata/view';\nimport {FactoryFn} from '../definition_factory';\nimport {TAttributes, TConstantsOrFactory} from './node';\nimport {CssSelectorList} from './projection';\nimport {TView} from './view';\n\n/**\n * Definition of what a template rendering function should look like for a component.\n * \n * ^\nexport type ComponentTemplate<T> = {\n

```

```

// Note: the ctx parameter is typed as T|U, as using only U would prevent a template with \n // e.g. ctx: {} from
being assigned to ComponentTemplate<any> as TypeScript won't infer U = any\n // in that scenario. By including T
this incompatibility is resolved.\n <U extends T>(rf: RenderFlags, ctx: T|U): void;\n};\n\n/**\n * Definition of what
a view queries function should look like.\n */\nexport type ViewQueriesFunction<T> = <U extends T>(rf:
RenderFlags, ctx: U) => void;\n\n/**\n * Definition of what a content queries function should look like.\n */\nexport
type ContentQueriesFunction<T> =\n  <U extends T>(rf: RenderFlags, ctx: U, directiveIndex: number) =>
void;\n\n/**\n * Flags passed into template functions to determine which blocks (i.e. creation, update)\n * should be
executed.\n */\n * Typically, a template runs both the creation block and the update block on initialization and\n *
subsequent runs only execute the update block. However, dynamically created views require that\n
* the creation block be executed separately from the update block (for backwards compat).\n */\nexport const enum
RenderFlags {\n  /** Whether to run the creation block (e.g. create elements and directives) */\n  Create = 0b01,\n\n  /** Whether to run the update block (e.g. refresh bindings) */\n  Update = 0b10\n}\n\n/**\n * A subclass of `Type`
which has a static `cmp`: `ComponentDef` field making it\n * consumable for rendering.\n */\nexport interface
ComponentType<T> extends Type<T> {\n  cmp: never;\n}\n\n/**\n * A subclass of `Type` which has a static
`dir`: `DirectiveDef` field making it\n * consumable for rendering.\n */\nexport interface DirectiveType<T> extends
Type<T> {\n  dir: never;\n  fac: () => T;\n}\n\n/**\n * A subclass of `Type` which has a static `pipe`: `PipeDef` field
making it\n * consumable for rendering.\n */\nexport interface PipeType<T> extends Type<T> {\n  pipe:
never;\n}\n\n/**\n * An object literal of this type is used to represent the metadata of a constructor
dependency.\n * The type itself is never referred to from generated code.\n */\nexport type CtorDependency = {\n
/**\n * If an `@Attribute` decorator is used, this represents the injected attribute's name. If the\n * attribute name
is a dynamic expression instead of a string literal, this will be the unknown\n * type.\n */\n  attribute?:
string|unknown;\n\n  /**\n * If `@Optional()` is used, this key is set to true.\n */\n  optional?: true;\n\n  /**\n * If
`@Host` is used, this key is set to true.\n */\n  host?: true;\n\n  /**\n * If `@Self` is used, this key is set to true.\n
*/\n  self?: true;\n\n  /**\n * If `@SkipSelf` is used, this key is set to true.\n */\n  skipSelf?: true;\n}\n\n/**\n
* @codegenApi\n */\nexport type DirectiveDefWithMeta<\n  T, Selector extends string, ExportAs extends\n
string[], InputMap extends {[key: string]: string},\n                                     OutputMap extends {[key: string]:
string} >,\n

```

style values to a host element. Since attribute values can consist of different types of values, the `hostAttrs` array must include the values in the following format:

- `attr1, value1, attr2, value2` // a single namespace value (like ``x:id``)
- `NAMESPACE_MARKER, namespaceUri1, name1, value1` // another single namespace value (like ``x:name``)
- `NAMESPACE_MARKER, namespaceUri2, name2, value2` // a series of CSS classes that will be applied to the element (no spaces)
- `CLASSES_MARKER, class1, class2, class3` // a series of CSS styles (property + value) that will be applied to the element
- `STYLES_MARKER, prop1, value1, prop2, value2`

All non-class and non-style attributes must be defined at the start of the list first before all class and style values are set. When there is a change in value type (like when classes and styles are introduced) a marker must be used to separate the entries. The marker values themselves are set via entries found in the `[AttributeMarker]` enum.

`readonly hostAttrs: TAttributes | null` // Token representing the directive. Used by DI.

`readonly type: Type<T>`

Function that resolves providers and publishes them into the DI system.

`providersResolver: (<U extends T> (def: DirectiveDef<U>, processProvidersFn?: ProcessProvidersFunction) => void) | null` // The selectors that will be used to match nodes to this directive.

`readonly selectors: CssSelectorList`

`readonly Name` under which the directive is exported (for use with local references in template)

`readonly exportAs: string[] | null`

Factory function used to create a new directive instance. Will be null initially. Populated when the factory is first requested by directive instantiation logic.

`readonly factory: FactoryFn<T> | null`

The features applied to this directive

`readonly features: DirectiveDefFeature[] | null`

`setInput: (<U extends T> (this: DirectiveDef<U>, instance: U, value: any, publicName: string, privateName: string) => void) | null`

`@codeGenApi` export type `ComponentDefWithMeta<T, Selector extends String, ExportAs extends string[], InputMap extends {[key: string]: string}, OutputMap extends {[key: string]: string}, QueryFields extends string[], NgContentSelectors extends string[]> = ComponentDef<T>`

`@codeGenApi` export type `FactoryDef<T, CtorDependencies extends CtorDependency[]> = () => T`

Runtime link information for Components.

This is an internal data structure used by the render to link components into templates.

NOTE: Always use `defineComponent` function to create this object, never create the object directly since the shape of this object can change between versions.

See: `{ @link defineComponent }`

export interface `ComponentDef<T> extends DirectiveDef<T>`

`{ id: string` // Runtime unique component ID

`id: string` // The View template of the component

`readonly template: ComponentTemplate<T>`

Constants associated with the component's view.

`readonly consts: TConstantsOrFactory | null`

An array of `ngContent[selector]` values that were found in the template.

`readonly ngContentSelectors?: string[]`

A set of styles that the component needs to be present for component to render correctly.

`readonly styles: string[]`

The number of nodes, local refs, and pipes in this component template.

`readonly nodes: number`

Used to calculate the length of the component's LView array, so we can pre-fill the array and set the binding start index.

`TODO(kara): remove queries from this count`

`readonly decls: number`

The number of bindings in this component template (including pure fn bindings).

`readonly bindings: number`

Used to calculate the length of the component's LView array, so we can pre-fill the array and set the host binding start index.

`readonly vars: number`

Query-related instructions for a component.

`viewQuery: ViewQueriesFunction<T> | null`

The view encapsulation type, which determines how styles are applied to DOM elements. One of

- `Emulated` (default): Emulate native scoping of styles.
- `Native`: Use the native encapsulation mechanism of the renderer.
- `ShadowDom`: Use modern [ShadowDOM](https://w3c.github.io/webcomponents/spec/shadow/) and create a ShadowRoot for component's host element.
- `None`: Do not provide any template or style encapsulation.

`readonly encapsulation: ViewEncapsulation`

Defines arbitrary developer-defined data to be stored on a renderer instance. This is useful for renderers that delegate to other renderers.

`readonly data: {[kind: string]: any}`

Whether or not this component's ChangeDetectionStrategy is OnPush

```

onPush: boolean;\n\n /**\n * Registry of directives and components that may be found in this view.\n *\n * The
property is either an array of `DirectiveDef`s or a function which returns the array of\n * `DirectiveDef`s. The
function is necessary to be able to support forward declarations.\n */\n directiveDefs:
DirectiveDefListOrFactory|null;\n\n /**\n * Registry of pipes that may be found in this view.\n *\n * The
property is either an array of `PipeDefs`s or a function which returns the array of\n * `PipeDefs`s. The function is
necessary to be able to support forward declarations.\n */\n pipeDefs: PipeDefListOrFactory|null;\n\n /**\n *
The set of schemas that declare elements to be allowed in the component's template.\n */\n schemas:
SchemaMetadata[]|null;\n\n /**\n * Ivy runtime uses this place to store the computed tView for the component.
This gets filled on\n * the first run of component.\n */\n tView: TView|null;\n\n /**\n * Used to store the result
of `noSideEffects` function so that it is not removed by closure\n * compiler. The property should never be read.\n
*/\n readonly _?: never;\n}\n\n/**\n * Runtime link information for Pipes.\n *\n * This is an internal data structure
used by the renderer to link\n * pipes into templates.\n *\n * NOTE: Always
use `definePipe` function to create this object,\n * never create the object directly since the shape of this object\n *
can change between versions.\n */\n * See: { @link definePipe }\n */\nexport interface PipeDef<T> {\n /** Token
representing the pipe. */\n type: Type<T>;\n\n /**\n * Pipe name.\n *\n * Used to resolve pipe in templates.\n
*/\n readonly name: string;\n\n /**\n * Factory function used to create a new pipe instance. Will be null
initially.\n * Populated when the factory is first requested by pipe instantiation logic.\n */\n factory:
FactoryFn<T>|null;\n\n /**\n * Whether or not the pipe is pure.\n *\n * Pure pipes result only depends on the
pipe input and not on internal\n * state of the pipe.\n */\n readonly pure: boolean;\n\n /** The following are
lifecycle hooks for this pipe */\n onDestroy: (() => void)|null;\n\n\n/**\n * @codeGenApi\n */\nexport type
PipeDefWithMeta<T, Name extends string> = PipeDef<T>;\n\nexport interface DirectiveDefFeature
{\n <T>(directiveDef: DirectiveDef<T>): void;\n\n /**\n * Marks a feature as something that { @link
InheritDefinitionFeature } will execute\n * during inheritance.\n *\n * NOTE: DO NOT SET IN ROOT OF
MODULE! Doing so will result in tree-shakers/bundlers\n * identifying the change as a side effect, and the feature
will be included in\n * every bundle.\n */\n ngInherit?: true;\n}\n\nexport interface ComponentDefFeature {\n
<T>(componentDef: ComponentDef<T>): void;\n\n /**\n * Marks a feature as something that { @link
InheritDefinitionFeature } will execute\n * during inheritance.\n *\n * NOTE: DO NOT SET IN ROOT OF
MODULE! Doing so will result in tree-shakers/bundlers\n * identifying the change as a side effect, and the feature
will be included in\n * every bundle.\n */\n ngInherit?: true;\n}\n\n\n/**\n * Type used for directiveDefs on
component definition.\n *\n * The function is necessary to be able to support forward declarations.\n */\nexport
type DirectiveDefListOrFactory = (() => DirectiveDefList)|DirectiveDefList;\n\nexport type DirectiveDefList =
(DirectiveDef<any>|ComponentDef<any>)[];\n\nexport type DirectiveTypesOrFactory = (() =>
DirectiveTypeList)|DirectiveTypeList;\n\nexport type DirectiveTypeList =\n
(DirectiveType<any>|ComponentType<any>)\n * Type<any>/* Type as workaround for:
Microsoft/TypeScript/issues/4881 */[];\n\nexport type HostBindingsFunction<T> = <U extends T>(rf:
RenderFlags, ctx: U) => void;\n\n\n/**\n * Type used for PipeDefs on component definition.\n *\n * The function is
necessary to be able to support forward declarations.\n */\nexport type PipeDefListOrFactory = (() =>
PipeDefList)|PipeDefList;\n\nexport type PipeDefList = PipeDef<any>[];\n\nexport type PipeTypesOrFactory = (()
=> PipeTypeList)|PipeTypeList;\n\nexport type PipeTypeList =\n
(PipeType<any>|Type<any>/* Type as
workaround for: Microsoft/TypeScript/issues/4881 */)[];\n\n\n// Note: This hack is necessary so we don't
erroneously
get a circular dependency\n// failure based on types.\nexport const unusedValueExportToPlacateAjd = 1;\n\n",\n\n/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport { InjectionToken }
from '../di/injection_token';\nimport { Type } from '../interface/type';\nimport { QueryList } from
'../linker/query_list';\nimport { TNode } from './node';\nimport { TView } from './view';\n\n\n/**\n * An object
representing query metadata extracted from query annotations.\n */\nexport interface TQueryMetadata {\n
predicate: Type<any>|InjectionToken<unknown>|string[];\n descendants: boolean;\n read: any;\n isStatic:

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boolean;\n}\n\n/**\n * TQuery objects represent all the query-related data that remain the same from one view instance\n * to another and can be determined on the very first template pass. Most notably TQuery holds all\n * the matches

for a given view.\n * \nexport interface TQuery {\n * /**\n * Query metadata extracted from query annotations.\n * \n metadata: TQueryMetadata;\n * /**\n * Index of a query in a declaration view in case of queries propagated to an embedded view, -1\n * for queries declared in a given view. We are storing this index so we can find a parent query\n * to clone for an embedded view (when an embedded view is created).\n * \n indexInDeclarationView: number;\n * /**\n * Matches collected on the first template pass. Each match is a pair of:\n * - TNode index;\n * - match index;\n * \n * A TNode index can be either:\n * - a positive number (the most common case) to indicate a matching TNode;\n * - a negative number to indicate that a given query is crossing a <ng-template> element and\n * results from views created based on TemplateRef should be inserted at this place.\n * \n * A match index is a number used to find an actual value (for a given node) when query

results\n * are materialized. This index can have one of the following values:\n * - -2 - indicates that we need to read a special token (TemplateRef, ViewContainerRef etc.); \n * - -1 - indicates that we need to read a default value based on the node type (TemplateRef for\n * ng-template and ElementRef for other elements); \n * - a positive number - index of an injectable to be read from the element injector.\n * \n * matches: number[]|null;\n * /**\n * A flag indicating if a given query crosses an <ng-template> element. This flag exists for\n * performance reasons: we can notice that queries not crossing any <ng-template> elements will\n * have matches from a given view only (and adapt processing accordingly).\n * \n * crossesNgTemplate: boolean;\n * /**\n * A method call when a given query is crossing an element (or element container). This is where a\n * given TNode is matched against a query predicate.\n * \n * @param tView\n * @param tNode\n * \n elementStart(tView:

TView, tNode: TNode): void;\n * /**\n * A method called when processing the elementEnd instruction - this is mostly useful to determine\n * if a given content query should match any nodes past this point.\n * \n * @param tNode\n * \n elementEnd(tNode: TNode): void;\n * /**\n * A method called when processing the template instruction. This is where a\n * given TContainerNode is matched against a query predicate.\n * \n * @param tView\n * @param tNode\n * \n template(tView: TView, tNode: TNode): void;\n * /**\n * A query-related method called when an embedded TView is created based on the content of a\n * <ng-template> element. We call this method to determine if a given query should be propagated\n * to the embedded view and if so - return a cloned TQuery for this embedded view.\n * \n * @param tNode\n * @param childQueryIndex\n * \n embeddedTView(tNode: TNode, childQueryIndex: number): TQuery|null;\n * \n\n /**\n * TQueries represent a collection of individual

TQuery objects tracked in a given view. Most of the\n * methods on this interface are simple proxy methods to the corresponding functionality on TQuery.\n * \nexport interface TQueries {\n * /**\n * Adds a new TQuery to a collection of queries tracked in a given view.\n * \n * @param tQuery\n * \n track(tQuery: TQuery): void;\n * /**\n * Returns a TQuery instance for at the given index in the queries array.\n * \n * @param index\n * \n getByIndex(index: number): TQuery;\n * /**\n * Returns the number of queries tracked in a given view.\n * \n * \n length: number;\n * /**\n * A proxy method that iterates over all the TQueries in a given TView and calls the corresponding\n * `elementStart` on each and every TQuery.\n * \n * @param tView\n * @param tNode\n * \n elementStart(tView: TView, tNode: TNode): void;\n * /**\n * A proxy method that iterates over all the TQueries in a given TView and calls the corresponding\n * `elementEnd` on each and every TQuery.\n * \n * \n

@param tNode\n * \n elementEnd(tNode: TNode): void;\n * /**\n * A proxy method that iterates over all the TQueries in a given TView and calls the corresponding\n * `template` on each and every TQuery.\n * \n * @param tView\n * @param tNode\n * \n template(tView: TView, tNode: TNode): void;\n * /**\n * A proxy method that iterates over all the TQueries in a given TView and calls the corresponding\n * `embeddedTView` on each and every TQuery.\n * \n * @param tNode\n * \n embeddedTView(tNode: TNode): TQueries|null;\n * \n\n /**\n * An interface that represents query-related information specific to a view instance. Most notably\n * it contains:\n * - materialized query matches;\n * - a pointer to a QueryList where materialized query results should be reported.\n * \n * \nexport interface LQuery<T> {\n * /**\n * Materialized query matches for a given view only (!). Results are

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initialized lazily so the\n * array of matches is set to `null` initially.\n * /\n matches: (T|null)[]|null;\n\n
/**\n * A QueryList where materialized query results should be reported.\n * /\n queryList: QueryList<T>;\n\n
/**\n * Clones an LQuery for an embedded view. A cloned query shares the same `QueryList` but has a\n *
separate collection of materialized matches.\n * /\n clone(): LQuery<T>;\n\n /**\n * Called when an embedded
view, impacting results of this query, is inserted or removed.\n * /\n setDirty(): void;\n\n\n /**\n * LQueries
represent a collection of individual LQuery objects tracked in a given view.\n * /\nexport interface LQueries {\n
/**\n * A collection of queries tracked in a given view.\n * /\n queries: LQuery<any>[];\n\n /**\n * A method
called when a new embedded view is created. As a result a set of LQueries applicable\n * for a new embedded
view is instantiated (cloned) from the declaration view.\n * @param tView\n * /\n createEmbeddedView(tView:
TVView): LQueries|null;\n\n /**\n * A method called when an embedded view is inserted
into a container. As a result all impacted\n * `LQuery` objects (and associated `QueryList`) are marked as dirty.\n
* @param tView\n * /\n insertView(tView: TVView): void;\n\n /**\n * A method called when an embedded view
is detached from a container. As a result all impacted\n * `LQuery` objects (and associated `QueryList`) are
marked as dirty.\n * @param tView\n * /\n detachView(tView: TVView): void;\n\n\n // Note: This hack is
necessary so we don't erroneously get a circular dependency\n // failure based on types.\nexport const
unusedValueExportToPlacateAjd = 1;\n", "*/\n * @license\n * Copyright Google LLC All Rights Reserved.\n * /\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * /\n\n // We are temporarily importing the existing viewEngine_ from core so we can be
sure we are\n // correctly implementing its interfaces for backwards compatibility.\n\nimport { InjectionToken } from
'./di/injection_token';\nimport
{ Type } from './interface/type';\nimport { createElementRef, ElementRef as ViewEngine_ElementRef } from
'./linker/element_ref';\nimport { QueryList } from './linker/query_list';\nimport { createTemplateRef, TemplateRef as
ViewEngine_TemplateRef } from './linker/template_ref';\nimport { createContainerRef, ViewContainerRef } from
'./linker/view_container_ref';\nimport { assertDefined, assertIndexInRange, throwError } from './util/assert';\nimport
{ stringify } from './util/stringify';\nimport { assertFirstCreatePass, assertLContainer } from './assert';\nimport
{ getNodeInjectable, locateDirectiveOrProvider } from './di';\nimport { storeCleanupWithContext } from
'./instructions/shared';\nimport { CONTAINER_HEADER_OFFSET, LContainer, MOVED_VIEWS } from
'./interfaces/container';\nimport { unusedValueExportToPlacateAjd as unused1 } from
'./interfaces/definition';\nimport { unusedValueExportToPlacateAjd as unused2 } from './interfaces/injector';\nimport
{TContainerNode, TElementContainerNode,
TElementNode, TNode, TNodeType, unusedValueExportToPlacateAjd as unused3 } from
'./interfaces/node';\nimport { LQueries, LQuery, TQueries, TQuery, TQueryMetadata,
unusedValueExportToPlacateAjd as unused4 } from './interfaces/query';\nimport
{ DECLARATION_LCONTAINER, LView, PARENT, QUERIES, TVIEW, TView } from
'./interfaces/view';\nimport { assertTNodeType } from './node_assert';\nimport { getCurrentQueryIndex,
getCurrentTNode, getLView, getTVView, setCurrentQueryIndex } from './state';\nimport { isCreationMode } from
'./util/view_utils';\n\nconst unusedValueToPlacateAjd = unused1 + unused2 + unused3 + unused4;\n\nclass
LQuery_<T> implements LQuery<T> {\n matches: (T|null)[]|null = null;\n constructor(public queryList:
QueryList<T>) {\n clone(): LQuery<T> {\n return new LQuery_(this.queryList);\n }\n setDirty(): void {\n
this.queryList.setDirty();\n }\n }\n\nclass LQueries_ implements LQueries {\n constructor(public queries:
LQuery<any>[] = []) {\n\n createEmbeddedView(tView:
TVView): LQueries|null {\n const tQueries = tView.queries;\n if (tQueries !== null) {\n const
noOfInheritedQueries =\n tView.contentQueries !== null ? tView.contentQueries[0] : tQueries.length;\n
const viewLQueries: LQuery<any>[] = [];\n // An embedded view has queries propagated from a declaration
view at the beginning of the\n // TQueries collection and up until a first content query declared in the embedded
view. Only\n // propagated LQueries are created at this point (LQuery corresponding to declared content\n //
queries will be instantiated from the content query instructions for each directive).\n for (let i = 0; i <
noOfInheritedQueries; i++) {\n const tQuery = tQueries.getByIndex(i);\n const parentLQuery =

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this.queries[tQuery.indexInDeclarationView];\n    viewLQueries.push(parentLQuery.clone());\n    }\n\nreturn new LQueries_(viewLQueries);\n    }\n\nreturn null;\n    }\n\ninsertView(tView:
TVView): void {\n    this.dirtyQueriesWithMatches(tView);\n    }\n\ndetachView(tView: TVView): void {\n
this.dirtyQueriesWithMatches(tView);\n    }\n\nprivate dirtyQueriesWithMatches(tView: TVView) {\n    for (let i = 0;
i < this.queries.length; i++) {\n        if (getTQuery(tView, i).matches !== null) {\n            this.queries[i].setDirty();\n
        }\n    }\n    }\n\n}\n\n\nclass TQueryMetadata_ implements TQueryMetadata {\n    constructor(\n        public predicate:
Type<any>|InjectionToken<unknown>|string[], public descendants: boolean,\n        public isStatic: boolean, public
read: any = null) {\n    }\n\n}\n\n\nclass TQueries_ implements TQueries {\n    constructor(private queries: TQuery[] = [])
{\n    }\n\n    elementStart(tView: TVView, tNode: TNode): void {\n        ngDevMode &&\n            assertFirstCreatePass(\n
tView, 'Queries should collect results on the first template pass only');\n        for (let i = 0; i < this.queries.length; i++)
{\n            this.queries[i].elementStart(tView, tNode);\n        }\n    }\n\n    elementEnd(tNode:
TNode): void {\n        for (let i = 0; i < this.queries.length; i++) {\n            this.queries[i].elementEnd(tNode);\n
        }\n    }\n\n    embeddedTVView(tNode: TNode): TQueries|null {\n        let queriesForTemplateRef: TQuery[]|null = null;\n
        for (let i = 0; i < this.length; i++) {\n            const childQueryIndex = queriesForTemplateRef !== null ?
queriesForTemplateRef.length : 0;\n            const tqueryClone = this.getByIndex(i).embeddedTVView(tNode,
childQueryIndex);\n            if (tqueryClone) {\n                tqueryClone.indexInDeclarationView = i;\n                if
(queriesForTemplateRef !== null) {\n                    queriesForTemplateRef.push(tqueryClone);\n                } else {\n
                    queriesForTemplateRef = [tqueryClone];\n                }\n            }\n        }\n        return queriesForTemplateRef !== null ? new
TQueries_(queriesForTemplateRef) : null;\n    }\n\n    template(tView: TVView, tNode: TNode): void {\n        ngDevMode
&&\n            assertFirstCreatePass(\n                tView, 'Queries should collect results on the first
template pass only');\n        for (let i = 0; i < this.queries.length; i++) {\n            this.queries[i].template(tView, tNode);\n
        }\n    }\n\n    getByIndex(index: number): TQuery {\n        ngDevMode && assertIndexInRange(this.queries, index);\n
        return this.queries[index];\n    }\n\n    get length(): number {\n        return this.queries.length;\n    }\n\n    track(tquery:
TQuery): void {\n        this.queries.push(tquery);\n    }\n\n}\n\n\nclass TQuery_ implements TQuery {\n    matches:
number[]|null = null;\n    indexInDeclarationView = -1;\n    crossesNgTemplate = false;\n\n    /**\n     * A node index on
which a query was declared (-1 for view queries and ones inherited from the\n     * declaration template). We use this
index (alongside with _appliesToNextNode flag) to know\n     * when to apply content queries to elements in a
template.\n     */\n    private _declarationNodeIndex: number;\n\n    /**\n     * A flag indicating if a given query still
applies to nodes it is crossing. We use this flag\n     * (alongside with _declarationNodeIndex)
to know when to stop applying content queries to\n     * elements in a template.\n     */\n    private _appliesToNextNode
= true;\n\n    constructor(public metadata: TQueryMetadata, nodeIndex: number = -1) {\n
        this._declarationNodeIndex = nodeIndex;\n    }\n\n    elementStart(tView: TVView, tNode: TNode): void {\n        if
(this.isApplyingToNode(tNode)) {\n            this.matchTNode(tView, tNode);\n        }\n    }\n\n    elementEnd(tNode:
TNode): void {\n        if (this._declarationNodeIndex === tNode.index) {\n            this._appliesToNextNode = false;\n
        }\n    }\n\n    template(tView: TVView, tNode: TNode): void {\n        this.elementStart(tView, tNode);\n    }\n\n    embeddedTVView(tNode: TNode, childQueryIndex: number): TQuery|null {\n        if (this.isApplyingToNode(tNode))
{\n            this.crossesNgTemplate = true;\n            // A marker indicating a `<ng-template>` element (a placeholder for
query results from\n            // embedded views created based on this `<ng-template>`).\n            this.addMatch(-
tNode.index, childQueryIndex);\n        }\n\n        return new TQuery_(this.metadata);\n    }\n\n    return null;\n    }\n\n    private isApplyingToNode(tNode: TNode):
boolean {\n        if (this._appliesToNextNode && this.metadata.descendants === false) {\n            const
declarationNodeIdx = this._declarationNodeIndex;\n            let parent = tNode.parent;\n            // Determine if a given
TNode is a `direct` child of a node on which a content query was\n            // declared (only direct children of query's
host node can match with the descendants: false\n            // option). There are 3 main use-case / conditions to consider
here:\n            // - <needs-target><i #target></i></needs-target>: here <i #target> parent node is a query\n            // host
node;\n            // - <needs-target><ng-template [ngIf]="true"><i #target></i></ng-template></needs-target>:\n            //
here <i #target> parent node is null;\n            // - <needs-target><ng-container><i #target></i></ng-container></needs-
target>: here we need\n            // to go past `<ng-container>` to determine

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<i #target> parent node (but we shouldn't traverse\n    // up past the query's host node!);\n    while (parent !==
null && (parent.type & TNodeType.ElementContainer) &&\n        parent.index !== declarationNodeIdx) {\n
parent = parent.parent;\n    }\n    return declarationNodeIdx === (parent !== null ? parent.index : -1);\n    }\n
return this._appliesToNextNode;\n    }\n\n    private matchTNode(tView: TView, tNode: TNode): void {\n    const
predicate = this.metadata.predicate;\n    if (Array.isArray(predicate)) {\n        for (let i = 0; i < predicate.length; i++)
{\n            const name = predicate[i];\n            this.matchTNodeWithReadOption(tView, tNode,
getIdxOfMatchingSelector(tNode, name));\n            // Also try matching the name to a provider since strings can be
used as DI tokens too.\n            this.matchTNodeWithReadOption(\n                tView, tNode,
locateDirectiveOrProvider(tNode, tView, name, false, false));\n        }\n    } else {\n        if ((predicate as any)
=== ViewEngine_TemplateRef) {\n            if (tNode.type & TNodeType.Container) {\n
this.matchTNodeWithReadOption(tView, tNode, -1);\n            }\n        } else {\n
this.matchTNodeWithReadOption(\n            tView, tNode, locateDirectiveOrProvider(tNode, tView, predicate,
false, false));\n        }\n    }\n\n    private matchTNodeWithReadOption(tView: TView, tNode: TNode,
nodeMatchIdx: number|null): void {\n        if (nodeMatchIdx !== null) {\n            const read = this.metadata.read;\n            if
(read !== null) {\n                if (read === ViewEngine_ElementRef || read === ViewContainerRef ||\n                    read ===
ViewEngine_TemplateRef && (tNode.type & TNodeType.Container)) {\n                    this.addMatch(tNode.index, -2);\n
                } else {\n                    const directiveOrProviderIdx =\n                        locateDirectiveOrProvider(tNode, tView, read, false,
false);\n                    if (directiveOrProviderIdx !== null) {\n                        this.addMatch(tNode.index,
directiveOrProviderIdx);\n                    }\n                }\n            } else {\n                this.addMatch(tNode.index, nodeMatchIdx);\n
            }\n        }\n    }\n\n    private
addMatch(tNodeIdx: number, matchIdx: number) {\n        if (this.matches === null) {\n            this.matches = [tNodeIdx,
matchIdx];\n        } else {\n            this.matches.push(tNodeIdx, matchIdx);\n        }\n    }\n\n    /**\n     * Iterates over local
names for a given node and returns directive index\n     * (or -1 if a local name points to an element).\n     *\n     * @param
tNode static data of a node to check\n     * @param selector selector to match\n     * @returns directive index, -1 or null if
a selector didn't match any of the local names\n     */\n    function getIdxOfMatchingSelector(tNode: TNode, selector:
string): number|null {\n        const localNames = tNode.localNames;\n        if (localNames !== null) {\n            for (let i = 0; i <
localNames.length; i += 2) {\n                if (localNames[i] === selector) {\n                    return localNames[i + 1] as number;\n
                }\n            }\n        }\n        return null;\n    }\n\n    function createResultByTNodeType(tNode:
TNode, currentView: LView): any {\n        if (tNode.type & (TNodeType.AnyRNode | TNodeType.ElementContainer))\n            {\n                return createElementRef(tNode, currentView);\n            }\n        else if (tNode.type & TNodeType.Container) {\n            return
createTemplateRef(tNode, currentView);\n        }\n        return null;\n    }\n\n    function createResultForNode(IView: LView,
tNode: TNode, matchingIdx: number, read: any): any {\n        if (matchingIdx === -1) {\n            // if read token and / or
strategy is not specified, detect it using appropriate tNode type\n            return createResultByTNodeType(tNode,
IView);\n        }\n        else if (matchingIdx === -2) {\n            // read a special token from a node injector\n            return
createSpecialToken(IView, tNode, read);\n        }\n        else {\n            // read a token\n            return getNodeInjectable(IView,
IView[TVIEW], matchingIdx, tNode as TElementNode);\n        }\n    }\n\n    function createSpecialToken(IView: LView,
tNode: TNode, read: any): any {\n        if (read === ViewEngine_ElementRef) {\n            return createElementRef(tNode,
IView);\n        }\n        else\n            if (read === ViewEngine_TemplateRef) {\n                return createTemplateRef(tNode, IView);\n            }\n        else if (read ===
ViewContainerRef) {\n            ngDevMode && assertTNodeType(tNode, TNodeType.AnyRNode |
TNodeType.AnyContainer);\n            return createContainerRef(\n                tNode as TElementNode | TContainerNode |
TElementContainerNode, IView);\n        }\n        else {\n            ngDevMode &&\n                throwError(\n                    `Special token to read
should be one of ElementRef, TemplateRef or ViewContainerRef but got ${\n                        stringify(read)}.`);\n        }\n    }\n\n    /**\n     * A helper function that creates query results for a given view. This function is meant to do the\n     *
processing once and only once for a given view instance (a set of results for a given view\n     * doesn't change).\n     *\n     */\n    function materializeViewResults<T>(\n        tView: TView, IView: LView, tQuery: TQuery, queryIndex: number):
(T|null)[] {\n        const IQuery = IView[QUERIES]!.queries![queryIndex];\n        if (IQuery.matches === null) {\n            const
tViewData = tView.data;\n

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const tQueryMatches = tQuery.matches!;\n  const result: T|null[] = [];\n  for (let i = 0; i <
tQueryMatches.length; i += 2) {\n    const matchedNodeIdx = tQueryMatches[i];\n    if (matchedNodeIdx < 0) {\n
    // we at the <ng-template> marker which might have results in views created based on this\n    // <ng-
template> - those results will be in separate views though, so here we just leave\n    // null as a placeholder\n
result.push(null);\n    } else {\n      ngDevMode && assertIndexInRange(tViewData, matchedNodeIdx);\n
const tNode = tViewData[matchedNodeIdx] as TNode;\n      result.push(createResultForNode(IView, tNode,
tQueryMatches[i + 1], tQuery.metadata.read));\n    }\n  }\n  IQuery.matches = result;\n}\n\nreturn
IQuery.matches;\n}\n\n/**\n * A helper function that collects (already materialized) query results from a tree of
views,\n * starting with a provided LView.\n */\nfunction collectQueryResults<T>(tView: TView, IView:
LView, queryIndex: number, result: T[]): T[] {\n  const tQuery = tView.queries!.getByIndex(queryIndex);\n  const
tQueryMatches = tQuery.matches;\n  if (tQueryMatches !== null) {\n    const IViewResults =
materializeViewResults<T>(tView, IView, tQuery, queryIndex);\n\n    for (let i = 0; i < tQueryMatches.length; i +=
2) {\n      const tNodeIdx = tQueryMatches[i];\n      if (tNodeIdx > 0) {\n        result.push(IViewResults[i / 2] as T);\n
      } else {\n        const childQueryIndex = tQueryMatches[i + 1];\n\n        const declarationLContainer = IView[-
tNodeIdx] as LContainer;\n        ngDevMode && assertLContainer(declarationLContainer);\n\n        // collect
matches for views inserted in this container\n        for (let i = CONTAINER_HEADER_OFFSET; i <
declarationLContainer.length; i++) {\n          const embeddedLView = declarationLContainer[i];\n          if
(embeddedLView[DECLARATION_LCONTAINER] === embeddedLView[PARENT]) {\n
collectQueryResults(embeddedLView[TVIEW],
embeddedLView, childQueryIndex, result);\n          }\n        }\n\n        // collect matches for views created from this
declaration container and inserted into\n        // different containers\n        if
(declarationLContainer[MOVED_VIEWS] !== null) {\n          const embeddedLViews =
declarationLContainer[MOVED_VIEWS]!;\n          for (let i = 0; i < embeddedLViews.length; i++) {\n            const
embeddedLView = embeddedLViews[i];\n            collectQueryResults(embeddedLView[TVIEW],
embeddedLView, childQueryIndex, result);\n          }\n        }\n      }\n    }\n  }\n  return result;\n}\n\n/**\n *
Refreshes a query by combining matches from all active views and removing matches from deleted\n * views.\n */\n
* @returns `true` if a query got dirty during change detection or if this is a static query\n * resolving in creation
mode, `false` otherwise.\n */\n * @codeGenApi\n */\nexport function queryRefresh(queryList: QueryList<any>):
boolean {\n  const IView = getLView();\n
const tView = getTView();\n  const queryIndex = getCurrentQueryIndex();\n\n  setCurrentQueryIndex(queryIndex
+ 1);\n\n  const tQuery = getTQuery(tView, queryIndex);\n  if (queryList.dirty && (isCreationMode(IView) ===
tQuery.metadata.isStatic)) {\n    if (tQuery.matches === null) {\n      queryList.reset([]);\n    } else {\n      const
result = tQuery.crossesNgTemplate ?\n        collectQueryResults(tView, IView, queryIndex, []) : \n
materializeViewResults(tView, IView, tQuery, queryIndex);\n      queryList.reset(result);\n
queryList.notifyOnChanges();\n    }\n    return true;\n  }\n  return false;\n}\n\n/**\n * Creates new QueryList for a
static view query.\n */\n * @param predicate The type for which the query will search\n * @param descend Whether
or not to descend into children\n * @param read What to save in the query\n */\n * @codeGenApi\n */\nexport
function staticViewQuery<T>(\n  predicate: Type<any>|InjectionToken<unknown>|string[], descend: boolean,
read?:
any): void {\n  viewQueryInternal(getTView(), getLView(), predicate, descend, read, true);\n}\n\n/**\n * Creates
new QueryList, stores the reference in LView and returns QueryList.\n */\n * @param predicate The type for which
the query will search\n * @param descend Whether or not to descend into children\n * @param read What to save
in the query\n */\n * @codeGenApi\n */\nexport function viewQuery<T>(\n  predicate:
Type<any>|InjectionToken<unknown>|string[], descend: boolean, read?: any): void {\n
viewQueryInternal(getTView(), getLView(), predicate, descend, read, false);\n}\n\nfunction
viewQueryInternal<T>(\n  tView: TView, IView: LView, predicate:
Type<any>|InjectionToken<unknown>|string[],\n  descend: boolean, read: any, isStatic: boolean): void {\n  if
(tView.firstCreatePass) {\n    createTQuery(tView, new TQueryMetadata_(predicate, descend, isStatic, read), -1);\n

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if (isStatic) {\n    tView.staticViewQueries = true;\n    }\n    }\n    createLQuery<T>(tView, IView);\n}\n\n/**\n * Registers a QueryList, associated with a content query, for later refresh (part of a view\n * refresh).\n */\n * @param directiveIndex Current directive index\n * @param predicate The type for which the query will search\n * @param descend Whether or not to descend into children\n * @param read What to save in the query\n * @returns\n * QueryList<T>\n */\n * @codeGenApi\n */\nexport function contentQuery<T>(\n    directiveIndex: number,\n    predicate: Type<any>|InjectionToken<unknown>|string[], descend: boolean,\n    read?: any): void {\n    contentQueryInternal(\n        getTView(), getLView(), predicate, descend, read, false, getCurrentTNode(),\n        directiveIndex);\n}\n\n/**\n * Registers a QueryList, associated with a static content query, for later refresh\n * (part of a view refresh).\n */\n * @param directiveIndex Current directive index\n * @param predicate The type for which\n the query will search\n * @param descend Whether or not to descend into children\n * @param read What to save\n in\n the query\n * @returns QueryList<T>\n */\n * @codeGenApi\n */\nexport function staticContentQuery<T>(\n    directiveIndex: number, predicate: Type<any>|InjectionToken<unknown>|string[], descend: boolean,\n    read?:\n any): void {\n    contentQueryInternal(\n        getTView(), getLView(), predicate, descend, read, true,\n        getCurrentTNode(), directiveIndex);\n}\n\nfunction contentQueryInternal<T>(\n    tView: TView, IView: LView,\n    predicate: Type<any>|InjectionToken<unknown>|string[],\n    descend: boolean, read: any, isStatic: boolean, tNode:\n TNode, directiveIndex: number): void {\n    if (tView.firstCreatePass) {\n        createTQuery(tView, new\n TQueryMetadata_(predicate, descend, isStatic, read), tNode.index);\n    }\n    saveContentQueryAndDirectiveIndex(tView, directiveIndex);\n    if (isStatic) {\n        tView.staticContentQueries =\n true;\n    }\n    }\n    createLQuery<T>(tView, IView);\n}\n\n/**\n * Loads a QueryList corresponding to the current\n view or content query.\n */\n * @codeGenApi\n */\nexport\n function loadQuery<T>(): QueryList<T> {\n    return loadQueryInternal<T>(getLView(),\n getCurrentQueryIndex());\n}\n\nfunction loadQueryInternal<T>(IView: LView, queryIndex: number):\n QueryList<T> {\n    ngDevMode &&\n    assertDefined(IView[QUERIES], 'LQueries should be defined when\n trying to load a query');\n    ngDevMode && assertIndexInRange(IView[QUERIES]!.queries, queryIndex);\n    return\n IView[QUERIES]!.queries[queryIndex].queryList;\n}\n\nfunction createLQuery<T>(tView: TView, IView: LView):\n {\n    const queryList = new QueryList<T>();\n    storeCleanupWithContext(tView, IView, queryList,\n queryList.destroy);\n    if (IView[QUERIES] === null) IView[QUERIES] = new LQueries_();\n    IView[QUERIES]!.queries.push(new LQuery_(queryList));\n}\n\nfunction createTQuery(tView: TView, metadata:\n TQueryMetadata, nodeIndex: number): void {\n    if (tView.queries === null) tView.queries = new TQueries_();\n    tView.queries.track(new TQuery_(metadata, nodeIndex));\n}\n\nfunction\n saveContentQueryAndDirectiveIndex(tView:\n TView, directiveIndex: number) {\n    const tViewContentQueries = tView.contentQueries || (tView.contentQueries\n = []);\n    const lastSavedDirectiveIndex =\n tViewContentQueries.length ?\n tViewContentQueries[tViewContentQueries.length - 1] : -1;\n    if (directiveIndex !== lastSavedDirectiveIndex) {\n        tViewContentQueries.push(tView.queries!.length - 1, directiveIndex);\n    }\n}\n\nfunction getTQuery(tView:\n TView, index: number): TQuery {\n    ngDevMode && assertDefined(tView.queries, 'TQueries must be defined to\n retrieve a TQuery');\n    return tView.queries!.getByIndex(index);\n}\n\n"/**\n * @license\n * Copyright Google\n LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found\n in the LICENSE file at https://angular.io/license\n */\n\nimport { ChangeDetectorRef, injectChangeDetectorRef }\n from './change_detection/change_detector_ref';\nimport { InjectFlags } from './di/interface/injector';\nimport\n { createTemplateRef, TemplateRef }\n from './linker/template_ref';\nimport { throwProviderNotFoundError } from './errors_di';\nimport { TNode } from\n './interfaces/node';\nimport { LView } from './interfaces/view';\n\n/**\n * Retrieves `TemplateRef` instance from\n `Injector` when a local reference is placed on the\n * <ng-template> element.\n */\n * @codeGenApi\n */\nexport\n function templateRefExtractor(tNode: TNode, IView: LView): TemplateRef<any>|null {\n    return\n createTemplateRef(tNode, IView);\n}\n\n/**\n * Returns the appropriate `ChangeDetectorRef` for a pipe.\n */\n * @codeGenApi\n */\nexport function injectPipeChangeDetectorRef(flags = InjectFlags.Default):

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ChangeDetectorRef|null {\n  const value = injectChangeDetectorRef(true);\n  if (value === null && !(flags &
InjectFlags.Optional)) {\n    throwProviderNotFoundError('ChangeDetectorRef');\n  } else {\n    return value;\n
}\n}\n"/>**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport
{LifecycleHooksFeature, renderComponent, whenRendered} from './component';\nimport {defineComponent,
defineDirective, defineNgModule, definePipe, setComponentScope, setNgModuleScope} from
'./definition';\nimport {CopyDefinitionFeature} from './features/copy_definition_feature';\nimport
{InheritDefinitionFeature} from './features/inherit_definition_feature';\nimport {NgOnChangesFeature} from
'./features/ng_onchanges_feature';\nimport {ProvidersFeature} from './features/providers_feature';\nimport
{ComponentDef, ComponentTemplate, ComponentType, DirectiveDef, DirectiveType, PipeDef,
ComponentDefWithMeta, DirectiveDefWithMeta, FactoryDef, PipeDefWithMeta} from
'./interfaces/definition';\nimport {getComponent, getDirectives, getHostElement, getRenderedText} from
'./util/discovery_utils';\n\nexport {NgModuleType} from './metadata/ng_module_def';\nexport {ComponentFactory,
ComponentFactoryResolver, ComponentRef, injectComponentFactoryResolver} from './component_ref';\nexport
{getFactoryOf, getInheritedFactory} from './di';\nexport {getLocaleId, setLocaleId} from './i18n/i18n_locale_id';\n//
clang-format off\nexport {\n  detectChanges,\n  markDirty,\n  store,\n  tick,\n  advance,\n\n  attribute,\n
attributeInterpolate1,\n  attributeInterpolate2,\n  attributeInterpolate3,\n  attributeInterpolate4,\n
attributeInterpolate5,\n  attributeInterpolate6,\n  attributeInterpolate7,\n  attributeInterpolate8,\n
attributeInterpolateV,\n\n  classMap,\n  classMapInterpolate1,\n  classMapInterpolate2,\n  classMapInterpolate3,\n
classMapInterpolate4,\n  classMapInterpolate5,\n  classMapInterpolate6,\n  classMapInterpolate7,\n
classMapInterpolate8,\n  classMapInterpolateV,\n\n  classProp,\n\n  directiveInject,\n\n  element,\n\n
elementContainer,\n  elementContainerEnd,\n  elementContainerStart,\n  elementEnd,\n
elementStart,\n\n  getCurrentView,\n  hostProperty,\n  injectAttribute,\n  invalidFactory,\n\n  listener,\n\n
namespaceHTML,\n  namespaceMathML,\n  namespaceSVG,\n\n  nextContext,\n\n  projection,\n  projectionDef,\n
property,\n  propertyInterpolate,\n  propertyInterpolate1,\n  propertyInterpolate2,\n  propertyInterpolate3,\n
propertyInterpolate4,\n  propertyInterpolate5,\n  propertyInterpolate6,\n  propertyInterpolate7,\n
propertyInterpolate8,\n  propertyInterpolateV,\n\n  reference,\n\n  styleMap,\n  styleMapInterpolate1,\n
styleMapInterpolate2,\n  styleMapInterpolate3,\n  styleMapInterpolate4,\n  styleMapInterpolate5,\n
styleMapInterpolate6,\n  styleMapInterpolate7,\n  styleMapInterpolate8,\n  styleMapInterpolateV,\n\n  styleProp,\n
stylePropInterpolate1,\n  stylePropInterpolate2,\n  stylePropInterpolate3,\n  stylePropInterpolate4,\n
stylePropInterpolate5,\n  stylePropInterpolate6,\n  stylePropInterpolate7,\n
stylePropInterpolate8,\n  stylePropInterpolateV,\n\n  syntheticHostListener,\n  syntheticHostProperty,\n\n
template,\n\n  text,\n  textInterpolate,\n  textInterpolate1,\n  textInterpolate2,\n  textInterpolate3,\n
textInterpolate4,\n  textInterpolate5,\n  textInterpolate6,\n  textInterpolate7,\n  textInterpolate8,\n
textInterpolateV,\n}\nfrom './instructions/all';\nexport {i18n, i18nApply, i18nAttributes, i18nEnd,
i18nExp, i18nPostprocess, i18nStart} from './instructions/i18n';\nexport {RenderFlags} from
'./interfaces/definition';\nexport {\n  AttributeMarker\n} from './interfaces/node';\nexport {CssSelectorList,
ProjectionSlots} from './interfaces/projection';\nexport {\n  setClassMetadata,\n}\nfrom './metadata';\nexport
{NgModuleFactory, NgModuleRef} from './ng_module_ref';\nexport {\n  pipe,\n  pipeBind1,\n  pipeBind2,\n
pipeBind3,\n  pipeBind4,\n  pipeBindV,\n}\nfrom './pipe';\nexport {\n  pureFunction0,\n
pureFunction1,\n  pureFunction2,\n  pureFunction3,\n  pureFunction4,\n  pureFunction5,\n  pureFunction6,\n
pureFunction7,\n  pureFunction8,\n  pureFunctionV,\n}\nfrom './pure_function';\nexport {\n  contentQuery,\n
loadQuery,\n  queryRefresh,\n  staticContentQuery,\n\n  staticViewQuery,\n  viewQuery\n}\nfrom './query';\nexport {\n
disableBindings,\n\n  enableBindings,\n  restoreView,\n}\nfrom './state';\nexport {NO_CHANGE} from
'./tokens';\nexport {resolveBody, resolveDocument, resolveWindow} from './util/misc_utils';\nexport {\n
injectPipeChangeDetectorRef, templateRefExtractor\n}\nfrom './view_engine_compatibility_prebound';\n// clang-
format on\n\nexport {\n  ComponentDef,\n  ComponentTemplate,\n  ComponentType,\n  DirectiveDef,\n

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DirectiveType,\n getComponent,\n getDirectives,\n getHostElement,\n getRenderedText,\n
LifecycleHooksFeature,\n PipeDef,\n renderComponent,\n whenRendered,\n ComponentDefWithMeta,\n
CopyDefinitionFeature,\n
  defineComponent,\n defineDirective,\n defineNgModule,\n definePipe,\n DirectiveDefWithMeta,\n
FactoryDef,\n InheritDefinitionFeature,\n NgOnChangesFeature,\n PipeDefWithMeta,\n ProvidersFeature,\n
setComponentScope,\n setNgModuleScope,\n);\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {inject, invalidFactoryDep} from
'../../di/injector_compatibility';\nimport {defineInjectable, defineInjector} from '../../di/interface/defs';\nimport * as
sanitization from '../../sanitization/sanitization';\nimport * as r3 from '../index';\n\n/**\n * A mapping of the
@angular/core API surface used in generated expressions to the actual symbols.\n *\n * This should be kept up to
date with the public exports of @angular/core.\n */\nexport const angularCoreEnv: {[name: string]:
Function} =\n  (() => ({\n    'attribute': r3.attribute,\n    'attributeInterpolate1': r3.attributeInterpolate1,\n
'attributeInterpolate2': r3.attributeInterpolate2,\n    'attributeInterpolate3': r3.attributeInterpolate3,\n
'attributeInterpolate4': r3.attributeInterpolate4,\n    'attributeInterpolate5': r3.attributeInterpolate5,\n
'attributeInterpolate6': r3.attributeInterpolate6,\n    'attributeInterpolate7': r3.attributeInterpolate7,\n
'attributeInterpolate8': r3.attributeInterpolate8,\n    'attributeInterpolateV': r3.attributeInterpolateV,\n
'defineComponent': r3.defineComponent,\n    'defineDirective': r3.defineDirective,\n    'defineInjectable':
defineInjectable,\n    'defineInjector': defineInjector,\n    'defineNgModule': r3.defineNgModule,\n
'definePipe': r3.definePipe,\n    'directiveInject': r3.directiveInject,\n    'getFactoryOf':
r3.getFactoryOf,\n    'getInheritedFactory': r3.getInheritedFactory,\n    'inject': inject,\n    'injectAttribute':
r3.injectAttribute,\n    'invalidFactory': r3.invalidFactory,\n    'invalidFactoryDep': invalidFactoryDep,\n
'injectPipeChangeDetectorRef': r3.injectPipeChangeDetectorRef,\n    'templateRefExtractor':
r3.templateRefExtractor,\n    'NgOnChangesFeature': r3.NgOnChangesFeature,\n    'ProvidersFeature':
r3.ProvidersFeature,\n    'CopyDefinitionFeature': r3.CopyDefinitionFeature,\n    'InheritDefinitionFeature':
r3.InheritDefinitionFeature,\n    'nextContext': r3.nextContext,\n    'namespaceHTML': r3.namespaceHTML,\n
'namespaceMathML': r3.namespaceMathML,\n    'namespaceSVG': r3.namespaceSVG,\n    'enableBindings':
r3.enableBindings,\n    'disableBindings': r3.disableBindings,\n    'elementStart': r3.elementStart,\n
'elementEnd': r3.elementEnd,\n
    'element': r3.element,\n    'elementContainerStart': r3.elementContainerStart,\n    'elementContainerEnd':
r3.elementContainerEnd,\n    'elementContainer': r3.elementContainer,\n    'pureFunction0': r3.pureFunction0,\n
'pureFunction1': r3.pureFunction1,\n    'pureFunction2': r3.pureFunction2,\n    'pureFunction3':
r3.pureFunction3,\n    'pureFunction4': r3.pureFunction4,\n    'pureFunction5': r3.pureFunction5,\n
'pureFunction6': r3.pureFunction6,\n    'pureFunction7': r3.pureFunction7,\n    'pureFunction8':
r3.pureFunction8,\n    'pureFunctionV': r3.pureFunctionV,\n    'getCurrentView': r3.getCurrentView,\n
'restoreView': r3.restoreView,\n    'listener': r3.listener,\n    'projection': r3.projection,\n
'syntheticHostProperty': r3.syntheticHostProperty,\n    'syntheticHostListener': r3.syntheticHostListener,\n
'pipeBind1':
r3.pipeBind1,\n    'pipeBind2': r3.pipeBind2,\n    'pipeBind3': r3.pipeBind3,\n    'pipeBind4': r3.pipeBind4,\n
'pipeBindV': r3.pipeBindV,\n    'projectionDef': r3.projectionDef,\n    'hostProperty': r3.hostProperty,\n
'property': r3.property,\n    'propertyInterpolate': r3.propertyInterpolate,\n    'propertyInterpolate1':
r3.propertyInterpolate1,\n    'propertyInterpolate2': r3.propertyInterpolate2,\n    'propertyInterpolate3':
r3.propertyInterpolate3,\n    'propertyInterpolate4': r3.propertyInterpolate4,\n    'propertyInterpolate5':
r3.propertyInterpolate5,\n    'propertyInterpolate6': r3.propertyInterpolate6,\n    'propertyInterpolate7':
r3.propertyInterpolate7,\n    'propertyInterpolate8': r3.propertyInterpolate8,\n    'propertyInterpolateV':
r3.propertyInterpolateV,\n    'pipe': r3.pipe,\n    'queryRefresh': r3.queryRefresh,\n
'viewQuery': r3.viewQuery,\n    'staticViewQuery': r3.staticViewQuery,\n    'staticContentQuery':
r3.staticContentQuery,\n    'loadQuery': r3.loadQuery,\n    'contentQuery': r3.contentQuery,\n    'reference':

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r3.reference,\n      'classMap': r3.classMap,\n      'classMapInterpolate1': r3.classMapInterpolate1,\n
'classMapInterpolate2': r3.classMapInterpolate2,\n      'classMapInterpolate3': r3.classMapInterpolate3,\n
'classMapInterpolate4': r3.classMapInterpolate4,\n      'classMapInterpolate5': r3.classMapInterpolate5,\n
'classMapInterpolate6': r3.classMapInterpolate6,\n      'classMapInterpolate7': r3.classMapInterpolate7,\n
'classMapInterpolate8': r3.classMapInterpolate8,\n      'classMapInterpolateV': r3.classMapInterpolateV,\n
'styleMap': r3.styleMap,\n      'styleMapInterpolate1': r3.styleMapInterpolate1,\n      'styleMapInterpolate2':
r3.styleMapInterpolate2,\n
      'styleMapInterpolate3': r3.styleMapInterpolate3,\n      'styleMapInterpolate4': r3.styleMapInterpolate4,\n
'styleMapInterpolate5': r3.styleMapInterpolate5,\n      'styleMapInterpolate6': r3.styleMapInterpolate6,\n
'styleMapInterpolate7': r3.styleMapInterpolate7,\n      'styleMapInterpolate8': r3.styleMapInterpolate8,\n
'styleMapInterpolateV': r3.styleMapInterpolateV,\n      'styleProp': r3.styleProp,\n      'stylePropInterpolate1':
r3.stylePropInterpolate1,\n      'stylePropInterpolate2': r3.stylePropInterpolate2,\n      'stylePropInterpolate3':
r3.stylePropInterpolate3,\n      'stylePropInterpolate4': r3.stylePropInterpolate4,\n      'stylePropInterpolate5':
r3.stylePropInterpolate5,\n      'stylePropInterpolate6': r3.stylePropInterpolate6,\n      'stylePropInterpolate7':
r3.stylePropInterpolate7,\n      'stylePropInterpolate8': r3.stylePropInterpolate8,\n      'stylePropInterpolateV':
r3.stylePropInterpolateV,\n      'classProp': r3.classProp,\n      'advance': r3.advance,\n      'template': r3.template,\n
      'text': r3.text,\n      'textInterpolate': r3.textInterpolate,\n      'textInterpolate1': r3.textInterpolate1,\n
'textInterpolate2': r3.textInterpolate2,\n      'textInterpolate3': r3.textInterpolate3,\n      'textInterpolate4':
r3.textInterpolate4,\n      'textInterpolate5': r3.textInterpolate5,\n      'textInterpolate6': r3.textInterpolate6,\n
'textInterpolate7': r3.textInterpolate7,\n      'textInterpolate8': r3.textInterpolate8,\n      'textInterpolateV':
r3.textInterpolateV,\n      'i18n': r3.i18n,\n      'i18nAttributes': r3.i18nAttributes,\n      'i18nExp': r3.i18nExp,\n
'i18nStart': r3.i18nStart,\n      'i18nEnd': r3.i18nEnd,\n      'i18nApply': r3.i18nApply,\n      'i18nPostprocess':
r3.i18nPostprocess,\n      'resolveWindow':
r3.resolveWindow,\n      'resolveDocument': r3.resolveDocument,\n      'resolveBody': r3.resolveBody,\n
'setComponentScope': r3.setComponentScope,\n      'setNgModuleScope': r3.setNgModuleScope,\n\n
'sanitizeHtml': sanitization.sanitizeHtml,\n      'sanitizeStyle': sanitization.sanitizeStyle,\n      'sanitizeResourceUrl':
sanitization.sanitizeResourceUrl,\n      'sanitizeScript': sanitization.sanitizeScript,\n      'sanitizeUrl':
sanitization.sanitizeUrl,\n      'sanitizeUrlOrResourceUrl': sanitization.sanitizeUrlOrResourceUrl,\n
'trustConstantHtml': sanitization.trustConstantHtml,\n      'trustConstantScript': sanitization.trustConstantScript,\n
'trustConstantResourceUrl': sanitization.trustConstantResourceUrl,\n      )));\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the
LICENSE file at https://angular.io/license\n */\nimport { ViewEncapsulation } from '../metadata/view';\n\nexport
interface JitCompilerOptions {\n  defaultEncapsulation?: ViewEncapsulation;\n  preserveWhitespaces?:
boolean;\n}\n\nlet jitOptions: JitCompilerOptions|null = null;\n\nexport function setJitOptions(options:
JitCompilerOptions): void {\n  if (jitOptions !== null) {\n    if (options.defaultEncapsulation !==
jitOptions.defaultEncapsulation) {\n      ngDevMode &&\n        console.error(\n          'Provided value for
`defaultEncapsulation` can not be changed once it has been set.);\n      return;\n    }\n    if
(options.preserveWhitespaces !== jitOptions.preserveWhitespaces) {\n      ngDevMode &&\n        console.error(\n
          'Provided value for `preserveWhitespaces` can not be changed once it has been set.);\n      return;\n    }\n  }\n  jitOptions = options;\n}\n\nexport function getJitOptions(): JitCompilerOptions|null {\n  return
jitOptions;\n}\n\nexport
function resetJitOptions(): void {\n  jitOptions = null;\n}\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { getCompilerFacade, R3InjectorMetadataFacade } from
'../compiler/compiler_facade';\nimport { resolveForwardRef } from '../di/forward_ref';\nimport { NG_INJ_DEF }
from '../di/interface/defs';\nimport { reflectDependencies } from '../di/jit/util';\nimport { Type } from
'../interface/type';\nimport { Component } from '../metadata/directives';\nimport { ModuleWithProviders,

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NgModule} from './../metadata/ng_module';\nimport {NgModuleDef, NgModuleTransitiveScopes,
NgModuleType} from './../metadata/ng_module_def';\nimport {deepForEach, flatten} from
'../util/array_utils';\nimport {assertDefined} from '../util/assert';\nimport {getComponentDef, getDirectiveDef,
getNgModuleDef, getPipeDef} from './definition';\nimport
{NG_COMP_DEF, NG_DIR_DEF, NG_MOD_DEF, NG_PIPE_DEF} from './fields';\nimport {ComponentDef}
from './interfaces/definition';\nimport {maybeUnwrapFn} from './util/misc_utils';\nimport {stringifyForError} from
'../util/stringify_utils';\n\nimport {angularCoreEnv} from './environment';\n\nconst EMPTY_ARRAY: Type<any>[]
= [];\n\ninterface ModuleQueueItem {\n  moduleType: Type<any>;\n  ngModule: NgModule;\n}\n\nconst
moduleQueue: ModuleQueueItem[] = [];\n\n/**\n * Enqueues moduleDef to be checked later to see if scope can be
set on its\n * component declarations.\n */\nfunction enqueueModuleForDelayedScoping(moduleType: Type<any>,
ngModule: NgModule) {\n  moduleQueue.push({moduleType, ngModule});\n}\n\nlet flushingModuleQueue =
false;\n\n/**\n * Loops over queued module definitions, if a given module definition has all of its\n * declarations
resolved, it dequeues that module definition and sets the scope on\n * its declarations.\n */\nexport function
flushModuleScopingQueueAsMuchAsPossible()\n{\n  if (!flushingModuleQueue) {\n    flushingModuleQueue = true;\n    try {\n      for (let i = moduleQueue.length -
1; i >= 0; i--) {\n        const {moduleType, ngModule} = moduleQueue[i];\n        if (ngModule.declarations &&
ngModule.declarations.every(isResolvedDeclaration)) {\n          // dequeue\n          moduleQueue.splice(i, 1);\n          setScopeOnDeclaredComponents(moduleType, ngModule);\n        }\n      }\n      finally {\n        flushingModuleQueue = false;\n      }\n    }\n  }\n\n  /**\n * Returns truthy if a declaration has resolved. If the declaration
happens to be\n * an array of declarations, it will recurse to check each declaration in that array\n * (which may also
be arrays).\n */\n  function isResolvedDeclaration(declaration: any[] | Type<any>): boolean {\n    if
(Array.isArray(declaration)) {\n      return declaration.every(isResolvedDeclaration);\n    }\n    return
!!resolveForwardRef(declaration);\n  }\n\n  /**\n * Compiles a module in JIT mode.\n */\n  /**\n * This function
automatically gets called when a class has a `@NgModule` decorator.\n */\n  export function
compileNgModule(moduleType: Type<any>, ngModule: NgModule = {}): void {\n    compileNgModuleDefs(moduleType as NgModuleType, ngModule);\n  }\n\n  // Because we don't know if all
declarations have resolved yet at the moment the\n  // NgModule decorator is executing, we're enqueueing the
setting of module scope\n  // on its declarations to be run at a later time when all declarations for the module,\n  //
including forward refs, have resolved.\n  enqueueModuleForDelayedScoping(moduleType, ngModule);\n}\n\n/**\n * Compiles and adds the `mod` and `inj` properties to the module class.\n */\n * It's possible to compile a module via
this API which will allow duplicate declarations in its\n * root.\n */\n  export function compileNgModuleDefs(\n    moduleType: NgModuleType, ngModule: NgModule,\n    allowDuplicateDeclarationsInRoot: boolean = false): void\n  {\n    ngDevMode && assertDefined(moduleType, 'Required
value moduleType');\n    ngDevMode && assertDefined(ngModule, 'Required value ngModule');\n    const
declarations: Type<any>[] = flatten(ngModule.declarations || EMPTY_ARRAY);\n    let ngModuleDef: any = null;\n    Object.defineProperty(moduleType, NG_MOD_DEF, {\n      configurable: true,\n      get: () => {\n        if
(ngModuleDef === null) {\n          if (ngDevMode && ngModule.imports &&
ngModule.imports.indexOf(moduleType) > -1) {\n            // We need to assert this immediately, because allowing it
to continue will cause it to\n            // go into an infinite loop before we've reached the point where we throw all the
errors.\n            throw new Error(`${stringifyForError(moduleType)}' module can't import itself');\n          }\n          ngModuleDef = getCompilerFacade().compileNgModule(\n            angularCoreEnv,\n            `ng:${moduleType.name}/mod.js`, {\n              type: moduleType,\n              bootstrap:
flatten(ngModule.bootstrap || EMPTY_ARRAY).map(resolveForwardRef),\n              declarations:
declarations.map(resolveForwardRef),\n              imports: flatten(ngModule.imports || EMPTY_ARRAY).map(resolveForwardRef),\n              exports:
flatten(ngModule.exports || EMPTY_ARRAY).map(resolveForwardRef),\n              schemas: ngModule.schemas ? flatten(ngModule.schemas) : null,\n              id: ngModule.id || null,\n            });\n          // Set `schemas` on ngModuleDef to an empty array in JIT mode to

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indicate that runtime\n      // should verify that there are no unknown elements in a template. In AOT mode, that
check\n      // happens at compile time and `schemas` information is not present on Component and Module\n      //
defs after compilation (so the check doesn't happen the second time at runtime).\n      if (!ngModuleDef.schemas)
{\n      ngModuleDef.schemas = [];\n
}\n  }\n  return ngModuleDef;\n  }\n  });\n\n  let ngInjectorDef: any = null;\n\n  Object.defineProperty(moduleType, NG_INJ_DEF, {\n    get: () => {\n      if (ngInjectorDef === null) {\n        ngDevMode &&\n          verifySemanticsOfNgModuleDef(\n            moduleType as any as NgModuleType,\n            allowDuplicateDeclarationsInRoot);\n        const meta: R3InjectorMetadataFacade = {\n          name:
moduleType.name,\n          type: moduleType,\n          deps: reflectDependencies(moduleType),\n          providers:
ngModule.providers || EMPTY_ARRAY,\n          imports: [\n            (ngModule.imports ||
EMPTY_ARRAY).map(resolveForwardRef),\n            (ngModule.exports ||
EMPTY_ARRAY).map(resolveForwardRef),\n          ],\n          \n        };\n        ngInjectorDef =
getCompilerFacade().compileInjector(\n          angularCoreEnv, `ng:///${moduleType.name}/inj.js`, meta);\n      }\n      return ngInjectorDef;\n    },\n    // Make the property configurable in dev mode to
allow overriding in tests\n    configurable: !!ngDevMode,\n  });\n\n  function verifySemanticsOfNgModuleDef(\n    moduleType: NgModuleType, allowDuplicateDeclarationsInRoot: boolean,\n    importingModule?:
NgModuleType): void {\n    if (verifiedNgModule.get(moduleType)) return;\n    verifiedNgModule.set(moduleType,
true);\n    moduleType = resolveForwardRef(moduleType);\n    let ngModuleDef: NgModuleDef<any>;\n    if
(importingModule) {\n      ngModuleDef = getNgModuleDef(moduleType)!;\n      if (!ngModuleDef) {\n        throw new
Error(`Unexpected value '${moduleType.name}' imported by the module '${\n        importingModule.name}'.
Please add an @NgModule annotation.`);\n      }\n    } else {\n      ngModuleDef = getNgModuleDef(moduleType,
true);\n    }\n    const errors: string[] = [];\n    const declarations = maybeUnwrapFn(ngModuleDef.declarations);\n    const imports = maybeUnwrapFn(ngModuleDef.imports);\n    flatten(imports).map(unwrapModuleWithProvidersImports).forEach(mod => {\n
verifySemanticsOfNgModuleImport(mod,
moduleType);\n    verifySemanticsOfNgModuleDef(mod, false, moduleType);\n  });\n    const exports =
maybeUnwrapFn(ngModuleDef.exports);\n    declarations.forEach(verifyDeclarationsHaveDefinitions);\n    declarations.forEach(verifyDirectivesHaveSelector);\n    const combinedDeclarations: Type<any>[] = [\n
...declarations.map(resolveForwardRef),\n
...flatten(imports.map(computeCombinedExports)).map(resolveForwardRef),\n  ];\n    exports.forEach(verifyExportsAreDeclaredOrReExported);\n    declarations.forEach(decl =>
verifyDeclarationIsUnique(decl, allowDuplicateDeclarationsInRoot));\n    declarations.forEach(verifyComponentEntryComponentsIsPartOfNgModule);\n\n    const ngModule =
getAnnotation<NgModule>(moduleType, 'NgModule');\n    if (ngModule) {\n      ngModule.imports &&\n        flatten(ngModule.imports).map(unwrapModuleWithProvidersImports).forEach(mod => {\n
verifySemanticsOfNgModuleImport(mod, moduleType);\n          verifySemanticsOfNgModuleDef(mod, false,
moduleType);\n
        });\n      ngModule.bootstrap && deepForEach(ngModule.bootstrap, verifyCorrectBootstrapType);\n      ngModule.bootstrap && deepForEach(ngModule.bootstrap, verifyComponentIsPartOfNgModule);\n      ngModule.entryComponents &&\n        deepForEach(ngModule.entryComponents,
verifyComponentIsPartOfNgModule);\n    }\n\n    // Throw Error if any errors were detected.\n    if (errors.length) {\n      throw new Error(errors.join("\n"));\n    }\n    //\n\n    function verifyDeclarationsHaveDefinitions(type: Type<any>): void {\n      type = resolveForwardRef(type);\n      const def = getComponentDef(type) || getDirectiveDef(type) || getPipeDef(type);\n      if (!def) {\n        errors.push(`Unexpected value '${stringifyForError(type)}' declared by the module '${\n        stringifyForError(moduleType)}'. Please add a @Pipe/@Directive/@Component annotation.`);\n      }\n    }\n\n    function verifyDirectivesHaveSelector(type: Type<any>):

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void {\n  type = resolveForwardRef(type);\n  const def = getDirectiveDef(type);\n  if (!getComponentDef(type)
&& def && def.selectors.length == 0) {\n    errors.push(`Directive ${stringifyForError(type)} has no selector,
please add it!`);\n  }\n}\n\nfunction verifyExportsAreDeclaredOrReExported(type: Type<any>) {\n  type =
resolveForwardRef(type);\n  const kind = getComponentDef(type) && 'component' || getDirectiveDef(type) &&
'directive' ||\n    getPipeDef(type) && 'pipe';\n  if (kind) {\n    // only checked if we are declared as Component,
Directive, or Pipe\n    // Modules don't need to be declared or imported.\n    if
(combinedDeclarations.lastIndexOf(type) === -1) {\n      // We are exporting something which we don't explicitly
declare or import.\n      errors.push(`Can't export ${kind} ${stringifyForError(type)} from ${\n
stringifyForError(moduleType)} as it was neither declared nor imported!`);\n    }\n  }\n}\n\nfunction
verifyDeclarationIsUnique(type: Type<any>, suppressErrors: boolean) {\n  type = resolveForwardRef(type);\n
const existingModule = ownerNgModule.get(type);\n  if (existingModule && existingModule !== moduleType)
{\n    if (!suppressErrors) {\n      const modules = [existingModule, moduleType].map(stringifyForError).sort();\n
      errors.push(\n        `Type ${stringifyForError(type)} is part of the declarations of 2 modules: ${\n
modules[0]} and ${modules[1]}!` +\n        `Please consider moving ${stringifyForError(type)} to a higher
module that imports ${\n        modules[0]} and ${modules[1]}.` +\n        `You can also create a new
NgModule that exports and includes ${\n        stringifyForError(\n        type)} then import that
NgModule in ${modules[0]} and ${modules[1]}.`);\n    }\n  } else {\n    // Mark type as having owner.\n
ownerNgModule.set(type, moduleType);\n  }\n}\n\nfunction verifyComponentIsPartOfNgModule(type:
Type<any>) {\n  type = resolveForwardRef(type);\n  const existingModule = ownerNgModule.get(type);\n  if
(!existingModule) {\n    errors.push(`Component ${\n    stringifyForError(\n    type)} is not part of any
NgModule or the module has not been imported into your module.`);\n  }\n}\n\nfunction
verifyCorrectBootstrapType(type: Type<any>) {\n  type = resolveForwardRef(type);\n  if
(!getComponentDef(type)) {\n    errors.push(` ${stringifyForError(type)} cannot be used as an entry
component.`);\n  }\n}\n\nfunction verifyComponentEntryComponentsIsPartOfNgModule(type: Type<any>) {\n
type = resolveForwardRef(type);\n  if (getComponentDef(type)) {\n    // We know we are component\n    const
component = getAnnotation<Component>(type, 'Component');\n    if (component &&
component.entryComponents) {\n      deepForEach(component.entryComponents,
verifyComponentIsPartOfNgModule);\n    }\n  }\n}\n\nfunction
verifySemanticsOfNgModuleImport(type: Type<any>, importingModule: Type<any>) {\n  type =
resolveForwardRef(type);\n  if (getComponentDef(type) || getDirectiveDef(type)) {\n    throw new
Error(`Unexpected directive '${type.name}' imported by the module '${\n    importingModule.name}'. Please
add an @NgModule annotation.`);\n  }\n  if (getPipeDef(type)) {\n    throw new Error(`Unexpected pipe
 '${type.name}' imported by the module '${\n    importingModule.name}'. Please add an @NgModule
annotation.`);\n  }\n}\n}\n\nfunction unwrapModuleWithProvidersImports(typeOrWithProviders:
NgModuleType<any>|\n    {\n      ngModule: NgModuleType<any>;\n    }): NgModuleType<any> {\n
typeOrWithProviders = resolveForwardRef(typeOrWithProviders);\n  return (typeOrWithProviders as
any).ngModule || typeOrWithProviders;\n}\n\nfunction getAnnotation<T>(type: any, name: string): T|null {\n
let annotation: T|null = null;\n  collect(type.__annotations__); \n
collect(type.decorators);\n  return annotation;\n}\n\nfunction collect(annotations: any[]|null) {\n  if (annotations) {\n
annotations.forEach(readAnnotation);\n  }\n}\n\nfunction readAnnotation(\n  decorator: {\n    type: {\n      prototype:
{\n        ngMetadataName: string;\n      },\n      args: any[];\n    },\n    args: any;\n  }): void {\n  if (!annotation) {\n    const proto =
Object.getPrototypeOf(decorator);\n    if (proto.ngMetadataName == name) {\n      annotation = decorator as
any;\n    } else if (decorator.type) {\n      const proto = Object.getPrototypeOf(decorator.type);\n      if
(proto.ngMetadataName == name) {\n        annotation = decorator.args[0];\n      }\n    }\n  }\n}\n}\n\n/**\n *
Keep track of compiled components. This is needed because in tests we often want to compile the\n * same
component with more than one NgModule. This would cause an error unless we reset which\n * NgModule the
component belongs to. We keep the list of compiled components here so that the\n * TestBed

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can reset it later.\n */\nlet ownerNgModule = new Map<Type<any>, NgModuleType<any>>();\nlet
verifiedNgModule = new Map<NgModuleType<any>, boolean>();\n\nexport function resetCompiledComponents():
void {\n  ownerNgModule = new Map<Type<any>, NgModuleType<any>>();\n  verifiedNgModule = new
Map<NgModuleType<any>, boolean>();\n  moduleQueue.length = 0;\n}\n\n/**\n * Computes the combined
declarations of explicit declarations, as well as declarations inherited by\n * traversing the exports of imported
modules.\n * @param type\n * /\nfunction computeCombinedExports(type: Type<any>): Type<any>[] {\n  type =
resolveForwardRef(type);\n  const ngModuleDef = getNgModuleDef(type, true);\n  return
[...flatten(maybeUnwrapFn(ngModuleDef.exports).map((type) => {\n    const ngModuleDef =
getNgModuleDef(type);\n    if (ngModuleDef) {\n      verifySemanticsOfNgModuleDef(type as any as
NgModuleType, false);\n      return computeCombinedExports(type);\n    } else {\n      return type;\n    }\n
})]);\n}\n\n/**\n
* Some declared components may be compiled asynchronously, and thus may not have their\n * cmp set yet. If this
is the case, then a reference to the module is written into\n * the `ngSelectorScope` property of the declared type.\n
* /\nfunction setScopeOnDeclaredComponents(moduleType: Type<any>, ngModule: NgModule) {\n  const
declarations: Type<any>[] = flatten(ngModule.declarations || EMPTY_ARRAY);\n\n  const transitiveScopes =
transitiveScopesFor(moduleType);\n\n  declarations.forEach(declaration => {\n    if
(declaration.hasOwnProperty(NG_COMP_DEF)) {\n      // A `cmp` field exists - go ahead and patch the component
directly.\n      const component = declaration as Type<any>& {cmp: ComponentDef<any>};\n      const
componentDef = getComponentDef(component);\n      patchComponentDefWithScope(componentDef,
transitiveScopes);\n    } else if (\n      !declaration.hasOwnProperty(NG_DIR_DEF) &&
!declaration.hasOwnProperty(NG_PIPE_DEF)) {\n      // Set `ngSelectorScope` for future
reference when the component compilation finishes.\n      (declaration as Type<any>& {ngSelectorScope?:
any}).ngSelectorScope = moduleType;\n    }\n  });\n}\n\n/**\n * Patch the definition of a component with directives
and pipes from the compilation scope of\n * a given module.\n * /\nexport function
patchComponentDefWithScope<C>(\n  componentDef: ComponentDef<C>, transitiveScopes:
NgModuleTransitiveScopes) {\n  componentDef.directiveDefs = () =>\n
Array.from(transitiveScopes.compilation.directives)\n    .map(\n      dir =>
dir.hasOwnProperty(NG_COMP_DEF) ? getComponentDef(dir)! : getDirectiveDef(dir)\n    )\n    .filter(def => !!def);\n  componentDef.pipeDefs = () =>\n
Array.from(transitiveScopes.compilation.pipes).map(pipe => getPipeDef(pipe)!);\n  componentDef.schemas =
transitiveScopes.schemas;\n\n  // Since we avoid Components/Directives/Pipes recompiling in case there are no
overrides, we\n  // may face a problem where previously compiled
defs available to a given Component/Directive\n  // are cached in TView and may become stale (in case any of these
defs gets recompiled). In\n  // order to avoid this problem, we force fresh TView to be created.\n\n  componentDef.tView = null;\n}\n\n/**\n * Compute the pair of transitive scopes (compilation scope and exported
scope) for a given module.\n * /\n * This operation is memoized and the result is cached on the module's definition.
This function can\n * be called on modules with components that have not fully compiled yet, but the result should
not\n * be used until they have.\n * /\n * @param moduleType module that transitive scope should be calculated
for.\n * /\nexport function transitiveScopesFor<T>(moduleType: Type<T>): NgModuleTransitiveScopes {\n  if
(!isNgModule(moduleType)) {\n    throw new Error(`${moduleType.name} does not have a module def (mod
property)`);\n  }\n  const def = getNgModuleDef(moduleType);\n\n  if (def.transitiveCompileScopes !== null) {\n
return
def.transitiveCompileScopes;\n  }\n\n  const scopes: NgModuleTransitiveScopes = {\n    schemas: def.schemas ||
null,\n    compilation: {\n      directives: new Set<any>(),\n      pipes: new Set<any>(),\n    },\n    exported: {\n
directives: new Set<any>(),\n      pipes: new Set<any>(),\n    },\n  };\n\n  maybeUnwrapFn(def.imports).forEach(<I>(imported: Type<I>) => {\n    const importedType = imported as
Type<I>& {\n      // If imported is an @NgModule:\n      mod?: NgModuleDef<I>;\n    };\n\n    if
(!isNgModule<I>(importedType)) {\n      throw new Error(`Importing ${importedType.name} which does not have

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a mod property`);\n  }\n\n  // When this module imports another, the imported module's exported directives and
pipes are\n  // added to the compilation scope of this module.\n  const importedScope =
transitiveScopesFor(importedType);\n  importedScope.exported.directives.forEach(entry =>
scopes.compilation.directives.add(entry));\n  importedScope.exported.pipes.forEach(entry
=> scopes.compilation.pipes.add(entry));\n  });\n\n  maybeUnwrapFn(def.declarations).forEach(declared => {\n
const declaredWithDefs = declared as Type<any>& {\n    pipe?: any;\n  };\n\n  if
(getPipeDef(declaredWithDefs)) {\n    scopes.compilation.pipes.add(declared);\n  } else {\n    // Either declared
has a cmp or dir, or it's a component which hasn't\n    // had its template compiled yet. In either case, it gets added
to the compilation's\n    // directives.\n    scopes.compilation.directives.add(declared);\n  }\n  });\n\n  maybeUnwrapFn(def.exports).forEach(<E>(exported: Type<E>) => {\n    const exportedType = exported as
Type<E>& {\n    // Components, Directives, NgModules, and Pipes can all be exported.\n    cmp?: any;\n    dir?:
any;\n    mod?: NgModuleDef<E>;\n    pipe?: any;\n  };\n\n    // Either the type is a module, a pipe, or a
component/directive (which may not have a\n    // cmp as it might be compiled asynchronously).\n    if (isNgModule(exportedType)) {\n      // When this module exports another, the exported module's exported
directives and pipes are\n      // added to both the compilation and exported scopes of this module.\n      const
exportedScope = transitiveScopesFor(exportedType);\n      exportedScope.exported.directives.forEach(entry => {\n
scopes.compilation.directives.add(entry);\n      scopes.exported.directives.add(entry);\n    });\n      exportedScope.exported.pipes.forEach(entry => {\n      scopes.compilation.pipes.add(entry);\n
scopes.exported.pipes.add(entry);\n    });\n    } else if (getPipeDef(exportedType)) {\n
scopes.exported.pipes.add(exportedType);\n    } else {\n      scopes.exported.directives.add(exportedType);\n    }\n  });\n\n  def.transitiveCompileScopes = scopes;\n  return scopes;\n}\n\nfunction expandModuleWithProviders(value:
Type<any>|ModuleWithProviders<{}>): Type<any> {\n  if (isModuleWithProviders(value)) {\n    return
value.ngModule;\n  }\n\n  return value;\n}\n\nfunction isModuleWithProviders(value: any): value is ModuleWithProviders<{}> {\n
return (value as {ngModule?: any}).ngModule !== undefined;\n}\n\nfunction isNgModule<T>(value: Type<T>):
value is Type<T>& {mod: NgModuleDef<T>} {\n  return !!getNgModuleDef(value);\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {getCompilerFacade,
R3DirectiveMetadataFacade} from '../compiler/compiler_facade';\nimport {R3ComponentMetadataFacade,
R3QueryMetadataFacade} from '../compiler/compiler_facade_interface';\nimport {resolveForwardRef} from
'../di/forward_ref';\nimport {getReflect, reflectDependencies} from '../di/jit/util';\nimport {Type} from
'../interface/type';\nimport {Query} from '../metadata/di';\nimport {Component, Directive, Input} from
'../metadata/directives';\nimport
{componentNeedsResolution, maybeQueueResolutionOfComponentResources} from
'../metadata/resource_loading';\nimport {ViewEncapsulation} from '../metadata/view';\nimport
{initNgDevMode} from '../util/ng_dev_mode';\nimport {getComponentDef, getDirectiveDef} from
'./definition';\nimport {EMPTY_ARRAY, EMPTY_OBJ} from './empty';\nimport {NG_COMP_DEF,
NG_DIR_DEF, NG_FACTORY_DEF} from './fields';\nimport {ComponentType} from
'./interfaces/definition';\nimport {stringifyForError} from './util/stringify_utils';\n\nimport {angularCoreEnv} from
'./environment';\nimport {getJitOptions} from './jit_options';\nimport
{flushModuleScopingQueueAsMuchAsPossible, patchComponentDefWithScope, transitiveScopesFor} from
'./module';\n\n/**\n * Keep track of the compilation depth to avoid reentrancy issues during JIT compilation. This\n
* matters in the following scenario:\n *\n * Consider a component 'A' that extends component 'B', both declared in
module 'M'. During\n * the compilation of 'A' the
definition of 'B' is requested to capture the inheritance chain,\n * potentially triggering compilation of 'B'. If this
nested compilation were to trigger\n * `flushModuleScopingQueueAsMuchAsPossible` it may happen that module
'M' is still pending in the\n * queue, resulting in 'A' and 'B' to be patched with the NgModule scope. As the
compilation of\n * 'A' is still in progress, this would introduce a circular dependency on its compilation. To avoid\n

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* this issue, the module scope queue is only flushed for compilations at the depth 0, to ensure
* all compilations have finished.
*/
let compilationDepth = 0;

/**
 * Compile an Angular component according to its decorator metadata, and patch the resulting
 * component def (cmp) onto the component type.
 *
 * Compilation may be asynchronous (due to the need to resolve URLs for the component template or
 * other resources, for example). In the event that compilation is not immediate, `compileComponent`
 * will enqueue resource resolution into a global queue and will fail to return the `cmp` until the global queue has been resolved with a
 * call to `resolveComponentResources`.
 */
export function compileComponent(type: Type<any>, metadata: Component): void {
  // Initialize ngDevMode. This must be the first statement in compileComponent.
  // See the `initNgDevMode` docstring for more information.
  (typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode();

  let ngComponentDef: any = null;

  // Metadata may have resources which need to be resolved.
  maybeQueueResolutionOfComponentResources(type, metadata);

  // Note that we're using the same function as `Directive`, because that's only subset of metadata
  // that we need to create the ngFactoryDef. We're avoiding using the component metadata
  // because we'd have to resolve the asynchronous templates.
  addDirectiveFactoryDef(type, metadata);

  Object.defineProperty(type, NG_COMP_DEF, {
    get(): {
      if (ngComponentDef === null) {
        const compiler = getCompilerFacade();

        if (componentNeedsResolution(metadata)) {
          const error = [Component`${type.name}` is not resolved:];

          if (metadata.templateUrl) {
            error.push(` - templateUrl: ${metadata.templateUrl}`);
          }

          if (metadata.styleUrls && metadata.styleUrls.length) {
            error.push(` - styleUrls: ${JSON.stringify(metadata.styleUrls)}`);
          }

          error.push(`Did you run and wait for 'resolveComponentResources'?`);

          throw new Error(error.join("\n"));
        }

        // This const was called `jitOptions` previously but had to be renamed to `options`
        // because of a bug with Terser that caused optimized JIT builds to throw a `ReferenceError`.
        // This bug was investigated in https://github.com/angular/angular-cli/issues/17264.
        // We should not rename it back until https://github.com/terser/terser/issues/615 is fixed.
        const options = getJitOptions();
        let preserveWhitespaces = metadata.preserveWhitespaces;

        if (preserveWhitespaces === undefined) {
          if (options !== null && options.preserveWhitespaces !== undefined) {
            preserveWhitespaces = options.preserveWhitespaces;
          } else {
            preserveWhitespaces = false;
          }
        }

        let encapsulation = metadata.encapsulation;

        if (encapsulation === undefined) {
          if (options !== null && options.defaultEncapsulation !== undefined) {
            encapsulation = options.defaultEncapsulation;
          } else {
            encapsulation = ViewEncapsulation.Emulated;
          }
        }

        const templateUrl = metadata.templateUrl || `ng:///${type.name}/template.html`;
        const meta: R3ComponentMetadataFacade = {
          ...directiveMetadata(type, metadata),
          typeSourceSpan: compiler.createParseSourceSpan('Component', type.name, templateUrl),
          template: metadata.template || "",
          preserveWhitespaces,
          styles: metadata.styles || EMPTY_ARRAY,
          animations: metadata.animations,
          directives: [],
          changeDetection: metadata.changeDetection,
          pipes: new Map(),
          encapsulation,
          interpolation: metadata.interpolation,
          viewProviders: metadata.viewProviders || null,
        };

        compilationDepth++;
        try {
          if (meta.usesInheritance) {
            addDirectiveDefToUndecoratedParents(type);
          }

          ngComponentDef = compiler.compileComponent(angularCoreEnv, templateUrl, meta);
        } finally {
          // Ensure that the compilation depth is decremented even when the compilation failed.
          compilationDepth--;
        }

        if (compilationDepth === 0) {
          // When NgModule decorator executed, we enqueued the module definition such that
          // it would only dequeue and add itself as module scope to all of its declarations,
          // but only if all of its declarations had resolved. This call runs the check
          // to see if any modules that are in the queue can be dequeued and add scope to
          // their declarations.
          flushModuleScopingQueueAsMuchAsPossible();
        }

        // If component compilation is async, then the @NgModule annotation which declares the

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component may execute and set an ngSelectorScope property on the component type. This // allows the
component to patch itself with directiveDefs from the module after it // finishes compiling. if
(hasSelectorScope(type)) {\n      const scopes = transitiveScopesFor(type.ngSelectorScope);\n
patchComponentDefWithScope(ngComponentDef, scopes);\n    }\n  }\n  return ngComponentDef;\n },\n
// Make the property configurable in dev mode to allow overriding in tests\n  configurable:
!!ngDevMode,\n });\n}\n\nfunction hasSelectorScope<T>(component: Type<T>): component is Type<T> &\n
{ngSelectorScope: Type<any>} {\n  return (component as {ngSelectorScope?: any}).ngSelectorScope !==
undefined;\n}\n\n/**\n * Compile an Angular directive according to its decorator metadata, and patch the resulting\n
* directive def onto the component type.\n * In the event that compilation is not immediate, `compileDirective`\n
will return a `Promise` which\n * will resolve when compilation completes and the directive becomes usable.\n
*/\n\nexport function compileDirective(type: Type<any>, directive: Directive|null): void {\n  let ngDirectiveDef: any
= null;\n\n  addDirectiveFactoryDef(type, directive || {});\n\n  Object.defineProperty(type, NG_DIR_DEF, {\n    get:
() => {\n      if (ngDirectiveDef === null) {\n        // `directive` can be null in the case of abstract directives as a base
class\n        // that use `@Directive()` with no selector. In that case, pass empty
object to the\n        // `directiveMetadata` function instead of null.\n        const meta = getDirectiveMetadata(type,
directive || {});\n        ngDirectiveDef =\n          getCompilerFacade().compileDirective(angularCoreEnv,
meta.sourceMapUrl, meta.metadata);\n      }\n      return ngDirectiveDef;\n    },\n    // Make the property
configurable in dev mode to allow overriding in tests\n    configurable: !!ngDevMode,\n  });\n}\n\nfunction
getDirectiveMetadata(type: Type<any>, metadata: Directive) {\n  const name = type && type.name;\n  const
sourceMapUrl = `ng:///${name}/dir.js`;\n  const compiler = getCompilerFacade();\n  const facade =
directiveMetadata(type as ComponentType<any>, metadata);\n  facade.typeSourceSpan =
compiler.createParseSourceSpan('Directive', name, sourceMapUrl);\n  if (facade.usesInheritance) {\n
addDirectiveDefToUndecoratedParents(type);\n  }\n  return {metadata: facade, sourceMapUrl};\n}\n\nfunction
addDirectiveFactoryDef(type: Type<any>, metadata: Directive|Component)
{\n  let ngFactoryDef: any = null;\n\n  Object.defineProperty(type, NG_FACTORY_DEF, {\n    get: () => {\n      if
(ngFactoryDef === null) {\n        const meta = getDirectiveMetadata(type, metadata);\n        const compiler =
getCompilerFacade();\n        ngFactoryDef = compiler.compileFactory(angularCoreEnv, `ng:///${type.name}/fac.js`,
{\n          ...meta.metadata,\n          injectFn: 'directiveInject',\n          target: compiler.R3FactoryTarget.Directive\n
});\n      }\n      return ngFactoryDef;\n    },\n    // Make the property configurable in dev mode to allow overriding in
tests\n    configurable: !!ngDevMode,\n  });\n}\n\nexport function extendsDirectlyFromObject(type: Type<any>):
boolean {\n  return Object.getPrototypeOf(type.prototype) === Object.prototype;\n}\n\n/**\n * Extract the
`R3DirectiveMetadata` for a particular directive (either a `Directive` or a\n * `Component`).\n */\n\nexport function
directiveMetadata(type: Type<any>, metadata: Directive):
R3DirectiveMetadataFacade {\n  // Reflect inputs and outputs.\n  const reflect = getReflect();\n  const propMetadata
= reflect.ownPropMetadata(type);\n\n  return {\n    name: type.name,\n    type: type,\n    typeArgumentCount: 0,\n
selector: metadata.selector !== undefined ? metadata.selector : null,\n    deps: reflectDependencies(type),\n    host:
metadata.host || EMPTY_OBJ,\n    propMetadata: propMetadata,\n    inputs: metadata.inputs || EMPTY_ARRAY,\n
outputs: metadata.outputs || EMPTY_ARRAY,\n    queries: extractQueriesMetadata(type, propMetadata,
isContentQuery),\n    lifecycle: {usesOnChanges: reflect.hasLifecycleHook(type, 'ngOnChanges')},\n
typeSourceSpan: null!,\n    usesInheritance: !extendsDirectlyFromObject(type),\n    exportAs:
extractExportAs(metadata.exportAs),\n    providers: metadata.providers || null,\n    viewQueries:
extractQueriesMetadata(type, propMetadata, isViewQuery)\n  };\n}\n\n/**\n * Adds a directive definition to all
parent classes of a type
that don't have an Angular decorator.\n */\n\nfunction addDirectiveDefToUndecoratedParents(type: Type<any>) {\n
const objPrototype = Object.prototype;\n  let parent = Object.getPrototypeOf(type.prototype).constructor;\n\n  // Go
up the prototype until we hit `Object`.\n  while (parent && parent !== objPrototype) {\n    // Since inheritance works
if the class was annotated already, we only need to add\n    // the def if there are no annotations and the def hasn't
been created already.\n    if (!getDirectiveDef(parent) && !getComponentDef(parent) &&

```

```

shouldAddAbstractDirective(parent)) {\n    compileDirective(parent, null);\n    }\n    parent =
Object.getPrototypeOf(parent);\n    }\n    \n\nfunction convertToR3QueryPredicate(selector: any): any|string[] {\n
return typeof selector === 'string' ? splitByComma(selector) : resolveForwardRef(selector);\n    }\n    \n\nexport function
convertToR3QueryMetadata(propertyName: string, ann: Query): R3QueryMetadataFacade {\n    return {\n
propertyName:
propertyName,\n    predicate: convertToR3QueryPredicate(ann.selector),\n    descendants: ann.descendants,\n
first: ann.first,\n    read: ann.read ? ann.read : null,\n    static: !!ann.static\n    };\n    }\n\nfunction
extractQueriesMetadata(\n    type: Type<any>, propMetadata: {[key: string]: any[]},\n    isQueryAnn: (ann: any) =>
ann is Query): R3QueryMetadataFacade[] {\n    const queriesMeta: R3QueryMetadataFacade[] = [];\n    for (const
field in propMetadata) {\n        if (propMetadata.hasOwnProperty(field)) {\n            const annotations =
propMetadata[field];\n            annotations.forEach(ann => {\n                if (isQueryAnn(ann)) {\n                    if (!ann.selector) {\n
throw new Error(\n                        `Can't construct a query for the property \"${field}\" of ` +\n
`${stringifyForError(type)}` since the query selector wasn't defined.`);\n                    }\n                    if
(annotations.some(isInputAnnotation)) {\n                        throw new Error(`Cannot combine @Input decorators with query
decorators`);\n                    }\n                }\n                queriesMeta.push(convertToR3QueryMetadata(field, ann));\n            }\n        }\n    });\n    }\n    }\n    return
queriesMeta;\n    }\n\nfunction extractExportAs(exportAs: string|undefined): string[]|null {\n    return exportAs ===
undefined ? null : splitByComma(exportAs);\n    }\n\nfunction isContentQuery(value: any): value is Query {\n    const
name = value.ngMetadataName;\n    return name === 'ContentChild' || name === 'ContentChildren';\n    }\n\nfunction
isViewQuery(value: any): value is Query {\n    const name = value.ngMetadataName;\n    return name ===
'ViewChild' || name === 'ViewChildren';\n    }\n\nfunction isInputAnnotation(value: any): value is Input {\n    return
value.ngMetadataName === 'Input';\n    }\n\nfunction splitByComma(value: string): string[] {\n    return
value.split(',').map(piece => piece.trim());\n    }\n\n\nconst LIFECYCLE_HOOKS = [\n    'ngOnChanges', 'ngOnInit',
'ngOnDestroy', 'ngDoCheck', 'ngAfterViewInit', 'ngAfterViewChecked',\n    'ngAfterContentInit',
'ngAfterContentChecked'\n];\n\nfunction
shouldAddAbstractDirective(type: Type<any>): boolean {\n    const reflect = getReflect();\n    \n    if
(LIFECYCLE_HOOKS.some(hookName => reflect.hasLifecycleHook(type, hookName))) {\n        return true;\n    }\n    \n\nconst propMetadata = reflect.propMetadata(type);\n    \n    for (const field in propMetadata) {\n        const annotations =
propMetadata[field];\n        \n        for (let i = 0; i < annotations.length; i++) {\n            const current = annotations[i];\n            const
metadataName = current.ngMetadataName;\n            \n            if (isInputAnnotation(current) || isContentQuery(current) ||
isViewQuery(current) ||\n                metadataName === 'Output' || metadataName === 'HostBinding' ||\n                metadataName === 'HostListener') {\n                return true;\n            }\n        }\n    }\n    \n    return false;\n    }\n    \n\n"/**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{getCompilerFacade, R3PipeMetadataFacade} from '../compiler/compiler_facade';\nimport
{reflectDependencies} from '../di/jit/util';\nimport {Type} from '../interface/type';\nimport {Pipe} from
'../metadata/directives';\nimport {NG_FACTORY_DEF, NG_PIPE_DEF} from '../fields';\nimport
{angularCoreEnv} from './environment';\n\nexport function compilePipe(type: Type<any>, meta: Pipe): void {\n    let
ngPipeDef: any = null;\n    let ngFactoryDef: any = null;\n    \n    Object.defineProperty(type, NG_FACTORY_DEF, {\n
get: () => {\n        if (ngFactoryDef === null) {\n            const metadata = getPipeMetadata(type, meta);\n            const
compiler = getCompilerFacade();\n            ngFactoryDef = compiler.compileFactory(\n                angularCoreEnv,
`ng:///${metadata.name}/fac.js`,\n                {...metadata, injectFn: 'directiveInject', target:
compiler.R3FactoryTarget.Pipe});\n        }\n        return ngFactoryDef;\n    },\n    // Make the property configurable in
dev mode to allow overriding\n    in tests\n    configurable: !NgDevMode,\n    });\n    \n    Object.defineProperty(type, NG_PIPE_DEF, {\n        get: () => {\n            if (ngPipeDef === null) {\n                const metadata = getPipeMetadata(type, meta);\n                ngPipeDef =
getCompilerFacade().compilePipe(\n                    angularCoreEnv, `ng:///${metadata.name}/pipe.js`, metadata);\n            }\n            return ngPipeDef;\n        },\n        // Make the property configurable in dev mode to allow overriding in tests\n

```

```

configurable: !!ngDevMode,\n });\n\nfunction getPipeMetadata(type: Type<any>, meta: Pipe):
R3PipeMetadataFacade {\n return {\n type: type,\n typeArgumentCount: 0,\n name: type.name,\n deps:
reflectDependencies(type),\n pipeName: meta.name,\n pure: meta.pure !== undefined ? meta.pure : true\n
};\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport
{ChangeDetectionStrategy} from './change_detection/constants';\nimport {Provider} from
'./di/interface/provider';\nimport {Type} from './interface/type';\nimport {compileComponent as
render3CompileComponent, compileDirective as render3CompileDirective} from './render3/jit/directive';\nimport
{compilePipe as render3CompilePipe} from './render3/jit/pipe';\nimport {makeDecorator, makePropDecorator,
TypeDecorator} from './util/decorators';\nimport {noop} from './util/noop';\n\nimport {ViewEncapsulation} from
'./view';\n\n\n/**\n * Type of the Directive decorator / constructor function.\n * @publicApi\n */\nexport interface
DirectiveDecorator {\n /**\n * Decorator that marks a class as an Angular directive.\n * You can define your
own directives to attach custom behavior to elements in the DOM.\n *\n * The options provide configuration
metadata that determines\n * how the directive should be processed, instantiated and used at\n * runtime.\n *\n
* Directive
classes, like component classes, can implement\n * [life-cycle hooks](guide/lifecycle-hooks) to influence their
configuration and behavior.\n *\n *\n * @usageNotes\n * To define a directive, mark the class with the
decorator and provide metadata.\n *\n * ```ts\n * import {Directive} from '@angular/core';\n *\n *
@Directive({\n * selector: 'my-directive',\n * })\n * export class MyDirective {\n * ... \n * }\n * ```\n *\n
* ### Declaring directives\n *\n * Directives are [declarables](guide/glossary#declarable).\n * They must be
declared by an NgModule\n * in order to be usable in an app.\n *\n * A directive must belong to exactly one
NgModule. Do not re-declare\n * a directive imported from another module.\n * List the directive class in the
`declarations` field of an NgModule.\n *\n * ```ts\n * declarations: [\n * AppComponent,\n * MyDirective\n
* ],\n * ```\n *\n * @Annotation\n */\n (obj?: Directive): TypeDecorator;\n\n
/**\n * See the `Directive` decorator.\n */\n new(obj?: Directive): Directive;\n}\n\n\n/**\n * Directive decorator
and metadata.\n *\n * @Annotation\n * @publicApi\n */\nexport interface Directive {\n /**\n * The CSS selector
that identifies this directive in a template\n * and triggers instantiation of the directive.\n *\n * Declare as one of
the following:\n *\n * - `element-name`: Select by element name.\n * - `.class`: Select by class name.\n * -
`[attribute]`: Select by attribute name.\n * - `[attribute=value]`: Select by attribute name and value.\n * -
`:not(sub_selector)`: Select only if the element does not match the `sub_selector`.\n * - `selector1, selector2`: Select
if either `selector1` or `selector2` matches.\n *\n * Angular only allows directives to apply on CSS selectors that
do not cross\n * element boundaries.\n *\n * For the following template HTML, a directive with an
`input[type=text]` selector,\n * would be instantiated
only on the `☐

```


[illegible]

string;\n\n /**\n * The relative path or absolute URL of a template file for an Angular component.\n * If provided, do not supply an inline template using `template`.\n * \n */\n templateUrl?: string;\n\n /**\n * An inline template for an Angular component. If provided,\n * do not supply a template file using `templateUrl`.\n * \n */\n template?: string;\n\n /**\n * One or more relative paths or absolute URLs for files containing CSS stylesheets to use\n * in this component.\n * \n */\n styleUrls?: string[];\n\n /**\n * One or more inline CSS stylesheets to use\n * in this component.\n * \n */\n styles?: string[];\n\n /**\n * One or more animation `trigger()` calls, containing\n * `state()` and `transition()` definitions.\n * See the [Animations guide](/guide/animations) and animations API documentation.\n * \n */\n animations?: any[];\n\n /**\n * An encapsulation policy for the template and CSS styles. One of:\n * - `ViewEncapsulation.Emulated`:

Use shimmed CSS that\n * emulates the native behavior.\n * - `ViewEncapsulation.None`: Use global CSS without any\n * encapsulation.\n * - `ViewEncapsulation.ShadowDom`: Use Shadow DOM v1 to encapsulate styles.\n * \n * If not supplied, the value is taken from `CompilerOptions`. The default compiler option is\n * `ViewEncapsulation.Emulated`.\n * \n * If the policy is set to `ViewEncapsulation.Emulated` and the component has no `styles`\n * or `styleUrls` specified, the policy is automatically switched to `ViewEncapsulation.None`.\n * \n */\n encapsulation?: ViewEncapsulation;\n\n /**\n * Overrides the default encapsulation start and end delimiters (`{{` and `}}`)\n * \n */\n interpolation?: [string, string];\n\n /**\n * A set of components that should be compiled along with\n * this component. For each component listed here,\n * Angular creates a {@link ComponentFactory} and stores it in the\n * {@link ComponentFactoryResolver}.\n * @deprecated Since 9.0.0. With Ivy, this property is no longer necessary.\n * \n */\n entryComponents?: Array<Type<any>|any[]>;\n\n /**\n * True to preserve or false to remove potentially superfluous whitespace characters\n * from the compiled template. Whitespace characters are those matching the `\\s`\n * character class in JavaScript regular expressions. Default is false, unless\n * overridden in compiler options.\n * \n */\n preserveWhitespaces?: boolean;\n\n /**\n * Component decorator and metadata.\n * \n */\n @Annotation\n * @publicApi\n */\n export const Component: ComponentDecorator = makeDecorator(\n * 'Component', (c: Component = {}) => ({changeDetection: ChangeDetectionStrategy.Default, ...c}),\n * Directive, undefined,\n * (type: Type<any>, meta: Component) => SWITCH_COMPILE_COMPONENT(type, meta));\n\n /**\n * Type of the Pipe decorator / constructor function.\n * \n */\n * @publicApi\n */\n export interface PipeDecorator {\n * \n * \n * Decorator that marks a class as pipe and supplies

configuration metadata.\n * \n * A pipe class must implement the `PipeTransform` interface.\n * For example, if the name is `myPipe`, use a template binding expression\n * such as the following:\n * \n * ```\n * {{ exp | myPipe }}\n * ```\n * \n * The result of the expression is passed to the pipe's `transform()` method.\n * \n * A pipe must belong to an NgModule in order for it to be available\n * to a template. To make it a member of an NgModule,\n * list it in the `declarations` field of the `NgModule` metadata.\n * \n * @see [Style Guide: Pipe Names](guide/styleguide#02-09)\n * \n */\n (obj: Pipe): TypeDecorator;\n\n /**\n * See the `Pipe` decorator.\n * \n */\n new(obj: Pipe): Pipe;\n\n /**\n * Type of the Pipe metadata.\n * \n */\n * @publicApi\n */\n export interface Pipe {\n * \n * \n * The pipe name to use in template bindings.\n * Typically uses [lowerCamelCase](guide/glossary#case-types)\n * because the name cannot contain hyphens.\n * \n */\n name: string;\n\n /**\n * When true, the pipe is pure, meaning that the\n * `transform()` method is invoked only when its input arguments\n * change. Pipes are pure by default.\n * \n * If the pipe has internal state (that is, the result\n * depends on state other than its arguments), set `pure` to false.\n * In this case, the pipe is invoked on each change-detection cycle,\n * even if the arguments have not changed.\n * \n */\n pure?: boolean;\n\n /**\n * @Annotation\n * @publicApi\n */\n export const Pipe: PipeDecorator = makeDecorator(\n * 'Pipe', (p: Pipe) => ({pure: true, ...p}), undefined, undefined,\n * (type: Type<any>, meta: Pipe) => SWITCH_COMPILE_PIPE(type, meta));\n\n /**\n * @publicApi\n */\n export interface InputDecorator {\n * \n * \n * Decorator that marks a class field as an input property and supplies configuration metadata.\n * The input property is bound to a DOM property in the template. During change detection,\n * Angular automatically updates

the data property with the DOM property's value.\n * \n * @usageNotes\n * \n * You can supply an optional name to use in templates when the\n * component is instantiated, that maps to the\n * name of the bound property.

By default, the original name of the bound property is used for input binding. The following example creates a component with two input properties, one of which is given a special binding name.

```

`typescript
@Component({
  selector: 'bank-account',
  template: `
    Bank Name:
    {{bankName}}
    Account Id: {{id}}
  `
})
class BankAccount {
  // This property is bound
  // using its original name.
  @Input() bankName: string;
  // this property value is bound to a different
  // property name
  // when this component is instantiated in a template.
  @Input('account-id') id: string;
}
// this property is not bound, and is not automatically updated
by Angular
normalizedBankName: string;
}
@Component({
  selector: 'app',
  template: `
    <bank-account bankName="RBC" account-id="4747"></bank-account>
  `
})
class App {}
`
`
@see [Input and Output properties](guide/inputs-outputs)

(bindingPropertyName?: string): any;
new(bindingPropertyName?: string): any;
}
Type of metadata
for an `Input` property.
@publicApi
export interface Input {
  /**
   * The name of the DOM
   * property to which the input property is bound.
   */
  bindingPropertyName?: string;
}
@Annotation
@publicApi
export const Input: InputDecorator =
  makePropDecorator('Input', (bindingPropertyName?:
  string) => ({bindingPropertyName}));
Type of the Output decorator / constructor function.
@publicApi
export interface OutputDecorator {
  /**
   * Decorator that marks a class field as an output
   * property
   * and supplies configuration metadata.
   * The DOM property bound to the output property is automatically updated
   * during change detection.
   */
  @usageNotes
  You can supply an optional name to use in templates
  when the component is instantiated, that maps to the name of the bound property.
  By default, the
  original name of the bound property is used for output binding.
  See `Input` decorator for an example
  of providing a binding name.
  @see [Input and Output properties](guide/inputs-outputs)
  (bindingPropertyName?: string): any;
  new(bindingPropertyName?: string): any;
}
Type of the Output
metadata.
@publicApi
export interface Output {
  /**
   * The name of the DOM property to which
   * the output property is bound.
   */
  bindingPropertyName?: string;
}
@Annotation
@publicApi
export const Output: OutputDecorator =
  makePropDecorator('Output', (bindingPropertyName?:
  string) => ({bindingPropertyName}));
Type of the HostBinding decorator / constructor function.
@publicApi
export interface HostBindingDecorator {
  /**
   * Decorator that marks a DOM property
   * as a host-binding property and supplies configuration
   * metadata.
   * Angular automatically checks host
   * property bindings during change detection, and
   * if a binding changes it updates the host element of the
   * directive.
   */
  @usageNotes
  The following example creates a directive that sets the `valid` and
  `invalid` properties on the DOM element that has an `ngModel` directive on it.
  `typescript
  @Directive({selector: '[ngModel]'})
  class NgModelStatus {
    constructor(public control: NgModel) {}
    @HostBinding('class.valid') get valid() { return this.control.valid; }
    @HostBinding('class.invalid') get
    invalid() { return this.control.invalid; }
  }
  @Component({
    selector: 'app',
    template: `<input [(ngModel)]="prop">`,
  })
  class App {
    prop;
  }
  `
  (hostPropertyName?: string): any;
  new(hostPropertyName?: string): any;
}
Type of
the HostBinding metadata.
@publicApi
export interface HostBinding {
  /**
   * The DOM property
   * that is bound to a data property.
   */
  hostPropertyName?: string;
}
@Annotation
@publicApi
export const HostBinding: HostBindingDecorator =
  makePropDecorator('HostBinding',
  (hostPropertyName?: string) => ({hostPropertyName}));
Type of the HostListener decorator /
constructor function.
@publicApi
export interface HostListenerDecorator {
  /**
   * Decorator that
   * declares a DOM event to listen for,
   * and provides a handler method to run when that event occurs.
   */
  (eventName: string, args?: string[]): any;
  new(eventName: string, args?: string[]): any;
}
Type of the HostListener metadata.
@publicApi
export interface HostListener {
  /**
   * The DOM
   * event to listen for.
   */
  eventName?: string;
  /**
   * A set of arguments to pass to the handler method when
   * the event occurs.
   */
  args?: string[];
}
Decorator that binds a DOM event to a host listener and
supplies configuration metadata.
Angular invokes the supplied handler method when the host element emits the

```

specified event, and updates the bound element with the result. If the handler method returns false, applies `preventDefault` on the bound element.

`@usageNotes`

The following example declares a directive that attaches a click listener to a button and counts clicks.

```

@Directive({ selector:
'button[counting]'})
class CountClicks {
  numberOfClicks = 0;
  @HostListener('click',
['$event.target'])
  onClick(btn) {
    console.log('button', btn, 'number of clicks:', this.numberOfClicks++);
  }
}
@Component({
  selector: 'app',
  template: '<button counting>Increment</button>',
})
class App {}

```

The following example registers another DOM event handler that listens for key-press events.

```

import { HostListener, Component } from '@angular/core';
@Component({
  selector: 'app',
  template: `<h1>Hello, you have pressed keys {{ counter }} number of
times!</h1> Press any key to
  increment the counter.
  <button (click)="resetCounter()">Reset
Counter</button>`
})
class AppComponent {
  counter = 0;
  @HostListener('window:keydown',
['$event'])
  handleKeyDown(event: KeyboardEvent) {
    this.counter++;
    resetCounter() {
      this.counter = 0;
    }
  }
}

```

`@Annotation`

`@publicApi`

`export const HostListener:`

`HostListenerDecorator =`

`makePropDecorator('HostListener', (eventName?: string, args?: string[]) =>`

`({ eventName, args }));`

`export const SWITCH_COMPILE_COMPONENT_POST_R3 =`

`render3CompileComponent;`

`export const SWITCH_COMPILE_DIRECTIVE_POST_R3 =`

`render3CompileDirective;`

`export const SWITCH_COMPILE_PIPE_POST_R3 =`

`render3CompilePipe;`

`const SWITCH_COMPILE_COMPONENT_PRE_R3 = noop;`

`const SWITCH_COMPILE_DIRECTIVE_PRE_R3 = noop;`

`const SWITCH_COMPILE_PIPE_PRE_R3 =`

`noop;`

`const SWITCH_COMPILE_COMPONENT: typeof render3CompileComponent =`

`SWITCH_COMPILE_COMPONENT_PRE_R3;`

`const SWITCH_COMPILE_DIRECTIVE: typeof`

`render3CompileDirective = SWITCH_COMPILE_DIRECTIVE_PRE_R3;`

`const SWITCH_COMPILE_PIPE:`

`typeof render3CompilePipe = SWITCH_COMPILE_PIPE_PRE_R3;`

`"/**`

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`* found in the LICENSE file at https://angular.io/license`

`import { InjectorType, defineInjector } from`

`'./di/interface/defs';`

`import { Provider } from './di/interface/provider';`

`import`

`{ convertInjectableProviderToFactory } from './di/util';`

`import { Type } from './interface/type';`

`import`

`{ SchemaMetadata } from './metadata/schema';`

`import { compileNgModule as render3CompileNgModule } from`

`'./render3/jit/module';`

`import { makeDecorator, TypeDecorator } from './util/decorators';`

`import { NgModuleDef`

`from './ng_module_def';`

`/**`

`@publicApi`

`export type NgModuleDefWithMeta<T, Declarations,`

`Imports, Exports> = NgModuleDef<T>;`

`/**`

`A wrapper around an NgModule that associates it with`

`[providers](guide/glossary#provider`

`"Definition"). Usage without a generic type is deprecated.`

`@see`

`[Deprecations](guide/deprecations#modulewithproviders-type-without-a-generic)`

`@publicApi`

`export`

`interface ModuleWithProviders<T> {`

`ngModule: Type<T>;`

`providers?: Provider[];`

`/**`

`Type of`

`the NgModule decorator / constructor function.`

`@publicApi`

`export interface NgModuleDecorator {`

`/**`

`Decorator that marks a class as an NgModule and supplies configuration metadata.`

`(obj?:`

`NgModule): TypeDecorator;`

`new(obj?: NgModule): NgModule;`

`/**`

`Type of the NgModule`

`metadata.`

`@publicApi`

`export interface NgModule {`

`/**`

`The set of injectable objects that are`

`available in the injector`

`of this module.`

`@see [Dependency Injection guide](guide/dependency-`

`injection)`

`@see [NgModule guide](guide/providers)`

`@usageNotes`

`Dependencies whose`

`providers are listed here become available for injection`

`into any component, directive, pipe or service that is a`

`child of this injector.`

`The NgModule used for bootstrapping uses the root injector, and can provide`

`dependencies`

`to any part of the app.`

`A lazy-loaded module has its own injector, typically a child of`

`the app root injector.`

`Lazy-loaded services are scoped to the lazy-loaded module's injector.`

`If a lazy-`

`loaded`

`module also provides the `UserService`, any component created`

`within that module's context (such as by`

`router navigation) gets the local instance`

`of the service, not the instance in the root injector.`

`Components`

`in external modules continue to receive the instance provided by their injectors.`

`### Example`

The following example defines a class that is injected in the HelloWorld NgModule:

```

class Greeter {
  greet(name:string) {
    return 'Hello ' + name + '!';
  }
}
@NgModule({
  providers: [Greeter]
})
class HelloWorld {
  greeter:Greeter;
  constructor(greeter:Greeter) {
    this.greeter = greeter;
  }
}
providers?: Provider[];
  
```

The set of components, directives, and pipes ([declarables](guide/glossary#declarable)) that belong to this module.

The set of selectors that are available to a template include those declared here, and those that are exported from imported NgModules. Declarables must belong to exactly one module. The compiler emits an error if you try to declare the same class in more than one module. Be careful not to declare a class that is imported from another module.

Example

The following example allows the CommonModule to use the `NgFor` directive.

```

@NgModule({
  declarations: [NgFor]
})
class CommonModule {
}
declarations?: Array<Type<any>|any[]>;
  
```

The set of NgModules whose exported [declarables](guide/glossary#declarable) are available to templates in this module.

@usageNotes

A template can use exported declarables from any imported module, including those from modules that are imported indirectly

and re-exported. For example, `ModuleA` imports `ModuleB`, and also exports it, which makes the declarables from `ModuleB` available wherever `ModuleA` is imported.

Example

The following example allows `MainModule` to use anything exported by `CommonModule`:

```

@NgModule({
  imports: [CommonModule]
})
class MainModule {
}
imports?: Array<Type<any>|ModuleWithProviders<{}>|any[]>;
  
```

The set of components, directives, and pipes declared in this NgModule that can be used in the template of any component that is part of an NgModule that imports this NgModule. Exported declarations are the module's public API.

A declarable belongs to one and only one NgModule. A module can list another module among its exports, in which case all of that module's public declaration are exported.

@usageNotes

Declarations are private by default. If this ModuleA does not export `UserComponent`, then only the components within this ModuleA can use `UserComponent`.

ModuleA can import `ModuleB` and also export it, making exports from `ModuleB` available to an NgModule that imports `ModuleA`.

Example

The following example exports the `NgFor` directive from `CommonModule`.

```

@NgModule({
  exports: [NgFor]
})
class CommonModule {
}
exports?: Array<Type<any>|any[]>;
  
```

The set of components to compile when this NgModule is defined, so that they can be dynamically loaded into the view.

For each component listed here, Angular creates a `ComponentFactory` and stores it in the `ComponentFactoryResolver`.

Angular automatically adds components in the module's bootstrap and route definitions into the `entryComponents` list.

Use this

option to add components that are bootstrapped using one of the imperative techniques, such as `ViewContainerRef.createComponent()`.

@see [Entry Components](guide/entry-components)

@deprecated Since 9.0.0. With Ivy, this property is no longer necessary.

entryComponents?: Array<Type<any>|any[]>;

The set of components that are bootstrapped when this module is bootstrapped. The components listed here are automatically added to `entryComponents`.

bootstrap?: Array<Type<any>|any[]>;

The set of schemas that declare elements to be allowed in the NgModule.

Elements and properties that are neither Angular components nor directives must be declared in a schema.

Allowed value are `NO_ERRORS_SCHEMA` and `CUSTOM_ELEMENTS_SCHEMA`.

@security When using one of `NO_ERRORS_SCHEMA` or `CUSTOM_ELEMENTS_SCHEMA` you must ensure that allowed elements and properties securely escape inputs.

schemas?: Array<SchemaMetadata|any[]>;

A name or path that uniquely identifies this NgModule in `getModuleFactory`. If left `undefined`, the NgModule is not registered with `getModuleFactory`.

id?: string;

When present, this module is ignored by the AOT compiler.

```
* It remains in distributed code, and the JIT compiler attempts to compile it\n *  
To ensure the correct behavior, the app must import `@angular/compiler`. \n * \n jit?: true; \n } \n \n /** \n *  
@Annotation \n * @publicApi \n */ \n export const NgModule: NgModuleDecorator = makeDecorator(\n  
'NgModule', (ngModule: NgModule) => ngModule, undefined, undefined, \n /* \n * Decorator that marks the  
following class as an NgModule, and supplies \n * configuration metadata for it. \n * \n * The `declarations`  
and `entryComponents` options configure the compiler \n * with information about what belongs to the  
NgModule. \n * \n * The `providers` option configures the NgModule's injector to provide \n * dependencies the  
NgModule members. \n * \n * The `imports` and `exports` options bring in members from other modules, and  
make \n * this module's members available to others. \n * \n (type: Type<any>, meta: NgModule) =>  
SWITCH_COMPILE_NGMODULE(type, meta)); \n \n function preR3NgModuleCompile(moduleType:  
Type<any>, metadata?: NgModule): void { \n let imports = (metadata && metadata.imports) || []; \n if (metadata  
&& metadata.exports) { \n imports = [...imports, metadata.exports]; \n } \n \n (moduleType as  
InjectorType<any>).inj = defineInjector({ \n factory: convertInjectableProviderToFactory(moduleType, {useClass:  
moduleType}), \n providers: metadata && metadata.providers, \n imports: imports, \n }); \n \n \n export const  
SWITCH_COMPILE_NGMODULE__POST_R3__ = render3CompileNgModule; \n const  
SWITCH_COMPILE_NGMODULE__PRE_R3__ = preR3NgModuleCompile; \n const  
SWITCH_COMPILE_NGMODULE:  
  
typeof render3CompileNgModule = SWITCH_COMPILE_NGMODULE__PRE_R3__; \n }, "/** \n * @license \n *  
Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an MIT-style license  
that can be \n * found in the LICENSE file at https://angular.io/license \n * \n \n /** \n * This indirection is needed to  
free up Component, etc symbols in the public API \n * to be used by the decorator versions of these annotations. \n * \n \n export { Attribute } from './di/metadata'; \n export { AfterContentChecked, AfterContentInit,  
AfterViewChecked, AfterViewInit, DoCheck, OnChanges, OnDestroy, OnInit } from  
 './interface/lifecycle_hooks'; \n export { ANALYZE_FOR_ENTRY_COMPONENTS, ContentChild,  
ContentChildDecorator, ContentChildren, ContentChildrenDecorator, Query, ViewChild, ViewChildDecorator,  
ViewChildren, ViewChildrenDecorator } from './metadata/di'; \n export { Component, ComponentDecorator,  
Directive, DirectiveDecorator, HostBinding, HostBindingDecorator, HostListener, HostListenerDecorator,  
Input, InputDecorator, Output, OutputDecorator, Pipe, PipeDecorator } from './metadata/directives'; \n export  
{ DoBootstrap } from './metadata/do_bootstrap'; \n export { ModuleWithProviders, NgModule, NgModuleDecorator }  
from './metadata/ng_module'; \n export { CUSTOM_ELEMENTS_SCHEMA, NO_ERRORS_SCHEMA,  
SchemaMetadata } from './metadata/schema'; \n export { ViewEncapsulation } from './metadata/view'; \n }, "/** \n *  
@license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an MIT-  
style license that can be \n * found in the LICENSE file at https://angular.io/license \n * \n \n declare global { \n const  
ngJitMode: boolean; \n } \n \n // Make this an ES module to be able to augment the global scope \n export { }; \n }, "/** \n *  
@license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an MIT-  
style license that can be \n * found in the LICENSE file at https://angular.io/license \n * \n \n import { Inject,  
Injectable, InjectionToken, Optional }  
  
from './di'; \n import { isPromise } from './util/lang'; \n import { noop } from './util/noop'; \n \n \n * A [DI  
token](guide/glossary#di-token "DI token definition") that you can use to provide \n * one or more initialization  
functions. \n * \n * The provided functions are injected at application startup and executed during \n * app  
initialization. If any of these functions returns a Promise, initialization \n * does not complete until the Promise is  
resolved. \n * \n * You can, for example, create a factory function that loads language data \n * or an external  
configuration, and provide that function to the `APP_INITIALIZER` token. \n * The function is executed during the  
application bootstrap process, \n * and the needed data is available on startup. \n * \n * @see `ApplicationInitStatus` \n * \n * @publicApi \n */ \n export const APP_INITIALIZER = new InjectionToken<Array<() => void>>('Application  
Initializer'); \n \n /** \n * A class that reflects the state of running { @link APP_INITIALIZER } functions. \n * \n * \n * @publicApi \n */ \n @Injectable() \n export class ApplicationInitStatus { \n private resolve = noop; \n private  
reject = noop; \n private initialized = false; \n public readonly donePromise: Promise<any>; \n public readonly done
```

```

= false;\n\n constructor(@Inject(APP_INITIALIZER) @Optional() private appInits: (() => any)[]) {\n
this.donePromise = new Promise((res, rej) => {\n  this.resolve = res;\n  this.reject = rej;\n  });\n }\n\n /**
@internal *\n runInitializers() {\n  if (this.initialized) {\n    return;\n  }\n\n  const asyncInitPromises:
Promise<any>[] = [];\n\n  const complete = () => {\n    (this as {done: boolean}).done = true;\n
this.resolve();\n  };\n\n  if (this.appInits) {\n    for (let i = 0; i < this.appInits.length; i++) {\n      const initResult
= this.appInits[i]();\n      if (isPromise(initResult)) {\n        asyncInitPromises.push(initResult);\n      }\n    }\n
}\n\n  Promise.all(asyncInitPromises)\n
.then(() => {\n    complete();\n  })\n  .catch(e => {\n    this.reject(e);\n  });\n\n  if
(asyncInitPromises.length === 0) {\n    complete();\n  }\n\n  this.initialized = true;\n }\n}\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { InjectionToken } from
'./di';\nimport { ComponentRef } from './linker/component_factory';\n\n\n/**\n * A [DI token](guide/glossary#di-
token \"DI token definition\") representing a unique string ID, used\n * primarily for prefixing application attributes
and CSS styles when\n * { @link ViewEncapsulation#Emulated ViewEncapsulation.Emulated } is being used.\n *\n
* BY default, the value is randomly generated and assigned to the application by Angular.\n * To provide a custom
ID value, use a DI provider <!-- TODO: provider --> to configure\n * the root { @link
Injector } that uses this token.\n *\n * @publicApi\n */\nexport const APP_ID = new
InjectionToken<string>('AppId');\n\nexport function _appIdRandomProviderFactory() {\n  return
`${_randomChar()}${_randomChar()}${_randomChar()}`;\n}\n\n\n/**\n * Providers that generate a random
`APP_ID_TOKEN`.\n *\n * @publicApi\n */\nexport const APP_ID_RANDOM_PROVIDER = {\n  provide:
APP_ID,\n  useFactory: _appIdRandomProviderFactory,\n  deps: <any[]>[],\n};\n\nfunction _randomChar(): string
{\n  return String.fromCharCode(97 + Math.floor(Math.random() * 25));\n}\n\n\n/**\n * A function that is executed
when a platform is initialized.\n *\n * @publicApi\n */\nexport const PLATFORM_INITIALIZER = new
InjectionToken<Array<() => void>>('Platform Initializer');\n\n\n/**\n * A token that indicates an opaque platform
ID.\n *\n * @publicApi\n */\nexport const PLATFORM_ID = new InjectionToken<Object>('Platform ID');\n\n\n/**\n *
A [DI token](guide/glossary#di-token \"DI token definition\") that provides a set of callbacks to\n *
be called for every component that is bootstrapped.\n *\n * Each callback must take a `ComponentRef` instance and
return nothing.\n *\n * `(componentRef: ComponentRef) => void`\n *\n * @publicApi\n */\nexport const
APP_BOOTSTRAP_LISTENER =\n  new InjectionToken<Array<(compRef: ComponentRef<any>) =>
void>>('appBootstrapListener');\n\n\n/**\n * A [DI token](guide/glossary#di-token \"DI token definition\") that
indicates the root directory of\n * the application\n *\n * @publicApi\n */\nexport const PACKAGE_ROOT_URL =
new InjectionToken<string>('Application Packages Root URL');\n\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n *\n\nimport { Injectable } from './di';\n\n@Injectable()\nexport class
Console {\n  log(message: string): void {\n    // tslint:disable-next-line:no-console\n    console.log(message);\n  }\n
}\n\n// Note: for reporting
errors use `DOM.logError()` as it is platform specific\n warn(message: string): void {\n  // tslint:disable-next-
line:no-console\n  console.warn(message);\n }\n}\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport { InjectionToken } from './di/injection_token';\n\n\n/**\n *
Provide this token to set the locale of your application.\n * It is used for i18n extraction, by i18n pipes (DatePipe,
I18nPluralPipe, CurrencyPipe,\n * DecimalPipe and PercentPipe) and by ICU expressions.\n *\n * See the [i18n
guide](guide/i18n#setting-up-locale) for more information.\n *\n * @usageNotes\n * ### Example\n *\n *
```\ntypescript\nimport { LOCALE_ID } from '@angular/core';\nimport { platformBrowserDynamic } from
'@angular/platform-browser-dynamic';\nimport { AppModule } from './app/app.module';\n\n*\n
platformBrowserDynamic().bootstrapModule(AppModule,\n
{\n * providers: [{provide: LOCALE_ID, useValue: 'en-US' }]\n * });\n\n*\n\n *\n * @publicApi\n */\nexport
const LOCALE_ID = new InjectionToken<string>('LocaleId');\n\n\n/**\n * Provide this token to set the default

```

currency code your application uses for\n \* CurrencyPipe when there is no currency code passed into it. This is only used by\n \* CurrencyPipe and has no relation to locale currency. Defaults to USD if not configured.\n \* See the [i18n guide](guide/i18n#setting-up-locale) for more information.\n \* <div class=\`alert is-helpful\`>\n \* \*\*Deprecation notice:\*\*\n \* The default currency code is currently always `USD` but this is deprecated from v9.\n \* In v10 the default currency code will be taken from the current locale.\n \* If you need the previous behavior then set it by creating a `DEFAULT\_CURRENCY\_CODE` provider in\n \* your application\n \* NgModule`:\n \* ```ts\n \* {provide: DEFAULT\_CURRENCY\_CODE, useValue: 'USD'}\n \* ```\n \* </div>\n \* @usageNotes\n \* ### Example\n \* ```typescript\n \* import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n \* import { AppModule } from './app/app.module';\n \* platformBrowserDynamic().bootstrapModule(AppModule, {\n \* providers: [{provide: DEFAULT\_CURRENCY\_CODE, useValue: 'EUR'}]\n \* });\n \* ```\n \* @publicApi\n \* \n \* export const DEFAULT\_CURRENCY\_CODE = new InjectionToken<string>('DefaultCurrencyCode');\n \* \n \* Use this token at bootstrap to provide the content of your translation file (`xtb`, `xlf` or `xlf2`) when you want to translate your application in another language.\n \* See the [i18n guide](guide/i18n#merge) for more information.\n \* @usageNotes\n \* ### Example\n \* ```typescript\n \* import { TRANSLATIONS } from '@angular/core';\n \* import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n \* import { AppModule } from './app/app.module';\n \* // content of your translation file\n \* const translations = '...';\n \* platformBrowserDynamic().bootstrapModule(AppModule, {\n \* providers: [{provide: TRANSLATIONS, useValue: translations}]\n \* });\n \* ```\n \* @publicApi\n \* \n \* export const TRANSLATIONS = new InjectionToken<string>('Translations');\n \* \n \* Provide this token at bootstrap to set the format of your { @link TRANSLATIONS }: `xtb`, `xlf` or `xlf2`.\n \* See the [i18n guide](guide/i18n#merge) for more information.\n \* @usageNotes\n \* ### Example\n \* ```typescript\n \* import { TRANSLATIONS\_FORMAT } from '@angular/core';\n \* import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n \* import { AppModule } from './app/app.module';\n \* platformBrowserDynamic().bootstrapModule(AppModule, {\n \* providers: [{provide: TRANSLATIONS\_FORMAT, useValue: 'xlf'}]\n \* });\n \* ```\n \* @publicApi\n \* \n \* export const TRANSLATIONS\_FORMAT = new InjectionToken<string>('TranslationsFormat');\n \* \n \* Use this enum at bootstrap as an option of `bootstrapModule` to define the strategy\n \* that the compiler should use in case of missing translations:\n \* - Error: throw if you have missing translations.\n \* - Warning (default): show a warning in the console and/or shell.\n \* - Ignore: do nothing.\n \* See the [i18n guide](guide/i18n#missing-translation) for more information.\n \* @usageNotes\n \* ### Example\n \* ```typescript\n \* import { MissingTranslationStrategy } from '@angular/core';\n \* import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n \* import { AppModule } from './app/app.module';\n \* platformBrowserDynamic().bootstrapModule(AppModule, {\n \* missingTranslation: MissingTranslationStrategy.Error\n \* });\n \* ```\n \* @publicApi\n \* \n \* export enum MissingTranslationStrategy {\n \* Error = 0,\n \* Warning = 1,\n \* Ignore = 2,\n \* }\n \* \n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n \* \n \* export const SWITCH\_IVY\_ENABLED\_\_POST\_R3\_\_ = true;\n \* const SWITCH\_IVY\_ENABLED\_\_PRE\_R3\_\_ = false;\n \* \n \* export const ivyEnabled = SWITCH\_IVY\_ENABLED\_\_PRE\_R3\_\_;\n \* \n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n \* \n \* import { Injectable } from './di/injectable';\n \* import { InjectionToken } from './di/injection\_token';\n \* import { StaticProvider } from './di/interface/provider';\n \* import { MissingTranslationStrategy } from './i18n/tokens';\n \* import { Type } from './interface/type';\n \* import { ViewEncapsulation } from './metadata/view';\n \* import { ComponentFactory as ComponentFactoryR3 } from './render3/component\_ref';\n \* import { getComponentDef, getNgModuleDef } from './render3/definition';\n \* import { NgModuleFactory as NgModuleFactoryR3 } from './render3/ng\_module\_ref';\n \* import { maybeUnwrapFn }



```

from './render3/util/misc_utils';\n\nimport { ComponentFactory } from './component_factory';\nimport
{ NgModuleFactory } from './ng_module_factory';\n\n\n/**\n * Combination of NgModuleFactory and
ComponentFactories.\n *\n * @publicApi\n */\nexport class ModuleWithComponentFactories<T> {\n
 constructor(\n public ngModuleFactory: NgModuleFactory<T>,\n public componentFactories:
ComponentFactory<any>[]\n) {\n\n\n\nfunction _throwError() {\n throw new Error(`Runtime compiler is not
loaded`);\n}\n\nconst Compiler_compileModuleSync__PRE_R3__: <T>(moduleType: Type<T>) =>
NgModuleFactory<T> =\n _throwError as any;\n\nexport const Compiler_compileModuleSync__POST_R3__:
<T>(moduleType: Type<T>) =>\n NgModuleFactory<T> = function<T>(moduleType: Type<T>):
NgModuleFactory<T> {\n return new NgModuleFactoryR3(moduleType);\n };\n\nconst
Compiler_compileModuleSync = Compiler_compileModuleSync__PRE_R3__;\n\nconst
Compiler_compileModuleAsync__PRE_R3__: <T>(moduleType: Type<T>) =>\n
 Promise<NgModuleFactory<T>> = _throwError as any;\n\nexport const
Compiler_compileModuleAsync__POST_R3__: <T>(moduleType: Type<T>) =>\n
 Promise<NgModuleFactory<T>> = function<T>(moduleType: Type<T>): Promise<NgModuleFactory<T>> {\n
 return Promise.resolve(Compiler_compileModuleSync__POST_R3__(moduleType));\n };\n\nconst
Compiler_compileModuleAsync = Compiler_compileModuleAsync__PRE_R3__;\n\nconst
Compiler_compileModuleAndAllComponentsSync__PRE_R3__: <T>(moduleType: Type<T>) =>\n
 ModuleWithComponentFactories<T> = _throwError as any;\n\nexport const
Compiler_compileModuleAndAllComponentsSync__POST_R3__: <T>(moduleType: Type<T>) =>\n
 ModuleWithComponentFactories<T> = function<T>(moduleType: Type<T>):\n
 ModuleWithComponentFactories<T> {\n const ngModuleFactory =
Compiler_compileModuleSync__POST_R3__(moduleType);\n const moduleDef =
getNgModuleDef(moduleType);\n const componentFactories =\n maybeUnwrapFn(moduleDef.declarations)\n .reduce((factories: ComponentFactory<any>[],
declaration: Type<any>) => {\n const componentDef = getComponentDef(declaration);\n
 componentDef && factories.push(new ComponentFactoryR3(componentDef));\n return factories;\n },
[] as ComponentFactory<any>[]);\n return new ModuleWithComponentFactories(ngModuleFactory,
componentFactories);\n };\n\nconst Compiler_compileModuleAndAllComponentsSync =\n
Compiler_compileModuleAndAllComponentsSync__PRE_R3__;\n\nconst
Compiler_compileModuleAndAllComponentsAsync__PRE_R3__: <T>(moduleType: Type<T>) =>\n
 Promise<ModuleWithComponentFactories<T>> = _throwError as any;\n\nexport const
Compiler_compileModuleAndAllComponentsAsync__POST_R3__: <T>(moduleType: Type<T>) =>\n
 Promise<ModuleWithComponentFactories<T>> = function<T>(moduleType: Type<T>):\n
 Promise<ModuleWithComponentFactories<T>> {\n return
Promise.resolve(Compiler_compileModuleAndAllComponentsSync__POST_R3__(moduleType));\n };\n\nconst
Compiler_compileModuleAndAllComponentsAsync =\n
 =\n Compiler_compileModuleAndAllComponentsAsync__PRE_R3__;\n\n\n/**\n * Low-level service for running
the angular compiler during runtime\n * to create { @link ComponentFactory }s, which\n * can later be used to
create and render a Component instance.\n *\n * Each `@NgModule` provides an own `Compiler` to its injector,\n *
that will use the directives/pipes of the ng module for compilation\n * of components.\n *\n * @publicApi\n
*/\n\n@Injectable()\nexport class Compiler {\n /**\n * Compiles the given NgModule and all of its components. All
templates of the components listed\n * in `entryComponents` have to be inlined.\n */\n compileModuleSync:
<T>(moduleType: Type<T>) => NgModuleFactory<T> = Compiler_compileModuleSync;\n\n /**\n * Compiles
the given NgModule and all of its components\n */\n compileModuleAsync:\n <T>(moduleType: Type<T>) =>
Promise<NgModuleFactory<T>> = Compiler_compileModuleAsync;\n\n /**\n * Same as { @link
#compileModuleSync } but also creates
ComponentFactories for all components.\n */\n compileModuleAndAllComponentsSync: <T>(moduleType:
Type<T>) => ModuleWithComponentFactories<T> =\n Compiler_compileModuleAndAllComponentsSync;\n\n

```

```

/**\n * Same as { @link #compileModuleAsync} but also creates ComponentFactories for all components.\n */\n
compileModuleAndAllComponentsAsync: <T>(moduleType: Type<T>) =>\n
Promise<ModuleWithComponentFactories<T>> = Compiler.compileModuleAndAllComponentsAsync;\n\n /**\n
* Clears all caches.\n */\n clearCache(): void {\n\n /**\n * Clears the cache for the given
component/ngModule.\n */\n clearCacheFor(type: Type<any>) {\n\n /**\n * Returns the id for a given
NgModule, if one is defined and known to the compiler.\n */\n getModuleId(moduleType: Type<any>):
string|undefined {\n return undefined;\n }\n}\n\n /**\n * Options for creating a compiler\n */\n * @publicApi\n
*/\nexport type CompilerOptions = {\n useJit?: boolean,\n defaultEncapsulation?: ViewEncapsulation,\n
providers?: StaticProvider[],\n missingTranslation?: MissingTranslationStrategy,\n preserveWhitespaces?:
boolean,\n};\n\n /**\n * Token to provide CompilerOptions in the platform injector.\n */\n * @publicApi\n
*/\nexport const COMPILER_OPTIONS = new InjectionToken<CompilerOptions[]>('compilerOptions');\n\n /**\n * A factory
for creating a Compiler\n */\n * @publicApi\n */\nexport abstract class CompilerFactory {\n abstract
createCompiler(options?: CompilerOptions[]): Compiler;\n}\n\n /**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nconst promise: Promise<any> = (() =>
Promise.resolve(0))();\n\ndeclare const Zone: any;\n\nexport function scheduleMicroTask(fn: Function) {\n if
(typeof Zone === 'undefined') {\n // use promise to schedule microTask instead of use Zone\n promise.then(()
=> {\n fn && fn.apply(null,
null);\n });\n } else {\n Zone.current.scheduleMicroTask('scheduleMicroTask', fn);\n }\n}\n\n /**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {global} from
'./global';\n\nexport function getNativeRequestAnimationFrame() {\n let nativeRequestAnimationFrame: (callback:
FrameRequestCallback) => number =\n global['requestAnimationFrame'];\n let nativeCancelAnimationFrame:
(handle: number) => void = global['cancelAnimationFrame'];\n if (typeof Zone !== 'undefined' &&
nativeRequestAnimationFrame && nativeCancelAnimationFrame) {\n // use unpatched version of
requestAnimationFrame(native delegate) if possible\n // to avoid another Change detection\n const
unpatchedRequestAnimationFrame =\n (nativeRequestAnimationFrame as any)[(Zone as
any).__symbol__('OriginalDelegate')];\n if (unpatchedRequestAnimationFrame) {\n
nativeRequestAnimationFrame = unpatchedRequestAnimationFrame;\n }\n const
unpatchedCancelAnimationFrame =\n (nativeCancelAnimationFrame as any)[(Zone as
any).__symbol__('OriginalDelegate')];\n if (unpatchedCancelAnimationFrame) {\n
nativeCancelAnimationFrame = unpatchedCancelAnimationFrame;\n }\n }\n return
{nativeRequestAnimationFrame, nativeCancelAnimationFrame};\n}\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {EventEmitter} from './event_emitter';\nimport
{global} from './util/global';\nimport {getNativeRequestAnimationFrame} from './util/raf';\n\n /**\n * An
injectable service for executing work inside or outside of the Angular zone.\n */\n * The most common use of this
service is to optimize performance when starting a work consisting of\n * one
or more asynchronous tasks that don't require UI updates or error handling to be handled by\n * Angular. Such tasks
can be kicked off via { @link #runOutsideAngular} and if needed, these tasks\n * can reenter the Angular zone via
{ @link #run}.\n */\n * <!-- TODO: add/fix links to:\n * - docs explaining zones and the use of zones in Angular
and change-detection\n * - link to runOutsideAngular/run (throughout this file!)\n */\n * -->\n */\n * @usageNotes\n
* ### Example\n */\n * ```\n */\n * import {Component, NgZone} from '@angular/core';\n */\n * import {NgIf} from
'@angular/common';\n */\n * @Component({\n */\n * selector: 'ng-zone-demo',\n */\n * template: `\n */\n * <h2>Demo:\n
NgZone</h2>\n */\n * <p>Progress: {{progress}}%</p>\n */\n * <p *ngIf="progress >= 100">Done processing
{{label}} of Angular zone!</p>\n */\n * <button (click)="processWithinAngularZone()">Process within Angular
zone</button>\n */\n * <button (click)="processOutsideOfAngularZone()">Process outside of Angular
zone</button>\n

```

```
`\n * })\n * export class NgZoneDemo {\n * progress: number = 0;\n * label: string;\n * constructor(private _ngZone: NgZone) {\n * // Loop inside the Angular zone\n * // so the UI DOES refresh after each setTimeout cycle\n * processWithinAngularZone() {\n * this.label = 'inside';\n * this.progress = 0;\n * this._increaseProgress(() => console.log('Inside Done!'));\n * }\n * // Loop outside of the Angular zone\n * // so the UI DOES NOT refresh after each setTimeout cycle\n * processOutsideOfAngularZone() {\n * this.label = 'outside';\n * this.progress = 0;\n * this._ngZone.runOutsideAngular(() => {\n * // reenter the Angular zone and display done\n * this._ngZone.run(() => {\n * console.log('Outside Done!');\n * });\n * _increaseProgress(doneCallback: () => void);\n * this.progress += 1;\n * console.log(`Current progress: ${this.progress}%`);\n * if (this.progress < 100) {\n * window.setTimeout(() => this._increaseProgress(doneCallback), 10);\n * } else {\n * doneCallback();\n * }\n * })\n * }\n * }\n * }\n * @publicApi\n * export class NgZone {\n * readonly hasPendingMacrotasks: boolean = false;\n * readonly hasPendingMicrotasks: boolean = false;\n * /**\n * Whether there are no outstanding microtasks or macrotasks.\n * /\n * readonly isStable: boolean = true;\n * /\n * Notifies when code enters Angular Zone. This gets fired first on VM Turn.\n * /\n * readonly onUnstable: EventEmitter<any> = new EventEmitter(false);\n * /\n * Notifies when there is no more microtasks enqueued in the current VM Turn.\n * * This is a hint for Angular to do change detection, which may enqueue more microtasks.\n * * For this reason this event can fire multiple times per VM Turn.\n * /\n * readonly onMicrotaskEmpty: EventEmitter<any> = new EventEmitter(false);\n * /\n * Notifies when the last `onMicrotaskEmpty` has run and there are no more microtasks, which\n * * implies we are about to relinquish VM turn.\n * * This event gets called just once.\n * /\n * readonly onStable: EventEmitter<any> = new EventEmitter(false);\n * /\n * Notifies that an error has been delivered.\n * /\n * readonly onError: EventEmitter<any> = new EventEmitter(false);\n * /\n * constructor({enableLongStackTrace = false, shouldCoalesceEventChangeDetection = false}) {\n * if (typeof Zone === 'undefined') {\n * throw new Error('In this configuration Angular requires Zone.js');\n * }\n * Zone.assertZonePatched();\n * const self = this as any as NgZonePrivate;\n * self._nesting = 0;\n * self._outer = self._inner = Zone.current;\n * if ((Zone as any)['TaskTrackingZoneSpec']) {\n * self._inner = self._inner.fork(new ((Zone as any)['TaskTrackingZoneSpec'] as any));\n * }\n * if (enableLongStackTrace && (Zone as any)['longStackTraceZoneSpec']) {\n * self._inner = self._inner.fork((Zone as any)['longStackTraceZoneSpec']);\n * }\n * self.shouldCoalesceEventChangeDetection = shouldCoalesceEventChangeDetection;\n * self.lastRequestAnimationFrameId = -1;\n * self.nativeRequestAnimationFrame = getNativeRequestAnimationFrame().nativeRequestAnimationFrame;\n * forkInnerZoneWithAngularBehavior(self);\n * static isInAngularZone(): boolean {\n * return Zone.current.get('isAngularZone') === true;\n * }\n * static assertInAngularZone(): void {\n * if (!NgZone.isInAngularZone()) {\n * throw new Error('Expected to be in Angular Zone, but it is not!');\n * }\n * }\n * static assertNotInAngularZone(): void {\n * if (NgZone.isInAngularZone()) {\n * throw new Error('Expected to not be in Angular Zone, but it is!');\n * }\n * }\n * /**\n * Executes the `fn` function synchronously within the Angular zone and returns value returned by\n * * the function.\n * *\n * Running functions via `run` allows you to reenter Angular zone from a task that was executed\n * * outside of the Angular zone (typically started via { @link #runOutsideAngular}).\n * *\n * Any future tasks or microtasks scheduled from within this function will continue executing from\n * * within the Angular zone.\n * *\n * If a synchronous error happens it will be rethrown and not reported via `onError`.\n * /\n * run<T>(fn: (...args: any[]) => T, applyThis?: any, applyArgs?: any[]): T {\n * return (this as any as NgZonePrivate)._inner.run(fn, applyThis, applyArgs);\n * }\n * /\n * Executes the `fn` function synchronously within the Angular zone as a task and returns value\n * * returned by the function.\n * *\n * Running functions via `run` allows you to reenter Angular zone from a task that was executed\n * * outside of the Angular zone (typically started via { @link #runOutsideAngular}).\n * *\n * Any future tasks or microtasks scheduled from within this function will continue executing from\n * * within the Angular zone.\n * *\n * If a synchronous
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error happens it will be rethrown and not reported via `onError`.
 */
runTask<T>(fn: (...args: any[]) => T,
applyThis?: any, applyArgs?: any[], name?: string): T {
 const zone = (this as any as NgZonePrivate)._inner;
 const task = zone.scheduleEventTask('NgZoneEvent: ' + name, fn, EMPTY_PAYLOAD, noop, noop);
 try {
 return zone.runTask(task, applyThis, applyArgs);
 } finally {
 zone.cancelTask(task);
 }
}

/**
 * Same as `run`, except that synchronous errors are caught and forwarded via `onError` and not
 * rethrown.
 */
runGuarded<T>(fn: (...args: any[]) => T, applyThis?: any, applyArgs?: any[]): T {
 return (this as any as NgZonePrivate)._inner.runGuarded(fn, applyThis, applyArgs);
}

/**
 * Executes the `fn` function synchronously in Angular's parent zone and returns value returned by
 * the function.
 */
Running functions via { @link #runOutsideAngular} allows you to escape Angular's zone and do
 * work that
 * doesn't trigger Angular change-detection or is subject to Angular's error handling.
 * Any future tasks or microtasks scheduled from within this function will continue executing from
 * outside of the Angular zone.
 * Use { @link #run} to reenter the Angular zone and do work that updates the application
model.
 */
runOutsideAngular<T>(fn: (...args: any[]) => T): T {
 return (this as any as NgZonePrivate)._outer.run(fn);
}

function noop() {}
const EMPTY_PAYLOAD = {};

interface NgZonePrivate extends NgZone {
 _outer: Zone;
 _inner: Zone;
 _nesting: number;
 _hasPendingMicrotasks: boolean;
 _hasPendingMacrotasks: boolean;
 _hasPendingMicrotasks: boolean;
 lastRequestAnimationFrameId: number;
 isStable: boolean;
 shouldCoalesceEventChangeDetection: boolean;
 nativeRequestAnimationFrame: (callback: FrameRequestCallback) => number;
 // Cache of "fake" top eventTask. This is done so that we don't need to
 schedule a new task every
 // time we want to run a `checkStable`.
 fakeTopEventTask: Task;
}

function checkStable(zone: NgZonePrivate) {
 if (zone._nesting === 0 && !zone._hasPendingMicrotasks && !zone.isStable) {
 try {
 zone._nesting++;
 zone.onMicrotaskEmpty.emit(null);
 } finally {
 zone._nesting--;
 if (!zone._hasPendingMicrotasks) {
 try {
 zone.runOutsideAngular(() => zone.onStable.emit(null));
 } finally {
 zone.isStable = true;
 }
 }
 }
 }
}

function delayChangeDetectionForEvents(zone: NgZonePrivate) {
 if (zone.lastRequestAnimationFrameId !== -1) {
 return;
 }
 zone.lastRequestAnimationFrameId = zone.nativeRequestAnimationFrame.call(global, () => {
 // This is a work around for https://github.com/angular/angular/issues/36839.
 // The core issue is that when event coalescing is enabled it is possible for microtasks
 // to get flushed too early (As is the case with `Promise.then`) between the
 // coalescing eventTasks.
 // To workaround this we schedule a "fake" eventTask before we process the
 // coalescing eventTasks. The benefit of this is that the "fake" container eventTask
 // will prevent the microtasks queue from getting drained in between the coalescing
 // eventTask execution.
 if (!zone.fakeTopEventTask) {
 zone.fakeTopEventTask = Zone.root.scheduleEventTask('fakeTopEventTask', () => {
 zone.lastRequestAnimationFrameId = -1;
 updateMicroTaskStatus(zone);
 checkStable(zone);
 }, undefined, () => {}, () => {});
 zone.fakeTopEventTask.invoke();
 }
 updateMicroTaskStatus(zone);
 });
}

function forkInnerZoneWithAngularBehavior(zone: NgZonePrivate) {
 const delayChangeDetectionForEventsDelegate = () => {
 delayChangeDetectionForEvents(zone);
 };
 const maybeDelayChangeDetection = !!zone.shouldCoalesceEventChangeDetection &&
 zone.nativeRequestAnimationFrame && delayChangeDetectionForEventsDelegate;
 zone._inner = zone._inner.fork({
 name: 'angular',
 properties: {
 <any>{ 'isAngularZone': true, 'maybeDelayChangeDetection': maybeDelayChangeDetection },
 },
 onInvokeTask: (
 delegate: ZoneDelegate, current: Zone, target: Zone, task: Task, applyThis: any,
 applyArgs: any): any => {
 try {
 onEnter(zone);
 return delegate.invokeTask(target, task, applyThis, applyArgs);
 } finally {
 if (maybeDelayChangeDetection && task.type === 'eventTask') {
 maybeDelayChangeDetection();
 }
 onLeave(zone);
 }
 },
 },
 onInvoke: (
 delegate: ZoneDelegate, current: Zone, target: Zone, callback: Function, applyThis: any,
 applyArgs?: any[], source?: string): any => {
 try {
 onEnter(zone);
 return delegate.invoke(target, callback, applyThis,

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 applyArgs, source);\n } finally {\n onLeave(zone);\n }\n },\n\n onHasTask:\n (delegate: ZoneDelegate, current: Zone, target: Zone, hasTaskState: HasTaskState) => {\n delegate.hasTask(target, hasTaskState);\n if (current === target) {\n // We are only interested in\n hasTask events which originate from our zone\n // (A child hasTask event is not interesting to us)\n if\n (hasTaskState.change == 'microTask') {\n zone._hasPendingMicrotasks = hasTaskState.microTask;\n updateMicroTaskStatus(zone);\n checkStable(zone);\n } else if (hasTaskState.change ==\n 'macroTask') {\n zone.hasPendingMacrotasks = hasTaskState.macroTask;\n }\n }\n },\n\n onHandleError: (delegate: ZoneDelegate, current: Zone, target: Zone, error: any): boolean => {\n delegate.handleError(target, error);\n zone.runOutsideAngular()\n => zone.onError.emit(error);\n return false;\n }\n });\n\nfunction updateMicroTaskStatus(zone: NgZonePrivate) {\n if (zone._hasPendingMicrotasks ||\n (zone.shouldCoalesceEventChangeDetection &&\n zone.lastRequestAnimationFrameId !== -1)) {\n zone.hasPendingMicrotasks = true;\n } else {\n zone.hasPendingMicrotasks = false;\n }\n}\n\nfunction onEnter(zone: NgZonePrivate) {\n zone._nesting++;\n if\n (zone.isStable) {\n zone.isStable = false;\n zone.onUnstable.emit(null);\n }\n}\n\nfunction onLeave(zone: NgZonePrivate) {\n zone._nesting--;\n checkStable(zone);\n}\n\n/**\n * Provides a noop implementation of\n * `NgZone` which does nothing. This zone requires explicit calls\n * to framework to perform rendering.\n */\nexport\n class NoopNgZone implements NgZone {\n readonly hasPendingMicrotasks: boolean = false;\n readonly\n hasPendingMacrotasks: boolean = false;\n readonly\n isStable: boolean = true;\n readonly\n onUnstable: Event\n EventEmitter<any> = new Event\n EventEmitter();\n\n readonly\n onMicrotaskEmpty: Event\n EventEmitter<any> = new Event\n EventEmitter();\n readonly\n onStable: Event\n EventEmitter<any> = new Event\n EventEmitter();\n readonly\n onError: Event\n EventEmitter<any> = new Event\n EventEmitter();\n\n run<T>(fn: (...args: any[]) => T, applyThis?: any, applyArgs?: any): T {\n return fn.apply(applyThis, applyArgs);\n }\n\n runGuarded<T>(fn: (...args: any[]) => any, applyThis?: any, applyArgs?: any): T {\n return fn.apply(applyThis, applyArgs);\n }\n\n runOutsideAngular<T>(fn: (...args: any[]) => T): T {\n return fn();\n }\n\n runTask<T>(fn: (...args: any[]) => T, applyThis?: any, applyArgs?: any, name?: string): T {\n return fn.apply(applyThis, applyArgs);\n }\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source\n * code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Injectable} from './di';\nimport {scheduleMicroTask} from './util/microtask';\nimport {NgZone}\n from './zone/ng_zone';\n\n/**\n * Testability API.\n * `declare` keyword causes tsickle to generate externs, so these\n * methods are\n * not renamed by Closure Compiler.\n * @publicApi\n */\nexport declare interface PublicTestability {\n isStable(): boolean;\n whenStable(callback: Function, timeout?: number, updateCallback?: Function): void;\n findProviders(using: any, provider: string, exactMatch: boolean): any[];\n}\n\n// Angular internal, not intended for\n public API.\nexport interface PendingMacroTask {\n source: string;\n creationLocation: Error;\n runCount?:\n number;\n data?: TaskData;\n}\n\nexport interface TaskData {\n target?: XMLHttpRequest;\n delay?: number;\n isPeriodic?: boolean;\n}\n\n// Angular internal, not intended for public API.\nexport type DoneCallback =\n (didWork: boolean, tasks?: PendingMacroTask[]) => void;\nexport type UpdateCallback = (tasks:\n PendingMacroTask[]) => boolean;\n\ninterface WaitCallback {\n // Needs to be 'any' - setTimeout returns a\n number according to ES6, but\n // on NodeJS it returns a Timer.\n timeoutId: any;\n doneCb: DoneCallback;\n updateCb?: UpdateCallback;\n}\n\n/**\n * The Testability service provides testing hooks that can be accessed\n * from\n * the browser and by services such as Protractor. Each bootstrapped Angular\n * application on the page will\n * have an instance of Testability.\n * @publicApi\n */\n@Injectable()\nexport class Testability implements\n PublicTestability {\n private _pendingCount: number = 0;\n private _isZoneStable: boolean = true;\n\n /**\n * Whether any work was done since the last 'whenStable' callback. This is\n * useful to detect if this could have\n * potentially destabilized another\n * component while it is stabilizing.\n */\n @internal\n private _didWork:\n boolean = false;\n private _callbacks: WaitCallback[] = [];\n\n private taskTrackingZone: {macroTasks:\n Task[] | null = null;\n\n constructor(private _ngZone: NgZone) {\n this._watchAngularEvents();\n _ngZone.run()\n
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=> {\n this.taskTrackingZone =\n typeof Zone == 'undefined' ? null :
Zone.current.get('TaskTrackingZone');\n });\n }\n\n private _watchAngularEvents(): void {\n
this._ngZone.onUnstable.subscribe({\n next: () => {\n this._didWork = true;\n this._isZoneStable =
false;\n }\n });\n\n this._ngZone.runOutsideAngular(() => {\n this._ngZone.onStable.subscribe({\n
next: () => {\n NgZone.assertNotInAngularZone();\n scheduleMicroTask(() => {\n
this._isZoneStable = true;\n this._runCallbacksIfReady();\n });\n }\n });\n });\n });\n\n /**\n *
Increases the number of pending request\n * @deprecated pending requests are now tracked with zones.\n */\n
increasePendingRequestCount(): number {\n this._pendingCount += 1;\n this._didWork = true;\n return
this._pendingCount;\n }\n\n /**\n * Decreases the number of pending request\n * @deprecated pending
requests are now tracked with zones\n */\n
decreasePendingRequestCount(): number {\n this._pendingCount -=
1;\n if (this._pendingCount < 0) {\n throw new Error('pending async requests below zero');\n }\n
this._runCallbacksIfReady();\n return this._pendingCount;\n }\n\n /**\n * Whether an associated application is
stable\n */\n
isStable(): boolean {\n return this._isZoneStable && this._pendingCount === 0 &&
!this._ngZone.hasPendingMacrotasks;\n }\n\n private _runCallbacksIfReady(): void {\n if (this.isStable()) {\n
// Schedules the call backs in a new frame so that it is always async.\n scheduleMicroTask(() => {\n while
(this._callbacks.length !== 0) {\n let cb = this._callbacks.pop()!;\n clearTimeout(cb.timeoutId);\n
cb.doneCb(this._didWork);\n }\n this._didWork = false;\n });\n } else {\n // Still not stable, send
updates.\n let pending = this.getPendingTasks();\n this._callbacks = this._callbacks.filter((cb) => {\n if (cb.updateCb && cb.updateCb(pending)) {\n
clearTimeout(cb.timeoutId);\n return false;\n }\n return true;\n });\n this._didWork = true;\n }\n }\n\n private getPendingTasks(): PendingMacrotask[] {\n if (!this.taskTrackingZone) {\n return [];\n }\n // Copy the tasks data so that we don't leak tasks.\n return this.taskTrackingZone.macrotasks.map((t: Task)
=> {\n return {\n source: t.source,\n // From TaskTrackingZone:\n //
https://github.com/angular/zone.js/blob/master/lib/zone-spec/task-tracking.ts#L40\n creationLocation: (t as
any).creationLocation as Error,\n data: t.data,\n }; \n });\n }\n\n private addCallback(cb: DoneCallback,
timeout?: number, updateCb?: UpdateCallback) {\n let timeoutId: any = -1;\n if (timeout && timeout > 0) {\n timeoutId = setTimeout(() => {\n this._callbacks = this._callbacks.filter((cb)
=> cb.timeoutId !== timeoutId);\n cb(this._didWork, this.getPendingTasks());\n }, timeout);\n }\n this._callbacks.push(<WaitCallback>{\n doneCb: cb,\n timeoutId: timeoutId,\n updateCb: updateCb\n });\n }\n\n /**\n *
Wait for the application to be stable with a timeout. If the timeout is reached before that\n * happens, the callback
receives a list of the macro tasks that were pending, otherwise null.\n */\n * @param doneCb The callback to
invoke when Angular is stable or the timeout expires\n * whichever comes first.\n * @param timeout Optional.
The maximum time to wait for Angular to become stable. If not\n * specified, whenStable() will wait forever.\n *
@param updateCb Optional. If specified, this callback will be invoked whenever the set of\n * pending
macrotasks changes. If this callback returns true doneCb will not be invoked\n * and no further updates will be
issued.\n */\n
whenStable(doneCb: Function, timeout?:
number, updateCb?: Function): void {\n if (updateCb && !this.taskTrackingZone) {\n throw new Error(\n
'Task tracking zone is required when passing an update callback to ' +\n 'whenStable(). Is \''zone.js/dist/task-tracking.js\' loaded?');\n }\n // These arguments are 'Function' above to keep the public API simple.\n this.addCallback(doneCb as DoneCallback, timeout, updateCb as UpdateCallback);\n this._runCallbacksIfReady();\n }\n\n /**\n * Get the number of pending requests\n * @deprecated pending
requests are now tracked with zones\n */\n
getPendingRequestCount(): number {\n return this._pendingCount;\n }\n\n /**\n * Find providers by name\n * @param using The root element to search from\n * @param provider
The name of binding variable\n * @param exactMatch Whether using exactMatch\n */\n
findProviders(using:
any, provider: string, exactMatch: boolean): any[] {\n // TODO(juliemr): implement.\n return [];\n }\n\n /**\n * A global registry of { @link Testability } instances for specific elements.\n */\n * @publicApi\n
\n /**\n * @Injectable()\n */\n
export class TestabilityRegistry {\n /**\n * @internal\n */\n _applications = new Map<any,
Testability>();\n\n constructor() {\n _testabilityGetter.addToWindow(this);\n }\n\n /**\n * Registers an

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application with a testability hook so that it can be tracked\n * @param token token of application, root element\n
* @param testability Testability hook\n */\n registerApplication(token: any, testability: Testability) {\n
this._applications.set(token, testability);\n }\n\n /**\n * Unregisters an application.\n * @param token token of
application, root element\n */\n unregisterApplication(token: any) {\n this._applications.delete(token);\n }\n\n
/**\n * Unregisters all applications\n */\n unregisterAllApplications() {\n this._applications.clear();\n }\n\n
/**\n * Get a testability hook associated with the application\n * @param elem root
element\n */\n getTestability(elem: any): Testability|null {\n return this._applications.get(elem) || null;\n }\n\n
/**\n * Get all registered testabilities\n */\n getAllTestabilities(): Testability[] {\n return
Array.from(this._applications.values());\n }\n\n /**\n * Get all registered applications(root elements)\n */\n
getAllRootElement(): any[] {\n return Array.from(this._applications.keys());\n }\n\n /**\n * Find testability of
a node in the Tree\n * @param elem node\n * @param findInAncestors whether finding testability in ancestors if
testability was not found in\n * current node\n */\n findTestabilityInTree(elem: Node, findInAncestors: boolean =
true): Testability|null {\n return _testabilityGetter.findTestabilityInTree(this, elem, findInAncestors);\n
}\n}\n\n/**\n * Adapter interface for retrieving the `Testability` service associated for a\n * particular context.\n */\n
* @publicApi\n */\nexport interface GetTestability {\n addToWindow(registry:
TestabilityRegistry): void;\n findTestabilityInTree(registry: TestabilityRegistry, elem: any, findInAncestors:
boolean):\n Testability|null;\n}\n\n\nclass _NoopGetTestability implements GetTestability {\n
addToWindow(registry: TestabilityRegistry): void {\n }\n findTestabilityInTree(registry: TestabilityRegistry, elem:
any, findInAncestors: boolean):\n Testability|null {\n return null;\n }\n}\n\n/**\n * Set the {@link
GetTestability} implementation used by the Angular testing framework.\n * @publicApi\n */\nexport function
setTestabilityGetter(getter: GetTestability): void {\n _testabilityGetter = getter;\n}\n\n\klet _testabilityGetter:
GetTestability = new _NoopGetTestability();\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport './util/ng_jit_mode';\n\nimport {merge, Observable,
Observer, Subscription}
from 'rxjs';\nimport {share} from 'rxjs/operators';\n\nimport {ApplicationInitStatus} from
'./application_init';\nimport {APP_BOOTSTRAP_LISTENER, PLATFORM_INITIALIZER} from
'./application_tokens';\nimport {getCompilerFacade} from './compiler/compiler_facade';\nimport {Console} from
'./console';\nimport {Injectable} from './di/injectable';\nimport {InjectionToken} from './di/injection_token';\nimport
{Injector} from './di/injector';\nimport {StaticProvider} from './di/interface/provider';\nimport
{INJECTOR_SCOPE} from './di/scope';\nimport {ErrorHandler} from './error_handler';\nimport
{DEFAULT_LOCALE_ID} from './i18n/localization';\nimport {LOCALE_ID} from './i18n/tokens';\nimport
{Type} from './interface/type';\nimport {ivyEnabled} from './ivy_switch';\nimport {COMPILER_OPTIONS,
CompilerFactory, CompilerOptions} from './linker/compiler';\nimport {ComponentFactory, ComponentRef} from
'./linker/component_factory';\nimport {ComponentFactoryBoundToModule, ComponentFactoryResolver}
from './linker/component_factory_resolver';\nimport {InternalNgModuleRef, NgModuleFactory, NgModuleRef}
from './linker/ng_module_factory';\nimport {InternalViewRef, ViewRef} from './linker/view_ref';\nimport
{isComponentResourceResolutionQueueEmpty, resolveComponentResources} from
'./metadata/resource_loading';\nimport {assertNgModuleType} from './render3/assert';\nimport {ComponentFactory
as R3ComponentFactory} from './render3/component_ref';\nimport {setLocaleId} from
'./render3/i18n/i18n_locale_id';\nimport {setJitOptions} from './render3/jit/jit_options';\nimport {NgModuleFactory
as R3NgModuleFactory} from './render3/ng_module_ref';\nimport {publishDefaultGlobalUtils as
_publishDefaultGlobalUtils} from './render3/util/global_utils';\nimport {Testability, TestabilityRegistry} from
'./testability/testability';\nimport {isDevMode} from './util/is_dev_mode';\nimport {isPromise} from
'./util/lang';\nimport {scheduleMicroTask} from './util/microtask';\nimport {stringify} from './util/stringify';\nimport
{NgZone, NoopNgZone} from './zone/ng_zone';\n\n\klet _platform: PlatformRef;\n\n\klet compileNgModuleFactory:\n
<M>(injector: Injector, options: CompilerOptions, moduleType: Type<M>) =>\n
Promise<NgModuleFactory<M>> = compileNgModuleFactory__PRE_R3__;\n\nfunction

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compileNgModuleFactory__PRE_R3__<M>(\n injector: Injector, options: CompilerOptions,\n moduleType:
Type<M>): Promise<NgModuleFactory<M>> {\n const compilerFactory: CompilerFactory =
injector.get(CompilerFactory);\n const compiler = compilerFactory.createCompiler([options]);\n return
compiler.compileModuleAsync(moduleType);\n}\n\nexport function
compileNgModuleFactory__POST_R3__<M>(\n injector: Injector, options: CompilerOptions,\n moduleType:
Type<M>): Promise<NgModuleFactory<M>> {\n ngDevMode && assertNgModuleType(moduleType);\n\n const
moduleFactory = new R3NgModuleFactory(moduleType);\n\n // All of the logic below is irrelevant for AOT-
compiled code.\n if (typeof ngJitMode !==
'undefined' && !ngJitMode) {\n return Promise.resolve(moduleFactory);\n }\n\n const compilerOptions =
injector.get(COMPILER_OPTIONS, []).concat(options);\n\n // Configure the compiler to use the provided options.
This call may fail when multiple modules\n // are bootstrapped with incompatible options, as a component can only
be compiled according to\n // a single set of options.\n setJitOptions({\n defaultEncapsulation:
_lastDefined(compilerOptions.map(opts => opts.defaultEncapsulation)),\n preserveWhitespaces:
_lastDefined(compilerOptions.map(opts => opts.preserveWhitespaces)),\n });\n\n if
(isComponentResourceResolutionQueueEmpty()) {\n return Promise.resolve(moduleFactory);\n }\n\n const
compilerProviders = _mergeArrays(compilerOptions.map(o => o.providers!));\n\n // In case there are no compiler
providers, we just return the module factory as\n // there won't be any resource loader. This can happen with Ivy,
because AOT compiled\n // modules can be still passed
through \"bootstrapModule\". In that case we shouldn't\n // unnecessarily require the JIT compiler.\n if
(compilerProviders.length === 0) {\n return Promise.resolve(moduleFactory);\n }\n\n const compiler =
getCompilerFacade();\n const compilerInjector = Injector.create({providers: compilerProviders});\n const
resourceLoader = compilerInjector.get(compiler.ResourceLoader);\n\n // The resource loader can also return a string
while the \"resolveComponentResources\" \n // always expects a promise. Therefore we need to wrap the returned
value in a promise.\n return resolveComponentResources(url => Promise.resolve(resourceLoader.get(url)))\n then(() => moduleFactory);\n}\n\n// the `window.ng` global utilities are only available in non-VE versions of\n//
Angular. The function switch below will make sure that the code is not\n// included into Angular when PRE mode is
active.\nexport function publishDefaultGlobalUtils__PRE_R3__() {\n}\nexport function
publishDefaultGlobalUtils__POST_R3__()\n{\n ngDevMode && _publishDefaultGlobalUtils();\n}\n\nlet publishDefaultGlobalUtils: () => any =
publishDefaultGlobalUtils__PRE_R3__;\n\nlet isBoundToModule: <C>(cf: ComponentFactory<C>) => boolean =
isBoundToModule__PRE_R3__;\n\nexport function isBoundToModule__PRE_R3__<C>(cf:
ComponentFactory<C>): boolean {\n return cf instanceof ComponentFactoryBoundToModule;\n}\n\nexport
function isBoundToModule__POST_R3__<C>(cf: ComponentFactory<C>): boolean {\n return (cf as
R3ComponentFactory<C>).isBoundToModule;\n}\n\nexport const ALLOW_MULTIPLE_PLATFORMS = new
InjectionToken<boolean>('AllowMultipleToken');\n\n\n/**\n * A token for third-party components that can
register themselves with NgProbe.\n */\n * @publicApi\n */\nexport class NgProbeToken {\n constructor(public
name: string, public token: any) {\n }\n}\n\n/**\n * Creates a platform.\n */\n * Platforms must be created on launch using
this function.\n */\n * @publicApi\n */\nexport function createPlatform(injector: Injector): PlatformRef\n{\n if (_platform && !_platform.destroyed && \n !_platform.injector.get(ALLOW_MULTIPLE_PLATFORMS,
false)) {\n throw new Error(\n 'There can be only one platform. Destroy the previous one to create a new
one.);\n }\n publishDefaultGlobalUtils();\n _platform = injector.get(PlatformRef);\n const inits =
injector.get(PLATFORM_INITIALIZER, null);\n if (inits) inits.forEach((init: any) => init());\n return
_platform;\n}\n\n/**\n * Creates a factory for a platform. Can be used to provide or override `Providers` specific
to\n * your application's runtime needs, such as `PLATFORM_INITIALIZER` and `PLATFORM_ID`.\n */\n * @param
parentPlatformFactory Another platform factory to modify. Allows you to compose factories\n * to build up
configurations that might be required by different libraries or parts of the\n * application.\n */\n * @param name
Identifies the new platform factory.\n */\n * @param providers A set of dependency providers for platforms created with
the new factory.\n

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 * \n * @publicApi \n * \n export function createPlatformFactory(\n parentPlatformFactory: ((extraProviders?:
StaticProvider[]) => PlatformRef)|null, name: string, \n providers: StaticProvider[] = []): (extraProviders?:
StaticProvider[]) => PlatformRef { \n const desc = `Platform: ${name}`; \n const marker = new
InjectionToken(desc); \n return (extraProviders: StaticProvider[] = []) => { \n let platform = getPlatform(); \n if
(!platform || platform.injector.get(ALLOW_MULTIPLE_PLATFORMS, false)) { \n if (parentPlatformFactory)
{ \n parentPlatformFactory(\n providers.concat(extraProviders).concat({provide: marker, useValue:
true})); \n } else { \n const injectedProviders: StaticProvider[] = \n
providers.concat(extraProviders).concat({provide: marker, useValue: true}, { \n provide:
INJECTOR_SCOPE, \n useValue: 'platform' \n }); \n createPlatform(Injector.create({providers:
injectedProviders, name: desc})); \n } \n } \n return assertPlatform(marker); \n }; \n } \n \n /** \n * Checks that there is currently a platform that
contains the given token as a provider. \n * \n * @publicApi \n * \n export function assertPlatform(requiredToken:
any): PlatformRef { \n const platform = getPlatform(); \n if (!platform) { \n throw new Error('No platform
exists!'); \n } \n if (!platform.injector.get(requiredToken, null)) { \n throw new Error(\n 'A platform with a
different configuration has been created. Please destroy it first.' \n); \n } \n return platform; \n } \n \n /** \n * Destroys
the current Angular platform and all Angular applications on the page. \n * Destroys all modules and listeners
registered with the platform. \n * \n * @publicApi \n * \n export function destroyPlatform(): void { \n if (_platform
&& !_platform.destroyed) { \n _platform.destroy(); \n } \n } \n \n /** \n * Returns the current platform. \n * \n *
@publicApi \n * \n export function getPlatform(): PlatformRef|null { \n return
_platform && !_platform.destroyed ? _platform : null; \n } \n \n /** \n * Provides additional options to the bootstrapping
process. \n * \n * \n export interface BootstrapOptions { \n /** \n * Optionally specify which `NgZone` should be
used. \n * \n * - Provide your own `NgZone` instance. \n * - `zone.js` - Use default `NgZone` which requires
`Zone.js`. \n * - `noop` - Use `NoopNgZone` which does nothing. \n * \n ngZone?: NgZone|'zone.js'|'noop'; \n } \n \n /** \n * Optionally specify coalescing event change detections or not. \n * Consider the following case. \n * \n *
<div (click)="doSomething()"> \n * <button (click)="doSomethingElse()"></button> \n * </div> \n * \n *
When button is clicked, because of the event bubbling, both \n * event handlers will be called and 2 change
detections will be \n * triggered. We can coalesce such kind of events to only trigger \n * change detection only
once. \n * \n * By default, this option will be false. So the events will not be \n
* coalesced and the change detection will be triggered multiple times. \n * And if this option be set to true, the
change detection will be \n * triggered async by scheduling a animation frame. So in the case above, \n * the
change detection will only be triggered once. \n * \n ngZoneEventCoalescing?: boolean; \n } \n \n /** \n * The
Angular platform is the entry point for Angular on a web page. \n * Each page has exactly one platform. Services
(such as reflection) which are common \n * to every Angular application running on the page are bound in its
scope. \n * A page's platform is initialized implicitly when a platform is created using a platform \n * factory such as
`PlatformBrowser`, or explicitly by calling the `createPlatform()` function. \n * \n * @publicApi \n * \n * \n @Injectable() \n export class PlatformRef { \n private _modules: NgModuleRef<any>[] = []; \n private
_destroyListeners: Function[] = []; \n private _destroyed: boolean = false; \n \n /** @internal \n constructor(private _injector:
Injector) { \n \n /** \n * Creates an instance of an `@NgModule` for the given platform for offline compilation. \n
 * \n * @usageNotes \n * \n * The following example creates the NgModule for a browser platform. \n * \n *
```typescript \n      * my_module.ts: \n      * \n      * @NgModule({ \n      *   imports: [BrowserModule] \n      * }) \n      * class
MyModule { \n      * \n      * main.ts: \n      * import {MyModuleNgFactory} from './my_module.ngfactory'; \n      * import
{platformBrowser} from '@angular/platform-browser'; \n      * \n      * let moduleRef =
platformBrowser().bootstrapModuleFactory(MyModuleNgFactory); \n      * ``` \n      * \n      * \n bootstrapModuleFactory<M>(moduleFactory: NgModuleFactory<M>, options?: BootstrapOptions): \n
Promise<NgModuleRef<M>> { \n      * // Note: We need to create the NgZone _before_ we instantiate the module, \n
      * // as instantiating the module creates some providers eagerly. \n      * // So we create a mini parent injector that just
contains the new NgZone and \n      * // pass that as parent to

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the NgModuleFactory.\n    const ngZoneOption = options ? options.ngZone : undefined;\n    const\nngZoneEventCoalescing = (options && options.ngZoneEventCoalescing) || false;\n    const ngZone =\ngetNgZone(ngZoneOption, ngZoneEventCoalescing);\n    const providers: StaticProvider[] = [{provide: NgZone,\nusetValue: ngZone}];\n    // Attention: Don't use ApplicationRef.run here,\n    // as we want to be sure that all\npossible constructor calls are inside `ngZone.run`\n    return ngZone.run(() => {\n        const ngZoneInjector =\nInjector.create(\n            {providers: providers, parent: this.injector, name: moduleFactory.moduleType.name});\nconst moduleRef = <InternalNgModuleRef<M>>moduleFactory.create(ngZoneInjector);\nconst\nexceptionHandler: ErrorHandler|null = moduleRef.injection.get(ErrorHandler, null);\nif (!exceptionHandler) {\n    throw new Error('No ErrorHandler. Is platform module (BrowserModule) included?');\n}\nmoduleRef.onDestroy(() => remove(this._modules,\nmoduleRef));\nngZone!.runOutsideAngular() => ngZone!.onError.subscribe({\nnext: (error: any) => {\n    exceptionHandler.handleError(error);\n}});\nreturn\n_callAndReportToErrorHandler(exceptionHandler, ngZone!, () => {\n    const initStatus: ApplicationInitStatus =\nmoduleRef.injection.get(ApplicationInitStatus);\ninitStatus.runInitializers();\nreturn\ninitStatus.donePromise.then(() => {\n    if (ivyEnabled) {\n        // If the `LOCALE_ID` provider is defined at\nbootstrap then we set the value for ivy\n        const localeId = moduleRef.injection.get(LOCALE_ID,\nDEFAULT_LOCALE_ID);\nsetLocaleId(localeId || DEFAULT_LOCALE_ID);\n    }\nthis._moduleDoBootstrap(moduleRef);\nreturn moduleRef;\n});\n});\n});\n}) ** *\nCreates an instance of an '@NgModule' for a given platform using the given runtime compiler.\n * \n *\n@usageNotes\n * ### Simple\nExample\n * \n * ```typescript\n * @NgModule({\n *   imports: [BrowserModule]\n * })\n * class\nMyModule {}\n * \n * let moduleRef = platformBrowser().bootstrapModule(MyModule);\n * ```\n * \n */\nbootstrapModule<M>(platform: Platform, moduleType: Type<M>, compilerOptions:\nCompilerOptions&BootstrapOptions)\nArray<CompilerOptions&BootstrapOptions> = []):\nPromise<NgModuleRef<M>> {\n    const options = optionsReducer({}, compilerOptions);\n    return\ncompileNgModuleFactory(this.injection, options, moduleType).\nthen((moduleFactory) =>\nthis.bootstrapModuleFactory(moduleFactory, options));\n}\nprivate _moduleDoBootstrap(moduleRef:\nInternalNgModuleRef<any>): void {\n    const appRef = moduleRef.injection.get(ApplicationRef) as\nApplicationRef;\n    if (moduleRef._bootstrapComponents.length > 0) {\n        moduleRef._bootstrapComponents.forEach(f => appRef.bootstrap(f));\n    } else if\n(moduleRef.instance.ngDoBootstrap) {\n        moduleRef.instance.ngDoBootstrap(appRef);\n    } else {\n        throw new Error(`The module ${stringify(\nmoduleRef.instance.constructor)} was bootstrapped, but it does not declare \"@NgModule.bootstrap\" components nor a\n\"ngDoBootstrap\" method.` +\n        `Please define one of these.`);\n    }\n    this._modules.push(moduleRef);\n}\n/** *\nRegisters a listener to be called when the platform is destroyed.\n */\nonDestroy(callback: () =>\nvaid): void {\n    this._destroyListeners.push(callback);\n}\n /** *\nRetrieves the platform {@link Injector},\nwhich is the parent injector for every Angular application on the page and provides singleton providers.\n */\nget injector(): Injector {\n    return this._injector;\n}\n /** *\nDestroys the current Angular platform and all\nAngular applications on the page.\n */\n Destroys all modules and listeners registered with the platform.\n */\ndestroy()\n{\n    if (this._destroyed)\n{\n        throw new Error('The platform has already been destroyed!');\n    }\n    this._modules.slice().forEach(module\n=> module.destroy());\n    this._destroyListeners.forEach(listener => listener());\n    this._destroyed = true;\n}\n get destroyed()\n{\n    return this._destroyed;\n}\n}\nfunction getNgZone(ngZoneOption:\nNgZone|zone.js'|noop'|undefined, ngZoneEventCoalescing: boolean): NgZone {\nlet ngZone: NgZone;\nif\n(ngZoneOption === 'noop') {\n    ngZone = new NoopNgZone();\n} else {\n    ngZone = (ngZoneOption ===\n'zone.js' ? undefined : ngZoneOption) || new NgZone({\nenableLongStackTrace: isDevMode(),\nshouldCoalesceEventChangeDetection: ngZoneEventCoalescing\n});\n}\nreturn ngZone;\n}\nfunction\n_callAndReportToErrorHandler(errorHandler: ErrorHandler, ngZone: NgZone, callback: () => any): any {\n
```

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try {\n  const result = callback();\n  if (isPromise(result)) {\n    return result.catch((e:
any) => {\n      ngZone.runOutsideAngular(() => errorHandler.handleError(e));\n      // rethrow as the exception
handler might not do it\n      throw e;\n    });\n  }\n  return result;\n } catch (e) {\n
ngZone.runOutsideAngular(() => errorHandler.handleError(e));\n  // rethrow as the exception handler might not do
it\n  throw e;\n }\n}\n\nfunction optionsReducer<T extends Object>(dst: any, objs: T[]): T {\n  if
(Array.isArray(objs)) {\n    dst = objs.reduce(optionsReducer, dst);\n  } else {\n    dst = {...dst, ...(objs as any)};\n
}\n  return dst;\n}\n\n/**\n * A reference to an Angular application running on a page.\n * @usageNotes\n * \n *
{ @a is-stable-examples }\n * ### isStable examples and caveats\n * \n * Note two important points about `isStable`,
demonstrated in the examples below:\n * - the application will never be stable if you start any kind\n * of recurrent
asynchronous task when the application starts\n * (for example for a polling process,
started with a `setInterval`, a `setTimeout`\n * or using RxJS operators like `interval`);\n * - the `isStable`
Observable runs outside of the Angular zone.\n * \n * Let's imagine that you start a recurrent task\n * (here
incrementing a counter, using RxJS `interval`),\n * and at the same time subscribe to `isStable`.\n * \n * \n *
constructor(appRef: ApplicationRef) {\n *   appRef.isStable.pipe(\n *     filter(stable => stable)\n *   ).subscribe(()
=> console.log('App is stable now'));\n *   interval(1000).subscribe(counter => console.log(counter));\n * }\n * \n *
* In this example, `isStable` will never emit `true`,\n * and the trace `\"App is stable now\"` will never get logged.\n
*\n * If you want to execute something when the app is stable,\n * you have to wait for the application to be stable\n
* before starting your polling process.\n * \n * \n *
constructor(appRef: ApplicationRef) {\n *
appRef.isStable.pipe(\n *   first(stable => stable),\n *   tap(stable => console.log('App
is stable now')),\n *   switchMap(() => interval(1000))\n * ).subscribe(counter => console.log(counter));\n * }\n *
*\n * In this example, the trace `\"App is stable now\"` will be logged\n * and then the counter starts incrementing
every second.\n * \n * Note also that this Observable runs outside of the Angular zone,\n * which means that the
code in the subscription\n * to this Observable will not trigger the change detection.\n * \n * Let's imagine that
instead of logging the counter value,\n * you update a field of your component\n * and display it in its template.\n
*\n * \n *
constructor(appRef: ApplicationRef) {\n *   appRef.isStable.pipe(\n *     first(stable => stable),\n *
switchMap(() => interval(1000))\n * ).subscribe(counter => this.value = counter);\n * }\n * \n *
*\n * As the `isStable`
Observable runs outside the zone,\n * the `value` field will be updated properly,\n * but the template will not be
refreshed!\n * \n * You'll have to manually trigger the
change detection to update the template.\n * \n * \n *
constructor(appRef: ApplicationRef, cd:
ChangeDetectorRef) {\n *   appRef.isStable.pipe(\n *     first(stable => stable),\n *
switchMap(() =>
interval(1000))\n * ).subscribe(counter => {\n *   this.value = counter;\n *   cd.detectChanges();\n * });\n * }\n
*\n * \n * Or make the subscription callback run inside the zone.\n * \n * \n *
constructor(appRef:
ApplicationRef, zone: NgZone) {\n *   appRef.isStable.pipe(\n *     first(stable => stable),\n *
switchMap(() =>
interval(1000))\n * ).subscribe(counter => zone.run(() => this.value = counter));\n * }\n * \n *
*\n * @publicApi\n
*\n * @Injectable()\n * export class ApplicationRef {\n *   /** @internal */\n *   private _bootstrapListeners: ((compRef:
ComponentRef<any>) => void)[] = [];\n *   private _views: InternalViewRef[] = [];\n *   private _runningTick: boolean =
false;\n *   private _enforceNoNewChanges: boolean = false;\n *   private _stable = true;\n *   /**\n *    * Get a
list of component types registered to this application.\n *    * This list is populated even before the component is
created.\n *    */\n *   public readonly componentTypes: Type<any>[] = [];\n *   /**\n *    * Get a list of components
registered to this application.\n *    */\n *   public readonly components: ComponentRef<any>[] = [];\n *   /**\n *
Returns an Observable that indicates when the application is stable or unstable.\n *    * @see [Usage notes](#is-
stable-examples) for examples and caveats when using this API.\n *    */\n *   // TODO(issue/24571): remove '!'.\n *
public readonly isStable!: Observable<boolean>;\n *   /** @internal */\n *   constructor(\n *     private _zone: NgZone,
private _console: Console, private _injector: Injector,\n *     private _exceptionHandler: ErrorHandler,\n *     private
_componentFactoryResolver: ComponentFactoryResolver,\n *     private _initStatus: ApplicationInitStatus) {\n *
this._enforceNoNewChanges = isDevMode();\n *     this._zone.onMicrotaskEmpty.subscribe({\n *
next: () => {\n *       this._zone.run(() => {\n *         this.tick();\n *       });\n *     });\n *     \n *     \n *
const isCurrentlyStable
= new Observable<boolean>((observer: Observer<boolean>) => {\n *       this._stable = this._zone.isStable &&

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this._zone.hasPendingMicrotasks() && \n
this._zone.runOutsideAngular() => {\n
  observer.next(this._stable);\n
  observer.complete();\n
});\n
\n
const isStable = new Observable<boolean>((observer: Observer<boolean>) => {\n
  // Create the subscription to onStable outside the Angular Zone so that\n
  // the callback is run outside the Angular Zone.\n
  let stableSub: Subscription;\n
  this._zone.runOutsideAngular() => {\n
    stableSub = this._zone.onStable.subscribe(() => {\n
      NgZone.assertNotInAngularZone();\n
      // Check whether there are no pending macro/micro tasks in the next tick\n
      // to allow for NgZone to update the state.\n
      scheduleMicroTask(() => {\n
        if (!this._stable && !this._zone.hasPendingMacrotasks && \n
!this._zone.hasPendingMicrotasks) {\n
          this._stable = true;\n
          observer.next(true);\n
        }\n
      });\n
    });\n
  });\n
  const unstableSub: Subscription = this._zone.onUnstable.subscribe(() => {\n
    NgZone.assertInAngularZone();\n
    if (this._stable) {\n
      this._stable = false;\n
    }\n
  });\n
  this._zone.runOutsideAngular() => {\n
    observer.next(false);\n
  });\n
});\n
\n
return () => {\n
  stableSub.unsubscribe();\n
  unstableSub.unsubscribe();\n
};\n
});\n
\n
(this as {isStable: Observable<boolean>}).isStable = \n
  merge(isCurrentlyStable, isStable.pipe(share()));\n
}\n
\n
/**\n
 * Bootstrap a new component at the root level of the application.\n
 * \n
 * @usageNotes\n
 * ### Bootstrap process\n
 * \n
 * When bootstrapping a new root component into an application, Angular mounts the\n
 * specified application component onto DOM elements identified by the\n
 * componentType's\n
 * selector and kicks off automatic change detection to finish initializing the component.\n
 * \n
 * Optionally, a component can be mounted onto a DOM element that does not match the\n
 * componentType's selector.\n
 * \n
 * ### Example\n
 * { @example core/ts/platform/platform.ts region='longform' }\n
 * \n
bootstrap<C>(componentOrFactory: ComponentFactory<C>|Type<C>, rootSelectorOrNode?: string|any):\n
ComponentRef<C> {\n
  if (!this._initStatus.done) {\n
    throw new Error(\n
      'Cannot bootstrap as there are still asynchronous initializers running. Bootstrap components in the `ngDoBootstrap` method of the root module.);\n
  }\n
  let componentFactory: ComponentFactory<C>;\n
  if (componentOrFactory instanceof ComponentFactory) {\n
    componentFactory = componentOrFactory;\n
  } else {\n
    componentFactory = \n
      this._componentFactoryResolver.resolveComponentFactory(componentOrFactory);\n
  }\n
  this.componentTypes.push(componentFactory.componentType);\n
  // Create a factory associated with the current module if it's not bound to some other\n
  const ngModule = \n
    isBoundToModule(componentFactory) ?\n
    undefined : this._injector.get(NgModuleRef);\n
  const selectorOrNode = rootSelectorOrNode ||\n
    componentFactory.selector;\n
  const compRef = componentFactory.create(Injector.NULL, [], selectorOrNode,\n
    ngModule);\n
  compRef.onDestroy(() => {\n
    this._unloadComponent(compRef);\n
  });\n
  const testability =\n
    compRef.injector.get(Testability, null);\n
  if (testability) {\n
    compRef.injector.get(TestabilityRegistry)\n
      .registerApplication(compRef.location.nativeElement, testability);\n
  }\n
  this._loadComponent(compRef);\n
  if (isDevMode()) {\n
    this._console.log(\n
      `Angular is running in development mode. Call enableProdMode() to enable production mode.`);\n
  }\n
  return compRef;\n
}\n
\n
/**\n
 * Invoke this method to explicitly process change detection and its side-effects.\n
 * \n
 * In development mode, `tick()` also performs a second change detection cycle to ensure that no\n
 * further changes are detected. If additional changes are picked up during this second cycle,\n
 * bindings in the app have side-effects that cannot be resolved in a single change detection\n
 * pass.\n
 * In this case, Angular throws an error, since an Angular application can only have one change\n
 * detection pass during which all change detection must complete.\n
 * \n
tick(): void {\n
  if (this._runningTick) {\n
    throw new Error('ApplicationRef.tick is called recursively');\n
  }\n
  try {\n
    this._runningTick = true;\n
    for (let view of this._views) {\n
      view.detectChanges();\n
    }\n
    if (this._enforceNoNewChanges) {\n
      for (let view of this._views) {\n
        view.checkNoChanges();\n
      }\n
    }\n
  } catch (e) {\n
    // Attention: Don't rethrow as it could cancel subscriptions to Observables!\n
    this._zone.runOutsideAngular() => this._exceptionHandler.handleError(e);\n
  } finally {\n
    this._runningTick = false;\n
  }\n
}\n
\n
/**\n
 * Attaches a view so that it will be dirty checked.\n
 * The view will be automatically detached when it is destroyed.\n
 * This will throw if the view is already attached to a ViewContainer.\n
 * \n

```

```

attachView(viewRef: ViewRef): void {\n  const view = (viewRef as InternalViewRef);\n  this._views.push(view);\n  view.attachToAppRef(this);\n }\n\n /**\n  * Detaches a view from dirty checking again.\n  *\n  detachView(viewRef: ViewRef): void {\n  const view = (viewRef as InternalViewRef);\n  remove(this._views, view);\n  view.detachFromAppRef();\n }\n\n private _loadComponent(componentRef: ComponentRef<any>): void {\n  this.attachView(componentRef.hostView);\n  this.tick();\n  this.components.push(componentRef);\n\n  // Get the listeners lazily to prevent DI cycles.\n  const listeners =\n  this._injector.get(APP_BOOTSTRAP_LISTENER, []).concat(this._bootstrapListeners);\n  listeners.forEach((listener) => listener(componentRef));\n }\n\n private _unloadComponent(componentRef: ComponentRef<any>): void {\n  this.detachView(componentRef.hostView);\n  remove(this.components, componentRef);\n }\n\n /** @internal *\n  ngOnDestroy() {\n  // TODO(alxhub): Dispose of the NgZone.\n  this._views.slice().forEach((view) => view.destroy());\n }\n\n /**\n  * Returns the number of attached views.\n  *\n  get viewCount() {\n  return this._views.length;\n }\n\n\nfunction remove<T>(list: T[], el: T): void {\n  const index = list.indexOf(el);\n  if (index > -1) {\n    list.splice(index, 1);\n  }\n\n\nfunction _lastDefined<T>(args: T[]): T | undefined {\n  for (let i = args.length - 1; i >= 0; i--) {\n    if (args[i] !== undefined) {\n      return args[i];\n    }\n  }\n  return undefined;\n}\n\nfunction _mergeArrays(parts: any[][]): any[] {\n  const result: any[] = [];\n  parts.forEach((part) => part && result.push(...part));\n  return result;\n }\n\n","**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n// Public API for Zone\nexport {NgZone, NoopNgZone as NoopNgZone} from './zone/ng_zone';\n","**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n// Public API for render\nexport {Renderer2, RendererFactory2} from './render/api';\nexport {RendererStyleFlags2, RendererType2} from './render/api_flags';\n","**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {NgModuleType} from './metadata/ng_module_def';\nimport {NgModuleFactory as R3NgModuleFactory} from './render3/ng_module_ref';\nimport {NgModuleFactory} from './ng_module_factory';\nimport {getRegisteredNgModuleType} from './ng_module_factory_registration';\n\n\n**\n * Used to load ng module factories.\n *\n * @publicApi\n * @deprecated the `string` form of `loadChildren` is deprecated, and `NgModuleFactoryLoader` is\n * part of its implementation. See `LoadChildren` for more details.\n *\nexport abstract class NgModuleFactoryLoader {\n  abstract load(path: string): Promise<NgModuleFactory<any>>;\n }\n\nexport function getNgModuleFactory__PRE_R3__(id: string): NgModuleFactory<any> {\n  const factory = getRegisteredNgModuleType(id) as NgModuleFactory<any> | null;\n  if (!factory) throw noModuleError(id);\n  return factory;\n }\n\nexport function getNgModuleFactory__POST_R3__(id: string): NgModuleFactory<any> {\n  const type = getRegisteredNgModuleType(id) as NgModuleType | null;\n  if (!type) throw noModuleError(id);\n  return new R3NgModuleFactory(type);\n }\n\n\n**\n * Returns the NgModuleFactory with the given id, if it exists and has been loaded.\n * Factories for modules that do not specify an `id` cannot be retrieved. Throws if the module\n * cannot be found.\n *\n * @publicApi\n *\nexport const getNgModuleFactory: (id: string) => NgModuleFactory<any> = getNgModuleFactory__PRE_R3__;\n\nfunction noModuleError(id: string): Error {\n  return new Error(`No module with ID ${id} loaded`);\n }\n\n","**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {Injectable, Optional} from './di';\nimport {ivyEnabled} from './ivy_switch';\nimport {Compiler} from './compiler';\nimport {NgModuleFactory} from './ng_module_factory';\nimport {NgModuleFactoryLoader} from './ng_module_factory_loader';\n\nconst _SEPARATOR = '#';\n\nconst FACTORY_CLASS_SUFFIX = 'NgFactory';\n\ndeclare var System: any;\n\n**\n * Configuration for SystemJsNgModuleLoader.\n *\n * token.\n *\n * @publicApi\n * @deprecated the `string` form of `loadChildren` is

```

deprecated, and `SystemJsNgModuleLoaderConfig` is part of its implementation. See `LoadChildren` for more details.

```

export abstract class SystemJsNgModuleLoaderConfig {
  /** Prefix to add when computing the name of the factory module for a given module name. */
  factoryPathPrefix!: string;
  /** Suffix to add when computing the name of the factory module for a given module name. */
  factoryPathSuffix!: string;
}

const DEFAULT_CONFIG: SystemJsNgModuleLoaderConfig = {
  factoryPathPrefix: "",
  factoryPathSuffix: ".ngfactory",
};

@NgModuleFactoryLoader that
uses SystemJS to load NgModuleFactory

@publicApi
@deprecated the `string` form of `loadChildren` is deprecated, and `SystemJsNgModuleLoader` is part of its implementation. See `LoadChildren` for more details.
@Injectable()
export class SystemJsNgModuleLoader implements NgModuleFactoryLoader {
  private _config: SystemJsNgModuleLoaderConfig;

  constructor(private _compiler: Compiler, @Optional() config?: SystemJsNgModuleLoaderConfig) {
    this._config = config || DEFAULT_CONFIG;
  }

  load(path: string): Promise<NgModuleFactory<any>> {
    const legacyOfflineMode = !ivyEnabled && this._compiler instanceof Compiler;
    return legacyOfflineMode ? this.loadFactory(path) : this.loadAndCompile(path);
  }

  private loadAndCompile(path: string): Promise<NgModuleFactory<any>> {
    let [module, exportName] = path.split(_SEPARATOR);
    if (exportName === undefined) {
      exportName = 'default';
    }

    return System.import(module).then((module: any) => module[exportName]).then((type: any) => checkNotEmpty(type, module, exportName)).then((type: any) => this._compiler.compileModuleAsync(type));
  }

  private loadFactory(path: string): Promise<NgModuleFactory<any>> {
    let [module, exportName] = path.split(_SEPARATOR);
    let factoryClassSuffix = FACTORY_CLASS_SUFFIX;
    if (exportName === undefined) {
      exportName = 'default';
      factoryClassSuffix = "";
    }

    return System.import(this._config.factoryPathPrefix + module + this._config.factoryPathSuffix).then((module: any) => module[exportName + factoryClassSuffix]).then((factory: any) => checkNotEmpty(factory, module, exportName));
  }

  function checkNotEmpty(value: any, modulePath: string, exportName: string): any {
    if (!value) {
      throw new Error(`Cannot find '${exportName}' in '${modulePath}'`);
    }
    return value;
  }
}

```

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```

import { ChangeDetectorRef } from
'./change_detection/change_detector_ref';

/** Represents an Angular [view](guide/glossary#view) ("Definition"). */
@see { @link ChangeDetectorRef#usage-notes Change detection usage }
@publicApi
export abstract class ViewRef extends ChangeDetectorRef {
  /** Destroys this view and all of the data structures associated with it. */
  abstract destroy(): void;

  /** Reports whether this view has been destroyed. */
  @returns True after the `destroy()` method has been called, false otherwise.
  abstract get destroyed(): boolean;

  /** A lifecycle hook that provides additional developer-defined cleanup functionality for views. */
  @param callback A handler function that cleans up developer-defined data associated with a view. Called when the `destroy()` method is invoked.
  abstract onDestroy(callback: Function): any;
}

/** Represents an Angular [view](guide/glossary#view) in a view container. An [embedded view](guide/glossary#view-tree) can be referenced from a component other than the hosting component whose template defines it, or it can be defined independently by a `TemplateRef`. Properties of elements in a view can change, but the structure (number and order) of elements in a view cannot. Change the structure of elements by inserting, moving, or removing nested views in a view container. */
@see
`ViewContainerRef`
@usageNotes
The following template breaks down into two separate `TemplateRef` instances, an outer one and an inner one.

<ul>
- Count: {{ items.length }}

</ul>

<li>ngFor=<`let item of items`>{{ item }}</li>
</ul>

This is the outer `TemplateRef`:

Count: {{ items.length }}

```

```

* <ul>\n * <ng-template ngFor let-item [ngForOf]="items"></ng-template>\n * </ul>\n * ``\n * This is the
inner `TemplateRef`:\n * \n * ``\n * <li>{{ item }}</li>\n * ``\n * The outer and inner `TemplateRef` instances
are assembled into views as follows:\n * \n * ``\n * <!-- ViewRef: outer-0 -->\n * Count: 2\n * <ul>\n * <ng-
template view-container-ref></ng-template>\n * <!-- ViewRef: inner-1 --><li>first</li><!-- /ViewRef: inner-1 --
>\n * <!-- ViewRef: inner-2 --><li>second</li><!-- /ViewRef: inner-2 -->\n * </ul>\n * <!-- /ViewRef: outer-0 --
>\n * ``\n * @publicApi\n * \nexport abstract class EmbeddedViewRef<C> extends ViewRef {\n /**\n * The
context for this view, inherited from the anchor element.\n * \n abstract get context(): C;\n /**\n * The root
nodes for this embedded view.\n * \n abstract get rootNodes(): any[];\n }\n\nexport interface InternalViewRef
extends ViewRef {\n detachFromAppRef(): void;\n attachToAppRef(appRef: ViewRefTracker):
void;\n }\n\n/**\n * Interface for tracking root `ViewRef`'s in `ApplicationRef`.\n * \n * NOTE: Importing
`ApplicationRef` here directly creates circular dependency, which is why we have\n * a subset of the
`ApplicationRef` interface `ViewRefTracker` here.\n * \nexport interface ViewRefTracker {\n
detachView(viewRef: ViewRef): void;\n }\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\n// Public API for compiler\nexport { Compiler, COMPILER_OPTIONS,
CompilerFactory, CompilerOptions, ModuleWithComponentFactories } from './linker/compiler';\nexport
{ ComponentFactory, ComponentRef } from './linker/component_factory';\nexport { ComponentFactoryResolver }
from './linker/component_factory_resolver';\nexport { ElementRef } from './linker/element_ref';\nexport
{ NgModuleFactory, NgModuleRef } from './linker/ng_module_factory';\nexport { getModuleFactory,
NgModuleFactoryLoader } from './linker/ng_module_factory_loader';\nexport { QueryList } from
'./linker/query_list';\nexport { SystemJsNgModuleLoader, SystemJsNgModuleLoaderConfig } from
'./linker/system_js_ng_module_factory_loader';\nexport { TemplateRef } from './linker/template_ref';\nexport
{ ViewContainerRef } from './linker/view_container_ref';\nexport { EmbeddedViewRef, ViewRef } from
'./linker/view_ref';\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport { Injector } from '../di/injector';\nimport { assertTNodeForLView } from '../render3/assert';\nimport
{ CONTAINER_HEADER_OFFSET, LContainer, NATIVE } from '../render3/interfaces/container';\nimport
{ TElementNode, TNode, TNodeFlags, TNodeType } from '../render3/interfaces/node';\nimport { isComponentHost,
isLContainer } from '../render3/interfaces/type_checks';\nimport
{ DECLARATION_COMPONENT_VIEW, LView, PARENT, T_HOST, TData, TVIEW } from
'./render3/interfaces/view';\nimport { getComponent, getContext, getInjectionTokens, getInjector, getListeners,
getLocalRefs, getOwningComponent, loadLContext } from '../render3/util/discovery_utils';\nimport
{ INTERPOLATION_DELIMITER } from '../render3/util/misc_utils';\nimport { renderStringify } from
'./render3/util/stringify_utils';\nimport { getComponentLViewByIndex, getNativeByTNodeOrNull } from
'./render3/util/view_utils';\nimport { assertDomNode } from '../util/assert';\nimport { DebugContext } from
'./view/types';\n\n\n/**\n * @publicApi\n * \nexport class DebugEventListener {\n constructor(public name: string,
public callback: Function) {\n }\n\n\n/**\n * @publicApi\n * \nexport interface DebugNode {\n readonly listeners:
DebugEventListener[];\n readonly parent: DebugElement|null;\n readonly nativeNode: any;\n readonly injector:
Injector;\n readonly componentInstance: any;\n readonly context: any;\n readonly
references: {[key: string]: any};\n readonly providerTokens: any[];\n }\n\nexport class DebugNode__PRE_R3__ {\n
readonly listeners: DebugEventListener[] = [];\n readonly parent: DebugElement|null = null;\n readonly
nativeNode: any;\n private readonly _debugContext: DebugContext;\n\n constructor(nativeNode: any, parent:
DebugNode|null, _debugContext: DebugContext) {\n this._debugContext = _debugContext;\n this.nativeNode =
nativeNode;\n if (parent && parent instanceof DebugElement__PRE_R3__) {\n parent.addChild(this);\n }\n
}\n\n get injector(): Injector {\n return this._debugContext.injector;\n }\n\n get componentInstance(): any {\n
return this._debugContext.component;\n }\n\n get context(): any {\n return this._debugContext.context;\n }\n\n
get references(): {[key: string]: any} {\n return this._debugContext.references;\n }\n\n get providerTokens():
any[] {\n return this._debugContext.providerTokens;\n }\n }\n\n\n/**\n * @publicApi\n * \nexport

```

```

interface DebugElement extends DebugNode {\n  readonly name: string;\n  readonly properties: {[key: string]:\n  any};\n  readonly attributes: {[key: string]: string|null};\n  readonly classes: {[key: string]: boolean};\n  readonly styles: {[key: string]: string|null};\n  readonly childNodes: DebugNode[];\n  readonly nativeElement: any;\n  readonly children: DebugElement[];\n\n  query(predicate: Predicate<DebugElement>): DebugElement;\n  queryAll(predicate: Predicate<DebugElement>): DebugElement[];\n  queryAllNodes(predicate:\n  Predicate<DebugNode>): DebugNode[];\n  triggerEventHandler(eventName: string, eventObj: any):\n  void;\n}\n\nexport class DebugElement__PRE_R3__ extends DebugNode__PRE_R3__ implements DebugElement\n{\n  readonly name!: string;\n  readonly properties: {[key: string]: any} = {};\n  readonly attributes: {[key: string]:\n  string|null} = {};\n  readonly classes: {[key: string]: boolean} = {};\n  readonly styles: {[key: string]: string|null} =\n  {};\n  readonly childNodes: DebugNode[]\n  = [];\n  readonly nativeElement: any;\n\n  constructor(nativeNode: any, parent: any, _debugContext:\n  DebugContext) {\n    super(nativeNode, parent, _debugContext);\n    this.nativeElement = nativeNode;\n  }\n\n  addChild(child: DebugNode) {\n    if (child) {\n      this.childNodes.push(child);\n      (child as {parent:\n  DebugNode}).parent = this;\n    }\n  }\n\n  removeChild(child: DebugNode) {\n    const childIndex =\n  this.childNodes.indexOf(child);\n    if (childIndex !== -1) {\n      (child as {parent: DebugNode | null}).parent =\n  null;\n      this.childNodes.splice(childIndex, 1);\n    }\n  }\n\n  insertChildrenAfter(child: DebugNode, newChildren:\n  DebugNode[]) {\n    const siblingIndex = this.childNodes.indexOf(child);\n    if (siblingIndex !== -1) {\n      this.childNodes.splice(siblingIndex + 1, 0, ...newChildren);\n      newChildren.forEach(c => {\n        if (c.parent) {\n          (c.parent as DebugElement__PRE_R3__).removeChild(c);\n        }\n        (child as {parent:\n  DebugNode}).parent = this;\n      });\n    }\n  }\n\n  insertBefore(refChild: DebugNode, newChild: DebugNode):\n  void {\n    const refIndex = this.childNodes.indexOf(refChild);\n    if (refIndex === -1) {\n      this.addChild(newChild);\n    } else {\n      if (newChild.parent) {\n        (newChild.parent as\n  DebugElement__PRE_R3__).removeChild(newChild);\n      }\n      (newChild as {parent: DebugNode}).parent =\n  this;\n      this.childNodes.splice(refIndex, 0, newChild);\n    }\n  }\n\n  query(predicate:\n  Predicate<DebugElement>): DebugElement {\n    const results = this.queryAll(predicate);\n    return results[0] ||\n  null;\n  }\n\n  queryAll(predicate: Predicate<DebugElement>): DebugElement[] {\n    const matches:\n  DebugElement[] = [];\n    _queryElementChildren(this, predicate, matches);\n    return matches;\n  }\n\n  queryAllNodes(predicate: Predicate<DebugNode>): DebugNode[] {\n    const matches: DebugNode[] = [];\n    _queryNodeChildren(this, predicate, matches);\n    return matches;\n  }\n\n  get children(): DebugElement[] {\n    return this.childNodes //\n      .filter((node) => node instanceof\n  DebugElement__PRE_R3__) as DebugElement[];\n  }\n\n  triggerEventHandler(eventName: string, eventObj: any)\n  {\n    this.listeners.forEach((listener) => {\n      if (listener.name == eventName) {\n        listener.callback(eventObj);\n      }\n    });\n  }\n\n  /**\n   * @publicApi\n   */\n  export function\n  asNativeElements(debugEls: DebugElement[]): any {\n    return debugEls.map((el) =>\n  el.nativeElement);\n  }\n\n  function _queryElementChildren(\n    element: DebugElement, predicate:\n  Predicate<DebugElement>, matches: DebugElement[]) {\n    element.childNodes.forEach(node => {\n      if (node\n  instanceof DebugElement__PRE_R3__) {\n        if (predicate(node)) {\n          matches.push(node);\n        }\n        _queryElementChildren(node, predicate, matches);\n      }\n    });\n  }\n\n  function _queryNodeChildren(\n    parentNode: DebugNode, predicate: Predicate<DebugNode>, matches: DebugNode[]) {\n    if (parentNode instanceof DebugElement__PRE_R3__) {\n      parentNode.childNodes.forEach(node => {\n        if (predicate(node)) {\n          matches.push(node);\n        }\n        if (node instanceof DebugElement__PRE_R3__) {\n          _queryNodeChildren(node, predicate, matches);\n        }\n      });\n    }\n  }\n}\n\nexport class DebugNode__POST_R3__\n  implements DebugNode {\n  readonly nativeNode: Node;\n\n  constructor(nativeNode: Node) {\n    this.nativeNode\n  = nativeNode;\n  }\n\n  get parent(): DebugElement|null {\n    const parent = this.nativeNode.parentNode as\n  Element;\n    return parent ? new DebugElement__POST_R3__(parent) : null;\n  }\n\n  get injector(): Injector {\n    return getInjector(this.nativeNode);\n  }\n\n  get componentInstance(): any {\n    const nativeElement =\n  this.nativeNode;\n    return nativeElement &&\n      (getComponent(nativeElement as Element)) ||\n  getOwningComponent(nativeElement);\n  }\n\n  get context(): any {\n    return getComponent(this.nativeNode as

```



```

Element) || getContext(this.nativeNode
as Element);\n }\n\n get listeners(): DebugEventListener[] {\n  return getListeners(this.nativeNode as
Element).filter(listener => listener.type === 'dom');\n }\n\n get references(): {[key: string]: any;} {\n  return
getLocalRefs(this.nativeNode);\n }\n\n get providerTokens(): any[] {\n  return
getInjectionTokens(this.nativeNode as Element);\n }\n}\n\nclass DebugElement__POST_R3__ extends
DebugNode__POST_R3__ implements DebugElement {\n  constructor(nativeNode: Element) {\n    ngDevMode
&& assertDomNode(nativeNode);\n    super(nativeNode);\n  }\n\n  get nativeElement(): Element|null {\n  return
this.nativeNode.nodeType == Node.ELEMENT_NODE ? this.nativeNode as Element : null;\n }\n\n  get name():
string {\n    try {\n      const context = loadLContext(this.nativeNode!);\n      const IView = context.IView;\n      const tData = IView[TVIEW].data;\n      const tNode = tData[context.nodeIndex] as TNode;\n      return
tNode.value!;\n    } catch (e) {\n
return this.nativeNode.nodeName;\n    }\n  }\n\n  /**\n   * Gets a map of property names to property values for
an element.\n   * This map includes:\n   * - Regular property bindings (e.g. `[id]="id"`) \n   * - Host property
bindings (e.g. `host: { '[id]': 'id' }`) \n   * - Interpolated property bindings (e.g. `id="{ { value } }"`) \n   * It
does not include:\n   * - input property bindings (e.g. `[myCustomInput]="value"`) \n   * - attribute bindings (e.g.
`[attr.role]="menu"`) \n   * ^/\n   get properties(): {[key: string]: any;} {\n    const context =
loadLContext(this.nativeNode, false);\n    if (context == null) {\n      return {};\n    }\n    const IView =
context.IView;\n    const tData = IView[TVIEW].data;\n    const tNode = tData[context.nodeIndex] as TNode;\n    const
properties: {[key: string]: string} = {};\n    // Collect properties from the DOM.\n    copyDomProperties(this.nativeElement, properties);\n    // Collect properties from the bindings.
This is needed for animation renderer which has\n    // synthetic properties which don't get reflected into the
DOM.\n    collectPropertyBindings(properties, tNode, IView, tData);\n    return properties;\n  }\n\n  get attributes():
{[key: string]: string|null;} {\n    const attributes: {[key: string]: string|null;} = {};\n    const element =
this.nativeElement;\n    if (!element) {\n      return attributes;\n    }\n    const context = loadLContext(element,
false);\n    if (context == null) {\n      return {};\n    }\n    const IView = context.IView;\n    const tNodeAttrs =
(IView[TVIEW].data[context.nodeIndex] as TNode).attrs;\n    const lowercaseTNodeAttrs: string[] = [];\n    // For
debug nodes we take the element's attribute directly from the DOM since it allows us\n    // to account for ones that
weren't set via bindings (e.g. ViewEngine keeps track of the ones\n    // that are set through `Renderer2`). The
problem is that the browser will lowercase all names,\n    // however
since we have the attributes already on the TNode, we can preserve the case by going\n    // through them once,
adding them to the `attributes` map and putting their lower-cased name\n    // into an array. Afterwards when we're
going through the native DOM attributes, we can check\n    // whether we haven't run into an attribute already
through the TNode.\n    if (tNodeAttrs) {\n      let i = 0;\n      while (i < tNodeAttrs.length) {\n        const attrName =
tNodeAttrs[i];\n        // Stop as soon as we hit a marker. We only care about the regular attributes. Everything\n
// else will be handled below when we read the final attributes off the DOM.\n        if (typeof attrName !== 'string')
break;\n        const attrValue = tNodeAttrs[i + 1];\n        attributes[attrName] = attrValue as string;\n        lowercaseTNodeAttrs.push(attrName.toLowerCase());\n        i += 2;\n      }\n    }\n    const eAttrs =
element.attributes;\n    for (let i = 0; i < eAttrs.length; i++)\n      {\n        const attr = eAttrs[i];\n        const lowercaseName = attr.name.toLowerCase();\n        // Make sure that we
don't assign the same attribute both in its\n        // case-sensitive form and the lower-cased one from the browser.\n        if (lowercaseTNodeAttrs.indexOf(lowercaseName) === -1) {\n          // Save the lowercase name to align the behavior
between browsers.\n          // IE preserves the case, while all other browser convert it to lower case.\n          attributes[lowercaseName] = attr.value;\n        }\n      }\n    return attributes;\n  }\n\n  get styles(): {[key: string]:
string|null;} {\n    if (this.nativeElement && (this.nativeElement as HTMLElement).style) {\n      return
(this.nativeElement as HTMLElement).style as {[key: string]: any};\n    }\n    return {};\n  }\n\n  get classes():
{[key: string]: boolean;} {\n    const result: {[key: string]: boolean;} = {};\n    const element = this.nativeElement as
HTMLElement | SVGElement;\n    // SVG elements return an `SVGAnimatedString`

```

```

instead of a plain string for the `className`.
const className = element.className as string |
SVGAnimatedString;
const classes = className && typeof className !== 'string' ? className.baseVal.split(' ')
: className.split(' ');
classes.forEach((value: string) => result[value]
= true);
return result;
}
get childNodes(): DebugNode[] {
const childNodes =
this.nativeNode.childNodes;
const children: DebugNode[] = [];
for (let i = 0; i < childNodes.length; i++) {
const element = childNodes[i];
children.push(getDebugNode__POST_R3__(element));
}
return
children;
}
get children(): DebugElement[] {
const nativeElement = this.nativeElement;
if
(!nativeElement) return [];
const childNodes = nativeElement.children;
const children: DebugElement[] =
[];
for (let i = 0; i < childNodes.length; i++) {
const element =
childNodes[i];
children.push(getDebugNode__POST_R3__(element));
}
return children;
}
query(predicate: Predicate<DebugElement>): DebugElement {
const results = this.queryAll(predicate);
return results[0] || null;
}
queryAll(predicate: Predicate<DebugElement>): DebugElement[] {
const
matches: DebugElement[] = [];
_queryAllR3(this, predicate, matches, true);
return matches;
}
queryAllNodes(predicate: Predicate<DebugNode>): DebugNode[] {
const matches: DebugNode[] = [];
_queryAllR3(this, predicate, matches, false);
return matches;
}
triggerEventHandler(eventName: string,
eventObj: any): void {
const node = this.nativeNode as any;
const invokedListeners: Function[] = [];
this.listeners.forEach(listener => {
if (listener.name === eventName) {
const callback =
listener.callback;
callback.call(node, eventObj);
invokedListeners.push(callback);
}
});
// We need to check whether `eventListeners` exists, because it's something
// that Zone.js only adds to
`EventTarget` in browser environments.
if (typeof node.eventListeners === 'function') {
// Note that in Ivy
we wrap event listeners with a call to `event.preventDefault` in some
// cases. We use `__ngUnwrap__` as a
special token that gives us access to the actual event
// listener.
node.eventListeners(eventName).forEach((listener: Function) => {
// In order to ensure that we can detect the
special __ngUnwrap__ token described above, we
// use `toString` on the listener and see if it contains the
token. We use this approach to
// ensure that it still worked with compiled code since it cannot remove or
rename string
// literals. We also considered using a special function name (i.e. if(listener.name ===
// special)) but that was more cumbersome and we were also concerned the compiled code could
// strip the name, turning the condition in to ("" === "") and always returning true.
if
(listener.toString().indexOf('__ngUnwrap__') !== -1) {
const unwrappedListener =
listener('__ngUnwrap__');
return invokedListeners.indexOf(unwrappedListener) === -1 &&
unwrappedListener.call(node, eventObj);
}
});
}
}
function copyDomProperties(element:
Element|null, properties: {[name: string]: string}): void {
if (element) {
// Skip own properties (as those are
patched)
let obj = Object.getPrototypeOf(element);
const NodePrototype: any = Node.prototype;
while
(obj !== null && obj !== NodePrototype) {
const descriptors = Object.getOwnPropertyDescriptors(obj);
for (let key in descriptors) {
if (!key.startsWith('__') && !key.startsWith('on')) {
// don't include
properties starting with `__` and `on`.
// `__` are patched values which should not
be included.
// `on` are listeners which also should not be included.
const value = (element as
any)[key];
if (isPrimitiveValue(value)) {
properties[key] = value;
}
}
}
obj = Object.getPrototypeOf(obj);
}
}
}
function isPrimitiveValue(value: any): boolean {
return typeof
value === 'string' || typeof value === 'boolean' || typeof value === 'number' ||
value === null;
}
Walk the TNode tree to find matches for the predicate.
@param parentElement the element from which the
walk is started
@param predicate the predicate to match
@param matches the list of positive matches
@param elementsOnly whether only elements should be searched
function _queryAllR3(
parentElement:
DebugElement, predicate: Predicate<DebugElement>, matches: DebugElement[],
elementsOnly: true):
void;
function _queryAllR3(
parentElement: DebugElement, predicate: Predicate<DebugNode>,
matches: DebugNode[],
elementsOnly: false): void;
function _queryAllR3(
parentElement: DebugElement,
predicate: Predicate<DebugElement>|Predicate<DebugNode>,
matches: DebugElement[]|DebugNode[],
elementsOnly: boolean) {
const context = loadLContext(parentElement.nativeNode, false);
if (context !== null)

```

```

{\n  const parentTNode = context.IView[TVIEW].data[context.nodeIndex] as TNode;\n
_queryNodeChildrenR3(\n    parentTNode, context.IView, predicate, matches, elementsOnly,\n
parentElement.nativeNode);\n } else {\n  // If the context is null, then `parentElement` was either created with\n
Renderer2 or native DOM\n  // APIs.\n  _queryNativeNodeDescendants(parentElement.nativeNode, predicate,\n
matches, elementsOnly);\n }\n}\n\n/*\n * Recursively match the current TNode against the predicate, and goes on\n
with the next ones.\n * @param tNode the current TNode\n * @param IView the LView of this TNode\n * @param predicate the predicate to\n
match\n * @param matches the list of positive matches\n * @param elementsOnly whether only elements should\n
be searched\n * @param rootNativeNode the root native node on which predicate should not be matched\n
*/\nfunction _queryNodeChildrenR3(\n  tNode: TNode, IView: LView, predicate:\n
Predicate<DebugElement>|Predicate<DebugNode>,\n  matches: DebugElement[]|DebugNode[], elementsOnly:\n
boolean, rootNativeNode: any) {\n  ngDevMode && assertTNodeForLView(tNode, IView);\n  const nativeNode =\n
getNativeByTNodeOrNull(tNode, IView);\n  // For each type of TNode, specific logic is executed.\n  if (tNode.type\n
& (TNodeType.AnyRNode | TNodeType.ElementContainer)) {\n    // Case 1: the TNode is an element\n    // The\n
native node has to be checked.\n    _addQueryMatchR3(nativeNode, predicate, matches, elementsOnly,\n
rootNativeNode);\n    if (isComponentHost(tNode)) {\n      // If the element is the host of a component, then all\n
nodes in its view have to be processed.\n      // Note: the component's\n
content (tNode.child) will be processed from the insertion points.\n      const componentView =\n
getComponentLViewByIndex(tNode.index, IView);\n      if (componentView &&\n
componentView[TVIEW].firstChild) {\n        _queryNodeChildrenR3(\n
componentView[TVIEW].firstChild!, componentView, predicate, matches, elementsOnly,\n
rootNativeNode);\n      }\n    } else {\n      if (tNode.child) {\n        // Otherwise, its children have to be processed.\n
_queryNodeChildrenR3(tNode.child, IView, predicate, matches, elementsOnly, rootNativeNode);\n      }\n    }\n  }\n  // We also have to query the DOM directly in order to catch elements inserted through\n
  // Renderer2. Note that this\n
is __not__ optimal, because we're walking similar trees multiple\n  // times. ViewEngine could do it more\n
efficiently, because all the insertions go through\n  // Renderer2, however that's not the case in Ivy. This approach\n
is being used because:\n  // 1. Matching the ViewEngine\n
behavior would mean potentially introducing a dependency\n  // from `Renderer2` to Ivy which could bring Ivy\n
code into ViewEngine.\n  // 2. We would have to make `Renderer3` \"know\" about debug nodes.\n  // 3. It\n
allows us to capture nodes that were inserted directly via the DOM.\n  nativeNode &&\n
_queryNativeNodeDescendants(nativeNode, predicate, matches, elementsOnly);\n }\n  // In all cases, if a\n
dynamic container exists for this node, each view inside it has to be\n  // processed.\n  const nodeOrContainer =\n
IView[tNode.index];\n  if (isLContainer(nodeOrContainer)) {\n    _queryNodeChildrenInContainerR3(\n
nodeOrContainer, predicate, matches, elementsOnly, rootNativeNode);\n  }\n  } else if (tNode.type &\n
TNodeType.Container) {\n    // Case 2: the TNode is a container\n    // The native node has to be checked.\n    const\n
lContainer = IView[tNode.index];\n    _addQueryMatchR3(lContainer[NATIVE], predicate, matches, elementsOnly,\n
rootNativeNode);\n    // Each view inside the container has to be processed.\n    _queryNodeChildrenInContainerR3(lContainer,\n
predicate, matches, elementsOnly, rootNativeNode);\n  } else if (tNode.type & TNodeType.Projection) {\n    // Case\n
3: the TNode is a projection insertion point (i.e. a <ng-content>).\n    // The nodes projected at this location all need\n
to be processed.\n    const componentView = IView![DECLARATION_COMPONENT_VIEW];\n    const\n
componentHost = componentView[T_HOST] as TElementNode;\n    const head: TNode|null =\n
(componentHost.projection as (TNode | null)[])[tNode.projection as number];\n    if (Array.isArray(head)) {\n      for (let nativeNode of head) {\n        _addQueryMatchR3(nativeNode, predicate, matches, elementsOnly,\n
rootNativeNode);\n      }\n    } else if (head) {\n      const nextLView = componentView[PARENT]! as LView;\n      const nextTNode = nextLView[TVIEW].data[head.index] as TNode;\n      _queryNodeChildrenR3(nextTNode,\n
nextLView, predicate, matches,\n

```

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elementsOnly, rootNativeNode);\n  }\n } else if (tNode.child) {\n  // Case 4: the TNode is a view.\n  _queryNodeChildrenR3(tNode.child, IView, predicate, matches, elementsOnly, rootNativeNode);\n }\n\n // We don't want to go to the next sibling of the root node.\n if (rootNativeNode !== nativeNode) {\n  // To determine the next node to be processed, we need to use the next or the projectionNext\n  // link, depending on whether the current node has been projected.\n  const nextTNode = (tNode.flags & TNodeFlags.isProjected) ?\n  tNode.projectionNext : tNode.next;\n  if (nextTNode) {\n    _queryNodeChildrenR3(nextTNode, IView, predicate, matches, elementsOnly, rootNativeNode);\n  }\n }\n}\n\n/**\n * Process all TNodes in a given container.\n *\n * @param IContainer the container to be processed\n * @param predicate the predicate to match\n * @param matches the list of positive matches\n * @param elementsOnly whether only elements should be searched\n * @param rootNativeNode the root native node on which predicate should not be matched\n */\nfunction\n_queryNodeChildrenInContainerR3(\n  IContainer: LContainer, predicate:\n  Predicate<DebugElement>|Predicate<DebugNode>,\n  matches: DebugElement[]|DebugNode[], elementsOnly:\n  boolean, rootNativeNode: any) {\n  for (let i = CONTAINER_HEADER_OFFSET; i < IContainer.length; i++) {\n    const childView = IContainer[i] as LView;\n    const firstChild = childView[TVIEW].firstChild;\n    if (firstChild) {\n      _queryNodeChildrenR3(firstChild, childView, predicate, matches, elementsOnly, rootNativeNode);\n    }\n  }\n}\n\n/**\n * Match the current native node against the predicate.\n *\n * @param nativeNode the current native node\n * @param predicate the predicate to match\n * @param matches the list of positive matches\n * @param elementsOnly whether only elements should be searched\n * @param rootNativeNode the root native node on which predicate should not be matched\n */\nfunction _addQueryMatchR3(\n  nativeNode: any, predicate: Predicate<DebugElement>|Predicate<DebugNode>,\n  matches:\n  DebugElement[]|DebugNode[], elementsOnly: boolean, rootNativeNode: any) {\n  if (rootNativeNode !== nativeNode) {\n    const debugNode = getDebugNode(nativeNode);\n    if (!debugNode) {\n      return;\n    }\n    // Type of the \"predicate and \"matches\" array are set based on the value of\n    // the \"elementsOnly\" parameter. TypeScript is not able to properly infer these\n    // types with generics, so we manually cast the parameters accordingly.\n    if (elementsOnly && debugNode instanceof DebugElement__POST_R3__ &&\n    predicate(debugNode) &&\n    matches.indexOf(debugNode) === -1) {\n      matches.push(debugNode);\n    } else if (\n    !elementsOnly && (predicate as Predicate<DebugNode>)(debugNode) &&\n    (matches as DebugNode[]).indexOf(debugNode) === -1) {\n      (matches as DebugNode[]).push(debugNode);\n    }\n  }\n}\n\n/**\n * Match all the descendants of a DOM node against a predicate.\n *\n * @param nativeNode the current native node\n * @param predicate the predicate to match\n * @param matches the list where matches are stored\n * @param elementsOnly whether only elements should be searched\n */\nfunction _queryNativeNodeDescendants(\n  parentNode: any, predicate:\n  Predicate<DebugElement>|Predicate<DebugNode>,\n  matches: DebugElement[]|DebugNode[], elementsOnly:\n  boolean) {\n  const nodes = parentNode.childNodes;\n  const length = nodes.length;\n  for (let i = 0; i < length; i++) {\n    const node = nodes[i];\n    const debugNode = getDebugNode(node);\n    if (debugNode) {\n      if (elementsOnly && debugNode instanceof DebugElement__POST_R3__ && predicate(debugNode) &&\n      matches.indexOf(debugNode) === -1) {\n        matches.push(debugNode);\n      } else if (\n      !elementsOnly && (predicate as Predicate<DebugNode>)(debugNode) &&\n      (matches as DebugNode[]).indexOf(debugNode) === -1) {\n        (matches as DebugNode[]).push(debugNode);\n      }\n    }\n  }\n  _queryNativeNodeDescendants(node, predicate, matches, elementsOnly);\n }\n}\n\n/**\n * Iterates through the property bindings for a given node and generates\n * a map of property names to values. This map only contains property bindings\n * defined in templates, not in host bindings.\n */\nfunction\n  collectPropertyBindings(\n    properties: {[key: string]: string}, tNode: TNode, IView: LView, tData: TData): void {\n    let bindingIndexes = tNode.propertyBindings;\n    if (bindingIndexes !== null) {\n      for (let i = 0; i < bindingIndexes.length; i++) {\n        const bindingIndex = bindingIndexes[i];\n        const propMetadata = tData[bindingIndex] as string;\n        const metadataParts = propMetadata.split(INTERPOLATION_DELIMITER);\n        const propertyName = metadataParts[0];\n        if (metadataParts.length > 1) {\n          let value = metadataParts[1];\n
```

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for (let j = 1; j < metadataParts.length - 1; j++) {\n      value += renderStringify(IView[bindingIndex\n+ j - 1]) + metadataParts[j + 1];\n    }\n    properties[propertyNames] = value;\n  } else {\nproperties[propertyNames] = IView[bindingIndex];\n  }\n}\n}\n}\n}\n// Need to keep the nodes in a global Map so that multiple angular apps are supported.\nconst _nativeNodeToDebugNode = new Map<any,\nDebugNode>();\nfunction getDebugNode__PRE_R3__(nativeNode: any): DebugNode | null {\n  return\n_nativeNodeToDebugNode.get(nativeNode) || null;\n}\nconst NG_DEBUG_PROPERTY =\n'_ng_debug_';\nexport function getDebugNode__POST_R3__(nativeNode: Element):\nDebugElement__POST_R3__;\nexport function getDebugNode__POST_R3__(nativeNode: Node):\nDebugNode__POST_R3__;\nexport function getDebugNode__POST_R3__(nativeNode: null): null;\nexport\nfunction getDebugNode__POST_R3__(nativeNode: any): DebugNode | null {\n  if (nativeNode instanceof Node) {\n    if (!(nativeNode.hasOwnProperty(NG_DEBUG_PROPERTY))) {\n      (nativeNode as\nany)[NG_DEBUG_PROPERTY] = nativeNode.nodeType\n        == Node.ELEMENT_NODE ?\n          new DebugElement__POST_R3__(nativeNode as Element) : \n          new\nDebugNode__POST_R3__(nativeNode);\n    }\n    return (nativeNode as any)[NG_DEBUG_PROPERTY];\n  }\n  return null;\n}\n\n/**\n * @publicApi\n */\nexport const getDebugNode: (nativeNode: any) => DebugNode | null =\ngetDebugNode__PRE_R3__;\n\nexport function getDebugNodeR2__PRE_R3__(nativeNode: any):\nDebugNode | null {\n  return getDebugNode__PRE_R3__(nativeNode);\n}\n\nexport function\ngetDebugNodeR2__POST_R3__(_nativeNode: any): DebugNode | null {\n  return null;\n}\n\nexport const\ngetDebugNodeR2: (nativeNode: any) => DebugNode | null = getDebugNodeR2__PRE_R3__;\n\nexport function\ngetAllDebugNodes(): DebugNode[] {\n  return Array.from(_nativeNodeToDebugNode.values());\n}\n\nexport\nfunction indexDebugNode(node: DebugNode) {\n  _nativeNodeToDebugNode.set(node.nativeNode,\nnode);\n}\n\nexport function removeDebugNodeFromIndex(node: DebugNode) {\n  _nativeNodeToDebugNode.delete(node.nativeNode);\n}\n\n/**\n * A boolean-valued function over a value, possibly including context information\n * regarding that value's position\nin an array.\n *\n * @publicApi\n */\nexport interface Predicate<T> {\n  (value: T): boolean;\n}\n\n/**\n * @publicApi\n */\nexport const DebugNode: {new (...args: any[]): DebugNode} =\nDebugNode__PRE_R3__;\n\n/**\n * @publicApi\n */\nexport const DebugElement: {new (...args: any[]):\nDebugElement} = DebugElement__PRE_R3__;\n"}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nmodule *\n@description\n * Change detection enables\ndata binding in Angular.\n\nexport {ChangeDetectionStrategy, ChangeDetectorRef, DefaultIterableDiffer,\nIterableChangeRecord, IterableChanges, IterableDiffer, IterableDifferFactory, IterableDiffers,\nKeyValueChangeRecord, KeyValueChanges, KeyValueDiffer,\nKeyValueDifferFactory, KeyValueDiffers, NgIterable, PipeTransform, SimpleChange, SimpleChanges,\nTrackByFunction, WrappedValue} from './change_detection/change_detection';\n\n/**\n * @license\n * Copyright\nGoogle LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {createPlatformFactory, PlatformRef} from\n'./application_ref';\nimport {PLATFORM_ID} from './application_tokens';\nimport {Console} from\n'./console';\nimport {Injector, StaticProvider} from './di';\nimport {TestabilityRegistry} from\n'./testability/testability';\n\nconst _CORE_PLATFORM_PROVIDERS: StaticProvider[] = [\n  // Set a default\nplatform name for platforms that don't set it explicitly.\n  {\n    provide: PLATFORM_ID,\n    useValue: 'unknown'\n  },\n  {\n    provide: PlatformRef,\n    deps: [Injector]\n  },\n  {\n    provide: TestabilityRegistry,\n    deps: []\n  },\n  {\n    provide: Console,\n    deps:\n[]\n  },\n];\n\n/**\n * This platform has to be\nincluded in any other platform\n *\n * @publicApi\n */\nexport const platformCore = createPlatformFactory(null,\n'core', _CORE_PLATFORM_PROVIDERS);\n\n/**\n * @license\n * Copyright Google LLC All Rights\nReserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\nLICENSE file at https://angular.io/license\n */\n\nimport {APP_INITIALIZER, ApplicationInitStatus} from\n'./application_init';\nimport {ApplicationRef} from './application_ref';\nimport {APP_ID_RANDOM_PROVIDER}
```

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from './application_tokens';\nimport {defaultIterableDiffers, defaultKeyValueDiffers, IterableDiffers,
KeyValueDiffers} from './change_detection/change_detection';\nimport {Console} from './console';\nimport
{Injector, StaticProvider} from './di';\nimport {Inject, Optional, SkipSelf} from './di/metadata';\nimport
{ErrorHandler} from './error_handler';\nimport {DEFAULT_LOCALE_ID, USD_CURRENCY_CODE} from
'/i18n/localization';\nimport {DEFAULT_CURRENCY_CODE, LOCALE_ID} from './i18n/tokens';\nimport
{ivyEnabled} from './ivy_switch';\nimport {ComponentFactoryResolver} from './linker';\nimport {Compiler} from
'/linker/compiler';\nimport {NgModule} from './metadata';\nimport {SCHEDULER} from
'/render3/component_ref';\nimport {setLocaleId} from './render3/i18n/i18n_locale_id';\nimport {NgZone} from
'/zone';\n\nndeclare const $localize: {locale?: string};\n\nexport function _iterableDiffersFactory() {\n return
defaultIterableDiffers;\n}\n\nexport function _keyValueDiffersFactory() {\n return
defaultKeyValueDiffers;\n}\n\nexport function _localeFactory(locale?: string): string {\n locale = locale ||
getGlobalLocale();\n if (ivyEnabled) {\n setLocaleId(locale);\n }\n return locale;\n}\n\n/*\n * Work out the
locale from the potential global properties.\n *\n * * Closure Compiler: use `goog.LOCALE`.\n * * Ivy enabled: use
`$localize.locale`\n */\nexport function getGlobalLocale(): string {\n if (typeof ngI18nClosureMode !== 'undefined'
&& ngI18nClosureMode
&&\n   typeof goog !== 'undefined' && goog.LOCALE !== 'en') {\n // * The default `goog.LOCALE` value is
`en`, while Angular used `en-US`.\n // * In order to preserve backwards compatibility, we use Angular default
value over\n // Closure Compiler's one.\n return goog.LOCALE;\n } else {\n // KEEP `typeof $localize !==
'undefined' && $localize.locale` IN SYNC WITH THE LOCALIZE\n // COMPILE-TIME INLINER.\n //\n //
* During compile time inlining of translations the expression will be replaced\n // with a string literal that is the
current locale. Other forms of this expression are not\n // guaranteed to be replaced.\n //\n // * During runtime
translation evaluation, the developer is required to set `$localize.locale`\n // if required, or just to provide their
own `LOCALE_ID` provider.\n return (ivyEnabled && typeof $localize !== 'undefined' && $localize.locale) ||\n
DEFAULT_LOCALE_ID;\n }\n}\n\n/*\n * A built-in [dependency
injection token](guide/glossary#di-token)\n * that is used to configure the root injector for bootstrapping.\n
*/\nexport const APPLICATION_MODULE_PROVIDERS: StaticProvider[] = [\n {\n provide: ApplicationRef,\n
useClass: ApplicationRef,\n deps: [NgZone, Console, Injector, ErrorHandler, ComponentFactoryResolver,
ApplicationInitStatus]\n },\n {\n provide: SCHEDULER, deps: [NgZone], useFactory: zoneSchedulerFactory,\n }\n
{\n provide: ApplicationInitStatus,\n useClass: ApplicationInitStatus,\n deps: [[new Optional(),
APP_INITIALIZER]]\n },\n {\n provide: Compiler, useClass: Compiler, deps: []\n },\n
APP_ID_RANDOM_PROVIDER,\n {\n provide: IterableDiffers, useFactory: _iterableDiffersFactory, deps: []\n },\n
{\n provide: KeyValueDiffers, useFactory: _keyValueDiffersFactory, deps: []\n },\n {\n provide: LOCALE_ID,\n
useFactory: _localeFactory,\n deps: [[new Inject(LOCALE_ID), new Optional(), new SkipSelf()]]\n },\n
{\n provide: DEFAULT_CURRENCY_CODE, useValue: USD_CURRENCY_CODE,\n }];\n\n/*\n * Schedule work at next available slot.\n *\n * In Ivy this is just `requestAnimationFrame`. For compatibility
reasons when bootstrapped\n * using `platformRef.bootstrap` we need to use `NgZone.onStable` as the scheduling
mechanism.\n * This overrides the scheduling mechanism in Ivy to `NgZone.onStable`.\n *\n * @param ngZone
NgZone to use for scheduling.\n */\nexport function zoneSchedulerFactory(ngZone: NgZone): (fn: () => void) =>
void {\n let queue: (() => void)[] = [];\n ngZone.onStable.subscribe(() => {\n while (queue.length) {\n
queue.pop()!();\n }\n });\n return function(fn: () => void) {\n queue.push(fn);\n }\n}\n\n/*\n * Configures the
root injector for an app with\n * providers of `@angular/core` dependencies that `ApplicationRef` needs\n * to
bootstrap components.\n *\n * Re-exported by `BrowserModule`, which is included automatically in the root\n *
`AppModule` when you create a new app with the CLI `new` command.\n *\n * @publicApi\n
*/\n@NgModule({ providers:
APPLICATION_MODULE_PROVIDERS})\nexport class ApplicationModule {\n // Inject ApplicationRef to
make it eager...\n constructor(appRef: ApplicationRef) {\n }\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport {ViewEncapsulation} from './metadata/view';\nimport

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{RendererType2} from './render/api_flags';\nimport {SecurityContext} from './sanitization/security';\n\nimport
{asElementData, BindingDef, BindingFlags, ElementData, ElementHandleEventFn, NodeDef, NodeFlags,
OutputDef, OutputType, QueryValueType, ViewData, ViewDefinitionFactory} from './types';\nimport
{calcBindingFlags, checkAndUpdateBinding, dispatchEvent, elementEventFullName, getParentRenderElement,
NOOP, resolveDefinition, resolveRendererType2, splitMatchedQueriesDsl, splitNamespace} from './util';\n\nexport
function anchorDef(\n
  flags: NodeFlags, matchedQueriesDsl: null|[string | number, QueryValueType][],\n  ngContentIndex:
null|number, childCount: number, handleEvent?: null|ElementHandleEventFn,\n  templateFactory?:
ViewDefinitionFactory): NodeDef {\n  flags |= NodeFlags.TypeElement;\n  const {matchedQueries, references,
matchedQueryIds} = splitMatchedQueriesDsl(matchedQueriesDsl);\n  const template = templateFactory ?
resolveDefinition(templateFactory) : null;\n  return {\n    // will bet set by the view definition\n    nodeIndex: -1,\n    parent: null,\n    renderParent: null,\n    bindingIndex: -1,\n    outputIndex: -1,\n    // regular values\n    flags,\n    checkIndex: -1,\n    childFlags: 0,\n    directChildFlags: 0,\n    childMatchedQueries: 0,\n    matchedQueries,\n    matchedQueryIds,\n    references,\n    ngContentIndex,\n    childCount,\n    bindings: [],\n    bindingFlags: 0,\n    outputs: [],\n    element: {\n      ns: null,\n      name: null,\n      attrs: null,\n      template,\n      componentProvider: null,\n      componentView: null,\n      componentRendererType: null,\n      publicProviders:
null,\n      allProviders: null,\n      handleEvent: handleEvent || NOOP\n    },\n    provider: null,\n    text: null,\n    query: null,\n    ngContent: null\n  };\n}\n\nexport function elementDef(\n  checkIndex: number, flags:
NodeFlags,\n  matchedQueriesDsl: null|[string | number, QueryValueType][], ngContentIndex: null|number,\n  childCount: number, namespaceAndName: string|null, fixedAttrs: null|[string, string][] = [],\n  bindings?:
null|[BindingFlags, string, string | SecurityContext | null][],\n  outputs?: null|([string, string])[], handleEvent?:
null|ElementHandleEventFn,\n  componentView?: null|ViewDefinitionFactory,\n  componentRendererType?:
RendererType2|null): NodeDef {\n  if (!handleEvent) {\n    handleEvent = NOOP;\n  }\n  const {matchedQueries,
references, matchedQueryIds} = splitMatchedQueriesDsl(matchedQueriesDsl);\n  let ns: string = null!;\n
  let name: string = null!;\n  if (namespaceAndName) {\n    [ns, name] = splitNamespace(namespaceAndName);\n
  }\n  bindings = bindings || [];\n  const bindingDefs: BindingDef[] = [];\n  for (let i = 0; i < bindings.length; i++) {\n
  const [bindingFlags, namespaceAndName, suffixOrSecurityContext] = bindings[i];\n  const [ns, name] =
splitNamespace(namespaceAndName);\n  let securityContext: SecurityContext = undefined!;\n  let suffix: string
= undefined!;\n  switch (bindingFlags & BindingFlags.Types) {\n    case BindingFlags.TypeElementStyle:\n
  suffix = <string>suffixOrSecurityContext;\n    break;\n    case BindingFlags.TypeElementAttribute:\n    case
BindingFlags.TypeProperty:\n      securityContext = <SecurityContext>suffixOrSecurityContext;\n    break;\n
  }\n  bindingDefs[i] = {\n    flags: bindingFlags, ns, name, nonMinifiedName: name, securityContext, suffix;\n
  }\n  outputs = outputs || [];\n  const outputDefs: OutputDef[] = [];\n  for (let
  i = 0; i < outputs.length; i++) {\n    const [target, eventName] = outputs[i];\n    outputDefs[i] = {\n      type:
OutputType.ElementOutput, target: <any>target, eventName, propName: null;\n    }\n    fixedAttrs = fixedAttrs || [];\n
  const attrs = <[string, string, string][]>fixedAttrs.map(([namespaceAndName, value]) => {\n      const [ns, name] =
splitNamespace(namespaceAndName);\n      return [ns, name, value];\n    });\n    componentRendererType =
resolveRendererType2(componentRendererType);\n    if (componentView) {\n      flags |=
NodeFlags.ComponentView;\n    }\n    flags |= NodeFlags.TypeElement;\n    return {\n      // will bet set by the view
definition\n      nodeIndex: -1,\n      parent: null,\n      renderParent: null,\n      bindingIndex: -1,\n      outputIndex: -1,\n      //
regular values\n      checkIndex,\n      flags,\n      childFlags: 0,\n      directChildFlags: 0,\n      childMatchedQueries: 0,\n
      matchedQueries,\n      matchedQueryIds,\n      references,\n      ngContentIndex,\n      childCount,\n      bindings:
bindingDefs,\n      bindingFlags: calcBindingFlags(bindingDefs),\n      outputs: outputDefs,\n      element: {\n        ns,\n
        name,\n        attrs,\n        template: null,\n        // will bet set by the view definition\n        componentProvider: null,\n
        componentView: componentView || null,\n        componentRendererType: componentRendererType,\n
        publicProviders: null,\n        allProviders: null,\n        handleEvent: handleEvent || NOOP,\n      },\n      provider: null,\n
      text: null,\n      query: null,\n      ngContent: null\n    };\n  }\n}\n\nexport function createElement(view: ViewData,
renderHost: any, def: NodeDef): ElementData {\n  const elDef = def.element!;\n  const rootSelectorOrNode =

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view.root.selectorOrNode;\n const renderer = view.renderer;\n let el: any;\n if (view.parent ||
!rootSelectorOrNode) {\n if (elDef.name) {\n el = renderer.createElement(elDef.name, elDef.ns);\n } else {\n
el = renderer.createComment("");\n }\n const parentEl = getParentRenderElement(view,
renderHost, def);\n if (parentEl) {\n renderer.appendChild(parentEl, el);\n }\n } else {\n // when using
native Shadow DOM, do not clear the root element contents to allow slot projection\n const preserveContent =\n
(!elDef.componentRendererType &&\n elDef.componentRendererType.encapsulation ===
ViewEncapsulation.ShadowDom);\n el = renderer.selectRootElement(rootSelectorOrNode, preserveContent);\n
}\n if (elDef.attrs) {\n for (let i = 0; i < elDef.attrs.length; i++) {\n const [ns, name, value] = elDef.attrs[i];\n
renderer.setAttribute(el, name, value, ns);\n }\n }\n return el;\n}\n\nexport function
listenToElementOutputs(view: ViewData, compView: ViewData, def: NodeDef, el: any) {\n for (let i = 0; i <
def.outputs.length; i++) {\n const output = def.outputs[i];\n const handleEventClosure =
renderEventHandlerClosure(\n view, def.nodeIndex, elementEventFullName(output.target,
output.eventName));\n let listenTarget:
'window'|'document'|'body'|'component'|null = output.target;\n let listenerView = view;\n if (output.target ===
'component') {\n listenTarget = null;\n listenerView = compView;\n }\n const disposable =\n
<any>listenerView.renderer.listen(listenTarget || el, output.eventName, handleEventClosure);\n
view.disposables![def.outputIndex + i] = disposable;\n }\n}\n\nfunction renderEventHandlerClosure(view:
ViewData, index: number, eventName: string) {\n return (event: any) => dispatchEvent(view, index, eventName,
event);\n}\n\nexport function checkAndUpdateElementInline(\n view: ViewData, def: NodeDef, v0: any, v1:
any, v2: any, v3: any, v4: any, v5: any, v6: any,\n v7: any, v8: any, v9: any): boolean {\n const bindLen =
def.bindings.length;\n let changed = false;\n if (bindLen > 0 && checkAndUpdateElementValue(view, def, 0, v0))
changed = true;\n if (bindLen > 1 && checkAndUpdateElementValue(view, def, 1, v1)) changed = true;\n if
(bindLen
> 2 && checkAndUpdateElementValue(view, def, 2, v2)) changed = true;\n if (bindLen > 3 &&
checkAndUpdateElementValue(view, def, 3, v3)) changed = true;\n if (bindLen > 4 &&
checkAndUpdateElementValue(view, def, 4, v4)) changed = true;\n if (bindLen > 5 &&
checkAndUpdateElementValue(view, def, 5, v5)) changed = true;\n if (bindLen > 6 &&
checkAndUpdateElementValue(view, def, 6, v6)) changed = true;\n if (bindLen > 7 &&
checkAndUpdateElementValue(view, def, 7, v7)) changed = true;\n if (bindLen > 8 &&
checkAndUpdateElementValue(view, def, 8, v8)) changed = true;\n if (bindLen > 9 &&
checkAndUpdateElementValue(view, def, 9, v9)) changed = true;\n return changed;\n}\n\nexport function
checkAndUpdateElementDynamic(view: ViewData, def: NodeDef, values: any[]): boolean {\n let changed =
false;\n for (let i = 0; i < values.length; i++) {\n if (checkAndUpdateElementValue(view, def, i, values[i]))
changed = true;\n }\n return changed;\n}\n\nfunction checkAndUpdateElementValue(view:
ViewData, def: NodeDef, bindingIdx: number, value: any) {\n if (!checkAndUpdateBinding(view, def, bindingIdx,
value)) {\n return false;\n }\n const binding = def.bindings[bindingIdx];\n const elData = asElementData(view,
def.nodeIndex);\n const renderNode = elData.renderElement;\n const name = binding.name!;\n switch
(binding.flags & BindingFlags.Types) {\n case BindingFlags.TypeElementAttribute:\n
setElementAttribute(view, binding, renderNode, binding.ns, name, value);\n break;\n case
BindingFlags.TypeElementClass:\n setElementClass(view, renderNode, name, value);\n break;\n case
BindingFlags.TypeElementStyle:\n setElementStyle(view, binding, renderNode, name, value);\n break;\n
case BindingFlags.TypeProperty:\n const bindView = (def.flags & NodeFlags.ComponentView &&\n
binding.flags & BindingFlags.SyntheticHostProperty) ?\n elData.componentView : view;\n
setElementProperty(bindView,
binding, renderNode, name, value);\n break;\n }\n return true;\n}\n\nfunction setElementAttribute(\n view:
ViewData, binding: BindingDef, renderNode: any, ns: string|null, name: string,\n value: any) {\n const
securityContext = binding.securityContext;\n let renderValue = securityContext ?
view.root.sanitizer.sanitize(securityContext, value) : value;\n renderValue = renderValue != null ?

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renderValue.toString() : null;\n const renderer = view.renderer;\n if (value != null) {\n
renderer.setAttribute(renderNode, name, renderValue, ns);\n } else {\n  renderer.removeAttribute(renderNode,
name, ns);\n }\n}\n\nfunction setElementClass(view: ViewData, renderNode: any, name: string, value: boolean) {\n
const renderer = view.renderer;\n if (value) {\n  renderer.addClass(renderNode, name);\n } else {\n
renderer.removeClass(renderNode, name);\n }\n}\n\nfunction setElementStyle(\n  view: ViewData, binding:
BindingDef, renderNode: any, name: string, value:
any) {\n  let renderValue: string|null =\n    view.root.sanitizer.sanitize(SecurityContext.STYLE, value as { } |
string);\n  if (renderValue != null) {\n    renderValue = renderValue.toString();\n    const unit = binding.suffix;\n  if
(unit != null) {\n    renderValue = renderValue + unit;\n  }\n } else {\n  renderValue = null;\n }\n  const
renderer = view.renderer;\n  if (renderValue != null) {\n    renderer.setStyle(renderNode, name, renderValue);\n  }
else {\n    renderer.removeStyle(renderNode, name);\n  }\n}\n}\n\nfunction setElementProperty(\n  view: ViewData,
binding: BindingDef, renderNode: any, name: string, value: any) {\n  const securityContext =
binding.securityContext;\n  let renderValue = securityContext ? view.root.sanitizer.sanitize(securityContext, value) :
value;\n  view.renderer.setProperty(renderNode, name, renderValue);\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { ElementRef } from
'./linker/element_ref';\nimport { QueryList } from './linker/query_list';\nimport { asElementData, asProviderData,
asQueryList, NodeDef, NodeFlags, QueryBindingDef, QueryBindingType, QueryDef, QueryValueType,
ViewData } from './types';\nimport { declaredViewContainer, filterQueryId, isEmbeddedView } from
'./util';\n\nexport function queryDef(\n  flags: NodeFlags, id: number, bindings: {[propName: string]:
QueryBindingType}): NodeDef {\n  let bindingDefs: QueryBindingDef[] = [];\n  for (let propName in bindings) {\n
const bindingType = bindings[propName];\n    bindingDefs.push({propName, bindingType});\n  }\n\n  return {\n
// will be set by the view definition\n  nodeIndex: -1,\n  parent: null,\n  renderParent: null,\n  bindingIndex: -
1,\n  outputIndex: -1,\n  // regular values\n  // TODO(vicb): check\n  checkIndex: -1,\n  flags,\n  childFlags:
0,\n  directChildFlags:
0,\n  childMatchedQueries: 0,\n  ngContentIndex: -1,\n  matchedQueries: {},\n  matchedQueryIds: 0,\n
references: {},\n  childCount: 0,\n  bindings: [],\n  bindingFlags: 0,\n  outputs: [],\n  element: null,\n
provider: null,\n  text: null,\n  query: {id, filterId: filterQueryId(id), bindings: bindingDefs},\n  ngContent: null\n
};\n}\n\nexport function createQuery(): QueryList<any> {\n  return new QueryList();\n}\n\nexport function
dirtyParentQueries(view: ViewData) {\n  const queryIds = view.def.nodeMatchedQueries;\n  while (view.parent
&& isEmbeddedView(view)) {\n    let tplDef = view.parentNodeDef!;\n    view = view.parent;\n    // content
queries\n    const end = tplDef.nodeIndex + tplDef.childCount;\n    for (let i = 0; i <= end; i++) {\n      const nodeDef
= view.def.nodes[i];\n      if ((nodeDef.flags & NodeFlags.TypeContentQuery) && (nodeDef.flags &
NodeFlags.DynamicQuery) && (nodeDef.query!.filterId & queryIds)
=== nodeDef.query!.filterId) {\n        asQueryList(view, i).setDirty();\n      }\n      if ((nodeDef.flags &
NodeFlags.TypeElement && i + nodeDef.childCount < tplDef.nodeIndex) ||\n        !(nodeDef.childFlags &
NodeFlags.TypeContentQuery) ||\n        !(nodeDef.childFlags & NodeFlags.DynamicQuery)) {\n        // skip
elements that don't contain the template element or no query.\n        i += nodeDef.childCount;\n      }\n    }\n  }\n\n
// view queries\n  if (view.def.nodeFlags & NodeFlags.TypeViewQuery) {\n    for (let i = 0; i <
view.def.nodes.length; i++) {\n      const nodeDef = view.def.nodes[i];\n      if ((nodeDef.flags &
NodeFlags.TypeViewQuery) && (nodeDef.flags & NodeFlags.DynamicQuery)) {\n        asQueryList(view,
i).setDirty();\n      }\n      // only visit the root nodes\n      i += nodeDef.childCount;\n    }\n  }\n}\n\nexport function
checkAndUpdateQuery(view: ViewData, nodeDef: NodeDef) {\n  const queryList = asQueryList(view,
nodeDef.nodeIndex);\n  if (!queryList.dirty)\n    {\n      return;\n    }\n  let directiveInstance: any;\n  let newValues: any[] = undefined!;\n  if (nodeDef.flags &
NodeFlags.TypeContentQuery) {\n    const elementDef = nodeDef.parent!.parent!;\n    newValues =
calcQueryValues(\n      view, elementDef.nodeIndex, elementDef.nodeIndex + elementDef.childCount,\n      nodeDef.query!,\n      []);\n    directiveInstance = asProviderData(view, nodeDef.parent!.nodeIndex).instance;\n  }

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else if (nodeDef.flags & NodeFlags.TypeViewQuery) {\n  newValues = calcQueryValues(view, 0,
view.def.nodes.length - 1, nodeDef.query!, []);\n  directiveInstance = view.component;\n }\n
queryList.reset(newValues);\n const bindings = nodeDef.query!.bindings;\n let notify = false;\n for (let i = 0; i <
bindings.length; i++) {\n  const binding = bindings[i];\n  let boundValue: any;\n  switch (binding.bindingType)
{\n   case QueryBindingType.First:\n    boundValue = queryList.first;\n    break;\n   case
QueryBindingType.All:\n    boundValue
= queryList;\n    notify = true;\n    break;\n  }\n  directiveInstance[binding.propName] = boundValue;\n }\n
if (notify) {\n  queryList.notifyOnChanges();\n }\n}\n\nfunction calcQueryValues(\n  view: ViewData,
startIndex: number, endIndex: number, queryDef: QueryDef,\n  values: any[]): any[] {\n  for (let i = startIndex; i
<= endIndex; i++) {\n    const nodeDef = view.def.nodes[i];\n    const valueType =
nodeDef.matchedQueries[queryDef.id];\n    if (valueType != null) {\n      values.push(getQueryValue(view,
nodeDef, valueType));\n    }\n    if (nodeDef.flags & NodeFlags.TypeElement && nodeDef.element!.template &&\n
(nodeDef.element!.template !.nodeMatchedQueries & queryDef.filterId) ===\n      queryDef.filterId) {\n
const elementData = asElementData(view, i);\n    // check embedded views that were attached at the place of their
template,\n    // but process child nodes first if some match the query (see issue #16568)\n    if
((nodeDef.childMatchedQueries
& queryDef.filterId) === queryDef.filterId) {\n      calcQueryValues(view, i + 1, i + nodeDef.childCount,
queryDef, values);\n      i += nodeDef.childCount;\n    }\n    if (nodeDef.flags & NodeFlags.EmbeddedViews)
{\n      const embeddedViews = elementData.viewContainer!._embeddedViews;\n      for (let k = 0; k <
embeddedViews.length; k++) {\n        const embeddedView = embeddedViews[k];\n        const dvc =
declaredViewContainer(embeddedView);\n        if (dvc && dvc === elementData) {\n
calcQueryValues(embeddedView, 0, embeddedView.def.nodes.length - 1, queryDef, values);\n        }\n      }\n
}\n    const projectedViews = elementData.template._projectedViews;\n    if (projectedViews) {\n      for (let k =
0; k < projectedViews.length; k++) {\n        const projectedView = projectedViews[k];\n
calcQueryValues(projectedView, 0, projectedView.def.nodes.length - 1, queryDef, values);\n        }\n      }\n
}\n    if ((nodeDef.childMatchedQueries & queryDef.filterId) !== queryDef.filterId) {\n      // if no child matches
the query, skip the children.\n      i += nodeDef.childCount;\n    }\n  }\n  return values;\n }\n}\n\nexport function
getQueryValue(\n  view: ViewData, nodeDef: NodeDef, queryValueType: QueryValueType): any {\n  if
(queryValueType != null) {\n    // a match\n    switch (queryValueType) {\n      case
QueryValueType.RenderElement:\n      return asElementData(view, nodeDef.nodeIndex).renderElement;\n      case
QueryValueType.ElementRef:\n      return new ElementRef(asElementData(view,
nodeDef.nodeIndex).renderElement);\n      case QueryValueType.TemplateRef:\n      return asElementData(view,
nodeDef.nodeIndex).template;\n      case QueryValueType.ViewContainerRef:\n      return asElementData(view,
nodeDef.nodeIndex).viewContainer;\n      case QueryValueType.Provider:\n      return asProviderData(view,
nodeDef.nodeIndex).instance;\n    }\n  }\n }\n }\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {NodeDef, NodeFlags,
ViewData} from './types';\nimport {getParentRenderElement, RenderNodeAction, visitProjectedRenderNodes}
from './util';\n\nexport function ngContentDef(ngContentIndex: null|number, index: number): NodeDef {\n  return
{\n    // will be set by the view definition\n    nodeIndex: -1,\n    parent: null,\n    renderParent: null,\n
bindingIndex: -1,\n    outputIndex: -1,\n    // regular values\n    checkIndex: -1,\n    flags:
NodeFlags.TypeNgContent,\n    childFlags: 0,\n    directChildFlags: 0,\n    childMatchedQueries: 0,\n
matchedQueries: {},\n    matchedQueryIds: 0,\n    references: {},\n    ngContentIndex,\n    childCount: 0,\n
bindings: [],\n    bindingFlags: 0,\n    outputs: [],\n    element: null,\n    provider: null,\n    text: null,\n    query:
null,\n
ngContent: {index}\n  };\n }\n\nexport function appendNgContent(view: ViewData, renderHost: any, def:
NodeDef) {\n  const parentEl = getParentRenderElement(view, renderHost, def);\n  if (!parentEl) {\n    // Nothing to
do if there is no parent element.\n    return;\n  }\n  const ngContentIndex = def.ngContent!.index;\n

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visitProjectedRenderNodes(\n    view, ngContentIndex, RenderNodeAction.AppendChild, parentEl, null,
undefined);\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {newArray} from './util/array_utils';\n\nimport {asPureExpressionData, BindingDef, BindingFlags,
NodeDef, NodeFlags, PureExpressionData, ViewData} from './types';\n\nimport {calcBindingFlags,
checkAndUpdateBinding} from './util';\n\nexport function purePipeDef(checkIndex: number, argCount: number):
NodeDef {\n // argCount + 1 to include
the pipe as first arg\n return _pureExpressionDef(NodeFlags.TypePurePipe, checkIndex, newArray(argCount +
1));\n}\n\nexport function pureArrayDef(checkIndex: number, argCount: number): NodeDef {\n return
_pureExpressionDef(NodeFlags.TypePureArray, checkIndex, newArray(argCount));\n}\n\nexport function
pureObjectDef(checkIndex: number, propToIndex: {[p: string]: number}): NodeDef {\n const keys =
Object.keys(propToIndex);\n const nbKeys = keys.length;\n const propertyNames = [];\n for (let i = 0; i < nbKeys;
i++) {\n const key = keys[i];\n const index = propToIndex[key];\n propertyNames.push(key);\n }\n\n return
_pureExpressionDef(NodeFlags.TypePureObject, checkIndex, propertyNames);\n}\n\nfunction
_pureExpressionDef(\n flags: NodeFlags, checkIndex: number, propertyNames: string[]): NodeDef {\n const
bindings: BindingDef[] = [];\n for (let i = 0; i < propertyNames.length; i++) {\n const prop = propertyNames[i];\n
bindings.push({\n flags: BindingFlags.TypeProperty,\n
name: prop,\n ns: null,\n nonMinifiedName: prop,\n securityContext: null,\n suffix: null\n });\n
}\n return {\n // will be set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n
bindingIndex: -1,\n outputIndex: -1,\n // regular values\n checkIndex,\n flags,\n childFlags: 0,\n
directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries: {},\n matchedQueryIds: 0,\n references:
{},\n ngContentIndex: -1,\n childCount: 0,\n bindings,\n bindingFlags: calcBindingFlags(bindings),\n
outputs: [],\n element: null,\n provider: null,\n text: null,\n query: null,\n ngContent: null\n };\n}\n\nexport
function createPureExpression(view: ViewData, def: NodeDef): PureExpressionData {\n return {value:
undefined};\n}\n\nexport function checkAndUpdatePureExpressionInline(\n view: ViewData, def: NodeDef, v0:
any, v1: any, v2: any, v3: any, v4: any, v5: any,
v6: any,\n v7: any, v8: any, v9: any): boolean {\n const bindings = def.bindings;\n let changed = false;\n const
bindLen = bindings.length;\n if (bindLen > 0 && checkAndUpdateBinding(view, def, 0, v0)) changed = true;\n if
(bindLen > 1 && checkAndUpdateBinding(view, def, 1, v1)) changed = true;\n if (bindLen > 2 &&
checkAndUpdateBinding(view, def, 2, v2)) changed = true;\n if (bindLen > 3 && checkAndUpdateBinding(view,
def, 3, v3)) changed = true;\n if (bindLen > 4 && checkAndUpdateBinding(view, def, 4, v4)) changed = true;\n if
(bindLen > 5 && checkAndUpdateBinding(view, def, 5, v5)) changed = true;\n if (bindLen > 6 &&
checkAndUpdateBinding(view, def, 6, v6)) changed = true;\n if (bindLen > 7 && checkAndUpdateBinding(view,
def, 7, v7)) changed = true;\n if (bindLen > 8 && checkAndUpdateBinding(view, def, 8, v8)) changed = true;\n if
(bindLen > 9 && checkAndUpdateBinding(view, def, 9, v9)) changed = true;\n\n if (changed) {\n const data =
asPureExpressionData(view,
def.nodeIndex);\n let value: any;\n switch (def.flags & NodeFlags.Types) {\n case
NodeFlags.TypePureArray:\n value = [];\n if (bindLen > 0) value.push(v0);\n if (bindLen > 1)
value.push(v1);\n if (bindLen > 2) value.push(v2);\n if (bindLen > 3) value.push(v3);\n if (bindLen >
4) value.push(v4);\n if (bindLen > 5) value.push(v5);\n if (bindLen > 6) value.push(v6);\n if (bindLen
> 7) value.push(v7);\n if (bindLen > 8) value.push(v8);\n if (bindLen > 9) value.push(v9);\n break;\n
case NodeFlags.TypePureObject:\n value = {};\n if (bindLen > 0) value[bindings[0].name!] = v0;\n if
(bindLen > 1) value[bindings[1].name!] = v1;\n if (bindLen > 2) value[bindings[2].name!] = v2;\n if
(bindLen > 3) value[bindings[3].name!] = v3;\n if (bindLen > 4) value[bindings[4].name!] = v4;\n if
(bindLen > 5) value[bindings[5].name!] = v5;\n if (bindLen
> 6) value[bindings[6].name!] = v6;\n if (bindLen > 7) value[bindings[7].name!] = v7;\n if (bindLen > 8)
value[bindings[8].name!] = v8;\n if (bindLen > 9) value[bindings[9].name!] = v9;\n break;\n case
NodeFlags.TypePurePipe:\n const pipe = v0;\n switch (bindLen) {\n case 1:\n value =

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pipe.transform(v0);\n      break;\n      case 2:\n        value = pipe.transform(v1);\n        break;\n      case 3:\n        value = pipe.transform(v1, v2);\n        break;\n      case 4:\n        value = pipe.transform(v1, v2, v3);\n        break;\n      case 5:\n        value = pipe.transform(v1, v2, v3, v4);\n        break;\n      case 6:\n        value = pipe.transform(v1, v2, v3, v4, v5);\n        break;\n      case 7:\n        value = pipe.transform(v1, v2, v3, v4, v5, v6);\n        break;\n      case 8:\n        value = pipe.transform(v1, v2, v3, v4, v5, v6, v7);\n        break;\n      case 9:\n        value = pipe.transform(v1, v2, v3, v4, v5, v6, v7, v8);\n        break;\n      case 10:\n        value = pipe.transform(v1, v2, v3, v4, v5, v6, v7, v8, v9);\n        break;\n    }\n    data.value = value;\n  }\n  return changed;\n}\n\nexport function checkAndUpdatePureExpressionDynamic(\n  view: ViewData, def: NodeDef, values: any[]): boolean {\n  const bindings = def.bindings;\n  let changed = false;\n  for (let i = 0; i < values.length; i++) {\n    // Note: We need to loop over all values, so that\n    // the old values are updates as well!\n    if (checkAndUpdateBinding(view, def, i, values[i])) {\n      changed = true;\n    }\n  }\n  if (changed) {\n    const data = asPureExpressionData(view, def.nodeIndex);\n    let value: any;\n    switch (def.flags & NodeFlags.Types) {\n      case NodeFlags.TypePureArray:\n        value = values;\n        break;\n      case NodeFlags.TypePureObject:\n        value = {};\n        for (let i = 0; i < values.length; i++) {\n          value[bindings[i].name!] = values[i];\n        }\n        break;\n      case NodeFlags.TypePurePipe:\n        const pipe = values[0];\n        const params = values.slice(1);\n        value = (<any>pipe.transform)(...params);\n        break;\n    }\n    data.value = value;\n  }\n  return changed;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {asTextData, BindingDef, BindingFlags, NodeDef, NodeFlags, TextData, ViewData} from './types';\nimport {checkAndUpdateBinding, getParentRenderElement} from './util';\n\nexport function textDef(\n  checkIndex: number, ngContentIndex: number|null, staticText: string[]): NodeDef {\n  const bindings: BindingDef[] = [];\n  for (let i = 1; i < staticText.length; i++) {\n    bindings[i - 1] = {\n      flags: BindingFlags.TypeProperty,\n      name: null,\n      ns: null,\n      nonMinifiedName: null,\n      securityContext: null,\n      suffix: staticText[i],\n    };\n  }\n  return {\n    // will be set by the view definition\n    nodeIndex: -1,\n    parent: null,\n    renderParent: null,\n    bindingIndex: -1,\n    outputIndex: -1,\n    // regular values\n    checkIndex,\n    flags: NodeFlags.TypeText,\n    childFlags: 0,\n    directChildFlags: 0,\n    childMatchedQueries: 0,\n    matchedQueries: {},\n    matchedQueryIds: 0,\n    references: {},\n    ngContentIndex,\n    childCount: 0,\n    bindings,\n    bindingFlags: BindingFlags.TypeProperty,\n    outputs: [],\n    element: null,\n    provider: null,\n    text: {prefix: staticText[0]},\n    query: null,\n    ngContent: null,\n  };\n}\n\nexport function createText(view: ViewData, renderHost: any, def: NodeDef): TextData {\n  let renderNode: any;\n  const renderer = view.renderer;\n  renderNode = renderer.createText(def.text!.prefix);\n  const parentEl = getParentRenderElement(view, renderHost, def);\n  if (parentEl) {\n    renderer.appendChild(parentEl, renderNode);\n  }\n  return {renderText: renderNode};\n}\n\nexport function checkAndUpdateTextInline(\n  view: ViewData, def: NodeDef, v0: any, v1: any, v2: any, v3: any, v4: any, v5: any, v6: any, v7: any, v8: any, v9: any): boolean {\n  let changed = false;\n  const bindings = def.bindings;\n  const bindLen = bindings.length;\n  if (bindLen > 0 && checkAndUpdateBinding(view, def, 0, v0)) changed = true;\n  if (bindLen > 1 && checkAndUpdateBinding(view, def, 1, v1)) changed = true;\n  if (bindLen > 2 && checkAndUpdateBinding(view, def, 2, v2)) changed = true;\n  if (bindLen > 3 && checkAndUpdateBinding(view, def, 3, v3)) changed = true;\n  if (bindLen > 4 && checkAndUpdateBinding(view, def, 4, v4)) changed = true;\n  if (bindLen > 5 && checkAndUpdateBinding(view, def, 5, v5)) changed = true;\n  if (bindLen > 6 && checkAndUpdateBinding(view, def, 6, v6)) changed = true;\n  if (bindLen > 7 && checkAndUpdateBinding(view, def, 7, v7)) changed = true;\n  if (bindLen > 8 && checkAndUpdateBinding(view, def, 8, v8)) changed = true;\n  if (bindLen > 9 && checkAndUpdateBinding(view, def, 9, v9)) changed = true;\n  if (changed) {\n    let value = def.text!.prefix;\n    if (bindLen > 0) value += _addInterpolationPart(v0, bindings[0]);\n    if (bindLen > 1) value += _addInterpolationPart(v1, bindings[1]);\n    if (bindLen > 2) value += _addInterpolationPart(v2, bindings[2]);\n    if (bindLen > 3) value += _addInterpolationPart(v3, bindings[3]);\n    if (bindLen > 4) value +=

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_addInterpolationPart(v4, bindings[4]);\n  if (bindLen > 5) value += _addInterpolationPart(v5, bindings[5]);\n  if
(bindLen > 6) value += _addInterpolationPart(v6, bindings[6]);\n  if (bindLen > 7) value +=
_addInterpolationPart(v7, bindings[7]);\n  if (bindLen > 8) value += _addInterpolationPart(v8, bindings[8]);\n  if
(bindLen > 9) value
+= _addInterpolationPart(v9, bindings[9]);\n  const renderNode = asTextData(view, def.nodeIndex).renderText;\n
view.rendererer.setValue(renderNode, value);\n } \n return changed;\n}\n\nexport function
checkAndUpdateTextDynamic(view: ViewData, def: NodeDef, values: any[]): boolean {\n  const bindings =
def.bindings;\n  let changed = false;\n  for (let i = 0; i < values.length; i++) {\n    // Note: We need to loop over all
values, so that\n    // the old values are updates as well!\n    if (checkAndUpdateBinding(view, def, i, values[i])) {\n
changed = true;\n    } \n } \n if (changed) {\n  let value = ";\n  for (let i = 0; i < values.length; i++) {\n    value =
value + _addInterpolationPart(values[i], bindings[i]);\n  } \n  value = def.text!.prefix + value;\n  const
renderNode = asTextData(view, def.nodeIndex).renderText;\n  view.rendererer.setValue(renderNode, value);\n } \n
return changed;\n}\n\nfunction _addInterpolationPart(value: any, binding: BindingDef): string
{\n  const valueStr = value != null ? value.toString() : ";\n  return valueStr + binding.suffix;\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Renderer2} from
'./render/api';\n\nimport {checkAndUpdateElementDynamic, checkAndUpdateElementInline, createElement,
listenToElementOutputs} from './element';\nimport {expressionChangedAfterItHasBeenCheckedError} from
'./errors';\nimport {appendNgContent} from './ng_content';\nimport {callLifecycleHooksChildrenFirst,
checkAndUpdateDirectiveDynamic, checkAndUpdateDirectiveInline, createDirectiveInstance, createPipeInstance,
createProviderInstance} from './provider';\nimport {checkAndUpdatePureExpressionDynamic,
checkAndUpdatePureExpressionInline, createPureExpression} from './pure_expression';\nimport
{checkAndUpdateQuery, createQuery} from './query';\nimport {createTemplateData,
createViewContainerData} from './refs';\nimport {checkAndUpdateTextDynamic, checkAndUpdateTextInline,
createText} from './text';\nimport {ArgumentType, asElementData, asQueryList, asTextData, CheckType,
ElementData, NodeData, NodeDef, NodeFlags, ProviderData, RootData, Services, shiftInitState, ViewData,
ViewDefinition, ViewFlags, ViewHandleEventFn, ViewState, ViewUpdateFn} from './types';\nimport
{checkBindingNoChanges, isComponentView, markParentViewsForCheckProjectedViews, NOOP,
resolveDefinition, tokenKey} from './util';\nimport {detachProjectedView} from './view_attach';\n\nexport function
viewDef(\n  flags: ViewFlags, nodes: NodeDef[], updateDirectives?: null|ViewUpdateFn,\n  updateRenderer?:
null|ViewUpdateFn): ViewDefinition {\n  // clone nodes and set auto calculated values\n  let viewBindingCount =
0;\n  let viewDisposableCount = 0;\n  let viewNodeFlags = 0;\n  let viewRootNodeFlags = 0;\n  let
viewMatchedQueries = 0;\n  let currentParent: NodeDef|null
= null;\n  let currentRenderParent: NodeDef|null = null;\n  let currentElementHasPublicProviders = false;\n  let
currentElementHasPrivateProviders = false;\n  let lastRenderRootNode: NodeDef|null = null;\n  for (let i = 0; i <
nodes.length; i++) {\n    const node = nodes[i];\n    node.nodeIndex = i;\n    node.parent = currentParent;\n
node.bindingIndex = viewBindingCount;\n    node.outputIndex = viewDisposableCount;\n    node.renderParent =
currentRenderParent;\n    viewNodeFlags |= node.flags;\n    viewMatchedQueries |= node.matchedQueryIds;\n\n
if (node.element) {\n    const elDef = node.element;\n    elDef.publicProviders =\n      currentParent ?
currentParent.element!.publicProviders : Object.create(null);\n    elDef.allProviders = elDef.publicProviders;\n\n
// Note: We assume that all providers of an element are before any child element!\n
currentElementHasPublicProviders = false;\n    currentElementHasPrivateProviders = false;\n\n    if
(node.element.template)
{\n      viewMatchedQueries |= node.element.template.nodeMatchedQueries;\n    } \n } \n
validateNode(currentParent, node, nodes.length);\n\n    viewBindingCount += node.bindings.length;\n
viewDisposableCount += node.outputs.length;\n\n    if (!currentRenderParent && (node.flags &
NodeFlags.CatRenderNode)) {\n      lastRenderRootNode = node;\n    } \n\n    if (node.flags &
NodeFlags.CatProvider) {\n      if (!currentElementHasPublicProviders) {\n        currentElementHasPublicProviders

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= true;\n    // Use prototypical inheritance to not get O(n^2) complexity...\n
currentParent!.element!.publicProviders =\n    Object.create(currentParent!.element!.publicProviders);\n
currentParent!.element!.allProviders = currentParent!.element!.publicProviders;\n    }\n    const isPrivateService =
(node.flags & NodeFlags.PrivateProvider) !== 0;\n    const isComponent = (node.flags & NodeFlags.Component)
!== 0;\n    if (!isPrivateService || isComponent)
    {\n        currentParent!.element!.publicProviders![tokenKey(node.provider!.token)] = node;\n    } else {\n        if
(!currentElementHasPrivateProviders) {\n            currentElementHasPrivateProviders = true;\n            // Use
prototypical inheritance to not get O(n^2) complexity...\n            currentParent!.element!.allProviders =\n            Object.create(currentParent!.element!.publicProviders);\n        }\n
currentParent!.element!.allProviders![tokenKey(node.provider!.token)] = node;\n    }\n    if (isComponent) {\n
currentParent!.element!.componentProvider = node;\n    }\n    }\n\n    if (currentParent) {\n
currentParent.childFlags |= node.flags;\n    currentParent.directChildFlags |= node.flags;\n
currentParent.childMatchedQueries |= node.matchedQueryIds;\n    if (node.element && node.element.template)
{\n        currentParent.childMatchedQueries |= node.element.template.nodeMatchedQueries;\n    }\n    } else {\n
viewRootNodeFlags
|= node.flags;\n    }\n\n    if (node.childCount > 0) {\n        currentParent = node;\n\n        if (!isNgContainer(node)) {\n
currentRenderParent = node;\n        }\n    } else {\n        // When the current node has no children, check if it is the
last children of its parent.\n        // When it is, propagate the flags up.\n        // The loop is required because an element
could be the last transitive children of several\n        // elements. We loop to either the root or the highest opened
element (= with remaining\n        // children)\n        while (currentParent && i === currentParent.nodeIndex +
currentParent.childCount) {\n            const newParent: NodeDef|null = currentParent.parent;\n            if (newParent) {\n
newParent.childFlags |= currentParent.childFlags;\n            newParent.childMatchedQueries |=
currentParent.childMatchedQueries;\n            }\n            currentParent = newParent;\n            // We also need to update the
render parent & account for ng-container\n            if
(currentParent && isNgContainer(currentParent)) {\n                currentRenderParent = currentParent.renderParent;\n
            } else {\n                currentRenderParent = currentParent;\n            }\n        }\n    }\n\n    const handleEvent:
ViewHandleEventFn = (view, nodeIndex, eventName, event) =>\n
nodes[nodeIndex].element!.handleEvent!(view, eventName, event);\n\n    return {\n        // Will be filled later...\n
factory: null,\n        nodeFlags: viewNodeFlags,\n        rootNodeFlags: viewRootNodeFlags,\n        nodeMatchedQueries:
viewMatchedQueries,\n        flags,\n        nodes: nodes,\n        updateDirectives: updateDirectives || NOOP,\n
updateRenderer: updateRenderer || NOOP,\n        handleEvent,\n        bindingCount: viewBindingCount,\n
outputCount: viewDisposableCount,\n        lastRenderRootNode\n    };\n\n\n    function isNgContainer(node: NodeDef):
boolean {\n        return (node.flags & NodeFlags.TypeElement) !== 0 && node.element!.name === null;\n    }\n\n    function
validateNode(parent: NodeDef|null, node: NodeDef,
nodeCount: number) {\n        const template = node.element && node.element.template;\n        if (template) {\n            if
(!template.lastRenderRootNode) {\n                throw new Error(`Illegal State: Embedded templates without nodes are not
allowed!`);\n            }\n            if (template.lastRenderRootNode && template.lastRenderRootNode.flags &
NodeFlags.EmbeddedViews) {\n                throw new Error(`Illegal State: Last root node of a template can't have
embedded views, at index ${\n                node.nodeIndex}`);\n            }\n        }\n        if (node.flags & NodeFlags.CatProvider)
{\n            const parentFlags = parent ? parent.flags : 0;\n            if ((parentFlags & NodeFlags.TypeElement) === 0) {\n
throw new Error(`Illegal State: StaticProvider/Directive nodes need to be children of elements or anchors, at
index ${\n            node.nodeIndex}`);\n        }\n        }\n        if (node.query) {\n            if (node.flags &
NodeFlags.TypeContentQuery && (!parent || (parent.flags & NodeFlags.TypeDirective) === 0)) {\n
throw new Error(`Illegal State: Content Query nodes need to be children of directives, at index ${\n
            node.nodeIndex}`);\n        }\n        if (node.flags & NodeFlags.TypeViewQuery && parent) {\n            throw new
Error(`Illegal State: View Query nodes have to be top level nodes, at index ${\n            node.nodeIndex}`);\n        }\n
        }\n        if (node.childCount) {\n            const parentEnd = parent ? parent.nodeIndex + parent.childCount : nodeCount - 1;\n
            if (node.nodeIndex <= parentEnd && node.nodeIndex + node.childCount > parentEnd) {\n                throw new Error(`

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`Illegal State: childCount of node leads outside of parent, at index ${node.nodeIndex}!');\n  }\n }\n}\n\nexport
function createEmbeddedView(\n  parent: ViewData, anchorDef: NodeDef, viewDef: ViewDefinition, context?:
any): ViewData {\n  // embedded views are seen as siblings to the anchor, so we need\n  // to get the parent of the
anchor and use it as parentIndex.\n  const view = createView(parent.root,
parent.renderer, parent, anchorDef, viewDef);\n  initView(view, parent.component, context);\n
createViewNodes(view);\n  return view;\n}\n}\n\nexport function createRootView(root: RootData, def:
ViewDefinition, context?: any): ViewData {\n  const view = createView(root, root.renderer, null, null, def);\n
initView(view, context, context);\n  createViewNodes(view);\n  return view;\n}\n}\n\nexport function
createComponentView(\n  parentView: ViewData, nodeDef: NodeDef, viewDef: ViewDefinition, hostElement:
any): ViewData {\n  const rendererType = nodeDef.element!.componentRendererType;\n  let compRenderer:
Renderer2;\n  if (!rendererType) {\n    compRenderer = parentView.root.renderer;\n  } else {\n    compRenderer =
parentView.root.rendererFactory.createRenderer(hostElement, rendererType);\n  }\n  return createView(\n
parentView.root, compRenderer, parentView, nodeDef.element!.componentProvider, viewDef);\n}\n}\n\nfunction
createView(\n  root: RootData, renderer: Renderer2, parent:
ViewData|null, parentNodeDef: NodeDef|null,\n  def: ViewDefinition): ViewData {\n  const nodes: NodeData[] =
new Array(def.nodes.length);\n  const disposables = def.outputCount ? new Array(def.outputCount) : null;\n  const
view: ViewData = {\n    def,\n    parent,\n    viewContainerParent: null,\n    parentNodeDef,\n    context: null,\n
component: null,\n    nodes,\n    state: ViewState.CatInit,\n    root,\n    renderer,\n    oldValues: new
Array(def.bindingCount),\n    disposables,\n    initIndex: -1\n  };\n  return view;\n}\n}\n\nfunction initView(view:
ViewData, component: any, context: any) {\n  view.component = component;\n  view.context =
context;\n}\n}\n\nfunction createViewNodes(view: ViewData) {\n  let renderHost: any;\n  if (isComponentView(view))
{\n    const hostDef = view.parentNodeDef;\n    renderHost = asElementData(view.parent!,
hostDef!.parent!.nodeIndex).renderElement;\n  }\n  const def = view.def;\n  const nodes = view.nodes;\n  for (let i =
0; i < def.nodes.length;
i++) {\n    const nodeDef = def.nodes[i];\n    Services.setCurrentNode(view, i);\n    let nodeData: any;\n    switch
(nodeDef.flags & NodeFlags.Types) {\n      case NodeFlags.TypeElement:\n        const el = createElement(view,
renderHost, nodeDef) as any;\n        let componentView: ViewData = undefined!;\n        if (nodeDef.flags &
NodeFlags.ComponentView) {\n          const compViewDef =
resolveDefinition(nodeDef.element!.componentView!);\n          componentView =
Services.createComponentView(view, nodeDef, compViewDef, el);\n        }\n        listenToElementOutputs(view,
componentView, nodeDef, el);\n        nodeData = <ElementData>{\n          renderElement: el,\n
componentView,\n          viewContainer: null,\n          template: nodeDef.element!.template ?
createTemplateData(view, nodeDef) : undefined\n        };\n        if (nodeDef.flags & NodeFlags.EmbeddedViews)
{\n          nodeData.viewContainer = createViewContainerData(view, nodeDef, nodeData);\n        }\n        break;\n      case NodeFlags.TypeText:\n        nodeData = createText(view, renderHost, nodeDef) as any;\n
break;\n      case NodeFlags.TypeClassProvider:\n      case NodeFlags.TypeFactoryProvider:\n      case
NodeFlags.TypeUseExistingProvider:\n      case NodeFlags.TypeValueProvider: {\n        nodeData = nodes[i];\n
if (!nodeData && !(nodeDef.flags & NodeFlags.LazyProvider)) {\n          const instance =
createProviderInstance(view, nodeDef);\n          nodeData = <ProviderData>{instance};\n        }\n        break;\n
}\n      case NodeFlags.TypePipe: {\n        const instance = createPipeInstance(view, nodeDef);\n        nodeData =
<ProviderData>{instance};\n        break;\n      }\n      case NodeFlags.TypeDirective: {\n        nodeData = nodes[i];\n
if (!nodeData) {\n          const instance = createDirectiveInstance(view, nodeDef);\n          nodeData =
<ProviderData>{instance};\n        }\n        if (nodeDef.flags & NodeFlags.Component) {\n          const compView = asElementData(view, nodeDef.parent!.nodeIndex).componentView;\n
initView(compView, nodeData.instance, nodeData.instance);\n        }\n        break;\n      }\n      case
NodeFlags.TypePureArray:\n      case NodeFlags.TypePureObject:\n      case NodeFlags.TypePurePipe:\n        nodeData = createPureExpression(view, nodeDef) as any;\n        break;\n      case NodeFlags.TypeContentQuery:\n      case NodeFlags.TypeViewQuery:\n        nodeData = createQuery() as any;\n        break;\n      case

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v7, v8, v9);\n  case NodeFlags.TypePureArray:\n  case NodeFlags.TypePureObject:\n  case
NodeFlags.TypePurePipe:\n    return checkAndUpdatePureExpressionInline(\n      view, nodeDef, v0, v1, v2, v3,
v4, v5, v6, v7, v8, v9);\n  default:\n    throw 'unreachable';\n  }\n}\n\nfunction
checkAndUpdateNodeDynamic(view: ViewData, nodeDef: NodeDef, values: any[]): boolean {\n  switch
(nodeDef.flags & NodeFlags.Types) {\n  case NodeFlags.TypeElement:\n    return
checkAndUpdateElementDynamic(view, nodeDef, values);\n  case NodeFlags.TypeText:\n    return
checkAndUpdateTextDynamic(view, nodeDef, values);\n  case NodeFlags.TypeDirective:\n    return
checkAndUpdateDirectiveDynamic(view,
nodeDef, values);\n  case NodeFlags.TypePureArray:\n  case NodeFlags.TypePureObject:\n  case
NodeFlags.TypePurePipe:\n    return checkAndUpdatePureExpressionDynamic(view, nodeDef, values);\n
default:\n    throw 'unreachable';\n  }\n}\n\nexport function checkNoChangesNode(\n  view: ViewData, nodeDef:
NodeDef, argStyle: ArgumentType, v0?: any, v1?: any, v2?: any,\n  v3?: any, v4?: any, v5?: any, v6?: any, v7?:
any, v8?: any, v9?: any): any {\n  if (argStyle === ArgumentType.Inline) {\n    checkNoChangesNodeInline(view,
nodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9);\n  } else {\n    checkNoChangesNodeDynamic(view, nodeDef,
v0);\n  }\n  // Returning false is ok here as we would have thrown in case of a change.\n  return false;\n}\n\nfunction
checkNoChangesNodeInline(\n  view: ViewData, nodeDef: NodeDef, v0: any, v1: any, v2: any, v3: any, v4: any,
v5: any, v6: any,\n  v7: any, v8: any, v9: any): void {\n  const bindLen = nodeDef.bindings.length;\n  if (bindLen
> 0) checkBindingNoChanges(view, nodeDef, 0, v0);\n  if (bindLen > 1) checkBindingNoChanges(view, nodeDef,
1, v1);\n  if (bindLen > 2) checkBindingNoChanges(view, nodeDef, 2, v2);\n  if (bindLen > 3)
checkBindingNoChanges(view, nodeDef, 3, v3);\n  if (bindLen > 4) checkBindingNoChanges(view, nodeDef, 4,
v4);\n  if (bindLen > 5) checkBindingNoChanges(view, nodeDef, 5, v5);\n  if (bindLen > 6)
checkBindingNoChanges(view, nodeDef, 6, v6);\n  if (bindLen > 7) checkBindingNoChanges(view, nodeDef, 7,
v7);\n  if (bindLen > 8) checkBindingNoChanges(view, nodeDef, 8, v8);\n  if (bindLen > 9)
checkBindingNoChanges(view, nodeDef, 9, v9);\n}\n\nfunction checkNoChangesNodeDynamic(view: ViewData,
nodeDef: NodeDef, values: any[]): void {\n  for (let i = 0; i < values.length; i++) {\n
checkBindingNoChanges(view, nodeDef, i, values[i]);\n  }\n}\n\n**\n * Workaround
https://github.com/angular/tsickle/issues/497\n * @suppress {misplacedTypeAnnotation}\n */\nfunction
checkNoChangesQuery(view:
ViewData, nodeDef: NodeDef) {\n  const queryList = asQueryList(view, nodeDef.nodeIndex);\n  if
(queryList.dirty) {\n    throw expressionChangedAfterItHasBeenCheckedError(\n
Services.createDebugContext(view, nodeDef.nodeIndex),\n      `Query ${nodeDef.query!.id} not dirty`, `Query
${nodeDef.query!.id} dirty`,\n      (view.state & ViewState.BeforeFirstCheck) !== 0);\n  }\n}\n\nexport function
destroyView(view: ViewData) {\n  if (view.state & ViewState.Destroyed) {\n    return;\n  }\n
execEmbeddedViewsAction(view, ViewAction.Destroy);\n  execComponentViewsAction(view,
ViewAction.Destroy);\n  callLifecycleHooksChildrenFirst(view, NodeFlags.OnDestroy);\n  if (view.disposables)
{\n    for (let i = 0; i < view.disposables.length; i++) {\n      view.disposables[i]();\n    }\n  }\n
detachProjectedView(view);\n  if (view.renderer.destroyNode) {\n    destroyViewNodes(view);\n  }\n  if
(isComponentView(view)) {\n    view.renderer.destroy();\n  }\n  view.state |= ViewState.Destroyed;\n}\n\nfunction
destroyViewNodes(view: ViewData) {\n  const len = view.def.nodes.length;\n  for (let i = 0; i < len; i++) {\n
const def = view.def.nodes[i];\n  if (def.flags & NodeFlags.TypeElement) {\n
view.renderer.destroyNode!(asElementData(view, i).renderElement);\n  } else if (def.flags &
NodeFlags.TypeText) {\n    view.renderer.destroyNode!(asTextData(view, i).renderText);\n  } else if (def.flags &
NodeFlags.TypeContentQuery || def.flags & NodeFlags.TypeViewQuery) {\n    asQueryList(view, i).destroy();\n
  }\n}\n}\n\nenum ViewAction {\n  CreateViewNodes,\n  CheckNoChanges,\n  CheckNoChangesProjectedViews,\n
CheckAndUpdate,\n  CheckAndUpdateProjectedViews,\n  Destroy\n}\n\nfunction
execComponentViewsAction(view: ViewData, action: ViewAction) {\n  const def = view.def;\n  if (!(def.nodeFlags
& NodeFlags.ComponentView)) {\n    return;\n  }\n  for (let i = 0; i < def.nodes.length; i++) {\n    const nodeDef =
def.nodes[i];\n    if (nodeDef.flags & NodeFlags.ComponentView)

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    {\n    // a leaf\n    callViewAction(asElementData(view, i).componentView, action);\n    } else if
((nodeDef.childFlags & NodeFlags.ComponentView) === 0) {\n    // a parent with leafs\n    // no child is a
component,\n    // then skip the children\n    i += nodeDef.childCount;\n    }\n    }\n}\n\nfunction
execEmbeddedViewsAction(view: ViewData, action: ViewAction) {\n    const def = view.def;\n    if (!(def.nodeFlags
& NodeFlags.EmbeddedViews)) {\n        return;\n    }\n    for (let i = 0; i < def.nodes.length; i++) {\n        const nodeDef =
def.nodes[i];\n        if (nodeDef.flags & NodeFlags.EmbeddedViews) {\n            // a leaf\n            const embeddedViews =
asElementData(view, i).viewContainer!._embeddedViews;\n            for (let k = 0; k < embeddedViews.length; k++) {\n
                callViewAction(embeddedViews[k], action);\n            }\n        } else if ((nodeDef.childFlags &
NodeFlags.EmbeddedViews) === 0) {\n            // a parent with leafs\n            // no child is a component,\n            // then skip
the children\n
            i += nodeDef.childCount;\n        }\n    }\n}\n\nfunction callViewAction(view: ViewData, action: ViewAction) {\n
const viewState = view.state;\n    switch (action) {\n        case ViewAction.CheckNoChanges:\n            if ((viewState &
ViewState.Destroyed) === 0) {\n                if ((viewState & ViewState.CatDetectChanges) ===
ViewState.CatDetectChanges) {\n                    checkNoChangesView(view);\n                } else if (viewState &
ViewState.CheckProjectedViews) {\n                    execProjectedViewsAction(view,
ViewAction.CheckNoChangesProjectedViews);\n                }\n                break;\n            case
ViewAction.CheckNoChangesProjectedViews:\n                if ((viewState & ViewState.Destroyed) === 0) {\n                    if
(viewState & ViewState.CheckProjectedView) {\n                        checkNoChangesView(view);\n                    } else if (viewState &
ViewState.CheckProjectedViews) {\n                        execProjectedViewsAction(view, action);\n                    }\n                }\n                break;\n            case ViewAction.CheckAndUpdate:\n                if ((viewState & ViewState.Destroyed)
=== 0) {\n                    if ((viewState & ViewState.CatDetectChanges) === ViewState.CatDetectChanges) {\n
                        checkAndUpdateView(view);\n                    } else if (viewState & ViewState.CheckProjectedViews) {\n
                        execProjectedViewsAction(view, ViewAction.CheckAndUpdateProjectedViews);\n                    }\n                }\n                break;\n            case ViewAction.CheckAndUpdateProjectedViews:\n                if ((viewState & ViewState.Destroyed) === 0) {\n                    if
(viewState & ViewState.CheckProjectedView) {\n                        checkAndUpdateView(view);\n                    } else if (viewState &
ViewState.CheckProjectedViews) {\n                        execProjectedViewsAction(view, action);\n                    }\n                }\n                break;\n            case ViewAction.Destroy:\n                // Note: destroyView recurses over all views,\n                // so we don't need to special case
projected views here.\n                destroyView(view);\n                break;\n            case ViewAction.CreateViewNodes:\n                createViewNodes(view);\n                break;\n        }\n    }\n}\n\nfunction execProjectedViewsAction(view: ViewData, action:
ViewAction) {\n    execEmbeddedViewsAction(view, action);\n    execComponentViewsAction(view,
action);\n}\n\nfunction execQueriesAction(\n    view: ViewData, queryFlags: NodeFlags, staticDynamicQueryFlag:
NodeFlags,\n    checkType: CheckType) {\n    if (!(view.def.nodeFlags & queryFlags) || !(view.def.nodeFlags &
staticDynamicQueryFlag)) {\n        return;\n    }\n    const nodeCount = view.def.nodes.length;\n    for (let i = 0; i <
nodeCount; i++) {\n        const nodeDef = view.def.nodes[i];\n        if ((nodeDef.flags & queryFlags) && (nodeDef.flags
& staticDynamicQueryFlag)) {\n            Services.setCurrentNode(view, nodeDef.nodeIndex);\n            switch (checkType)
{\n                case CheckType.CheckAndUpdate:\n                    checkAndUpdateQuery(view, nodeDef);\n                    break;\n            case CheckType.CheckNoChanges:\n                checkNoChangesQuery(view, nodeDef);\n                break;\n            }\n        }\n    }\n    if (!(nodeDef.childFlags & queryFlags) || !(nodeDef.childFlags & staticDynamicQueryFlag)) {\n        // no child has
a matching query\n        // then skip the children\n        i += nodeDef.childCount;\n    }\n    }\n}\n\n", /*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {DebugElement__PRE_R3__,
DebugEventListener, DebugNode__PRE_R3__, getDebugNode, indexDebugNode, removeDebugNodeFromIndex}
from './debug/debug_node';\nimport {Injector} from './di';\nimport {getInjectableDef, InjectableType,
InjectableDef} from './di/interface/defs';\nimport {ErrorHandler} from './error_handler';\nimport {Type} from
'./interface/type';\nimport {ComponentFactory} from './linker/component_factory';\nimport {NgModuleRef} from
'./linker/ng_module_factory';\nimport {Renderer2, RendererFactory2} from './render/api';\nimport
{RendererStyleFlags2, RendererType2} from './render/api_flags';\nimport {Sanitizer} from
'./sanitization/sanitizer';\nimport {isDevMode}

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from './util/is_dev_mode';\nimport {normalizeDebugBindingName, normalizeDebugBindingValue} from
'./util/ng_reflect';\n\nimport {isViewDebugError, viewDestroyedError, viewWrappedDebugError} from
'./errors';\nimport {resolveDep} from './provider';\nimport {dirtyParentQueries, getQueryValue} from
'./query';\nimport {createInjector, createNgModuleRef, getComponentViewDefinitionFactory} from './refs';\nimport
{ArgumentType, asElementData, asPureExpressionData, BindingFlags, CheckType, DebugContext, ElementData,
NgModuleDefinition, NodeDef, NodeFlags, NodeLogger, ProviderOverride, RootData, Services, ViewData,
ViewDefinition, ViewState} from './types';\nimport {isComponentView, NOOP, renderNode, resolveDefinition,
splitDepsDsl, tokenKey, viewParentEl} from './util';\nimport {checkAndUpdateNode, checkAndUpdateView,
checkNoChangesNode, checkNoChangesView, createComponentView, createEmbeddedView, createRootView,
destroyView} from './view';\n\nlet initialized = false;\n\nexport function
initServicesIfNeeded() {\n  if (initialized) {\n    return;\n  }\n  initialized = true;\n  const services = isDevMode() ?
createDebugServices() : createProdServices();\n  Services.setCurrentNode = services.setCurrentNode;\n
Services.createRootView = services.createRootView;\n  Services.createEmbeddedView =
services.createEmbeddedView;\n  Services.createComponentView = services.createComponentView;\n
Services.createNgModuleRef = services.createNgModuleRef;\n  Services.overrideProvider =
services.overrideProvider;\n  Services.overrideComponentView = services.overrideComponentView;\n
Services.clearOverrides = services.clearOverrides;\n  Services.checkAndUpdateView =
services.checkAndUpdateView;\n  Services.checkNoChangesView = services.checkNoChangesView;\n
Services.destroyView = services.destroyView;\n  Services.resolveDep = resolveDep;\n
Services.createDebugContext = services.createDebugContext;\n  Services.handleEvent = services.handleEvent;\n
Services.updateDirectives = services.updateDirectives;\n
  Services.updateRenderer = services.updateRenderer;\n  Services.dirtyParentQueries =
dirtyParentQueries;\n}\n\nfunction createProdServices() {\n  return {\n    setCurrentNode: () => {},\n
createRootView: createProdRootView,\n    createEmbeddedView: createEmbeddedView,\n
createComponentView: createComponentView,\n    createNgModuleRef: createNgModuleRef,\n
overrideProvider: NOOP,\n    overrideComponentView: NOOP,\n    clearOverrides: NOOP,\n
checkAndUpdateView: checkAndUpdateView,\n    checkNoChangesView: checkNoChangesView,\n
destroyView: destroyView,\n    createDebugContext: (view: ViewData, nodeIndex: number) => new
DebugContext_(view, nodeIndex),\n    handleEvent: (view: ViewData, nodeIndex: number, eventName: string,
event: any) => {\n      view.def.handleEvent(view, nodeIndex, eventName, event);\n    },\n
updateDirectives: (view: ViewData, checkType: CheckType) => view.def.updateDirectives(\n      checkType ===
CheckType.CheckAndUpdate ? prodCheckAndUpdateNode
: prodCheckNoChangesNode,\n      view),\n    updateRenderer: (view: ViewData, checkType: CheckType) =>
view.def.updateRenderer(\n      checkType === CheckType.CheckAndUpdate ? prodCheckAndUpdateNode :
prodCheckNoChangesNode,\n      view),\n  };\n}\n\nfunction createDebugServices() {\n  return {\n
setCurrentNode: debugSetCurrentNode,\n    createRootView: debugCreateRootView,\n    createEmbeddedView:
debugCreateEmbeddedView,\n    createComponentView: debugCreateComponentView,\n    createNgModuleRef:
debugCreateNgModuleRef,\n    overrideProvider: debugOverrideProvider,\n    overrideComponentView:
debugOverrideComponentView,\n    clearOverrides: debugClearOverrides,\n    checkAndUpdateView:
debugCheckAndUpdateView,\n    checkNoChangesView: debugCheckNoChangesView,\n    destroyView:
debugDestroyView,\n    createDebugContext: (view: ViewData, nodeIndex: number) => new DebugContext_(view,
nodeIndex),\n    handleEvent: debugHandleEvent,\n    updateDirectives: debugUpdateDirectives,\n
updateRenderer: debugUpdateRenderer,\n  };\n}\n\nfunction createProdRootView(\n  elInjector: Injector,
projectableNodes: any[][], rootSelectorOrNode: string|any,\n  def: ViewDefinition, ngModule:
NgModuleRef<any>, context?: any): ViewData {\n  const rendererFactory: RendererFactory2 =
ngModule.injector.get(RendererFactory2);\n  return createRootView(\n    createRootData(elInjector, ngModule,
rendererFactory, projectableNodes, rootSelectorOrNode),\n    def, context);\n}\n\nfunction
debugCreateRootView(\n  elInjector: Injector, projectableNodes: any[][], rootSelectorOrNode: string|any,\n  def:

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ViewDefinition, ngModule: NgModuleRef<any>, context?: any): ViewData {\n  const rendererFactory:
RendererFactory2 = ngModule.injector.get(RendererFactory2);\n  const root = createRootData(\n    elInjector,
ngModule, new DebugRendererFactory2(rendererFactory), projectableNodes,\n    rootSelectorOrNode);\n  const
defWithOverride = applyProviderOverridesToView(def);\n
  return callWithDebugContext(\n    DebugAction.create, createRootView, null, [root, defWithOverride,
context]);\n}\n\nfunction createRootData(\n  elInjector: Injector, ngModule: NgModuleRef<any>, rendererFactory:
RendererFactory2,\n  projectableNodes: any[][], rootSelectorOrNode: any): RootData {\n  const sanitizer =
ngModule.injector.get(Sanitizer);\n  const errorHandler = ngModule.injector.get(ErrorHandler);\n  const renderer =
rendererFactory.createRenderer(null, null);\n  return {\n    ngModule,\n    injector: elInjector,\n    projectableNodes,\n    selectorOrNode: rootSelectorOrNode,\n    sanitizer,\n    rendererFactory,\n    renderer,\n    errorHandler\n  };\n}\n\nfunction debugCreateEmbeddedView(\n  parentView: ViewData, anchorDef: NodeDef,
viewDef: ViewDefinition, context?: any): ViewData {\n  const defWithOverride =
applyProviderOverridesToView(viewDef);\n  return callWithDebugContext(\n    DebugAction.create,
createEmbeddedView, null,\n    [parentView, anchorDef,
defWithOverride, context]);\n}\n\nfunction debugCreateComponentView(\n  parentView: ViewData, nodeDef:
NodeDef, viewDef: ViewDefinition, hostElement: any): ViewData {\n  const overrideComponentView =\nviewDefOverrides.get(nodeDef.element!.componentProvider!.provider!.token);\n  if (overrideComponentView) {\n
viewDef = overrideComponentView;\n  } else {\n    viewDef = applyProviderOverridesToView(viewDef);\n  }\n
return callWithDebugContext(\n    DebugAction.create, createComponentView, null, [parentView, nodeDef,
viewDef, hostElement]);\n}\n\nfunction debugCreateNgModuleRef(\n  moduleType: Type<any>, parentInjector:
Injector, bootstrapComponents: Type<any>[],\n  def: NgModuleDefinition): NgModuleRef<any> {\n  const
defWithOverride = applyProviderOverridesToNgModule(def);\n  return createNgModuleRef(moduleType,
parentInjector, bootstrapComponents, defWithOverride);\n}\n\nconst providerOverrides = new Map<any,
ProviderOverride>();\nconst providerOverridesWithScope =
new Map<InjectableType<any>, ProviderOverride>();\nconst viewDefOverrides = new Map<any,
ViewDefinition>();\n\nfunction debugOverrideProvider(override: ProviderOverride) {\n
providerOverrides.set(override.token, override);\n  let injectableDef: InjectableDef<any>|null;\n  if (typeof
override.token === 'function' && (injectableDef = getInjectableDef(override.token)) &&\n    typeof
injectableDef.providedIn === 'function') {\n    providerOverridesWithScope.set(override.token as
InjectableType<any>, override);\n  }\n}\n\nfunction debugOverrideComponentView(comp: any, compFactory:
ComponentFactory<any>) {\n  const hostViewDef =
resolveDefinition(getComponentViewDefinitionFactory(compFactory));\n  const compViewDef =
resolveDefinition(hostViewDef.nodes[0].element!.componentView!);\n  viewDefOverrides.set(comp,
compViewDef);\n}\n\nfunction debugClearOverrides() {\n  providerOverrides.clear();\n
providerOverridesWithScope.clear();\n  viewDefOverrides.clear();\n}\n\n// Notes about the algorithm:\n//
1) Locate the providers of an element and check if one of them was overwritten\n// 2) Change the providers of that
element\n\n// We only create new datastructures if we need to, to keep perf impact\n// reasonable.\nfunction
applyProviderOverridesToView(def: ViewDefinition): ViewDefinition {\n  if (providerOverrides.size === 0) {\n
return def;\n  }\n  const elementIndicesWithOverwrittenProviders =
findElementIndicesWithOverwrittenProviders(def);\n  if (elementIndicesWithOverwrittenProviders.length === 0)
{\n    return def;\n  }\n  // clone the whole view definition,\n  // as it maintains references between the nodes that are
hard to update.\n  def = def.factory!(() => NOOP);\n  for (let i = 0; i <
elementIndicesWithOverwrittenProviders.length; i++) {\n    applyProviderOverridesToElement(def,
elementIndicesWithOverwrittenProviders[i]);\n  }\n  return def;\n}\n\nfunction
findElementIndicesWithOverwrittenProviders(def: ViewDefinition): number[] {\n  const
elIndicesWithOverwrittenProviders:
number[] = [];\n  let lastElementDef: NodeDef|null = null;\n  for (let i = 0; i < def.nodes.length; i++) {\n    const
nodeDef = def.nodes[i];\n    if (nodeDef.flags & NodeFlags.TypeElement) {\n      lastElementDef = nodeDef;\n

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}\n    if (lastElementDef && nodeDef.flags & NodeFlags.CatProviderNoDirective &&\n
providerOverrides.has(nodeDef.provider!.token)) {\n
elIndicesWithOverwrittenProviders.push(lastElementDef!.nodeIndex);\n    lastElementDef = null;\n    }\n }\n
return elIndicesWithOverwrittenProviders;\n }\n\n function applyProviderOverridesToElement(viewDef:
ViewDefinition, elIndex: number) {\n    for (let i = elIndex + 1; i < viewDef.nodes.length; i++) {\n    const
nodeDef = viewDef.nodes[i];\n    if (nodeDef.flags & NodeFlags.TypeElement) {\n    // stop at the next
element\n    return;\n    }\n    if (nodeDef.flags & NodeFlags.CatProviderNoDirective) {\n    const provider =
nodeDef.provider!;\n
        const override = providerOverrides.get(provider.token);\n    if (override) {\n    nodeDef.flags =
(nodeDef.flags & ~NodeFlags.CatProviderNoDirective) | override.flags;\n    provider.deps =
splitDepsDsl(override.deps);\n    provider.value = override.value;\n    }\n    }\n }\n\n\n// Notes about
the algorithm:\n// We only create new datastructures if we need to, to keep perf impact\n// reasonable.\nfunction
applyProviderOverridesToNgModule(def: NgModuleDefinition): NgModuleDefinition {\n    const {hasOverrides,
hasDeprecatedOverrides} = calcHasOverrides(def);\n    if (!hasOverrides) {\n    return def;\n    }\n    // clone the whole
view definition,\n    // as it maintains references between the nodes that are hard to update.\n    def = def.factory!(() =>
NOOP);\n    applyProviderOverrides(def);\n    return def;\n\n    function calcHasOverrides(def: NgModuleDefinition):\n
{hasOverrides: boolean, hasDeprecatedOverrides: boolean} {\n    let hasOverrides = false;\n
        let hasDeprecatedOverrides = false;\n    if (providerOverrides.size === 0) {\n    return {hasOverrides,
hasDeprecatedOverrides};\n    }\n    def.providers.forEach(node => {\n    const override =
providerOverrides.get(node.token);\n    if ((node.flags & NodeFlags.CatProviderNoDirective) && override) {\n
hasOverrides = true;\n    hasDeprecatedOverrides = hasDeprecatedOverrides || override.deprecatedBehavior;\n
    }\n    });\n    def.modules.forEach(module => {\n    providerOverridesWithScope.forEach((override, token) => {\n
        if (getInjectableDef(token)!.providedIn === module) {\n    hasOverrides = true;\n
hasDeprecatedOverrides = hasDeprecatedOverrides || override.deprecatedBehavior;\n    }\n    });\n    });\n    return {hasOverrides, hasDeprecatedOverrides};\n    }\n\n    function applyProviderOverrides(def:
NgModuleDefinition) {\n    for (let i = 0; i < def.providers.length; i++) {\n    const provider = def.providers[i];\n
if (hasDeprecatedOverrides)\n
        {\n    // We had a bug where me made\n    // all providers lazy. Keep this logic behind a flag\n    // for
migrating existing users.\n    provider.flags |= NodeFlags.LazyProvider;\n    }\n    const override =
providerOverrides.get(provider.token);\n    if (override) {\n    provider.flags = (provider.flags &
~NodeFlags.CatProviderNoDirective) | override.flags;\n    provider.deps = splitDepsDsl(override.deps);\n
provider.value = override.value;\n    }\n    }\n    if (providerOverridesWithScope.size > 0) {\n    let moduleSet =
new Set<any>(def.modules);\n    providerOverridesWithScope.forEach((override, token) => {\n    if
(moduleSet.has(getInjectableDef(token)!.providedIn)) {\n    let provider = {\n    token: token,\n
flags:\n    override.flags | (hasDeprecatedOverrides ? NodeFlags.LazyProvider : NodeFlags.None),\n
deps: splitDepsDsl(override.deps),\n    value: override.value,\n
        index: def.providers.length,\n    }; \n    def.providers.push(provider);\n
def.providersByKey[tokenKey(token)] = provider;\n    }\n    });\n    }\n }\n\n\nfunction
prodCheckAndUpdateNode(\n    view: ViewData, checkIndex: number, argStyle: ArgumentType, v0?: any, v1?:
any, v2?: any, v3?: any, v4?: any, v5?: any, v6?: any, v7?: any, v8?: any, v9?: any): any {\n    const nodeDef =
view.def.nodes[checkIndex];\n    checkAndUpdateNode(view, nodeDef, argStyle, v0, v1, v2, v3, v4, v5, v6, v7, v8,
v9);\n    return (nodeDef.flags & NodeFlags.CatPureExpression) ?\n    asPureExpressionData(view,
checkIndex).value :\n    undefined;\n    }\n\nfunction prodCheckNoChangesNode(\n    view: ViewData, checkIndex:
number, argStyle: ArgumentType, v0?: any, v1?: any, v2?: any, v3?: any, v4?: any, v5?: any, v6?: any, v7?: any,
v8?: any, v9?: any): any {\n    const nodeDef = view.def.nodes[checkIndex];\n    checkNoChangesNode(view,
nodeDef, argStyle, v0,
v1, v2, v3, v4, v5, v6, v7, v8, v9);\n    return (nodeDef.flags & NodeFlags.CatPureExpression) ?\n
asPureExpressionData(view, checkIndex).value :\n    undefined;\n    }\n\nfunction

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debugCheckAndUpdateView(view: ViewData) {\n return callWithDebugContext(DebugAction.detectChanges,
checkAndUpdateView, null, [view]);\n}\n\nfunction debugCheckNoChangesView(view: ViewData) {\n return
callWithDebugContext(DebugAction.checkNoChanges, checkNoChangesView, null, [view]);\n}\n\nfunction
debugDestroyView(view: ViewData) {\n return callWithDebugContext(DebugAction.destroy, destroyView, null,
[view]);\n}\n\nenum DebugAction {\n create,\n detectChanges,\n checkNoChanges,\n destroy,\n
handleEvent\}\n\nlet _currentAction: DebugAction;\nlet _currentView: ViewData;\nlet _currentNodeIndex:
number|null;\n\nfunction debugSetCurrentNode(view: ViewData, nodeIndex: number|null) {\n _currentView =
view;\n _currentNodeIndex = nodeIndex;\n}\n\nfunction debugHandleEvent(view: ViewData, nodeIndex: number,
eventName: string, event: any) {\n debugSetCurrentNode(view, nodeIndex);\n return callWithDebugContext(\n
DebugAction.handleEvent, view.def.handleEvent, null, [view, nodeIndex, eventName, event]);\n}\n\nfunction
debugUpdateDirectives(view: ViewData, checkType: CheckType) {\n if (view.state & ViewState.Destroyed) {\n
throw viewDestroyedError(DebugAction[_currentAction]);\n }\n\n debugSetCurrentNode(view,
nextDirectiveWithBinding(view, 0));\n return view.def.updateDirectives(debugCheckDirectivesFn, view);\n}\n\n
function debugCheckDirectivesFn(\n view: ViewData, nodeIndex: number, argStyle: ArgumentType, ...values:
any[]) {\n const nodeDef = view.def.nodes[nodeIndex];\n if (checkType === CheckType.CheckAndUpdate) {\n
debugCheckAndUpdateNode(view, nodeDef, argStyle, values);\n } else {\n
debugCheckNoChangesNode(view, nodeDef, argStyle, values);\n }\n\n if (nodeDef.flags &
NodeFlags.TypeDirective) {\n debugSetCurrentNode(view, nextDirectiveWithBinding(view,
nodeIndex));\n }\n\n return (nodeDef.flags & NodeFlags.CatPureExpression) ?\n
asPureExpressionData(view, nodeDef.nodeIndex).value : \n undefined;\n }\n}\n\nfunction
debugUpdateRenderer(view: ViewData, checkType: CheckType) {\n if (view.state & ViewState.Destroyed) {\n
throw viewDestroyedError(DebugAction[_currentAction]);\n }\n\n debugSetCurrentNode(view,
nextRenderNodeWithBinding(view, 0));\n return view.def.updateRenderer(debugCheckRenderNodeFn, view);\n}\n\n
function debugCheckRenderNodeFn(\n view: ViewData, nodeIndex: number, argStyle: ArgumentType, ...values:
any[]) {\n const nodeDef = view.def.nodes[nodeIndex];\n if (checkType === CheckType.CheckAndUpdate) {\n
debugCheckAndUpdateNode(view, nodeDef, argStyle, values);\n } else {\n
debugCheckNoChangesNode(view, nodeDef, argStyle, values);\n }\n\n if (nodeDef.flags &
NodeFlags.CatRenderNode) {\n debugSetCurrentNode(view, nextRenderNodeWithBinding(view,
nodeIndex));\n }\n\n return (nodeDef.flags & NodeFlags.CatPureExpression) ?\n
asPureExpressionData(view,
nodeDef.nodeIndex).value : \n undefined;\n }\n}\n\nfunction debugCheckAndUpdateNode(\n view:
ViewData, nodeDef: NodeDef, argStyle: ArgumentType, givenValues: any[]): void {\n const changed =
(<any>checkAndUpdateNode)(view, nodeDef, argStyle, ...givenValues);\n if (changed) {\n const values =
argStyle === ArgumentType.Dynamic ? givenValues[0] : givenValues;\n if (nodeDef.flags &
NodeFlags.TypeDirective) {\n const bindingValues: {key: string}: string} = {};\n for (let i = 0; i <
nodeDef.bindings.length; i++) {\n const binding = nodeDef.bindings[i];\n const value = values[i];\n if
(binding.flags & BindingFlags.TypeProperty) {\n
bindingValues[normalizeDebugBindingName(binding.nonMinifiedName!)] =\n
normalizeDebugBindingValue(value);\n }\n }\n\n const elDef = nodeDef.parent!;\n const el =
asElementData(view,
elDef.nodeIndex).renderElement;\n if (!elDef.element!.name) {\n // a comment.\n
view.renderer.setValue(el, `bindings=${JSON.stringify(bindingValues, null, 2)}`);\n } else {\n // a regular
element.\n for (let attr in bindingValues) {\n const value = bindingValues[attr];\n if (value != null)
{\n view.renderer.setAttribute(el, attr, value);\n } else {\n view.renderer.removeAttribute(el,
attr);\n }\n }\n }\n }\n}\n\nfunction debugCheckNoChangesNode(\n view: ViewData,
nodeDef: NodeDef, argStyle: ArgumentType, values: any[]): void {\n (<any>checkNoChangesNode)(view,
nodeDef, argStyle, ...values);\n}\n\nfunction nextDirectiveWithBinding(view: ViewData, nodeIndex: number):
number|null {\n for (let i = nodeIndex; i < view.def.nodes.length; i++) {\n const nodeDef = view.def.nodes[i];\n

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if (nodeDef.flags & NodeFlags.TypeDirective && nodeDef.bindings && nodeDef.bindings.length)
  {\n  return i;\n  }\n }\n return null;\n}\n\nfunction nextRenderNodeWithBinding(view: ViewData, nodeIndex:
number): number|null {\n  for (let i = nodeIndex; i < view.def.nodes.length; i++) {\n    const nodeDef =
view.def.nodes[i];\n    if ((nodeDef.flags & NodeFlags.CatRenderNode) && nodeDef.bindings &&
nodeDef.bindings.length) {\n      return i;\n    }\n  }\n  return null;\n}\n\n\nclass DebugContext_ implements
DebugContext {\n  private nodeDef: NodeDef;\n  private elView: ViewData;\n  private elDef: NodeDef;\n\n  constructor(public view: ViewData, public nodeIndex: number|null) {\n    if (nodeIndex == null) {\n
this.nodeIndex = nodeIndex = 0;\n    }\n    this.nodeDef = view.def.nodes[nodeIndex];\n    let elDef =
this.nodeDef;\n    let elView = view;\n    while (elDef && (elDef.flags & NodeFlags.TypeElement) === 0) {\n
elDef = elDef.parent!;\n    }\n    if (!elDef) {\n      while (!elDef && elView) {\n        elDef =
viewParentEl(elView)!;\n        elView
= elView.parent!;\n      }\n    }\n    this.elDef = elDef;\n    this.elView = elView;\n  }\n\n  private get
elOrCompView() {\n    // Has to be done lazily as we use the DebugContext also during creation of elements...\n
return asElementData(this.elView, this.elDef.nodeIndex).componentView || this.view;\n  }\n\n  get injector():
Injector {\n    return createInjector(this.elView, this.elDef);\n  }\n\n  get component(): any {\n    return
this.elOrCompView.component;\n  }\n\n  get context(): any {\n    return this.elOrCompView.context;\n  }\n\n  get
providerTokens(): any[] {\n    const tokens: any[] = [];\n    if (this.elDef) {\n      for (let i = this.elDef.nodeIndex + 1;
i <= this.elDef.nodeIndex + this.elDef.childCount;\n        i++) {\n        const childDef = this.elView.def.nodes[i];\n
        if (childDef.flags & NodeFlags.CatProvider) {\n          tokens.push(childDef.provider!.token);\n        }\n        i +=
childDef.childCount;\n      }\n    }\n    return tokens;\n  }\n\n  get references(): {[key: string]: any} {\n    const references: {[key: string]: any} = {};\n    if (this.elDef) {\n
collectReferences(this.elView, this.elDef, references);\n    }\n    for (let i = this.elDef.nodeIndex + 1; i <=
this.elDef.nodeIndex + this.elDef.childCount;\n      i++) {\n      const childDef = this.elView.def.nodes[i];\n
if (childDef.flags & NodeFlags.CatProvider) {\n        collectReferences(this.elView, childDef, references);\n
      }\n      i += childDef.childCount;\n    }\n    return references;\n  }\n\n  get componentRenderElement() {\n
const elData = findHostElement(this.elOrCompView);\n    return elData ? elData.renderElement : undefined;\n  }\n\n  get renderNode(): any {\n    return this.nodeDef.flags & NodeFlags.TypeText ? renderNode(this.view,
this.nodeDef) :\n      renderNode(this.elView, this.elDef);\n  }\n\n  logError(console:
Console, ...values: any[]) {\n    let logViewDef:
ViewDefinition;\n    let logNodeIndex: number;\n    if (this.nodeDef.flags & NodeFlags.TypeText) {\n
logViewDef = this.view.def;\n    logNodeIndex = this.nodeDef.nodeIndex;\n    } else {\n    logViewDef =
this.elView.def;\n    logNodeIndex = this.elDef.nodeIndex;\n    }\n    // Note: we only generate a log function for
text and element nodes\n    // to make the generated code as small as possible.\n    const renderNodeIndex =
getRenderNodeIndex(logViewDef, logNodeIndex);\n    let currRenderNodeIndex = -1;\n    let nodeLogger:
NodeLogger = () => {\n      currRenderNodeIndex++;\n      if (currRenderNodeIndex === renderNodeIndex) {\n
return console.error.bind(console, ...values);\n      } else {\n      return NOOP;\n    }\n  };\n
logViewDef.factory!(nodeLogger);\n    if (currRenderNodeIndex < renderNodeIndex) {\n      console.error('Illegal
state: the ViewDefinitionFactory did not call the logger!');\n      (<any>console.error)(...values);\n    }\n  }\n}\n\n\nfunction
getRenderNodeIndex(viewDef: ViewDefinition, nodeIndex: number): number {\n  let renderNodeIndex = -1;\n  for
(let i = 0; i <= nodeIndex; i++) {\n    const nodeDef = viewDef.nodes[i];\n    if (nodeDef.flags &
NodeFlags.CatRenderNode) {\n      renderNodeIndex++;\n    }\n  }\n  return renderNodeIndex;\n}\n\n\nfunction
findHostElement(view: ViewData): ElementData|null {\n  while (view && !isComponentView(view)) {\n    view =
view.parent!;\n  }\n  if (view.parent) {\n    return asElementData(view.parent, viewParentEl(view)!.nodeIndex);\n  }\n
return null;\n}\n\n\nfunction collectReferences(view: ViewData, nodeDef: NodeDef, references: {[key: string]:
any}) {\n  for (let refName in nodeDef.references) {\n    references[refName] = getQueryValue(view, nodeDef,
nodeDef.references[refName]);\n  }\n}\n\n\nfunction callWithDebugContext(action: DebugAction, fn: any, self: any,
args: any[]) {\n  const oldAction = _currentAction;\n  const oldView = _currentView;\n  const oldNodeIndex =

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_currentNodeIndex;\n
try {\n  _currentAction = action;\n  const result = fn.apply(self, args);\n  _currentView = oldView;\n  _currentNodeIndex = oldNodeIndex;\n  _currentAction = oldAction;\n  return result;\n } catch (e) {\n  if
(isViewDebugError(e) || !_currentView) {\n    throw e;\n  }\n  throw viewWrappedDebugError(e,
getCurrentDebugContext(!);\n  }\n}\n\nexport function getCurrentDebugContext(): DebugContext|null {\n  return
_currentView ? new DebugContext_(_currentView, _currentNodeIndex) : null;\n}\n\nexport class
DebugRendererFactory2 implements RendererFactory2 {\n  constructor(private delegate: RendererFactory2) {\n\n
createRenderer(element: any, renderData: RenderType2|null): Renderer2 {\n  return new
DebugRenderer2(this.delegate.createRenderer(element, renderData));\n  }\n\n  begin() {\n  if (this.delegate.begin)
{\n    this.delegate.begin();\n  }\n  }\n  end() {\n  if (this.delegate.end) {\n    this.delegate.end();\n  }\n  }\n\n
whenRenderingDone():
Promise<any> {\n  if (this.delegate.whenRenderingDone) {\n    return this.delegate.whenRenderingDone();\n
  }\n  return Promise.resolve(null);\n  }\n}\n\nexport class DebugRenderer2 implements Renderer2 {\n  readonly
data: {[key: string]: any};\n\n  private createDebugContext(nativeElement: any) {\n  return
this.debugContextFactory(nativeElement);\n  }\n\n  /**\n   * Factory function used to create a `DebugContext` when
a node is created.\n   *\n   * The `DebugContext` allows to retrieve information about the nodes that are useful in
tests.\n   *\n   * The factory is configurable so that the `DebugRenderer2` could instantiate either a View Engine\n
* or a Render context.\n   */\n  debugContextFactory: (nativeElement?: any) => DebugContext | null =
getCurrentDebugContext;\n\n  constructor(private delegate: Renderer2) {\n    this.data = this.delegate.data;\n  }\n\n
destroyNode(node: any) {\n  const debugNode = getDebugNode(node)!;\n
removeDebugNodeFromIndex(debugNode);\n
  if (debugNode instanceof DebugNode__PRE_R3__) {\n    debugNode.listeners.length = 0;\n  }\n  if
(this.delegate.destroyNode) {\n    this.delegate.destroyNode(node);\n  }\n  }\n\n  destroy() {\n
this.delegate.destroy();\n  }\n\n  createElement(name: string, namespace?: string): any {\n  const el =
this.delegate.createElement(name, namespace);\n  const debugCtx = this.createDebugContext(el);\n  if
(debugCtx) {\n    const debugEl = new DebugElement__PRE_R3__(el, null, debugCtx);\n    (debugEl as {name:
string}).name = name;\n    indexDebugNode(debugEl);\n  }\n  return el;\n  }\n\n  createComment(value: string):
any {\n  const comment = this.delegate.createComment(value);\n  const debugCtx =
this.createDebugContext(comment);\n  if (debugCtx) {\n    indexDebugNode(new
DebugNode__PRE_R3__(comment, null, debugCtx);\n  }\n  return comment;\n  }\n\n  createText(value: string):
any {\n  const text = this.delegate.createText(value);\n  const
debugCtx = this.createDebugContext(text);\n  if (debugCtx) {\n    indexDebugNode(new
DebugNode__PRE_R3__(text, null, debugCtx);\n  }\n  return text;\n  }\n\n  appendChild(parent: any, newChild:
any): void {\n  const debugEl = getDebugNode(parent);\n  const debugChildEl = getDebugNode(newChild);\n
if (debugEl && debugChildEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.addChild(debugChildEl);\n  }\n  this.delegate.appendChild(parent, newChild);\n  }\n\n
insertBefore(parent: any, newChild: any, refChild: any, isMove?: boolean): void {\n  const debugEl =
getDebugNode(parent);\n  const debugChildEl = getDebugNode(newChild);\n  const debugRefEl =
getDebugNode(refChild)!;\n  if (debugEl && debugChildEl && debugEl instanceof DebugElement__PRE_R3__)
{\n    debugEl.insertBefore(debugRefEl, debugChildEl);\n  }\n  this.delegate.insertBefore(parent, newChild,
refChild, isMove);\n  }\n\n  removeChild(parent: any, oldChild: any): void {\n  const
debugEl = getDebugNode(parent);\n  const debugChildEl = getDebugNode(oldChild);\n  if (debugEl &&
debugChildEl && debugEl instanceof DebugElement__PRE_R3__) {\n    debugEl.removeChild(debugChildEl);\n
  }\n  this.delegate.removeChild(parent, oldChild);\n  }\n\n  selectRootElement(selectorOrNode: string|any,
preserveContent?: boolean): any {\n  const el = this.delegate.selectRootElement(selectorOrNode,
preserveContent);\n  const debugCtx = getCurrentDebugContext();\n  if (debugCtx) {\n    indexDebugNode(new
DebugElement__PRE_R3__(el, null, debugCtx);\n  }\n  return el;\n  }\n\n  setAttribute(el: any, name: string,
value: string, namespace?: string): void {\n  const debugEl = getDebugNode(el);\n  if (debugEl && debugEl

```



```
instanceof DebugElement__PRE_R3__) {\n    const fullName = namespace ? namespace + ':' + name : name;\n    debugEl.attributes[fullName] = value;\n    }\n    this.delegate.setAttribute(el, name, value, namespace);\n    }\n\nremoveAttribute(el:\n\nany, name: string, namespace?: string): void {\n    const debugEl = getDebugNode(el);\n    if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n        const fullName = namespace ? namespace + ':' + name : name;\n        debugEl.attributes[fullName] = null;\n    }\n    this.delegate.removeAttribute(el, name, namespace);\n    }\n\naddClass(el: any, name: string): void {\n    const debugEl = getDebugNode(el);\n    if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n        debugEl.classes[name] = true;\n    }\n    this.delegate.addClass(el,\nname);\n}\n\nremoveClass(el: any, name: string): void {\n    const debugEl = getDebugNode(el);\n    if (debugEl\n&& debugEl instanceof DebugElement__PRE_R3__) {\n        debugEl.classes[name] = false;\n    }\nthis.delegate.removeClass(el, name);\n}\n\nsetStyle(el: any, style: string, value: any, flags: RendererStyleFlags2):\nvoid {\n    const debugEl = getDebugNode(el);\n    if (debugEl && debugEl instanceof\nDebugElement__PRE_R3__)\n{\n    debugEl.styles[style] = value;\n    }\n    this.delegate.setStyle(el, style, value, flags);\n    }\n\nremoveStyle(el:\nany, style: string, flags: RendererStyleFlags2): void {\n    const debugEl = getDebugNode(el);\n    if (debugEl &&\ndebugEl instanceof DebugElement__PRE_R3__) {\n        debugEl.styles[style] = null;\n    }\nthis.delegate.removeStyle(el, style, flags);\n}\n\nsetProperty(el: any, name: string, value: any): void {\n    const\ndebugEl = getDebugNode(el);\n    if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n        debugEl.properties[name] = value;\n    }\n    this.delegate.setProperty(el, name, value);\n    }\n\nlisten(\n    target:\n'document'|'windows'|'body'|any, eventName: string,\n    callback: (event: any) => boolean): () => void {\n    if\n(typeof target !== 'string') {\n        const debugEl = getDebugNode(target);\n        if (debugEl) {\n            debugEl.listeners.push(new DebugEventListener(eventName, callback));\n        }\n    }\n    return\nthis.delegate.listen(target, eventName, callback);\n}\n\nparentNode(node: any): any {\n    return\nthis.delegate.parentNode(node);\n}\n\nnextSibling(node: any): any {\n    return this.delegate.nextSibling(node);\n}\n\nsetValue(node: any, value: string): void {\n    return this.delegate.setValue(node, value);\n    }\n}\n"}\n/**\n *\n@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-\nstyle license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Injector} from\n './di/injector';\nimport {Type} from './interface/type';\nimport {ComponentFactory} from\n './linker/component_factory';\nimport {NgModuleFactory, NgModuleRef} from\n './linker/ng_module_factory';\nimport {initServicesIfNeeded} from './services';\nimport {NgModuleDefinition,\nNgModuleDefinitionFactory, NgModuleProviderDef, ProviderOverride, Services, ViewDefinition} from\n './types';\nimport {resolveDefinition} from './util';\n\nexport\nfunction overrideProvider(override: ProviderOverride) {\n    initServicesIfNeeded();\n    return\nServices.overrideProvider(override);\n}\n\nexport function overrideComponentView(comp: Type<any>,\ncomponentFactory: ComponentFactory<any>) {\n    initServicesIfNeeded();\n    return\nServices.overrideComponentView(comp, componentFactory);\n}\n\nexport function clearOverrides() {\n    \ninitServicesIfNeeded();\nreturn Services.clearOverrides();\n}\n\n// Attention: this function is called as top level\nfunction.\n// Putting any logic in here will destroy closure tree shaking!\nexport function createNgModuleFactory(\nngModuleType: Type<any>, bootstrapComponents: Type<any>[],\ndefactory: NgModuleDefinitionFactory):\nNgModuleFactory<any> {\n    return new NgModuleFactory_(ngModuleType, bootstrapComponents,\ndefactory);\n}\n\nfunction cloneNgModuleDefinition(def: NgModuleDefinition): NgModuleDefinition {\n    const\nproviders = Array.from(def.providers);\nconst modules = Array.from(def.modules);\n\nconst providersByKey: {[tokenKey: string]: NgModuleProviderDef} = {};\nfor (const key in\ndef.providersByKey) {\n    providersByKey[key] = def.providersByKey[key];\n}\n\nreturn {\nfactory:\ndef.factory,\nscope: def.scope,\nproviders,\nmodules,\nprovidersByKey,\n};\n}\n\nnclass\nNgModuleFactory_ extends NgModuleFactory<any> {\n    constructor(\npublic readonly moduleType:\nType<any>,\nprivate _bootstrapComponents: Type<any>[],\nprivate _ngModuleDefFactory:\nNgModuleDefinitionFactory) {\n        // Attention: this ctor is called as top level function.\n        // Putting any logic in
```

```

here will destroy closure tree shaking!\n  super();\n }\n\n create(parentInjector: Injector|null):
NgModuleRef<any> {\n  initServicesIfNeeded();\n  // Clone the NgModuleDefinition so that any tree shakeable
provider definition\n  // added to this instance of the NgModuleRef doesn't affect the cached copy.\n  // See
https://github.com/angular/angular/issues/25018.\n  const
def = cloneNgModuleDefinition(resolveDefinition(this._ngModuleDefFactory));\n  return
Services.createNgModuleRef(\n    this.moduleType, parentInjector || Injector.NULL, this._bootstrapComponents,
def);\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nexport {anchorDef, elementDef} from './element';\nexport {clearOverrides, createNgModuleFactory,
overrideComponentView, overrideProvider} from './entrypoint';\nexport {ngContentDef} from
'/ng_content';\nexport {moduleDef, moduleProvideDef} from './ng_module';\nexport {directiveDef, pipeDef,
providerDef} from './provider';\nexport {pureArrayDef, pureObjectDef, purePipeDef} from
'/pure_expression';\nexport {queryDef} from './query';\nexport {createComponentFactory,
getComponentViewDefinitionFactory, nodeValue, ViewRef_} from './refs';\nexport {initServicesIfNeeded}
from './services';\nexport {textDef} from './text';\nexport {createRendererType2, elementEventFullName,
EMPTY_ARRAY, EMPTY_MAP, inlineInterpolate, interpolate, rootRenderNodes, tokenKey, unwrapValue} from
'/util';\nexport {viewDef} from './view';\nexport {attachEmbeddedView, detachEmbeddedView,
moveEmbeddedView} from './view_attach';\n\nexport * from './types';\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nexport {ALLOW_MULTIPLE_PLATFORMS as
ALLOW_MULTIPLE_PLATFORMS} from './application_ref';\nexport {APP_ID_RANDOM_PROVIDER as
APP_ID_RANDOM_PROVIDER} from './application_tokens';\nexport {defaultIterableDiffers as
defaultIterableDiffers, defaultKeyValueDiffers as defaultKeyValueDiffers} from
'/change_detection/change_detection';\nexport {devModeEqual as devModeEqual, isListLikeIterable as
isListLikeIterable}
from './change_detection/change_detection_util';\nexport {ChangeDetectorStatus as ChangeDetectorStatus,
isDefaultChangeDetectionStrategy as isDefaultChangeDetectionStrategy} from
'/change_detection/constants';\nexport {Console as Console} from './console';\nexport {getDebugNodeR2 as
getDebugNodeR2} from './debug/debug_node';\nexport {inject, setCurrentInjector as setCurrentInjector, inject}
from './di/injector_compatibility';\nexport {getInjectableDef as getInjectableDef, InjectableDef, InjectorDef} from
'/di/interface/defs';\nexport {INJECTOR_SCOPE as INJECTOR_SCOPE} from './di/scope';\nexport
{CurrencyIndex as CurrencyIndex, ExtraLocaleDataIndex as ExtraLocaleDataIndex, findLocaleData as
findLocaleData, getLocaleCurrencyCode as getLocaleCurrencyCode, getLocalePluralCase as getLocalePluralCase,
LocaleDataIndex as LocaleDataIndex, registerLocaleData as registerLocaleData, unregisterAllLocaleData as
unregisterLocaleData} from './i18n/locale_data_api';\nexport
{DEFAULT_LOCALE_ID as DEFAULT_LOCALE_ID} from './i18n/localization';\nexport {ivyEnabled as
ivyEnabled} from './ivy_switch';\nexport {ComponentFactory as ComponentFactory} from
'/linker/component_factory';\nexport {CodegenComponentFactoryResolver as
CodegenComponentFactoryResolver} from './linker/component_factory_resolver';\nexport
{clearResolutionOfComponentResourcesQueue as clearResolutionOfComponentResourcesQueue,
resolveComponentResources as resolveComponentResources} from './metadata/resource_loading';\nexport
{ReflectionCapabilities as ReflectionCapabilities} from './reflection/reflection_capabilities';\nexport {GetterFn as
GetterFn, MethodFn as MethodFn, SetterFn as SetterFn} from './reflection/types';\nexport
{allowSanitizationBypassAndThrow as allowSanitizationBypassAndThrow, BypassType as BypassType,
getSanitizationBypassType as getSanitizationBypassType, SafeHtml as SafeHtml, SafeResourceUrl as
SafeResourceUrl, SafeScript as SafeScript, SafeStyle as SafeStyle,
SafeUrl as SafeUrl, SafeValue as SafeValue, unwrapSafeValue as unwrapSafeValue} from
'/sanitization/bypass';\nexport {_sanitizeHtml as _sanitizeHtml} from './sanitization/html_sanitizer';\nexport

```

```

{ _sanitizeUrl as _sanitizeUrl } from './sanitization/url_sanitizer';\nexport { makeDecorator as makeDecorator } from
 './util/decorators';\nexport { global as global } from './util/global';\nexport { isObservable as isObservable, isPromise
 as isPromise } from './util/lang';\nexport { stringify as stringify } from './util/stringify';\nexport { clearOverrides as
 clearOverrides, initServicesIfNeeded as initServicesIfNeeded, overrideComponentView as
 overrideComponentView, overrideProvider as overrideProvider } from './view/index';\nexport
 { NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR as
 NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR } from './view/provider';\n", "/*\n * @license\n *
 Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
 that can be\n
 * found in the LICENSE file at https://angular.io/license\n *\n\n// clang-format off\n// we reexport these symbols
 just so that they are retained during the dead code elimination\n// performed by rollup while it's creating fesm
 files.\n\n// no code actually imports these symbols from the @angular/core entry point\nexport { \n
 compileNgModuleFactory__POST_R3__ as compileNgModuleFactory__POST_R3__,\n
 isBoundToModule__POST_R3__ as isBoundToModule__POST_R3__,\n } from './application_ref';\nexport { \n
 SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__ as
 SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__,\n } from
 './change_detection/change_detector_ref';\nexport { \n
 getDebugNode__POST_R3__ as
 getDebugNode__POST_R3__,\n } from './debug/debug_node';\nexport { \n
 SWITCH_COMPILE_INJECTABLE__POST_R3__ as SWITCH_COMPILE_INJECTABLE__POST_R3__,\n }
 from './di/injectable';\nexport { INJECTOR_IMPL__POST_R3__ as INJECTOR_IMPL__POST_R3__ } from
 './di/injector';\nexport { \n
 NG_INJ_DEF as NG_INJ_DEF,\n NG_PROV_DEF
 as NG_PROV_DEF,\n } from './di/interface/defs';\nexport { createInjector as createInjector } from
 './di/r3_injector';\nexport { \n
 SWITCH_IVY_ENABLED__POST_R3__ as
 SWITCH_IVY_ENABLED__POST_R3__,\n } from './ivy_switch';\nexport { \n
 Compiler_compileModuleAndAllComponentsAsync__POST_R3__ as
 Compiler_compileModuleAndAllComponentsAsync__POST_R3__,\n
 Compiler_compileModuleAndAllComponentsSync__POST_R3__ as
 Compiler_compileModuleAndAllComponentsSync__POST_R3__,\n
 Compiler_compileModuleAsync__POST_R3__ as Compiler_compileModuleAsync__POST_R3__,\n
 Compiler_compileModuleSync__POST_R3__ as Compiler_compileModuleSync__POST_R3__,\n } from
 './linker/compiler';\nexport { \n
 SWITCH_ELEMENT_REF_FACTORY__POST_R3__ as
 SWITCH_ELEMENT_REF_FACTORY__POST_R3__,\n } from './linker/element_ref';\nexport {
 getModuleFactory__POST_R3__ as getModuleFactory__POST_R3__ } from
 './linker/ng_module_factory_loader';\nexport { registerNgModuleType as registerNgModuleType } from
 './linker/ng_module_factory_registration';\nexport
 { \n
 SWITCH_TEMPLATE_REF_FACTORY__POST_R3__ as
 SWITCH_TEMPLATE_REF_FACTORY__POST_R3__,\n } from './linker/template_ref';\nexport { \n
 SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__ as
 SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__,\n } from './linker/view_container_ref';\nexport
 { \n
 SWITCH_COMPILE_COMPONENT__POST_R3__ as
 SWITCH_COMPILE_COMPONENT__POST_R3__,\n SWITCH_COMPILE_DIRECTIVE__POST_R3__ as
 SWITCH_COMPILE_DIRECTIVE__POST_R3__,\n SWITCH_COMPILE_PIPE__POST_R3__ as
 SWITCH_COMPILE_PIPE__POST_R3__,\n } from './metadata/directives';\nexport { \n
 NgModuleDefWithMeta,\n } from './metadata/ng_module';\nexport { \n
 SWITCH_COMPILE_NGMODULE__POST_R3__ as SWITCH_COMPILE_NGMODULE__POST_R3__,\n }
 from './metadata/ng_module';\nexport { \n
 NgModuleDef as NgModuleDef,\n NgModuleTransitiveScopes as
 NgModuleTransitiveScopes,\n } from './metadata/ng_module_def';\nexport { \n
 SWITCH_RENDERER2_FACTORY__POST_R3__ as SWITCH_RENDERER2_FACTORY__POST_R3__,\n }

```

```

from './render/api';\nexport
{\n  getLContext as getLContext\n} from './render3/context_discovery';\nexport {\n  NG_COMP_DEF as
NG_COMP_DEF,\n  NG_DIR_DEF as NG_DIR_DEF,\n  NG_ELEMENT_ID as NG_ELEMENT_ID,\n
NG_MOD_DEF as NG_MOD_DEF,\n  NG_PIPE_DEF as NG_PIPE_DEF,\n} from './render3/fields';\nexport {\n
AttributeMarker as AttributeMarker,\n  ComponentDef as ComponentDef,\n  ComponentFactory as
Render3ComponentFactory,\n  ComponentRef as Render3ComponentRef,\n  ComponentType as
ComponentType,\n  CssSelectorList as CssSelectorList,\n  detectChanges as detectChanges,\n  DirectiveDef as
DirectiveDef,\n  DirectiveType as DirectiveType,\n  getDirectives as getDirectives,\n  getHostElement as
getHostElement,\n  LifecycleHooksFeature as LifecycleHooksFeature,\n  markDirty as markDirty,\n
NgModuleFactory as NgModuleFactory,\n  NgModuleRef as Render3NgModuleRef,\n  NgModuleType as
NgModuleType,\n  NO_CHANGE as NO_CHANGE,\n  PipeDef as PipeDef,\n  renderComponent as
renderComponent,\n
  RenderFlags as RenderFlags,\n  setClassMetadata as setClassMetadata,\n  setLocaleId as setLocaleId,\n
store as
store,\n  whenRendered as whenRendered,\n  advance,\n  attribute,\n  attributeInterpolate1,\n
attributeInterpolate2,\n  attributeInterpolate3,\n  attributeInterpolate4,\n  attributeInterpolate5,\n
attributeInterpolate6,\n  attributeInterpolate7,\n  attributeInterpolate8,\n  attributeInterpolateV,\n
classMap,\n  classMapInterpolate1,\n  classMapInterpolate2,\n  classMapInterpolate3,\n  classMapInterpolate4,\n
classMapInterpolate5,\n  classMapInterpolate6,\n  classMapInterpolate7,\n  classMapInterpolate8,\n
classMapInterpolateV,\n  classProp,\n  ComponentDefWithMeta,\n  contentQuery,\n  CopyDefinitionFeature,\n
defineComponent,\n  defineDirective,\n  defineNgModule,\n  definePipe,\n  DirectiveDefWithMeta,\n
directiveInject,\n  disableBindings,\n  element,\n  elementContainer,\n  elementContainerEnd,\n
  elementContainerStart,\n  elementEnd,\n  elementStart,\n  enableBindings,\n  FactoryDef,\n  getCurrentView,\n
getFactoryOf,\n  getInheritedFactory,\n  hostProperty,\n  i18n,\n  i18nApply,\n  i18nAttributes,\n  i18nEnd,\n
i18nExp,\n  i18nPostprocess,\n  i18nStart,\n  InheritDefinitionFeature,\n  injectAttribute,\n
  injectPipeChangeDetectorRef,\n  invalidFactory,\n  listener,\n  loadQuery,\n  namespaceHTML,\n
  namespaceMathML,\n  namespaceSVG,\n  nextContext,\n  NgOnChangesFeature,\n  pipe,\n  pipeBind1,\n
  pipeBind2,\n  pipeBind3,\n  pipeBind4,\n  pipeBindV,\n  PipeDefWithMeta,\n  projection,\n  projectionDef,\n
  property,\n  propertyInterpolate,\n  propertyInterpolate1,\n  propertyInterpolate2,\n  propertyInterpolate3,\n
  propertyInterpolate4,\n  propertyInterpolate5,\n  propertyInterpolate6,\n  propertyInterpolate7,\n
  propertyInterpolate8,\n  propertyInterpolateV,\n  ProvidersFeature,\n
  pureFunction0,\n  pureFunction1,\n  pureFunction2,\n  pureFunction3,\n  pureFunction4,\n  pureFunction5,\n
  pureFunction6,\n  pureFunction7,\n  pureFunction8,\n  pureFunctionV,\n  queryRefresh,\n  reference,\n
  resolveBody,\n  resolveDocument,\n  resolveWindow,\n  restoreView,\n  setComponentScope,\n
  setNgModuleScope,\n  staticContentQuery,\n  staticViewQuery,\n  styleMap,\n  styleMapInterpolate1,\n
  styleMapInterpolate2,\n  styleMapInterpolate3,\n  styleMapInterpolate4,\n  styleMapInterpolate5,\n
  styleMapInterpolate6,\n  styleMapInterpolate7,\n  styleMapInterpolate8,\n  styleMapInterpolateV,\n
  styleProp,\n  stylePropInterpolate1,\n  stylePropInterpolate2,\n  stylePropInterpolate3,\n
  stylePropInterpolate4,\n  stylePropInterpolate5,\n  stylePropInterpolate6,\n  stylePropInterpolate7,\n
  stylePropInterpolate8,\n  stylePropInterpolateV,\n  syntheticHostListener,\n  syntheticHostProperty,\n
  template,\n
  templateRefExtractor,\n  text,\n  textInterpolate,\n  textInterpolate1,\n  textInterpolate2,\n
  textInterpolate3,\n  textInterpolate4,\n  textInterpolate5,\n  textInterpolate6,\n  textInterpolate7,\n
  textInterpolate8,\n  textInterpolateV,\n  viewQuery,\n} from './render3/index';\nexport {\n  LContext as LContext,\n} from
'./render3/interfaces/context';\nexport {\n  setDocument as setDocument\n} from
'./render3/interfaces/document';\nexport {\n  Player as Player,\n  PlayerFactory as PlayerFactory,\n  PlayerHandler
as PlayerHandler,\n  PlayState as PlayState,\n} from './render3/interfaces/player';\nexport {\n  compileComponent as
compileComponent,\n  compileDirective as compileDirective,\n} from './render3/jit/directive';\nexport {\n
resetJitOptions as resetJitOptions,\n} from './render3/jit/jit_options';\nexport {\n  compileNgModule as
compileNgModule,\n  compileNgModuleDefs as compileNgModuleDefs,\n

```

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flushModuleScopingQueueAsMuchAsPossible
as flushModuleScopingQueueAsMuchAsPossible,\n patchComponentDefWithScope as
patchComponentDefWithScope,\n resetCompiledComponents as resetCompiledComponents,\n
transitiveScopesFor as transitiveScopesFor,\n} from './render3/jit/module';\nexport {\n compilePipe as
compilePipe,\n} from './render3/jit/pipe';\nexport {\n publishDefaultGlobalUtils as publishDefaultGlobalUtils\n,\n publishGlobalUtil as publishGlobalUtil} from './render3/util/global_utils';\nexport {\n bypassSanitizationTrustHtml
as bypassSanitizationTrustHtml,\n bypassSanitizationTrustResourceUrl as bypassSanitizationTrustResourceUrl,\n
bypassSanitizationTrustScript as bypassSanitizationTrustScript,\n bypassSanitizationTrustStyle as
bypassSanitizationTrustStyle,\n bypassSanitizationTrustUrl as bypassSanitizationTrustUrl,\n} from
'/sanitization/bypass';\nexport {\n sanitizeHtml,\n sanitizeResourceUrl,\n sanitizeScript,\n sanitizeStyle,\n
sanitizeUrl,\n sanitizeUrlOrResourceUrl,\n
trustConstantHtml,\n trustConstantResourceUrl,\n trustConstantScript,\n} from
'/sanitization/sanitization';\nexport {\n noSideEffects as noSideEffects,\n} from './util/closure';\n\n// clang-format
on\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nexport {CodegenComponentFactoryResolver as CodegenComponentFactoryResolver} from
'/linker/component_factory_resolver';\nexport {registerModuleFactory as registerModuleFactory} from
'/linker/ng_module_factory_registration';\nexport {anchorDef as and, ArgumentType as ArgumentType,
BindingFlags as BindingFlags, createComponentFactory as ccf, createNgModuleFactory as cmf,
createRendererType2 as crt, DepFlags as DepFlags, directiveDef as did, elementDef as eld, EMPTY_ARRAY as
EMPTY_ARRAY, EMPTY_MAP as EMPTY_MAP, getComponentViewDefinitionFactory as
getComponentViewDefinitionFactory,
inlineInterpolate as inlineInterpolate, interpolate as interpolate, moduleDef as mod, moduleProvideDef as mpd,
ngContentDef as ncd, NodeFlags as NodeFlags, nodeValue as nov, pipeDef as pid, providerDef as prd,
pureArrayDef as pad, pureObjectDef as pod, purePipeDef as ppd, QueryBindingType as QueryBindingType,
queryDef as qud, QueryValueType as QueryValueType, textDef as ted, unwrapValue as unv, viewDef as vid,
ViewDefinition as ViewDefinition, ViewFlags as ViewFlags} from './view/index';\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/*\n * @module\n * @description\n
* Entry point from which you should import all public core APIs.\n */\n\nexport * from './metadata';\nexport * from
'/version';\nexport {TypeDecorator} from './util/decorators';\nexport * from './di';\nexport
{createPlatform, assertPlatform, destroyPlatform, getPlatform, PlatformRef, ApplicationRef,
createPlatformFactory, NgProbeToken} from './application_ref';\nexport {enableProdMode, isDevMode} from
'/util/is_dev_mode';\nexport {APP_ID, PACKAGE_ROOT_URL, PLATFORM_INITIALIZER, PLATFORM_ID,
APP_BOOTSTRAP_LISTENER} from './application_tokens';\nexport {APP_INITIALIZER,
ApplicationInitStatus} from './application_init';\nexport * from './zone';\nexport * from './render';\nexport * from
'/linker';\nexport {DebugElement, DebugEventListener, DebugNode, asNativeElements, getDebugNode, Predicate}
from './debug/debug_node';\nexport {GetTestability, Testability, TestabilityRegistry, setTestabilityGetter} from
'/testability/testability';\nexport * from './change_detection';\nexport * from './platform_core_providers';\nexport
{TRANSLATIONS, TRANSLATIONS_FORMAT, LOCALE_ID, DEFAULT_CURRENCY_CODE,
MissingTranslationStrategy} from './i18n/tokens';\nexport {ApplicationModule} from
'/application_module';\nexport
{AbstractType, Type} from './interface/type';\nexport {EventEmitter} from './event_emitter';\nexport
{ErrorHandler} from './error_handler';\nexport * from './core_private_export';\nexport * from
'/core_render3_private_export';\nexport {SecurityContext} from './sanitization/security';\nexport {Sanitizer} from
'/sanitization/sanitizer';\nexport * from './codegen_private_exports';\n\nimport {global} from './util/global';\n\nif
(typeof ngDevMode !== 'undefined' && ngDevMode) {\n // This helper is to give a reasonable error message to
people upgrading to v9 that have not yet\n // installed `@angular/localize` in their app.\n // tslint:disable-next-line:

```

```

no-toplevel-property-access\n global.$localize = global.$localize || function() {\n  throw new Error(\n    'It looks
like your application or one of its dependencies is using i18n.\n' +\n    'Angular 9 introduced a global `$localize()`
function that needs to be loaded.\n' +\n    'Please run `ng add @angular/localize`
from the Angular CLI.\n' +\n    '(For non-CLI projects, add `import `@angular/localize/init` to your
`polyfills.ts` file.\n' +\n    'For server-side rendering applications add the import to your `main.server.ts` file.));\n
};\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n\n * @module\n * @description\n * Entry point for all public APIs of this package.\n */\nexport * from
'./src/core';\n\n// This file only reexports content of the `src` folder. Keep it that way.\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this
module. It is only used during editing\n// by the TypeScript language service and
during build for verification. `ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n//
names.\n\nexport * from './public_api';\n", "/*\n * Generated bundle index. Do not edit.\n */\n\nexport * from
'/index';\n\nexport { APPLICATION_MODULE_PROVIDERS as
angular_packages_core_core_w, IterableDiffersFactory as angular_packages_core_core_t, KeyValueDiffersFactory
as angular_packages_core_core_u, LocaleFactory as angular_packages_core_core_v, ZoneSchedulerFactory as
angular_packages_core_core_x } from './src/application_module';\n\nexport { appIdRandomProviderFactory as
angular_packages_core_core_f } from './src/application_tokens';\n\nexport { injectChangeDetectorRef as
angular_packages_core_core_q } from './src/change_detection/change_detector_ref';\n\nexport
{ DefaultIterableDifferFactory as angular_packages_core_core_r } from
'./src/change_detection/differs/default_iterable_differ';\n\nexport { DefaultKeyValueDifferFactory as
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angular_packages_core_core_o, DebugNode__PRE_R3__ as
angular_packages_core_core_n, getDebugNodeR2__PRE_R3__ as angular_packages_core_core_p } from
'./src/debug/debug_node';\n\nexport { isForwardRef as angular_packages_core_core_a } from
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'./src/di/inject_switch';\n\nexport { injectInjectorOnly as angular_packages_core_core_b } from
'./src/di/injector_compatibility';\n\nexport { InjectorMarkers as angular_packages_core_core_bt } from
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angular_packages_core_core_d, resolveReflectiveProviders as angular_packages_core_core_e } from
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'./src/linker/template_ref';\n\nexport { injectViewContainerRef as angular_packages_core_core_m } from
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'./src/util/decorators';\nextport {getClosureSafeProperty as angular_packages_core_core_bq} from './src/util/property';\nextport {trustedHTMLFromString as angular_packages_core_core_by,trustedScriptFromString as angular_packages_core_core_ca,trustedScriptURLFromString as angular_packages_core_core_bz} from './src/util/security/trusted_types';\nextport {_def as angular_packages_core_core_z} from './src/view/provider';\nextport {DebugContext as angular_packages_core_core_ba} from './src/view/types';"},{"names":["global","ViewEncapsulation","unusedValueExportToPlacateAjd","unused1","unused2","unused3","unused4","unused5","unusedValueToPlacateAjd","INJECTOR","EMPTY_ARRAY","CIRCULAR","NO_NEW_LINE","NULL_INJECTOR","renderComponent","USE_VALUE","render3CompileInjectable","EMPTY_OBJ","resolveProvider","getComponent","R3_ViewRef","R3ViewRef","_renderCompCount","renderDetachView","createInjector","InjectorRefTokenKey","INJECTORRefTokenKey","_createProviderInstance","ComponentFactoryResolver","viewEngine_ComponentFactoryResolver","ComponentFactory","getNamespace","viewEngine_ComponentFactory","ComponentRef","viewEngine_ComponentRef","NgModuleRef","viewEngine_NgModuleRef","NgModuleFactory","viewEngine_NgModuleFactory","getPipeDef","unwrapValue","ViewEngine_TemplateRef","ViewEngine_ElementRef","r3.attribute","r3.attributeInterpolate1","r3.attributeInterpolate2","r3.attributeInterpolate3","r3.attributeInterpolate4","r3.attributeInterpolate5","r3.attributeInterpolate6","r3.attributeInterpolate7","r3.attributeInterpolate8","r3.attributeInterpolateV","r3.defineComponent","r3.defineDirective","r3.defineNgModule","r3.definePipe","r3.directiveInject","r3.getFactoryOf","r3.getInheritedFactory","r3.injectAttribute","r3.invalidFactory","r3.injectPipeChangeDetectorRef","r3.templateRefExtractor","r3.NgOnChangesFeature","r3.ProvidersFeature","r3.CopyDefinitionFeature","r3.InheritDefinitionFeature","r3.nextContext","r3.namespaceHTML","r3.namespaceMathML","r3.namespaceSVG","r3.enableBindings","r3.disableBindings","r3.elementStart","r3.elementEnd","r3.element","r3.elementContainerStart","r3.elementContainerEnd","r3.elementContainer","r3.pureFunction0","r3.pureFunction1","r3.pureFunction2","r3.pureFunction3","r3.pureFunction4","r3.pureFunction5","r3.pureFunction6","r3.pureFunction7","r3.pureFunction8","r3.pureFunctionV","r3.getCurrentView","r3.restoreView","r3.listener","r3.projection","r3.syntheticHostProperty","r3.syntheticHostListener","r3.pipeBind1","r3.pipeBind2","r3.pipeBind3","r3.pipeBind4","r3.pipeBindV","r3.projectionDef","r3.hostProperty","r3.property","r3.propertyInterpolate","r3.propertyInterpolate1","r3.propertyInterpolate2","r3.propertyInterpolate3","r3.propertyInterpolate4","r3.propertyInterpolate5","r3.propertyInterpolate6","r3.propertyInterpolate7","r3.propertyInterpolate8","r3.propertyInterpolateV","r3.pipe","r3.queryRefresh","r3.viewQuery","r3.staticViewQuery","r3.staticContentQuery","r3.loadQuery","r3.contentQuery","r3.reference","r3.classMap","r3.classMapInterpolate1","r3.classMapInterpolate2","r3.classMapInterpolate3","r3.classMapInterpolate4","r3.classMapInterpolate5","r3.classMapInterpolate6","r3.classMapInterpolate7","r3.classMapInterpolate8","r3.classMapInterpolateV","r3.styleMap","r3.styleMapInterpolate1","r3.styleMapInterpolate2","r3.styleMapInterpolate3","r3.styleMapInterpolate4","r3.styleMapInterpolate5","r3.styleMapInterpolate6","r3.styleMapInterpolate7","r3.styleMapInterpolate8","r3.styleMapInterpolateV","r3.styleProp","r3.stylePropInterpolate1","r3.stylePropInterpolate2","r3.stylePropInterpolate3","r3.stylePropInterpolate4","r3.stylePropInterpolate5","r3.stylePropInterpolate6","r3.stylePropInterpolate7","r3.stylePropInterpolate8","r3.stylePropInterpolateV","r3.classProp","r3.advance","r3.template","r3.text","r3.textInterpolate","r3.textInterpolate1","r3.textInterpolate2","r3.textInterpolate3","r3.textInterpolate4","r3.textInterpolate5","r3.textInterpolate6","r3.textInterpolate7","r3.textInterpolate8","r3.textInterpolateV","r3.i18n","r3.i18nAttributes","r3.i18nExp","r3.i18nStart","r3.i18nEnd","r3.i18nApply","r3.i18nPostprocess","r3.resolveWindow","r3.reso

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nMode","firstViewPass","checkAlways","dirty","attached","destroyed","isRoot","indexWithinInitPhase","nodes","c hildViews","childHead","LContainerDebug","_raw_IContainer","_CLEAN_PROMISE","resolve","refreshContentQ ueries","directiveDefIdx","createLView","tHostNode","rendererFactory","getOrCreateTNode","createTNodeAtInde x","createTNode","tParent","allocExpando","numSlotsToAlloc","initialValue","allocIdx","renderView","executeVi ewQueryFn","templateFn","executeTemplate","renderChildComponents","hostLView","renderComponent","refresh View","isInCheckNoChangesPass","hooksInitPhaseCompleted","markTransplantedViewsForRefresh","movedLVie w","refreshEmbeddedViews","embeddedLView","embeddedTView","processHostBindingOpCodes","opCode","dir ectiveIdx","bindingRootIdx","hostBindingFn","refreshChildComponents","refreshComponent","renderComponent OrTemplate","normalExecutionPath","creationModeIsActive","begin","rf","prevSelectedIndex","executeContentQu eries","createDirectivesInstances","instantiateAllDirectives","addComponentLogic","setInputsFromAttrs","invokeD irectivesHostBindings","elementIndex","getCurrentDirectiveIndex","dirIndex","invokeHostBindingsInCreationMod e","saveResolvedLocalsInData","viewData","localRefExtractor","localIndex","getOrCreateTComponentView","cre ateTView","constsOrFactory","initialViewLength","createViewBlueprint","fill","locateHostElement","elementOrSe lector","selectRootElement","ShadowDom","querySelector","storeCleanupWithContext","cleanupFn","getLCleanup ","getTViewCleanup","generatePropertyAliases","inputAliasMap","propStore","internalName","elementPropertyInt ernal","nativeOnly","dataValue","inputData","setInputsForProperty","markDirtyIfOnPush","viewIndex","childCom ponentLView","mapPropName","resolveDirectives","hasDirectives","findDirectiveDefMatches","registry","matche s","markAsComponentHost","exportsMap","","initTNodeFlags","preOrderHooksFound","preOrderCheckHooksFou 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getByKey","resolveAndCreateChild","createChildFromResolved","inj","resolveAndInstantiate","instantiateResolved","_instantiateProvider","getProviderAtIndex","outOfBoundsError","_new","_getMaxNumberOfObjects","cyclicDependencyError","_instantiate","_getByReflectiveDependency","instantiationError","originalException","originalStack","INJECTOR_KEY","_getByKeySelf","_getByKeyDefault","_getObjByKeyId","keyId","_throwOrNull","noProviderError","inj_","_mapProviders","directiveInject","injectAttribute","invalidFactory","property","setDirectiveInputsWhichShadowsStyling","property","elementStart","getNamespace","elementStartFirstCreatePass","elementStart","getElementDepthCount","increaseElementDepthCount","elementEnd","decreaseElementDepthCount","elementEnd","hasClassInput","hasStyleInput","element","elementContainerStart","elementContainerStartFirstCreatePass","elementContainerEnd","elementContainer","getCurrentView","isPromise","isObservable","subscribe","listener","eventName","listenerFn","eventTargetResolver","listenerInternal","syntheticHostListener","isTNodeDirectiveHost","processOutputs","ICleanupIndex","existingListener","findExistingListener","tNodeIdx","cleanupEventName","listenerIdxInLCleanup","__ngLastListenerFn__","__ngNextListenerFn__","wrapListener","listen","addEventListener","propsLength","subscription","executeListenerWithErrorHandling","wrapWithPreventDefault","wrapListenerIn_markDirtyAndPreventDefault","nextListenerFn","preventDefault","returnValue","nextContext","matchingProjectionSlotIndex","projectionSlots","wildcardNgContentIndex","ngProjectAsAttrVal","getProjectAsAttrValue","ngProjectAsAttrIdx","projectionDef","componentNode","projectionHeads","tails","componentChild","slotIndex","projection","selectorIndex","applyProjection","propertyInterpolate","propertyInterpolate1","propertyInterpolate2","propertyInterpolate3","propertyInterpolate4","propertyInterpolate5","propertyInterpolate6","propertyInterpolate7","propertyInterpolate8","propertyInterpolateV","EMPTY_ARRAY\$3","markDuplicates","tStylingKey","isPrevDir","isClassBinding","tStylingAtIndex","isMap","foundDuplicate","tStyleRangeAtCursor","isStylingMatch","tStylingKeyCursor","parserState","textEnd","keyEnd","valueEnd","getLastParsedKey","getLastParsedValue","parseClassNameNext","consumeClassToken","startIndex","consumeWhitespace","parseStyleNext","consumeStyleKey","ch","consumeSeparator","consumeStyleValue","ch1","ch2","ch3","lastChIndex","consumeQuotedText","resetParserState","separator","quoteCharCode","styleProp","checkStylingProperty","classProp","styleMap","checkStylingMap","styleKeyValueArraySet","styleStringParser","parseStyle","classMap","classStringParser","parseClassName","stylingFirstUpdatePass","updateStyling","normalizeSuffix","stringParser","hasStylingInputShadow","isInHostBindings","staticPrefix","updateStylingMap","oldKeyValueArray","newKeyValueArray","oldIndex","newIndex","oldKey","setKey","toStylingKeyValueArray","styleKeyValueArray","unwrappedValue","isHostBindings","wrapInStaticStylingKey","stylingKey","hostDirectiveDef","residual","collectStylingFromTAttrs","collectStylingFromDirectives","templateStylingKey","getTemplateHeadTStylingKey","setTemplateHeadTStylingKey","collectResidual","insertTStylingBinding","tStylingKeyWithStatic","isHostBinding","tBindings","tmplHead","tmplTail","isKeyDuplicateOfStatic","previousNode","setTStylingRangePrev","markDuplicateOfResidualStyling","currentDirective","desiredMarker","currentMarker","tRange","isStylingValuePresent","findStylingValue","applyStyling","isProcedural","addClass","classList","removeClass","remove","DashCase","removeStyle","removeProperty","isImportant","endsWith","Important","setStyle","isPrevDirection","rawKey","containsStatics","isStylingMap","valueAtLViewIndex","text","textNative","textInterpolate","textInterpolate1","textInterpolate2","textInterpolate3","textInterpolate4","textInterpolate5","textInterpolate6","textInterpolate7","textInterpolate8","textInterpolateV","classMapInterpolate1","classMapInterpolate2","classMapInterpolate3","classMapInterpolate4","classMapInterpolate5","classMapInterpolate6","classMapInterpolate7","classMapInterpolate8","classMapInterpolateV","styleMapInterpolate1","styleMapInterpolate2","styleMapInterpolate3","styleMapInterpolate4","styleMapInterpolate5","styleMapInterpolate6","styleMapInterpolate7","styleMapInterpolate8","styleMapInterpolateV","stylePropInterpolate1","valueSuffix","stylePropInterpolate2","stylePropInterpolate3","stylePropInterpolate4","stylePropInterpolate5","stylePropInterpolate6","stylePropInterpolate7","stylePropInterpolate8","stylePropInterpolateV","hostProperty","syntheticHostProperty","LocaleDataIndex","u","localeEn","plural","Math","floor","abs","LOCALE_DATA","findLocaleData","locale","normalizedLocale","normalizeLocale","getLocaleData","parentLocale","getLocalePluralCase","LocaleDataIndex","PluralCase","common","locales","I18nCreateOpCode","pluralMapping","ELEMENT_MARKER","ICU_MARKER","LOCALE_ID","setLocaleId","localeId","tNodeInsertBeforeIndex","i18nParent","anchorRNode","addTNodeAndUpdateInsertBeforeIndex","previousTNodes","newTNode","existingTNode","isI18nText","isNewTNodeCreatedBefore","setInsertBeforeIndex","getTicu","createTNodePlaceholder","get

CurrentICUCaseIndex","tIcu","currentCase","currentCaseLViewIndex","getRefFromIcuCreateOpCode","mergedCode","changeMask","changeMaskCounter","applyUpdateOpCodes","updateOpCodes","bindingsStartIndex","checkBit","skipCodes","sanitizeFn","tNodeOrTagName","rText","applyIcuSwitchCase","applyIcuUpdateCase","activeCaseIndex","update","caseIndex","getCaseIndex","icuExpression","bindingValue","cases","resolvedCase","getPluralCase","parseInt","getLocaleId","applyIcuSwitchCaseRemove","removeCodes","nodeOrIcuIndex","anchorIdx","applyMutableOpCodes","mutableOpCodes","rootRNode","rootIdx","textNodeIndex","parentIdx","insertInFrontOf","refIdx","elementNodeIndex","commentValue","commentNodeIndex","loadIcuContainerVisitor","_removes","_stack","_index","enterIcu","icuContainerIteratorNext","removeOpCode","icuContainerIteratorStart","OpCodeParser","codes","hasMore","consumeNumber","consumeString","assertString","consumeFunction","consumeNumberOrString","consumeNumberStringOrMarker","BINDING_REGEX","ICU_REGEX","NESTED_ICU","ICU_BLOCK_REGEX","SUBTEMPLATE_REGEX","PH_REGEX","NGSP_UNICODE_REGEX","createTNodeAndAddOpCode","existingTNodes","createOpCodes","isICU","i18nNodeIdx","SHIFT","APPEND_EAGERLY","COMMENT","ensureIcuContainerVisitorLoaded","loader","setTNodeInsertBeforeIndex","assertEqual","i18nStartFirstCreatePassProcessTextNode","hasBinding","generateBindingUpdateOpCodes","str","destinationNode","maskIndex","sizeIndex","textParts","textValue","toMaskBit","min","removeInnerTemplateTranslation","tagMatched","inTemplate","exec","MARKER","icuStart","bindingMask","addUpdateIcuSwitch","mainBinding","setTicu","valueArr","nestedIcus","icuIndex","parseIcuCase","addUpdateIcuUpdate","parseICUBlock","pattern","icuType","i18nParseTextIntoPartsAndICU","binding","pos","blocks","prevPos","braceStack","results","braces","lastIndex","block","substring_1","caseName","unsafeCaseHtml","inertRootNode","walkIcuTree","sharedUpdateOpCodes","depth","currentNode","addCreateNodeAndAppend","lowerAttrName","addCreateAttribute","addRemoveNode","isNestedIcu","addRemoveNestedIcu","appendToParentIdx","createAtIdx","icuCreateOpCode","PP_MULTI_VALUE_PLACEHOLDERS_REGEX","PP_PLACEHOLDERS_REGEX","PP_ICU_VARS_REGEX","PP_ICU_PLACEHOLDERS_REGEX","PP_ICUS_REGEX","PP_CLOSE_TEMPLATE_REGEX","PP_TEMPLATE_ID_REGEX","i18nPostprocess","replacements","matches_1","templateIdsStack_1","phs","tmpl","placeholders","placeholder","templateId","isCloseTemplateTag","currentTemplateId","_type","_idx","i18nStart","messageIndex","subTemplateIndex","i18nStartFirstCreatePass","parentTNodeIndex","existingTNodeStack","msgParts","replaceNgsp","getTranslationForTemplate","isRootTemplateMessage","search","RegExp","part","isClosing","index_1","Number","tI18n","applyCreateOpCodes","appendNow","i18nEnd","i18n","i18nAttributes","i18nAttributesFirstPass","previousElementIndex","i18nExp","setMaskBit","hasChange","i18nApply","applyI18n","i18nPostprocess","resolveProvider\$1","InjectablesBlueprint","providerFactory","beginIndex","existingFactoryIndex","registerDestroyHooksIfSupported","existingProvidersFactoryIndex","existingViewProvidersFactoryIndex","doesViewProvidersFactoryExist","multiFactory","f","componentProviders","multiFactoryAdd","multiViewProvidersFactoryResolver","multiProvidersFactoryResolver","contextIndex","indexInFactory","providerIsTypeProvider","isClassProvider","existingCallbacksIndex","isComponentProvider","IData","multiResolve","componentCount","multiProviders","ProvidersFeature","processProvidersFn","ComponentRef","ComponentFactory","noComponentFactoryError","ERROR_COMPONENT","ComponentFactoryResolver","_NullComponentFactoryResolver","resolveComponentFactory","CodegenComponentFactoryResolver","_ngModule","_factories","componentType","ComponentFactoryBoundToModule","projectableNodes","rootSelectorOrNode","noop","injectElementRef","createElementRef","ElementRef","SWITCH_ELEMENT_REF_FACTORY__POST_R3__","nativeElement","Renderer2","RendererFactory2","SWITCH_RENDERER2_FACTORY","Sanitizer","SWITCH_RENDERER2_FACTORY__POST_R3__","injectRenderer2","nodeAtIndex","getOrCreateRenderer2","Version","VERSION","full","major","minor","patch","DefaultIterableDifferFactory","supports","trackByFn","DefaultIterableDiffer","trackByIdentity","_linkedRecords","_unlinkedRecords","_previousItHead","_itHead","_itTail","_additionsHead","_additionsTail","_movesHead","_movesTail","_removalsHead","_removalsTail","_identityChangesHead","_identityChangesTail","_trackByFn","forEachItem","_next","forEachOperation","nextIt","nextRemove","addRemoveOffset","moveOffsets","currentIndex","getPreviousIndex","adjPreviousIndex","_nextRemoved","previousIndex","localMovePreviousIndex","localCurrentIndex","offset","forEachPreviousItem","_nextPrevious","forEachAddedItem","_nextAdded","forEachMovedItem","_nextMoved","forEachRemovedItem","forEachIdentityChange","_nextIdentityChange","diff","collection","check","_reset","itemTrackBy","maybeDirty","trackById","_verifyReinsertion","_addIdentity

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,"extractQueriesMetadata","isContentQuery","lifecycle","usesOnChanges","splitByComma","viewQueries","objPrototype","s

houldAddAbstractDirective","isQueryAnn","queriesMeta","annotations_1","ann","isInputAnnotation","convertToR3QueryMetadata","propertyName","static","piece","LIFECYCLE_HOOKS","hookName","metadataName","compilePipe","ngPipeDef","getPipeMetadata","Pipe","SWITCH_COMPILE_DIRECTIVE","Component","c","SWITCH_COMPILE_COMPONENT","SWITCH_COMPILE_PIPE","Input","bindingPropertyName","Output","HostBinding","hostPropertyName","HostListener","SWITCH_COMPILE_COMPONENT_POST_R3__","SWITCH_COMPILE_DIRECTIVE_POST_R3__","SWITCH_COMPILE_PIPE_POST_R3__","NgModule","SWITCH_COMPILE_NGMODULE","SWITCH_COMPILE_NGMODULE_POST_R3__","preR3NgModuleCompile","APP_INITIALIZER","ApplicationInitStatus","appInits","reject","initialized","donePromise","rej","runInitializers","asyncInitPromises","initResult","catch","APP_ID","_appIdRandomProviderFactory","_randomChar","APP_ID_RANDOM_PROVIDER","fromCharCode","random","PLATFORM_INITIALIZER","PLATFORM_ID","APP_BOOTSTRAP_LISTENER","PACKAGE_ROOT_URL","Console","log","MissingTranslationStrategy","LOCALE_ID\$1","DEFAULT_CURRENCY_CODE","TRANSLATIONS","TRANSLATIONS_FORMAT","ModuleWithComponentFactories","ngModuleFactory","componentFactories","_throwError","Compiler_compileModuleSync_POST_R3__","Compiler_compileModuleSync","Compiler_compileModuleAsync","Compiler_compileModuleAndAllComponentsSync_POST_R3__","Compiler_compileModuleAndAllComponentsSync","Compiler_compileModuleAndAllComponentsAsync","Compiler","compileModuleSync","compileModuleAsync","compileModuleAndAllComponentsSync","compileModuleAndAllComponentsAsync","clearCache","clearCacheFor","getModuleId","COMPILER_OPTIONS","CompilerFactory","scheduleMicroTask","Zone","NgZone","enableLongStackTrace","shouldCoalesceEventChangeDetection","hasPendingMacrotasks","hasPendingMicrotasks","isStable","onUnstable","onMicrotaskEmpty","onStable","onError","assertZonePatched","_nesting","_outer","_inner","fork","lastRequestAnimationFrame","nativeRequestAnimationFrame","getNativeRequestAnimationFrame","nativeCancelAnimationFrame","unpatchedRequestAnimationFrame","__symbol__","unpatchedCancelAnimationFrame","forkInnerZoneWithAngularBehavior","zone","maybeDelayChangeDetection","delayChangeDetectionForEvents","fakeTopEventTask","scheduleEventTask","updateMicroTaskStatus","checkStable","invoke","properties","isAngularZone","onInvokeTask","delegate","task","applyThis","applyArgs","onEnter","invokeTask","onLeave","onInvoke","onHasTask","hasTaskState","hasTask","change","hasPendingMicrotasks","microTask","macroTask","onHandleError","runOutsideAngular","isInAngularZone","assertInAngularZone","assertNotInAngularZone","run","runTask","EMPTY_PAYLOAD","noop\$1","cancelTask","runGuarded","NoopNgZone","Testability","_ngZone","_pendingCount","_isZoneStable","_didWork","_callbacks","taskTrackingZone","_watchAngularEvents","_runCallbacksIfReady","increasePendingRequestCount","decreasePendingRequestCount","cb","clearTimeout","timeoutId","doneCb","pending_1","getPendingTasks","updateCb","macroTasks","creationLocation","addCallback","timeout","whenStable","getPendingRequestCount","findProviders","using","exactMatch","TestabilityRegistry","_applications","_testabilityGetter","addToWindow","registerApplication","testability","unregisterApplication","unregisterAllApplications","getTestability","elem","getAllTestabilities","getAllRootElementElements","findTestabilityInTree","findInAncestors","_platform","_NoopGetTestability","ALLOW_MULTIPLE_PLATFORMS","NgProbeToken","createPlatform","PlatformRef","inits","createPlatformFactory","parentPlatformFactory","desc","extraProviders","platform","getPlatform","injectedProviders","assertPlatform","requiredToken","_injector","_modules","bootstrapModuleFactory","moduleFactory","ngZone","getNgZone","ngZoneOption","ngZoneEventCoalescing","ngZoneInjector","moduleRef","exceptionHandler","_callAndReportToErrorHandler","initStatus","_moduleDoBootstrap","bootstrapModule","compilerOptions","optionsReducer","compileNgModuleFactory_PRE_R3__","createCompiler","compileNgModuleFactory","ApplicationRef","ngDoBootstrap","_zone","_exceptionHandler","_componentFactoryResolver","_initStatus","_bootstrapListeners","_views","_runningTick","_enforceNoNewChanges","_stable","componentTypes","tick","isCurrentlyStable","Observable","observer","stableSub","unstableSub","share","componentOrFactory","isBoundToModule_PRE_R3__","cf","compRef","_unloadComponent","_loadComponent","_d","_e","_f","attachView","_lastDefined","NgModuleFactoryLoader","getModuleFactory_PRE_R3__","noModuleError","getModuleFactory","SystemJsNgModuleLoaderConfig","DEFAULT_CONFIG","factoryPathPrefix","factoryPathSuffix","SystemJsNgModuleLoader","_compiler","config","_config","loadFactory","loadAndCompile","exportName","System","import","checkNotEmpty","factoryClassSuffix","modulePath","ViewRef\$1","EmbeddedViewRef","DebugEventListener","DebugNode_PRE_R3__","nativeNode","_debugContext","DebugElem

ent__PRE_R3__","addChild","providerTokens","childNodes","childIndex","insertChildrenAfter","newChildren","si
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opertyDescriptors","startsWith","isPrimitiveValue","collectPropertyBindings","bindingIndexes","metadataParts","lo
wercaseTNodeAttrs","eAttrs","lowercaseName","baseVal","getDebugNode__POST_R3__","_queryAllR3","invoke
dListeners","eventListeners","unwrappedListener","parentElement","elementsOnly","_queryNodeChildrenR3","_qu
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ateElementValue","setElementAttribute\$1","securityContext","renderValue","setElementClass","setElementStyle","
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kAndUpdateDirectiveInline","checkAndUpdatePureExpressionInline","checkAndUpdateNodeDynamic","checkAnd
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PureExpressionDynamic","checkNoChangesNode","checkNoChangesNodeInline","checkNoChangesNodeDynamic
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 PsB,CAQ/B7IB,OAYBF,SAASimB,GAA2B7nB,EAAO8nB,GACvC,IAAIC,EAakBD,EAAe,OAASA,EAAe,GAC
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 B, CACrDuR, IAAK, WACD, OAAO4xB, GAAoBhkC, MAAM, IAErCunC, YAAy, EACZC, cAAc, IAEIBpnC, OAAO
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,EAAIC,EAAIE,EAAIC,EAAIIB,EAAQv0B,EA AW2R,GACtH,IAAI5f,EAAQ4B,KACRmiC,EAAoBP,GAAexjC,EAAOsIC,EAAQC,EAAIG,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIE,EAAI C,EAAIIB,GAOI G,OANluB,IAAsB3d,IAEtB4N,GADYtuB,KACoB1F,EAAOoJ,EAAU26B,EAAMb91B,EA AW 2R,GA15Eykb,GAYCX,SAASC,GA AwB17B,EAAUk5B,EAAQC,EAAIG,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC, EAAIE,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIrB,EAAQv0B,EA AW2R,GAC9H,IAAI5f,E AAQ4B,KACRmiC,EAAoBJ,GAAe3jC,EAAOsIC,EAAQC,EAAIG,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAI E,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIE,EAAIC,EAAIrB,GAOI H,OANluB,IAAsB3d,IAEtB4N,GADYtu B,KACoB1F,EAAOoJ,EAAU26B,EAAMb91B,EA AW2R,GA15E0kB,GA4BX,SAASC,GA AwBn7B,EAAUjiB,E AAQ8mB,EA AW2R,GAC1D,IAAI5f,EAAQ4B,KACR4iC,EAAerC,GAAeniC,EAAO7Y,GAYzC,OAXIq9C,IAAi Bpe,IAEjB4N,GADYtuB,KACoB1F,EAAOoJ,EAAUo7B,EAAcv2B,EA AW2R,GASvE2kB;;;;;;OA4CX,SAASE, GA AW/8C,EAAOimC,EAAYP1B,EAAOC,EAAMsU,EAAS43B,EAAyC,EAAGb1U,GACrF,IAAIjwB,EAAQ4B, KACR5H,EAAQ6H,KACR+iC,EAAGb19C,EA3rVJ,GA4rVZ0X,EAAQpF,EAAM6b,gBA tCtB,SAASgvB,EA AwB n9C,EAAOsS,EAAOGG,EAAO2tB,EAAYP1B,EAAOC,EAAMsU,EAAS43B,EAAyC,GAGhG,IAAIG,EAAC9qC, EAAMvB,OAEP2G,EAAQ6tB,GAAiBjzB,EAAOtS,EAAO,EAAMb0lB,GA AW,KAAMjM,GAAyikC,EAaAJ,I ACxG3S,GA AkB/3B,EAAOGG,EAAOZ,EAAOyB,GAAYikC,EAaAh,IACHErzB,GAAuBtX,EAAOoF,GAC9B,I AAIImvB,EAAGBnvB,EAAM+rB,OAASiF,GAAY,EA AkBhxB,EAAOuuB,EAAYP1B,EAAOC,EAAMwB,EAAM qwB,kBAAMBrwB,EAAMswB,aAAc,KAAMtwB,EAAMD,QAAS+qC,GAKnK,OAJSB,OAAlB9qC,EAAM+vB,U ACN/vB,EAAM+vB,QAAQ/zB,SAASgE,EAAOoF,GAC9BmvB,EAACxE,QAAU/vB,EAAM+vB,QAAQwE,cAA cnvB,IAEjDA,EAYB6BylC,CAAwBD,EAAe5qC,EAAOGG,EAAO2tB,EAAYP1B,EAAOC,EAAMsU,EAAS43B, EAAyC,GACnI3qC,EAAM3N,KAAKu4C,GACftiC,GAAGbID,GA AO,GACvB,IAAI2IC,EAAU/kC,EAhtVH,IAg tVmB0f,cAAwC,IACtEhX,GAAY1O,EAAOGG,EAAO+kC,EAAS3IC,GACnCid,GAAGb0oB,EAAS/kC,GACzB+ zB,GAAC/zB,EAAOA,EAAM4kC,GAAiBvQ,GAAiB0Q,EAAS/kC,EAAO+kC,EAAS3IC,IACIFE,GAAGBF,IACH BkwB,GAABt1B,EAAOGG,EAAOZ,GAETB,MAAIbulC,GACA5U,GAAYB/vB,EAAOZ,EAAO6wB;;;;;;OAY/C ,SAAS7e,GAAMPX,EAAOGG,EAAOtY,EAAO9C,GAG5B8C,GAASsS,EAAM3N,KAAK3H,SACpBsV,EAAM3 N,KAAK3E,GAAS,KACpBsS,EAAMgc,UAAUtuB,GAAS,MAE7BsY,EAAMtY,GAAS9C,EAYnB,SAASogD,G AAYt9C,GAejB,OAAOyY,GAZqUX,SAAS8kC,IACL,OAAO7jC,GAAiBC,OAAOW,aAuqUZijC,GAvuVH,GAw uV0Bv9C;;;;;;OAe9C,IAAIw9C,GAAMb,CACnB56C,qBAAsBA,EACtBK,mBA AoBA,EACpBgT,WAAyA,GA CZYc,iBAGJ,SAAS+qB,EAAan6C,GAClB,IAAIqvB,EAAUrvB,EACd,GAAlgD,GAAahD,GACb,OAAO,WACH,I AAIxI,EAAU2iD,EAAap3C,GA AkBssB,IAC7C,OAAO73B,EAAUA,IAAY,MAGrC,IAAI6V,EAAMtN,EAAiBsv B,IAAYhvB,EAAegvB,GACtD,OAAKHiB,QAAuB5N,IAAhB4N,EAAI7V,QAGT6V,EAAI7V,QAFa;;;;;;QAZX ob,sBA AuBA,IAkEvBwnC,GAACn7C,EAAuB,CAAEiT,QAASC,OAAQC,SADjDnT,IAEX,SAASo7C,GAAMbP9 C,GACxB,YAAyBwC,IAAlBxC,EA AKgyC,SAKhB,SAASqL,GAAGBr9C,GAC1B,YAA2BwC,IAApBxC,EA AK 4xC,WAKhB,SAAS0L,GAASBv6C,EAAMw6C,GAejC,IAAIv9C,EAAOu9C,GA AW,CAAEh7C,WAAy,MACHC i7C,EAAe,CACfz/C,KAAMgF,EA AKhF,KACXgF,KAAMA,EACN06C,kBAAMb,EACnB17C,WAAyVc,EA AKu C,WACjBm7C,cAAU17C,GAqBd,OAnBK46C,GAAMbP9C,IAASq9C,GAAGBr9C,UAAwBwC,IAAdxC,EA AK8 L,OACjE0xC,EAAaE,SAAW7xC,GAAoB7L,EA AK8L,OAejDsxC,GAAMbP9C,GAEnBw9C,EAAaxL,SAAWlsC ,GA AkB9F,EA AKgyC,UAXBvD,SAAS2L,EAAMb39C,GACxB,OAAOm9C,MAAen9C,EAYBb29C,CAAMb39C, GAExBw9C,EAAaroC,SAAWrP,GA AkB9F,EA AKmV,UAE1CkoC,GAAGBr9C,GAElBw9C,EAAa5L,WAAa5x C,EA AK4xC,WA1BvC,SAASgM,EAASB59C,GAC3B,YAA4BwC,IAArBxC,EA AK8xC,YA2BH8L,CAASB59C, KAE3Bw9C,EAAa1L,YAAchsC,GA AkB9F,EA AK8xC,cAE/C0L,EAGX,IACIK,GAAC77C,EAAuB,CAAEiT,QA ASC,OAAQC,SADjDnT,IAEP87C,GAAGb,GACpB,SAASC,GAAMch7C,EAAMosC,GAC9C,IAAKA,EAAU,CA CX,IACi6O,GADAC,EAAyB,IAAI51C,IACG3I,WAAWqD,GA E/C,OAAO,WAAc,OAAO,IAAKA,EA AKpE,KA AKF,MAAMsE,EAAM1F,EAAS,MAAC,GAASwY,GA AWmoC,OAeZf,GAAlH,MAAE1O,EAAU,CACzB,IAAI +O,EA AkB/O,EACtB,OAAO,WAAc,OAAO+O,EAAGb/oC,UAE3C,GAAlg6B,EAAS2C,YAAa,CAC3B,IAAIqM, EAAGbH,EACzB,OAAO,WAAc,OAAOz5B,GAAS5P,GA AkBq4C,EAAMBrM,eAEzE,GAAl3C,EAASyC,WAA Y,CAC1B,IAAIwM,EAAoBjP,EACxB,OAAO,WAAc,OAAOiP,EA AkBxM,WAAWnzC,MAAM2/C,EAAMb/gD, EAASwY,GA AWuoC,EA AkBtyC,MAAQgyC,OA E/H,GAAl3O,EAAS6C,SAAU,CACxB,IAAIqM,EA AkBIP,EA ClBmP,EAASnP,EAASrjC,KACtB,IAAKwyC,EAAQ,CACT,IAAIL,EAAyB,IAAI51C,GACjCi2C,EAASL,EAAu

Bv+C, WAAWqD, GAE/C, OAAO, WACH, IAAIqb, EACJ, OAAO, KAAMA, EAAMtY, GAAkBu4C, EAAGBrM, WA
 AYrZC, KAAKF, MAAM2f, EAAI/gB, EAAS, MAAC, GAASwY, GAAWyoC, OAIH, IAAIC, EAASpP, EAASrjC, KA
 KtB, OAJKyyC, IACGN, EAAyB, IAAI51C, GACjCk2C, EAASN, EAAuBv+C, WAAWqD, IAEExC, WAAc, OAAO, IA
 AKA, EAAKpE, KAAKF, MAAMsE, EAAM1F, EAAS, MAAC, GAASwY, GAAW0oC;,,,,,; OAW7F, IAOIC, GAAa1g
 D, EAAC, kBAAC0E, OAAWA, OAAWA, GAPxD, SAAUO, EAAM/C, GAAQ, OAAOy+C, GAA0B17C, EAAM/C, MA
 sBtEy+C, GAXJ, SAASC, GAAyBC, EAAGBh8C, GAC1CA, QAAkCH, IAAvBG, EAAQJ, aAA6BO, EAAiB67C, KAC
 jEA, EAAej7C, MAAQRb, EAAMb, CACtClC, MAAOw+C, EACPp8C, WAAyI, EAAQJ, WAcPbH, QAASwjD, GAA
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 GAAI0E, EAAIE, QAAQkJ, EAAK9N, KAAO, EAExB, OADA0E, EAAI9D, KAAKkN, EAAK9N, IACP0E, EAEXA, E
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 AAUi+C, GAAK, OAAOn+C, EAAUm+C, EAAE5+C, UACvCY, KAAK, QAAU, IAEpC, GAEX, SAASi+C, GAAelP
 C, EAAUpT, EAAK+8C, EAA2BjsB, GAC9D, IAAI3oB, EAAO, CAACnI, GACRg9C, EAASD, EAA0B50C, GACnCj
 N, EAAS41B, EAvjPjB, SAASmsB, EAAahpC, EAAS6c, GAC3B, IAAItxB, EAAMyU, EAAU, gBAAkB6c, aAAyBjxB,
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 ASi1C, GAAkBz1C, EAAy01C, GAEnC, IADA, IAAIC, EAAy, GACPjD, EAAI, EAAGkjD, EAAKF, EAAO9iD, OAA
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 ApBA, EAAUjjD, OAItijD, EAAU5+C, IAAIF, GAAWG, KAAK, KAH9B, KAMvB, OAAOgB, MAAM, sCAAyCnB, E
 AAUIJ, GAAc, KAC1E21C, EAAUz+C, KAAK, MAAQ, 2GAEvBH, EAAUiJ, GAAc;,,,,,; AA+DhC, IAAI81C, GAA+
 B, WAI/B, SAASA, EAACx/C, EAAOwR, GAG1B, GAFazW, KAAKiF, MAAQA, EACbjF, KAAKyW, GAAKA, GAC
 LxR, EACD, MAAM, IAAI4B, MAAM, 0BAEpB7G, KAAK0kD, YAAch/C, EAAU1F, KAAKiF, OAkBtC, OAAbAw/C,
 EAAcryC, IAAM, SAAUnN, GAC1B, OAAO0/C, GAAmBvyC, IAAIxH, GAAkB3F, KAEPD7E, OAAOwD, eAAe6gD,
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 hkD, UAAUuR, IAAM, SAAUnN, GACIC, GAAIA, aAAiBw/C, GACjB, OAAOx/C, EACX, GAAIjF, KAAK8kD, SAAS
 5O, IAAIjxC, GACIB, OAAOjF, KAAK8kD, SAAS1yC, IAAInN, GAE7B, IAAI8/C, EAAS, IAAIN, GAAcX/C, EAAOw/
 C, GAAcG, cAEpD, OADA5kD, KAAK8kD, SAASxyC, IAAIrN, EAAO8/C, GACIBA, GAEX3kD, OAAOwD, eAAeih
 D, EAAyHkD, UAAW, eAAgB, CACzDuR, IAAK, WACD, OAAOpS, KAAK8kD, SAAS94C, MAEZBu7B, YAAy, EA
 CZC, cAAc, IAEXqd, EArbqB, IA6F5BG, GAAy, IAZDe, WAC3B, SAASC, EAAUIC, GACf/iD, KAAK+iD, uBAAYB
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 D, UAAU2D, WAAa, SAAUmK, GACvC, OAAO3O, KAAK+iD, uBAAuBv+C, WAAWmK, IAEIDs2C, EAAUpkD, U
 AAU+N, YAAc, SAAUD, GACxC, OAAO3O, KAAK+iD, uBAAuBn0C, YAAyD, IAEnds2C, EAAUpkD, UAAUkO, a
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 ACtC, OAAO7H, KAAK+iD, uBAAuBlzC, UAAUhi, IAEjDo9C, EAAUpkD, UAAUiP, YAAc, SAAUji, GACxC, OAA
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 EAASC, GACxE, OAAOIQ, KAAK+iD, uBAAuBhzC, kBAaBIN, EAAMmN, EAAWC, EAASC, IAEf+0C, EAAUp
 kD, UAAUsP, YAAc, SAAUi1C, EAAyviD, GACpD, OAAO7C, KAAK+iD, uBAAuB5yC, YAAy1C, EAAyviD, IAE
 xDoiD, EA3CmB, GAyDd, CAAC, IAAI93C, IAA9Bk4C, GAASc, WACtC, SAASA, EAAqBr+C, EAAKiK, EAAUq0C,
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 yX, GAAwBhiE, EAAMiiE, EAAOC, GAC1C, OAAO, IAAIC, GAAkBniE, EAAMiiE, EAAOC, GAE9C, IAAIC, GAA
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 SA, EACd9+E, KAAKq/E, MAAQA, EAIbr/E, KAAK8E, eAAiB, GAKG1B, OAHGA57E, OAAOwD, eAAew7E, EAA
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 CZuN, EAAQI/E, KAAK8+E, OAAO9gE, QACHBkhE, GAASjiE, GACbiiE, EAAQ1F, GAAav8D, GACrBA, EAAOA,
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 AO+hE, GAC1C81E, GAASU, YAAy56D, KAG7BmiE, EAAkBv+E, UAAUuR, IAAM, SAAU7N, GACxC, IAAI0Y, E
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 nN,EAaOwU,EAaEC,KAwClB6qE,CAASBnqE,EAaU66B,EAAS76B,UAAyA,EACnFyvB,EAaKBly6C,EAAlBl
 yE,IAAlY2D,GAaKBtsD,IACzDuO,EAAYw5D,EAAlBlyE,IAAl22D,GAaW,MAC5CtuB,EAaE5Q,EAAGBrTB,e
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 Ypc,EACZ/6B,GAaKBmN,EAaC4tB,EAaOBroE,KAAK46C,aAAarkC,eACtEimB,GAaKBqN,EAAGBrTB,eAAe,
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 AKxC,IAJA,IAAlunB,EAaQ,GACRuD,EAaU,GACV1yB,EAAl,EACJke,EAaO,EACJle,EAAl4H,EAAS1H,QA
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iB,KACjB5pD,OAAQmlE,EAAWnjH,IAG3B,MAAO,CAEH8b,WAAY,EACZa,OAAQ,KACR08D,aAAc,KACd96D,cAAe,EACfsiE,aAAc,EAEdF,WAAYA,EACZtoE,MAAO,EACPsmE,WAAY,EACZmC,iBAaKB,EACIBC,oBAAqB,EACrBII,eAAgB,GACHBC,gBAAiB,EACjBC,WAAY,GACZkB,eAAgBA,EACHBF,WAAY,EACZj3C,SAUAU,EACV03C,aAAc,EACdhmE,QAAS,GACT6T,QAAS,KACTuqB,SAAU,KACVngC,KAAM,CAAEqrC,OAAQqlE,EAAW,IAC3BniC,MAAO,KACP1G,UAAW,OA21DnBr8E,EAAQmlH,qBAAuBp1B,GAC/B/vF,EAAQolH,sBA1tcR,SAASC,KACLvsD,GAAC,IA0tclB94D,EAAQslH,KAhTTR,SAASC,GAAY5nG,EAAM6nG,EAASrsC,EAAYh3E,GAC5C,GAAIq8C,GAAaI,UAAUz8C,GAAQ,CAC/BA,EAAQq8C,GAAaG,OAAOx8C,GAC5B,IAAIsjH,EAAMb9nG,EAAC/H,IAAIg0B,MAAM47E,GAASIIIG,aAAe64D,EAC1DpmD,EAAWyrB,GAAaG,OAAOhhC,EAAYk7D,UAAUqsC,IACID9nG,EAAYk7D,UAAUqsC,GAAoB,IAAIjnE,GAAazrB,GAExD,OAAO5wB,GA0sTXnC,EAAQ0IH,iBAAMb/gG,GAC3B3kB,EAAQ2IH,KA9vDR,SAAS1mC,GAAQ7kE,EAAOwvB,EAAO+uC,EAkBC,GAY7C,IAVA,IAAIgtC,EAAMb,EACnBC,EAAsB,EACtBC,EAAgB,EACHBC,EAABO,EACpBC,EAAqB,EACrBC,EAAgB,KACHBC,EAAsB,KACtBC,GAAmC,EACnCC,GAAoC,EACpC1qC,EAAqB,KACHB35E,EAAL,EAAGA,EAAL6nC,EAAM3nC,OAAQF,IAAK,CACnC,IAAI4oB,EAAOif,EAAM7nC,GAQjB,GAPA4oB,EAAY9M,UAAAY9b,EACjB4oB,EAAYKjM,OAAASunG,EACdt7F,EAAYKrK,aAAeslG,EACpBj7F,EAAYK4D,YAAcijC,EACnB17F,EAAYkwD,aAAe8qC,EACpBJ,GAAiBn7F,EAAYkVQ,MACtB4rG,GAAsBr7F,EAAYkKW,gBACvBlwD,EAAYKP,QAAS,CACd,IAAIw1D,EAAQj1D,EAAYKP,QACjBw1D,EAAMmE,gBACFkiC,EAAGBA,EAAC77F,QAAQ25D,gBAAKBjF,OAAOU,OAAO,MAC1Eo+E,EAAMkE,aAAeIE,EAAMmE,gBAE3BoiC,GAAmC,EACnCC,GAAoC,EACHCz7F,EAAYKP,QAAQ7W,WACbyyG,GAAsBr7F,EAAYKP,QAAQ7W,SAAS22F,oBASpD,GANAqB,GAAa0a,EAAYet7F,EAAMif,EAAM3nC,QACxC2jH,GAAoBj7F,EAAYKka,SAAS5iC,OACIC4jH,GAAuB17F,EAAYKpU,QAAQtU,QAC/BikH,GAAqC,EAABv7F,EAAYkVQ,QAC9BshE,EAAYqB/wD,GAER,MAABa,EAAYkVQ,MAAiC,CACjC+rG,IACDA,GAAmC,EAEnCF,EAAC77F,QAAQ25D,gBACIBjF,OAAOU,OAAOykh,EAAC77F,QAAQ25D,iBACxCKiC,EAAC77F,QAAQ05D,aAAemiC,EAAC77F,QAAQ25D,iBAE/D,IACI9nD,EAAYuD,IAA3B,MAABtR,EAAYkVQ,OAD6C,IAAhC,KAAbuQ,EAAYkVQ,QAEJ6hB,EACrBgqF,EAAC77F,QAAQ25D,gBAAGB/K,GAAASruD,EAAYkgqB,SAAShvC,QAAUglB,GAGIEy7F,IACDA,GAAoC,EAEPCH,EAAC77F,QAAQ05D,aACIBhjF,OAAOU,OAAOykh,EAAC77F,QAAQ25D,kBAE5CKiC,EAAC77F,QAAQ05D,aAAa9K,GAASruD,EAAYkgqB,SAAShvC,QAAUglB,GAEPesR,IACAgqF,EAAC77F,QAAQ+0D,kBAAoBx0D,GACID,GAXIs7F,GACAA,EAAYcvlC,YAAc/1D,EAAYkVQ,MACjC6rG,EAAYcpjC,kBAAoB14D,EAAYkVQ,MACvC6rG,EAAYcnjC,qBAAuBn4D,EAAYkwD,gBACtClwD,EAAYKP,SAAWO,EAAYKP,QAAQ7W,WAC7B0yG,EAAYcnjC,qBAAuBn4D,EAAYKP,QAAQ7W,SAAS22F,qBAI/D6b,GAAqBp7F,EAAYkVQ,MAE1BuQ,EAAYKmxD,WAAa,EACIBmqC,EAAGbt7F,EACX2gF,GAAAc3gF,KACfu7F,EAAsBv7F,QAS1B,KAAOs7F,GAAiBlkH,IAAMkkH,EAAYcpoG,UAAAYooG,EAAYcnqC,YAAAY,CAC9E,IAAIuqC,EAAYJ,EAAYcnG,OAC1B2nG,IACAA,EAAYU3IC,YAAAcuIC,EAAYcvlC,WACtC2IC,EAAYUvjC,qBAAuBmjC,EAAYcnjC,qBAK/CojC,GAHJD,EAAGBI,IAEK/a,GAAc2a,GACTA,EAAC7qC,aAGd6qC,GAMtC,MAAO,CAEHlmH,QAAS,KACT0gF,UAAWqlC,EACXQ,cAAeP,EACf7b,mBAAoB8b,EACpB5rG,MAAOA,EAAYCPwvB,MAAOA,EACP+uC,iBAaKBa,GAAoBG,GACtCF,eAAgBA,GAAYkBE,GACICJ,YAXc,SAAU/6D,EAAYME,EAAYWiuC,EAAYWguB,GAAS,OAAOlwC,EAAM/rB,GAAYWuM,QAAQsuD,YAAAY/6D,EAAYMmuC,EAAYWguB,IAAY1HkyB,aAAc4Z,EACd7Z,YAAa8Z,EACbnqC,mBAAoBA,IAwoD5B17E,EAAYQumH,cAjhpBR,SAASC,GAAApzG,GACIB,OAAOioB,GAAejoB,GAAYWigC,OAIhpBrCrzC,EAAYQo9C,wBAA0BA,GACICp9C,EAAYQ87C,2BAA6BA,GACrC97C,EAAYQguB,qBAAuBA,GAC/BhuB,EAAYQgoE,mBAAqBA,GAC7BhoE,EAAYQ4jC,UAAAYA,GACpB5jC,EAAYQy/C,YAAcA,GACtBz/C,EAAYQqhD,wBAA0BA,GACICrhD,EAAYQuhD,wBAA0BA,GACICvhD,EAAYQwhD,wBAA0BA,GACICxhD,EAAYQyhD,wBAA0BA,GACICzhD,EAAYQ0hD,wBAA0BA,GACIC1hD,EAAYQ2hD,wBAA0BA,GACIC3hD,EAAYQ4hD,wBAA0BA,GACIC5hD,EAAYQ6hD,wBAA0BA,GACIC7hD,EAAYQ8hD,wBAA0BA,GACIC9hD,EAAYQ4xD,WAAaA,GACrB5xD,EAAYQy2D,uBAAyBA,GACjCz2D,EAAYQ02D,uBAAyBA,GACjC12D,EAAYQ22D,uBAAyBA,GACjC32D,EAAYQ42D,uBAAyBA,GACjC52D,EAAYQ62D,uBAAyBA,GACjC72D,EAAYQ82D,uBAAyBA,GACjC92D,EAAYQ+2D,uBAAyBA,GACjC/2D,EAAYQg3D,uBAAyBA,GACjCh3D,EAAYQi3D,uBAAyBA,GACjCj3D,EAAYQsxD,YAAcA,GACtBtxD,EAAYQquF,eAAiBA,GACzBruF,EAAYQyV,kBAAoBA,GAC5BzV,EAAYQqZ,kBAAoBA,GAC5BrZ,EAAYQ6H,mBAAqBA,EAC7B7H,EAAYQkI,iBAAMBA,EAC3BII,EAAYQyY,iBAAMBA,GAC3BrY,EAAYQsZ,aAAeA,GACvBtZ,EAAYQmqD,kBAAoBA,GAC5BnqD,EAAYQkf,kBAAoBA,GAC5Blf,EAAYQorD,UAAAYA,GACpBprD,EAAYQwrD,mBAAqBA,GAC7BxrD,EAAYQurD,sBAAWBA,

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* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. <https://angular.io/>\n * License: MIT\n */\n(function (global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports, require('rxjs'), require('rxjs/operators')) :\n typeof define === 'function' && define.amd ? define('@angular/core', ['exports', 'rxjs', 'rxjs/operators'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.core = {}), global.rxs,

global.rxs.operators));\n})(this, (function (exports, rxjs, operators) { 'use strict';\n\n /*!

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Microsoft Corporation.\n\n Permission to use, copy, modify, and/or distribute this software for any\n purpose with or without fee is hereby granted.\n\n THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH\n REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY\n AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,\n INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM\n LOSS OF USE, DATA OR PROFITS, WHETHER IN AN


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    if (op[0] === 6 && _.label < t[1]) {\n                _.label = t[1];\n                t = op;\n                break;\n            }\n            if (t && _.label < t[2]) {\n                _.label = t[2];\n                if (t[2])\n                    break;\n            }\n            _ops.push(op);\n            _ops.pop();\n            _trys.pop();\n            continue;\n        }\n        op = body.call(thisArg, _);\n        catch\n    (e) {\n        op = [6, e];\n        y = 0;\n        finally {\n        f = t = 0;\n        }\n        if (op[0] & 5)\n            throw op[1];\n        return { value: op[0] ? op[1] : void 0, done: true };\n    }\n    var __createBinding = Object.create ? (function (o, m, k, k2) {\n        if (k2 === undefined)\n            k2 = k;\n        Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; } });\n    }) : (function (o, m, k, k2) {\n        if (k2 === undefined)\n            k2 = k;\n        o[k2] = m[k];\n    });\n    function __exportStar(m, exports) {\n        for (var p in m)\n            if (p !== \"default\" && !exports.hasOwnProperty(p))\n                __createBinding(exports, m, p);\n    }\n    function __values(o) {\n        var s = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0;\n        if (m)\n            return m.call(o);\n        if (o && typeof o.length === \"number\")\n            return {\n                next:\n                function () {\n                    if (o && i >= o.length)\n                        o = void 0;\n                    return { value: o && o[i++], done: !o }; \n                };\n            };\n        throw new TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is not defined.\");\n    }\n    function __read(o, n) {\n        var m = typeof Symbol === \"function\" && o[Symbol.iterator];\n        if (!m)\n            return o;\n        var i = m.call(o), r, ar = [], e;\n        try {\n            while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n                ar.push(r.value);\n        } catch (error) {\n            e = { error: error };\n        } finally {\n            try {\n                if (r && !r.done && (m = i[\"return\"])\n                    m.call(i);\n            } finally {\n                if (e)\n                    throw e.error;\n            }\n        }\n        return ar;\n    }\n    function __spread() {\n        for (var ar = [], i = 0; i < arguments.length; i++)\n            ar = ar.concat(__read(arguments[i]));\n        return ar;\n    }\n    function __spreadArrays() {\n        for (var s = 0, i = 0, il = arguments.length; i < il; i++)\n            s += arguments[i].length;\n        for (var r = Array(s), k = 0, i = 0; i < il; i++)\n            for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n                r[k] = a[j];\n        return r;\n    }\n    function __await(v) {\n        return this instanceof __await ? (this.v = v, this) : new __await(v);\n    }\n    function __asyncGenerator(thisArg, arguments, generator) {\n        if (!Symbol.asyncIterator)\n            throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n        var g = generator.apply(thisArg, arguments || []), i, q = [];\n        return i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i;\n        function verb(n) {\n            if (g[n])\n                i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); };\n        }\n        function resume(n, v) {\n            try {\n                step(g[n](v));\n            } catch (e) {\n                settle(q[0][3], e);\n            }\n        }\n        function step(r) {\n            r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);\n        }\n        function fulfill(value) {\n            resume(\"next\", value);\n        }\n        function reject(value) {\n            resume(\"throw\", value);\n        }\n        function settle(f, v) {\n            if (f(v), q.shift(), q.length)\n                resume(q[0][0], q[0][1]);\n        }\n    }\n    function __asyncDelegator(o) {\n        var i, p;\n        return i = { }, verb(\"next\"), verb(\"throw\"), function (e) {\n            throw e;\n        }, verb(\"return\"), i[Symbol.iterator] = function () {\n            return this;\n        }, i;\n        function verb(n, f) {\n            i[n] = o[n] ? function (v) {\n                return (p = !p) ? { value: __await(o[n](v)), done: n === \"return\" } : f ? f(v) : v;\n            } : f;\n        }\n    }\n    function __asyncValues(o) {\n        if (!Symbol.asyncIterator)\n            throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n        var m = o[Symbol.asyncIterator], i;\n        return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) : o[Symbol.iterator](), i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () {\n            return this;\n        }, i);\n        function verb(n) {\n            i[n] = o[n] && function (v) {\n                return new Promise(function (resolve, reject) {\n                    v = o[n](v), settle(resolve, reject, v.done, v.value);\n                });\n            };\n        }\n        function settle(resolve, reject, d, v) {\n            Promise.resolve(v).then(function (v) {\n                resolve({ value: v, done: d });\n            }, reject);\n        }\n    }\n    function __makeTemplateObject(cooked, raw) {\n        if (Object.defineProperty)\n            Object.defineProperty(cooked, \"raw\", { value: raw });\n        else\n            cooked.raw = raw;\n        return cooked;\n    }\n    var __setModuleDefault = Object.create ? (function (o, v) {\n        Object.defineProperty(o, \"default\", {\n
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enumerable: true, value: v });\n  }) : function (o, v) {\n    o["default"] = v;\n  }; \n  function
__importStar(mod) {\n    if (mod && mod.__esModule)\n      return mod;\n    var result = {};\n    if (mod
!= null)\n      for (var k in mod)\n        if (Object.hasOwnProperty.call(mod, k))\n          __createBinding(result, mod, k);\n    __setModuleDefault(result, mod);\n    return result;\n  }\n  function
__importDefault(mod) {\n    return (mod && mod.__esModule) ? mod : { default: mod };\n  }\n  function
__classPrivateFieldGet(receiver, privateMap) {\n
    if (!privateMap.has(receiver)) {\n      throw new TypeError("attempted to get private field on non-
instance");\n    }\n    return privateMap.get(receiver);\n  }\n  function __classPrivateFieldSet(receiver,
privateMap, value) {\n    if (!privateMap.has(receiver)) {\n      throw new TypeError("attempted to set private
field on non-instance");\n    }\n    privateMap.set(receiver, value);\n    return value;\n  }\n\n  /**\n   *
@license\n   * Copyright Google LLC All Rights Reserved.\n   * \n   * Use of this source code is governed by an
MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   * \n   */\n   *
Convince closure compiler that the wrapped function has no side-effects.\n   * \n   * Closure compiler always
assumes that `toString` has no side-effects. We use this quirk to\n   * allow us to execute a function but have
closure compiler mark the call as no-side-effects.\n
    * It is important that the return value for the `noSideEffects` function be assigned\n   * to something which is
retained otherwise the call to `noSideEffects` will be removed by closure\n   * compiler.\n   * \n   */\n   */\n  function
noSideEffects(fn) {\n    return { toString: fn }.toString();\n  }\n\n  var ANNOTATIONS = '__annotations__';\n
var PARAMETERS = '__parameters__';\n  var PROP_METADATA = '__prop__metadata__';\n  /**\n   *
@suppress {globalThis}\n   * \n   */\n  function makeDecorator(name, props, parentClass, additionalProcessing,
typeFn) {\n    return noSideEffects(function () {\n      var metaCtor = makeMetadataCtor(props);\n
function DecoratorFactory() {\n      var args = [];\n      for (var _i = 0; _i < arguments.length; _i++) {\n
        args[_i] = arguments[_i];\n      }\n      if (this instanceof DecoratorFactory) {\n
        metaCtor.call.apply(metaCtor, __spread([this],
args));\n      return this;\n      }\n      var annotationInstance = new
(DecoratorFactory.bind.apply(DecoratorFactory, __spread([void 0], args)))();\n      return function
TypeDecorator(cls) {\n        if (typeFn)\n          typeFn.apply(void 0, __spread([cls], args));\n
        // Use of Object.defineProperty is important since it creates non-enumerable property which\n      //
prevents the property is copied during subclassing.\n      var annotations =
cls.hasOwnProperty(ANNOTATIONS) ?\n        cls[ANNOTATIONS] :\n        Object.defineProperty(cls, ANNOTATIONS, { value: [] })(ANNOTATIONS);\n
        annotations.push(annotationInstance);\n        if (additionalProcessing)\n          additionalProcessing(cls);\n        return cls;\n      };\n      }\n      if (parentClass)\n        {\n          DecoratorFactory.prototype = Object.create(parentClass.prototype);\n        }\n
DecoratorFactory.prototype.ngMetadataName = name;\n      DecoratorFactory.annotationCls =
DecoratorFactory;\n      return DecoratorFactory;\n    };\n  }\n  function makeMetadataCtor(props) {\n
return function ctor() {\n      var args = [];\n      for (var _i = 0; _i < arguments.length; _i++) {\n
        args[_i] = arguments[_i];\n      }\n      if (props) {\n        var values = props.apply(void 0,
__spread(args));\n        for (var propName in values) {\n          this[propName] = values[propName];\n
        }\n      }\n    };\n  }\n  function makeParamDecorator(name, props, parentClass) {\n    return
noSideEffects(function () {\n      var metaCtor = makeMetadataCtor(props);\n      function
ParamDecoratorFactory() {\n        var args = [];\n
        for (var _i = 0; _i < arguments.length; _i++) {\n          args[_i] = arguments[_i];\n        }\n
        if (this instanceof ParamDecoratorFactory) {\n          metaCtor.apply(this, args);\n          return this;\n
        }\n        var annotationInstance = new (ParamDecoratorFactory.bind.apply(ParamDecoratorFactory,
__spread([void 0], args)))();\n        ParamDecorator.annotation = annotationInstance;\n        return
ParamDecorator;\n      }\n      function ParamDecorator(cls, unusedKey, index) {\n        // Use of
Object.defineProperty is important since it creates non-enumerable property which\n      // prevents the

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property is copied during subclassing.\n                var parameters = cls.hasOwnProperty(PARAMETERS) ?\n                cls[PARAMETERS] :\n                Object.defineProperty(cls, PARAMETERS, { value: []\n            })[PARAMETERS];\n\n            // there might be gaps if some in between parameters do not have annotations.\n            // we pad with\n            nulls.\n            while (parameters.length <= index) {\n                parameters.push(null);\n            }\n            (parameters[index] = parameters[index] || []).push(annotationInstance);\n            return cls;\n        }\n        if (parentClass) {\n            ParamDecoratorFactory.prototype =\n            Object.create(parentClass.prototype);\n            ParamDecoratorFactory.prototype.ngMetadataName =\n            name;\n            ParamDecoratorFactory.annotationCls = ParamDecoratorFactory;\n            return\n            ParamDecoratorFactory;\n        });\n        function makePropDecorator(name, props, parentClass,\n        additionalProcessing) {\n            return noSideEffects(function () {\n                var metaCtor =\n                makeMetadataCtor(props);\n                function PropDecoratorFactory() {\n                    var args = [];\n                    for (var _i = 0; _i < arguments.length; _i++) {\n                        args[_i] = arguments[_i];\n                    }\n                    if (this instanceof PropDecoratorFactory) {\n                        metaCtor.apply(this, args);\n                    }\n                    return this;\n                }\n                var decoratorInstance = new\n                (PropDecoratorFactory.bind.apply(PropDecoratorFactory, __spread([void 0], args)))();\n                function\n                PropDecorator(target, name) {\n                    var constructor = target.constructor;\n                    // Use of\n                    Object.defineProperty is important because it creates a non-enumerable property\n                    // which prevents the\n                    property from being copied during subclassing.\n                    var meta =\n                    constructor.hasOwnProperty(PROP_METADATA) ?\n                    constructor[PROP_METADATA] :\n                    Object.defineProperty(constructor, PROP_METADATA, { value: {} })[PROP_METADATA];\n                    meta[name] = meta.hasOwnProperty(name) && meta[name] || [];\n                    meta[name].unshift(decoratorInstance);\n                    if (additionalProcessing)\n                    additionalProcessing.apply(void 0, __spread([target, name], args));\n                    return PropDecorator;\n                }\n                if (parentClass) {\n                    PropDecoratorFactory.prototype =\n                    Object.create(parentClass.prototype);\n                    PropDecoratorFactory.prototype.ngMetadataName =\n                    name;\n                    PropDecoratorFactory.annotationCls = PropDecoratorFactory;\n                    return\n                    PropDecoratorFactory;\n                });\n            });\n\n            /**\n             * @license\n             * Copyright Google LLC All Rights\n            Reserved.\n             * Use of this source code is governed by an MIT-style license that can be\n             * found in the\n            LICENSE file at https://angular.io/license\n             *\n             * var 0 = function (token) { return ({ token: token }); }\n\n             * Inject decorator and metadata.\n             * @Annotation\n             * @publicApi\n             * var Inject =\n            makeParamDecorator('Inject', 0);\n\n             * Optional decorator and metadata.\n             * @Annotation\n             * @publicApi\n             * var Optional = makeParamDecorator('Optional');\n\n             * Self decorator and\n            metadata.\n             * @Annotation\n             * @publicApi\n             * var Self = makeParamDecorator('Self');\n\n             * `SkipSelf` decorator and metadata.\n             * @Annotation\n             * @publicApi\n             * var SkipSelf =\n            makeParamDecorator('SkipSelf');\n\n             * Host decorator and metadata.\n             * @Annotation\n             * @publicApi\n             * var Host = makeParamDecorator('Host');\n\n             * var 1 = function (attributeName) { return ({\n            attributeName: attributeName }); }\n\n             * Attribute decorator and metadata.\n             * @Annotation\n             * @publicApi\n             * var Attribute = makeParamDecorator('Attribute',\n            1);\n\n             * @license\n             * Copyright Google LLC All Rights Reserved.\n             * Use of this source\n            code is governed by an MIT-style license that can be\n             * found in the LICENSE file at https://angular.io/license\n\n             * function stringify(token) {\n                if (typeof token === 'string') {\n                    return token;\n                }\n                if\n                (Array.isArray(token)) {\n                    return '[' + token.map(stringify).join(', ') + ']';\n                }\n                if (token == null) {\n                    return '' + token;\n                }\n                if (token.overriddenName) {\n                    return '\\\"' + token.overriddenName;\n                }\n                if (token.name) {\n                    return '\\\"' + token.name;\n                }\n                var res = token.toString();\n                if (res\n                === null) {\n                    return '' + res;\n                }\n                var newLineIndex = res.indexOf('\\n');\n                return newLineIndex\n                === -1 ? res : res.substring(0, newLineIndex);\n            }\n\n             * Concatenates two strings with

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separator, allocating new strings only when necessary.\n    * @param before before string.\n    * @param separator separator string.\n    * @param after after string.\n    * @returns concatenated string.\n    */\n    function concatStringsWithSpace(before, after) {\n        return (before == null || before === '') ?\n            (after === null ? '' : after) :\n            ((after == null || after === '') ? before : before + ' ' + after);\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style\n     * license that can be found in the LICENSE file at https://angular.io/license\n     */\n\n    function assertNumber(actual, msg) {\n        if (!(typeof actual === 'number')) {\n            throwError(msg, typeof actual, 'number', '===');\n        }\n    }\n\n    function assertNumberInRange(actual, minInclusive, maxInclusive) {\n        assertNumber(actual, 'Expected a number');\n\n        assertLessThanOrEqual(actual, maxInclusive, 'Expected number to be less than or equal to');\n        assertGreaterThanOrEqual(actual, minInclusive, 'Expected number to be greater than or equal to');\n    }\n\n    function assertString(actual, msg) {\n        if (!(typeof actual === 'string')) {\n            throwError(msg, actual === null ? 'null' :\n                typeof actual, 'string', '===');\n        }\n    }\n\n    function assertEqual(actual, expected, msg) {\n        if (!(actual === expected)) {\n            throwError(msg, actual, expected, '===');\n        }\n    }\n\n    function assertNotEqual(actual, expected, msg) {\n        if (!(actual !== expected)) {\n            throwError(msg, actual, expected, '!==');\n        }\n    }\n\n    function assertSame(actual, expected, msg) {\n        if (!(actual === expected)) {\n            throwError(msg, actual, expected, '===');\n        }\n    }\n\n    function assertNotSame(actual, expected, msg) {\n        if (!(actual !== expected)) {\n            throwError(msg, actual, expected, '!==');\n        }\n    }\n\n    function assertLessThan(actual, expected, msg) {\n        if (!(actual < expected)) {\n            throwError(msg, actual, expected, '<');\n        }\n    }\n\n    function assertLessThanOrEqual(actual, expected, msg) {\n        if (!(actual <= expected)) {\n            throwError(msg, actual, expected, '<=');\n        }\n    }\n\n    function assertGreaterThan(actual, expected, msg) {\n        if (!(actual > expected)) {\n            throwError(msg, actual, expected, '>');\n        }\n    }\n\n    function assertGreaterThanOrEqual(actual, expected, msg) {\n        if (!(actual >= expected)) {\n            throwError(msg, actual, expected, '>=');\n        }\n    }\n\n    function assertNotDefined(actual, msg) {\n        if (actual !== null) {\n            throwError(msg, actual, null, '===');\n        }\n    }\n\n    function assertDefined(actual, msg) {\n        if (actual == null) {\n            throwError(msg, actual, null, '!==');\n        }\n    }\n\n    function throwError(msg, actual, expected, comparison) {\n        throw new Error(`ASSERTION\nERROR: "${msg}"\n      (comparison == null ? " : "[Expected=>" + expected + " ]" + comparison + " ]" +\n        actual + " <=Actual]");\n    }\n\n    function assertDomNode(node) {\n        // If we're in a worker, `Node` will not be defined.\n        if (!(typeof Node !== 'undefined' && node instanceof Node) &&\n            !(typeof node === 'object' && node !== null &&\n                node.constructor.name === 'WebWorkerRenderNode')) {\n            throwError(`The provided value must be an instance of a DOM Node but got "${stringify(node)}");\n        }\n    }\n\n    function assertIndexInRange(arr, index) {\n        assertDefined(arr, 'Array must be defined.);\n        var maxLen = arr.length;\n        if (index < 0 || index >= maxLen) {\n            throwError(`Index expected to be less than "${maxLen} +\n            maxLen + " but got "${index}");\n        }\n    }\n\n    function assertOneOf(value) {\n        var validValues = [];\n        for (var _i = 1; _i < arguments.length; _i++) {\n            validValues[_i - 1] = arguments[_i];\n        }\n        if (validValues.indexOf(value) !== -1) {\n            return true;\n        }\n        throwError(`Expected value to be one of "${JSON.stringify(validValues)} +\n        JSON.stringify(value)} + " but was "${JSON.stringify(value)} +\n        JSON.stringify(value)}";\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this\n     * source code is governed by an MIT-style license that can be found in the LICENSE file at\n     * https://angular.io/license\n     */\n\n    function getClosureSafeProperty(objWithPropertyToExtract) {\n        for (var key in objWithPropertyToExtract) {\n            if (objWithPropertyToExtract[key] === getClosureSafeProperty)\n                return key;\n        }\n        throw Error('Could not find renamed property on target object.);\n    }\n\n    /**\n     * Sets properties on a target\n     * object from a source object, but only if\n     * the property doesn't already exist on the target object.\n     * @param target The target to set properties on\n     * @param source The source of the property keys and values to set\n     */\n    function fillProperties(target, source) {\n        for (var key in source) {\n            if

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(source.hasOwnProperty(key) && !target.hasOwnProperty(key)) {\n      target[key] = source[key];\n    }\n  }\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this\n source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n * \n /**\n * Construct an `InjectableDef` which defines how a token will be\n constructed by the DI system, and\n * in which injectors (if any) it will be available.\n * \n * This should be\n assigned to a static `prov` field on a type, which will then be an\n * `InjectableType`.\n\n * \n * Options:\n * * `providedIn` determines which injectors will include the injectable, by either\n associating it\n * with an `@NgModule` or other `InjectorType`, or by specifying that this injectable should be\n * provided in the `root` injector, which will be the application-level injector in most apps.\n * * `factory`\n gives the zero argument function which will create an instance of the injectable.\n * The factory can call `inject`\n to access the `Injector` and request injection of dependencies.\n * \n * @codeGenApi\n * @publicApi This\n instruction has been emitted by ViewEngine for some time and is deployed to npm.\n * \n function\n defineInjectable(opts) {\n   return {\n     token: opts.token,\n     providedIn: opts.providedIn || null,\n     factory: opts.factory,\n     value: undefined,\n   };\n }\n\n /**\n * @deprecated in v8, delete after v10.\n This API should be used\n\n only be generated code, and that\n * code should now use defineInjectable instead.\n * @publicApi\n * \n\n var defineInjectable = defineInjectable;\n\n /**\n * Construct an `InjectorDef` which configures an injector.\n\n * \n * This should be assigned to a static injector def (`inj`) field on a type, which will then be an\n * `InjectorType`.\n\n * \n * Options:\n * * `factory`: an `InjectorType` is an instantiable type, so a zero\n argument `factory` function to\n * create the type must be provided. If that factory function needs to inject\n arguments, it can\n * use the `inject` function.\n * * `providers`: an optional array of providers to add to the\n injector. Each provider must\n * either have a factory or point to a type which has a `prov` static property (the\n * type must be an `InjectableType`).\n * * `imports`: an optional array of imports of other `InjectorType`s or\n `InjectorTypeWithModule`s\n\n * whose providers will also be added to the injector. Locally provided types will override\n * providers from\n imports.\n\n * \n * @codeGenApi\n * \n function defineInjector(options) {\n   return {\n     factory:\n options.factory,\n     providers: options.providers || [],\n     imports: options.imports || [],\n   };\n }\n\n /**\n * Read the injectable def (`prov`) for `type` in a way which is immune to accidentally reading\n * inherited value.\n\n * \n * @param type A type which may have its own (non-inherited) `prov`.\n\n * \n\n function getInjectableDef(type) {\n   return getOwnDefinition(type, NG_PROV_DEF) || getOwnDefinition(type,\n NG_INJECTABLE_DEF);\n }\n\n /**\n * Return definition only if it is defined directly on `type` and is not\n inherited from a base\n * class of `type`.\n\n * \n\n function getOwnDefinition(type, field) {\n   return\n type.hasOwnProperty(field) ? type[field] : null;\n }\n\n\n /**\n * Read the injectable def (`prov`) for `type` or read the `prov` from one of its ancestors.\n\n * \n * \n\n @param type A type which may have `prov`, via inheritance.\n\n * \n * @deprecated Will be removed in a future\n version of Angular, where an error will occur in the\n * scenario if we find the `prov` on an ancestor only.\n\n * \n\n function getInheritedInjectableDef(type) {\n   var def = type && (type[NG_PROV_DEF] ||\n type[NG_INJECTABLE_DEF]);\n   if (def) {\n     var typeName = getTypeName(type);\n     //\n TODO(FW-1307): Re-add ngDevMode when closure can handle it\n     // ngDevMode &&\n console.warn("DEPRECATED: DI is instantiating a token \\\\\" + typeName + \\\\\" that inherits its @Injectable\n decorator but does not provide one itself.\\n") +\n ("This will become an error in a future version of\n Angular. Please add @Injectable() to the \\\\\" + typeName + \\\\\" class.");\n\n     return def;\n   }\n   else {\n     return null;\n   }\n }\n\n /** Gets the name of a type, accounting\n for some cross-browser differences.\n\n * \n\n function getTypeName(type) {\n   // `Function.prototype.name`\n behaves differently between IE and other browsers. In most browsers\n   // it'll always return the name of the\n function itself, no matter how many other functions it\n   // inherits from. On IE the function doesn't have its own\n `name` property, but it takes it from\n   // the lowest level in the prototype chain. E.g. if we have `class Foo\n extends Parent` most\n   // browsers will evaluate `Foo.name` to `Foo` while IE will return `Parent`. We work

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around\n    // the issue by converting the function to a string and parsing its name out that way via a regex.\n
if (type.hasOwnProperty('name')) {\n        return type.name;\n    }\n    var match = (" +
type).match(/^function\s*([^\s(]+)/);\n    return
    match === null ? " : match[1];\n    }\n    /**\n     * Read the injector def type in a way which is immune to
    accidentally reading inherited value.\n     *\n     * @param type type which may have an injector def (`inj`)\n     */\n
function getInjectorDef(type) {\n    return type && (type.hasOwnProperty(NG_INJ_DEF) ||
type.hasOwnProperty(NG_INJECTOR_DEF)) ?\n        type[NG_INJ_DEF] :\n        null;\n    }\n    var
    NG_PROV_DEF = getClosureSafeProperty({ prov: getClosureSafeProperty });\n    var NG_INJ_DEF =
    getClosureSafeProperty({ inj: getClosureSafeProperty });\n    // We need to keep these around so we can read off
    old defs if new defs are unavailable\n    var NG_INJECTABLE_DEF = getClosureSafeProperty({ ngInjectableDef:
    getClosureSafeProperty });\n    var NG_INJECTOR_DEF = getClosureSafeProperty({ ngInjectorDef:
    getClosureSafeProperty });\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     *\n
    * Use of this source code is governed
    by an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    /**\n
    * Creates a token that can be used in a DI Provider.\n     *\n     * Use an `InjectionToken` whenever the type you are
    injecting is not reified (does not have a\n     * runtime representation) such as when injecting an interface, callable
    type, array or\n     * parameterized type.\n     *\n     * `InjectionToken` is parameterized on `T` which is the type of
    object which will be returned by\n     * the `Injector`. This provides additional level of type safety.\n     *\n     * ``\n
    * interface MyInterface {...}\n     * var myInterface = injector.get(new
    InjectionToken<MyInterface>('SomeToken'));\n     * // myInterface is inferred to be MyInterface.\n     * ``\n     *\n
    * When creating an `InjectionToken`, you can optionally specify a factory function which returns\n     * (possibly
    by creating) a default value of the parameterized type `T`. This sets
    up the\n     * `InjectionToken` using this factory as a provider as if it was defined explicitly in the\n     *
    application's root injector. If the factory function, which takes zero arguments, needs to inject\n     * dependencies, it
    can do so using the `inject` function. See below for an example.\n     *\n     * Additionally, if a `factory` is specified
    you can also specify the `providedIn` option, which\n     * overrides the above behavior and marks the token as
    belonging to a particular `@NgModule`. As\n     * mentioned above, `root` is the default value for `providedIn`.\n
    *\n     * @usageNotes\n     * ### Basic Example\n     *\n     * ### Plain InjectionToken\n     *\n     * { @example
    core/di/ts/injector_spec.ts region='InjectionToken'}\n     *\n     * ### Tree-shakable InjectionToken\n     *\n     *
    { @example core/di/ts/injector_spec.ts region='ShakableInjectionToken'}\n     *\n     * @publicApi\n     */\n
    var InjectionToken = /** @class */ (function () {\n
        function InjectionToken(_desc, options) {\n            this._desc = _desc;\n            /** @internal */\n
            this.ngMetadataName = 'InjectionToken';\n            this.prov = undefined;\n            if (typeof options === 'number')
            {\n                (typeof ngDevMode === 'undefined' || ngDevMode) &&\n                    assertLessThan(options, 0,
            'Only negative numbers are supported here');\n                // This is a special hack to assign __NG_ELEMENT_ID__
            to this instance.\n                // See `InjectorMarkers`\n                this.__NG_ELEMENT_ID__ = options;\n            }\n
            else if (options !== undefined) {\n                this.prov = defineInjectable({\n                    token: this,\n
                    providedIn: options.providedIn || 'root',\n                    factory: options.factory,\n                });\n            }\n
            InjectionToken.prototype.toString = function () {\n                return `InjectionToken ` + this._desc;\n            };\n
            return InjectionToken;\n        }());\n        /**\n         * @license\n         * Copyright Google LLC All Rights
        Reserved.\n         *\n         * Use of this source code is governed by an MIT-style license that can be\n         * found in the
        LICENSE file at https://angular.io/license\n         */\n        /**\n         * A DI token that you can use to create a virtual
        [provider](guide/glossary#provider)\n         * that will populate the `entryComponents` field of components and
        NgModules\n         * based on its `useValue` property value.\n         * All components that are referenced in the
        `useValue` value (either directly\n         * or in a nested array or map) are added to the `entryComponents` property.\n
        *\n         * @usageNotes\n         *\n         * The following example shows how the router can populate the
        `entryComponents`\n         * field of an NgModule based on a router configuration that refers\n         * to components.\n
        *\n         * ``typescript\n         * // helper function inside the router\n         *

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function provideRoutes(routes) {\n    * return [\n        * {provide: ROUTES, useValue: routes},\n        * {provide: ANALYZE_FOR_ENTRY_COMPONENTS, useValue: routes, multi: true}\n    ];\n}\n\n* // user code\nlet routes = [\n    * {path: '/root', component: RootComp},\n    * {path: '/teams', component: TeamsComp}\n];\n\n* @NgModule({\n    * providers: [provideRoutes(routes)]\n})\n\n* class ModuleWithRoutes {\n    * ``\n    * @publicApi\n    * @deprecated Since 9.0.0. With Ivy, this property is no longer necessary.\n    * /\n    var ANALYZE_FOR_ENTRY_COMPONENTS = new InjectionToken('AnalyzeForEntryComponents');\n    /**\n    * Base class for query metadata.\n    *\n    * @see `ContentChildren`.\n    * @see `ContentChild`.\n    * @see `ViewChildren`.\n    * @see `ViewChild`.\n    *\n    * @publicApi\n    *\n    var Query = /** @class */ (function () {\n        function Query() {\n        }\n\n        return Query;\n    })();\n    var 0$1 = function (selector, data) {\n        if (data === void 0) { data = {}; }\n        return (Object.assign({ selector: selector, first: false, isViewQuery: false, descendants: false }, data));\n    };\n    /**\n    * ContentChildren decorator and metadata.\n    *\n    * @Annotation\n    * @publicApi\n    *\n    var ContentChildren = makePropDecorator('ContentChildren', 0$1, Query);\n    var 1$1 = function (selector, data) {\n        if (data === void 0) { data = {}; }\n        return (Object.assign({ selector: selector, first: true, isViewQuery: false, descendants: true }, data));\n    };\n    /**\n    * ContentChild decorator and metadata.\n    *\n    * @Annotation\n    * @publicApi\n    *\n    var ContentChild = makePropDecorator('ContentChild', 1$1, Query);\n    var 2 = function (selector, data) {\n        if (data === void 0) { data = {}; }\n        return (Object.assign({ selector: selector, first: false, isViewQuery: true, descendants: true }, data));\n    };\n    /**\n    * ViewChildren decorator and metadata.\n    *\n    * @Annotation\n    * @publicApi\n    *\n    var ViewChildren = makePropDecorator('ViewChildren', 2, Query);\n    var 3 = function (selector, data) {\n        return (Object.assign({ selector: selector, first: true, isViewQuery: true, descendants: true }, data));\n    };\n    /**\n    * ViewChild decorator and metadata.\n    *\n    * @Annotation\n    * @publicApi\n    *\n    var ViewChild = makePropDecorator('ViewChild', 3, Query);\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n    *\n    (function (ChangeDetectionStrategy) {\n        /**\n        * Use the `CheckOnce` strategy, meaning that automatic change detection is deactivated\n        * until reactivated by setting the strategy to `Default` (`CheckAlways`).\n        *\n        * Change detection can still be explicitly invoked.\n        *\n        * This strategy applies to all child directives and cannot be overridden.\n        *\n        ChangeDetectionStrategy[ChangeDetectionStrategy["OnPush"] = 0] = "OnPush";\n        /**\n        * Use the default `CheckAlways` strategy, in which change detection is automatic until\n        * explicitly deactivated.\n        *\n        ChangeDetectionStrategy[ChangeDetectionStrategy["Default"] = 1] = "Default";\n    })(exports.ChangeDetectionStrategy || (exports.ChangeDetectionStrategy = {}));\n\n    (function (ChangeDetectorStatus) {\n        /**\n        * A state in which, after calling `detectChanges()`, the change detector\n        * state becomes `Checked`, and must be explicitly invoked or reactivated.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["CheckOnce"] = 0] = "CheckOnce";\n        /**\n        * A state in which change detection is skipped until the change detector mode\n        * becomes `CheckOnce`.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["Checked"] = 1] = "Checked";\n        /**\n        * A state in which change detection continues automatically until explicitly\n        * deactivated.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["CheckAlways"] = 2] = "CheckAlways";\n        /**\n        * A state in which a change detector sub tree is not a part of the main tree and\n        * should be skipped.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["Detached"] = 3] = "Detached";\n        /**\n        * Indicates that the change detector encountered an error checking a binding\n        * or calling a directive lifecycle method and is now in an inconsistent state. Change\n        * detectors in this state do not detect changes.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["Errored"] = 4] = "Errored";\n        /**\n        * Indicates that the change detector has been destroyed.\n        *\n        ChangeDetectorStatus[ChangeDetectorStatus["Destroyed"] = 5] = "Destroyed";\n    }

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})(exports.ChangeDetectorStatus || (exports.ChangeDetectorStatus = {}));\n  /**\n   * Reports whether a given
strategy is currently the default for change detection.\n   * @param changeDetectionStrategy The strategy to
check.\n   * @returns True if the given strategy is the current default, false otherwise.\n   * @see
`ChangeDetectorStatus`\n   * @see `ChangeDetectorRef`\n   */\n  function
isDefaultChangeDetectionStrategy(changeDetectionStrategy) {\n    return changeDetectionStrategy == null ||\n      changeDetectionStrategy === exports.ChangeDetectionStrategy.Default;\n  }\n\n  /**\n   * @license\n   *
Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style
license that can be\n   * found in the LICENSE file at https://angular.io/license\n\n   */\n  var __globalThis = typeof globalThis !== 'undefined' && globalThis;\n  var __window = typeof window
!== 'undefined' && window;\n  var __self = typeof self !== 'undefined' && typeof WorkerGlobalScope !==
'undefined' && self\n    self instanceof WorkerGlobalScope && self;\n  var __global = typeof global !== 'undefined'
&& global;\n  // Always use __globalThis if available, which is the spec-defined global variable across all\n  //
environments, then fallback to __global first, because in Node tests both __global and\n  // __window may be
defined and __global should be __global in that case.\n  var _global = __globalThis || __global || __window ||
__self;\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source
code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n\n   */\n  var R3ResolvedDependencyType;\n  (function (R3ResolvedDependencyType)\n  {\n    R3ResolvedDependencyType[R3ResolvedDependencyType["Token"] = 0] = "Token";\n    R3ResolvedDependencyType[R3ResolvedDependencyType["Attribute"] = 1] = "Attribute";\n    R3ResolvedDependencyType[R3ResolvedDependencyType["ChangeDetectorRef"] = 2] =
"ChangeDetectorRef";\n    R3ResolvedDependencyType[R3ResolvedDependencyType["Invalid"] = 3] =
"Invalid";\n  })(R3ResolvedDependencyType || (R3ResolvedDependencyType = {}));\n  var R3FactoryTarget;\n  (function (R3FactoryTarget) {\n    R3FactoryTarget[R3FactoryTarget["Directive"] = 0] = "Directive";\n    R3FactoryTarget[R3FactoryTarget["Component"] = 1] = "Component";\n    R3FactoryTarget[R3FactoryTarget["Injectable"] = 2] = "Injectable";\n    R3FactoryTarget[R3FactoryTarget["Pipe"] = 3] = "Pipe";\n    R3FactoryTarget[R3FactoryTarget["NgModule"] = 4] = "NgModule";\n  })(R3FactoryTarget ||
(R3FactoryTarget = {}));\n  var ViewEncapsulation;\n  (function (ViewEncapsulation) {\n    ViewEncapsulation[ViewEncapsulation["Emulated"] = 0] =
"Emulated";\n    // Historically the 1 value was for `Native` encapsulation which has been removed as of v11.\n    ViewEncapsulation[ViewEncapsulation["None"] = 2] = "None";\n    ViewEncapsulation[ViewEncapsulation["ShadowDom"] = 3] = "ShadowDom";\n  })(ViewEncapsulation ||
(ViewEncapsulation = {}));\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   */\n  function getCompilerFacade() {\n    var globalNg = _global['ng'];\n    if
(!globalNg || !globalNg.compilerFacade) {\n      throw new Error("Angular JIT compilation failed:\n\n'@angular/compiler' not loaded!\n\n" +\n        "\n  - JIT compilation is discouraged for production use-cases!\n  Consider AOT mode instead.\n\n")\n    }\n\n    "\n  - Did you bootstrap using '@angular/platform-browser-dynamic' or '@angular/platform-server'?\n\n" +\n      "\n  - Alternatively provide the compiler with 'import '@angular/compiler';' before bootstrapping.");\n  }\n  return globalNg.compilerFacade;\n}\n\n  /**\n   * @license\n   * Copyright
Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can
be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  var __forward_ref__ =
getClosureSafeProperty({ __forward_ref__: getClosureSafeProperty });\n\n  /**\n   * Allows to refer to references
which are not yet defined.\n   *\n   * For instance, `forwardRef` is used when the `token` which we need to refer
to for the purposes of\n   * DI is declared, but not yet defined. It is also used when the `token` which we use when
creating\n   * a query is not yet defined.\n   *\n   * @usageNotes\n

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* ### Example\n * { @example core/di/ts/forward_ref/forward_ref_spec.ts region='forward_ref'}\n *
@publicApi\n * function forwardRef(forwardRefFn) {\n forwardRefFn.__forward_ref__ =
forwardRef;\n forwardRefFn.toString = function () {\n return stringify(this());\n };\n return
forwardRefFn;\n }\n /**\n * Lazily retrieves the reference value from a forwardRef.\n * Acts as the
identity function when given a non-forward-ref value.\n * @usageNotes\n * ### Example\n *
{ @example core/di/ts/forward_ref/forward_ref_spec.ts region='resolve_forward_ref'}\n * @see
`forwardRef`\n * @publicApi\n * function resolveForwardRef(type) {\n return isForwardRef(type) ?
type() : type;\n }\n /** Checks whether a function is wrapped by a `forwardRef`. */\n function
isForwardRef(fn) {\n return typeof fn === 'function' && fn.hasOwnProperty(__forward_ref__)
&&\n fn.__forward_ref__ === forwardRef;\n }\n\n /**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n * \n\n /**\n * @description\n * Represents a type
that a Component or other object is instances of.\n * An example of a `Type` is `MyCustomComponent`
class, which in JavaScript is represented by\n * the `MyCustomComponent` constructor function.\n *
@publicApi\n * var Type = Function;\n function isType(v) {\n return typeof v === 'function';\n }\n\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *
\n\n /**\n * Equivalent to ES6 spread,
add each item to an array.\n * @param items The items to add\n * @param arr The array to which you
want to add the items\n * function addAllToArray(items, arr) {\n for (var i = 0; i < items.length; i++) {\n
arr.push(items[i]);\n }\n }\n\n /**\n * Flattens an array.\n * function flatten(list, dst) {\n if
(dst === undefined)\n dst = list;\n for (var i = 0; i < list.length; i++) {\n var item = list[i];\n
if (Array.isArray(item)) {\n // we need to inline it.\n if (dst === list) {\n // Our
assumption that the list was already flat was wrong and\n // we need to clone flat since we need to write
to it.\n dst = list.slice(0, i);\n }\n flatten(item, dst);\n }\n else if (dst !==
list) {\n dst.push(item);\n }\n }\n return dst;\n }\n\n function deepForEach(input, fn) {\n input.forEach(function (value) {\n return
Array.isArray(value) ? deepForEach(value, fn) : fn(value); });\n }\n\n function addToArray(arr, index, value) {\n
// perf: array.push is faster than array.splice!\n if (index >= arr.length) {\n arr.push(value);\n }\n
else {\n arr.splice(index, 0, value);\n }\n }\n\n function removeFromArray(arr, index) {\n // perf:
array.pop is faster than array.splice!\n if (index >= arr.length - 1) {\n return arr.pop();\n }\n else
{\n return arr.splice(index, 1)[0];\n }\n }\n\n function newArray(size, value) {\n var list = [];\n
for (var i = 0; i < size; i++) {\n list.push(value);\n }\n return list;\n }\n\n /**\n * Remove item
from array (Same as `Array.splice()` but faster.)\n * `Array.splice()` is not
as fast because it has to allocate an array for the elements which were\n * removed. This causes memory pressure
and slows down code when most of the time we don't\n * care about the deleted items array.\n *
https://jsperf.com/fast-array-splice (About 20x faster)\n * @param array Array to splice\n * @param
index Index of element in array to remove.\n * @param count Number of items to remove.\n * function
arraySplice(array, index, count) {\n var length = array.length - count;\n while (index < length) {\n
array[index] = array[index + count];\n index++;\n }\n while (count-- > 0) {\n array.pop(); // shrink
the array\n }\n }\n\n /**\n * Same as `Array.splice(index, 0, value)` but faster.\n * `Array.splice()`
is not fast because it has to allocate an array for the elements which were\n * removed. This causes memory
pressure and slows down code when most
of the time we don't\n * care about the deleted items array.\n * @param array Array to splice.\n *
@param index Index in array where the `value` should be added.\n * @param value Value to add to array.\n
\n * function arrayInsert(array, index, value) {\n ngDevMode && assertLessThanOrEqual(index,
array.length, 'Can\\'t insert past array end.);\n var end = array.length;\n while (end > index) {\n var
previousEnd = end - 1;\n array[end] = array[previousEnd];\n end = previousEnd;\n }\n

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array[index] = value;\n }\n /**\n  * Same as `Array.splice2(index, 0, value1, value2)` but faster.\n  *\n  * `Array.splice()` is not fast because it has to allocate an array for the elements which were\n  * removed. This causes memory pressure and slows down code when most of the time we don't\n  * care about the deleted items array.\n  *\n  * @param array Array to splice.\n  * @param index Index in array where the `value` should be added.\n  * @param value1 Value to add to array.\n  * @param value2 Value to add to array.\n  */\n function arrayInsert2(array, index, value1, value2) {\n ngDevMode && assertLessThanOrEqual(index, array.length, 'Can\\'t insert past array end.);\n var end = array.length;\n if (end == index) {\n // inserting at the end.\n array.push(value1, value2);\n }\n else if (end === 1) {\n // corner case when we have less items in array than we have items to insert.\n array.push(value2, array[0]);\n array[0] = value1;\n }\n else {\n end--;\n array.push(array[end - 1], array[end]);\n while (end > index) {\n var previousEnd = end - 2;\n array[end] = array[previousEnd];\n end--;\n }\n array[index] = value1;\n array[index + 1] = value2;\n }\n }\n /**\n  * Insert a `value` into an `array` so that the array remains sorted.\n  *\n  * NOTE:\n  * - Duplicates are not allowed, and are ignored.\n  * - This uses binary search algorithm for fast inserts.\n  *\n  * @param array A sorted array to insert into.\n  * @param value The value to insert.\n  * @returns index of the inserted value.\n  */\n function arrayInsertSorted(array, value) {\n var index = arrayIndexOfSorted(array, value);\n if (index < 0) {\n // if we did not find it insert it.\n index = ~index;\n arrayInsert(array, index, value);\n }\n return index;\n }\n /**\n  * Remove `value` from a sorted `array`.\n  *\n  * NOTE:\n  * - This uses binary search algorithm for fast removals.\n  *\n  * @param array A sorted array to remove from.\n  * @param value The value to remove.\n  * @returns index of the removed value.\n  *\n  * - positive index if value found and removed.\n  * - negative index if value not found. (~index` to get the value where it should have been\n  * inserted)\n  */\n function arrayRemoveSorted(array, value) {\n var index = arrayIndexOfSorted(array, value);\n if (index >= 0) {\n arraySplice(array, index, 1);\n }\n return index;\n }\n /**\n  * Get an index of an `value` in a sorted `array`.\n  *\n  * NOTE:\n  * - This uses binary search algorithm for fast removals.\n  *\n  * @param array A sorted array to binary search.\n  * @param value The value to look for.\n  * @returns index of the value.\n  *\n  * - positive index if value found.\n  * - negative index if value not found. (~index` to get the value where it should have been\n  * located)\n  */\n function arrayIndexOfSorted(array, value) {\n return _arrayIndexOfSorted(array, value, 0);\n }\n /**\n  * Set a `value` for a `key`.\n  *\n  * @param keyValuePair to modify.\n  * @param key The key to locate or create.\n  * @param value The value to set for a `key`.\n  * @returns index (always even) of where the value was set.\n  */\n function keyValueArraySet(keyValuePair, key, value) {\n var index = keyValueArrayIndexOf(keyValuePair, key);\n if (index >= 0) {\n // if we found it set it.\n keyValuePair[index | 1] = value;\n }\n else {\n index = ~index;\n arrayInsert2(keyValuePair, index, key, value);\n }\n return index;\n }\n /**\n  * Retrieve a `value` for a `key` (on `undefined` if not found.)\n  *\n  * @param keyValuePair to search.\n  * @param key The key to locate.\n  * @return The `value` stored at the `key` location or `undefined` if not found.\n  */\n function keyValueArrayGet(keyValuePair, key) {\n var index = keyValueArrayIndexOf(keyValuePair, key);\n if (index >= 0) {\n // if we found it retrieve it.\n return keyValuePair[index | 1];\n }\n return undefined;\n }\n /**\n  * Retrieve a `key` index value in the array or -1 if not found.\n  *\n  * @param keyValuePair to search.\n  * @param key The key to locate.\n  * @returns index of where the key is (or should have been.)\n  *\n  * - positive (even) index if key found.\n  * - negative index if key not found. (~index` (even) to get the index where it should have\n  * been inserted.)\n  */\n function keyValueArrayIndexOf(keyValuePair, key) {\n return _arrayIndexOfSorted(keyValuePair, key, 1);\n }\n /**\n  * Delete a `key` (and `value`) from the `KeyValuePair`.\n  *\n  * @param keyValuePair to modify.\n  * @param key The key to locate or delete (if exist).\n  * @returns index of where the key was (or should have

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been.)\n * - positive (even) index if key found and\n deleted.\n * - negative index if key not found. (~index` (even) to get the index where it should have\n * been.)\n *\n function keyValueArrayDelete(keyValueArray, key) {\n var index =\n keyValueArrayIndexOf(keyValueArray, key);\n if (index >= 0) {\n // if we found it remove it.\n arraySplice(keyValueArray, index, 2);\n }\n return index;\n }\n /**\n * INTERNAL: Get an index of\n an `value` in a sorted `array` by grouping search by `shift`. \n * NOTE:\n * - This uses binary search\n algorithm for fast removals.\n * \n * @param array A sorted array to binary search.\n * @param value The\n value to look for.\n * @param shift grouping shift.\n * - `0` means look at every location\n * - `1` means\n only look at every other (even) location (the odd locations are to be ignored as\n * they are values.)\n *\n @returns index of the value.\n * - positive index if\n value found.\n * - negative index if value not found. (~index` to get the value where it should have been\n * inserted)\n *\n function _arrayIndexOfSorted(array, value, shift) {\n ngDevMode &&\n assertEqual(Array.isArray(array), true, 'Expecting an array');\n var start = 0;\n var end = array.length >>\n shift;\n while (end !== start) {\n var middle = start + ((end - start) >> 1); // find the middle.\n var\n current = array[middle << shift];\n if (value === current) {\n return (middle << shift);\n }\n else if (current > value) {\n end = middle;\n }\n else {\n start = middle + 1; //\n We already searched middle so make it non-inclusive by adding 1\n }\n }\n return ~(end << shift);\n }\n }\n /**\n * #####\n * Attention: These Regular expressions have to hold even if\n the code\n is minified!\n * #####\n *\n /\n */\n * Regular expression that detects pass-\n through constructors for ES5 output. This Regex\n * intends to capture the common delegation pattern emitted by\n TypeScript and Babel. Also\n * it intends to capture the pattern where existing constructors have been\n downleveled from\n * ES2015 to ES5 using TypeScript w/ downlevel iteration. e.g.\n *\n *\n function MyClass() {\n * var _this = _super.apply(this, arguments) || this;\n *\n *\n *\n function MyClass() {\n * var _this = _super.apply(this, __spread(arguments)) || this;\n *\n *\n *\n More details can be found in: https://github.com/angular/angular/issues/38453.\n *\n var\n ES5_DELEGATE_CTOR =\n /\nfunction\\|s+\\|S+\\|(\\|)\\|s*{[f\\|s\\|S]+\\.apply\\|(this,\\|s*(arguments|[\\^])+\\|(arguments\\|))\\|)/;\n */\n * Regular\n expression that detects ES2015 classes which extend from other classes.\n *\n var ES2015_INHERITED_CLASS = /\nclass\\|s+[A-Za-z]\\d$\\|s*extends\\|s+[^{]+{/;\n */\n * Regular\n expression that detects ES2015 classes which extend from other classes and\n * have an explicit constructor\n defined.\n *\n var ES2015_INHERITED_CLASS_WITH_CTOR = /\nclass\\|s+[A-Za-  
z]\\d$\\|s*extends\\|s+[^{]+{[f\\|s\\|S]*constructor\\|s*\\|(/;\n */\n * Regular expression that detects ES2015  
classes which extend from other classes\n * and inherit a constructor.\n *\n var  
ES2015_INHERITED_CLASS_WITH_DELEGATE_CTOR = /\nclass\\|s+[A-Za-  
z]\\d$\\|s*extends\\|s+[^{]+{[f\\|s\\|S]*constructor\\|s*\\|(\\|)\\|s*{[f\\|s\\|super\\|\\(\\|\\.\\.\\.arguments\\|)]/;\n */\n *\n Determine whether a stringified type is a class which delegates its constructor\n * to its parent.\n *\n * This  
is not trivial since compiled code can actually contain a constructor function\n * even if the original source code  
did not. For instance, when the child class contains\n * an initialized  
instance property.\n *\n function isDelegateCtor(typeStr) {\n return  
ES5_DELEGATE_CTOR.test(typeStr) ||\n ES2015_INHERITED_CLASS_WITH_DELEGATE_CTOR.test(typeStr) ||\n (ES2015_INHERITED_CLASS.test(typeStr) && !ES2015_INHERITED_CLASS_WITH_CTOR.test(typeStr));\n }\n var ReflectionCapabilities = /** @class */ (function () {\n function ReflectionCapabilities(reflect) {\n this._reflect = reflect || _global['Reflect'];\n }\n ReflectionCapabilities.prototype.isReflectionEnabled =  
function () {\n return true;\n };\n ReflectionCapabilities.prototype.factory = function (t) {\n return function () {\n var args = [];\n for (var _i = 0; _i < arguments.length; _i++) {\n args[_i] = arguments[_i];\n }\n return new (t.bind.apply(t, __spread([void 0], args)))();\n }
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};\n    };\n    /** @internal
*/\n    ReflectionCapabilities.prototype._zipTypesAndAnnotations = function (paramTypes, paramAnnotations)
{\n    var result;\n    if (typeof paramTypes === 'undefined') {\n    result =
newArray(paramAnnotations.length);\n    }\n    else {\n    result =
newArray(paramTypes.length);\n    }\n    for (var i = 0; i < result.length; i++) {\n    // TS outputs
Object for parameters without types, while Traceur omits\n    // the annotations. For now we preserve the
Traceur behavior to aid\n    // migration, but this can be revisited.\n    if (typeof paramTypes ===
'undefined') {\n    result[i] = [];\n    }\n    else if (paramTypes[i] && paramTypes[i] !=
Object) {\n    result[i] = [paramTypes[i]];\n    }\n    else {\n    result[i] = [];\n
    }\n    if
(paramAnnotations && paramAnnotations[i] != null) {\n    result[i] =
result[i].concat(paramAnnotations[i]);\n    }\n    }\n    return result;\n    };\n
ReflectionCapabilities.prototype._ownParameters = function (type, parentCtor) {\n    var typeStr =
type.toString();\n    // If we have no decorators, we only have function.length as metadata.\n    // In that
case, to detect whether a child class declared an own constructor or not,\n    // we need to look inside of that
constructor to check whether it is\n    // just calling the parent.\n    // This also helps to work around for
https://github.com/Microsoft/TypeScript/issues/12439\n    // that sets 'design:paramtypes' to []\n    // if a
class inherits from another class but has no ctor declared itself.\n    if (isDelegateCtor(typeStr)) {\n
return null;\n    }\n    // Prefer the direct
API.\n    if (type.parameters && type.parameters !== parentCtor.parameters) {\n    return
type.parameters;\n    }\n    // API of tsickle for lowering decorators to properties on the class.\n    var
tsickleCtorParams = type.ctorParameters;\n    if (tsickleCtorParams && tsickleCtorParams !==
parentCtor.ctorParameters) {\n    // Newer tsickle uses a function closure\n    // Retain the non-
function case for compatibility with older tsickle\n    var ctorParameters = typeof tsickleCtorParams ===
'function' ? tsickleCtorParams() : tsickleCtorParams;\n    var paramTypes_1 = ctorParameters.map(function
(ctorParam) { return ctorParam && ctorParam.type; });\n    var paramAnnotations_1 =
ctorParameters.map(function (ctorParam) { return ctorParam &&
convertTsickleDecoratorIntoMetadata(ctorParam.decorators); });\n    return
this._zipTypesAndAnnotations(paramTypes_1, paramAnnotations_1);\n
    }\n    // API for metadata created by invoking the decorators.\n    var paramAnnotations =
type.hasOwnProperty(PARAMETERS) && type[PARAMETERS];\n    var paramTypes = this._reflect &&
this._reflect.getOwnMetadata &&\n    this._reflect.getOwnMetadata('design:paramtypes', type);\n    if
(paramTypes || paramAnnotations) {\n    return this._zipTypesAndAnnotations(paramTypes,
paramAnnotations);\n    }\n    // If a class has no decorators, at least create metadata\n    // based on
function.length.\n    // Note: We know that this is a real constructor as we checked\n    // the content of the
constructor above.\n    return newArray(type.length);\n    };\n
ReflectionCapabilities.prototype.parameters = function (type) {\n    // Note: only report metadata if we have at
least one class decorator\n    // to stay in sync with the static reflector.\n
    if (!isType(type)) {\n    return [];\n    }\n    var parentCtor = getParentCtor(type);\n
var parameters = this._ownParameters(type, parentCtor);\n    if (!parameters && parentCtor !== Object) {\n
parameters = this.parameters(parentCtor);\n    }\n    return parameters || [];\n    };\n
ReflectionCapabilities.prototype._ownAnnotations = function (typeOrFunc, parentCtor) {\n    // Prefer the
direct API.\n    if (typeOrFunc.annotations && typeOrFunc.annotations !== parentCtor.annotations) {\n
var annotations = typeOrFunc.annotations;\n    if (typeof annotations === 'function' &&
annotations.annotations) {\n    annotations = annotations.annotations;\n    }\n    return
annotations;\n    }\n    // API of tsickle for lowering decorators to properties on the class.\n    if
(typeOrFunc.decorators

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    && typeOrFunc.decorators !== parentCtor.decorators) {\n        return
convertTsickleDecoratorIntoMetadata(typeOrFunc.decorators);\n    }\n    // API for metadata created by
invoking the decorators.\n    if (typeOrFunc.hasOwnProperty(ANNOTATIONS)) {\n        return
typeOrFunc[ANNOTATIONS];\n    }\n    return null;\n    };\n
ReflectionCapabilities.prototype.annotations = function (typeOrFunc) {\n    if (!isType(typeOrFunc)) {\n
    return [];\n    }\n    var parentCtor = getParentCtor(typeOrFunc);\n    var ownAnnotations =
this._ownAnnotations(typeOrFunc, parentCtor) || [];\n    var parentAnnotations = parentCtor !== Object ?
this.annotations(parentCtor) : [];\n    return parentAnnotations.concat(ownAnnotations);\n    };\n
ReflectionCapabilities.prototype._ownPropMetadata = function (typeOrFunc, parentCtor) {\n    // Prefer the
direct API.\n
    if (typeOrFunc.propMetadata &&\n        typeOrFunc.propMetadata !== parentCtor.propMetadata) {\n
    var propMetadata = typeOrFunc.propMetadata;\n    if (typeof propMetadata === 'function' &&
propMetadata.propMetadata) {\n        propMetadata = propMetadata.propMetadata;\n    }\n
    return propMetadata;\n    }\n    // API of tsickle for lowering decorators to properties on the class.\n
if (typeOrFunc.propDecorators &&\n        typeOrFunc.propDecorators !== parentCtor.propDecorators) {\n
    var propDecorators_1 = typeOrFunc.propDecorators;\n    var propMetadata_1 = {};\n
    Object.keys(propDecorators_1).forEach(function (prop) {\n        propMetadata_1[prop] =
convertTsickleDecoratorIntoMetadata(propDecorators_1[prop]);\n    });\n    return
propMetadata_1;\n    }\n    // API for metadata
created by invoking the decorators.\n    if (typeOrFunc.hasOwnProperty(PROP_METADATA)) {\n
    return typeOrFunc[PROP_METADATA];\n    }\n    return null;\n    };\n
ReflectionCapabilities.prototype.propMetadata = function (typeOrFunc) {\n    if (!isType(typeOrFunc)) {\n
    return {};\n    }\n    var parentCtor = getParentCtor(typeOrFunc);\n    var propMetadata = {};\n
    if (parentCtor !== Object) {\n        var parentPropMetadata_1 = this.propMetadata(parentCtor);\n
    Object.keys(parentPropMetadata_1).forEach(function (propName) {\n        propMetadata[propName] =
parentPropMetadata_1[propName];\n    });\n    }\n    var ownPropMetadata =
this._ownPropMetadata(typeOrFunc, parentCtor);\n    if (ownPropMetadata) {\n
    Object.keys(ownPropMetadata).forEach(function (propName) {\n        var decorators
= [];\n        if (propMetadata.hasOwnProperty(propName)) {\n
        decorators.push.apply(decorators, __spread(propMetadata[propName]));\n        }\n
        decorators.push.apply(decorators, __spread(ownPropMetadata[propName]));\n
        propMetadata[propName] = decorators;\n    });\n    }\n    return propMetadata;\n    };\n
ReflectionCapabilities.prototype.ownPropMetadata = function (typeOrFunc) {\n    if (!isType(typeOrFunc)) {\n
    return {};\n    }\n    return this._ownPropMetadata(typeOrFunc, getParentCtor(typeOrFunc)) ||
{};\n    };\n
ReflectionCapabilities.prototype.hasLifecycleHook = function (type, lcProperty) {\n    return
type instanceof Type && lcProperty in type.prototype;\n    };\n
ReflectionCapabilities.prototype.guards =
function (type) {\n    return {};\n    };\n
ReflectionCapabilities.prototype.getter
= function (name) {\n    return new Function('o', 'return o.' + name + ';');\n    };\n
ReflectionCapabilities.prototype.setter = function (name) {\n    return new Function('o', 'v', 'return o.' + name +
' = v;');\n    };\n
ReflectionCapabilities.prototype.method = function (name) {\n    var functionBody = \"if
(!o.\" + name + \") throw new Error(\"\\\"\\\"\" + name + \"\\\"\\\" is undefined');\n    return o.\" + name + \".apply(o,
args);\";\n    return new Function('o', 'args', functionBody);\n    };\n    // There is not a concept of import uri
in Js, but this is useful in developing Dart applications.\n
ReflectionCapabilities.prototype.importUri = function
(type) {\n    // StaticSymbol\n    if (typeof type === 'object' && type['filePath']) {\n        return
type['filePath'];\n    }\n    // Runtime type\n    return \"\".\\\" + stringify(type);\n    };\n
ReflectionCapabilities.prototype.resourceUri = function (type) {\n    return \"\".\\\" + stringify(type);\n
};\n
ReflectionCapabilities.prototype.resolveIdentifier = function (name, moduleUrl, members, runtime) {\n
    return runtime;\n    };\n
ReflectionCapabilities.prototype.resolveEnum = function (enumIdentifier, name)

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{\n      return enumIdentifier[name];\n    };\n    return ReflectionCapabilities;\n  }());\n  function
convertTsickleDecoratorIntoMetadata(decoratorInvocations) {\n    if (!decoratorInvocations) {\n      return
[];\n    }\n    return decoratorInvocations.map(function (decoratorInvocation) {\n      var decoratorType =
decoratorInvocation.type;\n      var annotationCls = decoratorType.annotationCls;\n      var annotationArgs =
decoratorInvocation.args ? decoratorInvocation.args : [];\n      return new
(annotationCls.bind.apply(annotationCls, __spread([void 0], annotationArgs)))();\n    });\n  }\n  function getParentCtor(ctor) {\n    var parentProto = ctor.prototype ?
Object.getPrototypeOf(ctor.prototype) : null;\n    var parentCtor = parentProto ? parentProto.constructor : null;\n    // Note: We always use `Object` as the null value\n    // to simplify checking later on.\n    return parentCtor ||
Object;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this
source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   *\n   var _reflect = null;\n   function getReflect() {\n    return (_reflect = _reflect ||
new ReflectionCapabilities());\n  }\n   function reflectDependencies(type) {\n    return
convertDependencies(getReflect().parameters(type));\n  }\n   function convertDependencies(deps) {\n    var
compiler = getCompilerFacade();\n    return deps.map(function (dep) {\n      return reflectDependency(compiler, dep); });\n  }\n   function reflectDependency(compiler, dep) {\n    var meta
= {\n      token: null,\n      host: false,\n      optional: false,\n      resolved:
compiler.R3ResolvedDependencyType.Token,\n      self: false,\n      skipSelf: false,\n    }; \n    function
setTokenAndResolvedType(token) {\n      meta.resolved = compiler.R3ResolvedDependencyType.Token;\n      meta.token = token;\n    }\n    if (Array.isArray(dep) && dep.length > 0) {\n      for (var j = 0; j <
dep.length; j++) {\n        var param = dep[j];\n        if (param === undefined) {\n          // param may
be undefined if type of dep is not set by ngts\n          continue;\n        }\n        var proto =
Object.getPrototypeOf(param);\n        if (param instanceof Optional || proto.ngMetadataName === 'Optional')\n        {\n          meta.optional
= true;\n        }\n        else if (param instanceof SkipSelf || proto.ngMetadataName === 'SkipSelf') {\n          meta.skipSelf = true;\n        }\n        else if (param instanceof Self || proto.ngMetadataName ===
'Self') {\n          meta.self = true;\n        }\n        else if (param instanceof Host ||
proto.ngMetadataName === 'Host') {\n          meta.host = true;\n        }\n        else if (param
instanceof Inject) {\n          meta.token = param.token;\n        }\n        else if (param instanceof
Attribute) {\n          if (param.attributeName === undefined) {\n            throw new Error(`Attribute
name must be defined.`);\n          }\n          meta.token = param.attributeName;\n          meta.resolved = compiler.R3ResolvedDependencyType.Attribute;\n        }\n        else if
(param.__ChangeDetectorRef__
=== true) {\n          meta.token = param;\n          meta.resolved =
compiler.R3ResolvedDependencyType.ChangeDetectorRef;\n        }\n        else {\n          setTokenAndResolvedType(param);\n        }\n      }\n    }\n    else if (dep === undefined ||
(Array.isArray(dep) && dep.length === 0)) {\n      meta.token = undefined;\n      meta.resolved =
R3ResolvedDependencyType.Invalid;\n    }\n    else {\n      setTokenAndResolvedType(dep);\n    }\n    return meta;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of
this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   *\n   /**\n   * Used to resolve resource URLs on `@Component` when used with
JIT compilation.\n   *\n   * Example:\n   * ```\n   * @Component({\n   *   selector: 'my-comp',\n   *   templateUrl: 'my-comp.html', // This requires asynchronous resolution\n   * })\n   * class MyComponent{\n   * }\n   * // Calling `renderComponent` will fail because `renderComponent` is a
synchronous process\n   * // and `MyComponent`'s `@Component.templateUrl` needs to be resolved
asynchronously.\n   * // Calling `resolveComponentResources()` will resolve `@Component.templateUrl`
into\n   * // `@Component.template`, which allows `renderComponent` to proceed in a synchronous manner.\n   *\n   * // Use browser's `fetch()` function as the default resource resolution strategy.\n   *

```



```

resolveComponentResources(fetch).then() => {\n    * // After resolution all URLs have been converted into
`template` strings.\n    * renderComponent(MyComponent);\n    * });\n    *\n    * ``\n    *\n    * NOTE: In AOT
the resolution happens during compilation, and so there should be no need\n    * to call this method outside JIT
mode.\n    *\n    * @param resourceResolver a function which is responsible for returning a `Promise` to the\n    *
contents of the resolved URL. Browser's `fetch()` method is a good default implementation.\n    */\n    function
resolveComponentResources(resourceResolver) {\n        // Store all promises which are fetching the resources.\n
var componentResolved = [];\n        // Cache so that we don't fetch the same resource more than once.\n        var
urlMap = new Map();\n        function cachedResourceResolve(url) {\n            var promise = urlMap.get(url);\n
if (!promise) {\n                var resp = resourceResolver(url);\n                urlMap.set(url, promise =
resp.then(unwrapResponse));\n            }\n            return promise;\n        }\n
componentResourceResolutionQueue.forEach(function (component, type) {\n            var promises = [];\n            if
(component.templateUrl) {\n
promises.push(cachedResourceResolve(component.templateUrl).then(function
(template) {\n                component.template = template;\n            }));\n            }\n            var styleUrls =
component.styleUrls;\n            var styles = component.styles || (component.styles = []);\n            var styleOffset =
component.styles.length;\n            styleUrls && styleUrls.forEach(function (styleUrl, index) {\n
styles.push(""); // pre-allocate array.\n                promises.push(cachedResourceResolve(styleUrl).then(function
(style) {\n                    styles[styleOffset + index] = style;\n                    styleUrls.splice(styleUrls.indexOf(styleUrl),
1);\n                    if (styleUrls.length == 0) {\n                        component.styleUrls = undefined;\n                    }\n
                }));\n            });\n            var fullyResolved = Promise.all(promises).then(function () { return
componentDefResolved(type); });\n            componentResolved.push(fullyResolved);\n
        }));\n        clearResolutionOfComponentResourcesQueue();\n        return
Promise.all(componentResolved).then(function () { return undefined; });\n    }\n    var
componentResourceResolutionQueue = new Map();\n    // Track when existing cmp for a Type is waiting on
resources.\n    var componentDefPendingResolution = new Set();\n    function
maybeQueueResolutionOfComponentResources(type, metadata) {\n        if (componentNeedsResolution(metadata))
{\n            componentResourceResolutionQueue.set(type, metadata);\n
componentDefPendingResolution.add(type);\n        }\n    }\n    function isComponentDefPendingResolution(type)
{\n        return componentDefPendingResolution.has(type);\n    }\n    function
componentNeedsResolution(component) {\n        return !!(component.templateUrl &&
!component.hasOwnProperty('template'))\n        && component.styleUrls && component.styleUrls.length);\n    }\n
function clearResolutionOfComponentResourcesQueue() {\n        var old = componentResourceResolutionQueue;\n
componentResourceResolutionQueue = new Map();\n        return old;\n    }\n    function
restoreComponentResolutionQueue(queue) {\n        componentDefPendingResolution.clear();\n
queue.forEach(function (_, type) { return componentDefPendingResolution.add(type); });\n
componentResourceResolutionQueue = queue;\n    }\n    function isComponentResourceResolutionQueueEmpty()
{\n        return componentResourceResolutionQueue.size === 0;\n    }\n    function unwrapResponse(response) {\n
return typeof response == 'string' ? response : response.text();\n    }\n    function componentDefResolved(type) {\n
componentDefPendingResolution.delete(type);\n    }\n    /**\n     * @license\n     * Copyright Google LLC All
Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found
in the LICENSE file at https://angular.io/license\n     */\n    (function (ViewEncapsulation) {\n
        /**\n         * Emulate `Native` scoping of styles by adding an attribute containing surrogate id to the Host\n
         * Element and pre-processing the style rules provided via { @link Component#styles styles } or\n         * { @link
Component#styleUrls styleUrls }, and adding the new Host Element attribute to all\n         * selectors.\n         *\n
         * This is the default option.\n         */\n        ViewEncapsulation[ViewEncapsulation["Emulated"] = 0] =
"Emulated";\n        // Historically the 1 value was for `Native` encapsulation which has been removed as of v11.\n
        /**\n         * Don't provide any template or style encapsulation.\n         */\n
        ViewEncapsulation[ViewEncapsulation["None"] = 2] = "None";\n        /**\n         * Use Shadow DOM to

```

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encapsulate styles.\n      *\n      * For the DOM this means using modern [Shadow\n      *\n      * DOM](https://w3c.github.io/webcomponents/spec/shadow/) and\n      *\n      * creating a ShadowRoot for Component's\n      * Host Element.\n      *\n      * ViewEncapsulation[ViewEncapsulation["ShadowDom"] = 3] = "ShadowDom";\n      *})(exports.ViewEncapsulation || (exports.ViewEncapsulation = {}));\n      */\n      * @license\n      * Copyright\n      * Google LLC All Rights Reserved.\n      *\n      * Use of this source code is governed by an MIT-style license that can\n      * be\n      * found in the LICENSE file at https://angular.io/license\n      */\n      function\n      ngDevModeResetPerfCounters() {\n        var locationString = typeof location !== 'undefined' ? location.toString() :\n        '';\n        var newCounters = {\n          namedConstructors:\n            locationString.indexOf('ngDevMode=namedConstructors') !== -1,\n            firstCreatePass: 0,\n            tNode: 0,\n            tView: 0,\n            rendererCreateTextNode: 0,\n            rendererSetText: 0,\n            rendererCreateElement: 0,\n            rendererAddEventListener: 0,\n            rendererSetAttribute: 0,\n            rendererRemoveAttribute: 0,\n            rendererSetProperty: 0,\n            rendererSetClassName: 0,\n            rendererAddClass: 0,\n            rendererRemoveClass: 0,\n            rendererSetStyle: 0,\n            rendererRemoveStyle: 0,\n            rendererDestroy:\n              0,\n            rendererDestroyNode: 0,\n            rendererMoveNode: 0,\n            rendererRemoveNode: 0,\n            rendererAppendChild: 0,\n            rendererInsertBefore: 0,\n            rendererCreateComment: 0,\n          };\n        //\n        Make sure to refer to ngDevMode as ['ngDevMode'] for closure.\n        var allowNgDevModeTrue =\n        locationString.indexOf('ngDevMode=false') === -1;\n        _global['ngDevMode'] = allowNgDevModeTrue &&\n        newCounters;\n        return newCounters;\n      }\n      /**\n      * This function checks to see if the `ngDevMode` has\n      * been set. If yes,\n      * then we honor it, otherwise we default to dev mode with additional checks.\n      *\n      * The\n      * idea is that unless we are doing production build where we explicitly\n      *\n      * set `ngDevMode == false` we should be helping the developer by providing\n      * as much early warning and\n      * errors as possible.\n      *\n      * `defineComponent` is guaranteed to have been called before any component template\n      * functions\n      * (and thus Ivy instructions), so a single initialization there is sufficient to ensure ngDevMode\n      * is defined for the entire instruction set.\n      *\n      * When checking `ngDevMode` on toplevel, always init it before\n      * referencing it\n      * (e.g. `((typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode())`), otherwise\n      * you can\n      * get a `ReferenceError` like in https://github.com/angular/angular/issues/31595.\n      *\n      * Details\n      * on possible values for `ngDevMode` can be found on its docstring.\n      *\n      * NOTE:\n      * - changes to the\n      * `ngDevMode` name must be synced with `compiler-cli/src/tooling.ts`.\n      */\n      function initNgDevMode() {\n        // The below checks are to ensure that calling `initNgDevMode`\n        multiple times does not\n        // reset the counters.\n        // If the `ngDevMode` is not an object, then it means we\n        have not created the perf counters\n        // yet.\n        if (typeof ngDevMode === 'undefined' || ngDevMode) {\n          if (typeof ngDevMode !== 'object') {\n            ngDevModeResetPerfCounters();\n          }\n          return typeof\n          ngDevMode !== 'undefined' && !!ngDevMode;\n        }\n        return false;\n      }\n      /**\n      * @license\n      * Copyright Google LLC All Rights Reserved.\n      *\n      * Use of this source code is governed by an MIT-style\n      * license that can be\n      * found in the LICENSE file at https://angular.io/license\n      */\n      /**\n      * This file\n      * contains reusable \"empty\" symbols that can be used as default return values\n      * in different parts of the\n      * rendering code. Because the same symbols are returned, this\n      * allows for identity checks against these values to\n      * be consistently used by the framework\n      *\n      * code.\n      */\n      var EMPTY_OBJ = {};\n      var EMPTY_ARRAY = [];\n      // freezing the values prevents any\n      code from accidentally inserting new values in\n      if ((typeof ngDevMode === 'undefined' || ngDevMode) &&\n      initNgDevMode()) {\n        // These property accesses can be ignored because ngDevMode will be set to false\n        // when optimizing code and the whole if statement will be dropped.\n        // tslint:disable-next-line:no-toplevel-property-access\n        Object.freeze(EMPTY_OBJ);\n        // tslint:disable-next-line:no-toplevel-property-access\n        Object.freeze(EMPTY_ARRAY);\n      }\n      /**\n      * @license\n      * Copyright Google LLC All Rights\n      * Reserved.\n      *\n      * Use of this source code is governed by an MIT-style license that can be\n      * found in the\n      * LICENSE file at https://angular.io/license\n      */\n      var NG_COMP_DEF = getClosureSafeProperty({ cmp:\n      getClosureSafeProperty });\n      var NG_DIR_DEF = getClosureSafeProperty({ dir: getClosureSafeProperty

```

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});\n  var NG_PIPE_DEF = getClosureSafeProperty({ pipe: getClosureSafeProperty });\n  var NG_MOD_DEF =
getClosureSafeProperty({ mod: getClosureSafeProperty });\n  var NG_LOC_ID_DEF = getClosureSafeProperty({
loc: getClosureSafeProperty });\n  var NG_FACTORY_DEF = getClosureSafeProperty({ fac:
getClosureSafeProperty });\n  /**\n   * If a directive is diPublic, bloomAdd sets a property on the type with this
constant as\n   * the key and the directive's unique ID as the value. This allows us to map directives to their\n   * bloom filter bit for DI.\n   */\n  // TODO(misko): This is wrong. The NG_ELEMENT_ID should never be
minified.\n  var NG_ELEMENT_ID = getClosureSafeProperty({ __NG_ELEMENT_ID__:\ngetClosureSafeProperty });\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n
  */\n  var _renderCompCount = 0;\n  /**\n   * Create a component definition object.\n   */\n  * #
Example\n  * ```\n  * class MyDirective {\n  *   // Generated by Angular Template Compiler\n  *   //
[Symbol] syntax will not be supported by TypeScript until v2.7\n  *   static cmp = defineComponent({\n  *
... \n  *   });\n  * }\n  * ```\n  * @codeGenApi\n  */\n  function defineComponent(componentDefinition)
{\n    return noSideEffects(function () {\n      // Initialize ngDevMode. This must be the first statement in
defineComponent.\n      // See the `initNgDevMode` docstring for more information.\n      (typeof
ngDevMode === 'undefined' || ngDevMode) && initNgDevMode();\n      var type =
componentDefinition.type;\n      var typePrototype = type.prototype;\n      var declaredInputs = {};\n
var def = {\n      type: type,\n      providersResolver: null,\n
      decls: componentDefinition.decls,\n      vars: componentDefinition.vars,\n      factory: null,\n
      template: componentDefinition.template || null,\n      consts: componentDefinition.consts || null,\n
ngContentSelectors: componentDefinition.ngContentSelectors,\n      hostBindings:
componentDefinition.hostBindings || null,\n      hostVars: componentDefinition.hostVars || 0,\n
hostAttrs: componentDefinition.hostAttrs || null,\n      contentQueries: componentDefinition.contentQueries ||
null,\n      declaredInputs: declaredInputs,\n      inputs: null,\n      outputs: null,\n
exportAs: componentDefinition.exportAs || null,\n      onPush: componentDefinition.changeDetection ===
exports.ChangeDetectionStrategy.OnPush,\n      directiveDefs: null,\n      pipeDefs: null,\n
selectors: componentDefinition.selectors\n      || EMPTY_ARRAY,\n      viewQuery: componentDefinition.viewQuery || null,\n      features:
componentDefinition.features || null,\n      data: componentDefinition.data || {},\n      // TODO(misko):
convert ViewEncapsulation into const enum so that it can be used\n      // directly in the next line. Also `None`
should be 0 not 2.\n      encapsulation: componentDefinition.encapsulation ||
exports.ViewEncapsulation.Emulated,\n      id: 'c',\n      styles: componentDefinition.styles ||
EMPTY_ARRAY,\n      _: null,\n      setInput: null,\n      schemas: componentDefinition.schemas\n      || null,\n      tView: null,\n      });\n      var directiveTypes = componentDefinition.directives;\n
var feature = componentDefinition.features;\n      var pipeTypes = componentDefinition.pipes;\n      def.id
+= _renderCompCount++;\n      def.inputs
= invertObject(componentDefinition.inputs, declaredInputs);\n      def.outputs =
invertObject(componentDefinition.outputs,\n      feature && feature.forEach(function (fn) { return fn(def);
});\n      def.directiveDefs = directiveTypes ?\n      function () { return (typeof directiveTypes ===
'function' ? directiveTypes() : directiveTypes)\n      .map(extractDirectiveDef); } :\n      null;\n
def.pipeDefs = pipeTypes ?\n      function () { return (typeof pipeTypes === 'function' ? pipeTypes() :
pipeTypes).map(extractPipeDef); } :\n      null;\n      return def;\n    });\n  }\n  /**\n   * Generated
next to NgModules to monkey-patch directive and pipe references onto a component's\n   * definition, when
generating a direct reference in the component file would otherwise create an\n   * import cycle.\n   */\n  * See
[this explanation](https://hackmd.io/Odw80D0pR6yfsOjg_7XCJg?view)
for more details.\n  */\n  * @codeGenApi\n  */\n  function setComponentScope(type, directives, pipes) {\n
var def = type.cmp;\n      def.directiveDefs = function () { return directives.map(extractDirectiveDef); };

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def.pipeDefs = function () { return pipes.map(extractPipeDef); };
function extractDirectiveDef(type) {
  var def = getComponentDef(type) || getDirectiveDef(type);
  if (ngDevMode && !def) { throw new Error("'" + type.name + "' is neither 'ComponentType' or 'DirectiveType'."); }
  return def;
}
function extractPipeDef(type) {
  var def = getPipeDef(type);
  if (ngDevMode && !def) { throw new Error("'" + type.name + "' is not a 'PipeType'."); }
  return def;
}
var autoRegisterModuleById = {};
/**
 * @codeGenApi
 */
function defineNgModule(def) {
  var res = {
    type: def.type,
    bootstrap: def.bootstrap || EMPTY_ARRAY,
    declarations: def.declarations || EMPTY_ARRAY,
    imports: def.imports || EMPTY_ARRAY,
    exports: def.exports || EMPTY_ARRAY,
    transitiveCompileScopes: null,
    schemas: def.schemas || null,
    id: def.id || null,
  };
  if (def.id != null) {
    noSideEffects(function () {
      autoRegisterModuleById[def.id] = def.type;
    });
  }
  return res;
}
/**
 * Adds the module metadata that is necessary to compute the module's transitive scope to an
 * existing module definition.
 *
 * Scope metadata of modules is not used in production builds, so calls to this function can be
 * marked pure to tree-shake it from the bundle, allowing for all referenced declarations
 * to become eligible for tree-shaking as well.
 *
 * @codeGenApi
 */
function setNgModuleScope(type, scope) {
  return noSideEffects(function () {
    var ngModuleDef = getNgModuleDef(type, true);
    ngModuleDef.declarations = scope.declarations || EMPTY_ARRAY;
    ngModuleDef.imports = scope.imports || EMPTY_ARRAY;
    ngModuleDef.exports = scope.exports || EMPTY_ARRAY;
  });
}
/**
 * Inverts an inputs or outputs lookup such that the keys, which were the
 * minified keys, are part of the values, and the values are parsed so that
 * the publicName of the property is the new key
 *
 * e.g.
 *
 * class Comp {
 *   @Input() propName1: string;
 *   @Input('publicName2') declaredPropName2: number;
 * }
 *
 * will be serialized as
 *
 * {
 *   propName1: 'propName1',
 *   declaredPropName2: ['publicName2', 'declaredPropName2'],
 * }
 *
 * which is then translated by the minifier as
 *
 * {
 *   minifiedPropName1: 'propName1',
 *   minifiedPropName2: ['publicName2', 'declaredPropName2'],
 * }
 *
 * becomes: (public name => minifiedName)
 *
 * {
 *   'propName1': 'minifiedPropName1',
 *   'publicName2': 'minifiedPropName2',
 * }
 *
 * Optionally the function can take `secondary` which will result in:
 * (public name => declared name)
 *
 * {
 *   'propName1': 'propName1',
 *   'publicName2': 'declaredPropName2',
 * }
 *
 */
function invertObject(obj, secondary) {
  if (obj == null) { return EMPTY_OBJ; }
  var newLookup = {};
  for (var minifiedKey in obj) {
    if (obj.hasOwnProperty(minifiedKey)) {
      var publicName = obj[minifiedKey];
      var declaredName = publicName;
      if (Array.isArray(publicName)) {
        declaredName = publicName[1];
        publicName = publicName[0];
      }
      newLookup[publicName] = minifiedKey;
      if (secondary) {
        (secondary[publicName] = declaredName);
      }
    }
  }
  return newLookup;
}
/**
 * Create a directive definition object.
 *
 * # Example
 *
 * class MyDirective {
 *   // Generated by Angular Template Compiler
 *   // [Symbol] syntax will not be supported by TypeScript until v2.7
 *   static dir = defineDirective({
 *     ...
 *   });
 * }
 *
 * @codeGenApi
 */
function defineDirective = defineComponent;
/**
 * Create a pipe definition object.
 *
 * # Example
 *
 * class MyPipe implements PipeTransform {
 *   // Generated by Angular Template Compiler
 *   static pipe = definePipe({
 *     ...
 *   });
 * }
 *
 * @param pipeDef Pipe definition generated by the compiler
 *
 * @codeGenApi
 */
function definePipe(pipeDef) {
  return {
    type: pipeDef.type,
    name: pipeDef.name,
    factory: null,
    pure: pipeDef.pure !== false,
    onDestroy: pipeDef.type.prototype.ngOnDestroy || null,
  };
}
/**
 * The following getter methods retrieve the definition form the type. Currently the retrieval
 * honors inheritance, but in the future we

```

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may change the rule to require that definitions are\n    * explicit. This would require some sort of migration
strategy.\n    */\n    function getComponentDef(type) {\n        return type[NG_COMP_DEF] || null;\n    }\n    function getDirectiveDef(type) {\n        return type[NG_DIR_DEF] || null;\n    }\n    function getPipeDef(type) {\n        return type[NG_PIPE_DEF]\n        || null;\n    }\n    function getNgModuleDef(type, throwNotFound) {\n        var ngModuleDef =\n        type[NG_MOD_DEF] || null;\n        if (!ngModuleDef && throwNotFound === true) {\n            throw new\n            Error(\"Type '\" + stringify(type) + '\" does not have \"\\u0275mod\" property.\");\n        }\n        return ngModuleDef;\n    }\n    function getNgLocaleIdDef(type) {\n        return type[NG_LOC_ID_DEF] || null;\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this source code is governed by an\n     * MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     * \n     */\n\n    Used for stringify render output in Ivy.\n    * Important! This function is very performance-sensitive and we\n    should\n    * be extra careful not to introduce megamorphic reads in it.\n    */\n    function renderStringify(value)\n    {\n        if (typeof value === 'string')\n            return value;\n        if (value ===\n        null)\n            return \"\";\n        return \"\" + value;\n    }\n\n    /**\n     * Used to stringify a value so that it can be\n    displayed in an error message.\n     * Important! This function contains a megamorphic read and should only be\n    * used for error messages.\n     */\n    function stringifyForError(value) {\n        if (typeof value === 'function')\n            return value.name || value.toString();\n        if (typeof value === 'object' && value != null && typeof value.type\n        === 'function') {\n            return value.type.name || value.type.toString();\n        }\n        return\n        renderStringify(value);\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at\n    https://angular.io/license\n     */\n    (function (InjectFlags) {\n        // TODO(alxhub): make this 'const' when ngc no\n        longer writes exports of it into ngfactory files.\n\n        /** Check self and check parent injector if needed */\n        InjectFlags[InjectFlags[\"Default\"] = 0] =\n        \"Default\";\n\n        /**\n         * Specifies that an injector should retrieve a dependency from any injector until\n        reaching the\n         * host element of the current component. (Only used with Element Injector)\n         */\n        InjectFlags[InjectFlags[\"Host\"] = 1] = \"Host\";\n\n        /** Don't ascend to ancestors of the node requesting\n        injection. */\n        InjectFlags[InjectFlags[\"Self\"] = 2] = \"Self\";\n\n        /** Skip the node that is requesting\n        injection. */\n        InjectFlags[InjectFlags[\"SkipSelf\"] = 4] = \"SkipSelf\";\n\n        /** Inject `defaultValue` instead\n        if token not found. */\n        InjectFlags[InjectFlags[\"Optional\"] = 8] = \"Optional\";\n    })(exports.InjectFlags ||\n    (exports.InjectFlags = {}));\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this source code is governed by\n    an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    /**\n     * Current implementation of inject.\n     * \n     * By default, it is `injectInjectorOnly`, which makes it `Injector`-only\n    aware. It can be changed\n     * to `directiveInject`, which brings in the `NodeInjector` system of ivy. It is designed\n    this\n     * way for two reasons:\n     * 1. `Injector` should not depend on ivy logic.\n     * 2. To maintain tree shake-ability we don't want to bring in unnecessary code.\n     */\n    var _injectImplementation;\n    function\n    getInjectImplementation() {\n        return _injectImplementation;\n    }\n\n    /**\n     * Sets the current inject\n    implementation.\n     */\n    function setInjectImplementation(impl) {\n        var previous = _injectImplementation;\n        _injectImplementation = impl;\n        return previous;\n    }\n\n    /**\n     * Injects `root` tokens in limp mode.\n     */\n\n    * If no injector exists, we can\n    still inject tree-shakable providers which have `providedIn` set to\n     * `\"root\"`. This is known as the limp mode\n    injection. In such case the value is stored in the\n     * `InjectableDef`.\n     */\n    function\n    injectRootLimpMode(token, notFoundValue, flags) {\n        var injectableDef = getInjectableDef(token);\n        if\n        (injectableDef && injectableDef.providedIn === 'root') {\n            return injectableDef.value === undefined ?\n            injectableDef.value = injectableDef.factory() : injectableDef.value;\n        }\n        if (flags &\n        exports.InjectFlags.Optional)\n            return null;\n        if (notFoundValue !== undefined)\n            return\n            notFoundValue;\n        throw new Error(\"Injector: NOT_FOUND [\" + stringify(token) + \"]\");\n    }\n\n    /**\n     * Assert that `_injectImplementation` is not `fn`.\n     * \n     * This is useful, to prevent infinite recursion.\n     */

```

```

@param fn Function which it should not equal to\n    */\n    function
assertInjectImplementationNotEqual(fn) {\n    ngDevMode &&\n        assertNotEqual(_injectImplementation,
fn, 'Calling inject would cause infinite recursion');\n    }\n\n    /**\n    * @license\n    * Copyright Google LLC All
Rights Reserved.\n    * Use of this source code is governed by an MIT-style license that can be\n    * found
in the LICENSE file at https://angular.io/license\n    */\n    var _THROW_IF_NOT_FOUND = {};\n    var
THROW_IF_NOT_FOUND = _THROW_IF_NOT_FOUND;\n    var NG_TEMP_TOKEN_PATH =
'ngTempTokenPath';\n    var NG_TOKEN_PATH = 'ngTokenPath';\n    var NEW_LINE = /\n/gm;\n    var
NO_NEW_LINE = ";";\n    var SOURCE = '__source';\n    var 0$2 = getClosureSafeProperty;\n    var USE_VALUE
= getClosureSafeProperty({ provide: String, useValue: 0$2 });\n    /**\n    * Current injector value used by
`inject`.\n    * - `undefined`: it is an error to call `inject`\n    * - `null`: `inject` can be called but there is no injector
(limp-mode).\n    */
- Injector instance: Use the injector for resolution.\n    */\n    var _currentInjector = undefined;\n    function
setCurrentInjector(injector) {\n    var former = _currentInjector;\n    _currentInjector = injector;\n    return
former;\n    }\n    function injectInjectorOnly(token, flags) {\n    if (flags === void 0) { flags =
exports.InjectFlags.Default; }\n    if (_currentInjector === undefined) {\n    throw new Error("inject() must
be called from an injection context");\n    }\n    else if (_currentInjector === null) {\n    return
injectRootLimpMode(token, undefined, flags);\n    }\n    else {\n    return _currentInjector.get(token, flags
& exports.InjectFlags.Optional ? null : undefined, flags);\n    }\n    }\n    function inject(token, flags) {\n    if
(flags === void 0) { flags = exports.InjectFlags.Default; }\n    return (getInjectImplementation() ||
injectInjectorOnly)(resolveForwardRef(token), flags);\n    }\n    /**\n    * Throws an error indicating that a factory function could not be generated by the compiler for a\n
* particular class.\n    * This instruction allows the actual error message to be optimized away when
ngDevMode is turned\n    * off, saving bytes of generated code while still providing a good experience in dev
mode.\n    * The name of the class is not mentioned here, but will be in the generated factory function name\n
* and thus in the stack trace.\n    * @codeGenApi\n    */\n    function invalidFactoryDep(index) {\n    var
msg = ngDevMode ?\n    "This constructor is not compatible with Angular Dependency Injection because its
dependency at index '" + index + "' of the parameter list is invalid.\n\nThis can happen if the dependency type is a
primitive like a string or if an ancestor of this class is missing an Angular decorator.\n\nPlease check that 1) the
type for the parameter at index '" + index + "' is correct
and 2) the correct Angular decorators are defined for this class and its ancestors.\n    " : 'invalid';\n    throw
new Error(msg);\n    }\n    /**\n    * Injects a token from the currently active injector.\n    * Must be used in
the context of a factory function such as one defined for an\n    * `InjectionToken`. Throws an error if not called
from such a context.\n    * Within such a factory function, using this function to request injection of a
dependency\n    * is faster and more type-safe than providing an additional array of dependencies\n    * (as has
been common with `useFactory` providers).\n    * @param token The injection token for the dependency to
be injected.\n    * @param flags Optional flags that control how injection is executed.\n    * The flags correspond to
injection strategies that can be specified with\n    * parameter decorators `@Host`, `@Self`, `@SkipSelf`, and
`@Optional`.\n    * @returns True if injection is successful,
null otherwise.\n    * @usageNotes\n    * ### Example\n    * {\n    * @example
core/di/ts/injector_spec.ts region='ShakableInjectionToken'}\n    * @publicApi\n    */\n    var inject =
inject;\n    function injectArgs(types) {\n    var args = [];\n    for (var i = 0; i < types.length; i++) {\n    var
arg = resolveForwardRef(types[i]);\n    if (Array.isArray(arg)) {\n    if (arg.length === 0) {\n
throw new Error('Arguments array must have arguments.);\n    }\n    var type = undefined;\n    var flags = exports.InjectFlags.Default;\n    for (var j = 0; j < arg.length; j++) {\n    var meta =
arg[j];\n    if (meta instanceof Optional || meta.ngMetadataName === 'Optional' || meta === Optional) {\n
flags |= exports.InjectFlags.Optional;\n    }\n    else if (meta instanceof
SkipSelf || meta.ngMetadataName === 'SkipSelf' || meta === SkipSelf) {\n    flags |=
exports.InjectFlags.SkipSelf;\n    }\n    else if (meta instanceof Self || meta.ngMetadataName

```

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=== 'Self' || meta === Self) {\n          flags |= exports.InjectFlags.Self;\n          }\n          else if
(meta instanceof Inject || meta === Inject) {\n          type = meta.token;\n          }\n          else
{\n          type = meta;\n          }\n          }\n          args.push(inject(type, flags));\n          }\n
          else {\n          args.push(inject(arg));\n          }\n          }\n          return args;\n          }\n          function
catchInjectorError(e, token, injectorErrorName, source) {\n          var tokenPath = e[NG_TEMP_TOKEN_PATH];\n
          if (token[SOURCE]) {\n          tokenPath.unshift(token[SOURCE]);\n          }\n
          e.message = formatError("\n' + e.message, tokenPath, injectorErrorName, source);\n
e[NG_TOKEN_PATH] = tokenPath;\n          e[NG_TEMP_TOKEN_PATH] = null;\n          throw e;\n          }\n          function
formatError(text, obj, injectorErrorName, source) {\n          if (source === void 0) { source = null; }\n          text = text
&& text.charAt(0) === '\n' && text.charAt(1) == NO_NEW_LINE ? text.substr(2) : text;\n          var context =
stringify(obj);\n          if (Array.isArray(obj)) {\n          context = obj.map(stringify).join(' -> ');\n          }\n          else if
(typeof obj === 'object') {\n          var parts = [];\n          for (var key in obj) {\n          if
(obj.hasOwnProperty(key)) {\n          var value = obj[key];\n          parts.push(key + ':' + (typeof value
=== 'string' ? JSON.stringify(value) : stringify(value)));\n          }\n          }\n          context = "{\n" +
parts.join(', ') + "\n"}";\n          }\n          return "\n" + injectorErrorName
+ (source ? '(' + source + ')' : '') + "\n[" + context + "]:\n" + text.replace(NEW_LINE, '\n ');
}\n\n /**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n *
Most of the use of `document` in Angular is from within the DI system so it is possible to simply\n * inject the
`DOCUMENT` token and are done.\n *\n * Ivy is special because it does not rely upon the DI and must get
hold of the document some other\n * way.\n *\n * The solution is to define `getDocument()` and
`setDocument()` top-level functions for ivy.\n * Wherever ivy needs the global document, it calls
`getDocument()` instead.\n *\n * When running ivy outside of a browser environment, it is necessary to call
`setDocument()` to\n * tell ivy what the global `document` is.\n
*\n * Angular does this for us in each of the standard platforms (`Browser`, `Server`, and `WebWorker`)\n *
by calling `setDocument()` when providing the `DOCUMENT` token.\n */\n var DOCUMENT = undefined;\n
/**\n * Tell ivy what the `document` is for this platform.\n *\n * It is only necessary to call this if the current
platform is not a browser.\n *\n * @param document The object representing the global `document` in this
environment.\n */\n function setDocument(document) {\n          DOCUMENT = document;\n          }\n /**\n *
Access the object that represents the `document` for this platform.\n *\n * Ivy calls this whenever it needs to
access the `document` object.\n * For example to create the renderer or to do sanitization.\n */\n function
getDocument() {\n          if (DOCUMENT !== undefined) {\n          return DOCUMENT;\n          }\n          else if
(typeof document !== 'undefined') {\n          return document;\n          }\n
          }\n          // No "document" can be found. This should only happen if we are running ivy outside Angular and\n
          // the current platform is not a browser. Since this is not a supported scenario at the moment\n          // this should
not happen in Angular apps.\n          // Once we support running ivy outside of Angular we will need to publish
`setDocument()` as a\n          // public API. Meanwhile we just return `undefined` and let the application fail.\n
return undefined;\n          }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n // Below are constants for LView indices to help us look up LView members\n
// without having to remember the specific indices.\n // Uglify will inline these when minifying so there shouldn't
be a cost.\n var HOST = 0;\n var TVIEW = 1;\n
var FLAGS = 2;\n var PARENT = 3;\n var NEXT = 4;\n var TRANSPLANTED_VIEWS_TO_REFRESH =
5;\n var T_HOST = 6;\n var CLEANUP = 7;\n var CONTEXT = 8;\n var INJECTOR = 9;\n var
RENDERER_FACTORY = 10;\n var RENDERER = 11;\n var SANITIZER = 12;\n var CHILD_HEAD =
13;\n var CHILD_TAIL = 14;\n // FIXME(misko): Investigate if the three declarations aren't all same thing.\n
var DECLARATION_VIEW = 15;\n var DECLARATION_COMPONENT_VIEW = 16;\n var
DECLARATION_LCONTAINER = 17;\n var PREORDER_HOOK_FLAGS = 18;\n var QUERIES = 19;\n

```

```

/**\n  * Size of LView's header. Necessary to adjust for it when setting slots.\n  *\n  * IMPORTANT:
`HEADER_OFFSET` should only be referred to in the `**` instructions to translate\n  * instruction index into
`LView` index. All other indexes should be in the `LView` index space and\n  * there should be no need to refer to
`HEADER_OFFSET` anywhere else.\n  *\n  var HEADER_OFFSET = 20;\n
/**\n  * Converts `TVViewType` into human readable text.\n  * Make sure this matches with `TVViewType`\n
*\n  var TVViewTypeAsString = [\n    'Root',\n    'Component',\n    'Embedded',\n  ];\n  // Note: This hack
is necessary so we don't erroneously get a circular dependency\n  // failure based on types.\n  var
unusedValueExportToPlacateAjd = 1;\n\n  /**\n  * Special location which allows easy identification of type. If
we have an array which was\n  * retrieved from the `LView` and that array has `true` at `TYPE` location, we know
it is\n  * `LContainer`.\n  *\n  var TYPE = 1;\n  /**\n  * Below are constants for LContainer indices to help
us look up LContainer members\n  * without having to remember the specific indices.\n  * Uglify will inline
these when minifying so there shouldn't be a cost.\n  *\n  /**\n  * Flag to signify that this `LContainer` may
have transplanted views which need to be change\n  * detected.
(see: `LView[DECLARATION_COMPONENT_VIEW]`).\n  *\n  * This flag, once set, is never unset for the
`LContainer`. This means that when unset we can skip\n  * a lot of work in `refreshEmbeddedViews`. But when
set we still need to verify\n  * that the `MOVED_VIEWS` are transplanted and on-push.\n  *\n  var
HAS_TRANSPLANTED_VIEWS = 2;\n  // PARENT, NEXT, TRANSPLANTED_VIEWS_TO_REFRESH are
indices 3, 4, and 5\n  // As we already have these constants in LView, we don't need to re-create them.\n  //
T_HOST is index 6\n  // We already have this constants in LView, we don't need to re-create it.\n  var NATIVE =
7;\n  var VIEW_REFS = 8;\n  var MOVED_VIEWS = 9;\n  /**\n  * Size of LContainer's header. Represents
the index after which all views in the\n  * container will be inserted. We need to keep a record of current views so
we know\n  * which views are already in the DOM (and don't need to be re-added) and so we can\n  * remove
views from the DOM when
they are no longer required.\n  *\n  var CONTAINER_HEADER_OFFSET = 10;\n  // Note: This hack is
necessary so we don't erroneously get a circular dependency\n  // failure based on types.\n  var
unusedValueExportToPlacateAjd$1 = 1;\n\n  /**\n  * @license\n  * Copyright Google LLC All Rights
Reserved.\n  *\n  * Use of this source code is governed by an MIT-style license that can be\n  * found in the
LICENSE file at https://angular.io/license\n  *\n  /**\n  * True if `value` is `LView`.\n  * @param value
wrapped value of `RNode`, `LView`, `LContainer`\n  *\n  function isLView(value) {\n    return
Array.isArray(value) && typeof value[TYPE] === 'object';\n  }\n  /**\n  * True if `value` is `LContainer`.\n
* @param value wrapped value of `RNode`, `LView`, `LContainer`\n  *\n  function isLContainer(value) {\n
return Array.isArray(value) && value[TYPE] === true;\n  }\n  function isContentQueryHost(tNode) {\n
return (tNode.flags & 8 /* hasContentQuery */) !== 0;\n  }\n  function isComponentHost(tNode) {\n    return
(tNode.flags & 2 /* isComponentHost */) === 2 /* isComponentHost */;\n  }\n  function isDirectiveHost(tNode)
{\n    return (tNode.flags & 1 /* isDirectiveHost */) === 1 /* isDirectiveHost */;\n  }\n  function
isComponentDef(def) {\n    return def.template !== null;\n  }\n  function isRootView(target) {\n    return
(target[FLAGS] & 512 /* IsRoot */) !== 0;\n  }\n\n  /**\n  * @license\n  * Copyright Google LLC All Rights
Reserved.\n  *\n  * Use of this source code is governed by an MIT-style license that can be\n  * found in the
LICENSE file at https://angular.io/license\n  *\n  // [Assert functions do not constraint type when they are
guarded by a truthy\n  // expression.](https://github.com/microsoft/TypeScript/issues/37295)\n  function
assertTNodeForLView(tNode, IView) {\n    assertTNodeForTVView(tNode, IView[TVIEW]);\n
  }\n  function assertTNodeForTVView(tNode, tView) {\n    assertTNode(tNode);\n
tNode.hasOwnProperty('tView_') &&\n    assertEqual(tNode.tView_, tView, 'This TNode does not belong to
this TView.);\n  }\n  function assertTNode(tNode) {\n    assertDefined(tNode, 'TNode must be defined');\n
if (!(tNode && typeof tNode === 'object' && tNode.hasOwnProperty('directiveStylingLast'))) {\n
throwError('Not of type TNode, got: ' + tNode);\n  }\n  }\n  function assertTlCu(tlCu) {\n
assertDefined(tlCu, 'Expected TlCu to be defined');\n    if (!(typeof tlCu.currentCaseLViewIndex === 'number'))
{\n      throwError('Object is not of TlCu type.);\n    }\n  }\n  function assertComponentType(actual, msg)

```



```

{\n    if (msg === void 0) { msg = 'Type passed in is not ComponentType, it does not have `cmp` property.'; }\n
    if (!getComponentDef(actual)) {\n        throwError(msg);\n    }\n}\n
function assertNgModuleType(actual, msg) {\n    if (msg === void 0) { msg = 'Type passed in is not\nNgModuleType, it does not have `mod` property.'; }\n    if (!getNgModuleDef(actual)) {\n
throwError(msg);\n    }\n}\n
function assertCurrentTNodeIsParent(isParent) {\n    assertEqual(isParent,\ntrue, 'currentTNode should be a parent');\n}\n
function assertHasParent(tNode) {\n    assertDefined(tNode,\n'currentTNode should exist!');\n    assertDefined(tNode.parent, 'currentTNode should have a parent');\n}\n
function assertDataNext(IView, index, arr) {\n    if (arr == null)\n        arr = IView;\n    assertEqual(arr.length, index, `index ` + index + ` expected to be at the end of arr (length ` + arr.length + `)`);\n
}\n
function assertLContainer(value) {\n    assertDefined(value, 'LContainer must be defined');\n    assertEqual(isLContainer(value), true, 'Expecting LContainer');\n}\n
function assertLViewOrUndefined(value)\n{\n    value && assertEqual(isLView(value), true, 'Expecting LView or undefined or null');\n}\n
function\nassertLView(value) {\n    assertDefined(value, 'LView must be defined');\n    assertEqual(isLView(value), true,\n'Expecting LView');\n}\n
function assertFirstCreatePass(tView, errorMessage) {\n
assertEqual(tView.firstCreatePass, true, errorMessage || 'Should only be called in first create pass.);\n}\n
function\nassertFirstUpdatePass(tView, errorMessage) {\n    assertEqual(tView.firstUpdatePass, true, errorMessage || 'Should\nonly be called in first update pass.);\n}\n
/**\n * This is a basic sanity check that an object is probably a\ndirective def. DirectiveDef is\n * an interface, so we can't do a direct instanceof check.\n */\n
function\nassertDirectiveDef(obj) {\n    if (obj.type === undefined || obj.selectors == undefined || obj.inputs === undefined)\n{\n        throwError(`Expected a DirectiveDef/ComponentDef\nand this object does not seem to have the expected shape.`);\n    }\n}\n
function\nassertIndexInDeclRange(IView, index) {\n    var tView = IView[1];\n    assertBetween(HEADER_OFFSET,\ntView.bindingStartIndex, index);\n}\n
function assertIndexInVarsRange(IView, index) {\n    var tView =\nIView[1];\n    assertBetween(tView.bindingStartIndex, tView.expandoStartIndex, index);\n}\n
function\nassertIndexInExpandoRange(IView, index) {\n    var tView = IView[1];\n    assertBetween(tView.expandoStartIndex, IView.length, index);\n}\n
function assertBetween(lower, upper,\nindex) {\n    if (!(lower <= index && index < upper)) {\n        throwError(`Index out of range (expecting ` +\nlower + ` ` <= ` + index + ` ` < ` + upper + `)`);\n    }\n}\n
/**\n * This is a basic sanity check that the\n`injectorIndex` seems to point to what looks like a\n * NodeInjector data structure.\n * @param\nIView `LView` which should be checked.\n * @param injectorIndex index into the `LView` where the\n`NodeInjector` is expected.\n */\n
function assertNodeInjector(IView, injectorIndex) {\n
assertIndexInExpandoRange(IView, injectorIndex);\n    assertIndexInExpandoRange(IView, injectorIndex + 8 /*\nPARENT */);\n    assertNumber(IView[injectorIndex + 0], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 1], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 2], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 3], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 4], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 5], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 6], 'injectorIndex should point to a bloom filter');\n
    assertNumber(IView[injectorIndex + 7], 'injectorIndex should point to a bloom filter');\n    assertNumber(IView[injectorIndex + 8 /* PARENT */], 'injectorIndex should point to parent injector');\n}\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\ngoverned by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
var SVG_NAMESPACE = 'http://www.w3.org/2000/svg';\n
var MATH_ML_NAMESPACE =\n'http://www.w3.org/1998/MathML/';\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file\nat https://angular.io/license\n */\n
/**\n * This property will be monkey-patched on elements, components\nand directives\n */\n
var MONKEY_PATCH_KEY_NAME = '__ngContext__';\n
/**\n * @license

```

```

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license that can be\n
* found in the LICENSE file at https://angular.io/license\n
*/\n
// TODO: cleanup once
the code is merged in angular/angular\n
var RendererStyleFlags3;\n
(function (RendererStyleFlags3) {\n
  RendererStyleFlags3[RendererStyleFlags3["Important"] = 1] = "Important";\n
  RendererStyleFlags3[RendererStyleFlags3["DashCase"] = 2] = "DashCase";\n
})(RendererStyleFlags3 ||\n
(RendererStyleFlags3 = {}));\n
/** Returns whether the `renderer` is a `ProceduralRenderer3` */\n
function\n
isProceduralRenderer(renderer) {\n
  return !!(!renderer.listen);\n
}\n
var 0$3 = function (hostElement,\n
rendererType) {\n
  return getDocument();\n
};\n
var domRendererFactory3 = {\n
  createRenderer: 0$3\n
};\n
// Note: This hack is necessary so we don't erroneously get a circular dependency\n
// failure\n
based on types.\n
var unusedValueExportToPlacateAjd$2 = 1;\n
\n
/**\n
 * @license\n
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 * LLC All Rights Reserved.\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
\n
/**\n
 * For efficiency reasons we often put\n
 * several different data types (`RNode`, `LView`, `LContainer`)\n
 * in same location in `LView`. This is because\n
 * we don't want to pre-allocate space for it\n
 * because the storage is sparse. This file contains utilities for dealing\n
 * with such data types.\n
 * How do we know what is stored at a given location in `LView`.\n
 * -\n
 * `Array.isArray(value) === false` => `RNode` (The normal storage value)\n
 * - `Array.isArray(value) === true`\n
 * => then the `value[0]` represents the wrapped value.\n
 * - `typeof value[TYPE] === 'object'` => `LView`\n
 * - This happens when we have a component at a given location\n
 * - `typeof value[TYPE] === true` => `LContainer`\n
 * - This happens when we have `LContainer`\n
 * binding at a given location.\n
 * NOTE: it is assumed that `Array.isArray` and `typeof` operations are\n
 * very efficient.\n
 */\n
\n
/**\n
 * Returns `RNode`.\n
 * @param value wrapped value of `RNode`, `LView`,\n
 * `LContainer`\n
 */\n
function unwrapRNode(value) {\n
  while (Array.isArray(value)) {\n
    value =\n
    value[HOST];\n
  }\n
  return value;\n
}\n
\n
/**\n
 * Returns `LView` or `null` if not found.\n
 * @param\n
 * value wrapped value of `RNode`, `LView`, `LContainer`\n
 */\n
function unwrapLView(value) {\n
  while\n
  (Array.isArray(value)) {\n
    // This check is same as `isLView()` but we don't call it as we don't want to call\n
    // `Array.isArray()` twice and give JITer more work for inlining.\n
    if (typeof value[TYPE] ===\n
    'object')\n
      return value;\n
    value = value[HOST];\n
  }\n
  return null;\n
}\n
\n
/**\n
 * Returns `LContainer` or `null` if not found.\n
 * @param\n
 * value wrapped value of `RNode`, `LView`, `LContainer`\n
 */\n
function unwrapLContainer(value)\n
{\n
  while (Array.isArray(value)) {\n
    // This check is same as `isLContainer()` but we don't call it as we\n
    don't want to call\n
    // `Array.isArray()` twice and give JITer more work for inlining.\n
    if (value[TYPE]\n
    === true)\n
      return value;\n
    value = value[HOST];\n
  }\n
  return null;\n
}\n
\n
/**\n
 * Retrieves an element value from the provided `viewData`, by unwrapping\n
 * from any containers, component\n
 * views, or style contexts.\n
 */\n
function getNativeByIndex(index, IView) {\n
  ngDevMode &&\n
  assertIndexInRange(IView, index);\n
  ngDevMode && assertGreaterThanOrEqual(index, HEADER_OFFSET,\n
  'Expected to be past HEADER_OFFSET');\n
  return unwrapRNode(IView[index]);\n
}\n
\n
/**\n
 * Retrieve an `RNode` for a given `TNode` and `LView`.\n
 * This function guarantees in\n
 * dev mode to retrieve a non-null `RNode`.\n
 * @param tNode\n
 * @param IView\n
 */\n
function\n
getNativeByTNode(tNode, IView) {\n
  ngDevMode && assertTNodeForLView(tNode, IView);\n
  ngDevMode && assertIndexInRange(IView, tNode.index);\n
  var node = unwrapRNode(IView[tNode.index]);\n
  ngDevMode && !isProceduralRenderer(IView[RENDERER]) && assertDomNode(node);\n
  return node;\n
}\n
\n
/**\n
 * Retrieve an `RNode` or `null` for a given `TNode` and `LView`.\n
 * Some `TNode`s don't\n
 * have associated `RNode`s. For example `Projection`\n
 * @param tNode\n
 * @param IView\n
 */\n
function\n
getNativeByTNodeOrNull(tNode, IView) {\n
  var index = tNode === null ? -1 : tNode.index;\n
  if\n
  (index !== -1) {\n
    ngDevMode && assertTNodeForLView(tNode, IView);\n
    var node = unwrapRNode(IView[index]);\n
    ngDevMode && node !== null &&\n
    !isProceduralRenderer(IView[RENDERER]) && assertDomNode(node);\n
    return node;\n
  }\n
  return\n
  null;\n
}\n
\n
// fixme(misko): The return Type should be `TNode|null`\n
function getTNode(tView, index) {\n

```

```

ngDevMode && assertGreaterThan(index, -1, 'wrong index for TNode');\n    ngDevMode &&
assertLessThan(index, tView.data.length, 'wrong index for TNode');\n    var tNode = tView.data[index];\n
ngDevMode && tNode !== null && assertTNode(tNode);\n    return tNode;\n  }\n  /** Retrieves a value from
any `LView` or `TData`. */\n  function load(view, index) {\n    ngDevMode && assertIndexInRange(view,
index);\n    return view[index];\n  }\n  function getComponentLViewByIndex(nodeIndex, hostView) {\n    //
Could be an LView or an LContainer. If LContainer, unwrap to find LView.\n    ngDevMode &&
assertIndexInRange(hostView,
nodeIndex);\n    var slotValue = hostView[nodeIndex];\n    var lView = isLView(slotValue) ? slotValue :
slotValue[HOST];\n    return lView;\n  }\n  /**\n   * Returns the monkey-patch value data present on the
target (which could be\n   * a component, directive or a DOM node).\n   */\n  function readPatchedData(target)
{\n    ngDevMode && assertDefined(target, 'Target expected');\n    return
target[MONKEY_PATCH_KEY_NAME] || null;\n  }\n  function readPatchedLView(target) {\n    var value =
readPatchedData(target);\n    if (value) {\n      return Array.isArray(value) ? value : value.lView;\n    }\n
return null;\n  }\n  /** Checks whether a given view is in creation mode */\n  function isCreationMode(view) {\n
return (view[FLAGS] & 4 /* CreationMode */) === 4 /* CreationMode */;\n  }\n  /**\n   * Returns a
boolean for whether the view is attached to the change detection tree.\n   * \n   * Note: This determines
whether a view should be checked, not whether it's inserted\n   * into a container. For that, you'll want
`viewAttachedToContainer` below.\n   */\n  function viewAttachedToChangeDetector(view) {\n    return
(view[FLAGS] & 128 /* Attached */) === 128 /* Attached */;\n  }\n  /** Returns a boolean for whether the view
is attached to a container. */\n  function viewAttachedToContainer(view) {\n    return
isLContainer(view[PARENT]);\n  }\n  function getConstant(consts, index) {\n    if (index === null || index ===
undefined)\n      return null;\n    ngDevMode && assertIndexInRange(consts, index);\n    return
consts[index];\n  }\n  /**\n   * Resets the pre-order hook flags of the view.\n   * @param lView the LView on
which the flags are reset\n   */\n  function resetPreOrderHookFlags(lView) {\n
lView[PREORDER_HOOK_FLAGS] = 0;\n  }\n  /**\n   * Updates the
`TRANSPLANTED_VIEWS_TO_REFRESH` counter on the `LContainer` as well
as the parents\n   * whose\n   * 1. counter goes from 0 to 1, indicating that there is a new child that has a view to
refresh\n   * or\n   * 2. counter goes from 1 to 0, indicating there are no more descendant views to refresh\n
*/\n  function updateTransplantedViewCount(lContainer, amount) {\n
lContainer[TRANSPLANTED_VIEWS_TO_REFRESH] += amount;\n    var viewOrContainer = lContainer;\n
    var parent = lContainer[PARENT];\n    while (parent !== null &&\n      ((amount === 1 &&
viewOrContainer[TRANSPLANTED_VIEWS_TO_REFRESH] === 1) ||\n      (amount === -1 &&
viewOrContainer[TRANSPLANTED_VIEWS_TO_REFRESH] === 0))) {\n
      parent[TRANSPLANTED_VIEWS_TO_REFRESH] += amount;\n      viewOrContainer = parent;\n
      parent = parent[PARENT];\n    }\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights
Reserved.\n   * \n   * Use of this source code is governed by an MIT-style license that can be\n
   * found in the LICENSE file at https://angular.io/license\n   */\n  var instructionState = {\n    lFrame:
createLFrame(null),\n    bindingsEnabled: true,\n    isInCheckNoChangesMode: false,\n  }; \n  /**\n   *
Returns true if the instruction state stack is empty.\n   * \n   * Intended to be called from tests only (tree shaken
otherwise).\n   */\n  function specOnlyIsInstructionStateEmpty() {\n    return instructionState.lFrame.parent
=== null;\n  }\n  function getElementDepthCount() {\n    return instructionState.lFrame.elementDepthCount;\n
  }\n  function increaseElementDepthCount() {\n    instructionState.lFrame.elementDepthCount++;\n  }\n
function decreaseElementDepthCount() {\n    instructionState.lFrame.elementDepthCount--;\n  }\n  function
getBindingsEnabled() {\n    return instructionState.bindingsEnabled;\n  }\n  /**\n   * Enables directive
matching on elements.\n   * \n   * Example:\n   * ```\n   * <my-comp my-directive>\n   *   Should match component / directive.\n   * </my-comp>\n   * <div
ngNonBindable>\n   *   <!-- disableBindings() -->\n   *   <my-comp my-directive>\n   *   Should not match
component / directive because we are in ngNonBindable.\n   * </my-comp>\n   * <!-- enableBindings() -->\n

```

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* </div>\n * ```\n *\n * @codeGenApi\n */\n function enableBindings() {\n
instructionState.bindingsEnabled = true;\n }\n /**\n * Disables directive matching on element.\n *\n * *
Example:\n * ```\n * <my-comp my-directive>\n * Should match component / directive.\n * </my-
comp>\n * <div ngNonBindable>\n * <!-- disableBindings() -->\n * <my-comp my-directive>\n *
Should not match component / directive because we are in ngNonBindable.\n * </my-comp>\n * <!--
enableBindings() -->\n * </div>\n * ```\n *\n * @codeGenApi\n */\n function
disableBindings() {\n instructionState.bindingsEnabled = false;\n }\n /**\n * Return the current
`LView`.\n */\n function getLView() {\n return instructionState.IFrame.LView;\n }\n /**\n * Return
the current `TView`.\n */\n function getTView() {\n return instructionState.IFrame.tView;\n }\n /**\n
* Restores `contextViewData` to the given OpaqueViewState instance.\n *\n * Used in conjunction with the
getCurrentView() instruction to save a snapshot\n * of the current view and restore it when listeners are invoked.
This allows\n * walking the declaration view tree in listeners to get vars from parent views.\n *\n * @param
viewToRestore The OpaqueViewState instance to restore.\n *\n * @codeGenApi\n */\n function
restoreView(viewToRestore) {\n instructionState.IFrame.contextLView = viewToRestore;\n }\n function
getCurrentTNode() {\n var currentTNode = getCurrentTNodePlaceholderOk();\n
while (currentTNode !== null && currentTNode.type === 64 /* Placeholder */) {\n currentTNode =
currentTNode.parent;\n }\n return currentTNode;\n }\n function getCurrentTNodePlaceholderOk() {\n
return instructionState.IFrame.currentTNode;\n }\n function getCurrentParentTNode() {\n var IFrame =
instructionState.IFrame;\n var currentTNode = IFrame.currentTNode;\n return IFrame.isParent ?
currentTNode : currentTNode.parent;\n }\n function setCurrentTNode(tNode, isParent) {\n ngDevMode &&
tNode && assertTNodeForTView(tNode, instructionState.IFrame.tView);\n var IFrame =
instructionState.IFrame;\n IFrame.currentTNode = tNode;\n IFrame.isParent = isParent;\n }\n function
isCurrentTNodeParent() {\n return instructionState.IFrame.isParent;\n }\n function
setCurrentTNodeAsNotParent() {\n instructionState.IFrame.isParent = false;\n }\n
function setCurrentTNodeAsParent() {\n instructionState.IFrame.isParent = true;\n }\n function
getContextLView() {\n return instructionState.IFrame.contextLView;\n }\n function
isInCheckNoChangesMode() {\n // TODO(misko): remove this from the LView since it is ngDevMode=true
mode only.\n return instructionState.isInCheckNoChangesMode;\n }\n function
setIsInCheckNoChangesMode(mode) {\n instructionState.isInCheckNoChangesMode = mode;\n }\n // top
level variables should not be exported for performance reasons (PERF_NOTES.md)\n function getBindingRoot()
{\n var IFrame = instructionState.IFrame;\n var index = IFrame.bindingRootIndex;\n if (index === -1)
{\n index = IFrame.bindingRootIndex = IFrame.tView.bindingStartIndex;\n }\n return index;\n }\n
function getBindingIndex() {\n return instructionState.IFrame.bindingIndex;\n }\n function
setBindingIndex(value) {\n
return instructionState.IFrame.bindingIndex = value;\n }\n function nextBindingIndex() {\n return
instructionState.IFrame.bindingIndex++;\n }\n function incrementBindingIndex(count) {\n var IFrame =
instructionState.IFrame;\n var index = IFrame.bindingIndex;\n IFrame.bindingIndex = IFrame.bindingIndex
+ count;\n return index;\n }\n function isInI18nBlock() {\n return instructionState.IFrame.inI18n;\n
}\n function setInI18nBlock(isInI18nBlock) {\n instructionState.IFrame.inI18n = isInI18nBlock;\n }\n
/**\n * Set a new binding root index so that host template functions can execute.\n *\n * Bindings inside the
host template are 0 index. But because we don't know ahead of time\n * how many host bindings we have we
can't pre-compute them. For this reason they are all\n * 0 index and we just shift the root so that they match next
available location in the LView.\n *\n * @param bindingRootIndex
Root index for `hostBindings`\n * @param currentDirectiveIndex `TData[currentDirectiveIndex]` will point to
the current directive\n * whose `hostBindings` are being processed.\n */\n function
setBindingRootForHostBindings(bindingRootIndex, currentDirectiveIndex) {\n var IFrame =
instructionState.IFrame;\n IFrame.bindingIndex = IFrame.bindingRootIndex = bindingRootIndex;\n
setCurrentDirectiveIndex(currentDirectiveIndex);\n }\n /**\n * When host binding is executing this points to

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the directive index.\n    * `TVView.data[getCurrentDirectiveIndex()]` is `DirectiveDef`\n    *
`LView[getCurrentDirectiveIndex()]` is directive instance.\n    /\n    function getCurrentDirectiveIndex() {\n
return instructionState.IFrame.currentDirectiveIndex;\n    }\n    /**\n    * Sets an index of a directive whose
`hostBindings` are being processed.\n    *\n    * @param currentDirectiveIndex `TData` index where current
directive
instance can be found.\n    */\n    function setCurrentDirectiveIndex(currentDirectiveIndex) {\n
instructionState.IFrame.currentDirectiveIndex = currentDirectiveIndex;\n    }\n    /**\n    * Retrieve the current
`DirectiveDef` which is active when `hostBindings` instruction is being\n    * executed.\n    *\n    * @param tData
Current `TData` where the `DirectiveDef` will be looked up at.\n    */\n    function getCurrentDirectiveDef(tData)
{\n    var currentDirectiveIndex = instructionState.IFrame.currentDirectiveIndex;\n    return
currentDirectiveIndex === -1 ? null : tData[currentDirectiveIndex];\n    }\n    function getCurrentQueryIndex() {\n
return instructionState.IFrame.currentQueryIndex;\n    }\n    function setCurrentQueryIndex(value) {\n
instructionState.IFrame.currentQueryIndex = value;\n    }\n    /**\n    * Returns a `TNode` of the location where the
current `LView` is declared at.\n    *\n    * @param IView an `LView` that we want to find
parent `TNode` for.\n    */\n    function getDeclarationTNode(IView) {\n    var tView = IView[TVIEW];\n    //
Return the declaration parent for embedded views\n    if (tView.type === 2 /* Embedded */) {\n
ngDevMode && assertDefined(tView.declTNode, 'Embedded TNodes should have declaration parents.);\n
return tView.declTNode;\n    }\n    // Components don't have `TVView.declTNode` because each instance of
component could be\n    // inserted in different location, hence `TVView.declTNode` is meaningless.\n    //
Falling back to `T_HOST` in case we cross component boundary.\n    if (tView.type === 1 /* Component */) {\n
return IView[T_HOST];\n    }\n    // Remaining TNode type is `TVViewType.Root` which doesn't have a
parent TNode.\n    return null;\n    }\n    /**\n    * This is a light weight version of the `enterView` which is
needed by the DI system.\n    *\n    * @param IView `LView` location of the DI
context.\n    * @param tNode `TNode` for DI context\n    * @param flags DI context flags. if `SkipSelf` flag is set
than we walk up the declaration\n    * tree from `tNode` until we find parent declared `TElementNode`.\n    *
@returns `true` if we have successfully entered DI associated with `tNode` (or with declared\n    * `TNode` if
`flags` has `SkipSelf`). Failing to enter DI implies that no associated\n    * `NodeInjector` can be found and we
should instead use `ModuleInjector`.\n    * - If `true` than this call must be followed by `leaveDI`\n    * - If
`false` than this call failed and we should NOT call `leaveDI`\n    */\n    function enterDI(IView, tNode, flags) {\n
ngDevMode && assertLViewOrUndefined(IView);\n    if (flags & exports.InjectFlags.SkipSelf) {\n
ngDevMode && assertTNodeForTVView(tNode, IView[TVIEW]);\n    var parentTNode = tNode;\n    var
parentLView = IView;\n    while (true) {\n
ngDevMode && assertDefined(parentTNode, 'Parent TNode should be defined');\n    parentTNode =
parentTNode.parent;\n    if (parentTNode === null && !(flags & exports.InjectFlags.Host)) {\n
parentTNode = getDeclarationTNode(parentLView);\n    if (parentTNode === null)\n
break;\n    // In this case, a parent exists and is definitely an element. So it will definitely\n    //
have an existing IView as the declaration view, which is why we can assume it's defined.\n    ngDevMode
&& assertDefined(parentLView, 'Parent LView should be defined');\n    parentLView =
parentLView[DECLARATION_VIEW];\n    // In Ivy there are Comment nodes that correspond to ngIf
and NgFor embedded directives\n    // We want to skip those and look only at Elements and
ElementContainers to ensure\n    // we're looking at true
parent nodes, and not content or other types.\n    if (parentTNode.type & (2 /* Element */ | 8 /*
ElementContainer */)) {\n    break;\n    }\n    else {\n    break;\n    }\n    }\n    if (parentTNode === null) {\n    // If we failed to find a parent TNode this
means that we should use module injector.\n    return false;\n    }\n    else {\n    tNode =
parentTNode;\n    IView = parentLView;\n    }\n    ngDevMode &&
assertTNodeForLView(tNode, IView);\n    var IFrame = instructionState.IFrame = allocLFrame();\n
IFrame.currentTNode = tNode;\n    IFrame.IView = IView;\n    return true;\n    }\n    /**\n    * Swap the current

```

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IView with a new IView.\n    *\n    * For performance reasons we store the IView in the top level of the module.\n
    * This way we
    minimize the number of properties to read. Whenever a new view\n    * is entered we have to store the IView for
    later, and when the view is\n    * exited the state has to be restored\n    *\n    * @param newView New IView to
    become active\n    * @returns the previously active IView;\n    */\n    function enterView(newView) {\n
    ngDevMode && assertNotEqual(newView[0], newView[1], '???');\n        ngDevMode &&
    assertLViewOrUndefined(newView);\n        var newLFrame = allocLFrame();\n        if (ngDevMode) {\n
    assertEqual(newLFrame.isParent, true, 'Expected clean LFrame');\n            assertEqual(newLFrame.IView, null,
    'Expected clean LFrame');\n            assertEqual(newLFrame.tView, null, 'Expected clean LFrame');\n
    assertEqual(newLFrame.selectedIndex, -1, 'Expected clean LFrame');\n
    assertEqual(newLFrame.elementDepthCount, 0, 'Expected clean LFrame');\n
    assertEqual(newLFrame.currentDirectiveIndex, -1, 'Expected clean LFrame');\n
        assertEqual(newLFrame.currentNamespace, null, 'Expected clean LFrame');\n
    assertEqual(newLFrame.bindingRootIndex, -1, 'Expected clean LFrame');\n
    assertEqual(newLFrame.currentQueryIndex, 0, 'Expected clean LFrame');\n        }\n        var tView =
    newView[TVIEW];\n        instructionState.lFrame = newLFrame;\n        ngDevMode && tView.firstChild &&
    assertTNodeForTView(tView.firstChild, tView);\n        newLFrame.currentTNode = tView.firstChild;\n
    newLFrame.IView = newView;\n        newLFrame.tView = tView;\n        newLFrame.contextLView = newView;\n
        newLFrame.bindingIndex = tView.bindingStartIndex;\n        newLFrame.inI18n = false;\n        }\n        /**\n
    * Allocates next free LFrame. This function tries to reuse the `LFrame`s to lower memory pressure.\n
    */\n
    function allocLFrame() {\n        var currentLFrame = instructionState.lFrame;\n        var childLFrame =
    currentLFrame === null ? null : currentLFrame.child;\n        var
    newLFrame = childLFrame === null ? createLFrame(currentLFrame) : childLFrame;\n        return newLFrame;\n
    }\n    function createLFrame(parent) {\n        var lFrame = {\n            currentTNode: null,\n            isParent: true,\n
            IView: null,\n            tView: null,\n            selectedIndex: -1,\n            contextLView: null,\n
            elementDepthCount: 0,\n            currentNamespace: null,\n            currentDirectiveIndex: -1,\n
            bindingRootIndex: -1,\n            bindingIndex: -1,\n            currentQueryIndex: 0,\n            parent: parent,\n
            child: null,\n            inI18n: false,\n        };\n        parent !== null && (parent.child = lFrame); // link the new LFrame
    for reuse.\n        return lFrame;\n    }\n    /**\n
    * A lightweight version of leave which is used with DI.\n
    *\n
    * This function only resets `currentTNode` and `LView` as those are the only properties\n
    * used with DI
    (`enterDI()`).\n
    *\n
    * NOTE: This function is reexported as `leaveDI`. However `leaveDI` has return type of `void` where\n
    * as
    `leaveViewLight` has `LFrame`. This is so that `leaveViewLight` can be used in `leaveView`.\n
    */\n    function
    leaveViewLight() {\n        var oldLFrame = instructionState.lFrame;\n        instructionState.lFrame =
    oldLFrame.parent;\n        oldLFrame.currentTNode = null;\n        oldLFrame.IView = null;\n        return
    oldLFrame;\n    }\n    /**\n
    * This is a lightweight version of the `leaveView` which is needed by the DI system.\n
    *\n
    * NOTE: this function is an alias so that we can change the type of the function to have `void`\n
    * return
    type.\n
    */\n    var leaveDI = leaveViewLight;\n    /**\n
    * Leave the current `LView`\n
    *\n
    * This pops the
    `LFrame` with the associated `LView` from the stack.\n
    *\n
    * IMPORTANT: We must zero out the `LFrame`
    values here otherwise they will be retained. This is\n
    * because for performance reasons
    we don't release `LFrame` but rather keep it for next use.\n
    */\n    function leaveView() {\n        var oldLFrame =
    leaveViewLight();\n        oldLFrame.isParent = true;\n        oldLFrame.tView = null;\n        oldLFrame.selectedIndex
    = -1;\n        oldLFrame.contextLView = null;\n        oldLFrame.elementDepthCount = 0;\n
        oldLFrame.currentDirectiveIndex = -1;\n        oldLFrame.currentNamespace = null;\n
        oldLFrame.bindingRootIndex = -1;\n        oldLFrame.bindingIndex = -1;\n        oldLFrame.currentQueryIndex =
    0;\n    }\n    function nextContextImpl(level) {\n        var contextLView = instructionState.lFrame.contextLView =\n
        walkUpViews(level, instructionState.lFrame.contextLView);\n        return contextLView[CONTEXT];\n    }\n
    function walkUpViews(nestingLevel, currentView) {\n        while (nestingLevel > 0) {\n            ngDevMode &&\n

```

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    assertDefined(currentView[DECLARATION_VIEW], 'Declaration view should be defined if nesting
level is greater than 0.');
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    currentView = currentView[DECLARATION_VIEW];\n    nestingLevel--;\n
    }\n    return currentView;\n    }\n    /**\n     * Gets the currently selected element index.\n     *\n     * Used
with { @link property } instruction (and more in the future) to identify the index in the\n     * current `LView` to act
on.\n     *\n     * function getSelectedIndex() {\n     *     return instructionState.IFrame.selectedIndex;\n     * }\n     */\n     *
Sets the most recent index passed to { @link select }\n     *\n     * Used with { @link property } instruction (and more
in the future) to identify the index in the\n     * current `LView` to act on.\n     *\n     * (Note that if an "exit
function" was set earlier (via `setElementExitFn()`) then that will be\n     * run if and when the provided `index`
value is different from the current selected index value.)\n     *\n     * function setSelectedIndex(index) {\n
ngDevMode && index !== -1 &&\n
    assertGreaterThanOrEqual(index, HEADER_OFFSET, 'Index must be past HEADER_OFFSET (or -1).');
```

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ngDevMode &&\n    assertLessThan(index, instructionState.IFrame.IView.length, 'Can\'t set index passed end
of LView');\n    instructionState.IFrame.selectedIndex = index;\n    }\n    /**\n     * Gets the `tNode` that
represents currently selected element.\n     *\n     * function getSelectedTNode() {\n     *     var IFrame =
instructionState.IFrame;\n     *     return getTNode(IFrame.tView, IFrame.selectedIndex);\n     * }\n     */\n     * Sets the
namespace used to create elements to `http://www.w3.org/2000/svg` in global state.\n     *\n     * @codeGenApi\n
*/\n     * function namespaceSVG() {\n     *     instructionState.IFrame.currentNamespace = SVG_NAMESPACE;\n     * }\n
    /**\n     * Sets the namespace used to create elements to `http://www.w3.org/1998/MathML/` in global state.\n
    *\n     * @codeGenApi\n     *\n     * function namespaceMathML() {\n     *     instructionState.IFrame.currentNamespace
= MATH_ML_NAMESPACE;\n     * }\n     */\n     * Sets the namespace used to create elements to `null`, which
forces element creation to use\n     * `createElement` rather than `createElementNS`.\n     *\n     * @codeGenApi\n
*/\n     * function namespaceHTML() {\n     *     namespaceHTMLInternal();\n     * }\n     */\n     * Sets the namespace used
to create elements to `null`, which forces element creation to use\n     * `createElement` rather than
`createElementNS`.\n     *\n     * function namespaceHTMLInternal() {\n
instructionState.IFrame.currentNamespace = null;\n     * }\n     * function getNamespace() {\n     *     return
instructionState.IFrame.currentNamespace;\n     * }\n     */\n     * The Trusted Types policy, or null if Trusted Types
are not\n     * enabled/supported, or undefined if the policy has not been created yet.\n     *\n     * var policy;\n     */\n
    * Returns the Trusted Types policy, or null if Trusted Types are not\n     * enabled/supported.
The first call to this function will create the policy.\n     *\n     * function getPolicy() {\n     *     if (policy ===
undefined) {\n     *         policy = null;\n     *         if (_global.trustedTypes) {\n     *             try {\n     *                 policy =
_global.trustedTypes.createPolicy('angular', {\n     *                     createHTML: function (s) { return s; },\n
createScript: function (s) { return s; },\n     *                     createScriptURL: function (s) { return s; },\n
});\n     *             }\n     *             catch (_a) {\n     *                 // trustedTypes.createPolicy throws if called with a name that
is\n     *                 // already registered, even in report-only mode. Until the API changes,\n     *                 // catch the
error not to break the applications functionally. In such\n     *                 // cases, the code will fall back to using
strings.\n     *             }\n     *             }\n     *             return policy;\n     *         }\n     *     }\n     * }\n
    /**\n     * Unsafely promote a string to a TrustedHTML, falling back to strings when\n     * Trusted Types are not
available.\n     * @security This is a security-sensitive function; any use of this function\n     * must go through
security review. In particular, it must be assured that the\n     * provided string will never cause an XSS vulnerability
if used in a context\n     * that will be interpreted as HTML by a browser, e.g. when assigning to\n     *
element.innerHTML.\n     *\n     * function trustedHTMLFromString(html) {\n     *     var _a;\n     *     return ((_a =
getPolicy()) === null || _a === void 0 ? void 0 : _a.createHTML(html)) || html;\n     * }\n     */\n     * Unsafely
promote a string to a TrustedScript, falling back to strings when\n     * Trusted Types are not available.\n     *
@security In particular, it must be assured that the provided string will\n     * never cause an XSS vulnerability if
used in a context that will be\n     * interpreted and executed as a script by
a browser, e.g. when calling eval.\n     *\n     * function trustedScriptFromString(script) {\n     *     var _a;\n     *     return
((_a = getPolicy()) === null || _a === void 0 ? void 0 : _a.createScript(script)) || script;\n     * }\n     */\n     * Unsafely
promote a string to a TrustedScriptURL, falling back to strings\n     * when Trusted Types are not available.\n     *

```

@security This is a security-sensitive function; any use of this function\n * must go through security review. In particular, it must be assured that the\n * provided string will never cause an XSS vulnerability if used in a context\n * that will cause a browser to load and execute a resource, e.g. when\n * assigning to script.src.\n */\n function trustedScriptURLFromString(url) {\n var _a;\n return ((_a = getPolicy()) === null || _a === void 0 ? void 0 : _a.createScriptURL(url)) || url;\n }\n /**\n * Unsafely call the Function constructor with the given string arguments. It\n

* is only available in development mode, and should be stripped out of\n * production code.\n * @security This is a security-sensitive function; any use of this function\n * must go through security review. In particular, it must be assured that it\n * is only called from development code, as use in production code can lead to\n * XSS vulnerabilities.\n */\n function newTrustedFunctionForDev() {\n var args = [];\n for (var _i = 0; _i < arguments.length; _i++) {\n args[_i] = arguments[_i];\n }\n if (typeof ngDevMode === 'undefined') {\n throw new Error('newTrustedFunctionForDev should never be called in production');\n }\n if (!_global.trustedTypes) {\n // In environments that don't support Trusted Types, fall back to the most\n // straightforward implementation:\n return new (Function.bind.apply(Function, __spread([void 0], args)))();\n }\n // Chrome currently does not support passing TrustedScript to the Function\n // constructor. The following implements the workaround proposed on the page\n // below, where the Chromium bug is also referenced:\n // https://github.com/w3c/webappsec-trusted-types/wiki/Trusted-Types-for-function-constructor\n var fnArgs = args.slice(0, -1).join(',');\n var fnBody = args.pop().toString();\n var body = `(function anonymous(\\` + fnArgs + `\\`\\n) { \\` + fnBody + `\\`\\n})\\`;\n // Using eval directly confuses the compiler and prevents this module from\n // being stripped out of JS binaries even if not used. The global['eval']\n // indirection fixes that.\n var fn = _global['eval'](trustedScriptFromString(body));\n // To completely mimic the behavior of calling `new Function`, two more\n // things need to happen:\n // 1. Stringifying the resulting function should return its source code\n fn.toString = function\n () { return body; };\n // 2. When calling the resulting function, `this` should refer to `global`\n return fn.bind(_global);\n // When Trusted Types support in Function constructors is widely available,\n // the implementation of this function can be simplified to:\n // return new Function(...args.map(a => trustedScriptFromString(a)));\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var SafeValueImpl = /** @class */ (function () {\n function SafeValueImpl(changingThisBreaksApplicationSecurity) {\n this.changingThisBreaksApplicationSecurity = changingThisBreaksApplicationSecurity;\n }\n SafeValueImpl.prototype.toString = function () {\n return `SafeValue must use [property]=binding: ` + this.changingThisBreaksApplicationSecurity\n + `\\` (see http://g.co/ng/security#xss)`;\n };\n return SafeValueImpl;\n }());\n var SafeHtmlImpl = /** @class */ (function (_super) {\n __extends(SafeHtmlImpl, _super);\n function SafeHtmlImpl() {\n return _super !== null && _super.apply(this, arguments) || this;\n }\n SafeHtmlImpl.prototype.getTypeName = function () {\n return `HTML` /* Html */;\n };\n return SafeHtmlImpl;\n }(SafeValueImpl));\n var SafeStyleImpl = /** @class */ (function (_super) {\n __extends(SafeStyleImpl, _super);\n function SafeStyleImpl() {\n return _super !== null && _super.apply(this, arguments) || this;\n }\n SafeStyleImpl.prototype.getTypeName = function () {\n return `Style` /* Style */;\n };\n return SafeStyleImpl;\n }(SafeValueImpl));\n var SafeScriptImpl = /** @class */ (function (_super) {\n __extends(SafeScriptImpl, _super);\n function SafeScriptImpl() {\n return _super !== null && _super.apply(this, arguments) || this;\n }\n SafeScriptImpl.prototype.getTypeName = function () {\n return `Script` /* Script */;\n };\n return SafeScriptImpl;\n }(SafeValueImpl));\n var SafeUrlImpl = /** @class */ (function (_super) {\n __extends(SafeUrlImpl, _super);\n function SafeUrlImpl() {\n return _super !== null && _super.apply(this, arguments) || this;\n }\n SafeUrlImpl.prototype.getTypeName = function () {\n return `URL` /* Url */;\n };\n return SafeUrlImpl;\n }(SafeValueImpl));\n var


```

SafeResourceUrlImpl = /** @class */ (function (_super) {
    __extends(SafeResourceUrlImpl, _super);
    function SafeResourceUrlImpl() {
        return _super !== null && _super.apply(this, arguments) || this;
    }
    SafeResourceUrlImpl.prototype.getTypeName
    = function () {
        return "ResourceURL" /* ResourceUrl */;
    };
    return SafeResourceUrlImpl;
})(SafeValueImpl);
function unwrapSafeValue(value) {
    return value instanceof SafeValueImpl ?
    value.changingThisBreaksApplicationSecurity :
    value;
}
function
allowSanitizationBypassAndThrow(value, type) {
    var actualType = getSanitizationBypassType(value);
    if (actualType !== null && actualType !== type) {
        // Allow ResourceURLs in URL contexts, they are
        strictly more trusted.
        if (actualType === "ResourceURL" /* ResourceUrl */ && type === "URL" /* Url
        */ ) {
            return true;
        }
        throw new Error("Required a safe " + type + ", got a " + actualType + " (see
        http://g.co/ng/security#xss)");
    }
    return actualType === type;
}
function
getSanitizationBypassType(value) {
    return value instanceof SafeValueImpl && value.getTypeName()
    || null;
}
/**
 * Mark `html` string as trusted.
 *
 * This function wraps the trusted string in
 * `String` and brands it in a way which makes it
 * recognizable to {@link htmlSanitizer} to be trusted
 * implicitly.
 *
 * @param trustedHtml `html` string which needs to be implicitly trusted.
 * @returns a
 * `html` which has been branded to be implicitly trusted.
 */
function
bypassSanitizationTrustHtml(trustedHtml) {
    return new SafeHtmlImpl(trustedHtml);
}
/**
 *
 * Mark `style` string as trusted.
 *
 * This function wraps the trusted string in `String` and brands it in a way
 * which makes it
 * recognizable to {@link styleSanitizer} to be trusted implicitly.
 *
 * @param
 * trustedStyle `style` string which needs to be implicitly trusted.
 * @returns a `style` hich has been branded to be
 * implicitly trusted.
 */
function bypassSanitizationTrustStyle(trustedStyle) {
    return new SafeStyleImpl(trustedStyle);
}
/**
 *
 * Mark `script` string as trusted.
 *
 * This
 * function wraps the trusted string in `String` and brands it in a way which makes it
 * recognizable to {@link
 * scriptSanitizer} to be trusted implicitly.
 *
 * @param trustedScript `script` string which needs to be
 * implicitly trusted.
 * @returns a `script` which has been branded to be implicitly trusted.
 */
function
bypassSanitizationTrustScript(trustedScript) {
    return new SafeScriptImpl(trustedScript);
}
/**
 *
 * Mark `url` string as trusted.
 *
 * This function wraps the trusted string in `String` and brands it in a way
 * which makes it
 * recognizable to {@link urlSanitizer} to be trusted implicitly.
 *
 * @param trustedUrl
 * `url` string which needs to be implicitly trusted.
 * @returns a `url` which has been branded to be implicitly
 * trusted.
 */
function bypassSanitizationTrustUrl(trustedUrl)
{
    return new SafeUrlImpl(trustedUrl);
}
/**
 *
 * Mark `url` string as trusted.
 *
 * This
 * function wraps the trusted string in `String` and brands it in a way which makes it
 * recognizable to {@link
 * resourceUrlSanitizer} to be trusted implicitly.
 *
 * @param trustedResourceUrl `url` string which needs to
 * be implicitly trusted.
 * @returns a `url` which has been branded to be implicitly trusted.
 */
function
bypassSanitizationTrustResourceUrl(trustedResourceUrl) {
    return new
    SafeResourceUrlImpl(trustedResourceUrl);
}
/**
 *
 * @license
 * Copyright Google LLC All Rights
 * Reserved.
 *
 * Use of this source code is governed by an MIT-style license that can be
 * found in the
 * LICENSE file at https://angular.io/license
 */
/**
 * This file is used to control if the default rendering
 * pipeline should be `ViewEngine` or `Ivy`.
 *
 * For more
 * information on how to run and debug tests with either Ivy or View Engine (legacy),
 * please see
 * [BAZEL.md](./docs/BAZEL.md).
 */
var _devMode = true;
var _runModeLocked = false;
/**
 *
 * Returns whether Angular is in development mode. After called once,
 * the value is locked and won't change any
 * more.
 *
 * By default, this is true, unless a user calls `enableProdMode` before calling this.
 */
@publicApi
function isDevMode() {
    _runModeLocked = true;
    return _devMode;
}
/**
 *
 * Disable Angular's development mode, which turns off assertions and other
 * checks within the
 * framework.
 *
 * One important assertion this disables verifies that a change detection pass
 * does not
 * result in additional changes to any bindings (also known as
 * unidirectional data flow).
 */
@publicApi
function enableProdMode() {
    if (_runModeLocked) {

```

```

    throw new Error('Cannot enable prod mode after platform setup.');
```

```

    }\n    _devMode = false;\n
}\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n /**\n * This helper is used to get hold of an inert tree of DOM elements containing dirty HTML\n * that
needs sanitizing.\n * Depending upon browser support we use one of two strategies for doing this.\n * Default:
DOMParser strategy\n * Fallback: InertDocument strategy\n */\n function getInertBodyHelper(defaultDoc)
{\n    return isDOMParserAvailable() ? new DOMParserHelper() : new InertDocumentHelper(defaultDoc);\n
}\n /**\n * Uses DOMParser to create and fill an inert body element.\n * This is the default strategy used in
browsers that support it.\n */\n var DOMParserHelper
= /** @class */ (function () {\n    function DOMParserHelper() {\n    }\n
DOMParserHelper.prototype.getInertBodyElement = function (html) {\n    // We add these extra elements to
ensure that the rest of the content is parsed as expected\n    // e.g. leading whitespace is maintained and tags like
`<meta>` do not get hoisted to the\n    // `<head>` tag. Note that the `<body>` tag is closed implicitly to prevent
unclosed tags\n    // in `html` from consuming the otherwise explicit `</body>` tag.\n    html =
'<body><remove></remove>' + html;\n    try {\n    var body = new window.DOMParser()\n    .parseFromString(trustedHTMLFromString(html), 'text/html')\n    .body;\n
body.removeChild(body.firstChild);\n    return body;\n    } catch (_a) {\n    return
null;\n    }\n    };\n    return DOMParserHelper;\n }());\n
/**\n * Use an HTML5 `template` element, if supported, or an inert body element created via\n *
`createHtmlDocument` to create and fill an inert DOM element.\n * This is the fallback strategy if the browser
does not support DOMParser.\n */\n var InertDocumentHelper = /** @class */ (function () {\n    function
InertDocumentHelper(defaultDoc) {\n    this.defaultDoc = defaultDoc;\n    this.inertDocument =
this.defaultDoc.implementation.createHTMLDocument('sanitization-inert');\n    if (this.inertDocument.body ==
null) {\n    // usually there should be only one body element in the document, but IE doesn't have any, so\n
// we need to create one.\n    var inertHtml = this.inertDocument.createElement('html');\n
this.inertDocument.appendChild(inertHtml);\n    var inertBodyElement =
this.inertDocument.createElement('body');\n    inertHtml.appendChild(inertBodyElement);\n
}\n    }\n    InertDocumentHelper.prototype.getInertBodyElement = function (html) {\n    // Prefer
using <template> element if supported.\n    var templateEl = this.inertDocument.createElement('template');\n
if ('content' in templateEl) {\n    templateEl.innerHTML = trustedHTMLFromString(html);\n
return templateEl;\n    }\n    // Note that previously we used to do something like
`this.inertDocument.body.innerHTML = html`\n    // and we returned the inert `body` node. This was changed,
because IE seems to treat setting\n    // `innerHTML` on an inserted element differently, compared to one that
hasn't been inserted\n    // yet. In particular, IE appears to split some of the text into multiple text nodes rather\n
// than keeping them in a single one which ends up messing with Ivy's i18n parsing further\n    // down
the line. This has been worked around
by creating a new inert `body` and using it as\n    // the root node in which we insert the HTML.\n    var
inertBody = this.inertDocument.createElement('body');\n    inertBody.innerHTML =
trustedHTMLFromString(html);\n    // Support: IE 11 only\n    // strip custom-namespaced attributes on
IE<=11\n    if (this.defaultDoc.documentMode) {\n    this.stripCustomNsAttrs(inertBody);\n    }\n
return inertBody;\n    };\n    /**\n * When IE11 comes across an unknown namespaced attribute e.g.
'xlink:foo' it adds 'xmlns:ns1'\n * attribute to declare ns1 namespace and prefixes the attribute with 'ns1' (e.g.\n
* 'ns1:xlink:foo').\n * This is undesirable since we don't want to allow any of these custom
attributes. This method\n * strips them all.\n */\n    InertDocumentHelper.prototype.stripCustomNsAttrs
= function (el) {\n    var elAttrs
= el.attributes;\n    // loop backwards so that we can support removals.\n    for (var i = elAttrs.length - 1; 0
< i; i--) {\n    var attrib = elAttrs.item(i);\n    var attrName = attrib.name;\n    if (attrName ===
'xmlns:ns1' || attrName.indexOf('ns1:') === 0) {\n    el.removeAttribute(attrName);\n    }\n
}
```

```

}\n      var childNode = el.firstChild;\n      while (childNode) {\n          if (childNode.nodeType ===
Node.ELEMENT_NODE)\n              this.stripCustomNsAttrs(childNode);\n          childNode =
childNode.nextSibling;\n      }\n      return InertDocumentHelper;\n  }());\n  /**\n   * We need to
determine whether the DOMParser exists in the global context and\n   * supports parsing HTML; HTML parsing
support is not as wide as other formats, see\n   * https://developer.mozilla.org/en-
US/docs/Web/API/DOMParser#Browser_compatibility.\n
   *\n   * @suppress {uselessCode}\n   */\n   function isDOMParserAvailable() {\n       try {\n           return
!!new window.DOMParser().parseFromString(trustedHTMLFromString(""), 'text/html');\n       }\n       catch (_a) {\n
           return false;\n       }\n   }\n   /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n
   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   */\n   /**\n    * A pattern that recognizes a commonly useful subset of URLs that are
safe.\n    * This regular expression matches a subset of URLs that will not cause script\n    * execution if
used in URL context within a HTML document. Specifically, this\n    * regular expression matches if (comment
from here on and regex copied from\n    * Soy's EscapingConventions):\n    * (1) Either an allowed protocol (http,
https, mailto or ftp).\n    * (2) or no protocol.

    A protocol must be followed by a colon. The below\n    * allows that by allowing colons only after one of the
characters [/?#].\n    * A colon after a hash (#) must be in the fragment.\n    * Otherwise, a colon after a (?)
must be in a query.\n    * Otherwise, a colon after a single solidus (/) must be in a path.\n    * Otherwise, a
colon after a double solidus (//) must be in the authority\n    * (before port).\n    * The pattern disallows &,
used in HTML entity declarations before\n    * one of the characters in [/?#]. This disallows HTML entities used in
the\n    * protocol name, which should never happen, e.g. \"h&#116;tp\" for \"http\".\n    * It also disallows HTML
entities in the first path part of a relative path,\n    * e.g. \"foo&lt;bar/baz\". Our existing escaping functions should
not produce\n    * that. More importantly, it disallows masking of a colon,\n    * e.g. \"javascript&#58;...\".\n
   *\n   * This regular expression
was taken from the Closure sanitization library.\n   */\n   var SAFE_URL_PATTERN =
/^(?:(?:https?|mailto|ftp|tel|file|sms):|[\^&:\/?#]*(?:[/?#]|$))/gi;\n   /* A pattern that matches safe srcset values */\n
   var SAFE_SRCSET_PATTERN = /^(?:(?:https?|file):|[\^&:\/?#]*(?:[/?#]|$))/gi;\n   /** A pattern that matches safe
data URLs. Only matches image, video and audio types. */\n   var DATA_URL_PATTERN =
/^(data:(?:image\/(?:bmp|gif|jpeg|jpg|png|tiff|webp)|video\/(?:mpeg|mp4|ogg|webm)|audio\/(?:mp3|oga|ogg|opus));b
ase64,[a-z0-9+\\\/]+=*$|i);\n   function _sanitizeUrl(url) {\n       url = String(url);\n       if
(url.match(SAFE_URL_PATTERN) || url.match(DATA_URL_PATTERN))\n           return url;\n       if
(isDevMode()) {\n           console.warn(\"WARNING: sanitizing unsafe URL value '\" + url + '\" (see
http://g.co/ng/security#xss)\");\n       }\n       return 'unsafe:' + url;\n   }\n   function sanitizeSrcset(srcset) {\n
srcset = String(srcset);\n       return srcset.split(',').map(function
(srcset) {\n           return _sanitizeUrl(srcset.trim());\n       }).join(', ');\n   }\n   function tagSet(tags) {\n
var e_1, _a;\n   var res = {};\n       try {\n           for (var _b = __values(tags.split(',')), _c = _b.next(); !_c.done; _c = _b.next()) {\n
               var t = _c.value;\n               res[t] = true;\n           }\n       }\n       catch (e_1_1) {\n           e_1 = { error: e_1_1 };
}\n       finally {\n           try {\n               if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n           }\n
       }\n       finally {\n           if (e_1) throw e_1.error;\n       }\n       return res;\n   }\n   function merge() {\n
var e_2, _a;\n   var sets = [];\n       for (var _i = 0; _i < arguments.length; _i++) {\n           sets[_i] = arguments[_i];\n       }\n
       var res = {};\n       try {\n           for (var sets_1 = __values(sets), sets_1_1 = sets_1.next(); !sets_1_1.done; sets_1_1
= sets_1.next()) {\n               var s = sets_1_1.value;\n               for (var v in s) {\n                   if (s.hasOwnProperty(v))\n                       res[v] = true;\n               }\n           }\n           catch (e_2_1) {\n               e_2 = { error: e_2_1 };
}\n           finally {\n               try {\n                   if (sets_1_1 &&
!sets_1_1.done && (_a = sets_1.return)) _a.call(sets_1);\n               }\n           }\n           finally {\n               if (e_2) throw e_2.error;\n           }\n
       }\n       return res;\n   }\n   // Good source of info about elements and attributes\n   //
http://dev.w3.org/html5/spec/Overview.html#semantics\n   // http://simon.html5.org/html-elements\n   // Safe Void
Elements - HTML5\n   // http://dev.w3.org/html5/spec/Overview.html#void-elements\n   var VOID_ELEMENTS

```

```

= tagSet('area,br,col,hr,img,wbr');\n // Elements that you can, intentionally, leave open (and which close
themselves)\n // http://dev.w3.org/html5/spec/Overview.html#optional-tags\n var
OPTIONAL_END_TAG_BLOCK_ELEMENTS = tagSet('colgroup,dd,dt,li,p,tbody,td,tfoot,th,thead,tr');\n
var OPTIONAL_END_TAG_INLINE_ELEMENTS = tagSet('rp,rt');\n var
OPTIONAL_END_TAG_ELEMENTS = merge(OPTIONAL_END_TAG_INLINE_ELEMENTS,
OPTIONAL_END_TAG_BLOCK_ELEMENTS);\n // Safe Block Elements - HTML5\n var
BLOCK_ELEMENTS = merge(OPTIONAL_END_TAG_BLOCK_ELEMENTS, tagSet('address,article,' +\n
'aside,blockquote,caption,center,del,details,dialog,dir,div,dl,figure,figcaption,footer,h1,h2,h3,h4,h5,' +\n
'h6,header,hgroup,hr,ins,main,map,menu,nav,ol,pre,section,summary,table,ul'));\n // Inline Elements - HTML5\n
var INLINE_ELEMENTS = merge(OPTIONAL_END_TAG_INLINE_ELEMENTS,
tagSet('a,abbr,acronym,audio,b,' +\n
'bdi,bdo,big,br,cite,code,del,dfn,em,font,i,img,ins,kbd,label,map,mark,picture,q,ruby,rp,rt,s,' +\n
'samp,small,source,span,strike,strong,sub,sup,time,track,tt,u,var,video'));\n var VALID_ELEMENTS =
merge(VOID_ELEMENTS, BLOCK_ELEMENTS, INLINE_ELEMENTS,
OPTIONAL_END_TAG_ELEMENTS);\n // Attributes that
have href and hence need to be sanitized\n var URI_ATTRS =
tagSet('background,cite,href,itemtype,longdesc,poster,src,xlink:href');\n // Attributes that have special href set
hence need to be sanitized\n var SRCSET_ATTRS = tagSet('srcset');\n var HTML_ATTRS =
tagSet('abbr,accesskey,align,alt,autoplay,axis,bgcolor,border,cellpadding,cellspacing,class,clear,color,cols,colspan,'
+ \n
'compact,controls,coords,datetime,default,dir,download,face,headers,height,hidden,hreflang,hspace,' + \n
'ismap,itemscope,itemprop,kind,label,lang,language,loop,media,muted,nohref,nowrap,open,preload,rel,rev,role,rows
, rowspan, rules,' + \n
'scope,scrolling,shape,size,sizes,span,srclang,start,summary,tabindex,target,title,translate,type,usemap,' + \n
'valign,value,vspace,width');\n // Accessibility attributes as per WAI-ARIA 1.1 (W3C Working Draft 14 December
2018)\n var ARIA_ATTRS = tagSet('aria-activedescendant,aria-atomic,aria-autocomplete,aria-busy,aria-
checked,aria-colcount,aria-colindex,'
+ \n
'aria-colspan,aria-controls,aria-current,aria-describedby,aria-details,aria-disabled,aria-dropeffect,' + \n
'aria-errormessage,aria-expanded,aria-flowto,aria-grabbed,aria-haspopup,aria-hidden,aria-invalid,' + \n
'aria-
keyshortcuts,aria-label,aria-labelledby,aria-level,aria-live,aria-modal,aria-multiline,' + \n
'aria-
multiselectable,aria-orientation,aria-owns,aria-placeholder,aria-posinset,aria-pressed,aria-readonly,' + \n
'aria-
relevant,aria-required,aria-roledescription,aria-rowcount,aria-rowindex,aria-rowspan,aria-selected,' + \n
'aria-
setsize,aria-sort,aria-valuemax,aria-valuemin,aria-valuenow,aria-valuetext');\n // NB: This currently consciously
doesn't support SVG. SVG sanitization has had several security\n // issues in the past, so it seems safer to leave it
out if possible. If support for binding SVG via\n // innerHTML is required, SVG attributes should be added here.\n
// NB: Sanitization does not
allow <form> elements or other active elements (<button> etc). Those\n // can be sanitized, but they increase
security surface area without a legitimate use case, so they\n // are left out here.\n var VALID_ATTRS =
merge(URI_ATTRS, SRCSET_ATTRS, HTML_ATTRS, ARIA_ATTRS);\n // Elements whose content should
not be traversed/preserved, if the elements themselves are invalid.\n //\n // Typically, `<invalid>Some
content</invalid>` would traverse (and in this case preserve)\n // `Some content`, but strip `invalid-element`
opening/closing tags. For some elements, though, we\n // don't want to preserve the content, if the elements
themselves are going to be removed.\n var SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS =
tagSet('script,style,template');\n /**\n * SanitizingHtmlSerializer serializes a DOM fragment, stripping out any
unsafe elements and unsafe\n * attributes.\n */\n var SanitizingHtmlSerializer = /** @class */ (function () {\n
function
SanitizingHtmlSerializer() {\n // Explicitly track if something was stripped, to avoid accidentally warning of
sanitization just\n // because characters were re-encoded.\n this.sanitizedSomething = false;\n
this.buf = [];\n }\n SanitizingHtmlSerializer.prototype.sanitizeChildren = function (el) {\n // This

```

```

cannot use a TreeWalker, as it has to run on Angular's various DOM adapters.\n      // However this code never
accesses properties off of `document` before deleting its contents\n      // again, so it shouldn't be vulnerable to
DOM clobbering.\n      var current = el.firstChild;\n      var traverseContent = true;\n      while (current)
{\n      if (current.nodeType === Node.ELEMENT_NODE) {\n      traverseContent =
this.startElement(current);\n      }\n      else if (current.nodeType === Node.TEXT_NODE) {\n
this.chars(current.nodeValue);\n
      }\n      else {\n      // Strip non-element, non-text nodes.\n
this.sanitizedSomething = true;\n      }\n      if (traverseContent && current.firstChild) {\n
current = current.firstChild;\n      continue;\n      }\n      while (current) {\n      //
Leaving the element. Walk up and to the right, closing tags as we go.\n      if (current.nodeType ===
Node.ELEMENT_NODE) {\n      this.endElement(current);\n      }\n      var next =
this.checkClobberedElement(current, current.nextSibling);\n      if (next) {\n      current = next;\n
      break;\n      }\n      current = this.checkClobberedElement(current,
current.parentNode);\n      }\n      }\n      return this.buf.join(");\n
  });\n  /**\n   * Sanitizes an opening element tag (if valid) and returns whether the element's contents
should\n   * be traversed. Element content must always be traversed (even if the element itself is not\n   *
valid/safe), unless the element is one of `SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS`.\n
  *\n   * @param element The element to sanitize.\n   * @return True if the element's contents should be
traversed.\n   */\n  SanitizingHtmlSerializer.prototype.startElement = function (element) {\n      var
tagName = element.nodeName.toLowerCase();\n      if (!VALID_ELEMENTS.hasOwnProperty(tagName)) {\n
      this.sanitizedSomething = true;\n      return
!SKIP_TRAVERSING_CONTENT_IF_INVALID_ELEMENTS.hasOwnProperty(tagName);\n      }\n
      this.buf.push('<');\n      this.buf.push(tagName);\n      var elAttrs = element.attributes;\n      for (var i = 0; i
< elAttrs.length;
      i++) {\n      var elAttr = elAttrs.item(i);\n      var attrName = elAttr.name;\n      var lower =
attrName.toLowerCase();\n      if (!VALID_ATTRS.hasOwnProperty(lower)) {\n
      this.sanitizedSomething = true;\n      continue;\n      }\n      var value = elAttr.value;\n
      // TODO(martinprobst): Special case image URIs for data:image/...\n      if (URI_ATTRS[lower])\n
      value = _sanitizeUrl(value);\n      if (SRCSET_ATTRS[lower])\n      value = sanitizeSrcset(value);\n
      this.buf.push(' ', attrName, '=', encodeEntities(value, '"');\n      }\n      this.buf.push('>');\n
      return true;\n      };\n      SanitizingHtmlSerializer.prototype.endElement = function (current) {\n      var
tagName = current.nodeName.toLowerCase();\n      if (VALID_ELEMENTS.hasOwnProperty(tagName) &&
!VOID_ELEMENTS.hasOwnProperty(tagName)) {\n      this.buf.push('</');\n
      this.buf.push(tagName);\n      this.buf.push('>');\n      }\n      };\n
      SanitizingHtmlSerializer.prototype.chars = function (chars) {\n      this.buf.push(encodeEntities(chars));\n
      };\n      SanitizingHtmlSerializer.prototype.checkClobberedElement = function (node, nextNode) {\n      if
(nextNode &&\n      (node.compareDocumentPosition(nextNode) &\n
      Node.DOCUMENT_POSITION_CONTAINED_BY) === Node.DOCUMENT_POSITION_CONTAINED_BY)\n
      {\n      throw new Error("Failed to sanitize html because the element is clobbered: '" + node.outerHTML);\n
      }\n      return nextNode;\n      };\n      return SanitizingHtmlSerializer;\n    }());\n    // Regular Expressions
for parsing tags and attributes\n    var SURROGATE_PAIR_REGEXP = /[\\uD800-\\uDBFF][\\uDC00-\\uFFFF]/g;\n    // ! to ~ is the ASCII range.\n
    var NON_ALPHANUMERIC_REGEXP = /([^\w#~!])/g;\n    /**\n     * Escapes all potentially dangerous
characters, so that the\n     * resulting string can be safely inserted into attribute or\n     * element text.\n
     *\n     * @param value\n     */\n    function encodeEntities(value) {\n      return value.replace(/&/g, '&amp;');\n
      .replace(SURROGATE_PAIR_REGEXP, function (match) {\n      var hi = match.charCodeAt(0);\n      var
low = match.charCodeAt(1);\n      return '&#' + (((hi - 0xD800) * 0x400) + (low - 0xDC00) + 0x10000) + '';\n
      })\n      .replace(NON_ALPHANUMERIC_REGEXP, function (match) {\n      return '&#' +
</pre>
</div>
<div data-bbox="195 942 508 958" data-label="Page-Footer">
<p>Open Source Used In NBAR SD-AVC 4.4.0 4929</p>
</div>
```

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match.charCodeAt(0) + ';\n    })\n        .replace(</g, '&lt;')\n        .replace(</>g, '&gt;');\n    }\n    var
inertBodyHelper;\n    /**\n     * Sanitizes the given unsafe, untrusted HTML fragment, and returns HTML text that
is safe to add to\n     * the DOM in a browser environment.\n     */\n    function _sanitizeHtml(defaultDoc,
    unsafeHtmlInput) {\n        var inertBodyElement = null;\n        try {\n            inertBodyHelper = inertBodyHelper ||
getInertBodyHelper(defaultDoc);\n            // Make sure unsafeHtml is actually a string (TypeScript types are not
enforced at runtime).\n            var unsafeHtml = unsafeHtmlInput ? String(unsafeHtmlInput) : '';\n            inertBodyElement = inertBodyHelper.getInertBodyElement(unsafeHtml);\n            // mXSS protection. Repeatedly
parse the document to make sure it stabilizes, so that a browser\n            // trying to auto-correct incorrect HTML
cannot cause formerly inert HTML to become dangerous.\n            var mXSSAttempts = 5;\n            var parsedHtml
= unsafeHtml;\n            do {\n                if (mXSSAttempts === 0) {\n                    throw new Error('Failed to
sanitize html because the input is unstable');\n                }\n                mXSSAttempts--;\n                unsafeHtml =
parsedHtml;\n                parsedHtml
= inertBodyElement.innerHTML;\n                inertBodyElement =
inertBodyHelper.getInertBodyElement(unsafeHtml);\n            } while (unsafeHtml !== parsedHtml);\n            var
sanitizer = new SanitizingHtmlSerializer();\n            var safeHtml =
sanitizer.sanitizeChildren(getTemplateContent(inertBodyElement) || inertBodyElement);\n            if (isDevMode()
&& sanitizer.sanitizedSomething) {\n                console.warn('WARNING: sanitizing HTML stripped some content,
see http://g.co/ng/security#xss');\n            }\n            return safeHtml;\n        }\n        finally {\n            // In case
anything goes wrong, clear out inertElement to reset the entire DOM structure.\n            if (inertBodyElement) {\n                var parent = getTemplateContent(inertBodyElement) || inertBodyElement;\n                while (parent.firstChild) {\n                    parent.removeChild(parent.firstChild);\n                }\n            }\n        }\n        function
getTemplateContent(el) {\n            return 'content' in el /** Microsoft/TypeScript#21517 */ &&
isTemplateElement(el) ?\n                el.content :\n                null;\n        }\n        function isTemplateElement(el) {\n            return
el.nodeType === Node.ELEMENT_NODE && el.nodeName === 'TEMPLATE';\n        }\n        /**\n         * @license\n         * Copyright Google LLC All Rights Reserved.\n         * Use of this source code is governed by an MIT-style
license that can be\n         * found in the LICENSE file at https://angular.io/license\n         */\n        (function
(SecurityContext) {\n            SecurityContext[SecurityContext["NONE"] = 0] = "NONE";\n            SecurityContext[SecurityContext["HTML"] = 1] = "HTML";\n            SecurityContext[SecurityContext["STYLE"] = 2] = "STYLE";\n            SecurityContext[SecurityContext["SCRIPT"] = 3] = "SCRIPT";\n            SecurityContext[SecurityContext["URL"] = 4] = "URL";\n            SecurityContext[SecurityContext["RESOURCE_URL"] = 5] = "RESOURCE_URL";\n        })(exports.SecurityContext || (exports.SecurityContext = {}));\n        /**\n         * @license\n         * Copyright Google
LLC All Rights Reserved.\n         * Use of this source code is governed by an MIT-style license that can be\n         * found in the LICENSE file at https://angular.io/license\n         */\n        /**\n         * An `html` sanitizer which converts
untrusted `html` **string** into trusted string by removing\n         * dangerous content.\n         * This method
parses the `html` and locates potentially dangerous content (such as urls and\n         * javascript) and removes it.\n         * It is possible to mark a string as trusted by calling { @link bypassSanitizationTrustHtml }.\n         * @param unsafeHtml untrusted `html`, typically from the user.\n         * @returns `html` string which is safe to display
to user, because all of the dangerous javascript\n         * and urls have been removed.\n         */\n        @codeGenApi\n        /**\n         * function sanitizeHtml(unsafeHtml) {\n            var sanitizer = getSanitizer();\n            if (sanitizer) {\n                return
sanitizer.sanitize(exports.SecurityContext.HTML, unsafeHtml) || '';\n            }\n            if
(allowSanitizationBypassAndThrow(unsafeHtml, "HTML" /* Html */)) {\n                return
unwrapSafeValue(unsafeHtml);\n            }\n            return _sanitizeHtml(getDocument(), renderStringify(unsafeHtml));\n        }\n        /**\n         * A `style` sanitizer which converts untrusted `style` **string** into trusted string by removing\n         * dangerous content.\n         * It is possible to mark a string as trusted by calling { @link
bypassSanitizationTrustStyle }.\n         * @param unsafeStyle untrusted `style`, typically from the user.\n         */

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@returns `style` string which is safe to bind to the `style` properties.
*/
* @codeGenApi
*/
function
sanitizeStyle(unsafeStyle) {
    var sanitizer = getSanitizer();
    if (sanitizer) {
        return
        sanitizer.sanitize(exports.SecurityContext.STYLE,
        unsafeStyle) || ";
    }
    if (allowSanitizationBypassAndThrow(unsafeStyle, "Style" /* Style */) {
        return unwrapSafeValue(unsafeStyle);
    }
    return renderStringify(unsafeStyle);
}
/**
 * A `url`
sanitizer which converts untrusted `url` **string** into trusted string by removing
 * dangerous
 * content.
*/
* This method parses the `url` and locates potentially dangerous content (such as javascript) and
 *
removes it.
*/
* It is possible to mark a string as trusted by calling { @link bypassSanitizationTrustUrl }.
*/
* @param unsafeUrl untrusted `url`, typically from the user.
* @returns `url` string which is safe to bind
to the `src` properties such as `

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based on tag name and prop name.\n    * The rules are based on the
RESOURCE_URL context config from\n    * `packages/compiler/src/schema/dom_security_schema.ts`.\n    * If
tag and prop names don't match Resource URL schema, use URL sanitizer.\n    * \n    function getUrlSanitizer(tag,
prop) {\n        if ((prop === 'src' &&\n            (tag === 'embed' || tag === 'frame' || tag === 'iframe' || tag === 'media'
||\n                tag === 'script')) ||\n            (prop === 'href' && (tag === 'base' || tag === 'link')))) {\n            return
sanitizeResourceUrl;\n        }\n        return sanitizeUrl;\n    }\n    /**\n    * Sanitizes URL, selecting sanitizer
function based on tag and property names.\n    * \n    * This function is used in case we can't define security context
at compile time, when only prop\n    * name is available. This happens when we generate host bindings for
Directives/Components. The\n    * host element is unknown at compile time, so we defer calculation of specific
sanitizer to\n    * runtime.\n    * \n    * @param
unsafeUrl untrusted `url`, typically from the user.\n    * @param tag target element tag name.\n    * @param prop
name of the property that contains the value.\n    * @returns `url` string which is safe to bind.\n    * \n    *
@codeGenApi\n    * \n    function sanitizeUrlOrResourceUrl(unsafeUrl, tag, prop) {\n        return
getUrlSanitizer(tag, prop)(unsafeUrl);\n    }\n    function validateAgainstEventProperties(name) {\n        if
(name.toLowerCase().startsWith('on')) {\n            var msg = `Binding to event property ` + name + ` is
disallowed for security reasons, ` +\n                (`please use (` + name.slice(2) + `)=...`)) +\n                (`\n\nIf ` +
name + ` is a directive input, make sure the directive is imported by the`)\n                + ` current module.`;\n            throw new Error(msg);\n        }\n    }\n    function validateAgainstEventAttributes(name) {\n        if
(name.toLowerCase().startsWith('on')) {\n            var msg = `Binding
to event attribute ` + name + ` is disallowed for security reasons, ` +\n                (`please use (` + name.slice(2)
+ `)=...`);\n            throw new Error(msg);\n        }\n    }\n    function getSanitizer() {\n        var IView =
getLView();\n        return IView && IView[SANITIZER];\n    }\n\n    /**\n    * @license\n    * Copyright Google
LLC All Rights Reserved.\n    * \n    * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n    * \n    function getFactoryDef(type, throwNotFound)
{\n        var hasFactoryDef = type.hasOwnProperty(NG_FACTORY_DEF);\n        if (!hasFactoryDef &&
throwNotFound === true && ngDevMode) {\n            throw new Error(`Type ` + stringify(type) + ` does not
have ` + `'\u0275fac' property.`);\n        }\n        return hasFactoryDef ? type[NG_FACTORY_DEF] : null;\n    }\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n
    * \n    * Use of this source code is governed by an MIT-style license that can be\n    * found in the LICENSE file
at https://angular.io/license\n    * \n    var RuntimeError = /** @class */ (function (_super) {\n
__extends(RuntimeError, _super);\n        function RuntimeError(code, message) {\n            var _this =
_super.call(this, formatRuntimeError(code, message)) || this;\n            _this.code = code;\n            return _this;\n
        }\n        return RuntimeError;\n    })(Error);\n    /** Called to format a runtime error */\n    function
formatRuntimeError(code, message) {\n        var fullCode = code ? "NG0" + code + `:` : `:`;\n        return ` ` +
fullCode + message;\n    }\n\n    /** Called when directives inject each other (creating a circular dependency) */\n
function throwCyclicDependencyError(token, path) {\n        var depPath = path ? `Dependency path: ` +
path.join(' > ') + ` > ` + token : ` `;\n        throw new RuntimeError(`200` /*
CYCLIC_DI_DEPENDENCY */ , `Circular dependency in DI detected for ` + token + depPath);\n    }\n
function throwMixedMultiProviderError() {\n        throw new Error(`Cannot mix multi providers and regular
providers`);\n    }\n    function throwInvalidProviderError(ngModuleType, providers, provider) {\n        var
ngModuleDetail = ` `;\n        if (ngModuleType && providers) {\n            var providerDetail =
providers.map(function (v) { return v == provider ? '?' + provider + '?' : `...`; });\n            ngModuleDetail =\n                ` - only instances of Provider and Type are allowed, got: [ ` + providerDetail.join(', ') + ` ]`;\n        }\n        throw
new Error(`Invalid provider for the NgModule ` + stringify(ngModuleType) + ` ` + ngModuleDetail);\n    }\n
/** Throws an error when a token is not found in DI. */\n    function throwProviderNotFoundError(token,
injectorName) {\n        var injectorDetails = injectorName ? ` in ` + injectorName : ` `;\n        throw
new RuntimeError(`201` /* PROVIDER_NOT_FOUND */ , `No provider for ` + stringifyForError(token) + `
found` + injectorDetails);\n    }\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n

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*\n  * Use of this source code is governed by an MIT-style license that can be\n  * found in the LICENSE file at
https://angular.io/license\n  */\n  /**\n  * Represents a basic change from a previous to a new value for a
single\n  * property on a directive instance. Passed as a value in a\n  * { @link SimpleChanges } object to the
`ngOnChanges` hook.\n  */\n  * @see `OnChanges`\n  */\n  * @publicApi\n  */\n  var SimpleChange = /**
@class */ (function () {\n    function SimpleChange(previousValue, currentValue, firstChange) {\n
this.previousValue = previousValue;\n        this.currentValue = currentValue;\n        this.firstChange =
firstChange;\n    }\n    /**\n    * Check whether the new value is
the first value assigned.\n    */\n    SimpleChange.prototype.isFirstChange = function () {\n        return
this.firstChange;\n    };\n    return SimpleChange;\n  })();\n  /**\n  * @license\n  * Copyright Google
LLC All Rights Reserved.\n  */\n  * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n  */\n  /**\n  * The NgOnChangesFeature decorates a
component with support for the ngOnChanges\n  * lifecycle hook, so it should be included in any component that
implements\n  * that hook.\n  */\n  * If the component or directive uses inheritance, the NgOnChangesFeature
MUST\n  * be included as a feature AFTER { @link InheritDefinitionFeature }, otherwise\n  * inherited
properties will not be propagated to the ngOnChanges lifecycle\n  * hook.\n  */\n  * Example usage:\n  */\n
* ``\n  * static cmp = defineComponent({\n    *\n    ... \n    * inputs: {name: 'publicName'},\n    * features: [NgOnChangesFeature]\n    * });\n  * ``\n  */\n  *
@codeGenApi\n  */\n  function NgOnChangesFeature() {\n    return NgOnChangesFeatureImpl;\n  }\n  function NgOnChangesFeatureImpl(definition) {\n    if (definition.type.prototype.ngOnChanges) {\n
definition.setInput = ngOnChangesSetInput;\n    }\n    return
rememberChangeHistoryAndInvokeOnChangesHook;\n  }\n  // This option ensures that the ngOnChanges
lifecycle hook will be inherited\n  // from superclasses (in InheritDefinitionFeature).\n  /** @nocollapse */\n  //
tslint:disable-next-line:no-top-level-property-access\n  NgOnChangesFeature.ngInherit = true;\n  /**\n  * This is
a synthetic lifecycle hook which gets inserted into `TVIEW.preOrderHooks` to simulate\n  * `ngOnChanges`.\n
*\n  * The hook reads the `NgSimpleChangesStore` data from the component instance and if changes are\n  *
found it
invokes `ngOnChanges` on the component instance.\n  */\n  * @param this Component instance. Because this
function gets inserted into `TVIEW.preOrderHooks`,\n  * it is guaranteed to be called with component
instance.\n  */\n  function rememberChangeHistoryAndInvokeOnChangesHook() {\n    var
simpleChangesStore = getSimpleChangesStore(this);\n    var current = simpleChangesStore === null ||
simpleChangesStore === void 0 ? void 0 : simpleChangesStore.current;\n    if (current) {\n        var previous =
simpleChangesStore.previous;\n        if (previous === EMPTY_OBJ) {\n            simpleChangesStore.previous
= current;\n        }\n        else {\n            // New changes are copied to the previous store, so that we don't lose
history for inputs\n            // which were not changed this time\n            for (var key in current) {\n
previous[key] = current[key];\n            }\n        }\n        simpleChangesStore.current = null;\n        this.ngOnChanges(current);\n    }\n  }\n  function
ngOnChangesSetInput(instance, value, publicName, privateName) {\n    var simpleChangesStore =
getSimpleChangesStore(instance) ||\n        setSimpleChangesStore(instance, { previous: EMPTY_OBJ, current:
null });\n    var current = simpleChangesStore.current || (simpleChangesStore.current = {});\n    var previous =
simpleChangesStore.previous;\n    var declaredName = this.declaredInputs[publicName];\n    var
previousChange = previous[declaredName];\n    current[declaredName] = new SimpleChange(previousChange
&& previousChange.currentValue, value, previous === EMPTY_OBJ);\n    instance[privateName] = value;\n
}\n  var SIMPLE_CHANGES_STORE = '__ngSimpleChanges__';\n  function getSimpleChangesStore(instance)
{\n    return instance[SIMPLE_CHANGES_STORE] || null;\n  }\n  function setSimpleChangesStore(instance,
store) {\n    return instance[SIMPLE_CHANGES_STORE]
= store;\n  }\n  /**\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  */\n  * Use of this
source code is governed by an MIT-style license that can be\n  * found in the LICENSE file at
https://angular.io/license\n  */\n  /**\n  * Adds all directive lifecycle hooks from the given `DirectiveDef` to the

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given `TVView`.\n * Must be run *only* on the first template pass.\n * Sets up the pre-order hooks on the provided `tView`,\n * see { @link HookData } for details about the data structure.\n * @param directiveIndex The index of the directive in LView\n * @param directiveDef The definition containing the hooks to setup in tView\n * @param tView The current TVView\n */\n function registerPreOrderHooks(directiveIndex, directiveDef, tView) {\n ngDevMode && assertFirstCreatePass(tView);\n var _a = directiveDef.type.prototype, ngOnChanges = _a.ngOnChanges, ngOnInit = _a.ngOnInit, ngDoCheck = _a.ngDoCheck;\n if (ngOnChanges) {\n var wrappedOnChanges = NgOnChangesFeatureImpl(directiveDef);\n (tView.preOrderHooks || (tView.preOrderHooks = [])).push(directiveIndex, wrappedOnChanges);\n (tView.preOrderCheckHooks || (tView.preOrderCheckHooks = [])).push(directiveIndex, wrappedOnChanges);\n }\n if (ngOnInit) {\n (tView.preOrderHooks || (tView.preOrderHooks = [])).push(0 - directiveIndex, ngOnInit);\n }\n if (ngDoCheck) {\n (tView.preOrderHooks || (tView.preOrderHooks = [])).push(directiveIndex, ngDoCheck);\n (tView.preOrderCheckHooks || (tView.preOrderCheckHooks = [])).push(directiveIndex, ngDoCheck);\n }\n }\n /**\n * Loops through the directives on the provided `tNode` and queues hooks to be\n * run that are not initialization hooks.\n * Should be executed during `elementEnd()` and similar\n * to\n * preserve hook execution order. Content, view, and destroy hooks for projected\n * components and directives must be called *before* their hosts.\n * Sets up the content, view, and destroy hooks on the provided `tView`,\n * see { @link HookData } for details about the data structure.\n * NOTE: This does not set up `onChanges`, `onInit` or `doCheck`, those are set up\n * separately at `elementStart`.\n * @param tView The current TVView\n * @param tNode The TNode whose directives are to be searched for hooks to queue\n */\n function registerPostOrderHooks(tView, tNode) {\n ngDevMode && assertFirstCreatePass(tView);\n // It's necessary to loop through the directives at elementEnd() (rather than processing in\n // directiveCreate) so we can preserve the current hook order. Content, view, and destroy\n // hooks for projected components and directives must be called *before* their hosts.\n for (var i = tNode.directiveStart, end = tNode.directiveEnd; i < end; i++) {\n var directiveDef = tView.data[i];\n ngDevMode && assertDefined(directiveDef, 'Expecting DirectiveDef');\n var lifecycleHooks = directiveDef.type.prototype;\n var ngAfterContentInit = lifecycleHooks.ngAfterContentInit, ngAfterContentChecked = lifecycleHooks.ngAfterContentChecked, ngAfterViewInit = lifecycleHooks.ngAfterViewInit, ngAfterViewChecked = lifecycleHooks.ngAfterViewChecked, ngOnDestroy = lifecycleHooks.ngOnDestroy;\n if (ngAfterContentInit) {\n (tView.contentHooks || (tView.contentHooks = [])).push(-i, ngAfterContentInit);\n }\n if (ngAfterContentChecked) {\n (tView.contentHooks || (tView.contentHooks = [])).push(i, ngAfterContentChecked);\n (tView.contentCheckHooks || (tView.contentCheckHooks = [])).push(i, ngAfterContentChecked);\n }\n if (ngAfterViewInit) {\n (tView.viewHooks || (tView.viewHooks = [])).push(-i, ngAfterViewInit);\n }\n if (ngAfterViewChecked) {\n (tView.viewHooks || (tView.viewHooks = [])).push(i, ngAfterViewChecked);\n (tView.viewCheckHooks || (tView.viewCheckHooks = [])).push(i, ngAfterViewChecked);\n }\n if (ngOnDestroy != null) {\n (tView.destroyHooks || (tView.destroyHooks = [])).push(i, ngOnDestroy);\n }\n }\n }\n /**\n * Executing hooks requires complex logic as we need to deal with 2 constraints.\n * 1. Init hooks (ngOnInit, ngAfterContentInit, ngAfterViewInit) must all be executed once and only\n * once, across many change detection cycles. This must be true even if some hooks throw, or if\n * some recursively trigger a change detection cycle.\n * To solve that, it is required to track the state of the execution of these init hooks.\n * This is done by storing and maintaining flags in the view: the { @link InitPhaseState },\n * and the index within that phase. They can be seen as a cursor in the following structure:\n * [[onInit1, onInit2], [afterContentInit1], [afterViewInit1, afterViewInit2, afterViewInit3]]\n * They are stored as flags in LView[FLAGS].\n * 2. Pre-order

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hooks can be executed in batches, because of the select instruction.\n    * To be able to pause and resume their
execution, we also need some state about the hook's array\n    * that is being processed:\n    * - the index of the next
hook to be executed\n    * - the number of init hooks already found in the processed part of the array\n    * They
are are stored as flags in LView[PREORDER_HOOK_FLAGS].\n    /\n    /**\n    * Executes pre-order check
hooks ( OnChanges, DoChanges) given a view where all the init hooks were\n    * executed once. This is a light
version of executeInitAndCheckPreOrderHooks where we can skip read\n    * / write
of the init-hooks related flags.\n    * @param lView The LView where hooks are defined\n    * @param hooks
Hooks to be run\n    * @param nodeIndex 3 cases depending on the value:\n    * - undefined: all hooks from the
array should be executed (post-order case)\n    * - null: execute hooks only from the saved index until the end of the
array (pre-order case, when\n    * flushing the remaining hooks)\n    * - number: execute hooks only from the saved
index until that node index exclusive (pre-order\n    * case, when executing select(number))\n    */\n    function
executeCheckHooks(lView, hooks, nodeIndex) {\n        callHooks(lView, hooks, 3 /* InitPhaseCompleted */,
nodeIndex);\n    }\n    /**\n    * Executes post-order init and check hooks (one of AfterContentInit,
AfterContentChecked,\n    * AfterViewInit, AfterViewChecked) given a view where there are pending init hooks to
be executed.\n    * @param lView The LView where hooks are defined\n    * @param hooks Hooks to
be run\n    * @param initPhase A phase for which hooks should be run\n    * @param nodeIndex 3 cases
depending on the value:\n    * - undefined: all hooks from the array should be executed (post-order case)\n    * -
null: execute hooks only from the saved index until the end of the array (pre-order case, when\n    * flushing the
remaining hooks)\n    * - number: execute hooks only from the saved index until that node index exclusive (pre-
order\n    * case, when executing select(number))\n    */\n    function executeInitAndCheckHooks(lView, hooks,
initPhase, nodeIndex) {\n        ngDevMode &&\n            assertNotEqual(initPhase, 3 /* InitPhaseCompleted */, 'Init
pre-order hooks should not be called more than once');\n        if ((lView[FLAGS] & 3 /* InitPhaseStateMask */) ===
initPhase) {\n            callHooks(lView, hooks, initPhase, nodeIndex);\n        }\n    }\n    function
incrementInitPhaseFlags(lView, initPhase) {\n        ngDevMode &&\n            assertNotEqual(initPhase,
3 /* InitPhaseCompleted */, 'Init hooks phase should not be incremented after all init hooks have been run.);\n
var flags = lView[FLAGS];\n        if ((flags & 3 /* InitPhaseStateMask */) === initPhase) {\n            flags &= 2047
/* IndexWithinInitPhaseReset */;\n            flags += 1 /* InitPhaseStateIncrementer */;\n            lView[FLAGS] =
flags;\n        }\n    }\n    /**\n    * Calls lifecycle hooks with their contexts, skipping init hooks if it's not\n    * the
first LView pass\n    * @param currentView The current view\n    * @param arr The array in which the
hooks are found\n    * @param initPhaseState the current state of the init phase\n    * @param currentNodeIndex 3
cases depending on the value:\n    * - undefined: all hooks from the array should be executed (post-order case)\n
    * - null: execute hooks only from the saved index until the end of the array (pre-order case, when\n    * flushing the
remaining hooks)\n    * - number: execute
hooks only from the saved index until that node index exclusive (pre-order\n    * case, when executing
select(number))\n    */\n    function callHooks(currentView, arr, initPhase, currentNodeIndex) {\n        ngDevMode
&&\n            assertEquals(isInCheckNoChangesMode(), false, 'Hooks should never be run when in check no changes
mode.);\n        var startIndex = currentNodeIndex !== undefined ?\n        (currentView[PREORDER_HOOK_FLAGS] & 65535 /* IndexOfTheNextPreOrderHookMaskMask */) :\n        0;\n        var nodeIndexLimit = currentNodeIndex !== null ? currentNodeIndex : -1;\n        var lastNodeIndexFound =
0;\n        for (var i = startIndex; i < arr.length; i++) {\n            var hook = arr[i + 1];\n            if (typeof hook ===
'number') {\n                lastNodeIndexFound = arr[i];\n                if (currentNodeIndex !== null &&
lastNodeIndexFound >= currentNodeIndex) {\n                    break;\n                }\n            } else {\n
                var isInitHook = arr[i] < 0;\n                if (isInitHook)\n                    currentView[PREORDER_HOOK_FLAGS] += 65536 /* NumberOfInitHooksCalledIncrementer */;\n                if
(lastNodeIndexFound < nodeIndexLimit || nodeIndexLimit === -1) {\n                    callHook(currentView, initPhase,
arr, i);\n                    currentView[PREORDER_HOOK_FLAGS] =\n                    (currentView[PREORDER_HOOK_FLAGS] & 4294901760 /* NumberOfInitHooksCalledMask */) + i +\n
                    2;\n                }\n                i++;\n            }\n        }\n    }\n    /**\n    * Execute one hook against the current

```

```

`LView`. \n * \n * @param currentView The current view \n * @param initState the current state of the
init phase \n * @param arr The array in which the hooks are found \n * @param i The current index within the
hook data array \n * \n function callHook(currentView, initState, arr, i) { \n var isInitHook = arr[i]
< 0; \n var hook = arr[i + 1]; \n var directiveIndex = isInitHook ? -arr[i] : arr[i]; \n var directive =
currentView[directiveIndex]; \n if (isInitHook) { \n var indexWithinInitPhase = currentView[FLAGS] >>
11 /* IndexWithinInitPhaseShift */; \n // The init phase state must be always checked here as it may have been
recursively \n // updated \n if (indexWithinInitPhase < \n
(currentView[PREORDER_HOOK_FLAGS] >> 16 /* NumberOfInitHooksCalledShift */) && \n
(currentView[FLAGS] & 3 /* InitPhaseStateMask */) === initState) { \n currentView[FLAGS] += 2048 /*
IndexWithinInitPhaseIncrementer */; \n hook.call(directive); \n } \n } \n else { \n
hook.call(directive); \n } \n } \n \n /** \n * @license \n * Copyright Google LLC All Rights Reserved. \n
* \n * Use of this source code is governed by an MIT-style license that can
be \n * found in the LICENSE file at https://angular.io/license \n * \n var NO_PARENT_INJECTOR = -1; \n
/** \n * Each injector is saved in 9 contiguous slots in `LView` and 9 contiguous slots in \n * `TView.data`. This
allows us to store information about the current node's tokens (which \n * can be shared in `TView`) as well as the
tokens of its ancestor nodes (which cannot be \n * shared, so they live in `LView`). \n * \n * Each of these slots
(aside from the last slot) contains a bloom filter. This bloom filter \n * determines whether a directive is available
on the associated node or not. This prevents us \n * from searching the directives array at this level unless it's
probable the directive is in it. \n * \n * See: https://en.wikipedia.org/wiki/Bloom_filter for more about bloom
filters. \n * \n * Because all injectors have been flattened into `LView` and `TViewData`, they cannot typed \n
* using interfaces as they were previously.

The start index of each `LInjector` and `TInjector` \n * will differ based on where it is flattened into the main
array, so it's not possible to know \n * the indices ahead of time and save their types here. The interfaces are still
included here \n * for documentation purposes. \n * \n * export interface LInjector extends Array<any> { \n
* \n * // Cumulative bloom for directive IDs 0-31 (IDs are % BLOOM_SIZE) \n * [0]: number; \n * \n *
// Cumulative bloom for directive IDs 32-63 \n * [1]: number; \n * \n * // Cumulative bloom for directive
IDs 64-95 \n * [2]: number; \n * \n * // Cumulative bloom for directive IDs 96-127 \n * [3]: number; \n
* \n * // Cumulative bloom for directive IDs 128-159 \n * [4]: number; \n * \n * // Cumulative bloom
for directive IDs 160 - 191 \n * [5]: number; \n * \n * // Cumulative bloom for directive IDs 192 - 223 \n
* [6]: number; \n
* \n * // Cumulative bloom for directive IDs 224 - 255 \n * [7]: number; \n * \n * // We need to store
a reference to the injector's parent so DI can keep looking up \n * // the injector tree until it finds the dependency
it's looking for. \n * [PARENT_INJECTOR]: number; \n * } \n * \n * export interface TInjector extends
Array<any> { \n * \n * // Shared node bloom for directive IDs 0-31 (IDs are % BLOOM_SIZE) \n * [0]:
number; \n * \n * // Shared node bloom for directive IDs 32-63 \n * [1]: number; \n * \n * // Shared
node bloom for directive IDs 64-95 \n * [2]: number; \n * \n * // Shared node bloom for directive IDs 96-
127 \n * [3]: number; \n * \n * // Shared node bloom for directive IDs 128-159 \n * [4]: number; \n
* \n * // Shared node bloom for directive IDs 160 - 191 \n * [5]: number; \n * \n * // Shared node bloom
for directive IDs
192 - 223 \n * [6]: number; \n * \n * // Shared node bloom for directive IDs 224 - 255 \n * [7]:
number; \n * \n * // Necessary to find directive indices for a particular node. \n * [TNODE]:
TElementNode|TElementContainerNode|TContainerNode; \n * } \n * \n /** \n * Factory for creating
instances of injectors in the NodeInjector. \n * \n * This factory is complicated by the fact that it can resolve
`multi` factories as well. \n * \n * NOTE: Some of the fields are optional which means that this class has two
hidden classes. \n * - One without `multi` support (most common) \n * - One with `multi` values, (rare). \n * \n
* Since VMs can cache up to 4 inline hidden classes this is OK. \n * \n * - Single factory: Only `resolving` and
`factory` is defined. \n * - `providers` factory: `componentProviders` is a number and `index = -1`. \n * -
`viewProviders` factory: `componentProviders` is a number and `index`

```

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points to `providers`.
    */
    var NodeInjectorFactory = /** @class */ (function () {
        function NodeInjectorFactory(factory) {
            /*
             * Factory to invoke in order to create a new instance.
            */
            this.factory = factory;

            /*
             * Set to `true` if the token is declared in `viewProviders` (or if it is component).
            */
            this.isViewProvider = injectImplementation;

            /*
             * Marker set to true during factory invocation to see if we get into recursive loop.
            */
            this.resolving = false;

            /*
             * Recursive loop causes an error to be displayed.
            */
            ngDevMode && assertDefined(factory, 'Factory not specified');

            ngDevMode && assertEquals(typeof factory, 'function', 'Expected factory function.');
```

```

            this.canSeeViewProviders = isViewProvider;
            this.injectImpl = injectImplementation;
        }

        return NodeInjectorFactory;
    })();

    function isFactory(obj) {
        return obj instanceof NodeInjectorFactory;
    }

    // Note: This hack is necessary so we don't erroneously get a circular dependency
    // failure based on types.
    var unusedValueExportToPlacateAjd$3 = 1;

    /**
     * Converts `TNodeType` into human readable text.
     * Make sure this matches with `TNodeType`
     */
    function toTNodeTypeAsString(tNodeType) {
        var text = "";
        (tNodeType & 1 /* Text */) && (text += 'Text');
        (tNodeType & 2 /* Element */) && (text += 'Element');
        (tNodeType & 4 /* Container */) && (text += 'Container');
        (tNodeType & 8 /* ElementContainer */) && (text += 'ElementContainer');
        (tNodeType & 16 /* Projection */) && (text += 'Projection');
        (tNodeType & 32 /* Icu */) && (text += 'IcuContainer');
        (tNodeType & 64 /* Placeholder */) && (text += 'Placeholder');
        return text.length > 0 ? text.substring(1) : text;
    }

    // Note: This hack is necessary so we don't erroneously get a circular dependency
    // failure based on types.
    var unusedValueExportToPlacateAjd$4 = 1;

    /**
     * Returns `true` if the `TNode` has a directive which has `@Input()` for `class` binding.
     */
    function hasClassInput(tNode) {
        return (tNode.flags & 16 /* hasClassInput */) !== 0;
    }

    /**
     * Returns `true` if the `TNode` has a directive which has `@Input()` for `style` binding.
     */
    function hasStyleInput(tNode) {
        return (tNode.flags & 32 /* hasStyleInput */) !== 0;
    }

    /**
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     * https://angular.io/license
     */
    function assertTNodeType(tNode, expectedTypes, message) {
        if ((tNode.type & expectedTypes) === 0) {
            throw Error(message || "Expected [" + toTNodeTypeAsString(expectedTypes) + "] but got [" + toTNodeTypeAsString(tNode.type) + "].");
        }
    }

    function assertPureTNodeType(type) {
        if (!(type === 2 /* Element */ || type === 1 /* Text */ || type === 4 /* Container */ || type === 8 /* ElementContainer */ || type === 32 /* Icu */ || type === 16 /* Projection */ || type === 64 /* Placeholder */)) {
            throw Error("Expected TNodeType to have only a single type selected, but got [" + toTNodeTypeAsString(type) + "].");
        }
    }

    /**
     * Assigns all attribute values to the provided element via the inferred renderer.
     * This function accepts two forms of attribute entries:
     * - default: (key, value)
     * - attrs = [key1, value1, key2, value2]
     * - namespaced: (NAMESPACE_MARKER, uri, name, value)
     * - attrs = [NAMESPACE_MARKER, uri, name, value, NAMESPACE_MARKER, uri, name, value]
     * The `attrs` array can contain a mix of both the default and namespaced entries.
     * The `default` values are set without a marker, but if the function comes across a marker value then it will attempt to set a namespaced value. If the marker is not of a namespaced value then the function will quit and return the index value where it stopped during the iteration of the attrs array.
     * See
    
```

```

[AttributeMarker] to understand what the namespace marker value is.\n    * Note that this instruction does not
support assigning style and class values to\n    * an element. See `elementStart` and `elementHostAttrs` to learn
how styling values\n    * are applied to an element.\n    * @param renderer The renderer to be used\n    * @param native The element that the attributes will be assigned to\n    * @param attrs The attribute array of values that will
be assigned to the element\n    * @returns the index value that was last accessed in the attributes array\n    */\nfunction setUpAttributes(renderer, native,
  attrs) {\n    var isProc = isProceduralRenderer(renderer);\n    var i = 0;\n    while (i < attrs.length) {\n        var value = attrs[i];\n        if (typeof value === 'number') {\n            // only namespaces are supported. Other
value types (such as style/class\n            // entries) are not supported in this function.\n            if (value !== 0 /*
NamespaceURI */) {\n                break;\n            }\n            // we just landed on the marker value ...
therefore\n            // we should skip to the next entry\n            i++;\n            var namespaceURI = attrs[i++];\n            var attrName = attrs[i++];\n            var attrVal = attrs[i++];\n            ngDevMode &&
ngDevMode.rendererSetAttribute++;\n            isProc ?\n                renderer.setAttribute(native, attrName,
attrVal, namespaceURI) :\n                native.setAttributeNS(namespaceURI, attrName, attrVal);\n            }\n            else {\n                // attrName is string;\n                var attrName = value;\n                var attrVal =
attrs[++i];\n                // Standard attributes\n                ngDevMode && ngDevMode.rendererSetAttribute++;\n                if (isAnimationProp(attrName)) {\n                    if (isProc) {\n                        renderer.setProperty(native,
attrName, attrVal);\n                    }\n                    else {\n                        isProc ?\n                            renderer.setAttribute(native, attrName, attrVal) :\n                            native.setAttribute(attrName, attrVal);\n                    }\n                    i++;\n                }\n                // another piece of code may iterate over the same attributes array.
Therefore\n                // it may be helpful to return the exact spot where the attributes array exited\n                // whether by
running into an unsupported marker or if all the static values were\n                // iterated
over.\n                return i;\n            }\n            /**\n            * Test whether the given value is a marker that indicates that the following\n            * attribute values in a `TAttributes` array are only the names of attributes,\n            * and not name-value pairs.\n            * @param marker The attribute marker to test.\n            * @returns true if the marker is a "name-only" marker (e.g.
`Bindings`, `Template` or `I18n`).\n            */\n            function isNameOnlyAttributeMarker(marker) {\n                return marker
=== 3 /* Bindings */ || marker === 4 /* Template */ ||\n                marker === 6 /* I18n */;\n            }\n            function
isAnimationProp(name) {\n                // Perf note: accessing charCodeAt to check for the first character of a string is
faster as\n                // compared to accessing a character at index 0 (ex. name[0]). The main reason for this is that\n                //
charCodeAt doesn't allocate memory to return a substring.\n                return name.charCodeAt(0) === 64 /* AT_SIGN
*/;\n            }\n            /**\n            * Merges `src` `TAttributes`
into `dst` `TAttributes` removing any duplicates in the process.\n            * This merge function keeps the order of
attrs same.\n            * @param dst Location of where the merged `TAttributes` should end up.\n            * @param src
`TAttributes` which should be appended to `dst`\n            */\n            function mergeHostAttrs(dst, src) {\n                if (src ===
null || src.length === 0) {\n                    // do nothing\n                }\n                else if (dst === null || dst.length === 0) {\n                    //
We have source, but dst is empty, just make a copy.\n                    dst = src.slice();\n                }\n                else {\n                    var
srcMarker = -1 /* ImplicitAttributes */;\n                    for (var i = 0; i < src.length; i++) {\n                        var item = src[i];\n                        if (typeof item === 'number') {\n                            srcMarker = item;\n                        }\n                        else {\n                            if
(srcMarker === 0 /* NamespaceURI */) {\n                                // Case where we need to consume
`key1`, `key2`, `value` items.\n                            }\n                            else if (srcMarker === -1 /* ImplicitAttributes */) {\n                                srcMarker === 2 /* Styles */) {\n                                    // Case where we have to consume `key1` and `value`
only.\n                                    mergeHostAttribute(dst, srcMarker, item, null, src[++i]);\n                                }\n                                else {\n                                    // Case where we have to consume `key1` only.\n                                    mergeHostAttribute(dst, srcMarker,
item, null, null);\n                                }\n                            }\n                            }\n                            }\n                            return dst;\n                        }\n                        /**\n                        * Append
`key`/`value` to existing `TAttributes` taking region marker and duplicates into account.\n                        * @param dst
`TAttributes` to append to.\n                        * @param marker Region where the `key`/`value` should be added.\n                        * @param
key1 Key to add to `TAttributes`\n                        * @param key2 Key to add to `TAttributes` (in case of

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`AttributeMarker.NamespaceURI`)\n    * @param value Value to add or to overwrite to `TAttributes` Only used if
`marker` is not Class.\n    *\n    function mergeHostAttribute(dst, marker, key1, key2, value) {\n        var i = 0;\n        // Assume that new markers will be inserted at the end.\n        var markerInsertPosition = dst.length;\n        // scan
until correct type.\n        if (marker === -1 /* ImplicitAttributes */) {\n            markerInsertPosition = -1;\n        }\n        else {\n            while (i < dst.length) {\n                var dstValue = dst[i++];\n                if (typeof dstValue ===
'number') {\n                    if (dstValue === marker) {\n                        markerInsertPosition = i - 1;\n                    }\n                    else if (dstValue > marker) {\n                        // We need to save this as we want
the markers to be inserted in specific order.\n                        markerInsertPosition = i -
1;\n                        break;\n                    }\n                }\n            }\n            // search until you find place of
insertion\n            while (i < dst.length) {\n                var item = dst[i];\n                if (typeof item === 'number') {\n
// since `i` started as the index after the marker, we did not find it if we are at the next\n                // marker\n                break;\n            }\n            else if (item === key1) {\n                // We already have same token\n                if (key2
=== null) {\n                    if (value !== null) {\n                        dst[i + 1] = value;\n                    }\n                }\n                else if (key2 === dst[i + 1]) {\n                    dst[i + 2] = value;\n                    return;\n                }\n            }\n            // Increment counter.\n            i++;\n            if (key2 !== null) i++;\n            if (value !== null) i++;\n            // insert at location.\n            if (markerInsertPosition !== -1) {\n                dst.splice(markerInsertPosition, 0, marker);\n                i = markerInsertPosition + 1;\n            }\n            dst.splice(i++, 0,
key1);\n            if (key2 !== null) {\n                dst.splice(i++, 0, key2);\n            }\n            if (value !== null) {\n                dst.splice(i++, 0, value);\n            }\n        }\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights
Reserved.\n     * \n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the
LICENSE file at https://angular.io/license\n     *\n     /// Parent Injector Utils
////////////////////////////////////////\n    function hasParentInjector(parentLocation) {\n        return
parentLocation !== NO_PARENT_INJECTOR;\n    }\n    function getParentInjectorIndex(parentLocation) {\n        ngDevMode && assertNumber(parentLocation, 'Number
expected');\n        ngDevMode && assertNotEqual(parentLocation, -1, 'Not a valid state.);\n        var
parentInjectorIndex = parentLocation & 32767 /* InjectorIndexMask */;\n        ngDevMode && \n
assertGreaterThan(parentInjectorIndex, HEADER_OFFSET, 'Parent injector must be pointing past
HEADER_OFFSET.);\n        return parentLocation & 32767 /* InjectorIndexMask */;\n    }\n    function
getParentInjectorViewOffset(parentLocation) {\n        return parentLocation >> 16 /* ViewOffsetShift */;\n    }\n
/**\n     * Unwraps a parent injector location number to find the view offset from the current injector,\n     * then
walks up the declaration view tree until the view is found that contains the parent\n     * injector.\n     * \n     *
@param location The location of the parent injector, which contains the view offset\n     * @param startView The
LView instance from which to start walking up the view tree\n     * @returns The LView instance that contains the
parent injector\n
     *\n     function getParentInjectorView(location, startView) {\n        var viewOffset =
getParentInjectorViewOffset(location);\n        var parentView = startView;\n        // For most cases, the parent
injector can be found on the host node (e.g. for component\n        // or container), but we must keep the loop here to
support the rarer case of deeply nested\n        // <ng-template> tags or inline views, where the parent injector might
live many views\n        // above the child injector.\n        while (viewOffset > 0) {\n            parentView =
parentView[DECLARATION_VIEW];\n            viewOffset--;\n        }\n        return parentView;\n    }\n    /**\n
     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this source code is governed by
an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     *\n     /**\n
     * Defines if the call to `inject` should include `viewProviders` in its
resolution.\n     * \n     * This is set to true when we try to instantiate a component. This value is reset in\n     *
`getNodeInjectable` to a value which matches the declaration location of the token about to be\n     * instantiated.
This is done so that if we are injecting a token which was declared outside of\n     * `viewProviders` we don't
accidentally pull `viewProviders` in.\n     * \n     * Example:\n     * \n     * ```\n     * @Injectable()\n     * class
MyService {\n     *     constructor(public value: String) {\n     *     }\n     * \n     * @Component({\n     *     providers: [\n

```

```

* MyService,\n * {provide: String, value: 'providers'}\n * ]\n * viewProviders: [\n * {provide:
String, value: 'viewProviders'}\n * ]\n * })\n * class MyComponent {\n * constructor(myService:
MyService, value: String) {\n * // We expect that Component can see into `viewProviders`.\n *
expect(value).toEqual('viewProviders');\n *
// `MyService` was not declared in `viewProviders` hence it can't see it.\n *
expect(myService.value).toEqual('providers');\n * }\n * }\n * ```\n * ^\n var includeViewProviders
= true;\n function setIncludeViewProviders(v) {\n var oldValue = includeViewProviders;\n
includeViewProviders = v;\n return oldValue;\n }\n /**\n * The number of slots in each bloom filter (used
by DI). The larger this number, the fewer\n * directives that will share slots, and thus, the fewer false positives
when checking for\n * the existence of a directive.\n * ^\n var BLOOM_SIZE = 256;\n var BLOOM_MASK
= BLOOM_SIZE - 1;\n /** Counter used to generate unique IDs for directives. *\n var nextNgElementId = 0;\n
/**\n * Registers this directive as present in its node's injector by flipping the directive's\n * corresponding bit
in the injector's bloom filter.\n * ^\n * @param injectorIndex The index of the
node injector where this token should be registered\n * @param tView The TView for the injector's bloom
filters\n * @param type The directive token to register\n * ^\n function bloomAdd(injectorIndex, tView, type)
{\n ngDevMode && assertEquals(tView.firstCreatePass, true, 'expected firstCreatePass to be true');\n var
id;\n if (typeof type === 'string') {\n id = type.charCodeAt(0) || 0;\n }\n else if
(type.hasOwnProperty(NG_ELEMENT_ID)) {\n id = type[NG_ELEMENT_ID];\n }\n // Set a
unique ID on the directive type, so if something tries to inject the directive,\n // we can easily retrieve the ID
and hash it into the bloom bit that should be checked.\n if (id == null) {\n id = type[NG_ELEMENT_ID]
= nextNgElementId++;\n }\n // We only have BLOOM_SIZE (256) slots in our bloom filter (8 buckets * 32
bits each),\n // so all unique IDs must be modulo-ed into a number
from 0 - 255 to fit into the filter.\n var bloomBit = id & BLOOM_MASK;\n // Create a mask that targets
the specific bit associated with the directive.\n // JS bit operations are 32 bits, so this will be a number between
2^0 and 2^31, corresponding\n // to bit positions 0 - 31 in a 32 bit integer.\n var mask = 1 << bloomBit;\n
// Use the raw bloomBit number to determine which bloom filter bucket we should check\n // e.g: bf0 = [0 -
31], bf1 = [32 - 63], bf2 = [64 - 95], bf3 = [96 - 127], etc\n var b7 = bloomBit & 0x80;\n var b6 = bloomBit
& 0x40;\n var b5 = bloomBit & 0x20;\n var tData = tView.data;\n if (b7) {\n b6 ? (b5 ?
(tData[injectorIndex + 7] | mask) : (tData[injectorIndex + 6] | mask)) : (b5 ? (tData[injectorIndex + 5]
| mask) : (tData[injectorIndex + 4] | mask));\n }\n else {\n b6 ? (b5 ? (tData[injectorIndex + 3] |
mask) : (tData[injectorIndex
+ 2] | mask)) : (b5 ? (tData[injectorIndex + 1] | mask) : (tData[injectorIndex] | mask));\n }\n
}\n /**\n * Creates (or gets an existing) injector for a given element or container.\n * ^\n * @param tNode
for which an injector should be retrieved / created.\n * @param IView View where the node is stored\n *
@returns Node injector\n * ^\n function getOrCreateNodeInjectorForNode(tNode, IView) {\n var
existingInjectorIndex = getInjectorIndex(tNode, IView);\n if (existingInjectorIndex !== -1) {\n return
existingInjectorIndex;\n }\n var tView = IView[TVIEW];\n if (tView.firstCreatePass) {\n
tNode.injectorIndex = IView.length;\n insertBloom(tView.data, tNode); // foundation for node bloom\n
insertBloom(IView, null); // foundation for cumulative bloom\n insertBloom(tView.blueprint, null);\n }\n
var parentLoc = getParentInjectorLocation(tNode,
IView);\n var injectorIndex = tNode.injectorIndex;\n // If a parent injector can't be found, its location is set
to -1.\n // In that case, we don't need to set up a cumulative bloom\n if (hasParentInjector(parentLoc)) {\n
var parentIndex = getParentInjectorIndex(parentLoc);\n var parentLView =
getParentInjectorView(parentLoc, IView);\n var parentData = parentLView[TVIEW].data;\n // Creates
a cumulative bloom filter that merges the parent's bloom filter\n // and its own cumulative bloom (which
contains tokens for all ancestors)\n for (var i = 0; i < 8 /* BLOOM_SIZE */; i++) {\n
IView[injectorIndex + i] = parentLView[parentIndex + i] | parentData[parentIndex + i];\n }\n }\n
IView[injectorIndex + 8 /* PARENT */] = parentLoc;\n return injectorIndex;\n }\n function

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insertBloom(arr, footer) {\n    arr.push(0, 0, 0, 0, 0, 0,
0, 0, footer);\n } \n function getInjectorIndex(tNode, IView) {\n    if (tNode.injectorIndex === -1 || \n    //
If the injector index is the same as its parent's injector index, then the index has been \n    // copied down from
the parent node. No injector has been created yet on this node.\n    (tNode.parent &&
tNode.parent.injectorIndex === tNode.injectorIndex) || \n    // After the first template pass, the injector index
might exist but the parent values \n    // might not have been calculated yet for this instance \n
IView[tNode.injectorIndex + 8 /* PARENT */] === null) {\n    return -1;\n } \n else {\n
ngDevMode && assertIndexInRange(IView, tNode.injectorIndex);\n    return tNode.injectorIndex;\n } \n
} \n /** \n * Finds the index of the parent injector, with a view offset if applicable. Used to set the \n * parent
injector initially. \n * \n * @returns Returns a number
that is the combination of the number of LViews that we have to go up \n * to find the LView containing the
parent inject AND the index of the injector within that LView. \n */ \n function getParentInjectorLocation(tNode,
IView) {\n    if (tNode.parent && tNode.parent.injectorIndex !== -1) {\n    // If we have a parent `TNode`
and there is an injector associated with it we are done, because \n    // the parent injector is within the current
`LView`. \n    return tNode.parent.injectorIndex; // ViewOffset is 0 \n } \n // When parent injector
location is computed it may be outside of the current view. (ie it could \n // be pointing to a declared parent
location). This variable stores number of declaration parents \n // we need to walk up in order to find the parent
injector location. \n    var declarationViewOffset = 0; \n    var parentTNode = null; \n    var IViewCursor =
IView; \n    // The parent injector is not
in the current `LView`. We will have to walk the declared parent \n    // `LView` hierarchy and look for it. If we
walk of the top, that means that there is no parent \n    // `NodeInjector`. \n    while (IViewCursor !== null) {\n
    // First determine the `parentTNode` location. The parent pointer differs based on `TView.type`. \n    var
tView = IViewCursor[TVIEW]; \n    var tViewType = tView.type; \n    if (tViewType === 2 /* Embedded
*/) {\n    ngDevMode && \n    assertDefined(tView.declTNode, 'Embedded TNodes should have
declaration parents. '); \n    parentTNode = tView.declTNode; \n } \n else if (tViewType === 1 /*
Component */) {\n    // Components don't have `TView.declTNode` because each instance of component
could be \n    // inserted in different location, hence `TView.declTNode` is meaningless. \n
parentTNode = IViewCursor[T_HOST]; \n
} \n else {\n    ngDevMode && assertEqual(tView.type, 0 /* Root */, 'Root type expected'); \n
parentTNode = null; \n } \n if (parentTNode === null) {\n    // If we have no parent, than we
are done. \n    return NO_PARENT_INJECTOR; \n } \n ngDevMode && parentTNode &&
assertTNodeForLView(parentTNode, IViewCursor[DECLARATION_VIEW]); \n    // Every iteration of the
loop requires that we go to the declared parent. \n    declarationViewOffset++; \n    IViewCursor =
IViewCursor[DECLARATION_VIEW]; \n    if (parentTNode.injectorIndex !== -1) {\n    // We found a
NodeInjector which points to something. \n    return (parentTNode.injectorIndex | \n
(declarationViewOffset << 16 /* ViewOffsetShift */)); \n } \n } \n return
NO_PARENT_INJECTOR; \n } \n /** \n * Makes a type or an injection token public to
the DI system by adding it to an \n * injector's bloom filter. \n * \n * @param di The node injector in which a
directive will be added \n * @param token The type or the injection token to be made public \n */ \n function
diPublicInInjector(injectorIndex, tView, token) {\n    bloomAdd(injectorIndex, tView, token); \n } \n /** \n *
Inject static attribute value into directive constructor. \n * \n * This method is used with `factory` functions
which are generated as part of \n * `defineDirective` or `defineComponent`. The method retrieves the static
value \n * of an attribute. (Dynamic attributes are not supported since they are not resolved \n * at the time of
injection and can change over time.) \n * \n * # Example \n * Given: \n * ``` \n * @Component(...) \n *
class MyComponent {\n *   constructor(@Attribute('title') title: string) { ... } \n * } \n * ``` \n * When
instantiated with \n * ``` \n * <my-component
title="Hello"></my-component> \n * ``` \n * \n * Then factory method generated is: \n * ``` \n *
MyComponent.cmp = defineComponent({ \n *   factory: () => new MyComponent(injectAttribute('title')) \n *

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...\\n * })\\n * ``\\n * \\n * @publicApi\\n * /\\n function injectAttributeImpl(tNode, attrNameToInject) {\\n
  ngDevMode && assertTNodeType(tNode, 12 /* AnyContainer */ | 3 /* AnyRNode */);\\n  ngDevMode &&
  assertDefined(tNode, 'expecting tNode');\\n  if (attrNameToInject === 'class') {\\n    return tNode.classes;\\n
  }\\n  if (attrNameToInject === 'style') {\\n    return tNode.styles;\\n  }\\n  var attrs = tNode.attrs;\\n
  if (attrs) {\\n    var attrsLength = attrs.length;\\n    var i = 0;\\n    while (i < attrsLength) {\\n
    var value = attrs[i];\\n    // If we hit a `Bindings` or `Template` marker then we are done.\\n    if
    (isNameOnlyAttributeMarker(value))\\n
      break;\\n    // Skip namespaced attributes\\n    if (value === 0 /* NamespaceURI */) {\\n
      // we skip the next two values\\n      // as namespaced attributes looks like\\n      // [...,
      AttributeMarker.NamespaceURI, 'http://someuri.com/test', 'test:exist',\\n      // 'existValue', ...]\\n      i
      = i + 2;\\n    }\\n    else if (typeof value === 'number') {\\n      // Skip to the first value of the
      marked attribute.\\n      i++;\\n      while (i < attrsLength && typeof attrs[i] === 'string') {\\n
      i++;\\n    }\\n    }\\n    else if (value === attrNameToInject) {\\n      return attrs[i
      + 1];\\n    }\\n    else {\\n      i = i + 2;\\n    }\\n    }\\n    }\\n
    return null;\\n  }\\n  function notFoundValueOrThrow(notFoundValue, token, flags) {\\n    if (flags &
    exports.InjectFlags.Optional) {\\n      return notFoundValue;\\n    }\\n    else {\\n
    throwProviderNotFoundError(token, 'NodeInjector');\\n    }\\n  }\\n  /**\\n   * Returns the value associated to the
    given token from the ModuleInjector or throws exception\\n   *\\n   * @param IView The `LView` that contains the
    `tNode`\\n   * @param token The token to look for\\n   * @param flags Injection flags\\n   * @param
    notFoundValue The value to return when the injection flags is `InjectFlags.Optional`\\n   * @returns the value from
    the injector or throws an exception\\n   */\\n   function lookupTokenUsingModuleInjector(IView, token, flags,
    notFoundValue) {\\n    if (flags & exports.InjectFlags.Optional && notFoundValue === undefined) {\\n      //
    This must be set or the NullInjector will throw for optional deps\\n      notFoundValue = null;\\n
    }\\n    if ((flags & (exports.InjectFlags.Self | exports.InjectFlags.Host)) === 0) {\\n      var moduleInjector
    = IView[INJECTOR];\\n      // switch to `injectInjectorOnly` implementation for module injector, since module
    injector\\n      // should not have access to Component/Directive DI scope (that may happen through\\n      //
    `directiveInject` implementation)\\n      var previousInjectImplementation =
    setInjectImplementation(undefined);\\n      try {\\n        if (moduleInjector) {\\n          return
    moduleInjector.get(token, notFoundValue, flags & exports.InjectFlags.Optional);\\n        }\\n        else {\\n
          return injectRootLimpMode(token, notFoundValue, flags & exports.InjectFlags.Optional);\\n        }\\n
      }\\n      finally {\\n        setInjectImplementation(previousInjectImplementation);\\n      }\\n    }\\n
    return notFoundValueOrThrow(notFoundValue,
    token, flags);\\n  }\\n  /**\\n   * Returns the value associated to the given token from the NodeInjectors =>
    ModuleInjector.\\n   *\\n   * Look for the injector providing the token by walking up the node injector tree and
    then\\n   * the module injector tree.\\n   *\\n   * This function patches `token` with `__NG_ELEMENT_ID__`
    which contains the id for the bloom\\n   * filter. `-1` is reserved for injecting `Injector` (implemented by
    `NodeInjector`)\\n   *\\n   * @param tNode The Node where the search for the injector should start\\n   * @param
    IView The `LView` that contains the `tNode`\\n   * @param token The token to look for\\n   * @param flags
    Injection flags\\n   * @param notFoundValue The value to return when the injection flags is
    `InjectFlags.Optional`\\n   * @returns the value from the injector, `null` when not found, or `notFoundValue` if
    provided\\n   */\\n   function getOrCreateInjectable(tNode, IView, token, flags, notFoundValue) {\\n    if (flags
    === void 0) { flags = exports.InjectFlags.Default; }\\n    if (tNode !== null) {\\n      var bloomHash =
    bloomHashBitOrFactory(token);\\n      // If the ID stored here is a function, this is a special object like
    ElementRef or TemplateRef\\n      // so just call the factory function to create it.\\n      if (typeof bloomHash
    === 'function') {\\n        if (!enterDI(IView, tNode, flags)) {\\n          // Failed to enter DI, try module
    injector instead. If a token is injected with the @Host\\n          // flag, the module injector is not searched for
    that token in Ivy.\\n          return (flags & exports.InjectFlags.Host) ?\\n
    notFoundValueOrThrow(notFoundValue, token, flags) :\\n          lookupTokenUsingModuleInjector(IView,

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token, flags, notFoundValue);\n          }\n          try {\n              var value = bloomHash();\n              if\n              (value == null && !(flags &\n              exports.InjectFlags.Optional)) {\n                  throwProviderNotFoundError(token);\n              }\n              else {\n                  return value;\n              }\n              finally {\n                  leaveDI();\n              }\n              else if (typeof bloomHash === 'number') {\n                  // A reference to the previous injector\n                  TView that was found while climbing the element\n                  // injector tree. This is used to know if viewProviders\n                  can be accessed on the current\n                  // injector.\n                  var previousTView = null;\n                  var\n                  injectorIndex = getInjectorIndex(tNode, IView);\n                  var parentLocation = NO_PARENT_INJECTOR;\n                  var hostTElementNode = flags & exports.InjectFlags.Host ?\n                  IView[DECLARATION_COMPONENT_VIEW][T_HOST] : null;\n                  // If we should skip this injector, or if\n                  there is no injector on this node,\n                  start by\n                  // searching the parent injector.\n                  if (injectorIndex === -1 || flags &\n                  exports.InjectFlags.SkipSelf) {\n                      parentLocation = injectorIndex === -1 ?\n                      getParentInjectorLocation(tNode, IView) : IView[injectorIndex + 8 /* PARENT */];\n                      if\n                      (parentLocation === NO_PARENT_INJECTOR || !shouldSearchParent(flags, false)) {\n                          injectorIndex = -1;\n                      }\n                      else {\n                          previousTView = IView[TVIEW];\n                          injectorIndex = getParentInjectorIndex(parentLocation);\n                          IView =\n                          getParentInjectorView(parentLocation, IView);\n                      }\n                      // Traverse up the injector\n                      tree until we find a potential match or until we know there\n                      // isn't a match.\n                      while\n                      (injectorIndex !== -1) {\n                          ngDevMode && assertNodeInjector(IView,\n                          injectorIndex);\n                          // Check the current injector. If it matches, see if it contains token.\n                          var\n                          tView = IView[TVIEW];\n                          ngDevMode &&\n                          assertTNodeForLView(tView.data[injectorIndex + 8 /* TNODE */], IView);\n                          if\n                          (bloomHasToken(bloomHash, injectorIndex, tView.data)) {\n                              // At this point, we have an injector\n                              which *may* contain the token, so we step through\n                              // the providers and directives associated with\n                              the injector's corresponding node to get\n                              // the instance.\n                              var instance =\n                              searchTokensOnInjector(injectorIndex, IView, token, previousTView, flags, hostTElementNode);\n                              if\n                              (instance !== NOT_FOUND) {\n                                  return instance;\n                              }\n                              parentLocation = IView[injectorIndex + 8\n                              /* PARENT */];\n                              if (parentLocation !== NO_PARENT_INJECTOR &&\n                              shouldSearchParent(flags, IView[TVIEW].data[injectorIndex + 8 /* TNODE */] === hostTElementNode) &&\n                              bloomHasToken(bloomHash, injectorIndex, IView)) {\n                                  // The def wasn't found anywhere\n                                  on this node, so it was a false positive.\n                                  // Traverse up the tree and continue searching.\n                                  previousTView = tView;\n                                  injectorIndex = getParentInjectorIndex(parentLocation);\n                                  IView = getParentInjectorView(parentLocation, IView);\n                              }\n                              else {\n                                  // If we\n                                  should not search parent OR If the ancestor bloom filter value does not have the\n                                  // bit corresponding\n                                  to the directive we can give up on traversing up to find the specific\n                                  // injector.\n                                  injectorIndex = -1;\n                              }\n                              }\n                              }\n                              }\n                              return\n                              lookupTokenUsingModuleInjector(IView, token, flags, notFoundValue);\n                              }\n                              var NOT_FOUND = {};\n                              function createNodeInjector() {\n                                  return new NodeInjector(getCurrentTNode(), getLView());\n                              }\n                              function\n                              searchTokensOnInjector(injectorIndex, IView, token, previousTView, flags, hostTElementNode) {\n                                  var\n                                  currentTView = IView[TVIEW];\n                                  var tNode = currentTView.data[injectorIndex + 8 /* TNODE */];\n                                  //\n                                  First, we need to determine if view providers can be accessed by the starting element.\n                                  // There are two\n                                  possibilities\n                                  var canAccessViewProviders = previousTView == null ?\n                                  // 1) This is the first invocation\n                                  `previousTView == null` which means that we are at the\n                                  // `TNode` of where injector is starting to look. In\n                                  such a case the only time we are allowed\n                                  // to look into the ViewProviders\n                                  is if:\n                                  // - we are on a component\n                                  // - AND the injector set `includeViewProviders` to true\n                                  (implying that the token can see\n                                  // ViewProviders because it is the Component or a Service which itself was

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declared in\n      // ViewProviders)\n      (isComponentHost(tNode) && includeViewProviders) :\n      //
2) `previousTView != null` which means that we are now walking across the parent nodes.\n      // In such a case
we are only allowed to look into the ViewProviders if:\n      // - We just crossed from child View to Parent View
`previousTView != currentTView`\n      // - AND the parent TNode is an Element.\n      // This means that we
just came from the Component's View and therefore are allowed to see\n      // into the ViewProviders.\n
(previousTView != currentTView && ((tNode.type & 3 /* AnyRNode */) !== 0));\n      // This special case
happens when there is a @host on the inject and when
we are searching\n      // on the host element node.\n      var isHostSpecialCase = (flags &
exports.InjectFlags.Host) && hostTElementNode === tNode;\n      var injectableIdx =
locateDirectiveOrProvider(tNode, currentTView, token, canAccessViewProviders, isHostSpecialCase);\n      if
(injectableIdx !== null) {\n      return getNodeInjectable(IView, currentTView, injectableIdx, tNode);\n      }\n
      else {\n      return NOT_FOUND;\n      }\n      }\n      /**\n      * Searches for the given token among the node's
directives and providers.\n      * @param tNode TNode on which directives are present.\n      * @param tView
The tView we are currently processing\n      * @param token Provider token or type of a directive to look for.\n      *
@param canAccessViewProviders Whether view providers should be considered.\n      * @param isHostSpecialCase
Whether the host special case applies.\n      * @returns Index of a found directive or provider, or null when none
found.\n
      */\n      function locateDirectiveOrProvider(tNode, tView, token, canAccessViewProviders, isHostSpecialCase)
{\n      var nodeProviderIndexes = tNode.providerIndexes;\n      var tInjectables = tView.data;\n      var
injectablesStart = nodeProviderIndexes & 1048575 /* ProvidersStartIndexMask */;\n      var directivesStart =
tNode.directiveStart;\n      var directiveEnd = tNode.directiveEnd;\n      var cptViewProvidersCount =
nodeProviderIndexes >> 20 /* CptViewProvidersCountShift */;\n      var startingIndex = canAccessViewProviders
? injectablesStart : injectablesStart + cptViewProvidersCount;\n      // When the host special case applies, only the
viewProviders and the component are visible\n      var endIndex = isHostSpecialCase ? injectablesStart +
cptViewProvidersCount : directiveEnd;\n      for (var i = startingIndex; i < endIndex; i++) {\n      var
providerTokenOrDef = tInjectables[i];\n      if (i < directivesStart && token === providerTokenOrDef
||\n      i >= directivesStart && providerTokenOrDef.type === token) {\n      return i;\n      }\n
}\n      if (isHostSpecialCase) {\n      var dirDef = tInjectables[directivesStart];\n      if (dirDef &&
isComponentDef(dirDef) && dirDef.type === token) {\n      return directivesStart;\n      }\n      }\n
return null;\n      }\n      /**\n      * Retrieve or instantiate the injectable from the `LView` at particular `index`.\n      *
* This function checks to see if the value has already been instantiated and if so returns the\n      * cached
`injectable`. Otherwise if it detects that the value is still a factory it\n      * instantiates the `injectable` and caches the
value.\n      */\n      function getNodeInjectable(IView, tView, index, tNode) {\n      var value = IView[index];\n
var tData = tView.data;\n      if (isFactory(value)) {\n      var factory = value;\n      if (factory.resolving)
{\n      throwCyclicDependencyError(stringifyForError(tData[index]));\n      }\n      var
previousIncludeViewProviders = setIncludeViewProviders(factory.canSeeViewProviders);\n      factory.resolving = true;\n
      var previousInjectImplementation = factory.injectImpl ?
setInjectImplementation(factory.injectImpl) : null;\n      var success = enterDI(IView, tNode,
exports.InjectFlags.Default);\n      ngDevMode && assertEqual(success, true, 'Because flags do not
contain `SkipSelf` we expect this to always succeed.);\n      try {\n      value = IView[index] =
factory.factory(undefined, tData, IView, tNode);\n      // This code path is hit for both directives and
providers.\n      // For perf reasons, we want to avoid searching for hooks on providers.\n      // It does no
harm to try (the hooks just won't exist), but the extra\n      // checks are unnecessary and
this is a hot path. So we check to see\n      // if the index of the dependency is in the directive range for this\n
      // tNode. If it's not, we know it's a provider and skip hook registration.\n      if (tView.firstCreatePass
&& index >= tNode.directiveStart) {\n      ngDevMode && assertDirectiveDef(tData[index]);\n
registerPreOrderHooks(index, tData[index], tView);\n      }\n      }\n      finally {\n
previousInjectImplementation !== null &&\n      setInjectImplementation(previousInjectImplementation);\n

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        setIncludeViewProviders(previousIncludeViewProviders);\n        factory.resolving = false;\n    leaveDI();\n    }\n    }\n    return value;\n    }\n    /**\n     * Returns the bit in an injector's bloom filter that\n     * should be used to determine whether or not\n     * the directive might be provided by the injector.\n     *\n     * When a directive is public, it is added to the bloom filter and given a unique ID that can be\n     * retrieved\n     * on the Type. When the directive isn't public or the token is not a directive `null`\n     * is returned as the node\n     * injector can not possibly provide that token.\n     *\n     * @param token the injection token\n     * @returns the\n     * matching bit to check in the bloom filter or `null` if the token is not known.\n     * When the returned value is\n     * negative then it represents special values such as `Injector`.\n     */\n    function bloomHashBitOrFactory(token) {\n        ngDevMode && assertDefined(token, 'token must be defined');\n        if (typeof token === 'string') {\n            return token.charCodeAt(0) || 0;\n        }\n        var tokenId = \n        // First check with `hasOwnProperty` so we\n        don't get an inherited ID.\n        token.hasOwnProperty(NG_ELEMENT_ID) ? token[NG_ELEMENT_ID] :\n        undefined;\n        // Negative token IDs are used for special objects\n        such as `Injector`\n        if (typeof tokenId === 'number') {\n            if (tokenId >= 0) {\n                return tokenId &\n                BLOOM_MASK;\n            }\n            else {\n                ngDevMode &&\n                assertEqual(tokenId, -1 /*\n                Injector */, 'Expecting to get Special Injector Id');\n                return createNodeInjector;\n            }\n        }\n        else {\n            return tokenId;\n        }\n    }\n    function bloomHasToken(bloomHash, injectorIndex, injectorView)\n    {\n        // Create a mask that targets the specific bit associated with the directive we're looking for.\n        // JS bit\n        operations are 32 bits, so this will be a number between 2^0 and 2^31, corresponding\n        // to bit positions 0 - 31\n        in a 32 bit integer.\n        var mask = 1 << bloomHash;\n        var b7 = bloomHash & 0x80;\n        var b6 =\n        bloomHash & 0x40;\n        var b5 = bloomHash & 0x20;\n        // Our bloom filter size is 256 bits, which is eight 32-\n        bit bloom filter\n        buckets;\n        // bf0 = [0 - 31], bf1 = [32 - 63], bf2 = [64 - 95], bf3 = [96 - 127], etc.\n        // Get the bloom filter\n        value from the appropriate bucket based on the directive's bloomBit.\n        var value;\n        if (b7) {\n            value\n            = b6 ? (b5 ? injectorView[injectorIndex + 7] : injectorView[injectorIndex + 6]) :\n            (b5 ?\n            injectorView[injectorIndex + 5] : injectorView[injectorIndex + 4]);\n        }\n        else {\n            value = b6 ? (b5 ?\n            injectorView[injectorIndex + 3] : injectorView[injectorIndex + 2]) :\n            (b5 ? injectorView[injectorIndex +\n            1] : injectorView[injectorIndex]);\n        }\n        // If the bloom filter value has the bit corresponding to the\n        directive's bloomBit flipped on,\n        // this injector is a potential match.\n        return !(value & mask);\n    }\n    /** Returns true if flags prevent parent injector from being searched for tokens */\n    function\n    shouldSearchParent(flags, isFirstHostTNode) {\n        return !(flags & exports.InjectFlags.Self) && !(flags & exports.InjectFlags.Host && isFirstHostTNode);\n    }\n    var NodeInjector = /** @class */ (function () {\n        function NodeInjector(_tNode, _IView) {\n            this._tNode = _tNode;\n            this._IView = _IView;\n        }\n        NodeInjector.prototype.get = function (token,\n        notFoundValue) {\n            return getOrCreateInjectable(this._tNode, this._IView, token, undefined,\n            notFoundValue);\n        };\n        return NodeInjector;\n    }());\n    /**\n     * @codeGenApi\n     */\n    function\n    getFactoryOf(type) {\n        var typeAny = type;\n        if (isForwardRef(type)) {\n            return (function () {\n                var factory = getFactoryOf(resolveForwardRef(typeAny));\n                return factory ? factory() : null;\n            })();\n        }\n        var factory = getFactoryDef(typeAny);\n        if (factory === null) {\n            var injectorDef =\n            getInjectorDef(typeAny);\n            factory = injectorDef && injectorDef.factory;\n        }\n        return factory || null;\n    }\n    /**\n     *\n     * @codeGenApi\n     */\n    function getInheritedFactory(type) {\n        return noSideEffects(function () {\n            var\n            ownConstructor = type.prototype.constructor;\n            var ownFactory = ownConstructor[NG_FACTORY_DEF] ||\n            getFactoryOf(ownConstructor);\n            var objectPrototype = Object.prototype;\n            var parent =\n            Object.getPrototypeOf(type.prototype).constructor;\n            // Go up the prototype until we hit `Object`.\n            while (parent && parent !== objectPrototype) {\n                var factory = parent[NG_FACTORY_DEF] ||\n                getFactoryOf(parent);\n                // If we hit something that has a factory and the factory isn't the same as the type,\n                // we've found the inherited factory. Note the check that the factory isn't the type's\n                // own factory\n                is redundant in most cases, but if the user

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has custom decorators on the\n          // class, this lookup will start one level down in the prototype chain,
causing us to\n          // find the own factory first and potentially triggering an infinite loop downstream.\n
if (factory && factory !== ownFactory) {\n          return factory;\n          }\n          parent =
Object.getPrototypeOf(parent);\n          }\n          // There is no factory defined. Either this was improper usage of
inheritance\n          // (no Angular decorator on the superclass) or there is no constructor at all\n          // in the
inheritance chain. Since the two cases cannot be distinguished, the\n          // latter has to be assumed.\n
return function (t) { return new t(); }; \n          }); \n          }\n          /**\n           * @license\n           * Copyright Google LLC All
Rights Reserved.\n           * Use of this source code is governed by an MIT-style license that can be\n           * found
in the LICENSE
file at https://angular.io/license\n           */\n          var ERROR_TYPE = 'ngType';\n          var ERROR_DEBUG_CONTEXT =
'ngDebugContext';\n          var ERROR_ORIGINAL_ERROR = 'ngOriginalError';\n          var ERROR_LOGGER =
'ngErrorLogger';\n          function wrappedError(message, originalError) {\n          var msg = message + \" caused by: \" +
(originalError instanceof Error ? originalError.message : originalError);\n          var error = Error(msg);\n
error[ERROR_ORIGINAL_ERROR] = originalError;\n          return error;\n          }\n          function getType(error) {\n
return error[ERROR_TYPE];\n          }\n          function getDebugContext(error) {\n          return
error[ERROR_DEBUG_CONTEXT];\n          }\n          function getOriginalError(error) {\n          return
error[ERROR_ORIGINAL_ERROR];\n          }\n          function getErrorLogger(error) {\n          return
error[ERROR_LOGGER] || defaultErrorLogger;\n          }\n          function defaultErrorLogger(console) {\n          var values
= [];\n          for (var _i = 1; _i < arguments.length; _i++)\n          {\n          values[_i - 1] = arguments[_i];\n          }\n          console.error.apply(console, __spread(values));\n          }\n
          /**\n           * @license\n           * Copyright Google LLC All Rights Reserved.\n           * Use of this source code is
governed by an MIT-style license that can be\n           * found in the LICENSE file at https://angular.io/license\n           */\n
          /**\n           * Provides a hook for centralized exception handling.\n           * The default implementation of
`ErrorHandler` prints error messages to the `console`. To\n           * intercept error handling, write a custom exception
handler that replaces this default as\n           * appropriate for your app.\n           * @usageNotes\n           * ### Example\n
           *\n           * ```\n           * class MyErrorHandler implements ErrorHandler {\n           *   handleError(error) {\n           *     // do
something with the exception\n           *   }\n           * }\n           * @NgModule({\n           *   providers: [{provide:
ErrorHandler, useClass: MyErrorHandler}]\n           * })\n
           * class MyModule {\n           *   ... \n           *   @publicApi\n           *   var ErrorHandler = /** @class */ (function ()\n
           {\n           function ErrorHandler() {\n           /**\n           * @internal\n           */\n           this._console = console;\n
           }\n           ErrorHandler.prototype.handleError = function (error) {\n           var originalError =
this._findOriginalError(error);\n           var context = this._findContext(error);\n           // Note: Browser consoles
show the place from where console.error was called.\n           // We can use this to give users additional information
about the error.\n           var errorLogger = getErrorLogger(error);\n           errorLogger(this._console, \"ERROR\",
error);\n           if (originalError) {\n           errorLogger(this._console, \"ORIGINAL ERROR\", originalError);\n
           }\n           if (context) {\n           errorLogger(this._console, 'ERROR CONTEXT', context);\n           }\n
           }\n
           }\n
           /** @internal */\n           ErrorHandler.prototype._findContext = function (error) {\n           if (error) {\n
return getDebugContext(error) ? getDebugContext(error) :\n
this._findContext(getOriginalError(error));\n           }\n           return null;\n           }\n           /** @internal */\n
ErrorHandler.prototype._findOriginalError = function (error) {\n           var e = getOriginalError(error);\n           while (e && getOriginalError(e)) {\n           e = getOriginalError(e);\n           }\n           return e;\n           }\n
return ErrorHandler;\n          }());\n          /**\n           * @license\n           * Copyright Google LLC All Rights Reserved.\n           * Use of this source code is governed by an MIT-style license that can be\n           * found in the LICENSE file at
https://angular.io/license\n           */\n          /**\n           * Defines a schema that allows an NgModule to contain the
following:\n           * - Non-Angular elements named with dash
case ( ` - `).\n           * - Element properties named with dash case ( ` - `).\n           * Dash case is the naming convention for
custom elements.\n           * @publicApi\n           */\n          var CUSTOM_ELEMENTS_SCHEMA = {\n          name:

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'custom-elements'\n  };\n  /**\n   * Defines a schema that allows any property on any element.\n   *\n   * @publicApi\n   */\n  var NO_ERRORS_SCHEMA = {\n    name: 'no-errors-schema'\n  }; \n  /**\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  /**\n   * THIS FILE CONTAINS CODE WHICH SHOULD BE TREE SHAKEN AND NEVER CALLED FROM\n   * PRODUCTION CODE!!!\n   */\n  /**\n   * Creates an `Array` construction with a given name. This is useful\n   * when\n   * looking for memory consumption to see what time of array it is.\n   *\n   * @param name\n   * Name to give\n   *\n   * to the constructor\n   * @returns A subclass of `Array` if possible. This can only be done in\n   * environments which support `class` construct.\n   */\n  function createNamedArrayType(name) {\n    // This\n    should never be called in prod mode, so let's verify that is the case.\n    if (ngDevMode) {\n      try {\n        // If this function were compromised the following could lead to arbitrary\n        // script execution. We bless it\n        with Trusted Types anyway since this\n        // function is stripped out of production binaries.\n        return\n        (newTrustedFunctionForDev('Array', 'return class ' + name + ' extends Array {}'))(Array);\n      } catch (e) {\n        // If it does not work just give up and fall back to regular Array.\n        return Array;\n      }\n    } else {\n      throw new Error('Looks like we are in \\`prod mode\\`, but we are creating a named\n        Array type, which is wrong! Check your code');\n    }\n  } \n  /**\n   * Copyright Google\n   * LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  function normalizeDebugBindingName(name)\n  {\n    // Attribute names with `$` (eg `x-y$`) are valid per spec, but unsupported by some browsers\n    name =\n    camelCaseToDashCase(name.replace(/[$@]/g, '_'));\n    return 'ng-reflect-' + name;\n  } \n  var\n  CAMEL_CASE_REGEXP = /[A-Z]/g;\n  function camelCaseToDashCase(input) {\n    return\n    input.replace(CAMEL_CASE_REGEXP, function () {\n      var m = [];\n      for (var _i = 0; _i <\n        arguments.length; _i++) {\n        m[_i] = arguments[_i];\n      }\n      return '-' + m[1].toLowerCase();\n    });\n  } \n  function normalizeDebugBindingValue(value) {\n    try {\n      // Limit the size of the value as otherwise the DOM just gets polluted.\n      return value != null ?\n        value.toString().slice(0, 30) : value;\n    } catch (e) {\n      return '[ERROR] Exception while trying to\n        serialize the value';\n    }\n  } \n  /**\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at\n    https://angular.io/license\n   */\n  /**\n   * Returns the matching `LContext` data for a given DOM node,\n   * directive or component instance.\n   *\n   * This function will examine the provided DOM element, component, or\n   * directive instance\n   * * monkey-patched property to derive the `LContext` data. Once called then the monkey-\n   * patched\n   * * value will be that of the newly created `LContext`.\n   * * If the monkey-patched value is the\n   * `LView` instance then the context value for that\n   * * target\n   * will be created and the monkey-patch reference will be updated. Therefore when this\n   * * function is called it may\n   * mutate the provided element\n   * * , component\n   * * or any of the associated\n   * * directive\n   * * monkey-patch values.\n   *\n   * If the monkey-patch value is not detected then the code will walk up the DOM until an element\n   * * is\n   * found which contains a monkey-patch reference. When that occurs then the provided element\n   * * will be updated\n   * with a new context (which is then returned). If the monkey-patch value is not\n   * * detected for a\n   * component/directive instance then it will throw an error (all components and\n   * * directives should be\n   * automatically monkey-patched by ivy).\n   * * @param target Component, Directive or DOM Node.\n   */\n  function getLContext(target) {\n    var mpValue = readPatchedData(target);\n    if (mpValue) {\n      // only\n      when it's an array is it considered an LView instance\n      // ... otherwise\n      it's an already constructed LContext instance\n      if (Array.isArray(mpValue)) {\n        var IView =\n        mpValue;\n        var nodeIndex = void 0;\n        var component = undefined;\n        var directives =\n        undefined;\n        if (isComponentInstance(target)) {\n          nodeIndex = findViaComponent(IView,\n            target);\n          if (nodeIndex == -1) {\n            throw new Error('The provided component was not\n              found in the application');\n          }\n          component = target;\n        } else if
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(isDirectiveInstance(target)) {\n      nodeIndex = findViaDirective(IView, target);\n      if (nodeIndex == -1) {\n        throw new Error("The provided directive was not found in the application");\n      }\n      directives = getDirectivesAtNodeIndex(nodeIndex, IView, false);\n    }\n    else {\n      nodeIndex = findViaNativeElement(IView, target);\n      if (nodeIndex == -1) {\n        return null;\n      }\n    }\n    // the goal is not to fill the entire context full of data because the lookups\n    // are expensive. Instead, only the target data (the element, component, container, ICU\n    // expression or directive details) are filled into the context. If called multiple times\n    // with different target values then the missing target data will be filled in.\n    var native = unwrapRNode(IView[nodeIndex]);\n    var existingCtx = readPatchedData(native);\n    var context = (existingCtx && !Array.isArray(existingCtx)) ? existingCtx : createLContext(IView, nodeIndex, native);\n    // only when the component has been discovered then update the monkey-patch\n    if (component && context.component === undefined) {\n      context.component = component;\n      attachPatchData(context.component, context);\n    }\n    // only when the directives have been discovered then update the monkey-patch\n    if (directives && context.directives === undefined) {\n      context.directives = directives;\n      for (var i = 0; i < directives.length; i++) {\n        attachPatchData(directives[i], context);\n      }\n    }\n    attachPatchData(context.native, context);\n    mpValue = context;\n  }\n  else {\n    var rElement = target;\n    ngDevMode && assertDomNode(rElement);\n    // if the context is not found then we need to traverse upwards up the DOM\n    // to find the nearest element that has already been monkey patched\n    with data\n      var parent = rElement;\n      while (parent = parent.parentNode) {\n        var parentContext = readPatchedData(parent);\n        if (parentContext) {\n          var IView = void 0;\n          if (Array.isArray(parentContext)) {\n            IView = parentContext;\n          }\n          else {\n            IView = parentContext.IView;\n          }\n          // the edge of the app was also reached here through another means\n          // (maybe because the DOM was changed manually).\n          if (!IView) {\n            return null;\n          }\n          var index = findViaNativeElement(IView, rElement);\n          if (index >= 0) {\n            var native = unwrapRNode(IView[index]);\n            var context = createLContext(IView, index, native);\n            attachPatchData(native, context);\n            mpValue = context;\n            break;\n          }\n        }\n      }\n      return mpValue || null;\n    }\n    /**\n     * Creates an empty instance of a `LContext` context\n     */\n    function createLContext(IView, nodeIndex, native) {\n      return {\n        IView: IView,\n        nodeIndex: nodeIndex,\n        native: native,\n        component: undefined,\n        directives: undefined,\n        localRefs: undefined,\n      };\n    }\n    /**\n     * Takes a component instance and returns the view for that component.\n     */\n    @param componentInstance\n    @returns The component's view\n    function getComponentViewByInstance(componentInstance) {\n      var IView = readPatchedData(componentInstance);\n      var view;\n      if (Array.isArray(IView)) {\n        var nodeIndex = findViaComponent(IView, componentInstance);\n        view = getComponentLViewByIndex(nodeIndex, IView);\n        var context = createLContext(IView, nodeIndex, view[HOST]);\n        context.component = componentInstance;\n        attachPatchData(componentInstance, context);\n        attachPatchData(context.native, context);\n      }\n      else {\n        var context = IView;\n        view = getComponentLViewByIndex(context.nodeIndex, context.IView);\n      }\n      return view;\n    }\n    /**\n     * Assigns the given data to the given target (which could be a component,\n     * directive or DOM node instance) using monkey-patching.\n     */\n    function attachPatchData(target, data) {\n      target[MONKEY_PATCH_KEY_NAME] = data;\n    }\n    function isComponentInstance(instance) {\n      return instance && instance.constructor && instance.constructor.cmp;\n    }\n    function isDirectiveInstance(instance) {\n      return instance && instance.constructor && instance.constructor.dir;\n    }\n  }\n}

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    }\n    /**\n     * Locates the element within the given LView and returns the matching index\n     */\n    function\n    findViaNativeElement(IView, target) {\n        var tView = IView[TVIEW];\n        for (var i = HEADER_OFFSET; i\n        < tView.bindingStartIndex; i++) {\n            if (unwrapRNode(IView[i]) === target) {\n                return i;\n            }\n        }\n        return -1;\n    }\n    /**\n     * Locates the next tNode (child, sibling or parent).\n     */\n    function\n    traverseNextElement(tNode) {\n        if (tNode.child) {\n            return tNode.child;\n        } else if\n        (tNode.next) {\n            return tNode.next;\n        } else {\n            // Let's take the following template:\n            <div><span>text</span></div><component/>\n            // After checking the text node, we need to find the next\n            parent that has a \"next\" TNode,\n            // in this case the parent `div`, so that we can find the component.\n            while (tNode.parent\n            && !tNode.parent.next) {\n                tNode = tNode.parent;\n            }\n            return tNode.parent &&\n            tNode.parent.next;\n        }\n    }\n    /**\n     * Locates the component within the given LView and returns the\n     matching index\n     */\n    function findViaComponent(IView, componentInstance) {\n        var componentIndices =\n        IView[TVIEW].components;\n        if (componentIndices) {\n            for (var i = 0; i < componentIndices.length;\n            i++) {\n                var elementComponentIndex = componentIndices[i];\n                var componentView =\n                getComponentLViewByIndex(elementComponentIndex, IView);\n                if (componentView[CONTEXT] ===\n                componentInstance) {\n                    return elementComponentIndex;\n                }\n            }\n        } else {\n            var rootComponentView = getComponentLViewByIndex(HEADER_OFFSET, IView);\n            var\n            rootComponent = rootComponentView[CONTEXT];\n            if (rootComponent ===\n            componentInstance) {\n                // we are dealing with the root element here therefore we know that the\n                // element is the very first element after the HEADER data in the IView\n                return HEADER_OFFSET;\n            }\n        }\n        return -1;\n    }\n    /**\n     * Locates the directive within the given LView and returns the\n     matching index\n     */\n    function findViaDirective(IView, directiveInstance) {\n        // if a directive is monkey\n        patched then it will (by default)\n        // have a reference to the LView of the current view. The\n        // element\n        bound to the directive being search lives somewhere\n        // in the view data. We loop through the nodes and check\n        their\n        // list of directives for the instance.\n        var tNode = IView[TVIEW].firstChild;\n        while (tNode)\n        {\n            var directiveIndexStart = tNode.directiveStart;\n            var directiveIndexEnd = tNode.directiveEnd;\n            for (var i = directiveIndexStart;\n            i < directiveIndexEnd; i++) {\n                if (IView[i] === directiveInstance) {\n                    return tNode.index;\n                }\n            }\n            tNode = traverseNextElement(tNode);\n        }\n        return -1;\n    }\n    /**\n     * Returns a list of directives extracted from the given view based on the\n     * provided list of directive index\n     values.\n     * @param nodeIndex The node index\n     * @param IView The target view data\n     * @param\n     includeComponents Whether or not to include components in returned directives\n     */\n    function\n    getDirectivesAtNodeIndex(nodeIndex, IView, includeComponents) {\n        var tNode =\n        IView[TVIEW].data[nodeIndex];\n        var directiveStartIndex = tNode.directiveStart;\n        if (directiveStartIndex\n        == 0)\n        return EMPTY_ARRAY;\n        var directiveEndIndex = tNode.directiveEnd;\n        if\n        (!includeComponents && tNode.flags & 2 /* isComponentHost */)\n        directiveStartIndex++;\n        return IView.slice(directiveStartIndex, directiveEndIndex);\n    }\n    function\n    getComponentAtNodeIndex(nodeIndex, IView) {\n        var tNode = IView[TVIEW].data[nodeIndex];\n        var\n        directiveStartIndex = tNode.directiveStart;\n        return tNode.flags & 2 /* isComponentHost */ ?\n        IView[directiveStartIndex] : null;\n    }\n    /**\n     * Returns a map of local references (local reference name =>\n     element or directive instance) that\n     * exist on a given element.\n     */\n    function discoverLocalRefs(IView,\n    nodeIndex) {\n        var tNode = IView[TVIEW].data[nodeIndex];\n        if (tNode && tNode.localNames) {\n            var result = {};\n            var localIndex = tNode.index + 1;\n            for (var i = 0; i < tNode.localNames.length; i +=\n            2) {\n                result[tNode.localNames[i]] = IView[localIndex];\n                localIndex++;\n            }\n            return result;\n        }\n        return null;\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an\n     MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    var O$4 =\n    function () { return (typeof requestAnimationFrame !== 'undefined' &&\n    requestAnimationFrame || // browser

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only\n    setTimeout // everything else\n    )\n    .bind(_global); }\n    var defaultScheduler = (0$4)();\n    /**\n    *\n    * @codeGenApi\n    */\n    function resolveWindow(element) {\n        return { name: 'window', target:
element.ownerDocument.defaultView };\n    }\n    /**\n    *\n    * @codeGenApi\n    */\n    function
resolveDocument(element) {\n        return { name: 'document', target: element.ownerDocument };\n    }\n    /**\n    *\n    * @codeGenApi\n    */\n    function resolveBody(element) {\n        return { name: 'body', target:
element.ownerDocument.body };\n    }\n    /**\n    * The special delimiter
we use to separate property names, prefixes, and suffixes\n    * in property binding metadata. See
storeBindingMetadata().\n    *\n    * We intentionally use the Unicode \"REPLACEMENT CHARACTER\"
(U+FFFD) as a delimiter\n    * because it is a very uncommon character that is unlikely to be part of a user's\n    *
property names or interpolation strings. If it is in fact used in a property\n    * binding, DebugElement.properties
will not return the correct value for that\n    * binding. However, there should be no runtime effect for real
applications.\n    *\n    * This character is typically rendered as a question mark inside of a diamond.\n    * See
https://en.wikipedia.org/wiki/Specials\_\(Unicode\_block\)\n    *\n    */\n    var INTERPOLATION_DELIMITER =
'\uFFFD';\n    /**\n    * Unwrap a value which might be behind a closure (for forward declaration reasons).\n    */\n    function maybeUnwrapFn(value) {\n        if (value instanceof Function) {\n            return
value();\n        }\n        else {\n            return value;\n        }\n    }\n    /** Called when there are multiple
component selectors that match a given node */\n    function throwMultipleComponentError(tNode) {\n        throw
new RuntimeError(\"300\" /* MULTIPLE_COMPONENTS_MATCH */, \"Multiple components match node with
tagname '\" + tNode.value);\n    }\n    /** Throws an ExpressionChangedAfterChecked error if checkNoChanges
mode is on. */\n    function throwErrorIfNoChangesMode(creationMode, oldValue, currValue, propName) {\n
var field = propName ? \" for '\" + propName + '\" : \"\" : \"\";\n        var msg =
\"ExpressionChangedAfterItHasBeenCheckedError: Expression has changed after it was checked. Previous value\"
+ field + \": '\" + oldValue + \"'. Current value: '\" + currValue + \"'.\";\n        if (creationMode) {\n            msg += \"\n
        \" It seems like the view has been created after its parent and its children have been dirty checked.\" + \"\n
        \" Has it been created in a change detection hook?\";\n        }\n        // TODO: include debug context, see
`viewDebugError` function in\n        // `packages/core/src/view/errors.ts` for reference.\n        throw new
RuntimeError(\"100\" /* EXPRESSION_CHANGED_AFTER_CHECKED */, msg);\n    }\n    function
constructDetailsForInterpolation(IView, rootIndex, expressionIndex, meta, changedValue) {\n        var _a =
__read(meta.split(INTERPOLATION_DELIMITER)), propName = _a[0], prefix = _a[1], chunks = _a.slice(2);\n        var oldValue = prefix, newValue = prefix;\n        for (var i = 0; i < chunks.length; i++) {\n            var slotIdx =
rootIndex + i;\n            oldValue += \"\" + IView[slotIdx] + chunks[i];\n            newValue += \"\" + (slotIdx ===
expressionIndex ? changedValue : IView[slotIdx]) + chunks[i];\n        }\n        return { propName: propName,
oldValue: oldValue, newValue: newValue };\n    }\n    /**\n    * Constructs an object that contains details for
the ExpressionChangedAfterItHasBeenCheckedError:\n    * - property name (for property bindings or
interpolations)\n    * - old and new values, enriched using information from metadata\n    *\n    * More information
on the metadata storage format can be found in `storePropertyBindingMetadata`\n    * function description.\n    */\n    function getExpressionChangedErrorDetails(IView, bindingIndex, oldValue, newValue) {\n        var tData =
IView[TVIEW].data;\n        var metadata = tData[bindingIndex];\n        if (typeof metadata === 'string') {\n            //
metadata for property interpolation\n            if (metadata.indexOf(INTERPOLATION_DELIMITER) > -1) {\n                return constructDetailsForInterpolation(IView, bindingIndex, bindingIndex, metadata, newValue);\n            }\n            // metadata for property binding\n            return { propName: metadata, oldValue: oldValue, newValue:
newValue };\n        }\n        // metadata is not available for this expression,
check if this expression is a part of the\n        // property interpolation by going from the current binding index left
and look for a string that\n        // contains INTERPOLATION_DELIMITER, the layout in tView.data for this case
will look like this:\n        // [..., 'idPrefix and suffix', null, null, null, ...]\n        if (metadata === null) {\n            var
idx = bindingIndex - 1;\n            while (typeof tData[idx] !== 'string' && tData[idx + 1] === null) {\n                idx--
            }\n            var meta = tData[idx];\n            if (typeof meta === 'string') {\n                var matches =
meta.match(new RegExp(INTERPOLATION_DELIMITER, 'g'));\n                // first interpolation delimiter

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separates property name from interpolation parts (in case of\n      // property interpolations), so we subtract
one from total number of found delimiters\n      if (matches && (matches.length - 1) > bindingIndex - idx) {\n

return constructDetailsForInterpolation(IView, idx, bindingIndex, meta, newValue);\n      }\n      }\n
}\n      return { propName: undefined, oldValue: oldValue, newValue: newValue }; \n      }\n      /**\n      *
@license\n      * Copyright Google LLC All Rights Reserved.\n      * \n      * Use of this source code is governed by an
MIT-style license that can be\n      * found in the LICENSE file at https://angular.io/license\n      * \n      (function
(RendererStyleFlags2) {\n      // TODO(misko): This needs to be refactored into a separate file so that it can be
imported from\n      // `node_manipulation.ts` Currently doing the import cause resolution order to change and
fails\n      // the tests. The work around is to have hard coded value in `node_manipulation.ts` for now.\n      /**\n
      * Marks a style as important.\n      * \n      RendererStyleFlags2[RendererStyleFlags2["Important"] = 1] =
"Important";\n      /**\n      * Marks a style as
using dash case naming (this-is-dash-case).\n      * \n
RendererStyleFlags2[RendererStyleFlags2["DashCase"] = 2] = "DashCase";\n      })(exports.RendererStyleFlags2
|| (exports.RendererStyleFlags2 = {}));\n      /**\n      * @license\n      * Copyright Google LLC All Rights
Reserved.\n      * \n      * Use of this source code is governed by an MIT-style license that can be\n      * found in the
LICENSE file at https://angular.io/license\n      * \n      var _icuContainerIterate;\n      /**\n      * Iterator which provides
ability to visit all of the `TicuContainerNode` root `RNode`s.\n      * \n      function
icuContainerIterate(tIcuContainerNode, IView) {\n      return _icuContainerIterate(tIcuContainerNode, IView);\n
}\n      /**\n      * Ensures that `IcuContainerVisitor`'s implementation is present.\n      * \n      * This function is invoked
when i18n instruction comes across an ICU. The purpose is to allow the\n      * bundler to tree shake ICU logic and
only load it if ICU instruction
is executed.\n      * \n      function ensureIcuContainerVisitorLoaded(loader) {\n      if (_icuContainerIterate ===
undefined) {\n      // Do not inline this function. We want to keep `ensureIcuContainerVisitorLoaded` light, so
it\n      // can be inlined into call-site.\n      _icuContainerIterate = loader();\n      }\n      }\n      /**\n      *
@license\n      * Copyright Google LLC All Rights Reserved.\n      * \n      * Use of this source code is governed by an
MIT-style license that can be\n      * found in the LICENSE file at https://angular.io/license\n      * \n      // Note: This
hack is necessary so we don't erroneously get a circular dependency\n      // failure based on types.\n      var
unusedValueExportToPlacateAjd$5 = 1;\n      /**\n      * @license\n      * Copyright Google LLC All Rights
Reserved.\n      * \n      * Use of this source code is governed by an MIT-style license that can be\n      * found in the
LICENSE file at https://angular.io/license\n      * \n      /**\n
      * Gets the parent LView of the passed LView, if the PARENT is an LContainer, will get the parent of\n      * that
LContainer, which is an LView\n      * @param IView the IView whose parent to get\n      * \n      function
getLViewParent(IView) {\n      ngDevMode && assertLView(IView);\n      var parent = IView[PARENT];\n
return isLContainer(parent) ? parent[PARENT] : parent;\n      }\n      /**\n      * Retrieve the root view from any
component or `LView` by walking the parent `LView` until\n      * reaching the root `LView`.\n      * \n      * @param
componentOrLView any component or `LView`\n      * \n      function getRootView(componentOrLView) {\n      ngDevMode && assertDefined(componentOrLView, 'component');\n      var IView =
isLView(componentOrLView) ? componentOrLView : readPatchedLView(componentOrLView);\n      while
(IView && !(IView[FLAGS] & 512 /* IsRoot */)) {\n      IView = getLViewParent(IView);\n      }\n
ngDevMode && assertLView(IView);\n
return IView;\n      }\n      /**\n      * Returns the `RootContext` instance that is associated with\n      * the application
where the target is situated. It does this by walking the parent views until it\n      * gets to the root view, then getting
the context off of that.\n      * \n      * @param viewOrComponent the `LView` or component to get the root context
for.\n      * \n      function getRootContext(viewOrComponent) {\n      var rootView =
getRootView(viewOrComponent);\n      ngDevMode && \n      assertDefined(rootView[CONTEXT],
'RootView has no context. Perhaps it is disconnected?');\n      return rootView[CONTEXT];\n      }\n      /**\n      *
Gets the first `LContainer` in the LView or `null` if none exists.\n      * \n      function getFirstLContainer(IView) {\n

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    return getNearestLContainer(IView[CHILD_HEAD]);\n    }\n    /**\n     * Gets the next `LContainer` that is a
    sibling of the given container.\n     */\n    function getNextLContainer(container) {\n        return
    getNearestLContainer(container[NEXT]);\n    }\n    function getNearestLContainer(viewOrContainer) {\n        while (viewOrContainer !== null &&
    !isLContainer(viewOrContainer)) {\n            viewOrContainer = viewOrContainer[NEXT];\n        }\n        return
    viewOrContainer;\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     */\n     *
    Use of this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at
    https://angular.io/license\n     */\n    var unusedValueToPlacateAjd = unusedValueExportToPlacateAjd$1 +
    unusedValueExportToPlacateAjd$4 + unusedValueExportToPlacateAjd$5 + unusedValueExportToPlacateAjd$2 +
    unusedValueExportToPlacateAjd;\n    /**\n     * NOTE: for performance reasons, the possible actions are inlined
    within the function instead of\n     * being passed as an argument.\n     */\n    function
    applyToElementOrContainer(action, renderer, parent, INodeToHandle, beforeNode) {\n        // If this slot
    was allocated for a text node dynamically created by i18n, the text node itself\n        // won't be created until
    i18nApply() in the update block, so this node should be skipped.\n        // For more info, see `ICU expressions
    should work inside an ngTemplateOutlet inside an ngFor`\n        // in `i18n_spec.ts`. \n        if (INodeToHandle !=
    null) {\n            var lContainer = void 0;\n            var isComponent = false;\n            // We are expecting an RNode,
    but in the case of a component or LContainer the `RNode` is\n            // wrapped in an array which needs to be
    unwrapped. We need to know if it is a component and if\n            // it has LContainer so that we can process all of
    those cases appropriately.\n            if (isLContainer(INodeToHandle)) {\n                lContainer = INodeToHandle;\n            }\n            else if (isLView(INodeToHandle)) {\n                isComponent = true;\n                ngDevMode &&
    assertDefined(INodeToHandle[HOST], 'HOST must
    be defined for a component LView');\n                INodeToHandle = INodeToHandle[HOST];\n            }\n            var
    rNode = unwrapRNode(INodeToHandle);\n            ngDevMode && !isProceduralRenderer(renderer) &&
    assertDomNode(rNode);\n            if (action === 0 /* Create */ && parent !== null) {\n                if (beforeNode ===
    null) {\n                    nativeAppendChild(renderer, parent, rNode);\n                }\n                else {\n
    nativeInsertBefore(renderer, parent, rNode, beforeNode || null, true);\n                }\n            }\n            else if (action
    === 1 /* Insert */ && parent !== null) {\n                nativeInsertBefore(renderer, parent, rNode, beforeNode || null,
    true);\n            }\n            else if (action === 2 /* Detach */) {\n                nativeRemoveNode(renderer, rNode,
    isComponent);\n            }\n            else if (action === 3 /* Destroy */) {\n                ngDevMode &&
    ngDevMode.rendererDestroyNode++;\n                renderer.destroyNode(rNode);\n            }\n            if (lContainer !== null) {\n
    applyContainer(renderer, action, lContainer, parent, beforeNode);\n            }\n        }\n    }\n    function
    createTextNode(renderer, value) {\n        ngDevMode && ngDevMode.rendererCreateTextNode++;\n        ngDevMode && ngDevMode.rendererSetText++;\n        return isProceduralRenderer(renderer) ?
    renderer.createTextNode(value) : renderer.createTextNode(value);\n    }\n    function updateTextNode(renderer,
    rNode, value) {\n        ngDevMode && ngDevMode.rendererSetText++;\n        if (isProceduralRenderer(renderer) ?
    renderer.setValue(rNode, value) : rNode.textContent = value;\n    }\n    function createCommentNode(renderer,
    value) {\n        ngDevMode && ngDevMode.rendererCreateComment++;\n        // isProceduralRenderer check is
    not needed because both `Renderer2` and `Renderer3` have the same\n        // method name.\n        return
    renderer.createComment(value);\n    }\n    /**\n     * Creates a native element from a tag name, using a renderer.\n     */\n     * @param renderer A renderer to
    use\n     * @param name the tag name\n     * @param namespace Optional namespace for element.\n     */\n     * @returns
    the element created\n     */\n    function createElementNode(renderer, name, namespace) {\n        ngDevMode &&
    ngDevMode.rendererCreateElement++;\n        if (isProceduralRenderer(renderer)) {\n            return
    renderer.createElement(name, namespace);\n        }\n        else {\n            return namespace === null ?
    renderer.createElement(name) : renderer.createElementNS(namespace, name);\n        }\n    }\n    /**\n     * Removes all DOM elements associated with a view.\n     */\n     * Because some root nodes of the view may be
    containers, we sometimes need\n     * to propagate deeply into the nested containers to remove all elements in the\n

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* views beneath it.\n    *\n    * @param tView The `TView` of the `LView` from
which elements should be added or removed\n    * @param lView The view from which elements should be added
or removed\n    */\n    function removeViewFromContainer(tView, lView) {\n        var renderer =
lView[RENDERER];\n        applyView(tView, lView, renderer, 2 /* Detach */, null, null);\n        lView[HOST] =
null;\n        lView[T_HOST] = null;\n    }\n    /**\n    * Adds all DOM elements associated with a view.\n    *\n    * Because some root nodes of the view may be containers, we sometimes need\n    * to propagate deeply into the
nested containers to add all elements in the\n    * views beneath it.\n    *\n    * @param tView The `TView` of the
`LView` from which elements should be added or removed\n    * @param parentTNode The `TNode` where the
`LView` should be attached to.\n    * @param renderer Current renderer to use for DOM manipulations.\n    *
@param lView The view from which elements should be added or removed\n    * @param parentNativeNode The
parent
`RElement` where it should be inserted into.\n    * @param beforeNode The node before which elements should be
added, if insert mode\n    */\n    function addViewToContainer(tView, parentTNode, renderer, lView,
parentNativeNode, beforeNode) {\n        lView[HOST] = parentNativeNode;\n        lView[T_HOST] =
parentTNode;\n        applyView(tView, lView, renderer, 1 /* Insert */, parentNativeNode, beforeNode);\n    }\n
/**\n    * Detach a `LView` from the DOM by detaching its nodes.\n    *\n    * @param tView The `TView` of the
`LView` to be detached\n    * @param lView the `LView` to be detached.\n    */\n    function
renderDetachView(tView, lView) {\n        applyView(tView, lView, lView[RENDERER], 2 /* Detach */, null,
null);\n    }\n    /**\n    * Traverses down and up the tree of views and containers to remove listeners and\n    * call
onDestroy callbacks.\n    *\n    * Notes:\n    * - Because it's used for onDestroy calls, it needs to be bottom-up.\n    *
- Must process
containers instead of their views to avoid splicing\n    * when views are destroyed and re-added.\n    * - Using a
while loop because it's faster than recursion\n    * - Destroy only called on movement to sibling or movement to
parent (laterally or up)\n    *\n    * @param rootView The view to destroy\n    */\n    function
destroyViewTree(rootView) {\n        // If the view has no children, we can clean it up and return early.\n        var
lViewOrLContainer = rootView[CHILD_HEAD];\n        if (!lViewOrLContainer) {\n            return
cleanUpView(rootView[TVIEW], rootView);\n        }\n        while (lViewOrLContainer) {\n            var next =
null;\n            if (isLView(lViewOrLContainer)) {\n                // If LView, traverse down to child.\n                next =
lViewOrLContainer[CHILD_HEAD];\n            }\n            else {\n                ngDevMode &&
assertLContainer(lViewOrLContainer);\n                // If container, traverse down to its first LView.\n
                var firstView = lViewOrLContainer[CONTAINER_HEADER_OFFSET];\n                if (firstView)\n
                    next = firstView;\n            }\n            if (!next) {\n                // Only clean up view when moving to the side or
up, as destroy hooks\n                // should be called in order from the bottom up.\n                while
(lViewOrLContainer && !lViewOrLContainer[NEXT] && lViewOrLContainer !== rootView) {\n                    if
(isLView(lViewOrLContainer)) {\n                        cleanUpView(lViewOrLContainer[TVIEW],
lViewOrLContainer);\n                    }\n                    lViewOrLContainer = lViewOrLContainer[PARENT];\n
                }\n                if (lViewOrLContainer === null)\n                    lViewOrLContainer = rootView;\n                if
(isLView(lViewOrLContainer)) {\n                    cleanUpView(lViewOrLContainer[TVIEW],
lViewOrLContainer);\n                }\n                next = lViewOrLContainer && lViewOrLContainer[NEXT];\n
            }\n            lViewOrLContainer = next;\n        }\n    }\n    /**\n    * Inserts a view into a container.\n    *\n
    * This adds the view to the container's array of active views in the correct\n    * position. It also adds the view's
elements to the DOM if the container isn't a\n    * root node of another view (in that case, the view's elements will
be added when\n    * the container's parent view is added later).\n    *\n    * @param tView The `TView` of the
`LView` to insert\n    * @param lView The view to insert\n    * @param lContainer The container into which the
view should be inserted\n    * @param index Which index in the container to insert the child view into\n    */\n
    function insertView(tView, lView, lContainer, index) {\n        ngDevMode && assertLView(lView);\n
        ngDevMode && assertLContainer(lContainer);\n        var indexInContainer = CONTAINER_HEADER_OFFSET +
index;\n        var containerLength = lContainer.length;\n

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        if (index > 0) {\n            // This is a new view, we need to add it to the children.\n
IContainer[indexInContainer - 1][NEXT] = IView;\n        }\n        if (index < containerLength -\n
CONTAINER_HEADER_OFFSET) {\n            IView[NEXT] = IContainer[indexInContainer];\n
addToArray(IContainer, CONTAINER_HEADER_OFFSET + index, IView);\n        }\n        else {\n
IContainer.push(IView);\n            IView[NEXT] = null;\n        }\n        IView[PARENT] = IContainer;\n        // track\n
views where declaration and insertion points are different\n        var declarationLContainer =\n
IView[DECLARATION_LCONTAINER];\n        if (declarationLContainer !== null && IContainer !==\n
declarationLContainer) {\n            trackMovedView(declarationLContainer, IView);\n        }\n        // notify query\n
that a new view has been added\n        var IQueries = IView[QUERIES];\n        if (IQueries !== null) {\n
IQueries.insertView(tView);\n        }\n
        // Sets the attached flag\n        IView[FLAGS] |= 128 /* Attached */;\n        }\n        /**\n         * Track views created\n
from the declaration container (TemplateRef) and inserted into a\n         * different LContainer.\n         */\n        function\n
trackMovedView(declarationContainer, IView) {\n            ngDevMode && assertDefined(IView, 'LView required');\n
            ngDevMode && assertLContainer(declarationContainer);\n            var movedViews =\n
declarationContainer[MOVED_VIEWS];\n            var insertedLContainer = IView[PARENT];\n            ngDevMode &&\n
assertLContainer(insertedLContainer);\n            var insertedComponentLView =\n
insertedLContainer[PARENT][DECLARATION_COMPONENT_VIEW];\n            ngDevMode &&\n
assertDefined(insertedComponentLView, 'Missing insertedComponentLView');\n            var\n
declaredComponentLView = IView[DECLARATION_COMPONENT_VIEW];\n            ngDevMode &&\n
assertDefined(declaredComponentLView, 'Missing declaredComponentLView');\n            if\n
(declaredComponentLView !== insertedComponentLView)\n            {\n                // At this point the declaration-component is not same as insertion-component; this means that\n                //\n
this is a transplanted view. Mark the declared IView as having transplanted views so that\n                // those views can\n
participate in CD.\n                declarationContainer[HAS_TRANSPLANTED_VIEWS] = true;\n            }\n            if\n
(movedViews === null) {\n                declarationContainer[MOVED_VIEWS] = [IView];\n            }\n            else {\n
movedViews.push(IView);\n            }\n        }\n        }\n        function detachMovedView(declarationContainer, IView) {\n
            ngDevMode && assertLContainer(declarationContainer);\n            ngDevMode &&\n
assertDefined(declarationContainer[MOVED_VIEWS], 'A projected view should belong to a non-empty projected\n
views collection');\n            var movedViews = declarationContainer[MOVED_VIEWS];\n            var\n
declarationViewIndex = movedViews.indexOf(IView);\n            var insertionLContainer = IView[PARENT];\n            ngDevMode\n
&& assertLContainer(insertionLContainer);\n            // If the view was marked for refresh but then detached before it\n
was checked (where the flag\n            // would be cleared and the counter decremented), we need to decrement the\n
view counter here\n            // instead.\n            if (IView[FLAGS] & 1024 /* RefreshTransplantedView */) {\n
IView[FLAGS] &= ~1024 /* RefreshTransplantedView */;\n
updateTransplantedViewCount(insertionLContainer, -1);\n            }\n            movedViews.splice(declarationViewIndex,\n
1);\n        }\n        /**\n         * Detaches a view from a container.\n         */\n        * This method removes the view from the\n
container's array of active views. It also\n         * removes the view's elements from the DOM.\n         */\n        * @param\n
IContainer The container from which to detach a view\n         * @param removeIndex The index of the view to\n
detach\n         * @returns Detached LView instance.\n         */\n        function detachView(IContainer, removeIndex) {\n
            if (IContainer.length\n
<= CONTAINER_HEADER_OFFSET)\n                return;\n            var indexInContainer =\n
CONTAINER_HEADER_OFFSET + removeIndex;\n            var viewToDetach = IContainer[indexInContainer];\n
            if (viewToDetach) {\n                var declarationLContainer = viewToDetach[DECLARATION_LCONTAINER];\n
                if (declarationLContainer !== null && declarationLContainer !== IContainer) {\n
                    detachMovedView(declarationLContainer, viewToDetach);\n                }\n                if (removeIndex > 0) {\n
IContainer[indexInContainer - 1][NEXT] = viewToDetach[NEXT];\n                }\n                var removedLView =\n
removeFromArray(IContainer, CONTAINER_HEADER_OFFSET + removeIndex);\n

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removeViewFromContainer(viewToDetach[TVIEW], viewToDetach);\n      // notify query that a view has been
removed\n      var IQueries = removedLView[QUERIES];\n      if (IQueries !== null) {\nIQueries.detachView(removedLView[TVIEW]);\n      }\n      viewToDetach[PARENT] = null;\n      viewToDetach[NEXT] = null;\n      // Unsets the attached flag\n      viewToDetach[FLAGS] &= ~128 /* Attached */;\n      }\n      return viewToDetach;\n    }\n    /**\n     * A
standalone function which destroys an LView,\n     * conducting clean up (e.g. removing listeners, calling
onDestroys).\n     * @param tView The `TView` of the `LView` to be destroyed\n     * @param IView The
view to be destroyed.\n     */\n    function destroyLView(tView, IView) {\n      if (!(IView[FLAGS] & 256 /*
Destroyed */)) {\n        var renderer = IView[RENDERER];\n        if (isProceduralRenderer(renderer) &&
renderer.destroyNode) {\n          applyView(tView, IView, renderer, 3 /* Destroy */, null, null);\n        }\n        destroyViewTree(IView);\n      }\n    }\n    /**\n     * Calls onDestroys hooks for all directives and pipes in a given
view and then removes all\n     * listeners. Listeners are removed
as the last step so events delivered in the onDestroys hooks\n     * can be propagated to @Output listeners.\n     */\n    * @param tView `TView` for the `LView` to clean up.\n    * @param IView The LView to clean up\n    */\n    function cleanUpView(tView, IView) {\n      if (!(IView[FLAGS] & 256 /* Destroyed */)) {\n        // Usually the
Attached flag is removed when the view is detached from its parent, however\n        // if it's a root view, the flag
won't be unset hence why we're also removing on destroy.\n        IView[FLAGS] &= ~128 /* Attached */;\n        // Mark the LView as destroyed *before* executing the onDestroy hooks. An onDestroy hook\n        // runs
arbitrary user code, which could include its own `viewRef.destroy()` (or similar). If\n        // We don't flag the
view as destroyed before the hooks, this could lead to an infinite loop.\n        // This also aligns with the
ViewEngine behavior. It also means that the onDestroy hook is\n
        // really more of an `afterDestroy` hook if you think about it.\n        IView[FLAGS] |= 256 /* Destroyed
*/;\n        executeOnDestroys(tView, IView);\n        removeListeners(tView, IView);\n        // For component
views only, the local renderer is destroyed at clean up time.\n        if (IView[TVIEW].type === 1 /* Component */\n        && isProceduralRenderer(IView[RENDERER])) {\n          ngDevMode && ngDevMode.rendererDestroy++;\n          IView[RENDERER].destroy();\n        }\n        var declarationContainer =
IView[DECLARATION_LCONTAINER];\n        // we are dealing with an embedded view that is still inserted
into a container\n        if (declarationContainer !== null && isLContainer(IView[PARENT])) {\n          // and
this is a projected view\n          if (declarationContainer !== IView[PARENT]) {\n            detachMovedView(declarationContainer, IView);\n          }\n          // For embedded
views still attached to a container: remove query result from this view.\n          var IQueries =
IView[QUERIES];\n          if (IQueries !== null) {\n            IQueries.detachView(tView);\n          }\n        }\n        /**\n         * Removes listeners and unsubscribes from output subscriptions */\n        function
removeListeners(tView, IView) {\n          var tCleanup = tView.cleanup;\n          if (tCleanup !== null) {\n            var
ICleanup = IView[CLEANUP];\n            for (var i = 0; i < tCleanup.length - 1; i += 2) {\n              if (typeof
tCleanup[i] === 'string') {\n                // This is a native DOM listener\n                var idxOrTargetGetter =
tCleanup[i + 1];\n                var target = typeof idxOrTargetGetter === 'function' ?\n                idxOrTargetGetter(IView) :\n                unwrapRNode(IView[idxOrTargetGetter]);\n                var listener =
ICleanup[tCleanup[i + 2]);\n
                var useCaptureOrSubIdx = tCleanup[i + 3];\n                if (typeof useCaptureOrSubIdx === 'boolean')\n                {\n                  // native DOM listener registered with Renderer3\n
                  target.removeEventListener(tCleanup[i], listener, useCaptureOrSubIdx);\n                }\n                else {\n
                  if (useCaptureOrSubIdx >= 0) {\n                    // unregister\n
                    ICleanup[useCaptureOrSubIdx]();\n                  }\n                  else {\n                    // Subscription\n
                    ICleanup[-useCaptureOrSubIdx].unsubscribe();\n                  }\n                }\n                i += 2;\n              }\n            }\n            else {\n              // This is a cleanup function that is grouped with the index of its context\n
              var context = ICleanup[tCleanup[i + 1]];\n              tCleanup[i].call(context);\n

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    }\n    }\n    IView[CLEANUP] = null;\n    }\n    }\n    /** Calls onDestroy hooks for this view
*/\n    function executeOnDestroys(tView, IView) {\n        var destroyHooks;\n        if (tView != null &&
(destroyHooks = tView.destroyHooks) != null) {\n            for (var i = 0; i < destroyHooks.length; i += 2) {\n
var context = IView[destroyHooks[i]];\n                // Only call the destroy hook if the context has been requested.\n
                if (!(context instanceof NodeInjectorFactory)) {\n                    var toCall = destroyHooks[i + 1];\n
if (Array.isArray(toCall)) {\n                        for (var j = 0; j < toCall.length; j += 2) {\n                            toCall[j +
1].call(context[toCall[j]]);\n                        }\n                    } else {\n
toCall.call(context);\n                    }\n                }\n            }\n        }\n    }\n    }\n    /**\n     * Returns a native element if a node can be inserted into the given parent.\n     *\n     *
There are two reasons why we may not be able to insert a element immediately.\n     * - Projection: When creating a
child content element of a component, we have to skip the\n     * insertion because the content of a component will
be projected.\n     * `<component><content>delayed due to projection</content></component>`\n     * - Parent
container is disconnected: This can happen when we are inserting a view into\n     * parent container, which itself is
disconnected. For example the parent container is part\n     * of a View which has not be inserted or is made for
projection but has not been inserted\n     * into destination.\n     * \n     * @param tView: Current `TView`.\n     *
@param tNode: `TNode` for which we wish to retrieve render parent.\n     * @param IView: Current `LView`.\n
*/\n    function getParentRElement(tView, tNode, IView) {\n
        return getClosestRElement(tView, tNode.parent, IView);\n    }\n    /**\n     * Get closest `RElement` or `null` if it
can't be found.\n     *\n     * If `TNode` is `TNodeType.Element` => return `RElement` at `LView[tNode.index]`
location.\n     * If `TNode` is `TNodeType.ElementContainer|IcuContain` => return the parent (recursively).\n     * If
`TNode` is `null` then return host `RElement`:\n     * - return `null` if projection\n     * - return `null` if parent
container is disconnected (we have no parent.)\n     * \n     * @param tView: Current `TView`.\n     * @param tNode:
`TNode` for which we wish to retrieve `RElement` (or `null` if host element is\n     * needed).\n     * @param
IView: Current `LView`.\n     * @returns `null` if the `RElement` can't be determined at this time (no parent /
projection)\n     */\n    function getClosestRElement(tView, tNode, IView) {\n        var parentTNode = tNode;\n
// Skip over element and ICU containers as those are represented
by a comment node and\n        // can't be used as a render parent.\n        while (parentTNode !== null &&\n
(parentTNode.type & (8 /* ElementContainer */ | 32 /* Icu */))) {\n            tNode = parentTNode;\n
parentTNode = tNode.parent;\n        }\n        // If the parent tNode is null, then we are inserting across views: either
into an embedded view\n        // or a component view.\n        if (parentTNode === null) {\n            // We are
inserting a root element of the component view into the component host element and\n            // it should always be
eager.\n            return IView[HOST];\n        } else {\n            ngDevMode &&
assertTNodeType(parentTNode, 3 /* AnyRNode */ | 4 /* Container */);\n            if (parentTNode.flags & 2 /*
isComponentHost */) {\n                ngDevMode && assertTNodeForLView(parentTNode, IView);\n                var
encapsulation = tView.data[parentTNode.directiveStart].encapsulation;\n                //
                We've got a parent which is an element in the current view. We just need to verify if the\n                // parent
element is not a component. Component's content nodes are not inserted immediately\n                // because they will
be projected, and so doing insert at this point would be wasteful.\n                // Since the projection would then move
it to its final destination. Note that we can't\n                // make this assumption when using the Shadow DOM,
because the native projection placeholders\n                // (<content> or <slot>) have to be in place as elements are
being inserted.\n                if (encapsulation === exports.ViewEncapsulation.None ||\n                    encapsulation
=== exports.ViewEncapsulation.Emulated) {\n                    return null;\n                }\n                return
getNativeByTNode(parentTNode, IView);\n            }\n        }\n    }\n    /**\n     * Inserts a native node before another native
node for a given parent using
{@link Renderer3}.\n     * This is a utility function that can be used when native nodes were determined - it
abstracts an\n     * actual renderer being used.\n     */\n    function nativeInsertBefore(renderer, parent, child,
beforeNode, isMove) {\n        ngDevMode && ngDevMode.rendererInsertBefore++;\n        if
(isProceduralRenderer(renderer)) {\n            renderer.insertBefore(parent, child, beforeNode, isMove);\n        }\n

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else {\n      parent.insertBefore(child, beforeNode, isMove);\n    }\n  }\n  function
nativeAppendChild(renderer, parent, child) {\n    ngDevMode && ngDevMode.rendererAppendChild++;\n    ngDevMode && assertDefined(parent, 'parent node must be defined');\n    if (isProceduralRenderer(renderer)) {\n      renderer.appendChild(parent, child);\n    }\n    else {\n      parent.appendChild(child);\n    }\n  }\n  function nativeAppendOrInsertBefore(renderer, parent, child, beforeNode, isMove) {\n    if
(beforeNode !== null) {\n      nativeInsertBefore(renderer, parent, child, beforeNode, isMove);\n    }\n    else {\n      nativeAppendChild(renderer, parent, child);\n    }\n  }\n  /** Removes a node from the DOM
given its native parent. */\n  function nativeRemoveChild(renderer, parent, child, isHostElement) {\n    if
(isProceduralRenderer(renderer)) {\n      renderer.removeChild(parent, child, isHostElement);\n    }\n    else
{\n      parent.removeChild(child);\n    }\n  }\n  /**\n   * Returns a native parent of a given native node.\n
*/\n  function nativeParentNode(renderer, node) {\n    return (isProceduralRenderer(renderer) ?
renderer.parentNode(node) : node.parentNode);\n  }\n  /**\n   * Returns a native sibling of a given native
node.\n  */\n  function nativeNextSibling(renderer, node) {\n    return isProceduralRenderer(renderer) ?
renderer.nextSibling(node) : node.nextSibling;\n  }\n
/**\n   * Find a node in front of which `currentTNode` should be inserted.\n   *\n   * This method determines the
`RNode` in front of which we should insert the `currentRNode`. This\n   * takes `TNode.insertBeforeIndex` into
account if i18n code has been invoked.\n   *\n   * @param parentTNode parent `TNode`\n   * @param
currentTNode current `TNode` (The node which we would like to insert into the DOM)\n   * @param IView
current `LView`\n   */\n  function getInsertInFrontOfRNode(parentTNode, currentTNode, IView) {\n    return
_getInsertInFrontOfRNodeWithI18n(parentTNode, currentTNode, IView);\n  }\n  /**\n   * Find a node in front
of which `currentTNode` should be inserted. (Does not take i18n into\n   * account)\n   *\n   * This method
determines the `RNode` in front of which we should insert the `currentRNode`. This\n   * does not take
`TNode.insertBeforeIndex` into account.\n   *\n   * @param parentTNode parent `TNode`\n   * @param
currentTNode
current `TNode` (The node which we would like to insert into the DOM)\n   * @param IView current `LView`\n
*/\n  function getInsertInFrontOfRNodeWithNoI18n(parentTNode, currentTNode, IView) {\n    if
(parentTNode.type & (8 /* ElementContainer */ | 32 /* Icu */)) {\n      return getNativeByTNode(parentTNode,
IView);\n    }\n    return null;\n  }\n  /**\n   * Tree shakable boundary for
`getInsertInFrontOfRNodeWithI18n` function.\n   *\n   * This function will only be set if i18n code runs.\n   */\n
var _getInsertInFrontOfRNodeWithI18n = getInsertInFrontOfRNodeWithNoI18n;\n  /**\n   * Tree shakable
boundary for `processI18nInsertBefore` function.\n   *\n   * This function will only be set if i18n code runs.\n
*/\n  var _processI18nInsertBefore;\n  function setI18nHandling(getInsertInFrontOfRNodeWithI18n,
processI18nInsertBefore) {\n    _getInsertInFrontOfRNodeWithI18n = getInsertInFrontOfRNodeWithI18n;\n    _processI18nInsertBefore
= processI18nInsertBefore;\n  }\n  /**\n   * Appends the `child` native node (or a collection of nodes) to the
`parent`.\n   *\n   * @param tView The `TView` to be appended\n   * @param IView The current LView\n   *
@param childRNode The native child (or children) that should be appended\n   * @param childTNode The TNode
of the child element\n   */\n  function appendChild(tView, IView, childRNode, childTNode) {\n    var
parentRNode = getParentRElement(tView, childTNode, IView);\n    var renderer = IView[RENDERER];\n    var
parentTNode = childTNode.parent || IView[T_HOST];\n    var anchorNode =
getInsertInFrontOfRNode(parentTNode, childTNode, IView);\n    if (parentRNode !== null) {\n      if
(Array.isArray(childRNode)) {\n        for (var i = 0; i < childRNode.length; i++) {\n
nativeAppendOrInsertBefore(renderer, parentRNode, childRNode[i], anchorNode, false);\n        }\n      }\n
    }\n    else {\n      nativeAppendOrInsertBefore(renderer, parentRNode, childRNode, anchorNode, false);\n
    }\n  }\n  _processI18nInsertBefore !== undefined && _processI18nInsertBefore(renderer,
childTNode, IView, childRNode, parentRNode);\n  }\n  /**\n   * Returns the first native node for a given LView,
starting from the provided TNode.\n   *\n   * Native nodes are returned in the order in which those appear in the

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native tree (DOM).\n    */\n    function getFirstNativeNode(IView, tNode) {\n        if (tNode !== null) {\n            ngDevMode &&\n                assertTNodeType(tNode, 3 /* AnyRNode */ | 12 /* AnyContainer */ | 32 /* Icu */ | 16\n                /* Projection */);\n            var tNodeType = tNode.type;\n            if (tNodeType & 3 /* AnyRNode */) {\n                return getNativeByTNode(tNode, IView);\n            }\n            else if (tNodeType & 4 /* Container */) {\n                return getBeforeNodeForView(-1, IView[tNode.index]);\n            }\n            else if (tNodeType & 8 /* ElementContainer */) {\n                var elIcuContainerChild =\n                tNode.child;\n                if (elIcuContainerChild !== null) {\n                    return getFirstNativeNode(IView,\n                    elIcuContainerChild);\n                }\n                else {\n                    var rNodeOrLContainer = IView[tNode.index];\n                    if (isLContainer(rNodeOrLContainer)) {\n                        return getBeforeNodeForView(-1,\n                        rNodeOrLContainer);\n                    }\n                    else {\n                        return\n                        unwrapRNode(rNodeOrLContainer);\n                    }\n                }\n            }\n            else if (tNodeType & 32 /* Icu\n            */) {\n                var nextRNode = icuContainerIterate(tNode, IView);\n                var rNode = nextRNode();\n                // If the ICU container has no nodes, than we use the ICU anchor as the node.\n                return rNode ||\n                unwrapRNode(IView[tNode.index]);\n            }\n            else {\n                var componentView = IView[DECLARATION_COMPONENT_VIEW];\n                var componentHost = componentView[T_HOST];\n                var parentView =\n                getLViewParent(componentView);\n                var firstProjectedTNode =\n                componentHost.projection[tNode.projection];\n                if (firstProjectedTNode !== null) {\n                    return\n                    getFirstNativeNode(parentView, firstProjectedTNode);\n                }\n                else {\n                    return\n                    getFirstNativeNode(IView, tNode.next);\n                }\n            }\n            return null;\n        }\n        function\n        getBeforeNodeForView(viewIndexInContainer, lContainer) {\n            var nextViewIndex =\n            CONTAINER_HEADER_OFFSET + viewIndexInContainer + 1;\n            if (nextViewIndex < lContainer.length) {\n                var lIView = lContainer[nextViewIndex];\n                var firstTNodeOfView = IView[TVIEW].firstChild;\n                if (firstTNodeOfView !==\n                null) {\n                    return getFirstNativeNode(IView, firstTNodeOfView);\n                }\n            }\n            return\n            lContainer[NATIVE];\n        }\n        /**\n        * Removes a native node itself using a given renderer. To remove the node\n        we are looking up its\n        * parent from the native tree as not all platforms / browsers support the equivalent of\n        * node.remove().\n        * @param renderer A renderer to be used\n        * @param rNode The native node that\n        should be removed\n        * @param isHostElement A flag indicating if a node to be removed is a host of a\n        component.\n        */\n        function nativeRemoveNode(renderer, rNode, isHostElement) {\n            ngDevMode &&\n            ngDevMode.rendererRemoveNode++;\n            var nativeParent = nativeParentNode(renderer, rNode);\n            if\n            (nativeParent) {\n                nativeRemoveChild(renderer, nativeParent, rNode, isHostElement);\n            }\n        }\n        /**\n        * Performs the operation of `action` on the node. Typically this involves inserting\n        or removing\n        * nodes on the LView or projection boundary.\n        */\n        function applyNodes(renderer, action,\n        tNode, IView, parentRElement, beforeNode, isProjection) {\n            while (tNode !== null) {\n                ngDevMode &&\n                assertTNodeForLView(tNode, IView);\n                ngDevMode &&\n                assertTNodeType(tNode, 3 /*\n                AnyRNode */ | 12 /* AnyContainer */ | 16 /* Projection */ | 32 /* Icu */);\n                var rawSlotValue =\n                IView[tNode.index];\n                var tNodeType = tNode.type;\n                if (isProjection) {\n                    if (action === 0\n                    /* Create */) {\n                        rawSlotValue && attachPatchData(unwrapRNode(rawSlotValue), IView);\n                    }\n                    tNode.flags |= 4 /* isProjected */;\n                }\n                if ((tNode.flags & 64 /* isDetached */) !== 64 /*\n                isDetached */) {\n                    if (tNodeType & 8 /* ElementContainer */) {\n                        applyNodes(renderer,\n                        action, tNode.child, IView, parentRElement, beforeNode,\n                        false);\n                    }\n                    applyToElementOrContainer(action, renderer, parentRElement, rawSlotValue, beforeNode);\n                }\n                else if (tNodeType & 32 /* Icu */) {\n                    var nextRNode = icuContainerIterate(tNode,\n                    IView);\n                    var rNode = void 0;\n                    while (rNode = nextRNode()) {\n                        applyToElementOrContainer(action, renderer, parentRElement, rNode, beforeNode);\n                    }\n                    applyToElementOrContainer(action, renderer, parentRElement, rawSlotValue, beforeNode);\n                }\n            }\n            else if (tNodeType & 16 /* Projection */) {\n                applyProjectionRecursive(renderer, action, IView, tNode,\n
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parentRElement, beforeNode);\n          }\n          else {\n              ngDevMode &&\n              assertTNodeType(tNode, 3 /* AnyRNode */ | 4 /* Container */);\n              applyToElementOrContainer(action,\n              renderer, parentRElement,\n              rawSlotValue, beforeNode);\n          }\n          }\n          tNode = isProjection ? tNode.projectionNext :\n          tNode.next;\n          }\n          }\n          function applyView(tView, IView, renderer, action, parentRElement, beforeNode) {\n              applyNodes(renderer, action, tView.firstChild, IView, parentRElement, beforeNode, false);\n          }\n          /**\n           * `applyProjection` performs operation on the projection.\n           * \n           * Inserting a projection requires us to locate the\n           * projected nodes from the parent component. The\n           * complication is that those nodes themselves could be re-\n           * projected from their parent component.\n           * \n           * @param tView The `TVView` of `LView` which needs to be\n           * inserted, detached, destroyed\n           * @param IView The `LView` which needs to be inserted, detached, destroyed.\n           * \n           * @param tProjectionNode node to project\n           */\n          function applyProjection(tView, IView, tProjectionNode)\n          {\n              var renderer = IView[RENDERER];\n              var parentRNode\n              = getParentRElement(tView, tProjectionNode, IView);\n              var parentTNode = tProjectionNode.parent ||\n              IView[T_HOST];\n              var beforeNode = getInsertInFrontOfRNode(parentTNode, tProjectionNode, IView);\n              applyProjectionRecursive(renderer, 0 /* Create */, IView, tProjectionNode, parentRNode, beforeNode);\n          }\n          /**\n           * `applyProjectionRecursive` performs operation on the projection specified by `action` (insert,\n           * detach, destroy)\n           * \n           * Inserting a projection requires us to locate the projected nodes from the parent\n           * component. The\n           * complication is that those nodes themselves could be re-projected from their parent\n           * component.\n           * \n           * @param renderer Render to use\n           * @param action action to perform (insert, detach,\n           * destroy)\n           * @param IView The LView which needs to be inserted, detached, destroyed.\n           * @param\n           * tProjectionNode node to project\n           * @param parentRElement parent DOM element for insertion/removal.\n           * \n           * @param\n           * beforeNode Before which node the insertions should happen.\n           */\n          function\n          applyProjectionRecursive(renderer, action, IView, tProjectionNode, parentRElement, beforeNode) {\n              var\n              componentLView = IView[DECLARATION_COMPONENT_VIEW];\n              var componentNode =\n              componentLView[T_HOST];\n              ngDevMode &&\n              assertEqual(typeof tProjectionNode.projection,\n              'number', 'expecting projection index');\n              var nodeToProjectOrRNodes =\n              componentNode.projection[tProjectionNode.projection];\n              if (Array.isArray(nodeToProjectOrRNodes)) {\n                  // This should not exist, it is a bit of a hack. When we bootstrap a top level node and we\n                  // need to support\n                  passing projectable nodes, so we cheat and put them in the TNode\n                  // of the Host TVView. (Yes we put\n                  instance info at the T Level). We can get away with it\n                  // because we know that that TVView is not shared and\n                  therefore it will not be a problem.\n                  // This should\n                  be refactored and cleaned up.\n                  for (var i = 0; i < nodeToProjectOrRNodes.length; i++) {\n                      var\n                      rNode = nodeToProjectOrRNodes[i];\n                      applyToElementOrContainer(action, renderer, parentRElement,\n                      rNode, beforeNode);\n                  }\n                  }\n                  else {\n                      var nodeToProject = nodeToProjectOrRNodes;\n                      var projectedComponentLView = componentLView[PARENT];\n                      applyNodes(renderer, action,\n                      nodeToProject, projectedComponentLView, parentRElement, beforeNode, true);\n                  }\n                  }\n                  /**\n                   * `applyContainer` performs an operation on the container and its views as specified by\n                   * `action` (insert, detach,\n                   * destroy)\n                   * \n                   * Inserting a Container is complicated by the fact that the container may have Views which\n                   * themselves have containers or projections.\n                   * \n                   * @param renderer Renderer to use\n                   * @param action\n                   * action to perform (insert, detach, destroy)\n                   * \n                   * @param IContainer The\n                   * LContainer which needs to be inserted, detached, destroyed.\n                   * \n                   * @param parentRElement parent DOM element\n                   * for insertion/removal.\n                   * \n                   * @param beforeNode Before which node the insertions should happen.\n                   */\n                  function applyContainer(renderer, action, IContainer, parentRElement, beforeNode) {\n                      ngDevMode &&\n                      assertLContainer(IContainer);\n                      var anchor = IContainer[NATIVE]; // LContainer has its own before node.\n                      var native = unwrapRNode(IContainer);\n                      // An LContainer can be created dynamically on any node by\n                      injecting ViewContainerRef.\n                      // Asking for a ViewContainerRef on an element will result in a creation of a\n                      separate anchor\n                      // node (comment in the DOM) that will be different from the LContainer's host node. 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this\n      // particular case we need to execute action on 2 nodes:\n      // - container's host node (this is done in the
executeActionOnElementOrContainer);\n      // - container's host node (this is done here)\n
    if (anchor !== native) {\n      // This is very strange to me (Misko). I would expect that the native is same as
anchor. I\n      // don't see a reason why they should be different, but they are.\n      //\n      // If they are
we need to process the second anchor as well.\n      applyToElementOrContainer(action, renderer,
parentRElement, anchor, beforeNode);\n    }\n    for (var i = CONTAINER_HEADER_OFFSET; i <
lContainer.length; i++) {\n      var lView = lContainer[i];\n      applyView(lView[TVIEW], lView, renderer,
action, parentRElement, anchor);\n    }\n    /**\n     * Writes class/style to element.\n     *\n     * @param
renderer Renderer to use.\n     * @param isClassBased `true` if it should be written to `class` (`false` to write to
`style`)\n     * @param rNode The Node to write to.\n     * @param prop Property to write to. This would be the
class/style name.\n     * @param value Value to write. If `null`/`undefined`/`false`
this is considered a remove (set/add\n     * otherwise).\n     */\n    function applyStyling(renderer, isClassBased,
rNode, prop, value) {\n      var isProcedural = isProceduralRenderer(renderer);\n      if (isClassBased) {\n        //
We actually want JS true/false here because any truthy value should add the class\n        if (!value) {\n
ngDevMode && ngDevMode.rendererRemoveClass++;\n        if (isProcedural) {\n
renderer.removeClass(rNode, prop);\n        }\n        else {\n          rNode.classList.remove(prop);\n
}\n        }\n        else {\n          ngDevMode && ngDevMode.rendererAddClass++;\n          if
(isProcedural) {\n            renderer.addClass(rNode, prop);\n          }\n          else {\n
ngDevMode && assertDefined(rNode.classList, 'HTMLElement expected');\n
rNode.classList.add(prop);\n
}\n        }\n        }\n        else {\n          var flags = prop.indexOf('-') === -1 ? undefined :
exports.RendererStyleFlags2.DashCase;\n          if (value == null /** || value === undefined */) {\n
ngDevMode && ngDevMode.rendererRemoveStyle++;\n          if (isProcedural) {\n
renderer.removeStyle(rNode, prop, flags);\n          }\n          else {\n
rNode.style.removeProperty(prop);\n          }\n          }\n          else {\n            // A value is important if it
ends with `!important`. The style\n            // parser strips any semicolons at the end of the value.\n            var
isImportant = typeof value === 'string' ? value.endsWith('!important') : false;\n            if (isImportant) {\n
// !important has to be stripped from the value for it to be valid.\n            value = value.slice(0, -10);\n
flags |= exports.RendererStyleFlags2.Important;\n            }\n            ngDevMode &&
ngDevMode.rendererSetStyle++;\n            if (isProcedural) {\n              renderer.setStyle(rNode, prop, value,
flags);\n            }\n            else {\n              ngDevMode && assertDefined(rNode.style, 'HTMLElement
expected');\n              rNode.style.setProperty(prop, value, isImportant ? 'important' : '');\n            }\n            }\n
}\n          }\n          /**\n           * Write `cssText` to `RElement`.\n           *\n           * This function does direct write without any
reconciliation. Used for writing initial values, so\n           * that static styling values do not pull in the style parser.\n
*\n           * @param renderer Renderer to use\n           * @param element The element which needs to be updated.\n           *
@param newValue The new class list to write.\n           */\n          function writeDirectStyle(renderer, element, newValue)
{\n            ngDevMode && assertString(newValue,
`\\'newValue\\' should be a string`);\n            if (isProceduralRenderer(renderer)) {\n
renderer.setAttribute(element, 'style', newValue);\n            }\n            else {\n              element.style.cssText = newValue;\n
}\n            ngDevMode && ngDevMode.rendererSetStyle++;\n            }\n          /**\n           * Write `className` to
`RElement`.\n           *\n           * This function does direct write without any reconciliation. Used for writing initial values,
so\n           * that static styling values do not pull in the style parser.\n           *\n           * @param renderer Renderer to use\n
           * @param element The element which needs to be updated.\n           * @param newValue The new class list to write.\n
           */\n          function writeDirectClass(renderer, element, newValue) {\n            ngDevMode && assertString(newValue,
`\\'newValue\\' should be a string`);\n            if (isProceduralRenderer(renderer)) {\n              if (newValue === '') {\n
// There are tests in `google3` which expect
`element.getAttribute('class')` to be `null`.\n              renderer.removeAttribute(element, 'class');\n            }\n
            else {\n              renderer.setAttribute(element, 'class', newValue);\n            }\n            }\n            else {\n

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element.className = newValue;\n    }\n    ngDevMode && ngDevMode.rendererSetClassName++;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * \n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  /**\n   * Returns an index of `classToSearch` in `className` taking token boundaries into account.\n   * \n   * `classIndexof('AB A', 'A', 0)` will be 3 (not 0 since `AB!=='A')\n   * \n   * @param className A string containing classes (whitespace separated)\n   * @param classToSearch A class name to locate\n   * @param startingIndex Starting location of search\n   * @returns an index of the located class (or -1 if not found)\n   */\n  function classIndexof(className, classToSearch, startingIndex) {\n    ngDevMode && assertNotEqual(classToSearch, '', 'can not look for "" string.);\n    var end = className.length;\n    while (true) {\n      var foundIndex = className.indexOf(classToSearch, startingIndex);\n      if (foundIndex === -1)\n        return foundIndex;\n      if (foundIndex === 0 || className.charCodeAt(foundIndex - 1) <= 32 /* SPACE */) {\n        // Ensure that it has leading whitespace\n        var length = classToSearch.length;\n        if (foundIndex + length === end)\n          return foundIndex;\n        // Ensure that it has trailing whitespace\n        return foundIndex;\n      }\n      // False positive, keep searching from where we left off.\n      startingIndex = foundIndex + 1;\n    }\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * \n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  var unusedValueToPlacateAjd$1 = unusedValueExportToPlacateAjd$4 + unusedValueExportToPlacateAjd$5;\n  var NG_TEMPLATE_SELECTOR = 'ng-template';\n  /**\n   * Search the `TAttributes` to see if it contains `cssClassToMatch` (case insensitive)\n   * \n   * @param attrs `TAttributes` to search through.\n   * @param cssClassToMatch class to match (lowercase)\n   * @param isProjectionMode Whether or not class matching should look into the attribute `class` in\n   * addition to the `AttributeMarker.Classes`.\n   */\n  function isCssClassMatching(attrs, cssClassToMatch, isProjectionMode) {\n    // TODO(misko): The fact that this function needs to know about `isProjectionMode` seems suspect.\n    // It is strange to me that sometimes the class information comes in form of `class` attribute\n    // and sometimes in form of `AttributeMarker.Classes`. Some investigation is needed to determine\n    // if that is the right behavior.\n    ngDevMode && assertEqual(cssClassToMatch, cssClassToMatch.toLowerCase(), 'Class name expected to be lowercase.);\n    var i = 0;\n    while (i < attrs.length) {\n      var item = attrs[i++];\n      if (isProjectionMode && item === 'class')\n        item = attrs[i];\n      if (classIndexof(item.toLowerCase(), cssClassToMatch, 0) !== -1)\n        return true;\n    }\n    else if (item === 1 /* Classes */) {\n      // We found the classes section. Start searching for the class.\n      while (i < attrs.length && typeof (item = attrs[i++]) === 'string') {\n        // while we have strings\n        if (item.toLowerCase() === cssClassToMatch)\n          return true;\n      }\n    }\n    return false;\n  }\n\n  /**\n   * Checks whether the `tNode` represents an inline template (e.g. `*ngFor`).\n   * \n   * @param tNode current TNode\n   */\n  function isInlineTemplate(tNode) {\n    return tNode.type === 4 /* Container */ && tNode.value !== NG_TEMPLATE_SELECTOR;\n  }\n\n  /**\n   * Function that checks whether a given tNode matches tag-based selector and has a valid type.\n   * \n   * Matching can be performed in 2 modes: projection mode (when we project nodes) and regular\n   * directive matching mode:\n   * - in the `directive matching` mode we do _not_ take TContainer's tagName into account if it is\n   * different from NG_TEMPLATE_SELECTOR (value different from NG_TEMPLATE_SELECTOR indicates that a\n   * tag name was extracted from * syntax so we would match the same directive twice);\n   * - in the `projection` mode, we use a tag name potentially extracted from the * syntax processing\n   * (applicable to TNodeType.Container only).\n   */\n  function hasTagAndTypeMatch(tNode, currentSelector, isProjectionMode) {\n    var tagNameToCompare = tNode.type === 4 /* Container */ && !isProjectionMode ? NG_TEMPLATE_SELECTOR : tNode.value;\n    return

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currentSelector === tagNameToCompare;\n  }\n  /**\n   * A utility function to match an Ivy node static data
against a simple CSS selector\n   *\n   * @param node static data of the node to match\n   * @param selector
The selector to try matching against the node.\n   * @param isProjectionMode if `true` we are matching for content
projection, otherwise we are doing\n   * directive matching.\n   * @returns true if node matches the selector.\n   */\n  function isNodeMatchingSelector(tNode, selector, isProjectionMode) {\n    ngDevMode &&
assertDefined(selector[0],
'Selector should have a tag name');\n    var mode = 4 /* ELEMENT */;\n    var nodeAttrs = tNode.attrs || [];\n    // Find the index of first attribute that has no value, only a name.\n    var nameOnlyMarkerIdx =
getNameOnlyMarkerIndex(nodeAttrs);\n    // When processing `:not` selectors, we skip to the next `:not` if
the\n    // current one doesn't match\n    var skipToNextSelector = false;\n    for (var i = 0; i < selector.length;
i++) {\n      var current = selector[i];\n      if (typeof current === 'number') {\n        // If we finish
processing a :not selector and it hasn't failed, return false\n        if (!skipToNextSelector && !isPositive(mode)
&& !isPositive(current)) {\n          return false;\n        }\n        // If we are skipping to the next :not()
and this mode flag is positive,\n        // it's a part of the current :not() selector, and we should keep skipping\n        if (skipToNextSelector && isPositive(current))\n          continue;\n        skipToNextSelector =
false;\n        mode = current | (mode & 1 /* NOT */);\n        continue;\n      }\n      if
(skipToNextSelector)\n        continue;\n      if (mode & 4 /* ELEMENT */) {\n        mode = 2 /*
ATTRIBUTE */ | mode & 1 /* NOT */;\n        if (current !== " && !hasTagAndTypeMatch(tNode, current,
isProjectionMode) ||\n          current === " && selector.length === 1) {\n          if (isPositive(mode))\n            return false;\n          skipToNextSelector = true;\n        }\n        else {\n          var selectorAttrValue = mode & 8 /* CLASS */ ? current : selector[++i];\n          // special case for matching
against classes when a tNode has been instantiated with\n          // class and style values as separate attribute
values (e.g. ['title', CLASS, 'foo'])\n          if ((mode & 8 /* CLASS */) && tNode.attrs !== null) {\n            if
(!isCssClassMatching(tNode.attrs, selectorAttrValue, isProjectionMode)) {\n              if
(isPositive(mode))\n                return false;\n              skipToNextSelector = true;\n            }\n            continue;\n          }\n          var attrName = (mode & 8 /* CLASS */) ? 'class' : current;\n          var
attrIndexInNode = findAttrIndexInNode(attrName, nodeAttrs, isInlineTemplate(tNode), isProjectionMode);\n          if (attrIndexInNode === -1) {\n            if (isPositive(mode))\n              return false;\n            skipToNextSelector = true;\n            continue;\n          }\n          if (selectorAttrValue !== "") {\n            var nodeAttrValue = void 0;\n            if (attrIndexInNode > nameOnlyMarkerIdx) {\n              {\n                nodeAttrValue = ";\n              }\n            } else {\n              ngDevMode &&\n                assertNotEqual(nodeAttrs[attrIndexInNode], 0 /* NamespaceURI */, 'We do not match directives on
namespaced attributes');\n              // we lowercase the attribute value to be able to match\n              //
selectors without case-sensitivity\n              // (selectors are already in lowercase when generated)\n              nodeAttrValue = nodeAttrs[attrIndexInNode + 1].toLowerCase();\n            }\n            var
compareAgainstClassName = mode & 8 /* CLASS */ ? nodeAttrValue : null;\n            if
(compareAgainstClassName &&\n              classIndexOf(compareAgainstClassName, selectorAttrValue, 0)
!== -1 ||\n              mode & 2 /* ATTRIBUTE */ && selectorAttrValue !== nodeAttrValue) {\n              if (isPositive(mode))\n                return false;\n              skipToNextSelector = true;\n            }\n          }\n          }\n          return isPositive(mode) || skipToNextSelector;\n        }\n      }\n      function isPositive(mode) {\n        return (mode &
1 /* NOT */) === 0;\n      }\n    }\n    /**\n     * Examines the attribute's definition array for a node to find the index of the\n     * attribute that matches the given `name`.\n     * NOTE: This will not match namespaced attributes.\n     *\n     * Attribute matching depends upon `isInlineTemplate` and `isProjectionMode`.\n     * The following table
summarizes which types of attributes we attempt to match:\n     *\n     *
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=====
Attributes | I18n\n     * Attributes\n     *

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=====
Attributes | I18n\n     * Attributes\n     *

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=====
* Inline + Projection | YES | YES | NO | YES\n * -----
-----\n * Inline + Directive | NO | NO
| YES | NO\n * -----
--\n * Non-inline + Projection | YES | YES | NO | YES\n * -----
-----\n * Non-inline + Directive | YES |
YES | NO | YES\n *
=====
=====
\n * \n * @param name the name of the attribute
to find\n * @param attrs the attribute array to examine\n * @param isInlineTemplate true if the node being
matched is an inline template (e.g. `*ngFor`)\n * rather than a manually expanded template node (e.g. ``).\n * @param isProjectionMode true if we are matching against content projection otherwise we are\n
* matching against directives.\n */\n function findAttrIndexInNode(name, attrs, isInlineTemplate,
isProjectionMode) {\n if (attrs === null)\n return -1;\n var i = 0;\n if (isProjectionMode ||
!isInlineTemplate) {\n var bindingsMode = false;\n while (i < attrs.length) {\n var
maybeAttrName = attrs[i];\n if (maybeAttrName === name) {\n return i;\n }\n
else if (maybeAttrName === 3 /* Bindings */ || maybeAttrName === 6 /* I18n */) {\n bindingsMode =
true;\n }\n else
if (maybeAttrName === 1 /* Classes */ || maybeAttrName === 2 /* Styles */) {\n var value =
attrs[++i];\n // We should skip classes here because we have a separate mechanism for\n //
matching classes in projection mode.\n while (typeof value === 'string') {\n value =
attrs[++i];\n }\n continue;\n }\n else if (maybeAttrName === 4 /*
Template */) {\n // We do not care about Template attributes in this scenario.\n break;\n
}\n else if (maybeAttrName === 0 /* NamespaceURI */) {\n // Skip the whole namespaced
attribute and value. This is by design.\n i += 4;\n continue;\n }\n // In
binding mode there are only names, rather than name-value pairs.\n i += bindingsMode
? 1 : 2;\n }\n // We did not match the attribute\n return -1;\n }\n else {\n return
matchTemplateAttribute(attrs, name);\n }\n }\n function isNodeMatchingSelectorList(tNode, selector,
isProjectionMode) {\n if (isProjectionMode === void 0) { isProjectionMode = false; }\n for (var i = 0; i <
selector.length; i++) {\n if (isNodeMatchingSelector(tNode, selector[i], isProjectionMode)) {\n
return true;\n }\n }\n return false;\n }\n function getProjectAsAttrValue(tNode) {\n var
nodeAttrs = tNode.attrs;\n if (nodeAttrs != null) {\n var ngProjectAsAttrIdx = nodeAttrs.indexOf(5 /*
ProjectAs */);\n // only check for ngProjectAs in attribute names, don't accidentally match attribute's value\n
// (attribute names are stored at even indexes)\n if ((ngProjectAsAttrIdx & 1) === 0) {\n
return nodeAttrs[ngProjectAsAttrIdx + 1];\n }\n }\n return null;\n }\n function
getNameOnlyMarkerIndex(nodeAttrs) {\n for (var i = 0; i < nodeAttrs.length; i++) {\n var nodeAttr =
nodeAttrs[i];\n if (isNameOnlyAttributeMarker(nodeAttr)) {\n return i;\n }\n }\n
return nodeAttrs.length;\n }\n function matchTemplateAttribute(attrs, name) {\n var i = attrs.indexOf(4 /*
Template */);\n if (i > -1) {\n i++;\n while (i < attrs.length) {\n var attr = attrs[i];\n
// Return in case we checked all template attrs and are switching to the next section in the\n // attrs array
(that starts with a number that represents an attribute marker).\n if (typeof attr === 'number')\n return -1;\n if (attr === name)\n return i;\n i++;\n
}\n }\n return -1;\n }\n /**\n * Checks whether a selector is inside a CssSelectorList\n *
@param selector Selector to be checked.\n * @param list List in which to look for the selector.\n */\n
function isSelectorInSelectorList(selector, list) {\n selectorListLoop: for (var i = 0; i < list.length; i++) {\n
var currentSelectorInList = list[i];\n if (selector.length !== currentSelectorInList.length) {\n
continue;\n }\n for (var j = 0; j < selector.length; j++) {\n if (selector[j] !==

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currentSelectorInList[j]) {\n
    continue selectorListLoop;\n
}\n
}\n
return true;\n
}\n
return false;\n
}\n
function maybeWrapInNotSelector(isNegativeMode, chunk) {\n
    return
isNegativeMode ? 'not(' + chunk.trim() + ')' : chunk;\n
}\n
function stringifyCSSSelector(selector) {\n
    var
result = selector[0];\n
    var i = 1;\n
    var mode = 2 /* ATTRIBUTE */;\n
    var currentChunk = ";\n
    var isNegativeMode =
false;\n
    while (i < selector.length) {\n
        var valueOrMarker = selector[i];\n
        if (typeof
valueOrMarker === 'string') {\n
            if (mode & 2 /* ATTRIBUTE */) {\n
                var attrValue =
selector[++i];\n
                currentChunk +=\n
                '[' + valueOrMarker + (attrValue.length > 0 ? '=' +
attrValue + '\" : ') + ''];\n
            }\n
            else if (mode & 8 /* CLASS */) {\n
                currentChunk += '.'
+ valueOrMarker;\n
            }\n
            else if (mode & 4 /* ELEMENT */) {\n
                currentChunk += ' '
+ valueOrMarker;\n
            }\n
            }\n
            else {\n
                /\n
                // Append current chunk to the final
result in case we come across SelectorFlag, which\n
                // indicates that the previous
section of a selector is over. We need to accumulate content\n
                // between flags to make sure we wrap the
chunk later in :not() selector if needed, e.g.\n
                // ""\n
                // ["", Flags.CLASS, '.classA', Flags.CLASS |
Flags.NOT, '.classB', '.classC']\n
                // ""\n
                // should be transformed to `classA :not(.classB
.classC)`.\n
                /\n
                // Note: for negative selector part, we accumulate content between flags until we
find the\n
                // next negative flag. This is needed to support a case where `:not()` rule contains more than\n
                // one chunk, e.g. the following selector:\n
                // ""\n
                // ["", Flags.ELEMENT | Flags.NOT, 'p',
Flags.CLASS, 'foo', Flags.CLASS | Flags.NOT, 'bar']\n
                // ""\n
                // should be stringified to
`:not(p.foo) :not(.bar)`\n
                /\n
                if (currentChunk !== " && !isPositive(valueOrMarker))
{\n
                    result += maybeWrapInNotSelector(isNegativeMode, currentChunk);\n
                    currentChunk =
";\n
                }\n
                mode = valueOrMarker;\n
                // According to CssSelector spec, once we come
across `SelectorFlags.NOT` flag, the negative\n
                // mode is maintained for remaining chunks of a selector.\n
                isNegativeMode = isNegativeMode || !isPositive(mode);\n
            }\n
            i++;\n
        }\n
        if
(currentChunk !== "") {\n
            result += maybeWrapInNotSelector(isNegativeMode, currentChunk);\n
        }\n
    }
    return result;\n
}\n
/**\n
 * Generates string representation of CSS selector in parsed form.\n
 * ComponentDef and DirectiveDef are generated with the selector in parsed form to avoid doing\n
 * additional
parsing at runtime (for example, for directive matching). However in some cases (for\n
 * example, while
bootstrapping a component), a
string version of the selector is required to query\n
 * for the host element on the page. This function takes the
parsed form of a selector and returns\n
 * its string representation.\n
 * @param selectorList selector in
parsed form\n
 * @returns string representation of a given selector\n
 */\n
function
stringifyCSSSelectorList(selectorList) {\n
    return selectorList.map(stringifyCSSSelector).join(',');\n
}\n
/**\n
 * Extracts attributes and classes information from a given CSS selector.\n
 * This function is used while
creating a component dynamically. In this case, the host element\n
 * (that is created dynamically) should contain
attributes and classes specified in component's CSS\n
 * selector.\n
 * @param selector CSS selector in
parsed form (in a form of array)\n
 * @returns object with `attrs` and `classes` fields that contain extracted
information\n
 */\n
function extractAttrsAndClassesFromSelector(selector)
{\n
    var attrs = [];\n
    var classes = [];\n
    var i = 1;\n
    var mode = 2 /* ATTRIBUTE */;\n
    while (i
< selector.length) {\n
        var valueOrMarker = selector[i];\n
        if (typeof valueOrMarker === 'string') {\n
            if (mode === 2 /* ATTRIBUTE */) {\n
                if (valueOrMarker !== "") {\n
                    attrs.push(valueOrMarker, selector[++i]);\n
                }\n
            }\n
            else if (mode === 8 /* CLASS */) {\n
                classes.push(valueOrMarker);\n
            }\n
            }\n
            else {\n
                // According to
CssSelector spec, once we come across `SelectorFlags.NOT` flag, the negative\n
                // mode is maintained for
remaining chunks of a selector. Since attributes and classes are\n
                // extracted only for "positive" part of
the selector, we can stop here.\n
                if (!isPositive(mode))\n
                    break;\n
                mode = valueOrMarker;\n
            }\n
            i++;\n
        }\n
    }
    return { attrs: attrs, classes: classes };
}\n
/**\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 * Use of this source code

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/** A special value which designates that a value has not changed. */
var NO_CHANGE = (typeof ngDevMode === 'undefined' || ngDevMode) ? { __brand__: 'NO_CHANGE' } : {};
/**
 * Copyright Google LLC All Rights Reserved.
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 * license that can be found in the LICENSE file at https://angular.io/license
 * Advances to
 * an element for later binding instructions.
 * Used in conjunction with instructions like {@link property} to
 * act on elements with specified indices,
 * for example those created with {@link element} or {@link elementStart}.
 * (rf: RenderFlags,
 * ctx: any) => {
 *   if (rf & 1) {
 *     text(0, 'Hello');
 *     text(1, 'Goodbye');
 *     element(2, 'div');
 *   }
 *   if (rf & 2) {
 *     advance(2); // Advance twice to the <div>.
 *     property('title', 'test');
 *   }
 * }
 * @param delta Number of elements to advance forwards by.
 * @codeGenApi
 */
function advance(delta) {
  ngDevMode && assertGreaterThan(delta, 0, 'Can only advance forward');
  selectIndexInternal(getTView(), getLView(), getSelectedIndex() + delta, isInCheckNoChangesMode());
}
function selectIndexInternal(tView, lView, index, checkNoChangesMode) {
  ngDevMode &&
  assertIndexInDeclRange(lView, index);
  // Flush the initial hooks for elements in the view that have been
  added up to this point.
  // PERF
  WARNING: do NOT extract this to a separate function without running benchmarks
  if (!checkNoChangesMode) {
    var hooksInitPhaseCompleted = (lView[FLAGS] & 3 /* InitPhaseStateMask */) === 3 /* InitPhaseCompleted */;
    if (hooksInitPhaseCompleted) {
      var preOrderCheckHooks = tView.preOrderCheckHooks;
      if (preOrderCheckHooks !== null) {
        executeCheckHooks(lView, preOrderCheckHooks, index);
      }
      else {
        var preOrderHooks = tView.preOrderHooks;
        if (preOrderHooks !== null) {
          executeInitAndCheckHooks(lView, preOrderHooks, 0 /* OnInitHooksToBeRun */, index);
        }
      }
    }
    // We must set the selected index after running the hooks, because hooks may have side-effects
    // that cause other template functions to run, thus updating the selected index, which is global
    // state. If we run `setSelectedIndex` before we run the hooks, in some cases the selected index
    // will be altered by the time we leave the `advance` instruction.
    setSelectedIndex(index);
  }
}
/**
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 * MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
function toTStylingRange(prev, next) {
  ngDevMode && assertNumberInRange(prev, 0, 32767 /* UNSIGNED_MASK */);
  ngDevMode && assertNumberInRange(next, 0, 32767 /* UNSIGNED_MASK */);
  return (prev << 17 /* PREV_SHIFT */ | next << 2 /* NEXT_SHIFT */);
}
function getTStylingRangePrev(tStylingRange) {
  ngDevMode && assertNumber(tStylingRange, 'expected number');
  return (tStylingRange >> 17 /* PREV_SHIFT */) & 32767 /* UNSIGNED_MASK */;
}
function getTStylingRangePrevDuplicate(tStylingRange) {
  ngDevMode && assertNumber(tStylingRange, 'expected number');
  return (tStylingRange & 2 /* PREV_DUPLICATE */) == 2 /* PREV_DUPLICATE */;
}
function setTStylingRangePrev(tStylingRange, previous) {
  ngDevMode && assertNumber(tStylingRange, 'expected number');
  ngDevMode && assertNumberInRange(previous, 0, 32767 /* UNSIGNED_MASK */);
  return ((tStylingRange & ~4294836224 /* PREV_MASK */) | (previous << 17 /* PREV_SHIFT */));
}
function setTStylingRangePrevDuplicate(tStylingRange) {
  ngDevMode &&
  assertNumber(tStylingRange, 'expected number');
  return (tStylingRange | 2 /* PREV_DUPLICATE */);
}
function getTStylingRangeNext(tStylingRange) {
  ngDevMode && assertNumber(tStylingRange, 'expected number');
  return (tStylingRange & 131068 /* NEXT_MASK */) >> 2 /* NEXT_SHIFT */;
}
function setTStylingRangeNext(tStylingRange, next) {
  ngDevMode && assertNumber(tStylingRange, 'expected number');
  ngDevMode &&
  assertNumberInRange(next, 0, 32767 /* UNSIGNED_MASK */);
  return ((tStylingRange & ~131068 /* NEXT_MASK */) | (next << 2 /* NEXT_SHIFT */));
}

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getTStylingRangeNextDuplicate(tStylingRange) {\n      ngDevMode && assertNumber(tStylingRange, 'expected
number');\n      return (tStylingRange & 1 /* NEXT_DUPLICATE */) ===\n      1 /* NEXT_DUPLICATE */;\n    }\n    function setTStylingRangeNextDuplicate(tStylingRange) {\n      ngDevMode &&
assertNumber(tStylingRange, 'expected number');\n      return (tStylingRange | 1 /* NEXT_DUPLICATE */);\n    }\n    function getTStylingRangeTail(tStylingRange) {\n      ngDevMode && assertNumber(tStylingRange,
'expected number');\n      var next = getTStylingRangeNext(tStylingRange);\n      return next === 0 ?
getTStylingRangePrev(tStylingRange) : next;\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC
All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     *
found in the LICENSE file at https://angular.io/license\n     */\n    /**\n     * Patch a `debug` property on top of the
existing object.\n     * NOTE: always call this method with `ngDevMode && attachDebugObject(...)`\n     *\n     * @param obj Object to patch\n     * @param debug Value to patch\n     */\n    function attachDebugObject(obj,
debug) {\n      if (ngDevMode) {\n        Object.defineProperty(obj, 'debug', { value: debug, enumerable: false
});\n      }\n      else {\n        throw new Error('This method should be guarded with `ngDevMode` so that it can
be tree shaken in production!');\n      }\n    }\n\n    /**\n     * Patch a `debug` property getter on top of the existing
object.\n     * NOTE: always call this method with `ngDevMode && attachDebugObject(...)`\n     *\n     * @param obj Object to patch\n     * @param debugGetter
Getter returning a value to patch\n     */\n    function attachDebugGetter(obj, debugGetter) {\n      if (ngDevMode)
{\n        Object.defineProperty(obj, 'debug', { get: debugGetter, enumerable: false });\n      }\n      else {\n
throw new Error('This method should be guarded with `ngDevMode` so that it can be tree shaken in production!');\n
      }\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this
source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at
https://angular.io/license\n     */\n    var NG_DEV_MODE = ((typeof ngDevMode === 'undefined' || !ngDevMode)
&& initNgDevMode());\n    /**\n     * This file contains conditionally attached classes which provide human readable
(debug) level\n     * information for `LView`, `LContainer` and other internal data structures. These data structures\n
     * are stored internally as array which makes it very difficult during
debugging to reason about the\n     * current state of the system.\n     *\n     * Patching the array with extra property
does change the array's hidden class' but it does not\n     * change the cost of access, therefore this patching should
not have significant if any impact in\n     * `ngDevMode` mode. (see: https://jsperf.com/array-vs-monkey-patch-
array)\n     *\n     * So instead of seeing:\n     * ```\n     * Array(30) [Object, 659, null, ...]\n     * ```\n     *\n     * You
get to see:\n     * ```\n     * LViewDebug {\n     *   views: [...],\n     *   flags: {attached: true, ...}\n     *   nodes: [\n
     *     {html: '<div id="123">', ..., nodes: [\n     *       {html: '<span>', ..., nodes: null}\n     *     ]}\n     *   ]\n     * }\n
     * ```\n     */\n    var LVIEW_COMPONENT_CACHE;\n    var LVIEW_EMBEDDED_CACHE;\n    var
LVIEW_ROOT;\n    /**\n     * This function clones a blueprint and creates LView.\n     *\n     * Simple slice will
keep the same type, and we need it to
be LView\n     */\n    function cloneToLViewFromTViewBlueprint(tView) {\n      var debugTView = tView;\n      var IView = getLViewToClone(debugTView.type, tView.template && tView.template.name);\n      return
IView.concat(tView.blueprint);\n    }\n    function getLViewToClone(type, name) {\n      switch (type) {\n
case 0 /* Root */:\n        if (LVIEW_ROOT === undefined)\n          LVIEW_ROOT = new
(createNamedArrayType('LRootView'))();\n        return LVIEW_ROOT;\n      case 1 /* Component */:\n        if (LVIEW_COMPONENT_CACHE === undefined)\n          LVIEW_COMPONENT_CACHE = new
Map();\n        var componentArray = LVIEW_COMPONENT_CACHE.get(name);\n        if
(componentArray === undefined) {\n          componentArray = new
(createNamedArrayType('LComponentView' + nameSuffix(name)))();\n          LVIEW_COMPONENT_CACHE.set(name, componentArray);\n        }\n        return componentArray;\n      case 2 /* Embedded */:\n        if (LVIEW_EMBEDDED_CACHE ===
undefined)\n          LVIEW_EMBEDDED_CACHE = new Map();\n        var embeddedArray =
LVIEW_EMBEDDED_CACHE.get(name);\n        if (embeddedArray === undefined) {\n          embeddedArray = new
(createNamedArrayType('LEmbeddedView' + nameSuffix(name)))();\n

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LVIEW_EMBEDDED_CACHE.set(name, embeddedArray);\n        }\n        return embeddedArray;\n    }\n    throw new Error('unreachable code');\n    }\n    function nameSuffix(text) {\n        if (text == null)\n    return '';\n        var index = text.lastIndexOf('_Template');\n        return '_' + (index === -1 ? text : text.substr(0,\n    index));\n    }\n    /**\n     * This class is a debug version of Object literal so that we can have constructor name\n    show up\n     * in\n     * debug tools in ngDevMode.\n     */\n    var TViewConstructor = /** @class\n    */ (function () {\n        function TView(type, blueprint, template, queries, viewQuery, declTNode, data,\n    bindingStartIndex, expandoStartIndex, hostBindingOpCodes, firstCreatePass, firstUpdatePass, staticViewQueries,\n    staticContentQueries, preOrderHooks, preOrderCheckHooks, contentHooks, contentCheckHooks, viewHooks,\n    viewCheckHooks, destroyHooks, cleanup, contentQueries, components, directiveRegistry, pipeRegistry, firstChild,\n    schemas, consts, incompleteFirstPass, _decls, _vars) {\n            this.type = type;\n            this.blueprint =\n    blueprint;\n            this.template = template;\n            this.queries = queries;\n            this.viewQuery = viewQuery;\n            this.declTNode = declTNode;\n            this.data = data;\n            this.bindingStartIndex = bindingStartIndex;\n            this.expandoStartIndex = expandoStartIndex;\n            this.hostBindingOpCodes = hostBindingOpCodes;\n            this.firstCreatePass = firstCreatePass;\n            this.firstUpdatePass\n    = firstUpdatePass;\n            this.staticViewQueries = staticViewQueries;\n            this.staticContentQueries =\n    staticContentQueries;\n            this.preOrderHooks = preOrderHooks;\n            this.preOrderCheckHooks =\n    preOrderCheckHooks;\n            this.contentHooks = contentHooks;\n            this.contentCheckHooks =\n    contentCheckHooks;\n            this.viewHooks = viewHooks;\n            this.viewCheckHooks = viewCheckHooks;\n            this.destroyHooks = destroyHooks;\n            this.cleanup = cleanup;\n            this.contentQueries =\n    contentQueries;\n            this.components = components;\n            this.directiveRegistry = directiveRegistry;\n            this.pipeRegistry = pipeRegistry;\n            this.firstChild = firstChild;\n            this.schemas = schemas;\n            this.consts = consts;\n            this.incompleteFirstPass = incompleteFirstPass;\n            this._decls = _decls;\n            this._vars = _vars;\n        }\n        Object.defineProperty(TView.prototype,\n    'template_', {\n            get: function () {\n                var buf = [];\n                processTNodeChildren(this.firstChild, buf);\n                return buf.join('');\n            },\n            enumerable: false,\n            configurable: true\n        });\n        Object.defineProperty(TView.prototype, 'type_', {\n            get: function () {\n                return TViewTypeAsString[this.type] || "TViewType.?" + this.type + "?";\n            },\n            enumerable: false,\n            configurable: true\n        });\n        return TView;\n    }());\n    var TNode = /** @class */\n    (function () {\n        function TNode(tView_, /\n        type, /\n        index, /\n        insertBeforeIndex, /\n        injectorIndex, /\n        directiveStart, /\n        directiveEnd, /\n        directiveStylingLast, /\n        propertyBindings,\n        /\n        flags, /\n        providerIndexes, /\n        value, /\n        attrs, /\n        mergedAttrs, /\n        localNames, /\n        initialInputs, /\n        inputs, /\n        outputs, /\n        tViews, /\n        next, /\n        projectionNext, /\n        child, /\n        parent, /\n        projection, /\n        styles, /\n        stylesWithoutHost, /\n        residualStyles, /\n        classes, /\n        classesWithoutHost, /\n        residualClasses,\n        /\n        classBindings, /\n        styleBindings) {\n            this.tView_ = tView_;\n            this.type = type;\n            this.index = index;\n            this.insertBeforeIndex = insertBeforeIndex;\n            this.injectorIndex =\n    injectorIndex;\n            this.directiveStart = directiveStart;\n            this.directiveEnd = directiveEnd;\n            this.directiveStylingLast = directiveStylingLast;\n            this.propertyBindings = propertyBindings;\n            this.flags = flags;\n            this.providerIndexes = providerIndexes;\n            this.value = value;\n            this.attrs = attrs;\n            this.mergedAttrs = mergedAttrs;\n            this.localNames = localNames;\n            this.initialInputs = initialInputs;\n            this.inputs = inputs;\n            this.outputs = outputs;\n            this.tViews =\n    tViews;\n            this.next = next;\n            this.projectionNext = projectionNext;\n            this.child = child;\n            this.parent = parent;\n            this.projection = projection;\n            this.styles = styles;\n            this.stylesWithoutHost = stylesWithoutHost;\n            this.residualStyles = residualStyles;\n            this.classes =\n    classes;\n            this.classesWithoutHost = classesWithoutHost;\n            this.residualClasses = residualClasses;\n            this.classBindings = classBindings;\n            this.styleBindings = styleBindings;\n        }\n        /**\n         * Return a human debug version of the set of `NodeInjector`s which will be consulted when\n         * resolving

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tokens from this `TNode`.
    *
    * When debugging applications, it is often difficult to determine which
`NodeInjector`s will be
    * consulted. This method shows a list of `DebugNode`s representing the `TNode`s
which will be
    * consulted in order when resolving a token starting at this `TNode`.
    *
    * The
original data is stored in `LView` and `TView` with a lot of offset indexes, and so it is
    * difficult to reason
about.
    *
    * @param IView The `LView` instance for this `TNode`.
    */
TNode.prototype.debugNodeInjectorPath = function (IView) {
    var path = [];
    var injectorIndex =
getInjectorIndex(this, IView);
    ngDevMode && assertNodeInjector(IView, injectorIndex);
    while
(injectorIndex !== -1) {
        var tNode = IView[TVIEW].data[injectorIndex + 8 /* TNode */];
        path.push(buildDebugNode(tNode, IView));
        var parentLocation = IView[injectorIndex + 8 /* PARENT */];
        if (parentLocation ===
NO_PARENT_INJECTOR) {
            injectorIndex = -1;
        } else {
            injectorIndex = getParentInjectorIndex(parentLocation);
            IView =
getParentInjectorView(parentLocation, IView);
        }
        return path;
    }
    Object.defineProperty(TNode.prototype, "type_", {
        get: function () {
            return
toTNodeTypeAsString(this.type) || "TNodeType.?" + this.type + "?";
        },
        enumerable: false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "flags_", {
        get: function () {
            var flags = [];
            if (this.flags & 16 /* hasClassInput */)
                flags.push("TNodeFlags.hasClassInput");
            if (this.flags & 8 /*
hasContentQuery */)
                flags.push("TNodeFlags.hasContentQuery");
            if (this.flags & 32 /*
hasStyleInput */)
                flags.push("TNodeFlags.hasStyleInput");
            if (this.flags & 128 /*
hasHostBindings */)
                flags.push("TNodeFlags.hasHostBindings");
            if (this.flags & 2 /*
isComponentHost */)
                flags.push("TNodeFlags.isComponentHost");
            if (this.flags & 1 /*
isDirectiveHost */)
                flags.push("TNodeFlags.isDirectiveHost");
            if (this.flags & 64 /*
isDetached */)
                flags.push("TNodeFlags.isDetached");
            if (this.flags & 4 /* isProjected */)
                flags.push("TNodeFlags.isProjected");
            return flags.join('|');
        },
        enumerable:
false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "template_", {
        get: function () {
            if (this.type & 1 /* Text */)
                return this.value;
            var buf =
[];
            var tagName = typeof this.value === 'string' && this.value || this.type_;
            buf.push('<',
tagName);
            if (this.flags) {
                buf.push(' ', this.flags_);
            }
            if (this.attrs) {
                for (var i = 0; i < this.attrs.length; i++) {
                    var attrName = this.attrs[i];
                    if (typeof attrName === 'number')
                        break;
                    var attrValue =
this.attrs[i];
                    buf.push(' ', attrName, '=', attrValue, '"');
                }
            }
            buf.push('>');
            processTNodeChildren(this.child, buf);
            buf.push('</', tagName, '>');
            return buf.join("");
        },
        enumerable: false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "styleBindings_", {
        get: function () {
            return
toDebugStyleBinding(this, false);
        },
        enumerable: false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "classBindings_", {
        get: function () {
            return
toDebugStyleBinding(this, true);
        },
        enumerable: false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "providerIndexStart_", {
        get: function () {
            return
this.providerIndexes & 1048575 /* ProvidersStartIndexMask */;
        },
        enumerable: false,
        configurable: true
    });
    Object.defineProperty(TNode.prototype, "providerIndexEnd_", {
        get:
function () {
            return this.providerIndexStart_ +
                (this.providerIndexes >>> 20 /*
CptViewProvidersCountShift */);
        },
        enumerable: false,
        configurable: true
    });
    return TNode;
}());
var TNodeDebug = TNode;
function toDebugStyleBinding(tNode, isClassBased) {
    var tData = tNode.tView_.data;
    var bindings = [];
    var range = isClassBased ? tNode.classBindings :
tNode.styleBindings;
    var prev = getTStylingRangePrev(range);
    var next =

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getTStylingRangeNext(range);\n    var isTemplate = next !== 0;\n    var cursor = isTemplate ? next : prev;\n    while (cursor !== 0) {\n        var itemKey = tData[cursor];\n        var itemRange = tData[cursor + 1];\n        bindings.unshift({\n            key: itemKey,\n            index: cursor,\n            isTemplate: isTemplate,\n            prevDuplicate: getTStylingRangePrevDuplicate(itemRange),\n            nextDuplicate: getTStylingRangeNextDuplicate(itemRange),\n            nextIndex:\n                getTStylingRangeNext(itemRange),\n            prevIndex: getTStylingRangePrev(itemRange)\n        });\n    }\n    if (cursor === prev)\n        isTemplate = false;\n    cursor = getTStylingRangePrev(itemRange);\n    bindings.push((isClassBased ? tNode.residualClasses : tNode.residualStyles) || null);\n    return bindings;\n}\n\nfunction processTNodeChildren(tNode, buf) {\n    while (tNode) {\n        buf.push(tNode.template_);\n        tNode = tNode.next;\n    }\n}\n\nvar TViewData = NG_DEV_MODE &&\ncreateNamedArrayType('TViewData') || null;\nvar TVIEWDATA_EMPTY; // can't initialize here or it will not be\n// `LView` constructor could have side-effects.\n/**\n * This function clones a\n * blueprint and creates TData.\n * Simple slice will keep the same type, and\n * we need it to be TData\n */\nfunction cloneToTViewData(list) {\n    if (TVIEWDATA_EMPTY ===\n        undefined)\n        TVIEWDATA_EMPTY = new TViewData();\n    return\n        TVIEWDATA_EMPTY.concat(list);\n}\n\nvar LViewBlueprint = NG_DEV_MODE &&\ncreateNamedArrayType('LViewBlueprint') || null;\nvar MatchesArray = NG_DEV_MODE &&\ncreateNamedArrayType('MatchesArray') || null;\nvar TViewComponents = NG_DEV_MODE &&\ncreateNamedArrayType('TViewComponents') || null;\nvar TNodeLocalNames = NG_DEV_MODE &&\ncreateNamedArrayType('TNodeLocalNames') || null;\nvar TNodeInitialInputs = NG_DEV_MODE &&\ncreateNamedArrayType('TNodeInitialInputs') || null;\nvar TNodeInitialData = NG_DEV_MODE &&\ncreateNamedArrayType('TNodeInitialData') || null;\nvar LCleanup = NG_DEV_MODE &&\ncreateNamedArrayType('LCleanup') || null;\nvar TCleanup = NG_DEV_MODE &&\ncreateNamedArrayType('TCleanup') || null;\n\nfunction attachLViewDebug(lview) {\n    attachDebugObject(lview, new LViewDebug(lview));\n}\n\nfunction attachLContainerDebug(lcontainer) {\n    attachDebugObject(lcontainer, new\n        LContainerDebug(lcontainer));\n}\n\nfunction toDebug(obj) {\n    if (obj) {\n        var debug = obj.debug;\n        assertDefined(debug, 'Object does not have a debug representation.);\n        return debug;\n    }\n    else {\n        return obj;\n    }\n}\n\n/**\n * Use this method to unwrap a native element in `LView` and\n * convert it into HTML for easier\n * reading.\n * @param value possibly wrapped native DOM node.\n * @param includeChildren If `true` then the serialized HTML form will include child elements\n * (same\n * as `outerHTML`). If `false` then the serialized HTML form will only contain the element\n * itself\n * (will not\n * serialize child elements).\n */\nfunction toHtml(value, includeChildren) {\n    if (includeChildren === void\n        0) {\n        includeChildren = false;\n    }\n\n    var node = unwrapRNode(value);\n    if (node) {\n        switch (node.nodeType) {\n            case\n                Node.TEXT_NODE:\n                return node.textContent;\n            case Node.COMMENT_NODE:\n                return \"<!--\" + node.textContent + \"-->\";\n            case Node.ELEMENT_NODE:\n                var\n                    outerHTML = node.outerHTML;\n                if (includeChildren) {\n                    return outerHTML;\n                }\n                else {\n                    var innerHTML = '>' + node.innerHTML + '<';\n                    return\n                        (outerHTML.split(innerHTML)[0]) + '>';\n                }\n            }\n        }\n        return null;\n    }\n}\n\nvar\n    LViewDebug = /** @class */ (function () {\n        function LViewDebug(_raw_lview) {\n            this._raw_lview\n                = _raw_lview;\n        }\n        Object.defineProperty(LViewDebug.prototype, 'flags', {\n            /**\n             * Flags associated\n             * with the `LView` unpacked into a more readable state.\n             */\n            get: function () {\n                var flags =\n                    this._raw_lview[FLAGS];\n                return {\n                    __raw__flags__: flags,\n                    initPhaseState:\n                        flags & 3 /* InitPhaseStateMask */,\n                    creationMode:\n                        !(flags & 4 /* CreationMode */),\n                    firstViewPass:\n                        !(flags & 8 /* FirstLViewPass */),\n                    checkAlways:\n                        !(flags & 16 /* CheckAlways */),\n                    dirty:\n                        !(flags & 64 /* Dirty */),\n                    attached:\n                        !(flags & 128 /* Attached */),\n                }\n            }\n        }\n    })();

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destroyed: !(flags & 256 /* Destroyed */),\n          isRoot: !(flags & 512 /* IsRoot */),\n
indexWithinInitPhase: flags >> 11 /* IndexWithinInitPhaseShift */,\n          },\n          enumerable:
false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype,
\"parent\", {\n          get: function () {\n            return toDebug(this._raw_IView[PARENT]);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype,
\"hostHTML\", {\n          get: function () {\n            return toHtml(this._raw_IView[HOST], true);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype,
\"html\", {\n          get: function () {\n            return (this.nodes || []).map(mapToHTML).join(\"\");\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype,
\"context\", {\n          get: function () {\n            return this._raw_IView[CONTEXT];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype,
\"nodes\", {\n          /**\n           * The tree of nodes associated with the current `LView`. The nodes have been
normalized into\n           * a tree structure with relevant details pulled out for readability.\n           */\n          get:
function () {\n            var IView = this._raw_IView;\n            var tNode = IView[TVIEW].firstChild;\n            return toDebugNodes(tNode, IView);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"template\", {\n          get: function () {\n            return
this.tView.template;\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"tView\", {\n          get: function () {\n            return
this._raw_IView[TVIEW];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"cleanup\", {\n          get: function () {\n            return
this._raw_IView[CLEANUP];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"injector\", {\n          get: function () {\n            return
this._raw_IView[INJECTOR];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"rendererFactory\", {\n          get: function () {\n            return
this._raw_IView[RENDERER_FACTORY];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"renderer\", {\n          get: function () {\n            return
this._raw_IView[RENDERER];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"sanitizer\", {\n          get: function () {\n            return
this._raw_IView[SANITIZER];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"childHead\", {\n          get: function () {\n            return
toDebug(this._raw_IView[CHILD_HEAD]);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"next\", {\n          get: function () {\n            return
toDebug(this._raw_IView[NEXT]);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"childTail\", {\n          get: function () {\n            return
toDebug(this._raw_IView[CHILD_TAIL]);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"declarationView\", {\n          get: function () {\n            return
toDebug(this._raw_IView[DECLARATION_VIEW]);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"queries\", {\n          get:
function () {\n            return this._raw_IView[QUERIES];\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"tHost\", {\n          get: function
() {\n            return this._raw_IView[T_HOST];\n          },\n          enumerable: false,\n          configurable:
true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"decls\", {\n          get: function () {\n            return toLViewRange(this.tView, this._raw_IView, HEADER_OFFSET, this.tView.bindingStartIndex);\n          },\n          enumerable:
false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"vars\", {\n          get: function () {\n            return toLViewRange(this.tView, this._raw_IView, this.tView.bindingStartIndex,
this.tView.expandoStartIndex);\n          },\n          enumerable: false,\n          configurable: true\n        });\n        Object.defineProperty(LViewDebug.prototype, \"expando\", {\n          get: function () {\n            return

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toLViewRange(this.tView, this._raw_IView, this.tView.expandoStartIndex, this._raw_IView.length);\n    },\n    enumerable: false,\n    configurable: true\n  });\n  Object.defineProperty(LViewDebug.prototype,\n  \"childViews\", {\n    /**\n     * Normalized view of child views (and containers) attached at this\n    location.\n     */\n    get: function () {\n      var childViews = [];\n      var child =\n      this.childHead;\n      while (child) {\n        childViews.push(child);\n        child = child.next;\n      }\n      return childViews;\n    },\n    enumerable: false,\n    configurable: true\n  });\n  return\n  LViewDebug;\n  }());\n  function mapToHTML(node) {\n    if (node.type === 'ElementContainer') {\n      return (node.children || []).map(mapToHTML).join(\"\");\n    } else if (node.type === 'IcuContainer') {\n      throw new Error('Not implemented');\n    } else {\n      return toHtml(node.native, true) || \"\";\n    }\n  }\n  function toLViewRange(tView, IView, start, end) {\n    var content = [];\n    for (var index = start; index <\n    end; index++) {\n      content.push({ index: index, t: tView.data[index], l: IView[index] });\n    }\n    return\n    { start: start, end: end, length: end - start, content: content };\n  }\n  /**\n   * Turns a flat list of nodes into a tree by walking the associated `TNode` tree.\n   * @param tNode\n   * @param IView\n   */\n  function toDebugNodes(tNode, IView) {\n    if (tNode) {\n      var debugNodes =\n      [];\n      var tNodeCursor = tNode;\n      while (tNodeCursor) {\n        debugNodes.push(buildDebugNode(tNodeCursor, IView));\n        tNodeCursor = tNodeCursor.next;\n      }\n      return debugNodes;\n    } else {\n      return [];\n    }\n  }\n  function\n  buildDebugNode(tNode, IView) {\n    var rawValue = IView[tNode.index];\n    var native =\n    unwrapRNode(rawValue);\n    var factories = [];\n    var instances = [];\n    var tView = IView[TVIEW];\n    for (var i = tNode.directiveStart; i < tNode.directiveEnd; i++) {\n      var def = tView.data[i];\n      factories.push(def.type);\n      instances.push(IView[i]);\n    }\n    return {\n      html: toHtml(native),\n      type: toTNodeTypeAsString(tNode.type),\n      native: native,\n      children: toDebugNodes(tNode.child, IView),\n      factories: factories,\n      instances: instances,\n      injector: buildNodeInjectorDebug(tNode, tView, IView)\n    };\n  }\n  function buildNodeInjectorDebug(tNode,\n  tView, IView) {\n    var viewProviders = [];\n    for (var i = tNode.providerIndexStart; i <\n    tNode.providerIndexEnd; i++) {\n      viewProviders.push(tView.data[i]);\n    }\n    var providers = [];\n    for (var i = tNode.providerIndexEnd; i < tNode.directiveEnd; i++) {\n      providers.push(tView.data[i]);\n    }\n    var nodeInjectorDebug = {\n      bloom: toBloom(IView, tNode.injectorIndex),\n      cumulativeBloom: toBloom(tView.data, tNode.injectorIndex),\n      providers: providers,\n      viewProviders: viewProviders,\n      parentInjectorIndex:\n      IView[tNode.providerIndexStart - 1],\n    };\n    return nodeInjectorDebug;\n  }\n  /**\n   * Convert a\n   number at `idx` location in `array` into binary representation.\n   * @param array\n   * @param idx\n   */\n  function binary(array, idx) {\n    var value = array[idx];\n    // If not a number we print 8 `?` to retain\n    alignment but let user know that it was called on\n    // wrong type.\n    if (typeof value !== 'number')\n    return '????????';\n    // We prefix 0s so that we have constant length number\n    var text = '00000000' +\n    value.toString(2);\n    return text.substring(text.length - 8);\n  }\n  /**\n   * Convert a bloom filter at location\n   `idx` in `array` into binary representation.\n   * @param array\n   * @param idx\n   */\n  function\n  toBloom(array, idx) {\n    return binary(array, idx + 7) + \"_\" + binary(array, idx + 6) + \"_\" + binary(array, idx\n    + 5) + \"_\" + binary(array,\n    idx + 4) + \"_\" + binary(array, idx + 3) + \"_\" + binary(array, idx + 2) + \"_\" + binary(array, idx + 1) + \"_\" +\n    binary(array, idx + 0);\n  }\n  var LContainerDebug = /** @class */ (function () {\n    function\n    LContainerDebug(_raw_IContainer) {\n      this._raw_IContainer = _raw_IContainer;\n    }\n    Object.defineProperty(LContainerDebug.prototype, \"hasTransplantedViews\", {\n      get: function () {\n        return this._raw_IContainer[HAS_TRANSPLANTED_VIEWS];\n      },\n      enumerable: false,\n      configurable: true\n    });\n    Object.defineProperty(LContainerDebug.prototype, \"views\", {\n      get:\n      function () {\n        return this._raw_IContainer.slice(CONTAINER_HEADER_OFFSET)\n        .map(toDebug);\n      },\n      enumerable: false,\n      configurable: true\n    });\n  }());\n
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Object.defineProperty(LContainerDebug.prototype, \"parent\", {\n      get:
function () {\n          return toDebug(this._raw_IContainer[PARENT]);\n      },\n      enumerable: false,\n      configurable: true\n  });\n  Object.defineProperty(LContainerDebug.prototype, \"movedViews\", {\n    get: function () {\n      return this._raw_IContainer[MOVED_VIEWS];\n    },\n    enumerable: false,\n    configurable: true\n  });\n  Object.defineProperty(LContainerDebug.prototype, \"host\", {\n    get: function () {\n      return this._raw_IContainer[HOST];\n    },\n    enumerable: false,\n    configurable: true\n  });\n  Object.defineProperty(LContainerDebug.prototype, \"native\", {\n    get: function () {\n      return this._raw_IContainer[NATIVE];\n    },\n    enumerable: false,\n    configurable: true\n  });\n  Object.defineProperty(LContainerDebug.prototype, \"next\", {\n    get: function () {\n      return toDebug(this._raw_IContainer[NEXT]);\n    },\n    enumerable: false,\n    configurable: true\n  });\n  return LContainerDebug;\n})();\n\nvar 0$5 = function () {\n  return Promise.resolve(null);\n};\n\n/**\n * A permanent marker promise which signifies that the current CD tree\n is\n * clean.\n */\n var _CLEAN_PROMISE = (0$5());\n\n /**\n * Invoke `HostBindingsFunction`s for\n view.\n */\n * This methods executes `TVView.hostBindingOpCodes`. It is used to execute the\n * `HostBindingsFunction`s associated with the current `LView`.\n */\n * @param tView Current `TVView`.\n */\n * @param IView Current `LView`.\n */\n function processHostBindingOpCodes(tView, IView) {\n   var\n   hostBindingOpCodes = tView.hostBindingOpCodes;\n   if (hostBindingOpCodes === null)\n     return;\n   try {\n     for (var i = 0; i < hostBindingOpCodes.length;\n     i++) {\n       var opCode = hostBindingOpCodes[i];\n       if (opCode < 0) {\n         // Negative\n         numbers are element indexes.\n         setSelectedIndex(~opCode);\n       }\n       else {\n         // Positive numbers are NumberTuple which store bindingRootIndex and directiveIndex.\n         var\n         directiveIdx = opCode;\n         var bindingRootIdx = hostBindingOpCodes[++i];\n         var\n         hostBindingFn = hostBindingOpCodes[++i];\n         setBindingRootForHostBindings(bindingRootIdx,\n         directiveIdx);\n         var context = IView[directiveIdx];\n         hostBindingFn(2 /* Update */,\n         context);\n       }\n     }\n     finally {\n       setSelectedIndex(-1);\n     }\n   }\n\n   /**\n   Refreshes all content queries declared by directives in a given view */\n   function refreshContentQueries(tView,\n   IView) {\n     var contentQueries = tView.contentQueries;\n     if (contentQueries !== null) {\n       for (var i = 0; i <\n       contentQueries.length; i += 2) {\n         var queryStartIdx = contentQueries[i];\n         var directiveDefIdx =\n         contentQueries[i + 1];\n         if (directiveDefIdx !== -1) {\n           var directiveDef =\n           tView.data[directiveDefIdx];\n           ngDevMode && assertDefined(directiveDef, 'DirectiveDef not\n           found.);\n           ngDevMode &&\n           assertDefined(directiveDef.contentQueries, 'contentQueries\n           function should be defined');\n           setCurrentQueryIndex(queryStartIdx);\n           directiveDef.contentQueries(2 /* Update */, IView[directiveDefIdx], directiveDefIdx);\n         }\n       }\n     }\n\n     /** Refreshes child components in the current view (update mode). */\n     function\n     refreshChildComponents(hostLView, components) {\n       for (var i =\n       0; i < components.length; i++) {\n         refreshComponent(hostLView, components[i]);\n       }\n     }\n\n     /**\n     Renders child components in the current view (creation mode). */\n     function renderChildComponents(hostLView,\n     components) {\n       for (var i = 0; i < components.length; i++) {\n         renderComponent(hostLView,\n         components[i]);\n       }\n     }\n\n     function createLView(parentLView, tView, context, flags, host, tHostNode,\n     rendererFactory, renderer, sanitizer, injector) {\n       var IView = ngDevMode ?\n       cloneToLViewFromTVViewBlueprint(tView) : tView.blueprint.slice();\n       IView[HOST] = host;\n       IView[FLAGS] = flags | 4 /* CreationMode */ | 128 /* Attached */ | 8 /* FirstLViewPass */;\n       resetPreOrderHookFlags(IView);\n       ngDevMode && tView.declTNode && parentLView &&\n       assertTNodeForLView(tView.declTNode, parentLView);\n       IView[PARENT] =\n       IView[DECLARATION_VIEW] = parentLView;\n       IView[CONTEXT] = context;\n       IView[RENDERER_FACTORY]

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= (rendererFactory || parentLView && parentLView[RENDERER_FACTORY]);\n    ngDevMode &&
assertDefined(IView[RENDERER_FACTORY], 'RendererFactory is required');\n    IView[RENDERER] =
(renderer || parentLView && parentLView[RENDERER]);\n    ngDevMode &&
assertDefined(IView[RENDERER], 'Renderer is required');\n    IView[SANITIZER] = sanitizer || parentLView
&& parentLView[SANITIZER] || null;\n    IView[INJECTOR] = injector || parentLView &&
parentLView[INJECTOR] || null;\n    IView[T_HOST] = tHostNode;\n    ngDevMode &&\n
assertEqual(tView.type == 2 /* Embedded */ ? parentLView !== null : true, true, 'Embedded views must have
parentLView');\n    IView[DECLARATION_COMPONENT_VIEW] =\n        tView.type == 2 /* Embedded */
? parentLView[DECLARATION_COMPONENT_VIEW] : IView;\n    ngDevMode &&
attachLViewDebug(IView);\n    return IView;\n  }\n  function getOrCreateTNode(tView, index, type, name,
attrs) {\n    ngDevMode && index
!== 0 && // 0 are bogus nodes and they are OK. See `createContainerRef` in\n      //
`view_engine_compatibility` for additional context.\n    assertGreaterThanOrEqual(index, HEADER_OFFSET,
'TNodes can\\'t be in the LView header.);\n    // Keep this function short, so that the VM will inline it.\n
ngDevMode && assertPureTNodeType(type);\n    var tNode = tView.data[index];\n    if (tNode === null) {\n
      tNode = createTNodeAtIndex(tView, index, type, name, attrs);\n      if (isInI18nBlock()) {\n        // If
we are in i18n block then all elements should be pre declared through `Placeholder`\n        // See
`TNodeType.Placeholder` and `LFrame.inI18n` for more context.\n        // If the `TNode` was not pre-declared
than it means it was not mentioned which means it was\n        // removed, so we mark it as detached.\n
tNode.flags |= 64 /* isDetached */;\n      }\n    } else
if (tNode.type & 64 /* Placeholder */) {\n      tNode.type = type;\n      tNode.value = name;\n
tNode.attrs = attrs;\n      var parent = getCurrentParentTNode();\n      tNode.injectorIndex = parent === null ?
-1 : parent.injectorIndex;\n      ngDevMode && assertTNodeForTView(tNode, tView);\n      ngDevMode
&& assertEqual(index, tNode.index, 'Expecting same index');\n      }\n      setCurrentTNode(tNode, true);\n
return tNode;\n    }\n    function createTNodeAtIndex(tView, index, type, name, attrs) {\n      var currentTNode =
getCurrentTNodePlaceholderOk();\n      var isParent = isCurrentTNodeParent();\n      var parent = isParent ?
currentTNode : currentTNode && currentTNode.parent;\n      // Parents cannot cross component boundaries
because components will be used in multiple places.\n      var tNode = tView.data[index] =\n
createTNode(tView, parent, type, index, name, attrs);\n      // Assign a pointer to
the first child node of a given view. The first node is not always the one\n      // at index 0, in case of i18n, index 0
can be the instruction `i18nStart` and the first node has\n      // the index 1 or more, so we can't just check node
index.\n      if (tView.firstChild === null) {\n        tView.firstChild = tNode;\n      }\n      if (currentTNode !==
null) {\n        if (isParent) {\n          // FIXME(misko): This logic looks unnecessarily complicated. Could we
simplify?\n          if (currentTNode.child === null && tNode.parent !== null) {\n            // We are in the
same view, which means we are adding content node to the parent view.\n            currentTNode.child =
tNode;\n          }\n        } else {\n          if (currentTNode.next === null) {\n            // In the
case of i18n the `currentTNode` may already be linked, in which case we don't want\n            // to break the
links
which i18n created.\n            currentTNode.next = tNode;\n          }\n        }\n      }\n      return
tNode;\n    }\n    /**\n     * When elements are created dynamically after a view blueprint is created (e.g. through\n
* i18nApply()), we need to adjust the blueprint for future\n     * template passes.\n     *\n     * @param tView
`TView` associated with `LView`\n     * @param IView The `LView` containing the blueprint to adjust\n     *
@param numSlotsToAlloc The number of slots to alloc in the LView, should be >0\n     * @param initialValue
Initial value to store in blueprint\n     */\n    function allocExpando(tView, IView, numSlotsToAlloc, initialValue)
{\n      if (numSlotsToAlloc === 0)\n        return -1;\n      if (ngDevMode) {\n
assertFirstCreatePass(tView);\n        assertSame(tView, IView[TVIEW], `LView` must be associated with
`TView`!);\n        assertEqual(tView.data.length, IView.length, 'Expecting LView to be

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same size as TView');\n      assertEquals(tView.data.length, tView.blueprint.length, 'Expecting Blueprint to be
same size as TView');\n      assertFirstUpdatePass(tView);\n      }\n      var allocIdx = IView.length;\n      for
(var i = 0; i < numSlotsToAlloc; i++) {\n          IView.push(initialValue);\n
tView.blueprint.push(initialValue);\n          tView.data.push(null);\n      }\n      return allocIdx;\n  }\n
//////////\n  /// Render\n  //////////\n  /**\n   * Processes a view in the creation mode. This
includes a number of steps in a specific order:\n   * - creating view query functions (if any);\n   * - executing a
template function in the creation mode;\n   * - updating static queries (if any);\n   * - creating child components
defined in a given view.\n   */\n  function renderView(tView, IView, context) {\n      ngDevMode &&
assertEquals(isCreationMode(IView), true, 'Should be run in
creation mode');\n      enterView(IView);\n      try {\n          var viewQuery = tView.viewQuery;\n          if
(viewQuery !== null) {\n              executeViewQueryFn(1 /* Create */, viewQuery, context);\n          }\n          //
Execute a template associated with this view, if it exists. A template function might not be\n          // defined for the
root component views.\n          var templateFn = tView.template;\n          if (templateFn !== null) {\n
executeTemplate(tView, IView, templateFn, 1 /* Create */, context);\n          }\n          // This needs to be set
before children are processed to support recursive components.\n          // This must be set to false immediately
after the first creation run because in an\n          // ngFor loop, all the views will be created together before update
mode runs and turns\n          // off firstCreatePass. If we don't set it here, instances will perform directive\n          //
matching,
etc again and again.\n          if (tView.firstCreatePass) {\n              tView.firstCreatePass = false;\n          }\n
          // We resolve content queries specifically marked as `static` in creation mode. Dynamic\n          // content queries
are resolved during change detection (i.e. update mode), after embedded\n          // views are refreshed (see block
above).\n          if (tView.staticContentQueries) {\n              refreshContentQueries(tView, IView);\n          }\n
          // We must materialize query results before child components are processed\n          // in case a child component
has projected a container. The LContainer needs\n          // to exist so the embedded views are properly attached by
the container.\n          if (tView.staticViewQueries) {\n              executeViewQueryFn(2 /* Update */,
tView.viewQuery, context);\n          }\n          // Render child component views.\n          var components =
tView.components;\n
          if (components !== null) {\n              renderChildComponents(IView, components);\n          }\n          }\n
catch (error) {\n          // If we didn't manage to get past the first template pass due to\n          // an error, mark the
view as corrupted so we can try to recover.\n          if (tView.firstCreatePass) {\n
tView.incompleteFirstPass = true;\n          }\n          throw error;\n          }\n          finally {\n              IView[FLAGS]
&= ~4 /* CreationMode */;\n              leaveView();\n          }\n          /**\n           * Processes a view in update mode.
This includes a number of steps in a specific order:\n           * - executing a template function in update mode;\n           * -
executing hooks;\n           * - refreshing queries;\n           * - setting host bindings;\n           * - refreshing child (embedded and
component) views.\n           */\n          function refreshView(tView, IView, templateFn, context) {\n              ngDevMode &&
assertEquals(isCreationMode(IView),
false, 'Should be run in update mode');\n              var flags = IView[FLAGS];\n              if ((flags & 256 /* Destroyed */)
=== 256 /* Destroyed */)\n                  return;\n              enterView(IView);\n              // Check no changes mode is a dev only
mode used to verify that bindings have not changed\n              // since they were assigned. We do not want to execute
lifecycle hooks in that mode.\n              var isInCheckNoChangesPass = isInCheckNoChangesMode();\n              try {\n
                  resetPreOrderHookFlags(IView);\n                  setBindingIndex(tView.bindingStartIndex);\n                  if (templateFn !==
null) {\n                      executeTemplate(tView, IView, templateFn, 2 /* Update */, context);\n                  }\n                  var
hooksInitPhaseCompleted = (flags & 3 /* InitPhaseStateMask */) === 3 /* InitPhaseCompleted */;\n                  //
execute pre-order hooks (OnInit, OnChanges, DoCheck)\n                  // PERF WARNING: do NOT extract this to a
separate function without running benchmarks\n                  if (!isInCheckNoChangesPass) {\n                      if (hooksInitPhaseCompleted) {\n                          var
preOrderCheckHooks = tView.preOrderCheckHooks;\n                          if (preOrderCheckHooks !== null) {\n
                              executeCheckHooks(IView, preOrderCheckHooks, null);\n                          }\n                      }\n                      else {\n

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var preOrderHooks = tView.preOrderHooks;\n                if (preOrderHooks !== null) {\n
executeInitAndCheckHooks(IView, preOrderHooks, 0 /* OnInitHooksToBeRun */, null);\n                }\n
incrementInitPhaseFlags(IView, 0 /* OnInitHooksToBeRun */);\n                }\n                }\n                // First mark
transplanted views that are declared in this IView as needing a refresh at their\n                // insertion points. This is
needed to avoid the situation where the template is defined in this\n                // `LView` but its declaration appears
after the insertion component.\n
markTransplantedViewsForRefresh(IView);\n                refreshEmbeddedViews(IView);\n                // Content
query results must be refreshed before content hooks are called.\n                if (tView.contentQueries !== null) {\n
refreshContentQueries(tView, IView);\n                }\n                // execute content hooks (AfterContentInit,
AfterContentChecked)\n                // PERF WARNING: do NOT extract this to a separate function without running
benchmarks\n                if (!isInCheckNoChangesPass) {\n                if (hooksInitPhaseCompleted) {\n                var
contentCheckHooks = tView.contentCheckHooks;\n                if (contentCheckHooks !== null) {\n
executeCheckHooks(IView, contentCheckHooks);\n                }\n                }\n                else {\n                var
contentHooks = tView.contentHooks;\n                if (contentHooks !== null) {\n
executeInitAndCheckHooks(IView,
contentHooks, 1 /* AfterContentInitHooksToBeRun */);\n                }\n
incrementInitPhaseFlags(IView, 1 /* AfterContentInitHooksToBeRun */);\n                }\n                }\n
processHostBindingOpCodes(tView, IView);\n                // Refresh child component views.\n                var components =
tView.components;\n                if (components !== null) {\n                refreshChildComponents(IView, components);\n
}\n                // View queries must execute after refreshing child components because a template in this view\n
// could be inserted in a child component. If the view query executes before child component\n                // refresh,
the template might not yet be inserted.\n                var viewQuery = tView.viewQuery;\n                if (viewQuery !==
null) {\n                executeViewQueryFn(2 /* Update */, viewQuery, context);\n                }\n                // execute view
hooks (AfterViewInit, AfterViewChecked)\n
// PERF WARNING: do NOT extract this to a separate function without running benchmarks\n                if
(!isInCheckNoChangesPass) {\n                if (hooksInitPhaseCompleted) {\n                var viewCheckHooks =
tView.viewCheckHooks;\n                if (viewCheckHooks !== null) {\n                executeCheckHooks(IView,
viewCheckHooks);\n                }\n                }\n                else {\n                var viewHooks =
tView.viewHooks;\n                if (viewHooks !== null) {\n                executeInitAndCheckHooks(IView,
viewHooks, 2 /* AfterViewInitHooksToBeRun */);\n                }\n                incrementInitPhaseFlags(IView, 2
/* AfterViewInitHooksToBeRun */);\n                }\n                }\n                if (tView.firstUpdatePass === true) {\n
// We need to make sure that we only flip the flag on successful `refreshView` only\n                // Don't do this in
`finally` block.\n
// If we did this in `finally` block then an exception could block the execution of styling\n                //
instructions which in turn would be unable to insert themselves into the styling linked\n                // list. The result of
this would be that if the exception would not be throw on subsequent CD\n                // the styling would be unable
to process it data and reflect to the DOM.\n                tView.firstUpdatePass = false;\n                }\n                // Do not
reset the dirty state when running in check no changes mode. We don't want components\n                // to behave
differently depending on whether check no changes is enabled or not. For example:\n                // Marking an OnPush
component as dirty from within the `ngAfterViewInit` hook in order to\n                // refresh a `NgClass` binding
should work. If we would reset the dirty state in the check\n                // no changes cycle, the component would be not
be dirty for the next update pass. This
would\n                // be different in production mode where the component dirty state is not reset.\n                if
(!isInCheckNoChangesPass) {\n                IView[FLAGS] &= ~(64 /* Dirty */ | 8 /* FirstLViewPass */);\n
}\n                if (IView[FLAGS] & 1024 /* RefreshTransplantedView */) {\n                IView[FLAGS] &= ~1024 /*
RefreshTransplantedView */;\n                updateTransplantedViewCount(IView[PARENT], -1);\n                }\n                }\n
finally {\n                leaveView();\n                }\n                }\n                function renderComponentOrTemplate(tView, IView,
templateFn, context) {\n                var rendererFactory = IView[RENDERER_FACTORY];\n                var

```



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==== 'function' ? constsOrFactory() : constsOrFactory;\n      var tView = blueprint[TVIEW] = ngDevMode ?\n
new TViewConstructor(type, // type: TViewType,\n      blueprint, // blueprint: LView,\n      templateFn, //
template: ComponentTemplate<{ }>|null,\n      null, // queries: TQueries|null\n      viewQuery, // viewQuery:
ViewQueriesFunction<{ }>|null,\n      declTNode, // declTNode: TNode|null,\n
cloneToTViewData(blueprint).fill(null, bindingStartIndex), // data: TData,\n      bindingStartIndex, //
bindingStartIndex: number,\n      initialViewLength, // expandoStartIndex: number,\n      null, //
hostBindingOpCodes: HostBindingOpCodes,\n      true, // firstCreatePass: boolean,\n      true, //
firstUpdatePass: boolean,\n      false, // staticViewQueries: boolean,\n      false, // staticContentQueries:
boolean,\n      null, // preOrderHooks: HookData|null,\n      null, // preOrderCheckHooks:
HookData|null,\n      null, // contentHooks: HookData|null,\n      null, // contentCheckHooks:
HookData|null,\n      null, // viewHooks: HookData|null,\n      null, // viewCheckHooks: HookData|null,\n
      null, // destroyHooks: DestroyHookData|null,\n      null, // cleanup: any[]|null,\n      null, // contentQueries:
number[]|null,\n      null, // components: number[]|null,\n      typeof directives === 'function' ? /\n
directives() : /\n      directives, // directiveRegistry: DirectiveDefList|null,\n      typeof pipes === 'function'
? pipes() : pipes, // pipeRegistry: PipeDefList|null,\n      null, // firstChild: TNode|null,\n      schemas, //
schemas: SchemaMetadata[]|null,\n      consts, // consts: TConstants|null\n      false, // incompleteFirstPass:
boolean\n      decls, // ngDevMode only: decls\n      vars) :\n      {\n      type:
type,\n      blueprint: blueprint,\n      template: templateFn,\n      queries: null,\n
viewQuery: viewQuery,\n      declTNode: declTNode,\n      data: blueprint.slice().fill(null,
bindingStartIndex),\n      bindingStartIndex: bindingStartIndex,\n      expandoStartIndex:
initialViewLength,\n      hostBindingOpCodes: null,\n      firstCreatePass: true,\n
firstUpdatePass: true,\n      staticViewQueries: false,\n      staticContentQueries: false,\n
preOrderHooks: null,\n      preOrderCheckHooks: null,\n      contentHooks: null,\n
contentCheckHooks: null,\n      viewHooks: null,\n      viewCheckHooks: null,\n
destroyHooks: null,\n      cleanup: null,\n      contentQueries: null,\n      components: null,\n
      directiveRegistry:
typeof directives === 'function' ? directives() : directives,\n      pipeRegistry: typeof pipes === 'function' ?
pipes() : pipes,\n      firstChild: null,\n      schemas: schemas,\n      consts: consts,\n
incompleteFirstPass: false\n      };\n      if (ngDevMode) {\n      // For performance reasons it is important
that the tView retains the same shape during runtime.\n      // (To make sure that all of the code is monomorphic.)
For this reason we seal the object to\n      // prevent class transitions.\n      Object.seal(tView);\n      }\n
return tView;\n      }\n      function createViewBlueprint(bindingStartIndex, initialViewLength) {\n      var blueprint =
ngDevMode ? new LViewBlueprint() : [];\n      for (var i = 0; i < initialViewLength; i++) {\n
blueprint.push(i < bindingStartIndex ? null : NO_CHANGE);\n      }\n      return blueprint;\n      }\n      function
createError(text,
token) {\n      return new Error("Renderer: \" + text + \" [\" + stringifyForError(token) + \"]");\n      }\n      function
assertHostNodeExists(rElement, elementOrSelector) {\n      if (!rElement) {\n      if (typeof elementOrSelector
=== 'string') {\n      throw createError('Host node with selector not found:', elementOrSelector);\n      }\n
      else {\n      throw createError('Host node is required:', elementOrSelector);\n      }\n      }\n      }\n
/**\n      * Locates the host native element, used for bootstrapping existing nodes into rendering pipeline.\n      *\n
      * @param rendererFactory Factory function to create renderer instance.\n      * @param elementOrSelector Render
element or CSS selector to locate the element.\n      * @param encapsulation View Encapsulation defined for
component that requests host element.\n      */\n      function locateHostElement(renderer, elementOrSelector,
encapsulation) {\n      if (isProceduralRenderer(renderer))
{\n      // When using native Shadow DOM, do not clear host element to allow native slot projection\n      var
preserveContent = encapsulation === exports.ViewEncapsulation.ShadowDom;\n      return
renderer.selectRootElement(elementOrSelector, preserveContent);\n      }\n      var rElement = typeof
elementOrSelector === 'string' ?\n      renderer.querySelector(elementOrSelector) :\n

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elementOrSelector;\n    ngDevMode && assertHostNodeExists(rElement, elementOrSelector);\n    // Always
clear host element's content when Renderer3 is in use. For procedural renderer case we\n    // make it depend on
whether ShadowDom encapsulation is used (in which case the content should be\n    // preserved to allow native
slot projection). ShadowDom encapsulation requires procedural\n    // renderer, and procedural renderer case is
handled above.\n    rElement.textContent = \";\n    return rElement;\n  }\n  /**\n
  * Saves context for this cleanup function in LView.cleanupInstances.\n  * On the first template pass,
saves in TView:\n  * - Cleanup function\n  * - Index of context we just saved in LView.cleanupInstances\n
  */\n  function storeCleanupWithContext(tView, lView, context, cleanupFn) {\n    var lCleanup =
getLCleanup(lView);\n    lCleanup.push(context);\n    if (tView.firstCreatePass) {\n
getTVViewCleanup(tView).push(cleanupFn, lCleanup.length - 1);\n    }\n  }\n  function createTNode(tView,
tParent, type, index, value, attrs) {\n    ngDevMode && index !== 0 && // 0 are bogus nodes and they are OK.
See `createContainerRef` in\n    // `view_engine_compatibility` for additional context.\n
assertGreaterThanOrEqual(index, HEADER_OFFSET, 'TNodes can\\'t be in the LView header.);\n
ngDevMode && assertNotSame(attrs, undefined, '\\undefined\\' is not valid value for '\\attrs\\');\n    ngDevMode
&& ngDevMode.tNode++;\n
    ngDevMode && tParent && assertTNodeForTVView(tParent, tView);\n    var injectorIndex = tParent ?
tParent.injectorIndex : -1;\n    var tNode = ngDevMode ?\n      new TNodeDebug(tView, // tView_: TView\n
type, // type: TNodeType\n      index, // index: number\n      null, // insertBeforeIndex: null|-
1|number|number[]\n      injectorIndex, // injectorIndex: number\n      -1, // directiveStart: number\n      -1,
// directiveEnd: number\n      -1, // directiveStylingLast: number\n      null, // propertyBindings:
number[]|null\n      0, // flags: TNodeFlags\n      0, // providerIndexes: TNodeProviderIndexes\n      value,
// value: string|null\n      attrs, // attrs: (string|AttributeMarker|(string|SelectorFlags)[]|[]|null\n      null, //
mergedAttrs\n      null, // localNames: (string|number)|[]|null\n      undefined, // initialInputs:
(string[]|null)|[]|null|undefined\n
      null, // inputs: PropertyAliases\n      null, // outputs: PropertyAliases\n      null, // tViews:
ITView|ITView[]|null\n      null, // next: ITNode\n      null, // projectionNext: ITNode\n      null,
// child: ITNode\n      tParent, // parent: TElementNode|TContainerNode\n      null, // projection:
number|(ITNode|RNode)|[]|null\n      null, // styles: string\n      null, // stylesWithoutHost: string\n      null,
// residualStyles: string\n      null, // classes: string\n      null, // classesWithoutHost:
string\n      undefined, // residualClasses: string\n      0, // classBindings: TStylingRange;\n      0)
):\n      {\n        type: type,\n        index: index,\n        insertBeforeIndex: null,\n
injectorIndex: injectorIndex,\n        directiveStart: -1,\n
        directiveEnd: -1,\n        directiveStylingLast: -1,\n        propertyBindings: null,\n        flags: 0,\n
        providerIndexes: 0,\n        value: value,\n        attrs: attrs,\n        mergedAttrs: null,\n
localNames: null,\n        initialInputs: undefined,\n        inputs: null,\n        outputs: null,\n
tViews: null,\n        next: null,\n        projectionNext: null,\n        child: null,\n        parent:
tParent,\n        projection: null,\n        styles: null,\n        stylesWithoutHost: null,\n
residualStyles: undefined,\n        classes: null,\n        classesWithoutHost: null,\n        residualClasses:
undefined,\n        classBindings: 0,\n        styleBindings: 0,\n      };\n      if (ngDevMode) {\n        //
For performance reasons
it is important that the tNode retains the same shape during runtime.\n        // (To make sure that all of the code is
monomorphic.) For this reason we seal the object to\n        // prevent class transitions.\n
Object.seal(tNode);\n      }\n      return tNode;\n    }\n    function generatePropertyAliases(inputAliasMap,
directiveDefIdx, propStore) {\n      for (var publicName in inputAliasMap) {\n        if
(inputAliasMap.hasOwnProperty(publicName)) {\n          propStore = propStore === null ? {} : propStore;\n
          var internalName = inputAliasMap[publicName];\n          if (propStore.hasOwnProperty(publicName)) {\n
            propStore[publicName].push(directiveDefIdx, internalName);\n          }\n          else {\n
(propStore[publicName] = [directiveDefIdx, internalName]);\n          }\n        }\n      }\n      return

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propStore;\n  }\n  /**\n   * Initializes data structures
required to work with directive inputs and outputs.\n   * Initialization is done for all directives matched on a given
TNode.\n   */\n  function initializeInputAndOutputAliases(tView, tNode) {\n    ngDevMode &&
assertFirstCreatePass(tView);\n    var start = tNode.directiveStart;\n    var end = tNode.directiveEnd;\n    var
tViewData = tView.data;\n    var tNodeAttrs = tNode.attrs;\n    var inputsFromAttrs = ngDevMode ? new
TNodeInitialInputs() : [];\n    var inputsStore = null;\n    var outputsStore = null;\n    for (var i = start; i < end;
i++) {\n      var directiveDef = tViewData[i];\n      var directiveInputs = directiveDef.inputs;\n      // Do
not use unbound attributes as inputs to structural directives, since structural\n      // directive inputs can only be
set using microsyntax (e.g. `<div *dir="exp">`).\n      // TODO(FW-1930): microsyntax expressions may also
contain unbound/static attributes, which\n
      // should be set for inline templates.\n      var initialInputs = (tNodeAttrs !== null &&
!isInlineTemplate(tNode)) ?\n        generateInitialInputs(directiveInputs, tNodeAttrs) : null;\n      inputsFromAttrs.push(initialInputs);\n      inputsStore = generatePropertyAliases(directiveInputs, i,
inputsStore);\n      outputsStore = generatePropertyAliases(directiveDef.outputs, i, outputsStore);\n    }\n    if (inputsStore !== null) {\n      if (inputsStore.hasOwnProperty('class')) {\n        tNode.flags |= 16 /*
hasClassInput */;\n      }\n      if (inputsStore.hasOwnProperty('style')) {\n        tNode.flags |= 32 /*
hasStyleInput */;\n      }\n      tNode.initialInputs = inputsFromAttrs;\n      tNode.inputs =
inputsStore;\n      tNode.outputs = outputsStore;\n    }\n    /**\n     * Mapping between attributes names that don't
correspond to their element property
names.\n     */\n     * Performance note: this function is written as a series of if checks (instead of, say, a property\n
     * object lookup) for performance reasons - the series of `if` checks seems to be the fastest way of\n     * mapping
property names. Do NOT change without benchmarking.\n     */\n     * Note: this mapping has to be kept in sync with
the equally named mapping in the template\n     * type-checking machinery of ngtscc.\n     */\n     function
mapPropName(name) {\n      if (name === 'class')\n        return 'className';\n      if (name === 'for')\n        return 'htmlFor';\n      if (name === 'formaction')\n        return 'formAction';\n      if (name === 'innerHTML')\n        return 'innerHTML';\n      if (name === 'readonly')\n        return 'readOnly';\n      if (name === 'tabindex')\n        return 'tabIndex';\n      return name;\n    }\n     function elementPropertyInternal(tView, tNode, IView,
propName, value, renderer, sanitizer,
nativeOnly) {\n      ngDevMode && assertNotSame(value, NO_CHANGE, 'Incoming value should never be
NO_CHANGE.);\n      var element = getNativeByTNode(tNode, IView);\n      var inputData = tNode.inputs;\n      var dataValue;\n      if (!nativeOnly && inputData != null && (dataValue = inputData[propName])) {\n
setInputsForProperty(tView, IView, dataValue, propName, value);\n      if (isComponentHost(tNode))\n        markDirtyIfOnPush(IView, tNode.index);\n      if (ngDevMode) {\n        setNgReflectProperties(IView,
element, tNode.type, dataValue, value);\n      }\n      } else if (tNode.type & 3 /* AnyRNode */) {\n
propName = mapPropName(propName);\n      if (ngDevMode) {\n
validateAgainstEventProperties(propName);\n      if (!validateProperty(tView, element, propName, tNode))\n        {\n          // Return here since we only log warnings for unknown properties.\n
          logUnknownPropertyError(propName, tNode);\n          return;\n        }\n      }\n      ngDevMode.rendererSetProperty++;\n      }\n      // It is assumed that the sanitizer is only added when the
compiler determines that the\n      // property is risky, so sanitization can be done without further checks.\n      value = sanitizer != null ? sanitizer(value, tNode.value || '', propName) : value;\n      if
(isProceduralRenderer(renderer)) {\n        renderer.setProperty(element, propName, value);\n      }\n      } else if (!isAnimationProp(propName)) {\n        element.setProperty ? element.setProperty(propName, value) :
element[propName] = value;\n      }\n      }\n      } else if (tNode.type & 12 /* AnyContainer */) {\n
      // If the node is a container and the property didn't\n      // match any of the inputs or schemas we should
throw.\n      if (ngDevMode
&& !matchingSchemas(tView, tNode.value)) {\n        logUnknownPropertyError(propName, tNode);\n      }\n      }\n      }\n      /**\n       * If node is an OnPush component, marks its LView dirty. */\n     function

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markDirtyIfOnPush(IView, viewIndex) {\n      ngDevMode && assertLView(IView);\n      var\n      childComponentLView = getComponentLViewByIndex(viewIndex, IView);\n      if\n      (!childComponentLView[FLAGS] & 16 /* CheckAlways */) {\n        childComponentLView[FLAGS] |= 64 /*\n        Dirty */;\n      }\n      function setNgReflectProperty(IView, element, type, attrName, value) {\n        var _a;\n        var renderer = IView[RENDERER];\n        attrName = normalizeDebugBindingName(attrName);\n        var\n        debugValue = normalizeDebugBindingValue(value);\n        if (type & 3 /* AnyRNode */) {\n          if (value ==\n          null) {\n            isProceduralRenderer(renderer) ? renderer.removeAttribute(element, attrName) :\n            element.removeAttribute(attrName);\n          }\n          else {\n            isProceduralRenderer(renderer) ?\n            renderer.setAttribute(element,\n            attrName, debugValue) :\n            element.setAttribute(attrName, debugValue);\n          }\n          }\n          else {\n            var textContent = \"bindings=\" + JSON.stringify((_a = {}, _a[attrName] = debugValue, _a), null, 2);\n            if (isProceduralRenderer(renderer)) {\n              renderer.setValue(element, textContent);\n            }\n            else {\n              element.textContent = textContent;\n            }\n          }\n          function\n          setNgReflectProperties(IView, element, type, dataValue, value) {\n            if (type & (3 /* AnyRNode */ | 4 /*\n            Container */)) {\n              /**\n              * dataValue is an array containing runtime input or output names for the\n              directives:\n              * i+0: directive instance index\n              * i+1: privateName\n              * e.g. [0,\n              'change', 'change-minified']\n              *\n              * we want to set the reflected property with the privateName: dataValue[i+1]\n              */\n              for (var i\n              = 0; i < dataValue.length; i += 2) {\n                setNgReflectProperty(IView, element, type, dataValue[i + 1],\n                value);\n              }\n              function validateProperty(tView, element, propName, tNode) {\n                // If\n                `schemas` is set to `null`, that's an indication that this Component was compiled in AOT\n                // mode where this\n                check happens at compile time. In JIT mode, `schemas` is always present and\n                // defined as an array (as an\n                empty array in case `schemas` field is not defined) and we should\n                // execute the check below.\n                if\n                (tView.schemas === null)\n                return true;\n                // The property is considered valid if the element matches the\n                schema, it exists on the element\n                // or it is synthetic, and we are in a browser context (web worker nodes should\n                be skipped).\n                if (matchingSchemas(tView, tNode.value) || propName in element || isAnimationProp(propName)) {\n                  return\n                  true;\n                }\n                // Note: `typeof Node` returns 'function' in most browsers, but on IE it is 'object' so we\n                //\n                need to account for both here, while being careful for `typeof null` also returning 'object'.\n                return typeof Node\n                === 'undefined' || Node === null || !(element instanceof Node);\n              }\n              function matchingSchemas(tView,\n              tagName) {\n                var schemas = tView.schemas;\n                if (schemas !== null) {\n                  for (var i = 0; i <\n                  schemas.length; i++) {\n                    var schema = schemas[i];\n                    if (schema === NO_ERRORS_SCHEMA\n                    ||\n                    schema === CUSTOM_ELEMENTS_SCHEMA && tagName && tagName.indexOf('-') > -1) {\n                      return true;\n                    }\n                  }\n                  return false;\n                }\n                /**\n                * Logs an error that a\n                property is not supported on an element.\n                */\n                @param propName Name of the invalid property.\n                * @param tNode Node on which we encountered the\n                property.\n                */\n                function logUnknownPropertyError(propName, tNode) {\n                  var message = \"Can't bind to\n                  \" + propName + \" since it isn't a known property of \" + tNode.value + \"\";\n                  console.error(formatRuntimeError(\"303\" /* UNKNOWN_BINDING */, message));\n                }\n                /**\n                * Instantiate\n                a root component.\n                */\n                function instantiateRootComponent(tView, IView, def) {\n                  var rootTNode =\n                  getCurrentTNode();\n                  if (tView.firstCreatePass) {\n                    if (def.providersResolver)\n                    def.providersResolver(def);\n                    var directiveIndex = allocExpando(tView, IView, 1, null);\n                    ngDevMode &&\n                    assertEqual(directiveIndex, rootTNode.directiveStart, 'Because this is a root component\n                    the allocated expando should match the TNode component.);\n                    configureViewWithDirective(tView,\n                    rootTNode, IView, directiveIndex,\n                    def);\n                  }\n                  var directive = getNodeInjectable(IView, tView, rootTNode.directiveStart, rootTNode);\n                  attachPatchData(directive, IView);\n                  var native = getNativeByTNode(rootTNode, IView);\n                  if (native) {\n                    attachPatchData(native, IView);\n                  }\n                  return directive;\n                }\n                /**\n                * Resolve the matched

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directives on a node.\n    */\n    function resolveDirectives(tView, IView, tNode, localRefs) {\n        // Please make
sure to have explicit type for `exportsMap`. Inferred type triggers bug in\n        // tsickle.\n        ngDevMode &&
assertFirstCreatePass(tView);\n        var hasDirectives = false;\n        if (getBindingsEnabled()) {\n            var
directiveDefs = findDirectiveDefMatches(tView, IView, tNode);\n            var exportsMap = localRefs === null ?
null : { ": -1 "};\n            if (directiveDefs !== null) {\n                hasDirectives = true;\n                initTNodeFlags(tNode, tView.data.length,
                directiveDefs.length);\n                // When the same token is provided by several directives on the same node, some
rules apply in\n                // the viewEngine:\n                // - viewProviders have priority over providers\n                //
- the last directive in NgModule.declarations has priority over the previous one\n                // So to match these rules,
the order in which providers are added in the arrays is very\n                // important.\n                for (var i = 0; i <
directiveDefs.length; i++) {\n                    var def = directiveDefs[i];\n                    if (def.providersResolver)\n                        def.providersResolver(def);\n                    }\n                    var preOrderHooksFound = false;\n                    var
preOrderCheckHooksFound = false;\n                    var directiveIdx = allocExpando(tView, IView,
directiveDefs.length, null);\n                    ngDevMode &&\n                    assertSame(directiveIdx, tNode.directiveStart,
'TNode.directiveStart should point to just allocated space');\n                    for (var i = 0; i < directiveDefs.length; i++)\n                    {\n                        var def = directiveDefs[i];\n                        // Merge the attrs in the order of matches. This assumes that
the first directive is the\n                        // component itself, so that the component has the least priority.\n                        tNode.mergedAttrs = mergeHostAttrs(tNode.mergedAttrs, def.hostAttrs);\n                        configureViewWithDirective(tView, tNode, IView, directiveIdx, def);\n                        saveNameToExportMap(directiveIdx, def, exportsMap);\n                        if (def.contentQueries !== null)\n                            tNode.flags |= 8 /* hasContentQuery */;\n                        if (def.hostBindings !== null || def.hostAttrs !== null ||
def.hostVars !== 0)\n                            tNode.flags |= 128 /* hasHostBindings */;\n                        var lifeCycleHooks =
def.type.prototype;\n\n                        // Only push a node index into the preOrderHooks array if this is the first\n                        // pre-order hook found
on this node.\n                        if (!preOrderHooksFound &&\n                            (lifeCycleHooks.ngOnChanges ||
lifeCycleHooks.ngOnInit || lifeCycleHooks.ngDoCheck)) {\n                            // We will push the actual hook function
into this array later during dir instantiation.\n                            // We cannot do it now because we must ensure hooks
are registered in the same\n                            // order that directives are created (i.e. injection order).\n                            (tView.preOrderHooks || (tView.preOrderHooks = [])).push(tNode.index);\n                            preOrderHooksFound =
true;\n                        }\n                        if (!preOrderCheckHooksFound && (lifeCycleHooks.ngOnChanges ||
lifeCycleHooks.ngDoCheck)) {\n                            (tView.preOrderCheckHooks || (tView.preOrderCheckHooks =
[])).push(tNode.index);\n                            preOrderCheckHooksFound = true;\n                        }\n                        directiveIdx++;\n                    }\n                    initializeInputAndOutputAliases(tView, tNode);\n                    }\n                    if (exportsMap)\n                        cacheMatchingLocalNames(tNode, localRefs, exportsMap);\n                    }\n                    // Merge the template attrs last so that
they have the highest priority.\n                    tNode.mergedAttrs = mergeHostAttrs(tNode.mergedAttrs, tNode.attrs);\n                    return hasDirectives;\n                }\n                /**\n                 * Add `hostBindings` to the `TView.hostBindingOpCodes`.\n                 *\n                 * @param tView `TView` to which the `hostBindings` should be added.\n                 * @param tNode `TNode` the element
which contains the directive\n                 * @param IView `LView` current `LView`\n                 * @param directiveIdx Directive
index in view.\n                 * @param directiveVarsIdx Where will the directive's vars be stored\n                 * @param def
`ComponentDef`/`DirectiveDef`, which contains the `hostVars`/`hostBindings`
to add.\n                */\n                function registerHostBindingOpCodes(tView, tNode, IView, directiveIdx, directiveVarsIdx, def)
{\n                    ngDevMode && assertFirstCreatePass(tView);\n                    var hostBindings = def.hostBindings;\n                    if
(hostBindings) {\n                        var hostBindingOpCodes = tView.hostBindingOpCodes;\n                        if
(hostBindingOpCodes === null) {\n                            hostBindingOpCodes = tView.hostBindingOpCodes = [];\n                        }\n                        var elementIdx = ~tNode.index;\n                        if (lastSelectedElementIdx(hostBindingOpCodes) != elementIdx)\n                            {\n                                // Conditionally add select element so that we are more efficient in execution.\n                                // NOTE: this
is strictly not necessary and it trades code size for runtime perf.\n                                // (We could just always add it.)\n
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        hostBindingOpCodes.push(elementIdx);\n        }\n        hostBindingOpCodes.push(directiveIdx,\n        directiveVarsIdx, hostBindings);\n        }\n        }\n\n        /**\n         * Returns the last selected element index in the `HostBindingOpCodes`\n         * For perf reasons we\n         don't need to update the selected element index in `HostBindingOpCodes` only\n         * if it changes. This method\n         returns the last index (or '0' if not found.)\n         *\n         * Selected element index are only the ones which are\n         negative.\n         */\n        function lastSelectedElementIdx(hostBindingOpCodes) {\n            var i =\n            hostBindingOpCodes.length;\n            while (i > 0) {\n                var value = hostBindingOpCodes[--i];\n                if (typeof\n                value === 'number' && value < 0) {\n                    return value;\n                }\n            }\n            return 0;\n        }\n\n        /**\n         * Instantiate all the directives that were previously resolved on the current node.\n         */\n        function\n        instantiateAllDirectives(tView, IView, tNode, native) {\n            var start = tNode.directiveStart;\n            var end =\n            tNode.directiveEnd;\n            if (!tView.firstCreatePass) {\n                getOrCreateNodeInjectorForNode(tNode,\n                IView);\n            }\n            attachPatchData(native, IView);\n            var initialInputs = tNode.initialInputs;\n            for (var i\n            = start; i < end; i++) {\n                var def = tView.data[i];\n                var isComponent = isComponentDef(def);\n                if (isComponent) {\n                    ngDevMode && assertTNodeType(tNode, 3 /* AnyRNode */);\n                    addComponentLogic(IView, tNode, def);\n                }\n                var directive = getNodeInjectable(IView, tView, i,\n                tNode);\n                attachPatchData(directive, IView);\n                if (initialInputs !== null) {\n                    setInputsFromAttrs(IView, i - start, directive, def, tNode, initialInputs);\n                }\n                if (isComponent) {\n                    var componentView = getComponentLViewByIndex(tNode.index, IView);\n                    componentView[CONTEXT] = directive;\n                }\n            }\n\n            function\n            invokeDirectivesHostBindings(tView, IView, tNode) {\n                var\n                start = tNode.directiveStart;\n                var end = tNode.directiveEnd;\n                var firstCreatePass =\n                tView.firstCreatePass;\n                var elementIndex = tNode.index;\n                var currentDirectiveIndex =\n                getCurrentDirectiveIndex();\n                try {\n                    setSelectedIndex(elementIndex);\n                    for (var dirIndex = start;\n                    dirIndex < end; dirIndex++) {\n                        var def = tView.data[dirIndex];\n                        var directive =\n                        IView[dirIndex];\n                        setCurrentDirectiveIndex(dirIndex);\n                        if (def.hostBindings !== null ||\n                        def.hostVars !== 0 || def.hostAttrs !== null) {\n                            invokeHostBindingsInCreationMode(def, directive);\n                        }\n                    }\n                }\n                finally {\n                    setSelectedIndex(-1);\n                    setCurrentDirectiveIndex(currentDirectiveIndex);\n                }\n            }\n\n            /**\n             * Invoke the host bindings in creation\n             mode.\n             *\n             * @param def `DirectiveDef` which may contain the `hostBindings` function.\n             *\n             * @param directive Instance of directive.\n             */\n            function invokeHostBindingsInCreationMode(def, directive)\n            {\n                if (def.hostBindings !== null) {\n                    def.hostBindings(1 /* Create */, directive);\n                }\n            }\n\n            /**\n             * Matches the current node against all available selectors.\n             * If a component is matched (at most one), it is\n             returned in first position in the array.\n             */\n            function findDirectiveDefMatches(tView, viewData, tNode) {\n                ngDevMode && assertFirstCreatePass(tView);\n                ngDevMode && assertTNodeType(tNode, 3 /* AnyRNode */\n                | 12 /* AnyContainer */);\n                var registry = tView.directiveRegistry;\n                var matches = null;\n                if (registry)\n                {\n                    for (var i = 0; i < registry.length; i++) {\n                        var def = registry[i];\n                        if\n                        (isNodeMatchingSelectorList(tNode, def.selectors, /* isProjectionMode */ false)) {\n                            matches ||\n                            (matches = ngDevMode ? new MatchesArray()\n                            : []);\n                            diPublicInInjector(getOrCreateNodeInjectorForNode(tNode, viewData), tView, def.type);\n                            if (isComponentDef(def)) {\n                                if (ngDevMode) {\n                                    assertTNodeType(tNode, 2\n                                    /* Element */, "\"" + tNode.value + "\" tags cannot be used as component hosts. \"" +\n                                    ("Please use a different tag to activate the \"" + stringify(def.type) + "\" component.)));\n                                }\n                                if\n                                (tNode.flags & 2 /* isComponentHost */) {\n                                    throwMultipleComponentError(tNode);\n                                }\n                                }\n                                markAsComponentHost(tView, tNode);\n                                // The component is always stored first\n                                with directives after.\n                                matches.unshift(def);\n                            }\n                            else {\n                                matches.push(def);\n                            }\n                        }\n                    }\n                }\n                return matches;\n            }\n\n            /**\n             * Marks a given TNode as a component's host. This consists of:\n             *\n             * - setting appropriate TNode flags;\n             * - storing index of component's host element so it will be queued for view

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refresh during CD.\n    */\n    function markAsComponentHost(tView, hostTNode) {\n        ngDevMode &&\n        assertFirstCreatePass(tView);\n        hostTNode.flags |= 2 /* isComponentHost */;\n        (tView.components ||\n        (tView.components = ngDevMode ? new TViewComponents() : []))\n            .push(hostTNode.index);\n    }\n    /**\n    Caches local names and their matching directive indices for query and template lookups. */\n    function\n    cacheMatchingLocalNames(tNode, localRefs, exportsMap) {\n        if (localRefs) {\n            var localNames =\n            tNode.localNames = ngDevMode ? new TNodeLocalNames() : [];\n            // Local names must be stored in tNode\n            in the same order that localRefs are defined\n            // in the template to ensure the data\n            is loaded in the same slots as their refs\n            // in the template (for template queries).\n            for (var i = 0; i <\n            localRefs.length; i += 2) {\n                var index = exportsMap[localRefs[i + 1]];\n                if (index == null)\n                    throw new RuntimeError("301" /* EXPORT_NOT_FOUND */, "Export of name \"" + localRefs[i + 1] + "\"\n                    not found!");\n                localNames.push(localRefs[i], index);\n            }\n        }\n        /**\n        * Builds up an\n        export map as directives are created, so local refs can be quickly mapped\n        * to their directive instances.\n        */\n        function saveNameToExportMap(directiveIdx, def, exportsMap) {\n            if (exportsMap) {\n                if\n                (def.exportAs) {\n                    for (var i = 0; i < def.exportAs.length; i++) {\n                        exportsMap[def.exportAs[i]]\n                        = directiveIdx;\n                    }\n                }\n                if (isComponentDef(def))\n                    exportsMap[""] =\n                    directiveIdx;\n            }\n        }\n        /**\n        * Initializes the flags on the current node, setting all indices to the initial index,\n        * the\n        directive count to 0, and adding the isComponent flag.\n        * @param index the initial index\n        */\n        function\n        initTNodeFlags(tNode, index, numberOfDirectives) {\n            ngDevMode &&\n            assertNotEqual(numberOfDirectives, tNode.directiveEnd - tNode.directiveStart, 'Reached the max number of\n            directives');\n            tNode.flags |= 1 /* isDirectiveHost */;\n            // When the first directive is created on a node, save\n            the index\n            tNode.directiveStart = index;\n            tNode.directiveEnd = index + numberOfDirectives;\n            tNode.providerIndexes = index;\n        }\n        /**\n        * Setup directive for instantiation.\n        * We need to create\n        a `NodeInjectorFactory` which is then inserted in both the `Blueprint` as well\n        * as `LView`. `TView` gets the\n        `DirectiveDef`.\n        * @param tView `TView`\n        * @param tNode\n        `TNode`\n        * @param IView `LView`\n        * @param directiveIndex Index where the directive will be stored in\n        the Expando.\n        * @param def `DirectiveDef`\n        */\n        function configureViewWithDirective(tView, tNode,\n        IView, directiveIndex, def) {\n            ngDevMode &&\n            assertGreaterThanOrEqual(directiveIndex,\n            HEADER_OFFSET, 'Must be in Expando section');\n            tView.data[directiveIndex] = def;\n            var\n            directiveFactory = def.factory || (def.factory = getFactoryDef(def.type, true));\n            var nodeInjectorFactory = new\n            NodeInjectorFactory(directiveFactory, isComponentDef(def), null);\n            tView.blueprint[directiveIndex] =\n            nodeInjectorFactory;\n            IView[directiveIndex] = nodeInjectorFactory;\n            registerHostBindingOpCodes(tView, tNode, IView, directiveIndex, allocExpando(tView, IView, def.hostVars,\n            NO_CHANGE), def);\n        }\n        function addComponentLogic(IView, hostTNode, def) {\n            var native =\n            getNativeByTNode(hostTNode, IView);\n            var tView = getOrCreateTComponentView(def);\n            // Only component views should be added to the view tree\n            directly. Embedded views are\n            // accessed through their containers because they may be removed / re-added\n            later.\n            var rendererFactory = IView[RENDERER_FACTORY];\n            var componentView =\n            addToViewTree(IView, createLView(IView, tView, null, def.onPush ? 64 /* Dirty */ : 16 /* CheckAlways */,\n            native, hostTNode, rendererFactory, rendererFactory.createRenderer(native, def), null, null));\n            // Component\n            view will always be created before any injected LContainers,\n            // so this is a regular element, wrap it with the\n            component view\n            IView[hostTNode.index] = componentView;\n        }\n        function\n        elementAttributeInternal(tNode, IView, name, value, sanitizer, namespace) {\n            if (ngDevMode) {\n                assertNotSame(value, NO_CHANGE, 'Incoming value should never be NO_CHANGE.);\n                validateAgainstEventAttributes(name);\n                assertTNodeType(tNode, 2 /* Element */, 'Attempted to set attribute \'' + name + '\'' on a container node. '\n                +\n                '\n                \"Host bindings are not valid on ng-container or ng-template.);\n            }\n            var element =\n            getNativeByTNode(tNode, IView);\n            setElementAttribute(IView[RENDERER], element, namespace,\n
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tNode.value, name, value, sanitizer);\n  }\n  function setElementAttribute(renderer, element, namespace,
tagName, name, value, sanitizer) {\n    if (value == null) {\n      ngDevMode &&
ngDevMode.rendererRemoveAttribute++;\n      isProceduralRenderer(renderer) ?
renderer.removeAttribute(element, name, namespace) :\n      element.removeAttribute(name);\n    }\n    else {\n      ngDevMode && ngDevMode.rendererSetAttribute++;\n      var strValue = sanitizer == null ?
renderStringify(value) : sanitizer(value, tagName || "", name);\n      if (isProceduralRenderer(renderer)) {\n        renderer.setAttribute(element,
name, strValue, namespace);\n      }\n      else {\n        namespace ? element.setAttributeNS(namespace,
name, strValue) :\n        element.setAttribute(name, strValue);\n      }\n    }\n  }\n  /**\n   * Sets
initial input properties on directive instances from attribute data\n   *\n   * @param IView Current LView that is
being processed.\n   * @param directiveIndex Index of the directive in directives array\n   * @param instance
Instance of the directive on which to set the initial inputs\n   * @param def The directive def that contains the list
of inputs\n   * @param tNode The static data for this node\n   */\n  function setInputsFromAttrs(IView,
directiveIndex, instance, def, tNode, initialInputData) {\n    var initialInputs = initialInputData[directiveIndex];\n    if (initialInputs !== null) {\n      var setInput = def.setInput;\n      for (var i = 0; i < initialInputs.length;) {\n
\n        var publicName = initialInputs[i++];\n        var privateName = initialInputs[i++];\n        var value =
initialInputs[i++];\n        if (setInput !== null) {\n          def.setInput(instance, value, publicName,
privateName);\n        }\n        else {\n          instance[privateName] = value;\n        }\n      }\n      if (ngDevMode) {\n        var nativeElement = getNativeByTNode(tNode, IView);\n        setNgReflectProperty(IView, nativeElement, tNode.type, privateName, value);\n      }\n    }\n  }\n  /**\n   * Generates initialInputData for a node and stores it in the template's static storage\n   * so
subsequent template invocations don't have to recalculate it.\n   *\n   * initialInputData is an array containing
values that need to be set as input properties\n   * for directives on this node, but only once on creation. We need
this array
to support\n   * the case where you set an @Input property of a directive using attribute-like syntax.\n   * e.g. if
you have a `name` @Input, you can set it once like this:\n   *\n   * <my-component name="Bess"></my-
component>\n   *\n   * @param inputs The list of inputs from the directive def\n   * @param attrs The static attrs
on this node\n   */\n  function generateInitialInputs(inputs, attrs) {\n    var inputsToStore = null;\n    var i =
0;\n    while (i < attrs.length) {\n      var attrName = attrs[i];\n      if (attrName === 0 /* NamespaceURI */) {\n
\n        // We do not allow inputs on namespaced attributes.\n        i += 4;\n        continue;\n      }\n      else if (attrName === 5 /* ProjectAs */) {\n        // Skip over the `ngProjectAs` value.\n        i
+= 2;\n        continue;\n      }\n      // If we hit any other attribute markers, we're done anyway. None of
those are valid inputs.\n      if (typeof attrName === 'number')\n        break;\n      if
(inputs.hasOwnProperty(attrName)) {\n        if (inputsToStore === null)\n          inputsToStore = [];\n        inputsToStore.push(attrName, inputs[attrName], attrs[i + 1]);\n      }\n      i += 2;\n    }\n    return
inputsToStore;\n  }\n  //////////////////////////////////\n  /// ViewContainer & View\n  //////////////////////////////////\n  // Not sure
why I need to do `any` here but TS complains later.\n  var LContainerArray = ((typeof ngDevMode ===
'undefined' || ngDevMode) && initNgDevMode()) &&\n    createNamedArrayType('LContainer');\n  /**\n   *
Creates a LContainer, either from a container instruction, or for a ViewContainerRef.\n   *\n   * @param
hostNative The host element for the LContainer\n   * @param hostTNode The host TNode for the LContainer\n
   * @param currentView The parent view of the LContainer\n
   * @param native The native comment element\n   * @param isForViewContainerRef Optional a flag indicating
the ViewContainerRef case\n   * @returns LContainer\n   */\n  function createLContainer(hostNative,
currentView, native, tNode) {\n    ngDevMode && assertLView(currentView);\n    ngDevMode &&
!isProceduralRenderer(currentView[RENDERER]) && assertDomNode(native);\n    // https://jspm.com/array-
literal-vs-new-array-really\n    var LContainer = new (ngDevMode ? LContainerArray : Array)(hostNative, // host
native\n      true, // Boolean `true` in this position signifies that this is an `LContainer`\n      false, // has

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transplanted views\n    currentView, // parent\n    null, // next\n    0, // transplanted views to refresh count\n    tNode, // t_host\n    native, // native,\n    null, // view refs\n    null);\n    ngDevMode &&\nassertEqual(IContainer.length, CONTAINER_HEADER_OFFSET, 'Should allocate correct\n    number of slots for LContainer header.);\n    ngDevMode && attachLContainerDebug(IContainer);\n    return\n    IContainer;\n  }\n  /**\n   * Goes over embedded views (ones created through ViewContainerRef APIs) and\n   * refreshes\n   * them by executing an associated template function.\n   */\n  function\n  refreshEmbeddedViews(IView) {\n    for (var IContainer = getFirstLContainer(IView); IContainer !== null;\n    IContainer = getNextLContainer(IContainer)) {\n      for (var i = CONTAINER_HEADER_OFFSET; i <\n    IContainer.length; i++) {\n        var embeddedLView = IContainer[i];\n        var embeddedTView =\n    embeddedLView[TVIEW];\n        ngDevMode && assertDefined(embeddedTView, 'TView must be\n    allocated');\n        if (viewAttachedToChangeDetector(embeddedLView)) {\n          refreshView(embeddedTView, embeddedLView, embeddedTView.template, embeddedLView[CONTEXT]);\n        }\n      }\n    }\n  }\n  /**\n   *\n   * Mark transplanted views as needing to be refreshed at their insertion points.\n   */\n  * @param IView The\n  `LView` that may have transplanted views.\n  */\n  function markTransplantedViewsForRefresh(IView) {\n    for (var IContainer = getFirstLContainer(IView); IContainer !== null; IContainer = getNextLContainer(IContainer))\n    {\n      if (!IContainer[HAS_TRANSPLANTED_VIEWS])\n        continue;\n      var movedViews =\n    IContainer[MOVED_VIEWS];\n      ngDevMode && assertDefined(movedViews, 'Transplanted View flags set\n    but missing MOVED_VIEWS');\n      for (var i = 0; i < movedViews.length; i++) {\n        var movedLView\n    = movedViews[i];\n        var insertionLContainer = movedLView[PARENT];\n        ngDevMode &&\n    assertLContainer(insertionLContainer);\n        // We don't want to increment the counter if the moved LView\n    was already marked for\n        // refresh.\n        if ((movedLView[FLAGS] & 1024\n    /* RefreshTransplantedView */) === 0) {\n          updateTransplantedViewCount(insertionLContainer, 1);\n        }\n        // Note, it is possible that the `movedViews` is tracking views that are transplanted *and*\n    // those that aren't (declaration component === insertion component). In the latter case,\n    // it's fine to\n    add the flag, as we will clear it immediately in\n    // `refreshEmbeddedViews` for the view currently being\n    refreshed.\n        movedLView[FLAGS] |= 1024 /* RefreshTransplantedView */;\n      }\n    }\n  }\n  /**\n   *\n   * Refreshes components by entering the component view and processing its bindings, queries,\n   * etc.\n   */\n  * @param componentHostIdx Element index in LView[] (adjusted for HEADER_OFFSET)\n  */\n  * @param\n  function refreshComponent(hostLView, componentHostIdx) {\n    ngDevMode &&\n    assertEqual(isCreationMode(hostLView), false, 'Should be\n    run in update mode');\n    var componentView = getComponentLViewByIndex(componentHostIdx,\n    hostLView);\n    // Only attached components that are CheckAlways or OnPush and dirty should be refreshed\n    if (viewAttachedToChangeDetector(componentView)) {\n      var tView = componentView[TVIEW];\n      if (componentView[FLAGS] & (16 /* CheckAlways */ | 64 /* Dirty */)) {\n        refreshView(tView,\n        componentView, tView.template, componentView[CONTEXT]);\n      } else if\n    (componentView[TRANSPLANTED_VIEWS_TO_REFRESH] > 0) {\n        // Only attached components that\n        are CheckAlways or OnPush and dirty should be refreshed\n        refreshContainsDirtyView(componentView);\n      }\n    }\n  }\n  /**\n   *\n   * Refreshes all transplanted views\n   * marked with `LViewFlags.RefreshTransplantedView` that are\n   * children or descendants of the given IView.\n   */\n  * @param IView The IView which contains descendant transplanted\n  views that need to be refreshed.\n  */\n  function refreshContainsDirtyView(IView) {\n    for (var IContainer =\n    getFirstLContainer(IView); IContainer !== null; IContainer = getNextLContainer(IContainer)) {\n      for (var i =\n    CONTAINER_HEADER_OFFSET; i < IContainer.length; i++) {\n        var embeddedLView = IContainer[i];\n        if (embeddedLView[FLAGS] & 1024 /* RefreshTransplantedView */) {\n          var embeddedTView\n    = embeddedLView[TVIEW];\n          ngDevMode && assertDefined(embeddedTView, 'TView must be\n    allocated');\n          refreshView(embeddedTView, embeddedLView, embeddedTView.template,\n    embeddedLView[CONTEXT]);\n        } else if

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(embeddedLView[TRANSPLANTED_VIEWS_TO_REFRESH] > 0) {\n
refreshContainsDirtyView(embeddedLView);\n          }\n          }\n          }\n          var tView = IView[TVIEW];\n
    // Refresh child component views.\n    var
    components = tView.components;\n    if (components !== null) {\n        for (var i = 0; i < components.length;
i++) {\n            var componentView = getComponentLViewByIndex(components[i], IView);\n            // Only
attached components that are CheckAlways or OnPush and dirty should be refreshed\n            if
(viewAttachedToChangeDetector(componentView) &&\n
componentView[TRANSPLANTED_VIEWS_TO_REFRESH] > 0) {\n
refreshContainsDirtyView(componentView);\n            }\n            }\n            }\n            }\n            function
renderComponent(hostLView, componentHostIdx) {\n                ngDevMode &&
assertEqual(isCreationMode(hostLView), true, 'Should be run in creation mode');\n                var componentView =
getComponentLViewByIndex(componentHostIdx, hostLView);\n                var componentTView =
componentView[TVIEW];\n                syncViewWithBlueprint(componentTView, componentView);\n
renderView(componentTView, componentView, componentView[CONTEXT]);\n
            }\n
    /**\n     * Syncs an LView instance with its blueprint if they have gotten out of sync.\n     * Typically,
blueprints and their view instances should always be in sync, so the loop here\n     * will be skipped. However,
consider this case of two components side-by-side:\n     * App template:\n     * ``\n     * <comp></comp>\n
* <comp></comp>\n     * ``\n     * The following will happen:\n     * 1. App template begins processing.\n
* 2. First <comp> is matched as a component and its LView is created.\n     * 3. Second <comp> is matched as a
component and its LView is created.\n     * 4. App template completes processing, so it's time to check child
templates.\n     * 5. First <comp> template is checked. It has a directive, so its def is pushed to blueprint.\n
* 6. Second <comp> template is checked. Its blueprint has been updated by the first\n     * <comp> template, but its
LView was created before this update, so it is out of
sync.\n     * Note that embedded views inside ngFor loops will never be out of sync because these views\n
* are processed as soon as they are created.\n     * @param tView The `TView` that contains the blueprint for
syncing\n     * @param IView The view to sync\n     */\n    function syncViewWithBlueprint(tView, IView) {\n
for (var i = IView.length; i < tView.blueprint.length; i++) {\n        IView.push(tView.blueprint[i]);\n    }\n
    /**\n     * Adds LView or LContainer to the end of the current view tree.\n     * This structure will be used to
traverse through nested views to remove listeners\n     * and call onDestroy callbacks.\n     * @param IView
The view where LView or LContainer should be added\n     * @param adjustedHostIndex Index of the view's host
node in LView[], adjusted for header\n     * @param IViewOrLContainer The LView or LContainer to add to the
view tree\n     * @returns The state passed in\n     */\n
    function addToViewTree(IView, IViewOrLContainer) {\n        // TODO(benlesh/misko): This implementation is
incorrect, because it always adds the LContainer\n        // to the end of the queue, which means if the developer
retrieves the LContainers from RNodes out\n        // of order, the change detection will run out of order, as the act of
retrieving the the\n        // LContainer from the RNode is what adds it to the queue.\n        if
(IView[CHILD_HEAD]) {\n            IView[CHILD_TAIL][NEXT] = IViewOrLContainer;\n        } else {\n
            IView[CHILD_HEAD] = IViewOrLContainer;\n        }\n        IView[CHILD_TAIL] = IViewOrLContainer;\n
return IViewOrLContainer;\n    }\n    // Change detection\n
    /**\n     * Marks current view and all ancestors dirty.\n     * Returns the root view because it is found as a
byproduct of marking the view tree\n     * dirty, and can be used by methods
that consume markViewDirty() to easily schedule\n     * change detection. Otherwise, such methods would need to
traverse up the view tree\n     * an additional time to get the root view and schedule a tick on it.\n     * @param
IView The starting LView to mark dirty\n     * @returns the root LView\n     */\n    function markViewDirty(IView)
{\n        while (IView) {\n            IView[FLAGS] |= 64 /* Dirty */;\n            var parent = getLViewParent(IView);\n
            // Stop traversing up as soon as you find a root view that wasn't attached to any container\n            if
(isRootView(IView) && !parent) {\n                return IView;\n            }\n            // continue otherwise\n
IView = parent;\n        }\n        return null;\n    }\n
    /**\n     * Used to schedule change detection on the whole

```

```

application.\n
 * \n
 * Unlike `tick`, `scheduleTick` coalesces multiple calls into one change detection run.\n
It is usually called indirectly
by calling `markDirty` when the view needs to be\n
 * re-rendered.\n
 * \n
 * Typically `scheduleTick` uses
`requestAnimationFrame` to coalesce multiple\n
 * `scheduleTick` requests. The scheduling function can be
overridden in\n
 * `renderComponent`'s `scheduler` option.\n
 * \n
function scheduleTick(rootContext, flags)
{\n
    var nothingScheduled = rootContext.flags === 0 /* Empty */;\n
    if (nothingScheduled &&
rootContext.clean === _CLEAN_PROMISE) {\n
        // https://github.com/angular/angular/issues/39296\n
        // should only attach the flags when really scheduling a tick\n
        rootContext.flags |= flags;\n
        var res_1;\n
        rootContext.clean = new Promise(function (r) { return res_1 = r; });\n
        rootContext.scheduler(function ()
{\n
            if (rootContext.flags & 1 /* DetectChanges */) {\n
                rootContext.flags &= ~1 /*
DetectChanges */;\n
                tickRootContext(rootContext);\n
            }\n
            if (rootContext.flags & 2 /* FlushPlayers */) {\n
                rootContext.flags &= ~2 /*
FlushPlayers */;\n
                var playerHandler = rootContext.playerHandler;\n
                if (playerHandler) {\n
                    playerHandler.flushPlayers();\n
                }\n
            }\n
            rootContext.clean =
_CLEAN_PROMISE;\n
            res_1(null);\n
        });\n
    }\n
    function tickRootContext(rootContext)
{\n
        for (var i = 0; i < rootContext.components.length; i++) {\n
            var rootComponent =
rootContext.components[i];\n
            var lView = readPatchedLView(rootComponent);\n
            var tView =
lView[TVIEW];\n
            renderComponentOrTemplate(tView, lView, tView.template, rootComponent);\n
        }\n
    }\n
    function detectChangesInternal(tView, lView, context) {\n
        var rendererFactory =
lView[RENDERER_FACTORY];\n
        if (rendererFactory.begin())\n
            rendererFactory.begin();\n
        try {\n
            refreshView(tView, lView, tView.template, context);\n
        }\n
        catch (error) {\n
            handleError(lView, error);\n
            throw error;\n
        }\n
        finally {\n
            if
(rendererFactory.end())\n
                rendererFactory.end();\n
        }\n
    }\n
    /**\n
     * Synchronously perform change
detection on a root view and its components.\n
     * \n
     * @param lView The view which the change detection
should be performed on.\n
     * \n
     * function detectChangesInRootView(lView) {\n
tickRootContext(lView[CONTEXT]);\n
    }\n
    function checkNoChangesInternal(tView, view, context) {\n
setIsInCheckNoChangesMode(true);\n
    try {\n
        detectChangesInternal(tView, view, context);\n
    }\n
    finally {\n
        setIsInCheckNoChangesMode(false);\n
    }\n
    }\n
    /**\n
     * Checks the change detector on a
root view and its components, and throws if any
changes are\n
     * detected.\n
     * \n
     * This is used in development mode to verify that running change detection
doesn't\n
     * introduce other changes.\n
     * \n
     * @param lView The view which the change detection should be
checked on.\n
     * \n
     * function checkNoChangesInRootView(lView) {\n
setIsInCheckNoChangesMode(true);\n
    try {\n
        detectChangesInRootView(lView);\n
    }\n
    finally
{\n
        setIsInCheckNoChangesMode(false);\n
    }\n
    }\n
    function executeViewQueryFn(flags,
viewQueryFn, component) {\n
        ngDevMode && assertDefined(viewQueryFn, 'View queries function to execute
must be defined.);\n
        setCurrentQueryIndex(0);\n
        viewQueryFn(flags, component);\n
    }\n
    // Bindings & interpolations\n
    // Stores meta-data for
a property binding to be used by TestBed's `DebugElement.properties`.\n
     * \n
     * In order to support
TestBed's `DebugElement.properties` we need to save, for each binding:\n
     * - a bound property name;\n
     * - a
static parts of interpolated strings;\n
     * \n
     * A given property metadata is saved at the binding's index in the
`TView.data` (in other words, a\n
     * property binding metadata will be stored in `TView.data` at the same index as
a bound value in\n
     * `LView`). Metadata are represented as `INTERPOLATION_DELIMITER`-delimited string
with the\n
     * following format:\n
     * - `propertyName` for bound properties;\n
     * -
`propertyNameprefixinterpolation_static_part1..interpolation_static_partNsuffix` for\n
     * interpolated properties.\n
     * \n
     * @param tData `TData` where meta-data will be saved;\n
     * @param tNode `TNode` that is a target of
the binding;\n
     * @param propertyName bound property name;\n
     * @param bindingIndex binding index in
`LView`\n
     * @param interpolationParts static interpolation parts (for property interpolations)\n

```

```

    */\n    function storePropertyBindingMetadata(tData, tNode, propertyName, bindingIndex) {\n        var
interpolationParts = [];\n        for (var _i = 4; _i < arguments.length; _i++) {\n            interpolationParts[_i - 4] =
arguments[_i];\n        }\n        // Binding meta-data are stored only the first time a given property instruction is
processed.\n        // Since we don't have a concept of the "first update pass" we need to check for presence of the\n        // binding meta-data to decide if one should be stored (or if was stored already).\n        if (tData[bindingIndex]
=== null) {\n            if (tNode.inputs == null || !tNode.inputs[propertyName]) {\n                var propBindingIdxs =
tNode.propertyBindings || (tNode.propertyBindings = []);\n                propBindingIdxs.push(bindingIndex);\n                var bindingMetadata = propertyName;\n                if (interpolationParts.length > 0) {\n
bindingMetadata +=\n                INTERPOLATION_DELIMITER + interpolationParts.join(INTERPOLATION_DELIMITER);\n            }\n            tData[bindingIndex] = bindingMetadata;\n        }\n        }\n        }\n        var CLEAN_PROMISE =
_CLEAN_PROMISE;\n        function getLCleanup(view) {\n            // top level variables should not be exported for
performance reasons (PERF_NOTES.md)\n            return view[CLEANUP] || (view[CLEANUP] = ngDevMode ? new
LCleanup() : []);\n        }\n        function getTViewCleanup(tView) {\n            return tView.cleanup || (tView.cleanup =
ngDevMode ? new TCleanup() : []);\n        }\n        /**\n         * There are cases where the sub component's renderer needs
to be included\n         * instead of the current renderer (see the componentSyntheticHost* instructions).\n         */\n        function loadComponentRenderer(currentDef, tNode, IView) {\n            // TODO(FW-2043): the `currentDef` is null
when host bindings are invoked while creating root\n            // component (see
packages/core/src/render3/component.ts).
This is not consistent with the process\n            // of creating inner components, when current directive index is
available in the state. In order\n            // to avoid relying on current def being `null` (thus special-casing root
component creation), the\n            // process of creating root component should be unified with the process of creating
inner\n            // components.\n            if (currentDef === null || isComponentDef(currentDef)) {\n                IView =
unwrapLView(IView[tNode.index]);\n            }\n            return IView[RENDERER];\n        }\n        /** Handles an error
thrown in an LView. */\n        function handleError(IView, error) {\n            var injector = IView[INJECTOR];\n            var
errorHandler = injector ? injector.get(ErrorHandler, null) : null;\n            errorHandler &&
errorHandler.handleError(error);\n        }\n        /**\n         * Set the inputs of directives at the current node to corresponding
value.\n         */\n        * @param tView The current TView\n        * @param IView the `LView` which
contains the directives.\n        * @param inputs mapping between the public "input" name and privately-known,\n        * possibly minified, property names to write to.\n        * @param value Value to set.\n        */\n        function
setInputsForProperty(tView, IView, inputs, publicName, value) {\n            for (var i = 0; i < inputs.length; i++) {\n
var index = inputs[i];\n                var privateName = inputs[i];\n                var instance = IView[index];\n                ngDevMode && assertIndexInRange(IView, index);\n                var def = tView.data[index];\n                if (def.setInput
!== null) {\n                    def.setInput(instance, value, publicName, privateName);\n                }\n                else {\n
instance[privateName] = value;\n                }\n            }\n        }\n        /**\n         * Updates a text binding at a given index in a
given LView.\n         */\n        function textBindingInternal(IView, index, value) {\n            ngDevMode &&
assertString(value, 'Value should be
a string');\n            ngDevMode && assertNotSame(value, NO_CHANGE, 'value should not be NO_CHANGE');\n            ngDevMode &&
assertIndexInRange(IView, index);\n            var element = getNativeByIndex(index, IView);\n            ngDevMode &&
assertDefined(element, 'native element should exist');\n            updateTextNode(IView[RENDERER], element, value);\n        }\n        /**\n         * @license\n         * Copyright Google
LLC All Rights Reserved.\n         */\n        * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n        */\n        /**\n         * Compute the static styling (class/style)
from `TAttributes`\n         */\n        * This function should be called during `firstCreatePass` only.\n        */\n        * @param
tNode The `TNode` into which the styling information should be loaded.\n        * @param attrs `TAttributes`
containing the styling information.\n        * @param writeToHost Where should the resulting static styles be
written?\n

```



```

* - `false` Write to `TNode.stylesWithoutHost` / `TNode.classesWithoutHost`\n * - `true` Write to
`TNode.styles` / `TNode.classes`\n */\n function computeStaticStyling(tNode, attrs, writeToHost) {\n
ngDevMode &&\n      assertFirstCreatePass(getTView(), 'Expecting to be called in first template pass only');\n
      var styles = writeToHost ? tNode.styles : null;\n      var classes = writeToHost ? tNode.classes : null;\n      var
mode = 0;\n      if (attrs !== null) {\n        for (var i = 0; i < attrs.length; i++) {\n          var value = attrs[i];\n
          if (typeof value === 'number') {\n            mode = value;\n          }\n          else if (mode === 1 /*
Classes */) {\n            classes = concatStringsWithSpace(classes, value);\n          }\n          else if (mode
=== 2 /* Styles */) {\n            var style = value;\n            var styleValue = attrs[++i];\n
            styles = concatStringsWithSpace(styles, style + ':' + styleValue + ';');\n          }\n          }\n          }\n
writeToHost ? tNode.styles = styles : tNode.stylesWithoutHost = styles;\n      writeToHost ? tNode.classes =
classes : tNode.classesWithoutHost = classes;\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All
Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found
in the LICENSE file at https://angular.io/license\n     */\n     * Synchronously perform change detection on a
component (and possibly its sub-components).\n     * This function triggers change detection in a synchronous
way on a component.\n     * @param component The component which the change detection should be
performed on.\n     */\n     function detectChanges(component) {\n       var view =
getComponentViewByInstance(component);\n       detectChangesInternal(view[TVIEW], view, component);\n
    }\n    /**\n     * Marks the component as dirty (needing change detection). Marking a component dirty will\n     *
schedule a change detection on it at some point in the future.\n     * Marking an already dirty component as
dirty won't do anything. Only one outstanding change\n     * detection can be scheduled per component tree.\n     */\n
    * @param component Component to mark as dirty.\n     */\n     function markDirty(component) {\n
ngDevMode && assertDefined(component, 'component');\n       var rootView =
markViewDirty(getComponentViewByInstance(component));\n       ngDevMode &&
assertDefined(rootView[CONTEXT], 'rootContext should be defined');\n       scheduleTick(rootView[CONTEXT],
1 /* DetectChanges */);\n    }\n    /**\n     * Used to perform change detection on the whole application.\n     *
This is equivalent to `detectChanges`, but invoked on root component. Additionally, `tick`\n     * executes lifecycle
hooks and conditionally checks
components based on their\n     * `ChangeDetectionStrategy` and dirtiness.\n     * The preferred way to
trigger change detection is to call `markDirty`. `markDirty` internally\n     * schedules `tick` using a scheduler in
order to coalesce multiple `markDirty` calls into a\n     * single change detection run. By default, the scheduler is
`requestAnimationFrame`, but can\n     * be changed when calling `renderComponent` and providing the `scheduler`
option.\n     */\n     function tick(component) {\n       var rootView = getRootView(component);\n       var
rootContext = rootView[CONTEXT];\n       tickRootContext(rootContext);\n     }\n\n    /**\n     * @license\n     *
Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style
license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n     * An
InjectionToken that gets the current `Injector` for `createInjector`-style injectors.\n
    *\n     * Requesting this token instead of `Injector` allows `StaticInjector` to be tree-shaken from a\n     *
project.\n     * @publicApi\n     */\n     var INJECTOR$1 = new InjectionToken('INJECTOR', {\n     // Dissable
tslint because this is const enum which gets inlined not top level prop access.\n     // tslint:disable-next-line: no-
toplevel-property-access\n     -1 /* Injector */);\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights
Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the
LICENSE file at https://angular.io/license\n     */\n     var NullInjector = /** @class */ (function () {\n     function
NullInjector() {\n     }\n     NullInjector.prototype.get = function (token, notFoundValue) {\n       if
(notFoundValue === void 0) { notFoundValue = THROW_IF_NOT_FOUND; }\n       if (notFoundValue ===
THROW_IF_NOT_FOUND) {\n         var error = new Error('NullInjectorError:
No provider for \'' + stringify(token) + '!');\n         error.name = 'NullInjectorError';\n         throw error;\n
       }\n       return notFoundValue;\n     }; \n     return NullInjector;\n   }());\n\n    /**\n     * @license\n     *
Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style

```

```

license that can be found in the LICENSE file at https://angular.io/license
 * An internal token whose presence in an injector indicates that the injector should treat itself as a root scoped injector when processing requests for unknown tokens which may indicate they are provided in the root scope.
var INJECTOR_SCOPE = new InjectionToken('Set Injector scope.');
```

Marker which indicates that a value has not yet been created from the factory function.

```

var NOT_YET = {};
 * Marker which indicates that the factory function for a token is in the process of being called.
 * If the injector is asked to inject a token with its value set to CIRCULAR, that indicates injection of a dependency has recursively attempted to inject the original token, and there is a circular dependency among the providers.
var CIRCULAR = {};
var EMPTY_ARRAY$1 = [];
 * A lazily initialized NullInjector.
var NULL_INJECTOR = undefined;
function getNullInjector() {
  if (NULL_INJECTOR === undefined) {
    NULL_INJECTOR = new NullInjector();
  }
  return NULL_INJECTOR;
}
 * Create a new `Injector` which is configured using a `defType` of `InjectorType<any>`s.
 * @publicApi
function createInjector(defType, parent, additionalProviders, name) {
  if (parent === void 0) { parent = null; }
  if (additionalProviders === void 0) { additionalProviders = null; }
  var injector = createInjectorWithoutInjectorInstances(defType, parent, additionalProviders, name);
  injector._resolveInjectorDefTypes();
  return injector;
}
 * Creates a new injector without eagerly resolving its injector types. Can be used in places where resolving the injector types immediately can lead to an infinite loop. The injector types should be resolved at a later point by calling `_resolveInjectorDefTypes`.
function createInjectorWithoutInjectorInstances(defType, parent, additionalProviders, name) {
  if (parent === void 0) { parent = null; }
  if (additionalProviders === void 0) { additionalProviders = null; }
  return new R3Injector(defType, additionalProviders, parent || getNullInjector(), name);
}
var R3Injector = /** @class */ (function () {
  function R3Injector(def, additionalProviders, parent, source) {
    var _this = this;
    if (source === void 0) { source = null; }
    this.parent = parent;
    * Map of tokens to records which contain the instances of those tokens.
    * - `null` value implies that we don't have the record. Used by tree-shakable injectors
    * to prevent further searches.
    this.records = new Map();
    * The transitive set of `InjectorType`s which define this injector.
    this.injectorDefTypes = new Set();
    * Set of values instantiated by this injector which contain `ngOnDestroy` lifecycle hooks.
    this.onDestroy = new Set();
    this._destroyed = false;
    var dedupStack = [];
    // Start off by creating Records for every provider declared in every InjectorType
    // included transitively in additional providers then do the same for `def`. This order is
    // important because `def` may include providers that override ones in additionalProviders.
    additionalProviders && dedupStack.forEach(function (provider) { return _this.processProvider(provider, def, additionalProviders); });
    dedupStack.forEach(function (injectorDef) { return _this.processInjectorType(injectorDef, [], dedupStack); });
    // Make sure the INJECTOR token provides this injector.
    this.records.set(INJECTOR$1, makeRecord(undefined, this));
    // Detect whether this injector has the APP_ROOT_SCOPE token and thus should provide
    // any injectable scoped to APP_ROOT_SCOPE.
    var record = this.records.get(INJECTOR_SCOPE);
    this.scope = record != null ? record.value : null;
    // Source name, used for debugging
    this.source = source || (typeof def === 'object' ? null : stringify(def));
    Object.defineProperty(R3Injector.prototype, "_destroyed", {
      value: false,
      writable: true,
      enumerable: false,
      configurable: true
    });
    * Flag indicating that this injector was previously destroyed.
    get: function () { return this._destroyed; },
    enumerable: false,
    configurable: true
  });
  * Destroy the injector and release references to every instance or provider associated with it.
  * Also calls the `OnDestroy` lifecycle hooks of every instance that was created for which a hook was found.
  R3Injector.prototype.destroy = function () {
    this.assertNotDestroyed();
    // Set destroyed = true first, in case lifecycle hooks re-enter destroy().
    this._destroyed = true;
    try {
      // Call all the lifecycle hooks.
    }
  }
}

```

```

this.onDestroy.forEach(function (service) { return service.onDestroy(); });\n        }\n        finally\n        {\n            // Release all references.\n            this.records.clear();\n            this.onDestroy.clear();\n        }\n        this.injectorDefTypes.clear();\n        }\n        }\n        R3Injector.prototype.get = function (token, notFoundValue,\n        flags) {\n            if (notFoundValue === void 0) { notFoundValue = THROW_IF_NOT_FOUND; }\n            if\n            (flags === void 0) { flags = exports.InjectFlags.Default; }\n            this.assertNotDestroyed();\n            // Set the\n            injection context.\n            var previousInjector = setCurrentInjector(this);\n            try {\n                // Check for the\n                SkipSelf flag.\n                if (!(flags & exports.InjectFlags.SkipSelf)) {\n                    // SkipSelf isn't set, check if the\n                    record belongs to this injector.\n                    var record = this.records.get(token);\n                    if (record ===\n                    undefined) {\n                        // No record, but maybe the token is scoped to this injector.\n                        Look for an injectable\n                        // def with a scope matching this injector.\n                        var def =\n                        couldBeInjectableType(token) && getInjectableDef(token);\n                        if (def &&\n                        this.injectableDefInScope(def)) {\n                            // Found an injectable def and it's scoped to this injector.\n                            Pretend as if it was here\n                            // all along.\n                            record =\n                            makeRecord(injectableDefOrInjectorDefFactory(token), NOT_YET);\n                        }\n                        else {\n                            record = null;\n                        }\n                        this.records.set(token, record);\n                    }\n                    // If a record was found, get the instance for it and return it.\n                    if (record != null /* NOT null ||\n                    undefined */) {\n                        return this.hydrate(token, record);\n                    }\n                    // Select the next injector based on the Self flag - if self is set, the next injector is\n                    // the NullInjector,\n                    otherwise it's the parent.\n                    var nextInjector = !(flags & exports.InjectFlags.Self) ? this.parent :\n                    getNullInjector();\n                    // Set the notFoundValue based on the Optional flag - if optional is set and\n                    notFoundValue\n                    // is undefined, the value is null, otherwise it's the notFoundValue.\n                    notFoundValue = (flags & exports.InjectFlags.Optional) && notFoundValue === THROW_IF_NOT_FOUND ?\n                    null :\n                    notFoundValue;\n                    return nextInjector.get(token, notFoundValue);\n                }\n            }\n            catch (e) {\n                if (e.name === 'NullInjectorError') {\n                    var path =\n                    e[NG_TEMP_TOKEN_PATH] = e[NG_TEMP_TOKEN_PATH] || [];\n                    path.unshift(stringify(token));\n                    if (previousInjector) {\n                        // We still have a parent injector, keep throwing\n                        throw e;\n                    }\n                    else {\n                        // Format & throw the final error message when we don't have any previous injector\n                        return catchInjectorError(e, token, 'R3InjectorError', this.source);\n                    }\n                }\n                throw e;\n            }\n            finally {\n                // Lastly, clean up the state by restoring the\n                previous injector.\n                setCurrentInjector(previousInjector);\n            }\n            /** @internal */\n            R3Injector.prototype._resolveInjectorDefTypes = function () {\n                var _this = this;\n                this.injectorDefTypes.forEach(function (defType) { return _this.get(defType); });\n            }\n            R3Injector.prototype.toString = function () {\n                var tokens = [], records = this.records;\n                records.forEach(function (v, token) { return tokens.push(stringify(token)); });\n                return \"R3Injector[\"\n                + tokens.join(', ') + \"]\";\n            }\n            R3Injector.prototype.assertNotDestroyed = function () {\n                if\n                (this._destroyed) {\n                    throw new Error('Injector has already been destroyed.);\n                }\n            }\n            /**\n            * Add an `InjectorType` or `InjectorTypeWithProviders` and all of its transitive providers\n            * to this\n            injector.\n            *\n            * If an `InjectorTypeWithProviders` that declares providers besides the type is specified,\n            *\n            * the function will return \"true\" to indicate that the providers of the type definition need\n            * to be\n            processed. This allows us to process providers of injector types after all imports of\n            * an injector definition are\n            processed. (following View Engine semantics: see FW-1349)\n            */\n            R3Injector.prototype.processInjectorType\n            = function (defOrWrappedDef, parents, dedupStack) {\n                var _this = this;\n                defOrWrappedDef =\n                resolveForwardRef(defOrWrappedDef);\n                if (!defOrWrappedDef)\n                return false;\n                // Either\n                the defOrWrappedDef is an InjectorType (with injector def) or an\n                // InjectorDefTypeWithProviders (aka\n                ModuleWithProviders). Detecting either is a megamorphic\n                // read, so care is taken to only do the read\n                once.\n                // First attempt to read the injector def ('inj').\n                var def = getInjectorDef(defOrWrappedDef);\n            }

```

```

        // If that's not present, then attempt to read ngModule from the InjectorDefTypeWithProviders.\n        var
ngModule = (def == null) && defOrWrappedDef.ngModule || undefined;\n        // Determine the InjectorType. In
the case where `defOrWrappedDef` is an `InjectorType`,\n        // then this is easy. In the case of an
InjectorDefTypeWithProviders, then the definition type\n
        // is the `ngModule`.\n        var defType = (ngModule === undefined) ? defOrWrappedDef : ngModule;\n
        // Check for circular dependencies.\n        if (ngDevMode && parents.indexOf(defType) !== -1) {\n
var defName = stringify(defType);\n        var path = parents.map(stringify);\n
throwCyclicDependencyError(defName, path);\n        }\n        // Check for multiple imports of the same
module\n        var isDuplicate = dedupStack.indexOf(defType) !== -1;\n        // Finally, if defOrWrappedType
was an `InjectorDefTypeWithProviders`, then the actual\n        // `InjectorDef` is on its `ngModule`.\n        if
(ngModule !== undefined) {\n        def = getInjectorDef(ngModule);\n        }\n        // If no definition was
found, it might be from exports. Remove it.\n        if (def == null) {\n        return false;\n        }\n        //
Add providers in the same
way that @NgModule resolution did:\n        // First, include providers from any imports.\n        if (def.imports
!= null && !isDuplicate) {\n        // Before processing defType's imports, add it to the set of parents. This way,
if it ends\n        // up deeply importing itself, this can be detected.\n        ngDevMode &&
parents.push(defType);\n        // Add it to the set of dedups. This way we can detect multiple imports of the
same module\n        dedupStack.push(defType);\n        var importTypesWithProviders_1;\n        try
{\n        deepForEach(def.imports, function (imported) {\n        if
(_this.processInjectorType(imported, parents, dedupStack)) {\n        if (importTypesWithProviders_1
=== undefined)\n        importTypesWithProviders_1 = [];\n        // If the processed
import is an injector type with providers, we store
it in the\n        // list of import types with providers, so that we can process those afterwards.\n
importTypesWithProviders_1.push(imported);\n        }\n        });\n        }\n
finally {\n        // Remove it from the parents set when finished.\n        ngDevMode &&
parents.pop();\n        }\n        // Imports which are declared with providers (TypeWithProviders) need to be
processed\n        // after all imported modules are processed. This is similar to how View Engine\n        //
processes/merges module imports in the metadata resolver. See: FW-1349.\n        if
(importTypesWithProviders_1 !== undefined) {\n        var _loop_1 = function (i) {\n        var _a =
importTypesWithProviders_1[i], ngModule_1 = _a.ngModule, providers = _a.providers;\n
deepForEach(providers,
function (provider) { return _this.processProvider(provider, ngModule_1, providers || EMPTY_ARRAY$1); });\n
        }\n        for (var i = 0; i < importTypesWithProviders_1.length; i++) {\n        _loop_1(i);\n
        }\n        }\n        }\n        // Track the InjectorType and add a provider for it. It's important that
this is done after the\n        // def's imports.\n        this.injectorDefTypes.add(defType);\n
this.records.set(defType, makeRecord(def.factory, NOT_YET));\n        // Next, include providers listed on the
definition itself.\n        var defProviders = def.providers;\n        if (defProviders != null && !isDuplicate) {\n
var injectorType_1 = defOrWrappedDef;\n        deepForEach(defProviders, function (provider) { return
_this.processProvider(provider, injectorType_1, defProviders); });\n        }\n        return (ngModule !==
undefined
&&\n        defOrWrappedDef.providers !== undefined);\n        }\n        /**\n        * Process a `SingleProvider`
and add it.\n        */\n        R3Injector.prototype.processProvider = function (provider, ngModuleType, providers)
{\n        // Determine the token from the provider. Either it's its own token, or has a {provide: ...}\n        //
property.\n        provider = resolveForwardRef(provider);\n        var token = isTypeProvider(provider) ?
provider : resolveForwardRef(provider && provider.provide);\n        // Construct a `Record` for the provider.\n
var record = providerToRecord(provider, ngModuleType, providers);\n        if (!isTypeProvider(provider) &&
provider.multi === true) {\n        // If the provider indicates that it's a multi-provider, process it specially.\n
        // First check whether it's been defined already.\n        var multiRecord_1 = this.records.get(token);\n

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    if (multiRecord_1)
    {\n          // It has. Throw a nice error if\n          if (ngDevMode && multiRecord_1.multi ===
undefined) {\n          throwMixedMultiProviderError();\n          }\n          else {\n
        multiRecord_1 = makeRecord(undefined, NOT_YET, true);\n          multiRecord_1.factory = function
() { return injectArgs(multiRecord_1.multi); };\n          this.records.set(token, multiRecord_1);\n          }\n
        token = provider;\n          multiRecord_1.multi.push(provider);\n          }\n          else {\n          var
existing = this.records.get(token);\n          if (ngDevMode && existing && existing.multi !== undefined) {\n
            throwMixedMultiProviderError();\n          }\n          }\n          this.records.set(token, record);\n          };\n
        R3Injector.prototype.hydrate = function (token, record) {\n
            if (ngDevMode && record.value === CIRCULAR) {\n
throwCyclicDependencyError(stringify(token));\n          }\n          else if (record.value === NOT_YET) {\n
            record.value = CIRCULAR;\n            record.value = record.factory();\n          }\n          if (typeof record.value
=== 'object' && record.value && hasOnDestroy(record.value)) {\n          this.onDestroy.add(record.value);\n
          }\n          return record.value;\n          };\n          R3Injector.prototype.injectableDefInScope = function (def) {\n
            if (!def.providedIn) {\n          return false;\n          }\n          else if (typeof def.providedIn === 'string') {\n
            return def.providedIn === 'any' || (def.providedIn === this.scope);\n          }\n          else {\n          return
this.injectorDefTypes.has(def.providedIn);\n          }\n          };\n          return R3Injector;\n          }());\n          function
injectableDefOrInjectorDefFactory(token)
{\n          // Most tokens will have an injectable def directly on them, which specifies a factory directly.\n          var
injectableDef = getInjectableDef(token);\n          var factory = injectableDef !== null ? injectableDef.factory :
getFactoryDef(token);\n          if (factory !== null) {\n          return factory;\n          }\n          // If the token is an
NgModule, it's also injectable but the factory is on its injector def\n          // (^inj)\n          var injectorDef =
getInjectorDef(token);\n          if (injectorDef !== null) {\n          return injectorDef.factory;\n          }\n          //
InjectionTokens should have an injectable def (prov) and thus should be handled above.\n          // If it's missing that,
it's an error.\n          if (token instanceof InjectionToken) {\n          throw new Error("\"Token \"" + stringify(token) + "\"
is missing a \\u0275prov definition.\");\n          }\n          // Undecorated types can sometimes be created if they have no
constructor
arguments.\n          if (token instanceof Function) {\n          return getUndecoratedInjectableFactory(token);\n
          }\n          // There was no way to resolve a factory for this token.\n          throw new Error('unreachable');\n          }\n
function getUndecoratedInjectableFactory(token) {\n          // If the token has parameters then it has dependencies that
we cannot resolve implicitly.\n          var paramLength = token.length;\n          if (paramLength > 0) {\n          var args
= new Array(paramLength, '?');\n          throw new Error("\"Can't resolve all parameters for \"" + stringify(token) + \":
(\" + args.join(', ') + \").\");\n          }\n          // The constructor function appears to have no parameters.\n          // This
might be because it inherits from a super-class. In which case, use an injectable\n          // def from an ancestor if there
is one.\n          // Otherwise this really is a simple class with no dependencies, so return a factory that\n          // just
instantiates
the zero-arg constructor.\n          var inheritedInjectableDef = getInheritedInjectableDef(token);\n          if
(inheritedInjectableDef !== null) {\n          return function () { return inheritedInjectableDef.factory(token); };\n
          }\n          else {\n          return function () { return new token(); };\n          }\n          }\n          function
providerToRecord(provider, ngModuleType, providers) {\n          if (isValueProvider(provider)) {\n          return
makeRecord(undefined, provider.useValue);\n          }\n          else {\n          var factory =
providerToFactory(provider, ngModuleType, providers);\n          return makeRecord(factory, NOT_YET);\n
          }\n          }\n          /**\n          * Converts a `SingleProvider` into a factory function.\n          *\n          * @param provider provider to
convert to factory\n          */\n          function providerToFactory(provider, ngModuleType, providers) {\n          var factory =
undefined;\n          if (isTypeProvider(provider)) {\n          var unwrappedProvider
= resolveForwardRef(provider);\n          return getFactoryDef(unwrappedProvider) ||
injectableDefOrInjectorDefFactory(unwrappedProvider);\n          }\n          else {\n          if
(isValueProvider(provider)) {\n          factory = function () { return resolveForwardRef(provider.useValue); };\n

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    }\n      else if (isFactoryProvider(provider)) {\n          factory = function () { return
provider.useFactory.apply(provider, __spread(injectArgs(provider.deps || []))); }; \n      } \n      else if
(isExistingProvider(provider)) {\n          factory = function () { return
inject(resolveForwardRef(provider.useExisting)); }; \n      } \n      else {\n          var classRef_1 =
resolveForwardRef(provider &&\n              (provider.useClass || provider.provide)); \n          if (ngDevMode
&& !classRef_1) {\n              throwInvalidProviderError(ngModuleType, providers, provider); \n          } \n
          if (hasDeps(provider)) {\n              factory = function () { return new
((classRef_1).bind.apply((classRef_1), __spread([void 0], injectArgs(provider.deps))))(); }; \n          } \n
          else {\n              return getFactoryDef(classRef_1) || injectableDefOrInjectorDefFactory(classRef_1); \n
          } \n      } \n      return factory; \n } \n function makeRecord(factory, value, multi) {\n      if (multi ===
void 0) { multi = false; } \n      return {\n          factory: factory, \n          value: value, \n          multi: multi ? [] :
undefined, \n      }; \n } \n function isValueProvider(value) {\n      return value !== null && typeof value ==
'object' && USE_VALUE in value; \n } \n function isExistingProvider(value) {\n      return !(value &&
value.useExisting); \n } \n function isFactoryProvider(value) {\n      return !(value && value.useFactory); \n
} \n function isTypeProvider(value)
{\n      return typeof value === 'function'; \n } \n function isClassProvider(value) {\n      return
!!value.useClass; \n } \n function hasDeps(value) {\n      return !!value.deps; \n } \n function
hasOnDestroy(value) {\n      return value !== null && typeof value === 'object' &&\n          typeof
value.ngOnDestroy === 'function'; \n } \n function couldBeInjectableType(value) {\n      return (typeof value
=== 'function') || \n          (typeof value === 'object' && value instanceof InjectionToken); \n } \n \n function
INJECTOR_IMPL__PRE_R3__(providers, parent, name) {\n      return new StaticInjector(providers, parent,
name); \n } \n function INJECTOR_IMPL__POST_R3__(providers, parent, name) {\n      return createInjector({
name: name }, parent, providers, name); \n } \n var INJECTOR_IMPL = INJECTOR_IMPL__PRE_R3__; \n
/** \n  * Concrete injectors implement this interface. Injectors are configured \n  * with
[providers](guide/glossary#provider)
that associate \n  * dependencies of various types with [injection tokens](guide/glossary#di-token). \n  * \n  *
@see ["DI Providers"] (guide/dependency-injection-providers). \n  * \n  * @see `StaticProvider` \n  * \n  *
@usageNotes \n  * \n  * The following example creates a service injector instance. \n  * \n  * {@example
core/di/ts/provider_spec.ts region='ConstructorProvider'} \n  * \n  * ### Usage example \n  * \n  * {@example
core/di/ts/injector_spec.ts region='Injector'} \n  * \n  * `Injector` returns itself when given `Injector` as a token: \n
* \n  * {@example core/di/ts/injector_spec.ts region='injectInjector'} \n  * \n  * @publicApi \n  * \n  * var
Injector = /** @class */ (function () {\n      function Injector() {\n          \n      } \n      Injector.create = function (options,
parent) {\n          if (Array.isArray(options)) {\n              return INJECTOR_IMPL(options, parent, ""); \n          } \n
          else {\n              return INJECTOR_IMPL(options.providers, options.parent, options.name || ""); \n          } \n
      }; \n      return Injector; \n }()); \n Injector.THROW_IF_NOT_FOUND = THROW_IF_NOT_FOUND; \n
Injector.NULL = new NullInjector(); \n /** @nocollapse */ \n Injector.prov = defineInjectable({ \n      token:
Injector, \n      providedIn: 'any', \n      factory: function () { return inject(INJECTOR$1); }, \n      }); \n /** \n  *
@internal \n  * @nocollapse \n  * \n  * Injector.__NG_ELEMENT_ID__ = -1 \n  * \n  * Injector */; \n var IDENT =
function (value) {\n      return value; \n }; \n var 0$6 = IDENT; \n var EMPTY = []; \n var CIRCULAR$1 =
IDENT; \n var MULTI_PROVIDER_FN = function () {\n      return Array.prototype.slice.call(arguments); \n
}; \n var 1$2 = MULTI_PROVIDER_FN; \n var NO_NEW_LINES$1 = ""; \n var StaticInjector = /** @class */
(function () {\n      function StaticInjector(providers, parent, source) {\n          if (parent
=== void 0) { parent = Injector.NULL; } \n          if (source === void 0) { source = null; } \n          this.parent =
parent; \n          this.source = source; \n          var records = this._records = new Map(); \n          records.set(Injector,
{ token: Injector, fn: IDENT, deps: EMPTY, value: this, useNew: false }); \n          records.set(INJECTOR$1, {
token: INJECTOR$1, fn: IDENT, deps: EMPTY, value: this, useNew: false }); \n          this.scope =
recursivelyProcessProviders(records, providers); \n      } \n      StaticInjector.prototype.get = function (token,

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notFoundValue, flags) {\n      if (flags === void 0) { flags = exports.InjectFlags.Default; }\n      var records =\n      this._records;\n      var record = records.get(token);\n      if (record === undefined) {\n        // This\n        means we have never seen this record, see if it is tree shakable provider.\n        var injectableDef =\n        getInjectableDef(token);\n        if (injectableDef)\n        {\n          var providedIn = injectableDef && injectableDef.providedIn;\n          if (providedIn === 'any'\n          || providedIn !== null && providedIn === this.scope) {\n            records.set(token, record = resolveProvider({\n              provide: token, useFactory: injectableDef.factory, deps: EMPTY }));\n          }\n          }\n          if\n          (record === undefined) {\n            // Set record to null to make sure that we don't go through expensive lookup\n            above again.\n            records.set(token, null);\n          }\n          }\n          var lastInjector =\n          setCurrentInjector(this);\n          try {\n            return tryResolveToken(token, record, records, this.parent,\n            notFoundValue, flags);\n          }\n          catch (e) {\n            return catchInjectorError(e, token,\n            'StaticInjectorError', this.source);\n          }\n          finally {\n            setCurrentInjector(lastInjector);\n          }\n          }\n          }\n          StaticInjector.prototype.toString = function () {\n            var tokens = [], records =\n            this._records;\n            records.forEach(function (v, token) { return tokens.push(stringify(token)); });\n            return\n            \"StaticInjector[\" + tokens.join(', ') + \"]\";\n          }\n          return StaticInjector;\n        }());\n        function\n        resolveProvider(provider) {\n          var deps = computeDeps(provider);\n          var fn = IDENT;\n          var value =\n          EMPTY;\n          var useNew = false;\n          var provide = resolveForwardRef(provider.provide);\n          if\n          (USE_VALUE in provider) {\n            // We need to use USE_VALUE in provider since provider.useValue could\n            be defined as undefined.\n            value = provider.useValue;\n          }\n          else if (provider.useFactory) {\n            fn = provider.useFactory;\n          }\n          else if (provider.useExisting) {\n            // Just use IDENT\n          }\n          else if (provider.useClass)\n          {\n            useNew = true;\n            fn = resolveForwardRef(provider.useClass);\n          }\n          else if (typeof\n          provide === 'function') {\n            useNew = true;\n            fn = provide;\n          }\n          else {\n            throw\n            staticError('StaticProvider does not have [useValue|useFactory|useExisting|useClass] or [provide] is not newable',\n            provider);\n          }\n          return { deps: deps, fn: fn, useNew: useNew, value: value };\n        }\n        function\n        multiProviderMixError(token) {\n          return staticError('Cannot mix multi providers and regular providers',\n          token);\n        }\n        function\n        recursivelyProcessProviders(records, provider) {\n          var scope = null;\n          if\n          (provider) {\n            provider = resolveForwardRef(provider);\n            if (Array.isArray(provider)) {\n              //\n              if we have an array recurse into the array\n              for (var i = 0; i < provider.length; i++) {\n                scope =\n                recursivelyProcessProviders(records,\n                provider[i]) || scope;\n              }\n              }\n              else if (typeof provider === 'function') {\n                //\n                Functions were supported in ReflectiveInjector, but are not here. For safety give useful\n                messages\n                throw staticError('Function/Class not supported', provider);\n              }\n              else if (provider\n              && typeof provider === 'object' && provider.provide) {\n                // At this point we have what looks like a\n                provider: {provide: ?, ....}\n                var token = resolveForwardRef(provider.provide);\n                var\n                resolvedProvider = resolveProvider(provider);\n                if (provider.multi === true) {\n                  // This is a\n                  multi provider.\n                  var multiProvider = records.get(token);\n                  if (multiProvider) {\n                    if (multiProvider.fn !== MULTI_PROVIDER_FN) {\n                      throw multiProviderMixError(token);\n                    }\n                    }\n                    else {\n                      // Create a placeholder factory which will look\n                      up the constituents of the multi provider.\n                      records.set(token, multiProvider = {\n                        token: provider.provide,\n                        deps: [],\n                        useNew: false,\n                        fn:\n                        MULTI_PROVIDER_FN,\n                        value: EMPTY\n                      });\n                    }\n                    }\n                    //\n                    Treat the provider as the token.\n                    token = provider;\n                    multiProvider.deps.push({ token:\n                    token, options: 6 /* Default */ });\n                    }\n                    var record = records.get(token);\n                    if (record &&\n                    record.fn === MULTI_PROVIDER_FN) {\n                      throw multiProviderMixError(token);\n                    }\n                    }\n                    if (token === INJECTOR_SCOPE) {\n                      scope = resolvedProvider.value;\n                      records.set(token, resolvedProvider);\n                    }\n                    else {\n                      throw staticError('Unexpected provider', provider);\n                    }\n                    }\n                    return scope;\n          }\n        }\n      }\n    }\n  }\n}

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}\n  function tryResolveToken(token, record, records, parent, notFoundValue, flags) {\n    try {\n      return
resolveToken(token, record, records, parent, notFoundValue, flags);\n    }\n    catch (e) {\n      // ensure that
'e' is of type Error.\n      if (!(e instanceof Error)) {\n        e = new Error(e);\n      }\n      var path =
e[NG_TEMP_TOKEN_PATH] = e[NG_TEMP_TOKEN_PATH] || [];\n      path.unshift(token);\n      if
(record && record.value == CIRCULAR$1) {\n        // Reset the Circular flag.\n        record.value =
EMPTY;\n      }\n      throw e;\n    }\n  }\n  function resolveToken(token, record, records, parent,
notFoundValue, flags) {\n    var value;\n    if (record && !(flags & exports.InjectFlags.SkipSelf)) {\n      //
If we don't have a record, this implies that we don't own the provider hence don't know how\n      // to resolve
it.\n      value = record.value;\n      if (value == CIRCULAR$1) {\n        throw Error(NO_NEW_LINE$1
+ 'Circular dependency');\n      }\n      else if (value === EMPTY) {\n        record.value =
CIRCULAR$1;\n        var obj = undefined;\n        var useNew = record.useNew;\n        var fn =
record.fn;\n        var depRecords = record.deps;\n        var deps = EMPTY;\n        if
(depRecords.length) {\n          deps = [];\n          for (var i = 0; i < depRecords.length; i++) {\n
            var depRecord = depRecords[i];\n            var options = depRecord.options;\n            var
childRecord = options
& 2 /* CheckSelf */ ? records.get(depRecord.token) : undefined;\n            deps.push(tryResolveToken(\n
              // Current Token to resolve\n              depRecord.token, \n              // A record which describes
how to resolve the token.\n              // If undefined, this means we don't have such a record\n
childRecord, \n              // Other records we know about.\n              records, \n              // If we
don't know how to resolve dependency and we should not check parent for it,\n              // than pass in Null
injector.\n              !childRecord && !(options & 4 /* CheckParent */) ? Injector.NULL : parent, options & 1
/* Optional */ ? null : Injector.THROW_IF_NOT_FOUND, exports.InjectFlags.Default));\n            }\n
          }\n          record.value = value = useNew ? new (fn.bind.apply(fn, __spread([void 0],
            deps)))() : fn.apply(obj, deps);\n          }\n          }\n          else if (!(flags & exports.InjectFlags.Self)) {\n            value
= parent.get(token, notFoundValue, exports.InjectFlags.Default);\n          }\n          else if (!(flags &
exports.InjectFlags.Optional)) {\n            value = Injector.NULL.get(token, notFoundValue);\n          }\n          else {\n
            value = Injector.NULL.get(token, typeof notFoundValue !== 'undefined' ? notFoundValue : null);\n          }\n
          return value;\n        }\n        function computeDeps(provider) {\n          var deps = EMPTY;\n          var providerDeps =
provider.deps;\n          if (providerDeps && providerDeps.length) {\n            deps = [];\n            for (var i = 0; i <
providerDeps.length; i++) {\n              var options = 6 /* Default */;\n              var token =
resolveForwardRef(providerDeps[i]);\n              if (Array.isArray(token)) {\n                for (var j = 0, annotations
= token; j < annotations.length; j++)\n                  {\n                    var annotation = annotations[j];\n                    if (annotation instanceof Optional || annotation
== Optional) {\n                      options = options | 1 /* Optional */;\n                    }\n                    else if
(annotation instanceof SkipSelf || annotation == SkipSelf) {\n                      options = options & ~2 /* CheckSelf
*/;\n                    }\n                    else if (annotation instanceof Self || annotation == Self) {\n
                      options = options & ~4 /* CheckParent */;\n                    }\n                    else if (annotation instanceof Inject)
{\n                      token = annotation.token;\n                    }\n                    else {\n                      token =
resolveForwardRef(annotation);\n                    }\n                    }\n                    }\n                    }\n                    deps.push({ token: token,
options: options });\n                  }\n                }\n                else if (provider.useExisting) {\n                  var token =
resolveForwardRef(provider.useExisting);\n                  deps = [{ token: token, options: 6 /* Default */ }];\n                }\n
                else if (!providerDeps && !(USE_VALUE in provider)) {\n                  // useValue & useExisting are the only ones
which are exempt from deps all others need it.\n                  throw staticError("\\'deps\\' required", provider);\n                }\n
                return deps;\n              }\n              function staticError(text, obj) {\n                return new Error(formatError(text, obj,
'StaticInjectorError'));\n              }\n              /**\n               * Retrieves the component instance associated with a given DOM
element.\n               * @usageNotes\n               * Given the following DOM structure:\n               * ```html\n               * <my-app>\n               *
<div>\n               *   <child-comp></child-comp>\n               * </div>\n               * </my-app>\n               * ```\n               * Calling

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`getComponent` on `` will return the instance of `ChildComponent`
    *
    associated with this DOM element.
    *
    * Calling the function on `` will return the `MyApp`
    instance.
    *
    * @param element DOM element from which the component should be retrieved.
    *
    @returns Component instance associated with the element or `null` if there
    is no component associated with it.
    *
    * @publicApi
    * @globalApi ng
    */
function getComponent(element) {
    assertDomElement(element);
    var context = loadLContext(element, false);
    if (context === null)
        return null;
    if (context.component === undefined) {
        context.component =
            getComponentAtNodeIndex(context.nodeIndex, context.IView);
    }
    return context.component;
}

/**
 * If inside an embedded view (e.g. `*ngIf` or `*ngFor`), retrieves the context of the embedded
 * view that the element is part of. Otherwise retrieves the instance of the component whose view
 * owns the element (in this case, the result is the same as calling `getOwningComponent`).
 *
 * @param element Element for which to get the surrounding component instance.
 *
 * @returns Instance of the component that is around the element or null if the element isn't
 * inside any component.
 *
 * @publicApi
 * @globalApi ng
    */
function getContext(element) {
    assertDomElement(element);
    var context = loadLContext(element, false);
    return context === null ? null : context.IView[CONTEXT];
}

/**
 * Retrieves the component instance whose view contains the DOM element.
 *
 * For example, if `` is used in the template of ``
 * (i.e. a `ViewChild` of ``), calling `getOwningComponent` on
 * `` would return ``.
 *
 * @param elementOrDir DOM element, component or directive instance
 * for which to retrieve the root components.
 *
 * @returns Component instance whose view owns the DOM element or null if the element is not
 * part of a component view.
 *
 * @publicApi
 * @globalApi ng
    */
function getOwningComponent(elementOrDir) {
    var context = loadLContext(elementOrDir, false);
    if (context === null)
        return null;
    var IView = context.IView;
    var parent;
    ngDevMode && assertLView(IView);
    while (IView[TVIEW].type === 2 /* Embedded */ && (parent =
        getLViewParent(IView))) {
        IView = parent;
    }
    return IView[FLAGS] & 512 /* IsRoot */ ? null : IView[CONTEXT];
}

/**
 * Retrieves all root components associated with a DOM element, directive
 * or component instance.
 *
 * Root components are those which have been bootstrapped by Angular.
 *
 * @param elementOrDir DOM element, component or directive instance
 * for which to retrieve the root components.
 *
 * @returns Root components associated with the target object.
 *
 * @publicApi
 * @globalApi ng
    */
function getRootComponents(elementOrDir) {
    return __spread(getRootContext(elementOrDir).components);
}

/**
 * Retrieves an `Injector` associated with an element, component or directive instance.
 *
 * @param elementOrDir DOM element, component or directive instance
 * for which to retrieve the injector.
 *
 * @returns Injector associated with the element, component or directive instance.
 *
 * @publicApi
 * @globalApi ng
    */
function getInjector(elementOrDir) {
    var context = loadLContext(elementOrDir, false);
    if (context === null)
        return Injector.NULL;
    var tNode = context.IView[TVIEW].data[context.nodeIndex];
    return new NodeInjector(tNode, context.IView);
}

/**
 * Retrieve a set of injection tokens at a given DOM node.
 *
 * @param element Element for which the injection tokens should be retrieved.
 *
    */
function getInjectionTokens(element) {
    var context = loadLContext(element, false);
    if (context === null)
        return [];
    var IView = context.IView;
    var tView = IView[TVIEW];
    var tNode = tView.data[context.nodeIndex];
    var providerTokens = [];
    var startIndex = tNode.providerIndexes & 1048575 /* ProvidersStartIndexMask */;
    var endIndex = tNode.directiveEnd;
    for (var i = startIndex; i < endIndex; i++) {
        var value = tView.data[i];
        if (isDirectiveDefHack(value)) {
            // The fact that we sometimes store Type and sometimes DirectiveDef in this location is a
            // design flaw. We should always store same type so that we can be monomorphic. The issue
            // is that for Components/Directives we store the def instead the type. The correct behavior

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        // is that we should always be storing injectable type in this location.\n        value = value.type;\n    }\n    providerTokens.push(value);\n    }\n    return providerTokens;\n    }\n    /**\n     * Retrieves directive instances associated with a given DOM element. Does not include\n     * component instances.\n     *\n     * @usageNotes\n     * Given the following DOM structure:\n     * <my-app>\n     * <button my-button></button>\n     * <my-comp></my-comp>\n     * </my-app>\n     * Calling `getDirectives` on `<button>` will return an array with an instance of the `MyButton` directive that is associated with the DOM element.\n     *\n     * Calling `getDirectives` on `<my-comp>` will return an empty array.\n     *\n     * @param element DOM element for which to get the directives.\n     * @returns Array of directives associated with the element.\n     *\n     * @publicApi\n     * @globalApi ng\n     *\n     * function getDirectives(element) {\n     *     var context = loadLContext(element);\n     *     if (context.directives === undefined) {\n     *         context.directives = getDirectivesAtNodeIndex(context.nodeIndex, context.IView, false);\n     *     }\n     *     // The `directives` in this case are a named array called `LComponentView`. Clone the result so we don't expose an internal data structure in the user's console.\n     *     return context.directives === null ? [] : __spread(context.directives);\n     * }\n     * function loadLContext(target, throwOnNotFound) {\n     *     if (throwOnNotFound === void 0) { throwOnNotFound = true; }\n     *     var context = getLContext(target);\n     *     if (!context && throwOnNotFound) {\n     *         throw new Error(ngDevMode ? "Unable to find context associated with '" + stringifyForError(target) : "Invalid ng target");\n     *     }\n     *     return context;\n     * }\n     * /**\n     * Retrieve map of local references.\n     *\n     * The references are retrieved as a map of local reference name to element or directive instance.\n     *\n     * @param target DOM element, component or directive instance for which to retrieve\n     * the local references.\n     *\n     * function getLocalRefs(target) {\n     *     var context = loadLContext(target, false);\n     *     if (context === null)\n     *     return {};\n     *     if (context.localRefs === undefined) {\n     *         context.localRefs = discoverLocalRefs(context.IView, context.nodeIndex);\n     *     }\n     *     return context.localRefs || {};\n     * }\n     * /**\n     * Retrieves the host element of a component or directive instance.\n     * The host element is the DOM element that matched the selector of the directive.\n     *\n     * @param componentOrDirective Component or directive instance for which the host\n     * element should be retrieved.\n     * @returns Host element of the target.\n     *\n     * @publicApi\n     * @globalApi ng\n     *\n     * function getHostElement(componentOrDirective) {\n     *     return getLContext(componentOrDirective).native;\n     * }\n     * /**\n     * Retrieves the rendered text for a given component.\n     *\n     * This function retrieves the host element of a component and\n     * and then returns the `textContent` for that element. This implies\n     * that the text returned will include re-projected content of\n     * the component as well.\n     *\n     * @param component The component to return the content text for.\n     *\n     * function getRenderedText(component) {\n     *     var hostElement = getHostElement(component);\n     *     return hostElement.textContent || '';\n     * }\n     * function loadLContextFromNode(node) {\n     *     if (!(node instanceof Node))\n     *         throw new Error('Expecting instance of DOM Element');\n     *     return loadLContext(node);\n     * }\n     * /**\n     * Retrieves a list of event listeners associated with a DOM element. The list does include host\n     * listeners, but it does not include event listeners defined outside of the Angular context\n     * (e.g. through `addEventListener`).\n     *\n     * @usageNotes\n     * Given the following DOM structure:\n     * <my-app>\n     * <div (click)=\"doSomething()\"></div>\n     * </my-app>\n     * Calling `getListeners` on `<div>` will return an object that looks as follows:\n     * {\n     *   name: 'click',\n     *   element: <div>,\n     *   callback: () => doSomething(),\n     *   useCapture: false\n     * }\n     *\n     * @param element Element for which the DOM listeners should be retrieved.\n     * @returns Array of event listeners on the DOM element.\n     *\n     * @publicApi\n     * @globalApi ng\n     *\n     * function getListeners(element) {\n     *     assertDomElement(element);\n     *     var lContext = loadLContext(element, false);\n     *     if (lContext === null)\n     *     return [];\n     *     var lView = lContext.IView;\n     *     var tView = lView[TVIEW];\n     *     var lCleanup = lView[CLEANUP];\n     *     var tCleanup = tView.cleanup;\n     *     var listeners = [];\n     *     if (tCleanup && lCleanup) {\n     *         for (var i = 0; i < tCleanup.length; i++) {\n     *             var firstParam = tCleanup[i++];\n     *             var secondParam = tCleanup[i++];\n     *             if (typeof firstParam === 'string') {\n
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    var name = firstParam;\n          var listenerElement = unwrapRNode(IView[secondParam]);\n
var callback = ICleanup[tCleanup[i++]];\n          var useCaptureOrIndx = tCleanup[i++];\n          // if
useCaptureOrIndx is boolean then report it as is.\n          // if useCaptureOrIndx is positive number then it in
unsubscribe method\n          // if useCaptureOrIndx is negative number then it is a Subscription\n
var type = (typeof useCaptureOrIndx === 'boolean' || useCaptureOrIndx >= 0) ? 'dom' : 'output';\n          var
useCapture
= typeof useCaptureOrIndx === 'boolean' ? useCaptureOrIndx : false;\n          if (element == listenerElement)
{\n          listeners.push({ element: element, name: name, callback: callback, useCapture: useCapture, type:
type });\n          }\n          }\n          }\n          }\n          listeners.sort(sortListeners);\n          return listeners;\n
}\n  function sortListeners(a, b) {\n    if (a.name == b.name)\n      return 0;\n    return a.name < b.name ? -1
: 1;\n  }\n  /**\n   * This function should not exist because it is megamorphic and only mostly correct.\n   *\n
* See call site for more info.\n   */\n  function isDirectiveDefHack(obj) {\n    return obj.type !== undefined &&
obj.template !== undefined && obj.declaredInputs !== undefined;\n  }\n  /**\n   * Returns the attached
`DebugNode` instance for an element in the DOM.\n   *\n   * @param element DOM element which is owned by
an existing
component's view.\n   */\n  function getDebugNode(element) {\n    var debugNode = null;\n    var IContext
= loadLContextFromNode(element);\n    var IView = IContext.IView;\n    var nodeIndex =
IContext.nodeIndex;\n    if (nodeIndex !== -1) {\n      var valueInLView = IView[nodeIndex];\n      // this
means that value in the IView is a component with its own\n      // data. In this situation the TNode is not
accessed at the same spot.\n      var tNode = isLView(valueInLView) ? valueInLView[T_HOST] :
getNode(IView[TVIEW], nodeIndex);\n      ngDevMode &&\n      assertEqual(tNode.index, nodeIndex,
'Expecting that TNode at index is same as index');\n      debugNode = buildDebugNode(tNode, IView);\n    }\n
    return debugNode;\n  }\n  /**\n   * Retrieve the component `LView` from component/element.\n   *\n   *
NOTE: `LView` is a private and should not be leaked outside.\n   * Don't export this method
to `ng.*` on window.\n   *\n   * @param target DOM element or component instance for which to retrieve the
LView.\n   */\n  function getComponentLView(target) {\n    var IContext = loadLContext(target);\n    var
nodeIdx = IContext.nodeIndex;\n    var IView = IContext.IView;\n    var componentLView =
IView[nodeIdx];\n    ngDevMode && assertLView(componentLView);\n    return componentLView;\n  }\n
  /** Asserts that a value is a DOM Element. */\n  function assertDomElement(value) {\n    if (typeof Element !==
'undefined' && !(value instanceof Element)) {\n      throw new Error('Expecting instance of DOM Element');\n
    }\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this
source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   *\n   * Marks a component for check (in case of OnPush components)
and synchronously\n   * performs change detection on the application this component belongs to.\n   *\n   *
@param component Component to { @link ChangeDetectorRef#markForCheck mark for check }.\n   *\n   *
@publicApi\n   * @globalApi ng\n   */\n  function applyChanges(component) {\n    markDirty(component);\n
    getRootComponents(component).forEach(function (rootComponent) { return detectChanges(rootComponent);
});\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this
source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at
https://angular.io/license\n   *\n   * This file introduces series of globally accessible debug tools\n   * to
allow for the Angular debugging story to function.\n   *\n   * To see this in action run the following command:\n
*\n   * bazel run --config=ivy\n   * //packages/core/test/bundling/todo:devserver\n   *\n   * Then load `localhost:5432` and start using the console tools.\n   *\n   * This value reflects the
property on the window where the dev\n   * tools are patched (window.ng).\n   */\n  var
GLOBAL_PUBLISH_EXPANDO_KEY = 'ng';\n  var _published = false;\n  /**\n   * Publishes a collection of
default debug tools onto `window.ng`.\n   *\n   * These functions are available globally when Angular is in
development\n   * mode and are automatically stripped away from prod mode is on.\n   */\n  function
publishDefaultGlobalUtils() {\n    if (!_published) {\n      _published = true;\n

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publishGlobalUtil('getComponent', getComponent);\n      publishGlobalUtil('getContext', getContext);\npublishGlobalUtil('getListeners', getListeners);\n      publishGlobalUtil('getOwningComponent',\ngetOwningComponent);\n      publishGlobalUtil('getHostElement', getHostElement);\npublishGlobalUtil('getInjector',\ngetInjector);\n      publishGlobalUtil('getRootComponents', getRootComponents);\npublishGlobalUtil('getDirectives', getDirectives);\n      publishGlobalUtil('applyChanges', applyChanges);\n}\n }\n /**\n  * Publishes the given function to `window.ng` so that it can be\n  * used from the browser\n  console when an application is not in production.\n  */\n  function publishGlobalUtil(name, fn) {\n    if (typeof\nCOMPILED === 'undefined' || !COMPILED) {\n      // Note: we can't export `ng` when using closure enhanced\n  optimization as:\n      // - closure declares globals itself for minified names, which sometimes clobber our `ng`\n  global\n      // - we can't declare a closure extern as the namespace `ng` is already used within Google\n      //\n  for typings for AngularJS (via `goog.provide('ng...')`).\n      var w = _global;\n      ngDevMode &&\n  assertDefined(fn, 'function not defined');\n      if\n  (w) {\n        var container = w[GLOBAL_PUBLISH_EXPANDO_KEY];\n        if (!container) {\n          container = w[GLOBAL_PUBLISH_EXPANDO_KEY] = {};\n          container[name] = fn;\n        }\n      }\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of\n  this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at\n  https://angular.io/license\n     */\n    var 0$7 = function (token, notFoundValue) {\n      throwProviderNotFoundError(token, 'NullInjector');\n    };\n    // TODO: A hack to not pull in the NullInjector from\n  @angular/core.\n    var NULL_INJECTOR$1 = {\n      get: 0$7\n    };\n    /**\n     * Bootstraps a Component into\n  an existing host element and returns an instance\n     * of the component.\n     * Use this function to bootstrap\n  a component into the DOM tree. Each invocation\n     * of this function will create\n  a separate tree of components, injectors and\n     * change detection cycles and lifetimes. To dynamically insert a\n  new component\n     * into an existing tree such that it shares the same injection, change detection\n     * and object\n  lifetime, use { @link ViewContainer#createComponent }. \n     * @param componentType Component to\n  bootstrap\n     * @param options Optional parameters which control bootstrapping\n     */\n    function\n  renderComponent$1(componentType /* Type as workaround for: Microsoft/TypeScript/issues/4881 */, opts) {\n      if (opts === void 0) { opts = {}; }\n      ngDevMode && publishDefaultGlobalUtils();\n      ngDevMode &&\n  assertComponentType(componentType);\n      var rendererFactory = opts.rendererFactory ||\n  domRendererFactory3;\n      var sanitizer = opts.sanitizer || null;\n      var componentDef =\n  getComponentDef(componentType);\n      if (componentDef.type !== componentType)\n        componentDef.type\n  = componentType;\n      // The\n  first index of the first selector is the tag name.\n      var componentTag = componentDef.selectors[0][0];\n      var\n  hostRenderer = rendererFactory.createRenderer(null, null);\n      var hostRNode =\n  locateHostElement(hostRenderer, opts.host || componentTag, componentDef.encapsulation);\n      var rootFlags =\n  componentDef.onPush ? 64 /* Dirty */ | 512 /* IsRoot */ : 16 /* CheckAlways */ | 512 /* IsRoot */;\n      var rootContext = createRootContext(opts.scheduler, opts.playerHandler);\n      var renderer =\n  rendererFactory.createRenderer(hostRNode, componentDef);\n      var rootTView = createTView(0 /* Root */,\n  null, null, 1, 0, null, null, null, null);\n      var rootView = createLView(null, rootTView, rootContext,\n  rootFlags, null, null, rendererFactory, renderer, null, opts.injector || null);\n      enterView(rootView);\n      var\n  component;\n      try {\n        if (rendererFactory.begin)\n          rendererFactory.begin();\n        var componentView = createRootComponentView(hostRNode, componentDef, rootView, rendererFactory,\n  renderer, sanitizer);\n        component = createRootComponent(componentView, componentDef, rootView,\n  rootContext, opts.hostFeatures || null);\n        // create mode pass\n        renderView(rootTView, rootView,\n  null);\n        // update mode pass\n        refreshView(rootTView, rootView, null, null);\n      } finally {\n        leaveView();\n        if (rendererFactory.end)\n          rendererFactory.end();\n      }\n      return\n  component;\n    }\n    /**\n     * Creates the root component view and the root component node.\n     */\n    @param rNode Render host element.\n    @param def ComponentDef\n    @param rootView The parent view

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where the host node is stored\n    * @param rendererFactory Factory to be used for creating child renderers.\n    *\n    @param hostRenderer The current renderer\n    * @param sanitizer The sanitizer,\n    if provided\n    *\n    * @returns Component view created\n    */\n    function createRootComponentView(rNode,\n    def, rootView, rendererFactory, hostRenderer, sanitizer) {\n        var tView = rootView[TVIEW];\n        var index =\n    HEADER_OFFSET;\n        ngDevMode && assertIndexInRange(rootView, index);\n        rootView[index] =\n    rNode;\n        // '#host' is added here as we don't know the real host DOM name (we don't want to read it) and at\n        // the same time we want to communicate the the debug `TNode` that this is a special `TNode`\n        // representing\n    a host element.\n        var tNode = getOrCreateTNode(tView, index, 2 /* Element */, '#host', null);\n        var\n    mergedAttrs = tNode.mergedAttrs = def.hostAttrs;\n        if (mergedAttrs !== null) {\n            computeStaticStyling(tNode, mergedAttrs, true);\n            if (rNode !== null) {\n                setUpAttributes(hostRenderer, rNode, mergedAttrs);\n                if (tNode.classes !== null) {\n                    writeDirectClass(hostRenderer, rNode, tNode.classes);\n                }\n                if (tNode.styles !== null) {\n                    writeDirectStyle(hostRenderer, rNode, tNode.styles);\n                }\n            }\n        }\n        var\n    viewRenderer = rendererFactory.createRenderer(rNode, def);\n        var componentView = createLView(rootView,\n    getOrCreateTComponentView(def), null, def.onPush ? 64 /* Dirty */ : 16 /* CheckAlways */, rootView[index],\n    tNode, rendererFactory, viewRenderer, sanitizer || null, null);\n        if (tView.firstCreatePass) {\n            diPublicInInjector(getOrCreateNodeInjectorForNode(tNode, rootView), tView, def.type);\n            markAsComponentHost(tView, tNode);\n            initTNodeFlags(tNode, rootView.length, 1);\n        }\n        addToViewTree(rootView, componentView);\n        // Store component view at node index, with node as the\n    HOST\n        return rootView[index] = componentView;\n    }\n    /**\n    * Creates a root\n    component and sets it up with features and host bindings. Shared by\n    * renderComponent() and\n    ViewContainerRef.createComponent().\n    */\n    function createRootComponent(componentView, componentDef,\n    rootLView, rootContext, hostFeatures) {\n        var tView = rootLView[TVIEW];\n        // Create directive instance\n    with factory() and store at next index in viewData\n        var component = instantiateRootComponent(tView,\n    rootLView, componentDef);\n        rootContext.components.push(component);\n        componentView[CONTEXT]\n    = component;\n        hostFeatures && hostFeatures.forEach(function (feature) {\n            return feature(component,\n    componentDef);\n        });\n        // We want to generate an empty QueryList for root content queries for backwards\n    // compatibility with ViewEngine.\n        if (componentDef.contentQueries) {\n            var tNode =\n    getCurrentTNode();\n            ngDevMode && assertDefined(tNode, 'TNode expected');\n            componentDef.contentQueries(1 /* Create\n    */,\n            component, tNode.directiveStart);\n        }\n        var rootTNode = getCurrentTNode();\n        ngDevMode &&\n    assertDefined(rootTNode, 'tNode should have been already created');\n        if (tView.firstCreatePass &&\n    (componentDef.hostBindings !== null || componentDef.hostAttrs !== null)) {\n            setSelectedIndex(rootTNode.index);\n            var rootTView = rootLView[TVIEW];\n            registerHostBindingOpCodes(rootTView, rootTNode, rootLView, rootTNode.directiveStart,\n    rootTNode.directiveEnd, componentDef);\n            invokeHostBindingsInCreationMode(componentDef,\n    component);\n        }\n        return component;\n    }\n    function createRootContext(scheduler, playerHandler) {\n        return {\n            components: [],\n            scheduler: scheduler || defaultScheduler,\n            clean:\n    CLEAN_PROMISE,\n            playerHandler: playerHandler || null,\n            flags: 0 /* Empty */\n        };\n    }\n    /**\n    * Used to enable lifecycle\n    hooks on the root component.\n    */\n    * Include this feature when calling `renderComponent` if the root\n    component\n    * you are rendering has lifecycle hooks defined. Otherwise, the hooks won't\n    * be called\n    properly.\n    */\n    * Example:\n    */\n    * ```\n    * renderComponent(AppComponent, {hostFeatures:\n    [LifecycleHooksFeature]});\n    * ```\n    */\n    function LifecycleHooksFeature(component, def) {\n        var\n    lView = readPatchedLView(component);\n        ngDevMode && assertDefined(lView, 'LView is required');\n        var tView = lView[TVIEW];\n        var tNode = getCurrentTNode();\n        ngDevMode && assertDefined(tNode,\n    'TNode is required');\n        registerPostOrderHooks(tView, tNode);\n    }\n    /**\n    * Wait on component until it\n    is rendered.\n    */\n    * This function returns a `Promise` which is resolved when the component's\n    * change

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detection is executed. This is determined by finding the scheduler\n    * associated with the
`component`'s render tree and waiting until the scheduler\n    * flushes. If nothing is scheduled, the function returns
a resolved promise.\n    * Example:\n    * ```\n    * await whenRendered(myComponent);\n    * ```\n    *\n    * @param component Component to wait upon\n    * @returns Promise which resolves when the component is
rendered.\n    *\n    function whenRendered(component) {\n        return getRootContext(component).clean;\n    }\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code
is governed by an MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    *\n    function getSuperType(type) {\n        return Object.getPrototypeOf(type.prototype).constructor;\n    }\n\n    /**\n    * Merges the definition from a super class to a sub class.\n    * @param definition The definition that is a
SubClass of another directive of component\n    *\n    * @codeGenApi\n\n    *\n    function InheritDefinitionFeature(definition) {\n        var superType = getSuperType(definition.type);\n        var shouldInheritFields = true;\n        var inheritanceChain = [definition];\n        while (superType) {\n            var
superDef = undefined;\n            if (isComponentDef(definition)) {\n                // Don't use
getComponentDef/getDirectiveDef. This logic relies on inheritance.\n                superDef = superType.cmp ||
superType.dir;\n            } else {\n                if (superType.cmp) {\n                    throw new Error('Directives
cannot inherit Components');\n                }\n                // Don't use getComponentDef/getDirectiveDef. This logic
relies on inheritance.\n                superDef = superType.dir;\n            }\n            if (superDef) {\n                if
(shouldInheritFields) {\n                    inheritanceChain.push(superDef);\n                } // Some fields in the definition
may
                be empty, if there were no values to put in them that\n                // would've justified object creation. Unwrap
them if necessary.\n                var writeableDef = definition;\n                writeableDef.inputs =
maybeUnwrapEmpty(definition.inputs);\n                writeableDef.declaredInputs =
maybeUnwrapEmpty(definition.declaredInputs);\n                writeableDef.outputs =
maybeUnwrapEmpty(definition.outputs);\n                // Merge hostBindings\n                var superHostBindings
= superDef.hostBindings;\n                superHostBindings && inheritHostBindings(definition,
superHostBindings);\n                // Merge queries\n                var superViewQuery = superDef.viewQuery;\n                var
superContentQueries = superDef.contentQueries;\n                superViewQuery &&
inheritViewQuery(definition, superViewQuery);\n                superContentQueries &&
inheritContentQueries(definition, superContentQueries);\n\n                // Merge inputs and outputs\n                fillProperties(definition.inputs, superDef.inputs);\n                fillProperties(definition.declaredInputs, superDef.declaredInputs);\n                fillProperties(definition.outputs,
superDef.outputs);\n                // Merge animations metadata.\n                // If `superDef` is a Component, the
`data` field is present (defaults to an empty object).\n                if (isComponentDef(superDef) &&
superDef.data.animation) {\n                    // If super def is a Component, the `definition` is also a Component,
since Directives can\n                    // not inherit Components (we throw an error above and cannot reach this
code).\n                    var defData = definition.data;\n                    defData.animation = (defData.animation ||
[]).concat(superDef.data.animation);\n                }\n                // Run parent features\n                var features = superDef.features;\n                if (features) {\n                    for (var i = 0; i < features.length;
i++) {\n                        var feature = features[i];\n                        if (feature && feature.ngInherit) {\n                            feature(definition);\n                        }\n                    } // If `InheritDefinitionFeature` is a part of the current
`superDef`, it means that this\n                    // def already has all the necessary information inherited from its super
class(es), so we\n                    // can stop merging fields from super classes. However we need to iterate through
the\n                    // prototype chain to look for classes that might contain other `"features"` (like\n                    //
NgOnChanges), which we should invoke for the original `definition`. We set the\n                    //
`shouldInheritFields` flag to indicate that, essentially skipping fields
inheritance\n                    // logic and only invoking functions from the `"features"` list.\n                    if (feature
=== InheritDefinitionFeature) {\n                        shouldInheritFields = false;\n                    }\n                }\n                superType = Object.getPrototypeOf(superType);\n            }\n        }\n    }

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mergeHostAttrsAcrossInheritance(inheritanceChain);\n  }\n  /**\n   * Merge the `hostAttrs` and `hostVars` from
the inherited parent to the base class.\n   *\n   * @param inheritanceChain A list of `WritableDefs` starting at the
top most type and listing\n   * sub-types in order. For each type take the `hostAttrs` and `hostVars` and merge it
with the child\n   * type.\n   */\n  function mergeHostAttrsAcrossInheritance(inheritanceChain) {\n    var
hostVars = 0;\n    var hostAttrs = null;\n    // We process the inheritance order from the base to the leaves
here.\n    for (var i = inheritanceChain.length - 1; i >= 0; i--) {\n      var def = inheritanceChain[i];\n      // For each
`hostVars`, we need to add the superclass amount.\n      def.hostVars = (hostVars += def.hostVars);\n      //
for each `hostAttrs` we need to merge it with superclass.\n      def.hostAttrs =\n      mergeHostAttrs(def.hostAttrs, hostAttrs = mergeHostAttrs(hostAttrs, def.hostAttrs));\n    }\n  }\n  function
maybeUnwrapEmpty(value) {\n    if (value === EMPTY_OBJ) {\n      return {};\n    }\n    else if (value
=== EMPTY_ARRAY) {\n      return [];\n    }\n    else {\n      return value;\n    }\n  }\n  function
inheritViewQuery(definition, superViewQuery) {\n    var prevViewQuery = definition.viewQuery;\n    if
(prevViewQuery) {\n      definition.viewQuery = function (rf, ctx) {\n        superViewQuery(rf, ctx);\n
prevViewQuery(rf, ctx);\n      };\n    }\n    else {\n      definition.viewQuery = superViewQuery;\n    }\n  }\n  function
inheritContentQueries(definition, superContentQueries) {\n    var prevContentQueries =
definition.contentQueries;\n    if (prevContentQueries) {\n      definition.contentQueries = function (rf, ctx,
directiveIndex) {\n        superContentQueries(rf, ctx, directiveIndex);\n        prevContentQueries(rf, ctx,
directiveIndex);\n      };\n    }\n    else {\n      definition.contentQueries = superContentQueries;\n    }\n  }\n  function
inheritHostBindings(definition, superHostBindings) {\n    var prevHostBindings =
definition.hostBindings;\n    if (prevHostBindings) {\n      definition.hostBindings = function (rf, ctx) {\n
superHostBindings(rf, ctx);\n      prevHostBindings(rf, ctx);\n    };\n    }\n    else {\n
definition.hostBindings = superHostBindings;\n    }\n  }\n}\n\n/**\n * Fields which exist on either directive or component definitions, and need to be copied
from\n * parent to child classes by the `CopyDefinitionFeature`.\n */\n var COPY_DIRECTIVE_FIELDS =
[\n  // The child class should use the providers of its parent.\n  'providersResolver',\n ];\n /**\n * Fields
which exist only on component definitions, and need to be copied from parent to child\n * classes by the
`CopyDefinitionFeature`.\n */\n * The type here allows any field of `ComponentDef` which is not also a
property of `DirectiveDef`,\n * since those should go in `COPY_DIRECTIVE_FIELDS` above.\n */\n var
COPY_COMPONENT_FIELDS = [\n  // The child class should use the template function of its parent,
including all template\n  // semantics.\n  'template',\n  'decls',\n  'consts',\n  'vars',\n
'onPush',\n  'ngContentSelectors',\n  // The child class
should use the CSS styles of its parent, including all styling semantics.\n  'styles',\n  'encapsulation',\n  //
The child class should be checked by the runtime in the same way as its parent.\n  'schemas',\n ];\n /**\n *
Copies the fields not handled by the `InheritDefinitionFeature` from the supertype of a\n * definition.\n */\n *
This exists primarily to support ngcc migration of an existing View Engine pattern, where an\n * entire decorator
is inherited from a parent to a child class. When ngcc detects this case, it\n * generates a skeleton definition on the
child class, and applies this feature.\n */\n * The `CopyDefinitionFeature` then copies any needed fields from
the parent class' definition,\n * including things like the component template function.\n */\n * @param
definition The definition of a child class which inherits from a parent class with its\n * own definition.\n */\n
* @codeGenApi\n\n  */\n  function CopyDefinitionFeature(definition) {\n    var e_1, _a, e_2, _b;\n    var superType =
getSuperType(definition.type);\n    var superDef = undefined;\n    if (isComponentDef(definition)) {\n      //
Don't use getComponentDef/getDirectiveDef. This logic relies on inheritance.\n      superDef =
superType.cmp;\n    }\n    else {\n      // Don't use getComponentDef/getDirectiveDef. This logic relies on
inheritance.\n      superDef = superType.dir;\n    }\n    // Needed because `definition` fields are readonly.\n
var defAny = definition;\n    try {\n      // Copy over any fields that apply to either directives or

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components.\n      for (var COPY_DIRECTIVE_FIELDS_1 = __values(COPY_DIRECTIVE_FIELDS),
COPY_DIRECTIVE_FIELDS_1_1 = COPY_DIRECTIVE_FIELDS_1.next();
!COPY_DIRECTIVE_FIELDS_1_1.done; COPY_DIRECTIVE_FIELDS_1_1 =
COPY_DIRECTIVE_FIELDS_1.next()) {\n          var field = COPY_DIRECTIVE_FIELDS_1_1.value;\n          defAny[field] = superDef[field];\n          }\n      }\n      catch (e_1_1) { e_1 = { error: e_1_1 }; }\n      finally {\n          try {\n              if (COPY_DIRECTIVE_FIELDS_1_1 &&
!COPY_DIRECTIVE_FIELDS_1_1.done && (_a = COPY_DIRECTIVE_FIELDS_1.return))
_a.call(COPY_DIRECTIVE_FIELDS_1);\n          }\n          finally { if (e_1) throw e_1.error; }\n      }\n      if
(isComponentDef(superDef)) {\n          try {\n              // Copy over any component-specific fields.\n          } for
(var COPY_COMPONENT_FIELDS_1 = __values(COPY_COMPONENT_FIELDS),
COPY_COMPONENT_FIELDS_1_1 = COPY_COMPONENT_FIELDS_1.next();
!COPY_COMPONENT_FIELDS_1_1.done; COPY_COMPONENT_FIELDS_1_1 =
COPY_COMPONENT_FIELDS_1.next()) {\n              var field =
COPY_COMPONENT_FIELDS_1_1.value;\n              defAny[field] = superDef[field];\n          }\n      }\n      catch (e_2_1) { e_2 = { error: e_2_1 }; }\n      finally {\n          try {\n              if (COPY_COMPONENT_FIELDS_1_1 &&
!COPY_COMPONENT_FIELDS_1_1.done && (_b = COPY_COMPONENT_FIELDS_1.return))
_b.call(COPY_COMPONENT_FIELDS_1);\n          }\n          finally { if (e_2) throw e_2.error; }\n      }\n      }\n      }\n      }\n      /**\n       * @license\n       * Copyright Google LLC All Rights Reserved.\n       * Use of this
source code is governed by an MIT-style license that can be\n       * found in the LICENSE file at
https://angular.io/license\n       *\n       var _symbolIterator = null;\n       function getSymbolIterator() {\n       if
(!_symbolIterator) {\n           var Symbol = _global['Symbol'];\n           if (Symbol && Symbol.iterator) {\n
_symbolIterator = Symbol.iterator;\n           }\n           else {\n               // es6-shim specific logic\n               var
keys = Object.getOwnPropertyNames(Map.prototype);\n               for (var i = 0; i < keys.length; ++i) {\n
var key = keys[i];\n               if (key !== 'entries' && key !== 'size' &&\n
Map.prototype[key] === Map.prototype['entries']) {\n                   _symbolIterator = key;\n               }\n           }\n       }\n       }\n       }\n       return _symbolIterator;\n       }\n      }\n      /**\n       * @license\n       * Copyright Google LLC
All Rights Reserved.\n       * Use of this source code is governed by an MIT-style license that can be\n       *
found in the LICENSE file at https://angular.io/license\n       *\n       function devModeEqual(a, b) {\n       var
isListLikeIterableA = isListLikeIterable(a);\n       var isListLikeIterableB = isListLikeIterable(b);\n       if
(isListLikeIterableA && isListLikeIterableB) {\n           return areIterablesEqual(a, b, devModeEqual);\n       }\n       else {\n           var isAObject = a && (typeof a === 'object' || typeof a === 'function');\n           var isBObject = b
&& (typeof b
=== 'object' || typeof b === 'function');\n           if (!isListLikeIterableA && isAObject && !isListLikeIterableB
&& isBObject) {\n               return true;\n           }\n           else {\n               return Object.is(a, b);\n           }\n       }\n       }\n      /**\n       * Indicates that the result of a {@link Pipe} transformation has changed even though the\n       *
reference has not changed.\n       * \n       * Wrapped values are unwrapped automatically during the change detection,
and the unwrapped value\n       * is stored.\n       * \n       * Example:\n       * \n       * ```\n       * if (this._latestValue ===
this._latestReturnedValue) {\n       *     return this._latestReturnedValue;\n       * } else {\n       *
this._latestReturnedValue = this._latestValue;\n       *     return WrappedValue.wrap(this._latestValue); // this will
force update\n       * }\n       * ```\n       * \n       * @publicApi\n       * @deprecated from v10 stop using. (No replacement,
deemed unnecessary.)\n       * \n       var
WrappedValue = /** @class */ (function () {\n       function WrappedValue(value) {\n           this.wrapped =
value;\n       }\n       /** Creates a wrapped value. */\n       WrappedValue.wrap = function (value) {\n           return
new WrappedValue(value);\n       };\n       /**\n        * Returns the underlying value of a wrapped value.\n        *
Returns the given `value` when it is not wrapped.\n        */\n       WrappedValue.unwrap = function (value) {\n
return WrappedValue.isWrapped(value) ? value.wrapped : value;\n       };\n       /** Returns true if `value` is a
wrapped value. */\n       WrappedValue.isWrapped = function (value) {\n           return value instanceof

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WrappedValue;\n    };\n    return WrappedValue;\n }());\n function isListLikeIterable(obj) {\n    if
(!isJsObject(obj))\n        return false;\n    return Array.isArray(obj) ||\n        (!(obj instanceof Map) && // JS
Map are iterables but return entries as
[k, v]\n        getSymbolIterator() in obj)); // JS Iterable have a Symbol.iterator prop\n };\n function
areIterablesEqual(a, b, comparator) {\n    var iterator1 = a[getSymbolIterator()]();\n    var iterator2 =
b[getSymbolIterator()]();\n    while (true) {\n        var item1 = iterator1.next();\n        var item2 =
iterator2.next();\n        if (item1.done && item2.done)\n            return true;\n        if (item1.done ||
item2.done)\n            return false;\n        if (!comparator(item1.value, item2.value))\n            return false;\n
    }\n }\n function iterateListLike(obj, fn) {\n    if (Array.isArray(obj)) {\n        for (var i = 0; i < obj.length;
i++) {\n            fn(obj[i]);\n        }\n    } else {\n        var iterator = obj[getSymbolIterator()]();\n
        var item = void 0;\n        while (!(item = iterator.next()).done) {\n            fn(item.value);\n
        }\n    }\n }\n function isJsObject(o) {\n    return o !== null && (typeof o === 'function' || typeof o
=== 'object');\n }\n\n /**\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  * Use of
this source code is governed by an MIT-style license that can be\n  * found in the LICENSE file at
https://angular.io/license\n  *\n  // TODO(misko): consider inlining\n  /** Updates binding and returns the
value. *\n  function updateBinding(IView, bindingIndex, value) {\n    return IView[bindingIndex] = value;\n
}\n  /** Gets the current binding value. *\n  function getBinding(IView, bindingIndex) {\n    ngDevMode &&
assertIndexInRange(IView, bindingIndex);\n    ngDevMode &&\n    assertNotSame(IView[bindingIndex],
NO_CHANGE, 'Stored value should never be NO_CHANGE.);\n    return IView[bindingIndex];\n }\n  /**\n  * Updates binding if changed, then returns whether it was updated.\n  *\n
    * This function also checks the `CheckNoChangesMode` and throws if changes are made.\n    * Some changes
(Objects/iterables) during `CheckNoChangesMode` are exempt to comply with VE\n    * behavior.\n    *\n
    @param IView current `LView`\n    * @param bindingIndex The binding in the `LView` to check\n    * @param
value New value to check against `IView[bindingIndex]`\n    * @returns `true` if the bindings has changed. (Throws
if binding has changed during\n    * `CheckNoChangesMode`)\n    *\n    function bindingUpdated(IView,
bindingIndex, value) {\n    ngDevMode && assertNotSame(value, NO_CHANGE, 'Incoming value should never
be NO_CHANGE.);\n    ngDevMode &&\n    assertLessThan(bindingIndex, IView.length, 'Slot should
have been initialized to NO_CHANGE');\n    var oldValue = IView[bindingIndex];\n    if (Object.is(oldValue,
value)) {\n    return false;\n    } else {\n    if (ngDevMode && isInCheckNoChangesMode())\n    {\n    // View engine didn't report undefined values as changed on the first checkNoChanges pass\n
    // (before the change detection was run).\n    var oldValueToCompare = oldValue !== NO_CHANGE ?
oldValue : undefined;\n    if (!devModeEqual(oldValueToCompare, value)) {\n    var details =
getExpressionChangedErrorDetails(IView, bindingIndex, oldValueToCompare, value);\n    throwErrorIfNoChangesMode(oldValue === NO_CHANGE, details.oldValue, details.newValue,
details.propName);\n    }\n    // There was a change, but the `devModeEqual` decided that the change
is exempt from an error.\n    // For this reason we exit as if no change. The early exit is needed to prevent the
changed\n    // value to be written into `LView` (If we would write the new value that we would not see it\n
    // as change on next CD.)\n    return false;\n
    }\n    IView[bindingIndex] = value;\n    return true;\n }\n }\n /** Updates 2 bindings if
changed, then returns whether either was updated. *\n  function bindingUpdated2(IView, bindingIndex, exp1,
exp2) {\n    var different = bindingUpdated(IView, bindingIndex, exp1);\n    return bindingUpdated(IView,
bindingIndex + 1, exp2) || different;\n }\n  /** Updates 3 bindings if changed, then returns whether any was
updated. *\n  function bindingUpdated3(IView, bindingIndex, exp1, exp2, exp3) {\n    var different =
bindingUpdated2(IView, bindingIndex, exp1, exp2);\n    return bindingUpdated(IView, bindingIndex + 2, exp3) ||
different;\n }\n  /** Updates 4 bindings if changed, then returns whether any was updated. *\n  function
bindingUpdated4(IView, bindingIndex, exp1, exp2, exp3, exp4) {\n    var different = bindingUpdated2(IView,
bindingIndex, exp1, exp2);\n    return bindingUpdated2(IView, bindingIndex + 2,

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exp3, exp4) || different;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at\n   * https://angular.io/license\n   *\n   */\n  /**\n   * Updates the value of or removes a bound attribute on an Element.\n   *\n   * Used in the case of `[attr.title]="value"`\n   *\n   * @param name name The name of the attribute.\n   *\n   * @param value value The attribute is removed when value is `null` or `undefined`.\n   * Otherwise the attribute value is set to the stringified value.\n   *\n   * @param sanitizer An optional function used to sanitize the value.\n   *\n   * @param namespace Optional namespace to use when setting the attribute.\n   *\n   */\n  @codeGenApi\n  function attribute(name, value, sanitizer, namespace) {\n    var lView = getLView();\n    var bindingIndex = nextBindingIndex();\n    if\n      (bindingUpdated(lView, bindingIndex, value)) {\n        var tView = getTView();\n        var tNode =\n          getSelectedTNode();\n        elementAttributeInternal(tNode, lView, name, value, sanitizer, namespace);\n        ngDevMode && storePropertyBindingMetadata(tView.data, tNode, 'attr.' + name, bindingIndex);\n      }\n    return attribute;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at\n   * https://angular.io/license\n   *\n   */\n  /**\n   * Create interpolation bindings with a variable number of expressions.\n   *\n   * If there are 1 to 8 expressions `interpolation1()` to `interpolation8()` should be used instead.\n   * Those are faster because there is no need to create an array of expressions and iterate over it.\n   *\n   * `values`:\n   * - has static text at even indexes,\n   * - has evaluated expressions at odd indexes.\n   *\n   * Returns the concatenated string when any of the arguments changes,\n   * `NO_CHANGE` otherwise.\n   */\n  function interpolationV(lView, values) {\n    ngDevMode &&\n      assertLessThan(2, values.length, 'should have at least 3 values');\n    ngDevMode && assertEqual(values.length % 2, 1, 'should have an odd number of values');\n    var isBindingUpdated = false;\n    var bindingIndex =\n      getBindingIndex();\n    for (var i = 1; i < values.length; i += 2) {\n      // Check if bindings (odd indexes) have changed\n      isBindingUpdated = bindingUpdated(lView, bindingIndex++, values[i]) || isBindingUpdated;\n    }\n    setBindingIndex(bindingIndex);\n    if (!isBindingUpdated) {\n      return NO_CHANGE;\n    }\n    // Build the updated content\n    var content = values[0];\n    for (var i = 1; i < values.length; i += 2) {\n      content += renderStringify(values[i]) + values[i + 1];\n    }\n    return content;\n  }\n\n  /**\n   * Creates an interpolation binding with 1 expression.\n   *\n   * @param prefix static value used for concatenation only.\n   * @param v0 value checked for change.\n   * @param suffix static value used for concatenation only.\n   */\n  function interpolation1(lView, prefix, v0, suffix) {\n    var different = bindingUpdated(lView, nextBindingIndex(), v0);\n    return different ? prefix + renderStringify(v0) + suffix : NO_CHANGE;\n  }\n\n  /**\n   * Creates an interpolation binding with 2 expressions.\n   */\n  function interpolation2(lView, prefix, v0, i0, v1, suffix) {\n    var bindingIndex = getBindingIndex();\n    var different = bindingUpdated2(lView, bindingIndex, v0, v1);\n    incrementBindingIndex(2);\n    return different ? prefix + renderStringify(v0) + i0 + renderStringify(v1) + suffix : NO_CHANGE;\n  }\n\n  /**\n   * Creates an interpolation binding with 3 expressions.\n   */\n  function interpolation3(lView, prefix, v0, i0, v1, i1, v2, suffix) {\n    var bindingIndex =\n      getBindingIndex();\n    var different = bindingUpdated3(lView, bindingIndex, v0, v1, v2);\n    incrementBindingIndex(3);\n    return different ?\n      prefix + renderStringify(v0) + i0 + renderStringify(v1)\n      + i1 + renderStringify(v2) + suffix :\n      NO_CHANGE;\n  }\n\n  /**\n   * Create an interpolation binding with 4 expressions.\n   */\n  function interpolation4(lView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix) {\n    var bindingIndex = getBindingIndex();\n    var different = bindingUpdated4(lView, bindingIndex, v0, v1, v2, v3);\n    incrementBindingIndex(4);\n    return different ?\n      prefix + renderStringify(v0) + i0 + renderStringify(v1) + i1\n      + renderStringify(v2) + i2 + renderStringify(v3) + suffix :\n      NO_CHANGE;\n  }\n\n  /**\n   * Creates an interpolation binding with 5 expressions.\n   */\n  function interpolation5(lView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix) {\n    var bindingIndex =\n      getBindingIndex();\n    var different = bindingUpdated4(lView, bindingIndex, v0, v1, v2, v3);\n    different =\n      bindingUpdated(lView, bindingIndex + 4, v4) || different;\n    incrementBindingIndex(5);\n    return different ?

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prefix + renderStringify(v0) + i0 + renderStringify(v1) + i1 +\n      renderStringify(v2) + i2 +
renderStringify(v3) + i3 + renderStringify(v4) + suffix : \n      NO_CHANGE; \n    } \n    /** \n     * Creates an
interpolation binding with 6 expressions. \n     * \n     function interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3,
i3, v4, i4, v5, suffix) { \n      var bindingIndex = getBindingIndex(); \n      var different = bindingUpdated4(IView,
bindingIndex, v0, v1, v2, v3); \n      different = bindingUpdated2(IView, bindingIndex + 4, v4, v5) || different; \n
incrementBindingIndex(6); \n      return different ? \n
      prefix + renderStringify(v0) + i0 + renderStringify(v1) + i1 + renderStringify(v2) + i2 + \n
renderStringify(v3) + i3 + renderStringify(v4) + i4 + renderStringify(v5) + suffix : \n      NO_CHANGE; \n    } \n
/** \n     * Creates an interpolation binding with 7 expressions. \n     * \n     function interpolation7(IView, prefix, v0,
i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix) { \n      var bindingIndex = getBindingIndex(); \n      var different
= bindingUpdated4(IView, bindingIndex, v0, v1, v2, v3); \n      different = bindingUpdated3(IView, bindingIndex +
4, v4, v5, v6) || different; \n      incrementBindingIndex(7); \n      return different ? prefix + renderStringify(v0) + i0
+ renderStringify(v1) + i1 + \n      renderStringify(v2) + i2 + renderStringify(v3) + i3 + renderStringify(v4) + i4
+ \n      renderStringify(v5) + i5 + renderStringify(v6) + suffix : \n      NO_CHANGE; \n    } \n    /** \n     *
Creates an interpolation binding
with 8 expressions. \n     * \n     function interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6,
i6, v7, suffix) { \n      var bindingIndex = getBindingIndex(); \n      var different = bindingUpdated4(IView,
bindingIndex, v0, v1, v2, v3); \n      different = bindingUpdated4(IView, bindingIndex + 4, v4, v5, v6, v7) ||
different; \n      incrementBindingIndex(8); \n      return different ? prefix + renderStringify(v0) + i0 +
renderStringify(v1) + i1 + \n      renderStringify(v2) + i2 + renderStringify(v3) + i3 + renderStringify(v4) + i4 + \n
      renderStringify(v5) + i5 + renderStringify(v6) + i6 + renderStringify(v7) + suffix : \n      NO_CHANGE; \n
    } \n    /** \n     * \n     * Update an interpolated attribute on an element with single bound value surrounded by
text. \n     * \n     * Used when the value passed to a property has 1 interpolated value in it: \n     * \n     * ``html \n     *
<div attr.title=\"prefix{ { v0 } }suffix\"></div> \n
     * `` \n     * \n     * Its compiled representation is: \n     * \n     * ``ts \n     * attributeInterpolate1('title', 'prefix', v0,
'suffix'); \n     * `` \n     * \n     * @param attrName The name of the attribute to update \n     * @param prefix Static
value used for concatenation only. \n     * @param v0 Value checked for change. \n     * @param suffix Static value
used for concatenation only. \n     * @param sanitizer An optional sanitizer function \n     * @returns itself, so that it
may be chained. \n     * @codeGenApi \n     * \n     function attributeInterpolate1(attrName, prefix, v0, suffix,
sanitizer, namespace) { \n      var IView = getLView(); \n      var interpolatedValue = interpolation1(IView, prefix,
v0, suffix); \n      if (interpolatedValue !== NO_CHANGE) { \n        var tNode = getSelectedTNode(); \n
elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace); \n        ngDevMode
&& \n        storePropertyBindingMetadata(getTView().data,
tNode, 'attr.' + attrName, getBindingIndex() - 1, prefix, suffix); \n      } \n      return attributeInterpolate1; \n    } \n
/** \n     * \n     * Update an interpolated attribute on an element with 2 bound values surrounded by text. \n     * \n     *
Used when the value passed to a property has 2 interpolated values in it: \n     * \n     * ``html \n     * <div
attr.title=\"prefix{ { v0 } }-{ { v1 } }suffix\"></div> \n     * `` \n     * \n     * Its compiled representation is: \n     * \n     *
``ts \n     * attributeInterpolate2('title', 'prefix', v0, '-', v1, 'suffix'); \n     * `` \n     * \n     * @param attrName The name
of the attribute to update \n     * @param prefix Static value used for concatenation only. \n     * @param v0 Value
checked for change. \n     * @param i0 Static value used for concatenation only. \n     * @param v1 Value checked
for change. \n     * @param suffix Static value used for concatenation only. \n     * @param sanitizer An optional
sanitizer
function \n     * @returns itself, so that it may be chained. \n     * @codeGenApi \n     * \n     function
attributeInterpolate2(attrName, prefix, v0, i0, v1, suffix, sanitizer, namespace) { \n      var IView = getLView(); \n
      var interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix); \n      if (interpolatedValue !==
NO_CHANGE) { \n        var tNode = getSelectedTNode(); \n        elementAttributeInternal(tNode, IView,
attrName, interpolatedValue, sanitizer, namespace); \n        ngDevMode && \n        storePropertyBindingMetadata(getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 2, prefix, i0,

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suffix);\n    }\n    return attributeInterpolate2;\n  }\n  /**\n   * Update an interpolated attribute on an
element with 3 bound values surrounded by text.\n   * Used when the value passed to a property has 3
interpolated values in it:\n   * ``html\n   * <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}suffix\"></div>\n   * ``\n   * Its compiled representation is:\n   * ``ts\n   * attributeInterpolate3(\n   * 'title',
'prefix', v0, '-', v1, '-', v2, 'suffix');\n   * ``\n   * @param attrName The name of the attribute to update\n   *
@param prefix Static value used for concatenation only.\n   * @param v0 Value checked for change.\n   *
@param i0 Static value used for concatenation only.\n   * @param v1 Value checked for change.\n   * @param i1
Static value used for concatenation only.\n   * @param v2 Value checked for change.\n   * @param suffix Static
value used for concatenation only.\n   * @param sanitizer An optional sanitizer function\n   * @returns itself, so
that it may be chained.\n   * @codeGenApi\n   */\n  function attributeInterpolate3(attrName, prefix, v0, i0, v1,
i1, v2, suffix, sanitizer, namespace) {\n    var IView = getLView();\n    var interpolatedValue =
interpolation3(IView, prefix, v0, i0,
v1, i1, v2, suffix);\n    if (interpolatedValue !== NO_CHANGE) {\n      var tNode = getSelectedTNode();\n      elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n      ngDevMode &&\n        storePropertyBindingMetadata(getTView().data, tNode, 'attr.' + attrName,
getBindingIndex() - 3, prefix, i0, i1, suffix);\n    }\n    return attributeInterpolate3;\n  }\n  /**\n   * Update an interpolated attribute on an element with 4 bound values surrounded by text.\n   * Used when the
value passed to a property has 4 interpolated values in it:\n   * ``html\n   * <div attr.title=\"prefix{{v0}}-
{{v1}}-{{v2}}-{{v3}}suffix\"></div>\n   * ``\n   * Its compiled representation is:\n   * ``ts\n   *
attributeInterpolate4(\n   * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n   * ``\n   * @param attrName
The name of the attribute
to update\n   * @param prefix Static value used for concatenation only.\n   * @param v0 Value checked for
change.\n   * @param i0 Static value used for concatenation only.\n   * @param v1 Value checked for change.\n
   * @param i1 Static value used for concatenation only.\n   * @param v2 Value checked for change.\n   * @param
i2 Static value used for concatenation only.\n   * @param v3 Value checked for change.\n   * @param suffix
Static value used for concatenation only.\n   * @param sanitizer An optional sanitizer function\n   * @returns
itself, so that it may be chained.\n   * @codeGenApi\n   */\n  function attributeInterpolate4(attrName, prefix, v0,
i0, v1, i1, v2, i2, v3, suffix, sanitizer, namespace) {\n    var IView = getLView();\n    var interpolatedValue =
interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n    if (interpolatedValue !== NO_CHANGE) {\n
      var tNode = getSelectedTNode();\n      elementAttributeInternal(tNode,
IView, attrName, interpolatedValue, sanitizer, namespace);\n      ngDevMode &&\n        storePropertyBindingMetadata(getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 4, prefix, i0, i1, i2,
suffix);\n    }\n    return attributeInterpolate4;\n  }\n  /**\n   * Update an interpolated attribute on an
element with 5 bound values surrounded by text.\n   * Used when the value passed to a property has 5
interpolated values in it:\n   * ``html\n   * <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-
{{v4}}suffix\"></div>\n   * ``\n   * Its compiled representation is:\n   * ``ts\n   *
attributeInterpolate5(\n   * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n   * ``\n   * @param
attrName The name of the attribute to update\n   * @param prefix Static value used for concatenation only.\n   *
@param v0 Value checked for change.\n   *
@param i0 Static value used for concatenation only.\n   * @param v1 Value checked for change.\n   * @param
i1 Static value used for concatenation only.\n   * @param v2 Value checked for change.\n   * @param i2 Static
value used for concatenation only.\n   * @param v3 Value checked for change.\n   * @param i3 Static value used
for concatenation only.\n   * @param v4 Value checked for change.\n   * @param suffix Static value used for
concatenation only.\n   * @param sanitizer An optional sanitizer function\n   * @returns itself, so that it may be
chained.\n   * @codeGenApi\n   */\n  function attributeInterpolate5(attrName, prefix, v0, i0, v1, i1, v2, i2, v3, i3,
v4, suffix, sanitizer, namespace) {\n    var IView = getLView();\n    var interpolatedValue =
interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n    if (interpolatedValue !==
NO_CHANGE) {\n      var tNode = getSelectedTNode();\n      elementAttributeInternal(tNode,

```

```

    IView, attrName, interpolatedValue, sanitizer, namespace);\n        ngDevMode &&\n
storePropertyBindingMetadata(getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 5, prefix, i0, i1, i2,
i3, suffix);\n    }\n    return attributeInterpolate5;\n    }\n    /**\n     * Update an interpolated attribute on
an element with 6 bound values surrounded by text.\n     * Used when the value passed to a property has 6
interpolated values in it:\n     * \n     * ```html\n     * <div attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-
{{v5}}suffix\"></div>\n     * ```\n     * Its compiled representation is:\n     * \n     * ```ts\n     *
attributeInterpolate6(\n     *   'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n     * ```\n     *
@param attrName The name of the attribute to update\n     * @param prefix Static value used for concatenation
only.\n     * @param v0 Value checked
for change.\n     * @param i0 Static value used for concatenation only.\n     * @param v1 Value checked for
change.\n     * @param i1 Static value used for concatenation only.\n     * @param v2 Value checked for change.\n
     * @param i2 Static value used for concatenation only.\n     * @param v3 Value checked for change.\n     * @param
i3 Static value used for concatenation only.\n     * @param v4 Value checked for change.\n     * @param i4 Static
value used for concatenation only.\n     * @param v5 Value checked for change.\n     * @param suffix Static value
used for concatenation only.\n     * @param sanitizer An optional sanitizer function\n     * @returns itself, so that it
may be chained.\n     * @codeGenApi\n     */\n    function attributeInterpolate6(attrName, prefix, v0, i0, v1, i1, v2,
i2, v3, i3, v4, i4, v5, suffix, sanitizer, namespace) {\n        var IView = getLView();\n        var interpolatedValue =
interpolation6(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4,
v5, suffix);\n        if (interpolatedValue !== NO_CHANGE) {\n            var tNode = getSelectedTNode();\n
elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer, namespace);\n            ngDevMode
&&\n            storePropertyBindingMetadata(getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - 6,
prefix, i0, i1, i2, i3, i4, suffix);\n        }\n        return attributeInterpolate6;\n    }\n    /**\n     * Update an
interpolated attribute on an element with 7 bound values surrounded by text.\n     * Used when the value
passed to a property has 7 interpolated values in it:\n     * \n     * ```html\n     * <div attr.title=\"prefix{{v0}}-{{v1}}-
{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix\"></div>\n     * ```\n     * Its compiled representation is:\n     * \n
     * ```ts\n     * attributeInterpolate7(\n     *   'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6,
'suffix');\n     * ```\n     *
     * @param attrName The name of the attribute to update\n     * @param prefix Static value used for
concatenation only.\n     * @param v0 Value checked for change.\n     * @param i0 Static value used for
concatenation only.\n     * @param v1 Value checked for change.\n     * @param i1 Static value used for
concatenation only.\n     * @param v2 Value checked for change.\n     * @param i2 Static value used for
concatenation only.\n     * @param v3 Value checked for change.\n     * @param i3 Static value used for
concatenation only.\n     * @param v4 Value checked for change.\n     * @param i4 Static value used for
concatenation only.\n     * @param v5 Value checked for change.\n     * @param i5 Static value used for
concatenation only.\n     * @param v6 Value checked for change.\n     * @param suffix Static value used for
concatenation only.\n     * @param sanitizer An optional sanitizer function\n     * @returns itself, so that it may be
chained.\n     * @codeGenApi\n     */\n    function attributeInterpolate7(attrName, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix, sanitizer,
namespace) {\n        var IView = getLView();\n        var interpolatedValue = interpolation7(IView, prefix, v0, i0, v1,
i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n        if (interpolatedValue !== NO_CHANGE) {\n            var tNode =
getSelectedTNode();\n            elementAttributeInternal(tNode, IView, attrName, interpolatedValue, sanitizer,
namespace);\n            ngDevMode &&\n            storePropertyBindingMetadata(getTView().data, tNode, 'attr.' +
attrName, getBindingIndex() - 7, prefix, i0, i1, i2, i3, i4, i5, suffix);\n        }\n        return attributeInterpolate7;\n    }\n    /**\n     * Update an interpolated attribute on an element with 8 bound values surrounded by text.\n     * Used when the value passed to a property has 8 interpolated values in it:\n     * \n     * ```html\n     * <div
attr.title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}suffix\"></div>\n     * ```\n     * Its compiled representation is:\n     * \n     * ```ts\n     * attributeInterpolate8(\n     *   'title',
'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n     * ```\n     *
     * @param attrName The

```

```

name of the attribute to update\n    * @param prefix Static value used for concatenation only.\n    * @param v0
Value checked for change.\n    * @param i0 Static value used for concatenation only.\n    * @param v1 Value
checked for change.\n    * @param i1 Static value used for concatenation only.\n    * @param v2 Value checked
for change.\n    * @param i2 Static value used for concatenation only.\n    * @param v3 Value checked for
change.\n    * @param i3 Static value used for concatenation only.\n    * @param v4 Value checked for change.\n
* @param i4 Static value used for concatenation only.\n    * @param v5 Value checked for change.\n    * @param
i5 Static value used for concatenation only.\n    * @param v6 Value checked for change.\n    * @param i6 Static
value used for concatenation only.\n    * @param v7 Value checked for change.\n    * @param suffix Static value
used for concatenation only.\n    * @param sanitizer An optional sanitizer function\n    * @returns itself, so that it
may be chained.\n    * @codeGenApi\n    */\n    function attributeInterpolate8(attrName, prefix, v0, i0, v1, i1, v2,
i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix, sanitizer, namespace) {\n        var lView = getLView();\n        var
interpolatedValue = interpolation8(lView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n
if (interpolatedValue !== NO_CHANGE) {\n            var tNode = getSelectedTNode();\n            elementAttributeInternal(tNode, lView, attrName, interpolatedValue, sanitizer, namespace);\n            ngDevMode
&&\n            storePropertyBindingMetadata(getTView().data, tNode,
'attr.' + attrName, getBindingIndex() - 8, prefix, i0, i1, i2, i3, i4, i5, i6, suffix);\n        }\n        return
attributeInterpolate8;\n    }\n    /**\n     * Update an interpolated attribute on an element with 9 or more bound
values surrounded by text.\n     *\n     * Used when the number of interpolated values exceeds 8.\n     *\n     *
```html\n     * <div\n     *   title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-
{{v9}}suffix\"></div>\n * ```\n *\n * Its compiled representation is:\n *\n * ```ts\n *
attributeInterpolateV(\n * 'title', ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v9,\n * 'suffix']);\n * ```\n *\n * @param attrName The name of the attribute to update.\n * @param values The
collection of values and the strings in-between those values, beginning with\n * a string prefix and ending with a
string suffix.\n * (e.g. `['prefix', value0, '-',
value1, '-', value2, ..., value99, 'suffix']`)\n * @param sanitizer An optional sanitizer function\n * @returns
itself, so that it may be chained.\n * @codeGenApi\n */\n function attributeInterpolateV(attrName, values,
sanitizer, namespace) {\n var lView = getLView();\n var interpolated = interpolationV(lView, values);\n
if (interpolated !== NO_CHANGE) {\n var tNode = getSelectedTNode();\n elementAttributeInternal(tNode, lView, attrName, interpolated, sanitizer, namespace);\n if (ngDevMode) {\n
 var interpolationInBetween = [values[0]]; // prefix\n for (var i = 2; i < values.length; i += 2) {\n
 interpolationInBetween.push(values[i]);\n }\n storePropertyBindingMetadata.apply(void
0, __spread([getTView().data, tNode, 'attr.' + attrName, getBindingIndex() - interpolationInBetween.length + 1],
interpolationInBetween));\n }\n }\n return attributeInterpolateV;\n }\n /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n function templateFirstCreatePass(index, tView, lView,
templateFn, decls, vars, tagName, attrsIndex, localRefsIndex) {\n ngDevMode &&
assertFirstCreatePass(tView);\n ngDevMode && ngDevMode.firstCreatePass++;\n var tViewConsts =
tView.consts;\n // TODO(pk): refactor getOrCreateTNode to have the \"create\" only version\n var tNode =
getOrCreateTNode(tView, index, 4 /* Container */, tagName || null, getConstant(tViewConsts, attrsIndex));\n resolveDirectives(tView, lView, tNode, getConstant(tViewConsts, localRefsIndex));\n registerPostOrderHooks(tView, tNode);\n var embeddedTView = tNode.tViews = createTView(2 /* Embedded
*/, tNode, templateFn,
decls, vars, tView.directiveRegistry, tView.pipeRegistry, null, tView.schemas, tViewConsts);\n if
(tView.queries !== null) {\n tView.queries.template(tView, tNode);\n embeddedTView.queries =
tView.queries.embeddedTView(tNode);\n }\n return tNode;\n }\n /**\n * Creates an LContainer for
an ng-template (dynamically-inserted view), e.g.\n *\n * <ng-template #foo>\n * <div></div>\n * </ng-
template>\n *\n * @param index The index of the container in the data array\n * @param templateFn Inline

```

```

template\n * @param decls The number of nodes, local refs, and pipes for this template\n * @param vars The number of bindings for this template\n * @param tagName The name of the container element, if applicable\n * @param attrsIndex Index of template attributes in the `const`s array.\n * @param localRefs Index of the local references in the `const`s array.\n * @param localRefExtractor A function which extracts local-refs values from the template.\n * Defaults to the current element associated with the local-ref.\n *\n * @codeGenApi\n */\n function template(index, templateFn, decls, vars, tagName, attrsIndex, localRefsIndex, localRefExtractor) {\n var lView = getLView();\n var tView = getTView();\n var adjustedIndex = index + HEADER_OFFSET;\n var tNode = tView.firstCreatePass ?\n templateFirstCreatePass(adjustedIndex, tView, lView, templateFn, decls, vars, tagName, attrsIndex, localRefsIndex)\n : \n tView.data[adjustedIndex];\n setCurrentTNode(tNode, false);\n var comment = lView[RENDERER].createComment(ngDevMode ? 'container': '');\n appendChild(tView, lView, comment, tNode);\n attachPatchData(comment, lView);\n addToViewTree(lView, lView[adjustedIndex] = createLContainer(comment, lView, comment, tNode));\n if (isDirectiveHost(tNode)) {\n createDirectivesInstances(tView, lView, tNode);\n }\n if (localRefsIndex != null) {\n saveResolvedLocalsInData(lView, tNode, localRefExtractor);\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n /** Store a value in the `data` at a given `index`.\n */\n function store(tView, lView, index, value) {\n // We don't store any static data for local variables, so the first time\n // we see the template, we should store as null to avoid a sparse array\n if (index >= tView.data.length) {\n tView.data[index] = null;\n tView.blueprint[index] = null;\n }\n lView[index] = value;\n }\n\n /**\n * Retrieves a local reference from the current contextViewData.\n *\n * If the reference to retrieve is in a parent view, this instruction is used in conjunction\n * with a nextContext() call, which walks up the tree and updates the contextViewData instance.\n *\n * @param index The index of the local ref in contextViewData.\n *\n * @codeGenApi\n */\n function reference(index) {\n var contextLView = getContextLView();\n return load(contextLView, HEADER_OFFSET + index);\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n /** A mapping of the @angular/core API surface used in generated expressions to the actual symbols.\n */\n /** This should be kept up to date with the public exports of @angular/core.\n */\n var angularCoreDiEnv = {\n 'defineInjectable': defineInjectable,\n 'defineInjector': defineInjector,\n 'inject': inject,\n 'getFactoryOf': getFactoryOf,\n 'invalidFactoryDep': invalidFactoryDep,\n };\n\n function getFactoryOf(type) {\n var typeAny = type;\n if (isForwardRef(type)) {\n return (function () {\n var factory = getFactoryOf(resolveForwardRef(typeAny));\n return factory ? factory() : null;\n });\n }\n var def = getInjectableDef(typeAny) || getInjectorDef(typeAny);\n if (!def || def.factory === undefined) {\n return null;\n }\n return def.factory;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n /** Compile an Angular injectable according to its `Injectable` metadata, and patch the resulting\n * injectable def (`prov`) onto the injectable type.\n */\n function compileInjectable(type, srcMeta) {\n var ngInjectableDef = null;\n var ngFactoryDef = null;\n // if NG_PROV_DEF is already defined on this class then don't overwrite it\n if (!type.hasOwnProperty(NG_PROV_DEF)) {\n Object.defineProperty(type, NG_PROV_DEF, {\n get: function () {\n if (ngInjectableDef === null) {\n ngInjectableDef = getCompilerFacade().compileInjectable(angularCoreDiEnv, \"ng://\" + type.name + \"\\u0275prov.js\", getInjectableMetadata(type, srcMeta));\n }\n return ngInjectableDef;\n },\n });\n }\n // if NG_FACTORY_DEF is already defined on this class then don't overwrite it\n if (!type.hasOwnProperty(NG_FACTORY_DEF)) {\n Object.defineProperty(type, NG_FACTORY_DEF, {\n
```

```

 get: function () {\n
 if (ngFactoryDef === null) {\n
 var metadata = getInjectableMetadata(type, srcMeta);\n
 var compiler =\n
getCompilerFacade();\n
 ngFactoryDef = compiler.compileFactory(angularCoreDiEnv, \"ng:///\" +\n
type.name + \"\\u0275fac.js\", {\n
 name: metadata.name,\n
 type: metadata.type,\n
 typeArgumentCount: metadata.typeArgumentCount,\n
 deps:\n
reflectDependencies(type),\n
 injectFn: 'inject',\n
 target:\n
compiler.R3FactoryTarget.Injectable\n
 });\n
 }\n
 return ngFactoryDef;\n
 },\n
 // Leave this configurable so that the factories from directives or pipes can take precedence.\n
 configurable: true\n
 });\n
 }\n
 }\n
 var 0$8 = getClosureSafeProperty;\n
 var USE_VALUE$1 =\n
getClosureSafeProperty({\n
 provide: String, useValue: 0$8 });\n
 function isUseClassProvider(meta) {\n
 return meta.useClass !==\n
undefined;\n
 }\n
 function isUseValueProvider(meta) {\n
 return USE_VALUE$1 in meta;\n
 }\n
 function\n
isUseFactoryProvider(meta) {\n
 return meta.useFactory !== undefined;\n
 }\n
 function\n
isUseExistingProvider(meta) {\n
 return meta.useExisting !== undefined;\n
 }\n
 function\n
getInjectableMetadata(type, srcMeta) {\n
 // Allow the compilation of a class with a `@Injectable` decorator\n
without parameters\n
 var meta = srcMeta || { providedIn: null }; \n
 var compilerMeta = {\n
 name:\n
type.name,\n
 type: type,\n
 typeArgumentCount: 0,\n
 providedIn: meta.providedIn,\n
 userDeps: undefined,\n
 }; \n
 if ((isUseClassProvider(meta) || isUseFactoryProvider(meta)) && meta.deps\n
!== undefined) {\n
 compilerMeta.userDeps = convertDependencies(meta.deps);\n
 }\n
 if (isUseClassProvider(meta)) {\n
 // The user explicitly specified useClass, and may or may not\n
have provided deps.\n
 compilerMeta.useClass = resolveForwardRef(meta.useClass);\n
 }\n
 else if\n
(isUseValueProvider(meta)) {\n
 // The user explicitly specified useValue.\n
 compilerMeta.useValue =\n
resolveForwardRef(meta.useValue);\n
 }\n
 else if (isUseFactoryProvider(meta)) {\n
 // The user\n
explicitly specified useFactory.\n
 compilerMeta.useFactory = meta.useFactory;\n
 }\n
 else if\n
(isUseExistingProvider(meta)) {\n
 // The user explicitly specified useExisting.\n
 compilerMeta.useExisting = resolveForwardRef(meta.useExisting);\n
 }\n
 return compilerMeta;\n
 }\n
 var 0$9 = getClosureSafeProperty;\n
 var USE_VALUE$2 = getClosureSafeProperty({ provide: String, useValue:\n
0$9 });\n
 var EMPTY_ARRAY$2 = [];\n
 function convertInjectableProviderToFactory(type,\n
 provider) {\n
 if (!provider) {\n
 var reflectionCapabilities = new ReflectionCapabilities();\n
 var\n
deps_1 = reflectionCapabilities.parameters(type);\n
 // TODO - convert to flags.\n
 return function () {\n
return new (type.bind.apply(type, __spread([void 0], injectArgs(deps_1))))();\n
};\n
 }\n
 if (USE_VALUE$2\n
in provider) {\n
 var valueProvider_1 = provider;\n
 return function () {\n
return\n
valueProvider_1.useValue;\n
};\n
 }\n
 else if (provider.useExisting) {\n
 var existingProvider_1 =\n
provider;\n
 return function () {\n
return inject(resolveForwardRef(existingProvider_1.useExisting));\n
};\n
 }\n
 else if (provider.useFactory) {\n
 var factoryProvider_1 = provider;\n
 return function () {\n
return\n
factoryProvider_1.useFactory.apply(factoryProvider_1, __spread(injectArgs(factoryProvider_1.deps ||\n
EMPTY_ARRAY$2)));\n
};\n
 }\n
 else if (provider.useClass) {\n
 var classProvider_1 = provider;\n
 var deps_2 =\n
provider.deps;\n
 if (!deps_2) {\n
 var reflectionCapabilities = new ReflectionCapabilities();\n
 deps_2 = reflectionCapabilities.parameters(type);\n
 }\n
 return function () {\n
 var _a;\n
 return new ((_a = (resolveForwardRef(classProvider_1.useClass))).bind.apply(_a, __spread([void 0],\n
injectArgs(deps_2))))();\n
};\n
 }\n
 else {\n
 var deps_3 = provider.deps;\n
 if (!deps_3)\n
{\n
 var reflectionCapabilities = new ReflectionCapabilities();\n
 deps_3 =\n
reflectionCapabilities.parameters(type);\n
 }\n
 return function () {\n
return new (type.bind.apply(type,\n
__spread([void 0], injectArgs(deps_3))))();\n
};\n
 }\n
 }\n
 }\n
 }\n
 /**\n
 * @license\n
 * Copyright Google LLC\n
All Rights Reserved.\n
 *\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file\n
at https://angular.io/license\n
 */\n
 var 0$a = function (type, meta) {\n
return

```



```

SWITCH_COMPILE_INJECTABLE(type, meta); }\n /**\n * Injectable decorator and metadata.\n * \n *
@Annotation\n * @publicApi\n * \n var Injectable = makeDecorator('Injectable', undefined, undefined,
undefined, 0$a);\n /**\n * Supports @Injectable() in JIT mode for Render2.\n * \n function
render2CompileInjectable(injectableType, options) {\n if (options && options.providedIn !== undefined &&
!getInjectableDef(injectableType)) {\n injectableType.prov = defineInjectable({\n token:
injectableType,\n providedIn: options.providedIn,\n factory:
convertInjectableProviderToFactory(injectableType, options),\n });\n }\n }\n var
SWITCH_COMPILE_INJECTABLE__POST_R3__ =
compileInjectable;\n var SWITCH_COMPILE_INJECTABLE__PRE_R3__ = render2CompileInjectable;\n var
SWITCH_COMPILE_INJECTABLE = SWITCH_COMPILE_INJECTABLE__PRE_R3__;\n\n /**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n function
findFirstClosedCycle(keys) {\n var res = [];\n for (var i = 0; i < keys.length; ++i) {\n if
(res.indexOf(keys[i]) > -1) {\n res.push(keys[i]);\n return res;\n }\n
res.push(keys[i]);\n }\n return res;\n }\n function constructResolvingPath(keys) {\n if (keys.length
> 1) {\n var reversed = findFirstClosedCycle(keys.slice().reverse());\n var tokenStrs =
reversed.map(function (k) { return stringify(k.token); });\n return '(' + tokenStrs.join('
-> ') + ')';\n }\n return '';\n }\n function injectionError(injector, key, constructResolvingMessage,
originalError) {\n var keys = [key];\n var errMsg = constructResolvingMessage(keys);\n var error =
(originalError ? wrappedError(errMsg, originalError) : Error(errMsg));\n error.addKey = addKey;\n
error.keys = keys;\n error.injectors = [injector];\n error.constructResolvingMessage =
constructResolvingMessage;\n error[ERROR_ORIGINAL_ERROR] = originalError;\n return error;\n }\n
function addKey(injector, key) {\n this.injectors.push(injector);\n this.keys.push(key);\n // Note: This
updated message won't be reflected in the `.stack` property\n this.message =
this.constructResolvingMessage(this.keys);\n }\n /**\n * Thrown when trying to retrieve a dependency by key
from { @link Injector}, but the\n * { @link Injector} does not have a { @link Provider} for the given
key.\n * \n * @usageNotes\n * ### Example\n * \n * ```typescript\n * class A {\n *
constructor(b:B) {\n * \n * \n * expect(() => Injector.resolveAndCreate([A])).toThrowError();\n * ```\n
*\n * \n function noProviderError(injector, key) {\n return injectionError(injector, key, function (keys) {\n
var first = stringify(keys[0].token);\n return `No provider for ` + first + `!` +
constructResolvingPath(keys);\n });\n }\n /**\n * Thrown when dependencies form a cycle.\n * \n *
@usageNotes\n * ### Example\n * \n * ```typescript\n * var injector = Injector.resolveAndCreate([\n *
{provide: `one`, useFactory: (two) => `two`, deps: [[new Inject(`two`)]],\n * {provide: `two`,
useFactory: (one) => `one`, deps: [[new Inject(`one`)]],\n *]);\n * \n * expect(() =>
injector.get(`one`)).toThrowError();\n * ```\n * \n * Retrieving `A`
or `B` throws a `CyclicDependencyError` as the graph above cannot be constructed.\n * \n function
cyclicDependencyError(injector, key) {\n return injectionError(injector, key, function (keys) {\n return
`Cannot instantiate cyclic dependency!` + constructResolvingPath(keys);\n });\n }\n /**\n * Thrown
when a constructing type returns with an Error.\n * \n * The `InstantiationError` class contains the original error
plus the dependency graph which caused\n * this object to be instantiated.\n * \n * @usageNotes\n * ###
Example\n * \n * ```typescript\n * class A {\n * constructor() {\n * throw new Error('message');\n *
}\n * }\n * \n * var injector = Injector.resolveAndCreate([A]);\n * \n * try {\n * injector.get(A);\n *
}\n * catch (e) {\n * expect(e instanceof InstantiationError).toBe(true);\n *
expect(e.originalException.message).toEqual(`message`);\n *
expect(e.originalStack).toBeDefined();\n * }\n * ```\n * \n function instantiationError(injector,
originalException, originalStack, key) {\n return injectionError(injector, key, function (keys) {\n var first
= stringify(keys[0].token);\n return originalException.message + `: Error during instantiation of ` + first +
`!` + constructResolvingPath(keys) + `.`;\n }, originalException);\n }\n /**\n * Thrown when an

```

```

object other than { @link Provider } (or `Type`) is passed to { @link Injector}
 * creation.
 *
 * @usageNotes
 * ### Example
 * ```typescript
 * expect(() => Injector.resolveAndCreate(["not a
type"]))toThrowError();
 * ```
 * /
 * function invalidProviderError(provider) {
 * return Error("Invalid
provider - only instances of Provider and Type are allowed, got: " + provider);
 * }
 * /**
 * Thrown when the
class has no annotation information.
 *
 * Lack of annotation information prevents the { @link Injector} from determining which dependencies
 * need to be injected into the constructor.
 *
 * @usageNotes
 * ### Example
 * ```typescript
 * class A {
 * constructor(b) {}
 * }
 * expect(() =>
Injector.resolveAndCreate([A])).toThrowError();
 * ```
 * This error is also thrown when the class not
marked with { @link Injectable} has parameter types.
 * ```typescript
 * class B {}
 * class A
{
 * constructor(b:B) {} // no information about the parameter types of A is available at runtime.
 * }
 * expect(() => Injector.resolveAndCreate([A,B])).toThrowError();
 * ```
 * /
 * function
noAnnotationError(typeOrFunc, params) {
 * var signature = [];
 * for (var i = 0, ii = params.length; i < ii;
i++) {
 * var parameter = params[i];
 * if (!parameter
|| parameter.length == 0) {
 * signature.push('?');
 * } else {
 * signature.push(parameter.map(stringify).join(' '));
 * }
 * }
 * return Error('Cannot resolve all
parameters for \'' + stringify(typeOrFunc) + '\'' +
signature.join(', ') + ').' +
'Make sure that all the
parameters are decorated with Inject or have valid type annotations and that \'' +
stringify(typeOrFunc) +
'\'' is decorated with Injectable.');
```

```

 * }
 * /**
 * Thrown when getting an object by index.
 *
 * @usageNotes
 * ### Example
 * ```typescript
 * class A {}
 * var injector =
Injector.resolveAndCreate([A]);
 * expect(() => injector.getAt(100)).toThrowError();
 * ```
 * /
 * function outOfBoundsError(index) {
 * return Error("Index " + index + " is out-of-bounds.");
 * }
 * // TODO: add a working example
 *
 * after alpha38 is released
 * /**
 * Thrown when a multi provider and a regular provider are bound to the same
token.
 *
 * @usageNotes
 * ### Example
 * ```typescript
 * expect(() =>
Injector.resolveAndCreate([
 * { provide: "Strings", useValue: "string1", multi: true },
 * { provide:
"Strings", useValue: "string2", multi: false }
 *])).toThrowError();
 * ```
 * /
 * function
mixingMultiProvidersWithRegularProvidersError(provider1, provider2) {
 * return Error("Cannot mix multi
providers and regular providers, got: " + provider1 + " " + provider2);
 * }
 * /**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style
license that can be
 * found in the LICENSE file at https://angular.io/license
 * /
 * A unique
object used for retrieving items from the { @link ReflectiveInjector}.
 *
 * Keys have:
 * - a system-wide unique `id`.
 * - a `token`.
 * `Key` is used internally by { @link
ReflectiveInjector} because its system-wide unique `id` allows
 * the
 * injector to store created objects in a
more efficient way.
 * `Key` should not be created directly. { @link ReflectiveInjector} creates keys
automatically when
 * resolving
 * providers.
 *
 * @deprecated No replacement
 *
 * @publicApi
 * /
 * var ReflectiveKey = /** @class */ (function () {
 * /**
 * Private
 * /
 * function ReflectiveKey(token, id) {
 * this.token = token;
 * this.id = id;
 * if (!token) {
 * throw new Error("Token must be defined!");
 * }
 * this.displayName = stringify(this.token);
 * }
 * /**
 * Retrieves a `Key` for a token.
 * /
 * ReflectiveKey.get = function (token) {
 * return
_globalKeyRegistry.get(resolveForwardRef(token));
 * }
 * Object.defineProperty(ReflectiveKey, "numberOfKeys", {
 * /**
 * @returns the
number of keys registered in the system.
 * /
 * get: function () {
 * return
_globalKeyRegistry.numberOfKeys;
 * },
 * enumerable: false,
 * configurable: true
 * });
 * return ReflectiveKey;
 * })();
 * var KeyRegistry = /** @class */ (function () {
 * function KeyRegistry()
{
 * this._allKeys = new Map();
 * }
 * KeyRegistry.prototype.get = function (token) {
 * if
(token instanceof ReflectiveKey)
 * return token;
 * if (this._allKeys.has(token)) {
 * return
this._allKeys.get(token);
 * }
 * var newKey = new ReflectiveKey(token,
```

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ReflectiveKey.numberOfKeys);\n this._allKeys.set(token, newKey);\n return newKey;\n };\n Object.defineProperty(KeyRegistry.prototype, \"numberOfKeys\", {\n get: function () {\n return this._allKeys.size;\n },\n enumerable: false,\n configurable: true\n });\n return\n KeyRegistry;\n }());\n var _globalKeyRegistry = new KeyRegistry();\n\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\n * be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Provides access to reflection\n * data about symbols. Used internally by Angular\n * to power dependency injection and compilation.\n */\n var Reflector = /** @class */ (function () {\n function Reflector(reflectionCapabilities) {\n this.reflectionCapabilities = reflectionCapabilities;\n }\n Reflector.prototype.updateCapabilities = function\n (caps) {\n this.reflectionCapabilities\n = caps;\n };\n Reflector.prototype.factory = function (type) {\n return\n this.reflectionCapabilities.factory(type);\n };\n Reflector.prototype.parameters = function (typeOrFunc) {\n return this.reflectionCapabilities.parameters(typeOrFunc);\n };\n Reflector.prototype.annotations =\n function (typeOrFunc) {\n return this.reflectionCapabilities.annotations(typeOrFunc);\n };\n Reflector.prototype.propMetadata = function (typeOrFunc) {\n return\n this.reflectionCapabilities.propMetadata(typeOrFunc);\n };\n Reflector.prototype.hasLifecycleHook =\n function (type, lcProperty) {\n return this.reflectionCapabilities.hasLifecycleHook(type, lcProperty);\n };\n Reflector.prototype.getter = function (name) {\n return this.reflectionCapabilities.getter(name);\n };\n Reflector.prototype.setter = function (name) {\n return this.reflectionCapabilities.setter(name);\n };\n Reflector.prototype.method = function (name) {\n return this.reflectionCapabilities.method(name);\n };\n Reflector.prototype.importUri = function\n (type) {\n return this.reflectionCapabilities.importUri(type);\n };\n Reflector.prototype.resourceUri =\n function (type) {\n return this.reflectionCapabilities.resourceUri(type);\n };\n Reflector.prototype.resolveIdentifier = function (name, moduleUrl, members, runtime) {\n return\n this.reflectionCapabilities.resolveIdentifier(name, moduleUrl, members, runtime);\n };\n Reflector.prototype.resolveEnum = function (identifier, name) {\n return\n this.reflectionCapabilities.resolveEnum(identifier, name);\n };\n return Reflector;\n })();\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code\n * is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * The { @link Reflector } used internally in Angular to access metadata\n * about symbols.\n */\n var reflector = new Reflector(new ReflectionCapabilities());\n\n /**\n * @license\n * Copyright Google\n * LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * `Dependency` is used by the\n * framework to extend DI.\n * This is internal to Angular and should not be used directly.\n */\n var\n ReflectiveDependency = /** @class */ (function () {\n function ReflectiveDependency(key, optional, visibility)\n {\n this.key = key;\n this.optional = optional;\n this.visibility = visibility;\n }\n ReflectiveDependency.fromKey = function (key) {\n return new ReflectiveDependency(key, false, null);\n };\n return ReflectiveDependency;\n })();\n\n var _EMPTY_LIST = [];\n var ResolvedReflectiveProvider_ = /** @class */ (function () {\n function\n ResolvedReflectiveProvider_(key, resolvedFactories, multiProvider) {\n this.key = key;\n this.resolvedFactories = resolvedFactories;\n this.multiProvider = multiProvider;\n this.resolvedFactory = this.resolvedFactories[0];\n }\n return ResolvedReflectiveProvider_;\n })();\n\n /**\n * An internal resolved representation of a factory function created by resolving `Provider`.\n */\n @publicApi\n var ResolvedReflectiveFactory = /** @class */ (function () {\n function\n ResolvedReflectiveFactory(\n /**\n * Factory function which can return an instance of an object\n * represented by a key.\n */\n factory,\n /**\n * Arguments (dependencies)\n * to the `factory` function.\n */\n dependencies) {\n this.factory = factory;\n this.dependencies\n = dependencies;\n }\n return ResolvedReflectiveFactory;\n })();\n\n /**\n * Resolve a single

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provider.\n */\n function resolveReflectiveFactory(provider) {\n var factoryFn;\n var resolvedDeps;\n if (provider.useClass) {\n var useClass = resolveForwardRef(provider.useClass);\n factoryFn =\n reflector.factory(useClass);\n resolvedDeps = _dependenciesFor(useClass);\n }\n else if\n (provider.useExisting) {\n factoryFn = function (aliasInstance) { return aliasInstance; };\n resolvedDeps = [ReflectiveDependency.fromKey(ReflectiveKey.get(provider.useExisting))];\n }\n else if\n (provider.useFactory) {\n factoryFn = provider.useFactory;\n resolvedDeps =\n constructDependencies(provider.useFactory, provider.deps);\n }\n else {\n factoryFn = function () { return provider.useValue; };\n resolvedDeps =\n _EMPTY_LIST;\n }\n return new ResolvedReflectiveFactory(factoryFn, resolvedDeps);\n }\n /**\n * Converts the `Provider` into `ResolvedProvider`.\n */\n * `Injector` internally only uses `ResolvedProvider`,\n `Provider` contains convenience provider\n */\n * syntax.\n */\n function resolveReflectiveProvider(provider) {\n return new ResolvedReflectiveProvider_(ReflectiveKey.get(provider.provide),\n [resolveReflectiveFactory(provider)], provider.multi || false);\n }\n /**\n * Resolve a list of Providers.\n */\n function resolveReflectiveProviders(providers) {\n var normalized = _normalizeProviders(providers,\n []);\n var resolved = normalized.map(resolveReflectiveProvider);\n var resolvedProviderMap =\n mergeResolvedReflectiveProviders(resolved, new Map());\n return\n Array.from(resolvedProviderMap.values());\n }\n /**\n * Merges a list of ResolvedProviders into a list where each key is contained exactly once and\n * multi providers have been merged.\n */\n function mergeResolvedReflectiveProviders(providers,\n normalizedProvidersMap) {\n for (var i = 0; i < providers.length; i++) {\n var provider = providers[i];\n var existing = normalizedProvidersMap.get(provider.key.id);\n if (existing) {\n if\n (provider.multiProvider !== existing.multiProvider) {\n throw\n mixingMultiProvidersWithRegularProvidersError(existing, provider);\n }\n if\n (provider.multiProvider) {\n for (var j = 0; j < provider.resolvedFactories.length; j++) {\n existing.resolvedFactories.push(provider.resolvedFactories[j]);\n }\n }\n else {\n normalizedProvidersMap.set(provider.key.id,\n provider);\n }\n }\n else {\n var resolvedProvider = void 0;\n if\n (provider.multiProvider) {\n resolvedProvider = new ResolvedReflectiveProvider_(provider.key,\n provider.resolvedFactories.slice(), provider.multiProvider);\n }\n else {\n resolvedProvider = provider;\n }\n normalizedProvidersMap.set(provider.key.id,\n resolvedProvider);\n }\n }\n return normalizedProvidersMap;\n }\n function\n _normalizeProviders(providers, res) {\n providers.forEach(function (b) {\n if (b instanceof Type) {\n res.push({ provide: b, useClass: b });\n }\n else if (b && typeof b === 'object' && b.provide !==\n undefined) {\n res.push(b);\n }\n else if (Array.isArray(b)) {\n _normalizeProviders(b, res);\n }\n else {\n throw invalidProviderError(b);\n }\n });\n return res;\n }\n function constructDependencies(typeOrFunc, dependencies) {\n if (!dependencies) {\n return\n _dependenciesFor(typeOrFunc);\n }\n else {\n var params_1 = dependencies.map(function (t) {\n return [t];\n });\n return dependencies.map(function (t) {\n return _extractToken(typeOrFunc, t, params_1);\n });\n }\n }\n function _dependenciesFor(typeOrFunc) {\n var params = reflector.parameters(typeOrFunc);\n if (!params)\n return [];\n if (params.some(function (p) {\n return p == null;\n }))) {\n throw\n noAnnotationError(typeOrFunc, params);\n }\n return params.map(function (p) {\n return\n _extractToken(typeOrFunc, p, params);\n });\n }\n function _extractToken(typeOrFunc, metadata, params) {\n var token = null;\n var optional = false;\n if (!Array.isArray(metadata)) {\n if (metadata instanceof Inject) {\n return\n _createDependency(metadata.token, optional, null);\n }\n else {\n return\n _createDependency(metadata, optional, null);\n }\n }\n var visibility = null;\n for (var i = 0; i <\n metadata.length; ++i) {\n var paramMetadata = metadata[i];\n if (paramMetadata instanceof Type) {\n
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 token = paramMetadata;\n }\n else if (paramMetadata instanceof Inject) {\n token = paramMetadata.token;\n }\n else if (paramMetadata instanceof Optional) {\n optional = true;\n }\n else if (paramMetadata instanceof Self || paramMetadata instanceof SkipSelf) {\n visibility = paramMetadata;\n }\n else if (paramMetadata instanceof InjectionToken) {\n token = paramMetadata;\n }\n }\n token = resolveForwardRef(token);\n if (token != null) {\n return _createDependency(token, optional, visibility);\n }\n else {\n throw noAnnotationError(typeOrFunc, params);\n }\n }\n function _createDependency(token, optional, visibility) {\n return new ReflectiveDependency(ReflectiveKey.get(token), optional, visibility);\n }\n\n // Threshold for the dynamic version\n var UNDEFINED = {};\n\n /**\n * A ReflectiveDependency injection container used for instantiating objects and resolving\n * dependencies.\n *\n * An `Injector` is a replacement for a `new` operator, which can automatically resolve the\n * constructor dependencies.\n *\n * In typical use, application code asks for the dependencies in the constructor and they are\n * resolved by the `Injector`.\n *\n * @usageNotes\n * ### Example\n *\n * The following example creates an `Injector` configured to create `Engine` and `Car`.\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var injector = ReflectiveInjector.resolveAndCreate([Car, Engine]);\n * var car = injector.get(Car);\n * expect(car instanceof Car).toBe(true);\n * expect(car.engine instanceof Engine).toBe(true);\n * ```\n *\n * Notice, we don't use the `new` operator because we explicitly want to have the `Injector` resolve all of the object's dependencies automatically.\n *\n * @deprecated from v5 - slow and brings in a lot of code, Use `Injector.create` instead.\n * @publicApi\n */\n var ReflectiveInjector = /** @class */ (function () {\n function ReflectiveInjector() {\n }\n\n /**\n * Turns an array of provider definitions into an array of resolved providers.\n *\n * A resolution is a process of flattening multiple nested arrays and converting individual\n * providers into an array of `ResolvedReflectiveProvider`s.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var providers = ReflectiveInjector.resolve([Car, [Engine]]);\n * expect(providers.length).toEqual(2);\n * expect(providers[0] instanceof ResolvedReflectiveProvider).toBe(true);\n * expect(providers[0].key.displayName).toBe("Car");\n * expect(providers[0].dependencies.length).toEqual(1);\n * expect(providers[0].factory).toBeDefined();\n *\n * expect(providers[1].key.displayName).toBe("Engine");\n * }\n * ```\n *\n */\n ReflectiveInjector.resolve = function (providers) {\n return resolveReflectiveProviders(providers);\n };\n\n /**\n * Resolves an array of providers and creates an injector from those providers.\n *\n * The passed-in providers can be an array of `Type`, `Provider`,\n * or a recursive array of more providers.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var injector = ReflectiveInjector.resolveAndCreate([Car, Engine]);\n * expect(injector.get(Car) instanceof Car).toBe(true);\n * ```\n *\n */\n ReflectiveInjector.resolveAndCreate = function (providers, parent) {\n var ResolvedReflectiveProviders = ReflectiveInjector.resolve(providers);\n return ReflectiveInjector.fromResolvedProviders(ResolvedReflectiveProviders, parent);\n };\n\n /**\n * Creates an injector from previously resolved providers.\n *\n * This API is the recommended way to construct injectors in performance-sensitive parts.\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Injectable()\n * class Engine {\n * }\n * @Injectable()\n * class Car {\n * constructor(public engine: Engine) {}\n * }\n *\n * var providers = ReflectiveInjector.resolve([Car, Engine]);\n * var injector =

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ReflectiveInjector.fromResolvedProviders(providers);\n * expect(injector.get(Car) instanceof
Car).toBe(true);\n * ``\n *\n ReflectiveInjector.fromResolvedProviders = function (providers,
parent) {\n
 return new ReflectiveInjector_(providers, parent);\n };\n return ReflectiveInjector;\n }());\n var
ReflectiveInjector_ = /** @class */ (function () {\n /**\n * Private\n *\n function
ReflectiveInjector_(providers, parent) {\n /** @internal *\n this._constructionCounter = 0;\n
this._providers = providers;\n this.parent = parent || null;\n var len = providers.length;\n
this.keyIds = [];\n this.objs = [];\n for (var i = 0; i < len; i++) {\n this.keyIds[i] =
providers[i].key.id;\n this.objs[i] = UNDEFINED;\n }\n }\n
ReflectiveInjector_.prototype.get = function (token, notFoundValue) {\n if (notFoundValue === void 0) {\n
notFoundValue = THROW_IF_NOT_FOUND;\n }\n return this._getKey(ReflectiveKey.get(token), null,
notFoundValue);\n };\n ReflectiveInjector_.prototype.resolveAndCreateChild
= function (providers) {\n var ResolvedReflectiveProviders = ReflectiveInjector.resolve(providers);\n
return this.createChildFromResolved(ResolvedReflectiveProviders);\n };\n
ReflectiveInjector_.prototype.createChildFromResolved = function (providers) {\n var inj = new
ReflectiveInjector_(providers);\n inj.parent = this;\n return inj;\n };\n
ReflectiveInjector_.prototype.resolveAndInstantiate = function (provider) {\n return
this.instantiateResolved(ReflectiveInjector.resolve([provider])[0]);\n };\n
ReflectiveInjector_.prototype.instantiateResolved = function (provider) {\n return
this._instantiateProvider(provider);\n };\n ReflectiveInjector_.prototype.getProviderAtIndex = function
(index) {\n if (index < 0 || index >= this._providers.length) {\n throw outOfBoundsError(index);\n
}\n
 return this._providers[index];\n };\n /** @internal *\n ReflectiveInjector_.prototype._new =
function (provider) {\n if (this._constructionCounter++ > this._getMaxNumberOfObjects()) {\n
throw cyclicDependencyError(this, provider.key);\n }\n return this._instantiateProvider(provider);\n
};\n ReflectiveInjector_.prototype._getMaxNumberOfObjects = function () {\n return this.objs.length;\n
};\n ReflectiveInjector_.prototype._instantiateProvider = function (provider) {\n if
(provider.multiProvider) {\n var res = [];\n for (var i = 0; i < provider.resolvedFactories.length;
++i) {\n res[i] = this._instantiate(provider, provider.resolvedFactories[i]);\n }\n return
res;\n }\n else {\n return this._instantiate(provider, provider.resolvedFactories[0]);\n
}\n };\n ReflectiveInjector_.prototype._instantiate = function (provider, ResolvedReflectiveFactory)
{\n var _this = this;\n var factory = ResolvedReflectiveFactory.factory;\n var deps;\n try
{\n deps =\n ResolvedReflectiveFactory.dependencies.map(function (dep) {\n return
_this._getByReflectiveDependency(dep);\n });\n catch (e) {\n if (e.addKey) {\n
e.addKey(this, provider.key);\n }\n throw e;\n }\n var obj;\n try {\n
obj = factory.apply(void 0, __spread(deps));\n }\n catch (e) {\n throw instantiationError(this,
e, e.stack, provider.key);\n }\n return obj;\n };\n
ReflectiveInjector_.prototype._getByReflectiveDependency = function (dep) {\n return
this._getKey(dep.key,
dep.visibility, dep.optional ? null : THROW_IF_NOT_FOUND);\n };\n
ReflectiveInjector_.prototype._getKey = function (key, visibility, notFoundValue) {\n if (key ===
ReflectiveInjector_.INJECTOR_KEY) {\n return this;\n }\n if (visibility instanceof Self) {\n
return this._getKeySelf(key, notFoundValue);\n }\n else {\n return
this._getKeyDefault(key, notFoundValue, visibility);\n }\n };\n
ReflectiveInjector_.prototype._getObjByKeyId = function (keyId) {\n for (var i = 0; i < this.keyIds.length;
i++) {\n if (this.keyIds[i] === keyId) {\n if (this.objs[i] === UNDEFINED) {\n
this.objs[i] = this._new(this._providers[i]);\n }\n return this.objs[i];\n }\n }\n
 return UNDEFINED;\n };\n /** @internal

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*/\n ReflectiveInjector_.prototype._throwOrNull = function (key, notFoundValue) {\n if
(notFoundValue !== THROW_IF_NOT_FOUND) {\n return notFoundValue;\n }\n else {\n
 throw noProviderError(this, key);\n }\n }; \n /** @internal */\n
ReflectiveInjector_.prototype._getByKeySelf = function (key, notFoundValue) {\n var obj =
this._getObjByKeyId(key.id);\n return (obj !== UNDEFINED) ? obj : this._throwOrNull(key,
notFoundValue);\n }; \n /** @internal */\n
ReflectiveInjector_.prototype._getByKeyDefault = function
(key, notFoundValue, visibility) {\n var inj;\n if (visibility instanceof SkipSelf) {\n inj =
this.parent;\n }\n else {\n inj = this;\n }\n while (inj instanceof
ReflectiveInjector_) {\n var inj_ = inj;\n var obj = inj_._getObjByKeyId(key.id);\n
 if (obj !== UNDEFINED)\n return obj;\n inj = inj_.parent;\n }\n if (inj
!== null) {\n return inj.get(key.token, notFoundValue);\n }\n else {\n return
this._throwOrNull(key, notFoundValue);\n }\n }; \n
Object.defineProperty(ReflectiveInjector_.prototype, 'displayName', {\n get: function () {\n var
providers = _mapProviders(this, function (b) { return ' ' + b.key.displayName + ' '; });\n .join(', '); \n
 return "ReflectiveInjector(providers: [" + providers + "]);\n }, \n enumerable: false, \n
configurable: true \n }); \n
ReflectiveInjector_.prototype.toString = function () {\n return
this.displayName;\n }; \n return ReflectiveInjector_;\n }(); \n
ReflectiveInjector_.INJECTOR_KEY
= ReflectiveKey.get(Injector);\n
function _mapProviders(injector, fn) {\n var res = [];\n for (var i = 0; i <
injector._providers.length; ++i) {\n res[i] = fn(injector.getProviderAtIndex(i));\n }\n return res;\n
}\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n
function directiveInject(token,
flags) {\n if (flags === void 0) { flags = exports.InjectFlags.Default; }\n var IView = getLView(); \n //
Fall back to inject() if view hasn't been created. This situation can happen in tests\n // if inject utilities are used
before bootstrapping.\n if (IView === null) {\n // Verify that we will not get into infinite loop.\n
ngDevMode && assertInjectImplementationNotEqual(directiveInject);\n return inject(token, flags);\n }\n
 var tNode = getCurrentTNode();\n return getOrCreateInjectable(tNode, IView, resolveForwardRef(token),
flags);\n } \n /**\n * Facade for the attribute injection from DI.\n * \n * @codeGenApi\n */\n
function injectAttribute(attrNameToInject) {\n return injectAttributeImpl(getCurrentTNode(), attrNameToInject);\n } \n
 /**\n * Throws an error indicating that a factory function could not be generated by the compiler for
a\n * particular class.\n * \n * This instruction allows the actual error message to be optimized away when
ngDevMode is turned\n * off, saving bytes of generated code while still providing a good experience in dev
mode.\n * \n * The name of the class is not mentioned here, but will be in the generated factory function name\n
* and thus in the stack trace.\n * \n * @codeGenApi\n */\n
function invalidFactory() {\n var msg =
ngDevMode ? "This constructor was not compatible with Dependency Injection." : 'invalid';\n throw new
Error(msg);\n } \n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n
 /**\n * Update a property on a selected element.\n * \n * Operates on the
element selected by index via the { @link select } instruction.\n
 *\n * If the property name also exists as an input property on one of the element's directives,\n * the
component property will be set instead of the element property. This check must\n * be conducted at runtime so
child components that add new `@Inputs` don't have to be re-compiled\n * \n * @param propName Name of
property. Because it is going to DOM, this is not subject to\n * renaming as part of minification.\n *
@param value New value to write.\n * @param sanitizer An optional function used to sanitize the value.\n *

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@returns This function returns itself so that it may be chained\n * (e.g. `property('name', ctx.name)('title',\n ctx.title)`)\n *\n * @codeGenApi\n */\n function property(propName, value, sanitizer) {\n var IView =\n getLView();\n var bindingIndex = nextBindingIndex();\n if (bindingUpdated(IView, bindingIndex, value))\n {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView, tNode, IView, propName, value, IView[RENDERER], sanitizer, false);\n ngDevMode && storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);\n }\n return property;\n }\n /**\n * Given `<div style=\"...\" my-dir>` and `MyDir` with `@Input('style')` we need to\n write to\n * directive input.\n */\n function setDirectiveInputsWhichShadowsStyling(tView, tNode, IView,\n value, isClassBased) {\n var inputs = tNode.inputs;\n var property = isClassBased ? 'class' : 'style';\n //\n We support both 'class' and `className` hence the fallback.\n setInputsForProperty(tView, IView,\n inputs[property], property, value);\n }\n /**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n
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function elementStartFirstCreatePass(index, tView, IView, native, name, attrsIndex, localRefsIndex) {\n ngDevMode && assertFirstCreatePass(tView);\n ngDevMode && ngDevMode.firstCreatePass++;\n var\n tViewConsts = tView.consts;\n var attrs = getConstant(tViewConsts, attrsIndex);\n var tNode =\n getOrCreateTNode(tView, index, 2 /* Element */, name, attrs);\n var hasDirectives = resolveDirectives(tView,\n IView, tNode, getConstant(tViewConsts, localRefsIndex));\n ngDevMode &&\n logUnknownElementError(tView, native, tNode, hasDirectives);\n if (tNode.attrs !== null) {\n computeStaticStyling(tNode, tNode.attrs, false);\n }\n if (tNode.mergedAttrs !== null) {\n computeStaticStyling(tNode, tNode.mergedAttrs, true);\n }\n if (tView.queries !== null) {\n tView.queries.elementStart(tView, tNode);\n }\n return tNode;\n}\n/**\n * Create DOM element.\n The instruction\n
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must later be followed by `elementEnd()` call.\n *\n * @param index Index of the element in the LView\n array\n * @param name Name of the DOM Node\n * @param attrsIndex Index of the element's attributes in\n the `consts` array.\n * @param localRefsIndex Index of the element's local references in the `consts` array.\n *\n * Attributes and localRefs are passed as an array of strings where elements with an even index\n * hold an\n attribute name and elements with an odd index hold an attribute value, ex.:`\n * ['id', 'warning5', 'class', 'alert']`\n *\n * @codeGenApi\n */\n function elementStart(index, name, attrsIndex, localRefsIndex) {\n var IView\n = getLView();\n var tView = getTView();\n var adjustedIndex = HEADER_OFFSET + index;\n ngDevMode &&\n assertEqual(getBindingIndex(), tView.bindingStartIndex, 'elements should be created\n before any bindings');\n ngDevMode && assertIndexInRange(IView,\n adjustedIndex);\n var renderer = IView[RENDERER];\n var native = IView[adjustedIndex] =\n createElementNode(renderer, name, getNamespace());\n var tNode = tView.firstCreatePass ?\n elementStartFirstCreatePass(adjustedIndex, tView, IView, native, name, attrsIndex, localRefsIndex) :\n tView.data[adjustedIndex];\n setCurrentTNode(tNode, true);\n var mergedAttrs = tNode.mergedAttrs;\n if (mergedAttrs !== null) {\n setUpAttributes(renderer, native, mergedAttrs);\n }\n var classes =\n tNode.classes;\n if (classes !== null) {\n writeDirectClass(renderer, native, classes);\n }\n var\n styles = tNode.styles;\n if (styles !== null) {\n writeDirectStyle(renderer, native, styles);\n }\n if\n ((tNode.flags & 64 /* isDetached */) !== 64 /* isDetached */) {\n // In the i18n case, the translation may have\n removed this element, so only add it if it\n
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is not\n // detached. See `TNodeType.Placeholder` and `LFrame.inI18n` for more context.\n appendChild(tView, IView, native, tNode);\n }\n // any immediate children of a component or template\n container must be pre-emptively\n // monkey-patched with the component view data so that the element can be\n inspected\n // later on using any element discovery utility methods (see `element_discovery.ts`)\n if\n (getElementDepthCount() === 0) {\n attachPatchData(native, IView);\n }\n increaseElementDepthCount();\n if (isDirectiveHost(tNode)) {\n createDirectivesInstances(tView,\n IView, tNode);\n executeContentQueries(tView, tNode, IView);\n }\n if (localRefsIndex !== null)\n
```



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{\n saveResolvedLocalsInData(IView, tNode);\n }\n }\n /**\n * Mark the end of the element.\n *\n * @codeGenApi\n */\n function elementEnd() {\n var currentTNode\n = getCurrentTNode();\n ngDevMode && assertDefined(currentTNode, 'No parent node to close.);\n if\n (isCurrentTNodeParent()) {\n setCurrentTNodeAsNotParent();\n }\n else {\n ngDevMode\n && assertHasParent(getCurrentTNode());\n currentTNode = currentTNode.parent;\n setCurrentTNode(currentTNode, false);\n }\n var tNode = currentTNode;\n ngDevMode &&\n assertTNodeType(tNode, 3 /* AnyRNode */);\n decreaseElementDepthCount();\n var tView =\n getTView();\n if (tView.firstCreatePass) {\n registerPostOrderHooks(tView, currentTNode);\n }\n if\n (isContentQueryHost(currentTNode)) {\n tView.queries.elementEnd(currentTNode);\n }\n }\n if (tNode.classesWithoutHost != null && hasClassInput(tNode)) {\n setDirectiveInputsWhichShadowsStyling(tView, tNode, getLView(), tNode.classesWithoutHost, true);\n }\n if (tNode.stylesWithoutHost\n != null && hasStyleInput(tNode)) {\n setDirectiveInputsWhichShadowsStyling(tView, tNode, getLView(),\n tNode.stylesWithoutHost, false);\n }\n }\n /**\n * Creates an empty element using { @link elementStart\n * and { @link elementEnd}\n *\n * @param index Index of the element in the data array\n * @param name Name of the DOM Node\n * @param attrsIndex Index of the element's attributes in the `const`s` array.\n * @param localRefsIndex Index of the element's local references in the `const`s` array.\n *\n * @codeGenApi\n */\n function element(index, name, attrsIndex, localRefsIndex) {\n elementStart(index, name, attrsIndex,\n localRefsIndex);\n elementEnd();\n }\n function logUnknownElementError(tView, element, tNode,\n hasDirectives) {\n var schemas = tView.schemas;\n // If `schemas` is set to `null`, that's an indication that\n this Component was compiled in AOT\n // mode where\n this check happens at compile time. In JIT mode, `schemas` is always present and\n // defined as an array (as an\n empty array in case `schemas` field is not defined) and we should\n // execute the check below.\n if\n (schemas === null)\n return;\n var tagName = tNode.value;\n // If the element matches any directive,\n it's considered as valid.\n if (!hasDirectives && tagName !== null) {\n // The element is unknown if it's\n an instance of HTMLUnknownElement or it isn't registered\n // as a custom element. Note that unknown\n elements with a dash in their name won't be instances\n // of HTMLUnknownElement in browsers that\n support web components.\n var isUnknown =\n // Note that we can't check for `typeof`\n HTMLUnknownElement === 'function',\n // because while most browsers return 'function', IE returns\n 'object'.\n (typeof HTMLUnknownElement !== 'undefined' && HTMLUnknownElement\n &&\n element instanceof HTMLUnknownElement) ||\n (typeof customElements !== 'undefined'\n && tagName.indexOf('-') > -1 &&\n !customElements.get(tagName));\n if (isUnknown &&\n !matchingSchemas(tView, tagName)) {\n var message = \"\" + tagName + \"\" is not a known\n element:\\n\";\n message += \"1. If \" + tagName + \"\" is an Angular component, then verify that it is part\n of this module.\\n\";\n if (tagName && tagName.indexOf('-') > -1) {\n message += \"2. If \" +\n tagName + \"\" is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of\n this component to suppress this message.\\n\";\n }\n else {\n message +=\n \"2. To allow any element add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.\\n\";\n }\n console.error(formatRuntimeError(\"304\"\n /* UNKNOWN_ELEMENT */,\n message));\n }\n }\n }\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\n * be\n * found in the LICENSE file at https://angular.io/license\n */\n function\n elementContainerStartFirstCreatePass(index, tView, IView, attrsIndex, localRefsIndex) {\n ngDevMode &&\n ngDevMode.firstCreatePass++;\n var tViewConsts = tView.consts;\n var attrs = getConstant(tViewConsts,\n attrsIndex);\n var tNode = getOrCreateTNode(tView, index, 8 /* ElementContainer */,\n 'ng-container', attrs);\n // While ng-container doesn't necessarily support styling, we use the style context to identify\n // and execute\n directives on the ng-container.\n if (attrs !== null) {\n computeStaticStyling(tNode, attrs, true);\n }\n var localRefs = getConstant(tViewConsts, localRefsIndex);\n }

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 resolveDirectives(tView, IView, tNode, localRefs);\n if (tView.queries !== null) {\n
tView.queries.elementStart(tView, tNode);\n }\n return tNode;\n }\n /**\n * Creates a logical
container for other nodes (<ng-container>) backed by a comment node in the DOM.\n * The instruction must later
be followed by `elementContainerEnd()` call.\n * @param index Index of the element in the LView array\n
 * @param attrsIndex Index of the container attributes in the `consts` array.\n * @param localRefsIndex Index of
the container's local references in the `consts` array.\n * @param localRefsIndex Index of
the container's local references in the `consts` array.\n * Even if this instruction accepts a set of attributes no
actual attribute values are propagated to\n * the DOM (as a comment node can't have attributes). Attributes are
here only for directive\n * matching purposes and setting initial inputs of directives.\n * @codeGenApi\n
 */\n function elementContainerStart(index,
attrsIndex, localRefsIndex) {\n var IView = getLView();\n var tView = getTView();\n var
adjustedIndex = index + HEADER_OFFSET;\n ngDevMode && assertIndexInRange(IView, adjustedIndex);\n
 ngDevMode &&\n assertEqual(getBindingIndex(), tView.bindingStartIndex, 'element containers should
be created before any bindings');\n var tNode = tView.firstCreatePass ?\n
elementContainerStartFirstCreatePass(adjustedIndex, tView, IView, attrsIndex, localRefsIndex) :\n
tView.data[adjustedIndex];\n setCurrentTNode(tNode, true);\n ngDevMode &&
ngDevMode.rendererCreateComment++;\n var native = IView[adjustedIndex] =\n
IView[RENDERER].createComment(ngDevMode ? 'ng-container' : '');\n appendChild(tView, IView, native,
tNode);\n attachPatchData(native, IView);\n if (isDirectiveHost(tNode)) {\n
createDirectivesInstances(tView, IView, tNode);\n executeContentQueries(tView,
tNode, IView);\n }\n if (localRefsIndex !== null) {\n saveResolvedLocalsInData(IView, tNode);\n
 }\n /**\n * Mark the end of the <ng-container>.\n * @codeGenApi\n
 */\n function
elementContainerEnd() {\n var currentTNode = getCurrentTNode();\n var tView = getTView();\n if
(isCurrentTNodeParent()) {\n setCurrentTNodeAsNotParent();\n } else {\n ngDevMode
&& assertHasParent(currentTNode);\n currentTNode = currentTNode.parent;\n
setCurrentTNode(currentTNode, false);\n }\n ngDevMode && assertTNodeType(currentTNode, 8 /*
ElementContainer */);\n if (tView.firstCreatePass) {\n registerPostOrderHooks(tView, currentTNode);\n
 }\n if (isContentQueryHost(currentTNode)) {\n tView.queries.elementEnd(currentTNode);\n
 }\n }\n /**\n * Creates an empty logical container
using { @link elementContainerStart} and { @link elementContainerEnd}\n * @param index Index
of the element in the LView array\n * @param attrsIndex Index of the container attributes in the `consts` array.\n
 * @param localRefsIndex Index of the container's local references in the `consts` array.\n * @codeGenApi\n
 */\n function elementContainer(index, attrsIndex, localRefsIndex) {\n
elementContainerStart(index, attrsIndex, localRefsIndex);\n elementContainerEnd();\n }\n /**\n
 * Returns the current OpaqueViewState instance.\n * Used in conjunction with the restoreView() instruction
to save a snapshot\n * of the current view and restore it when listeners are invoked. This allows\n * walking the
declaration view tree in listeners to get vars from parent views.\n * @codeGenApi\n
 */\n function
getCurrentView() {\n return getLView();\n }\n /**\n * @license\n
 * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n * Determine if
the argument is shaped like a Promise\n * function isPromise(obj) {\n // allow any Promise/A+ compliant
thenable.\n // It's up to the caller to ensure that obj.then conforms to the spec\n return !!obj && typeof
obj.then === 'function';\n }\n /**\n * Determine if the argument is an Observable\n * Strictly this
tests that the `obj` is `Subscribable`, since `Observable`\n * types need additional methods, such as `lift()`. But it
is adequate for our\n * needs since within the Angular framework code we only ever need to use the\n *
`subscribe()` method, and RxJS has mechanisms to wrap `Subscribable` objects\n * into `Observable` as
needed.\n * function isObservable(obj)\n
 {\n return !!obj && typeof obj.subscribe === 'function';\n }\n /**\n
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be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Adds an event listener to the
current node.\n */\n * If an output exists on one of the node's directives, it also subscribes to the output\n *
and saves the subscription for later cleanup.\n */\n * @param eventName Name of the event\n * @param
listenerFn The function to be called when event emits\n * @param useCapture Whether or not to use capture in
event listener\n * @param eventTargetResolver Function that returns global target information in case this
listener\n * should be attached to a global object like window, document or body\n */\n * @codeGenApi\n
*/\n function listener(eventName, listenerFn, useCapture,
eventTargetResolver) {\n if (useCapture === void 0) { useCapture = false; }\n var IView = getLView();\n
 var tView = getTView();\n var tNode = getCurrentTNode();\n listenerInternal(tView, IView,
IView[RENDERER], tNode, eventName, listenerFn, useCapture, eventTargetResolver);\n return listener;\n
 }\n /**\n * Registers a synthetic host listener (e.g. `(@foo.start)`) on a component or directive.\n */\n * This
instruction is for compatibility purposes and is designed to ensure that a\n * synthetic host listener (e.g.
`@HostListener('@foo.start')`) properly gets rendered\n * in the component's renderer. Normally all host listeners
are evaluated with the\n * parent component's renderer, but, in the case of animation @triggers, they need\n *
to be evaluated with the sub component's renderer (because that's where the\n * animation triggers are defined).\n
 */\n * Do not use this instruction as a replacement for
`listener`. This instruction\n * only exists to ensure compatibility with the ViewEngine's host binding behavior.\n
 */\n * @param eventName Name of the event\n * @param listenerFn The function to be called when event
emits\n * @param useCapture Whether or not to use capture in event listener\n * @param eventTargetResolver
Function that returns global target information in case this listener\n * should be attached to a global object like
window, document or body\n */\n * @codeGenApi\n */\n function syntheticHostListener(eventName,
listenerFn, useCapture, eventTargetResolver) {\n if (useCapture === void 0) { useCapture = false; }\n var
tNode = getCurrentTNode();\n var IView = getLView();\n var tView = getTView();\n var currentDef =
getCurrentDirectiveDef(tView.data);\n var renderer = loadComponentRenderer(currentDef, tNode, IView);\n
 listenerInternal(tView, IView, renderer, tNode, eventName, listenerFn,
useCapture, eventTargetResolver);\n return syntheticHostListener;\n }\n /**\n * A utility function that
checks if a given element has already an event handler registered for an\n * event with a specified name. The
TView.cleanup data structure is used to find out which events\n * are registered for a given element.\n */\n
 */\n function findExistingListener(tView, IView, eventName, tNodeIdx) {\n var tCleanup = tView.cleanup;\n if
(tCleanup != null) {\n for (var i = 0; i < tCleanup.length - 1; i += 2) {\n var cleanupEventName =
tCleanup[i];\n if (cleanupEventName === eventName && tCleanup[i + 1] === tNodeIdx) {\n
 // We have found a matching event name on the same node but it might not have been\n
 // registered yet,
so we must explicitly verify entries in the LView cleanup data\n // structures.\n var lCleanup
= IView[CLEANUP];\n
 var listenerIdxInLCleanup = tCleanup[i + 2];\n return lCleanup.length >
listenerIdxInLCleanup ? lCleanup[listenerIdxInLCleanup] : null;\n }\n // TView.cleanup can have
a mix of 4-elements entries (for event handler cleanups) or\n // 2-element entries (for directive and queries
destroy hooks). As such we can encounter\n // blocks of 4 or 2 items in the tView.cleanup and this is why
we iterate over 2 elements\n // first and jump another 2 elements if we detect listeners cleanup (4
elements). Also check\n // documentation of TView.cleanup for more details of this data structure layout.\n
 if (typeof cleanupEventName === 'string') {\n i += 2;\n }\n }\n
 }\n return null;\n }\n function listenerInternal(tView, IView, renderer, tNode, eventName, listenerFn, useCapture,
eventTargetResolver)
{\n if (useCapture === void 0) { useCapture = false; }\n var isTNodeDirectiveHost =
isDirectiveHost(tNode);\n var firstCreatePass = tView.firstCreatePass;\n var tCleanup = firstCreatePass &&
(tView.cleanup || (tView.cleanup = []));\n // When the listener instruction was generated and is executed we
know that there is either a\n // native listener or a directive output on this element. As such we we know that we
will have to\n // register a listener and store its cleanup function on LView.\n var lCleanup =

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getLCleanup(IView);\n ngDevMode && assertTNodeType(tNode, 3 /* AnyRNode */ | 12 /* AnyContainer
*/);\n var processOutputs = true;\n // add native event listener - applicable to elements only\n if
(tNode.type & 3 /* AnyRNode */) {\n var native = getNativeByTNode(tNode, IView);\n var resolved
= eventTargetResolver ? eventTargetResolver(native) : EMPTY_OBJ;\n var
target = resolved.target || native;\n var ICleanupIndex = ICleanup.length;\n var idxOrTargetGetter =
eventTargetResolver ?\n function (_IView) { return
eventTargetResolver(unwrapRNode(_IView[tNode.index])).target; } :\n tNode.index;\n // In order
to match current behavior, native DOM event listeners must be added for all\n // events (including outputs).\n
 if (isProceduralRenderer(renderer)) {\n // There might be cases where multiple directives on the
same element try to register an event\n // handler function for the same event. In this situation we want to
avoid registration of\n // several native listeners as each registration would be intercepted by NgZone and\n
 // trigger change detection. This would mean that a single user action would result in several\n //
change detections being invoked. To avoid this situation we want to
have only one call to\n // native handler registration (for the same element and same type of event).\n
 /\n // In order to have just one native event handler in presence of multiple handler functions,\n
// we just register a first handler function as a native event listener and then chain\n // (coalesce) other
handler functions on top of the first native handler function.\n var existingListener = null;\n //
Please note that the coalescing described here doesn't happen for events specifying an\n // alternative target
(ex. (document:click)) - this is to keep backward compatibility with the\n // view engine.\n //
Also, we don't have to search for existing listeners if there are no directives\n // matching on a given node
as we can't register multiple event handlers for the same event in\n // a template (this
would mean having duplicate attributes).\n if (!eventTargetResolver && isTNodeDirectiveHost) {\n
 existingListener = findExistingListener(tView, IView, eventName, tNode.index);\n }\n if
(existingListener !== null) {\n // Attach a new listener to coalesced listeners list, maintaining the order in
which\n // listeners are registered. For performance reasons, we keep a reference to the last\n
// listener in that list (in `__ngLastListenerFn` field), so we can avoid going through\n // the entire set
each time we need to add a new listener.\n var lastListenerFn = existingListener.__ngLastListenerFn__ ||
existingListener;\n lastListenerFn.__ngNextListenerFn__ = listenerFn;\n
existingListener.__ngLastListenerFn__ = listenerFn;\n processOutputs = false;\n }\n
 else {\n // The first argument of `listen` function in Procedural Renderer is:\n // - either
a target name (as a string) in case of global target (window, document, body)\n // - or element reference
(in all other cases)\n listenerFn = wrapListener(tNode, IView, listenerFn, false /** preventDefault */);\n
 var cleanupFn = renderer.listen(resolved.name || target, eventName, listenerFn);\n ngDevMode
&& ngDevMode.rendererAddEventListener++;\n ICleanup.push(listenerFn, cleanupFn);\n
tCleanup && tCleanup.push(eventName, idxOrTargetGetter, ICleanupIndex, ICleanupIndex + 1);\n }\n
 }\n else {\n listenerFn = wrapListener(tNode, IView, listenerFn, true /** preventDefault */);\n
 target.addEventListener(eventName, listenerFn, useCapture);\n ngDevMode &&
ngDevMode.rendererAddEventListener++;\n
 ICleanup.push(listenerFn);\n tCleanup && tCleanup.push(eventName, idxOrTargetGetter,
ICleanupIndex, useCapture);\n }\n }\n // subscribe to directive outputs\n var outputs =
tNode.outputs;\n var props;\n if (processOutputs && outputs !== null && (props = outputs[eventName]))
{\n var propsLength = props.length;\n if (propsLength) {\n for (var i = 0; i < propsLength; i
+= 2) {\n var index = props[i];\n ngDevMode && assertIndexInRange(IView, index);\n
 var minifiedName = props[i + 1];\n var directiveInstance = IView[index];\n var output
= directiveInstance[minifiedName];\n if (ngDevMode && !isObservable(output)) {\n
 throw new Error("@Output \"" + minifiedName + "\" not initialized in \"" + directiveInstance.constructor.name
+ "\".");\n }\n var subscription = output.subscribe(listenerFn);\n var idx =
ICleanup.length;\n ICleanup.push(listenerFn, subscription);\n tCleanup &&

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tCleanup.push(eventName, tNode.index, idx, -(idx + 1));\n }\n }\n }\n function
executeListenerWithErrorHandling(IView, listenerFn, e) {\n try {\n // Only explicitly returning false
from a listener should preventDefault\n return listenerFn(e) !== false;\n }\n catch (error) {\n
handleError(IView, error);\n return false;\n }\n }\n /**\n * Wraps an event listener with a function
that marks ancestors dirty and prevents default behavior,\n * if applicable.\n * @param tNode The
TNode associated with this listener\n * @param IView The LView that contains this listener\n * @param
listenerFn The
listener function to call\n * @param wrapWithPreventDefault Whether or not to prevent default behavior\n *
(the procedural renderer does this already, so in those cases, we should skip)\n */\n function
wrapListener(tNode, IView, listenerFn, wrapWithPreventDefault) {\n // Note: we are performing most of the
work in the listener function itself\n // to optimize listener registration.\n return function
wrapListenerIn_markDirtyAndPreventDefault(e) {\n // Ivy uses `Function` as a special token that allows us
to unwrap the function\n // so that it can be invoked programmatically by
`DebugNode.triggerEventHandler`.\n if (e === Function) {\n return listenerFn;\n }\n //
In order to be backwards compatible with View Engine, events on component host nodes\n // must also mark
the component view itself dirty (i.e. the view that it owns).\n var startView = tNode.flags & 2 /*
isComponentHost */ ?\n getComponentLViewByIndex(tNode.index, IView) : IView;\n // See interfaces/view.ts for more on LViewFlags.ManualOnPush\n if ((IView[FLAGS] & 32 /*
ManualOnPush */) === 0) {\n markViewDirty(startView);\n }\n var result =
executeListenerWithErrorHandling(IView, listenerFn, e);\n // A just-invoked listener function might have
coalesced listeners so we need to check for\n // their presence and invoke as needed.\n var
nextListenerFn = wrapListenerIn_markDirtyAndPreventDefault.__ngNextListenerFn__;\n while
(nextListenerFn) {\n // We should prevent default if any of the listeners explicitly return false\n
result = executeListenerWithErrorHandling(IView, nextListenerFn, e) && result;\n nextListenerFn =
nextListenerFn.__ngNextListenerFn__;\n }\n if (wrapWithPreventDefault
&& result === false) {\n e.preventDefault();\n // Necessary for legacy browsers that don't
support preventDefault (e.g. IE)\n e.returnValue = false;\n }\n return result;\n };\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n /**\n * Retrieves a context at the level specified and saves it as the global, contextViewData.\n * Will get
the next level up if level is not specified.\n * \n * This is used to save contexts of parent views so they can be
bound in embedded views,\n
or\n * in conjunction with reference() to bind a ref from a parent view.\n * \n * @param level The relative
level of the view from which to grab context compared to contextViewData\n * @returns context\n * \n *
@codeGenApi\n */\n function nextContext(level) {\n if (level === void 0) { level = 1; }\n return
nextContextImpl(level);\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n /**\n * Checks a given node against matching projection slots and returns
the\n * determined slot index. Returns \"null\" if no slot matched the given node.\n * \n * This function takes
into account the parsed ngProjectAs selector from the\n * node's attributes. If present, it will check whether the
ngProjectAs selector\n * matches any of the projection
slot selectors.\n */\n function matchingProjectionSlotIndex(tNode, projectionSlots) {\n var
wildcardNgContentIndex = null;\n var ngProjectAsAttrVal = getProjectAsAttrValue(tNode);\n for (var i =
0; i < projectionSlots.length; i++) {\n var slotValue = projectionSlots[i];\n // The last wildcard
projection slot should match all nodes which aren't matching\n // any selector. This is necessary to be
backwards compatible with view engine.\n if (slotValue === '*') {\n wildcardNgContentIndex = i;\n

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 continue;\n }\n // If we ran into an `ngProjectAs` attribute, we should match its parsed
selector\n // to the list of selectors, otherwise we fall back to matching against the node.\n if
(ngProjectAsAttrVal === null ?\n isNodeMatchingSelectorList(tNode, slotValue, /* isProjectionMode */
true) :\n isSelectorInSelectorList(ngProjectAsAttrVal,
slotValue)) {\n return i; // first matching selector\n }\n }\n return
wildcardNgContentIndex;\n }\n /**\n * Instruction to distribute projectable nodes among <ng-content>
occurrences in a given template.\n * It takes all the selectors from the entire component's template and decides
where\n * each projected node belongs (it re-distributes nodes among \"buckets\" where each \"bucket\" is\n *
backed by a selector).\n *\n * This function requires CSS selectors to be provided in 2 forms: parsed (by a
compiler) and text,\n * un-parsed form.\n *\n * The parsed form is needed for efficient matching of a node
against a given CSS selector.\n * The un-parsed, textual form is needed for support of the ngProjectAs attribute.\n
 *\n * Having a CSS selector in 2 different formats is not ideal, but alternatives have even more\n *
drawbacks:\n * - having
only a textual form would require runtime parsing of CSS selectors;\n * - we can't have only a parsed as we can't
re-construct textual form from it (as entered by a\n * template author).\n *\n * @param projectionSlots? A
collection of projection slots. A projection slot can be based\n * on a parsed CSS selectors or set to the
wildcard selector (\"*\") in order to match\n * all nodes which do not match any selector. If not specified, a
single wildcard\n * selector projection slot will be defined.\n *\n * @codeGenApi\n * ^\n function
projectionDef(projectionSlots) {\n var componentNode =
getLView()[DECLARATION_COMPONENT_VIEW][T_HOST];\n if (!componentNode.projection) {\n
// If no explicit projection slots are defined, fall back to a single\n // projection slot with the wildcard
selector.\n var numProjectionSlots = projectionSlots ? projectionSlots.length : 1;\n var
projectionHeads = componentNode.projection =\n newArray(numProjectionSlots, null);\n var tails
= projectionHeads.slice();\n var componentChild = componentNode.child;\n while (componentChild
!== null) {\n var slotIndex = projectionSlots ? matchingProjectionSlotIndex(componentChild,
projectionSlots) : 0;\n if (slotIndex !== null) {\n if (tails[slotIndex]) {\n
tails[slotIndex].projectionNext = componentChild;\n }\n else {\n
projectionHeads[slotIndex] = componentChild;\n }\n tails[slotIndex] = componentChild;\n
}\n componentChild = componentChild.next;\n }\n }\n }\n }\n /**\n * Inserts
previously re-distributed projected nodes. This instruction must be preceded by a call\n * to the projectionDef
instruction.\n *\n * @param nodeIndex\n * @param selectorIndex\n * - 0 when the selector is `` (or unspecified as this
is the default value),\n * - 1 based index of the selector from the { @link projectionDef }\n *\n *
@codeGenApi\n * ^\n function projection(nodeIndex, selectorIndex, attrs) {\n if (selectorIndex === void 0)
{ selectorIndex = 0; }\n var lView = getLView();\n var tView = getTView();\n var tProjectionNode =
getOrCreateTNode(tView, HEADER_OFFSET + nodeIndex, 16 /* Projection */, null, attrs || null);\n // We can't
use ViewData[HOST_NODE] because projection nodes can be nested in embedded views.\n if
(tProjectionNode.projection === null)\n tProjectionNode.projection = selectorIndex;\n // `<ng-content`
has no content\n setCurrentTNodeAsNotParent();\n if (((tProjectionNode.flags & 64 /* isDetached */) !==
64 /* isDetached */) {\n // re-distribution of projectable
nodes is stored on a component's view level\n applyProjection(tView, lView, tProjectionNode);\n }\n
}\n\n /**\n *\n * Update an interpolated property on an element with a lone bound value\n *\n * Used
when the value passed to a property has 1 interpolated value in it, an no additional text\n * surrounds that
interpolated value:\n *\n * ``html\n * <div title=\"{{v0}}\"></div>\n * ``\n *\n * Its compiled
representation is:\n *\n * ``ts\n * propertyInterpolate('title', v0);\n * ``\n *\n * If the property name
also exists as an input property on one of the element's directives,\n * the component property will be set instead
of the element property. This check must\n * be conducted at runtime so child components that add new
`@Inputs` don't have to be re-compiled.\n *\n * @param propName The name of the property to update\n *

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@param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \*

@codeGenApi\n \*/\n function propertyInterpolate(propName, v0, sanitizer) {\n propertyInterpolate1(propName, "", v0, "", sanitizer);\n return propertyInterpolate;\n }\n /\*\*\n \*\n \* Update an interpolated property on an element with single bound value surrounded by text.\n \*\n \* Used when the value passed to a property has 1 interpolated value in it:\n \*\n \* ```html\n \* <div title=\"prefix{ {v0} }suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* propertyInterpolate1('title', 'prefix', v0, 'suffix');\n \* ```\n \*\n \* If the property name also exists as an input property on one of the element's directives,\n \* the component property will be set instead of the element property. This check must\n \* be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n \*\n \* @param propName The name of the property to update\n \*\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \*/\n function propertyInterpolate1(propName, prefix, v0, suffix, sanitizer) {\n var IView = getLView();\n var interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 1, prefix, suffix);\n }\n return propertyInterpolate1;\n }\n /\*\*\n \*\n \* Update an interpolated property on an element with 2 bound values surrounded by text.\n \*\n \* Used when the value passed to a property has 2 interpolated values in it:\n \*\n \* ```html\n \* <div title=\"prefix{ {v0} }-{ {v1} }suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* propertyInterpolate2('title', 'prefix', v0, '-', v1, 'suffix');\n \* ```\n \*\n \* If the property name also exists as an input property on one of the element's directives,\n \* the component property will be set instead of the element property. This check must\n \* be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n \*\n \* @param propName The name of the property to update\n \*\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @param sanitizer An optional sanitizer function\n \* @returns itself, so that it may be chained.\n \* @codeGenApi\n \*/\n function propertyInterpolate2(propName, prefix, v0, i0, v1, suffix, sanitizer) {\n var IView = getLView();\n var interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n if (interpolatedValue !== NO\_CHANGE) {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 2, prefix, i0, suffix);\n }\n return propertyInterpolate2;\n }\n /\*\*\n \*\n \* Update an interpolated property on an element with 3 bound values surrounded by text.\n \*\n \* Used when the value passed to a property has 3 interpolated values in it:\n \*\n \* ```html\n \* <div title=\"prefix{ {v0} }-{ {v1} }-{ {v2} }suffix\"></div>\n \* ```\n \*\n \* Its compiled representation is:\n \*\n \* ```ts\n \* propertyInterpolate3(\n \* 'title', 'prefix', v0, '-', v1, '-', v2, 'suffix');\n \* ```\n \*\n \* If the property name also exists as an input property on one of the element's directives,\n \* the component property will be set instead of the element property. This check must\n \* be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n \*\n \* @param propName The name of the property to update\n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked

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for change.\n * @param suffix Static value used for concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns itself, so that it may be chained.\n * @codeGenApi\n */\n function\n propertyInterpolate3(propName, prefix, v0, i0, v1, i1, v2, suffix, sanitizer) {\n var IView = getLView();\n var interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n if (interpolatedValue !==\n NO_CHANGE) {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer,\n false);\n ngDevMode &&\n storePropertyBindingMetadata(tView.data, tNode,\n propName, getBindingIndex() - 3, prefix, i0, i1, suffix);\n }\n return propertyInterpolate3;\n }\n /**\n *\n * Update an interpolated property on an element with 4 bound values surrounded by text.\n *\n * Used\n when the value passed to a property has 4 interpolated values in it:\n *\n * ```html\n * <div\n title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}suffix\"></div>\n * ```\n *\n * Its compiled representation is::\n *\n * ```ts\n * propertyInterpolate4(\n * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n * ```\n *\n * If the property name also exists as an input property on one of the element's directives,\n * the component\n property will be set instead of the element property. This check must\n * be conducted at runtime so child\n components that add new `@Inputs` don't have to be re-compiled.\n *\n * @param propName The name of the\n property to update\n * @param prefix\n Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static\n value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used\n for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for\n concatenation only.\n * @param v3 Value checked for change.\n * @param suffix Static value used for\n concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns itself, so that it may be\n chained.\n * @codeGenApi\n */\n function propertyInterpolate4(propName, prefix, v0, i0, v1, i1, v2, i2, v3,\n suffix, sanitizer) {\n var IView = getLView();\n var interpolatedValue = interpolation4(IView, prefix, v0,\n i0, v1, i1, v2, i2, v3, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView,\n tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 4, prefix, i0, i1, i2,\n suffix);\n }\n return propertyInterpolate4;\n }\n /**\n *\n * Update an interpolated property on an\n element with 5 bound values surrounded by text.\n *\n * Used when the value passed to a property has 5\n interpolated values in it:\n *\n * ```html\n * <div title=\"prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}suffix\"></div>\n * ```\n *\n * Its compiled representation is::\n *\n * ```ts\n *\n * propertyInterpolate5(\n * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n * ```\n *\n * If the\n property name also exists as an input property on one of the element's directives,\n * the component property will\n be set instead of the element property. This check\n must\n * be conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n *\n * @param propName The name of the property to update\n * @param prefix Static value used for\n concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for\n concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for\n concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static value used for\n concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used for\n concatenation only.\n * @param v4 Value checked for change.\n * @param suffix Static value used for\n concatenation only.\n * @param sanitizer An optional sanitizer function\n * @returns itself, so that it may be\n chained.\n * @codeGenApi\n */\n function propertyInterpolate5(propName, prefix, v0, i0, v1, i1, v2, i2, v3,\n i3, v4, suffix,\n sanitizer) {\n var IView = getLView();\n var interpolatedValue = interpolation5(IView, prefix, v0, i0, v1,\n i1, v2, i2, v3, i3, v4, suffix);\n if (interpolatedValue !== NO_CHANGE) {\n var tView = getTView();\n var tNode = getSelectedTNode();\n elementPropertyInternal(tView, tNode, IView, propName,\n interpolatedValue, IView[RENDERER], sanitizer, false);\n ngDevMode &&\n
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storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 5, prefix, i0, i1, i2, i3, suffix);\n
 }\n return propertyInterpolate5;\n }\n /**\n * \n * Update an interpolated property on an element with
6 bound values surrounded by text.\n * \n * Used when the value passed to a property has 6 interpolated values
in it:\n * \n * ```html\n * <div title="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}suffix"></div>\n
 * ```\n * \n * Its compiled representation is::\n
 * \n * ```ts\n * propertyInterpolate6(\n * 'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n
 * ```\n * \n * If the property name also exists as an input property on one of the element's directives,\n * the
component property will be set instead of the element property. This check must\n * be conducted at runtime so
child components that add new `@Inputs` don't have to be re-compiled.\n * \n * @param propName The name
of the property to update\n * @param prefix Static value used for concatenation only.\n * @param v0 Value
checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked
for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for
change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n
 * @param i3 Static value used for concatenation only.\n
 * @param v4 Value checked for change.\n * @param i4 Static value used for concatenation only.\n *
 * @param v5 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
 * @param sanitizer An optional sanitizer function\n * @returns itself, so that it may be chained.\n *
 * @codeGenApi\n * \n * function propertyInterpolate6(propName, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5,
suffix, sanitizer) {\n * var IView = getLView();\n * var interpolatedValue = interpolation6(IView, prefix, v0,
i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n * if (interpolatedValue !== NO_CHANGE) {\n * var tView =
getTView();\n * var tNode = getSelectedTNode();\n * elementPropertyInternal(tView, tNode, IView,
propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n * ngDevMode &&\n
storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 6, prefix,
i0, i1, i2, i3, i4, suffix);\n * }\n * return propertyInterpolate6;\n * }\n * /**\n * \n * Update an interpolated
property on an element with 7 bound values surrounded by text.\n * \n * Used when the value passed to a
property has 7 interpolated values in it:\n * \n * ```html\n * <div title="prefix{{v0}}-{{v1}}-{{v2}}-
{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix"></div>\n * ```\n * \n * Its compiled representation is::\n * \n *
```ts\n     * propertyInterpolate7(\n     *   'title', 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n
     * ```\n     * \n     * If the property name also exists as an input property on one of the element's directives,\n     * the
component property will be set instead of the element property. This check must\n     * be conducted at runtime so
child components that add new `@Inputs` don't have to be re-compiled.\n     * \n     * @param propName The name
of the property to update\n
     * @param prefix Static value used for concatenation only.\n     * @param v0 Value checked for change.\n     *
     * @param i0 Static value used for concatenation only.\n     * @param v1 Value checked for change.\n     * @param i1
Static value used for concatenation only.\n     * @param v2 Value checked for change.\n     * @param i2 Static
value used for concatenation only.\n     * @param v3 Value checked for change.\n     * @param i3 Static value used
for concatenation only.\n     * @param v4 Value checked for change.\n     * @param i4 Static value used for
concatenation only.\n     * @param v5 Value checked for change.\n     * @param i5 Static value used for
concatenation only.\n     * @param v6 Value checked for change.\n     * @param suffix Static value used for
concatenation only.\n     * @param sanitizer An optional sanitizer function\n     * @returns itself, so that it may be
chained.\n     * @codeGenApi\n     * \n     * function propertyInterpolate7(propName, prefix, v0, i0,
v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix, sanitizer) {\n     *   var IView = getLView();\n     *   var
interpolatedValue = interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n     *   if
(interpolatedValue !== NO_CHANGE) {\n     *     var tView = getTView();\n     *     var tNode =
getSelectedTNode();\n     *     elementPropertyInternal(tView, tNode, IView, propName, interpolatedValue,
IView[RENDERER], sanitizer, false);\n     *     ngDevMode &&\n
storePropertyBindingMetadata(tView.data, tNode, propName, getBindingIndex() - 7, prefix, i0, i1, i2, i3, i4, i5,
suffix);\n     *   }\n     *   return propertyInterpolate7;\n     * }\n     * /**\n     * \n     * Update an interpolated property on an

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element with 8 bound values surrounded by text.\n    * Used when the value passed to a property has 8
interpolated values in it:\n    * ``html\n    * <div title="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-
{{v5}}-{{v6}}-{{v7}}suffix"></div>\n
    * ``\n    * Its compiled representation is::\n    * ``ts\n    * propertyInterpolate8(\n    * 'title',
'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n    * ``\n    * If the property name also
exists as an input property on one of the element's directives,\n    * the component property will be set instead of the
element property. This check must\n    * be conducted at runtime so child components that add new `@Inputs` don't
have to be re-compiled.\n    * @param propName The name of the property to update\n    * @param prefix
Static value used for concatenation only.\n    * @param v0 Value checked for change.\n    * @param i0 Static
value used for concatenation only.\n    * @param v1 Value checked for change.\n    * @param i1 Static value used
for concatenation only.\n    * @param v2 Value checked for change.\n    * @param i2 Static value used for
concatenation only.\n
    * @param v3 Value checked for change.\n    * @param i3 Static value used for concatenation only.\n    *
@param v4 Value checked for change.\n    * @param i4 Static value used for concatenation only.\n    * @param v5
Value checked for change.\n    * @param i5 Static value used for concatenation only.\n    * @param v6 Value
checked for change.\n    * @param i6 Static value used for concatenation only.\n    * @param v7 Value checked
for change.\n    * @param suffix Static value used for concatenation only.\n    * @param sanitizer An optional
sanitizer function\n    * @returns itself, so that it may be chained.\n    * @codeGenApi\n    * /\n    function
propertyInterpolate8(propName, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix, sanitizer) {\n
var IView = getLView();\n    var interpolatedValue = interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4,
i4, v5, i5, v6, i6, v7, suffix);\n    if (interpolatedValue !== NO_CHANGE)\n    {\n        var tView = getTView();\n        var tNode = getSelectedTNode();\n
elementPropertyInternal(tView, tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer,
false);\n        ngDevMode &&\n        storePropertyBindingMetadata(tView.data, tNode, propName,
getBindingIndex() - 8, prefix, i0, i1, i2, i3, i4, i5, i6, suffix);\n    }\n    return propertyInterpolate8;\n }\n
/**\n    * Update an interpolated property on an element with 9 or more bound values surrounded by text.\n    *
    * Used when the number of interpolated values exceeds 8.\n    * ``html\n    * <div\n    *
title="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-{{v9}}suffix"></div>\n    *
    * ``\n    * Its compiled representation is::\n    * ``ts\n    * propertyInterpolateV(\n    * 'title', ['prefix',
v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v9,\n    *
'suffix']);\n    * ``\n    * If the property name also exists as an input property on one of the element's
directives,\n    * the component property will be set instead of the element property. This check must\n    * be
conducted at runtime so child components that add new `@Inputs` don't have to be re-compiled.\n    *
    * @param propName The name of the property to update.\n    * @param values The collection of values and the
strings inbetween those values, beginning with a\n    * string prefix and ending with a string suffix.\n    * (e.g.
`['prefix', value0, '-', value1, '-', value2, ..., value99, 'suffix']`)\n    * @param sanitizer An optional sanitizer
function\n    * @returns itself, so that it may be chained.\n    * @codeGenApi\n    * /\n    function
propertyInterpolateV(propName, values, sanitizer) {\n    var IView = getLView();\n    var interpolatedValue =
interpolationV(IView, values);\n    if (interpolatedValue !== NO_CHANGE) {\n
var tView = getTView();\n    var tNode = getSelectedTNode();\n    elementPropertyInternal(tView,
tNode, IView, propName, interpolatedValue, IView[RENDERER], sanitizer, false);\n    if (ngDevMode) {\n
var interpolationInBetween = [values[0]]; // prefix\n        for (var i = 2; i < values.length; i += 2) {\n
interpolationInBetween.push(values[i]);\n        }\n        storePropertyBindingMetadata.apply(void 0,
__spread([tView.data, tNode, propName, getBindingIndex() - interpolationInBetween.length + 1],
interpolationInBetween));\n    }\n    }\n    return propertyInterpolateV;\n }\n\n    /**\n    * @license\n
    * Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an MIT-style
license that can be\n    * found in the LICENSE file at https://angular.io/license\n    * /\n    /**\n    * This file
contains reusable "empty" symbols that can

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be used as default return values\n * in different parts of the rendering code. Because the same symbols are returned, this\n * allows for identity checks against these values to be consistently used by the framework\n * code.\n *\n var EMPTY_OBJ\$1 = {};\n var EMPTY_ARRAY\$3 = [];\n // freezing the values prevents any code from accidentally inserting new values in\n if ((typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode()) {\n // These property accesses can be ignored because ngDevMode will be set to false\n // when optimizing code and the whole if statement will be dropped.\n // tslint:disable-next-line:no-toplevel-property-access\n Object.freeze(EMPTY_OBJ\$1);\n // tslint:disable-next-line:no-toplevel-property-access\n Object.freeze(EMPTY_ARRAY\$3);\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at <https://angular.io/license>\n */\n\n /**\n * NOTE: The word `styling` is used interchangeably as style or class styling.\n *\n * This file contains code to link styling instructions together so that they can be replayed in\n * priority order. The file exists because Ivy styling instruction execution order does not match\n * that of the priority order. The purpose of this code is to create a linked list so that the\n * instructions can be traversed in priority order when computing the styles.\n *\n * Assume we are dealing with the following code:\n * ```\n * @Component({\n * template: `\n * <my-cmp [style]=" {color: '#001'}" \n * [style.color]=" #002" \n * dir-style-color-1\n * dir-style-color-2>\n * `})\n * class ExampleComponent {\n * static ngComp = ... {\n * ...\n * }\n * }\n * })\n * ```\n * Compiler ensures that\n * `styleProp` is after `styleMap`\n * styleMap({color: '#001'});\n * styleProp('color', '#002');\n * ...\n * }\n * }\n * @Directive({\n * selector: `[dir-style-color-1]`,\n * })\n * class Style1Directive {\n * @HostBinding('style') style = {color: '#005'};\n * @HostBinding('style.color') color = '#006';\n * }\n * static ngDir = ... {\n * ...\n * }\n * // Compiler ensures that `styleProp` is after `styleMap`\n * styleMap({color: '#005'});\n * styleProp('color', '#006');\n * ...\n * }\n * }\n * @Directive({\n * selector: `[dir-style-color-2]`,\n * })\n * class Style2Directive {\n * @HostBinding('style') style = {color: '#007'};\n * @HostBinding('style.color') color = '#008';\n * }\n * static ngDir = ... {\n * ...\n * }\n * // Compiler ensures that `styleProp` is after `styleMap`\n * styleMap({color: '#007'});\n * styleProp('color', '#008');\n * ...\n * }\n * }\n * @Directive({\n * selector: `[my-cmp]`,\n * })\n * class MyComponent {\n * @HostBinding('style') style = {color: '#003'};\n * @HostBinding('style.color') color = '#004';\n * }\n * static ngComp = ... {\n * ...\n * }\n * // Compiler ensures that `styleProp` is after `styleMap`\n * styleMap({color: '#003'});\n * styleProp('color', '#004');\n * ...\n * }\n * }\n * ```\n * The Order of instruction execution is:\n * \n * NOTE: the comment binding location is for illustrative purposes only.\n * \n * ```\n * // Template:\n * (ExampleComponent)\n * styleMap({color: '#001'}); // Binding index: 10\n * styleProp('color', '#002'); // Binding index: 12\n * // MyComponent\n * styleMap({color: '#003'}); // Binding index: 20\n * styleProp('color', '#004'); // Binding index: 22\n * // Style1Directive\n * styleMap({color: '#005'}); // Binding index: 24\n * styleProp('color', '#006'); // Binding index: 26\n * // Style2Directive\n * styleMap({color: '#007'}); // Binding index: 28\n * styleProp('color', '#008'); // Binding index: 30\n * ```\n * \n * The correct priority order of concatenation is:\n * \n * ```\n * // MyComponent\n * styleMap({color: '#003'}); // Binding index: 20\n * styleProp('color', '#004'); // Binding index: 22\n * // Style1Directive\n * styleMap({color: '#005'}); // Binding index: 24\n * styleProp('color', '#006'); // Binding index: 26\n * // Style2Directive\n * styleMap({color: '#007'}); // Binding index: 28\n * styleProp('color', '#008'); // Binding index: 30\n * // Template: (ExampleComponent)\n * styleMap({color: '#001'});\n * styleProp('color', '#002'); // Binding index: 12\n * ```\n * \n * What color should be rendered?\n * \n * Once the items are correctly sorted in the list, the answer is simply the last item in the\n * concatenation list which is `#002`.\n * \n * To do so we keep a linked list of all of the bindings which pertain to this element.\n * \n * Notice that the bindings are inserted in the order of execution, but the `TVView.data` allows\n * us to traverse them in the order of priority.\n * \n * |Idx|`TVView.data`|`LView`| Notes\n * \n

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|---|-----|-----|-----\n * |...| | \n * |10 |`null` |`{color: '#001'}\`
`styleMap('color', {color: '#001'})`\n * |11 |30 |12` |... \n * |12 |`color` |`'#002` |
`styleProp('color', '#002')`\n * |13 |10 |0` |... \n * |...| |
\n * |20 |`null` |`{color: '#003'}\`|`styleMap('color', {color: '#003'})`\n * |21 |0 |22` |...
\n * |22 |`color` |`'#004` |`styleProp('color', '#004')`\n * |23 |20 |24` |... \n * |24 |`null`
|`{color: '#005'}\`|`styleMap('color', {color: '#005'})`\n * |25 |22 |26` |... \n * |26 |`color` |`'#006`
|`styleProp('color', '#006')`\n * |27 |24 |28` |... \n * |28 |`null` |`{color: '#007'}\`|
`styleMap('color', {color: '#007'})`\n * |29 |26 |30` |... \n * |30 |`color` |`'#008` |
`styleProp('color', '#008')`\n * |31 |28 |10` |... \n * \n * The above data structure allows us to re-
concatenate the styling no matter which data binding\n * changes.\n * \n * NOTE: in addition to keeping
track of next/previous index the `TVView.data` also stores prev/next\n
* duplicate bit. The duplicate bit if true says there either is a binding with the same name or\n * there is a map
(which may contain the name). This information is useful in knowing if other\n * styles with higher priority need
to be searched for overwrites.\n * \n * NOTE: See `should support example in 'tNode_linked_list.ts'
documentation` in\n * `tNode_linked_list_spec.ts` for working example.\n * \n var
__unused_const_as_closure_does_not_like_standalone_comment_blocks__;\n /**\n * Insert new `tStyleValue`
at `TData` and link existing style bindings such that we maintain linked\n * list of styles and compute the
duplicate flag.\n * \n * Note: this function is executed during `firstUpdatePass` only to populate the
`TVView.data`.\n * \n * The function works by keeping track of `tStylingRange` which contains two pointers
pointing to\n * the head/tail of the template portion of the styles.\n * - if `isHost === false`
(we are template) then insertion is at tail of `tStylingRange`\n * - if `isHost === true` (we are host binding) then
insertion is at head of `tStylingRange`\n * \n * @param tData The `TData` to insert into.\n * @param tNode
`TNode` associated with the styling element.\n * @param tStylingKey See `tStylingKey`.\n * @param index
location of where `tStyleValue` should be stored (and linked into list.)\n * @param isHostBinding `true` if the
insertion is for a `hostBinding`. (insertion is in front of\n * template.)\n * @param isClassBinding
True if the associated `tStylingKey` as a `class` styling.\n * \n * `tNode.classBindings` should be used
(or `tNode.styleBindings` otherwise.)\n * \n function insertTStylingBinding(tData, tNode,
tStylingKeyWithStatic, index, isHostBinding, isClassBinding) {\n ngDevMode &&
assertFirstUpdatePass(getTVView());\n var tBindings = isClassBinding ? tNode.classBindings :
tNode.styleBindings;\n var tmpHead = getTStylingRangePrev(tBindings);\n var tmpTail =
getTStylingRangeNext(tBindings);\n tData[index] = tStylingKeyWithStatic;\n var isKeyDuplicateOfStatic
= false;\n var tStylingKey;\n if (Array.isArray(tStylingKeyWithStatic)) {\n // We are case when the
`TStylingKey` contains static fields as well.\n var staticKeyValueArray = tStylingKeyWithStatic;\n
tStylingKey = staticKeyValueArray[1]; // unwrap.\n // We need to check if our key is present in the static so
that we can mark it as duplicate.\n if (tStylingKey === null ||\n
keyValueArrayIndexOf(staticKeyValueArray, tStylingKey) > 0) {\n // tStylingKey is present in the statics,
need to mark it as duplicate.\n isKeyDuplicateOfStatic = true;\n }\n } else {\n
tStylingKey = tStylingKeyWithStatic;\n }\n if (isHostBinding)
{\n // We are inserting host bindings\n // If we don't have template bindings then `tail` is 0.\n
var hasTemplateBindings = tmpTail !== 0;\n // This is important to know because that means that the `head`
can't point to the first\n // template bindings (there are none.) Instead the head points to the tail of the
template.\n if (hasTemplateBindings) {\n // template head's `prev` will point to last host binding or
to 0 if no host bindings yet\n var previousNode = getTStylingRangePrev(tData[tmpHead + 1]);\n
tData[index + 1] = toTStylingRange(previousNode, tmpHead);\n // if a host binding has already been
registered, we need to update the next of that host\n // binding to point to this one\n if
(previousNode !== 0) {\n // We need to update the template-tail value to point to us.\n
tData[previousNode

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+ 1] =\n                setTStylingRangeNext(tData[previousNode + 1], index);\n                }\n                // The
\"previous\" of the template binding head should point to this host binding\n                tData[tmplHead + 1] =
setTStylingRangePrev(tData[tmplHead + 1], index);\n                }\n                else {\n                tData[index + 1] =
toTStylingRange(tmplHead, 0);\n                // if a host binding has already been registered, we need to update the
next of that host\n                // binding to point to this one\n                if (tmplHead !== 0) {\n                // We need
to update the template-tail value to point to us.\n                tData[tmplHead + 1] =
setTStylingRangeNext(tData[tmplHead + 1], index);\n                }\n                // if we don't have template, the head
points to template-tail, and needs to be advanced.\n                tmplHead = index;\n                }\n                }\n                else {\n
// We
are inserting in template section.\n                // We need to set this binding's \"previous\" to the current template tail\n
tData[index + 1] = toTStylingRange(tmplTail, 0);\n                ngDevMode &&\n                assertEqual(tmplHead
!== 0 && tmplTail === 0, false, 'Adding template bindings after hostBindings is not allowed.);\n                if
(tmplHead === 0) {\n                tmplHead = index;\n                }\n                else {\n                // We need to update the
previous value \"next\" to point to this binding\n                tData[tmplTail + 1] =
setTStylingRangeNext(tData[tmplTail + 1], index);\n                }\n                tmplTail = index;\n                }\n                // Now we
need to update / compute the duplicates.\n                // Starting with our location search towards head (least priority)\n
if (isKeyDuplicateOfStatic) {\n                tData[index + 1] = setTStylingRangePrevDuplicate(tData[index + 1]);\n
}\n                markDuplicates(tData, tStylingKey, index,
true, isClassBinding);\n                markDuplicates(tData, tStylingKey, index, false, isClassBinding);\n
markDuplicateOfResidualStyling(tNode, tStylingKey, tData, index, isClassBinding);\n                tBindings =
toTStylingRange(tmplHead, tmplTail);\n                if (isClassBinding) {\n                tNode.classBindings = tBindings;\n
}\n                else {\n                tNode.styleBindings = tBindings;\n                }\n                }\n                /**\n                * Look into the residual styling
to see if the current `tStylingKey` is duplicate of residual.\n                *\n                * @param tNode `TNode` where the residual is
stored.\n                * @param tStylingKey `TStylingKey` to store.\n                * @param tData `TData` associated with the current
`LView`.\n                * @param index location of where `tStyleValue` should be stored (and linked into list.)\n                *
@param isClassBinding True if the associated `tStylingKey` as a `class` styling.\n                *
`tNode.classBindings` should be used (or `tNode.styleBindings` otherwise.)\n
*/\n                function markDuplicateOfResidualStyling(tNode, tStylingKey, tData, index, isClassBinding) {\n                var
residual = isClassBinding ? tNode.residualClasses : tNode.residualStyles;\n                if (residual !== null /* or undefined
*/ && typeof tStylingKey === 'string' &&\n                keyValueArrayIndexOf(residual, tStylingKey) >= 0) {\n                //
We have duplicate in the residual so mark ourselves as duplicate.\n                tData[index + 1] =
setTStylingRangeNextDuplicate(tData[index + 1]);\n                }\n                }\n                /**\n                * Marks `TStyleValue`s as duplicates
if another style binding in the list has the same\n                * `TStyleValue`.\n                *\n                * NOTE: this function is intended to
be called twice once with `isPrevDir` set to `true` and once\n                * with it set to `false` to search both the previous as
well as next items in the list.\n                *\n                * No duplicate case\n                * ```\n                * [style.color]\n                * [style.width.px]\n
<<- index\n                * [style.height.px]\n
                * ```\n                * In the above case adding `[style.width.px]` to the existing `[style.color]` produces no\n                *
duplicates because `width` is not found in any other part of the linked list.\n                *\n                * Duplicate case\n                * ```\n
                * [style.color]\n                * [style.width.em]\n                * [style.width.px] <<- index\n                * ```\n                * In the above case adding
`[style.width.px]` will produce a duplicate with `[style.width.em]`\n                * because `width` is found in the chain.\n
                *\n                * Map case 1\n                * ```\n                * [style.width.px]\n                * [style.color]\n                * [style] <<- index\n                * ```\n                *
In the above case adding `[style]` will produce a duplicate with any other bindings because\n                * `[style]` is a Map
and as such is fully dynamic and could produce `color` or `width`.\n                *\n                * Map case 2\n                * ```\n                * [style]\n
                * [style.width.px]\n                * [style.color] <<- index\n                * ```\n                * In the above case adding `[style.color]` will
produce
a duplicate because there is already a\n                * `[style]` binding which is a Map and as such is fully dynamic and could
produce `color` or\n                * `width`.\n                *\n                * NOTE: Once `[style]` (Map) is added into the system all things are
mapped as duplicates.\n                * NOTE: We use `style` as example, but same logic is applied to `class`es as well.\n

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*\n * @param tData `TData` where the linked list is stored.\n * @param tStylingKey `TStylingKeyPrimitive`
which contains the value to compare to other keys in\n * the linked list.\n * @param index Starting
location in the linked list to search from\n * @param isPrevDir Direction.\n * - `true` for previous (lower
priority);\n * - `false` for next (higher priority).\n */\n function markDuplicates(tData, tStylingKey,
index, isPrevDir, isClassBinding) {\n var tStylingAtIndex = tData[index + 1];\n var isMap = tStylingKey
=== null;\n var cursor = isPrevDir ? getTStylingRangePrev(tStylingAtIndex)
: getTStylingRangeNext(tStylingAtIndex);\n var foundDuplicate = false;\n // We keep iterating as long as
we have a cursor\n // AND either:\n // - we found what we are looking for, OR\n // - we are a map in
which case we have to continue searching even after we find what we were\n // looking for since we are a wild
card and everything needs to be flipped to duplicate.\n while (cursor !== 0 && (foundDuplicate === false ||
isMap)) {\n ngDevMode && assertIndexInRange(tData, cursor);\n var tStylingValueAtCursor =
tData[cursor];\n var tStyleRangeAtCursor = tData[cursor + 1];\n if
(isStylingMatch(tStylingValueAtCursor, tStylingKey)) {\n foundDuplicate = true;\n tData[cursor
+ 1] = isPrevDir ? setTStylingRangeNextDuplicate(tStyleRangeAtCursor) : \n
setTStylingRangePrevDuplicate(tStyleRangeAtCursor);\n }\n
cursor = isPrevDir ? getTStylingRangePrev(tStyleRangeAtCursor) : \n
getTStylingRangeNext(tStyleRangeAtCursor);\n }\n if (foundDuplicate) {\n // if we found a
duplicate, then mark ourselves.\n tData[index + 1] = isPrevDir ?
setTStylingRangePrevDuplicate(tStylingAtIndex) : \n
setTStylingRangeNextDuplicate(tStylingAtIndex);\n
}\n }\n /**\n * Determines if two `TStylingKey`s are a match.\n * \n * When computing whether a
binding contains a duplicate, we need to compare if the instruction\n * `TStylingKey` has a match.\n * \n *
Here are examples of `TStylingKey`s which match given `tStylingKeyCursor` is:\n * - `color`\n * - `color`
// Match another color\n * - `null` // That means that `tStylingKey` is a `classMap`/`styleMap` instruction\n
* - `[ , 'color', 'other', true ]` // wrapped `color` so match\n * - `[ , null, 'other', true ]` // wrapped
`null` so match\n * - `[ , 'width', 'color', 'value' ]` // wrapped static value contains a match on `color`\n * -
`null` // `tStylingKeyCursor` always match as it is `classMap`/`styleMap` instruction\n * \n * @param
tStylingKeyCursor\n * @param tStylingKey\n */\n function isStylingMatch(tStylingKeyCursor, tStylingKey)
{\n ngDevMode &&\n assertNotEqual(Array.isArray(tStylingKey), true, 'Expected that `tStylingKey`
has been unwrapped');\n if (tStylingKeyCursor === null || // If the cursor is `null` it means that we have map at
that\n // location so we must assume that we have a match.\n tStylingKey == null || // If `tStylingKey`
is `null` then it is a map therefor assume that it\n // contains a match.\n
(Array.isArray(tStylingKeyCursor) ? tStylingKeyCursor[1] : tStylingKeyCursor) ===\n tStylingKey // If
the keys match explicitly than we are a match.\n )\n {\n
return true;\n }\n else if (Array.isArray(tStylingKeyCursor) && typeof tStylingKey === 'string')\n {\n
// if we did not find a match, but `tStylingKeyCursor` is `KeyValueArray` that means cursor has\n
// statics and we need to check those as well.\n return keyValueArrayIndexOf(tStylingKeyCursor,
tStylingKey) >= \n 0; // see if we are matching the key\n }\n return false;\n }\n /**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n // Global state
of the parser. (This makes parser non-reentrant, but that is not an issue)\n var parserState = {\n textEnd: 0,\n
key: 0,\n keyEnd: 0,\n value: 0,\n valueEnd: 0,\n };\n /**\n * Retrieves the last parsed `key` of
style.\n * \n * @param text the text to substring the key from.\n */\n function getLastParsedKey(text) {\n
return
text.substring(parserState.key, parserState.keyEnd);\n }\n /**\n * Retrieves the last parsed `value` of style.\n
* \n * @param text the text to substring the key from.\n */\n function getLastParsedValue(text) {\n
return
text.substring(parserState.value, parserState.valueEnd);\n }\n /**\n * Initializes `className` string for parsing
and parses the first token.\n * \n * This function is intended to be used in this format:\n * ```\n * for (let i =
parseClassName(text); i >= 0; i = parseClassNameNext(text, i)) {\n * const key = getLastParsedKey();\n *

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...\\n * }\\n * ```\\n * @param text `className` to parse\\n * @returns index where the next invocation of
`parseClassNameNext` should resume.\\n */\\n function parseClassName(text) {\\n     resetParserState(text);\\n
    return parseClassNameNext(text,
    consumeWhitespace(text, 0, parserState.textEnd));\\n }\\n /**\\n * Parses next `className` token.\\n *\\n *
This function is intended to be used in this format:\\n * ```\\n * for (let i = parseClassName(text); i >= 0; i =
parseClassNameNext(text, i)) {\\n *     const key = getLastParsedKey();\\n *     ...\\n * }\\n * ```\\n * @param text
`className` to parse\\n * @param index where the parsing should resume.\\n * @returns index
where the next invocation of `parseClassNameNext` should resume.\\n */\\n function parseClassNameNext(text,
index) {\\n     var end = parserState.textEnd;\\n     if (end === index) {\\n         return -1;\\n     }\\n     index =
parserState.keyEnd = consumeClassToken(text, parserState.key = index, end);\\n     return
consumeWhitespace(text, index, end);\\n }\\n /**\\n * Initializes `cssText` string for parsing and parses the first
key/values.\\n *\\n * This function is intended to be used
in this format:\\n * ```\\n * for (let i = parseStyle(text); i >= 0; i = parseStyleNext(text, i)) {\\n *     const key =
getLastParsedKey();\\n *     const value = getLastParsedValue();\\n *     ...\\n * }\\n * ```\\n * @param text
`cssText` to parse\\n * @returns index where the next invocation of `parseStyleNext` should resume.\\n */\\n
function parseStyle(text) {\\n     resetParserState(text);\\n     return parseStyleNext(text, consumeWhitespace(text,
0, parserState.textEnd));\\n }\\n /**\\n * Parses the next `cssText` key/values.\\n *\\n * This function is
intended to be used in this format:\\n * ```\\n * for (let i = parseStyle(text); i >= 0; i = parseStyleNext(text, i))
{\\n *     const key = getLastParsedKey();\\n *     const value = getLastParsedValue();\\n *     ...\\n * }\\n *\\n
* @param text `cssText` to parse\\n * @param index where the parsing should resume.\\n * @returns index
where the next invocation
of `parseStyleNext` should resume.\\n */\\n function parseStyleNext(text, startIndex) {\\n     var end =
parserState.textEnd;\\n     var index = parserState.key = consumeWhitespace(text, startIndex, end);\\n     if (end
=== index) {\\n         // we reached an end so just quit\\n         return -1;\\n     }\\n     index = parserState.keyEnd
= consumeStyleKey(text, index, end);\\n     index = consumeSeparator(text, index, end, 58 /* COLON */);\\n
index = parserState.value = consumeWhitespace(text, index, end);\\n     index = parserState.valueEnd =
consumeStyleValue(text, index, end);\\n     return consumeSeparator(text, index, end, 59 /* SEMI_COLON */);\\n
}\\n /**\\n * Reset the global state of the styling parser.\\n * @param text The styling text to parse.\\n */\\n
function resetParserState(text) {\\n     parserState.key = 0;\\n     parserState.keyEnd = 0;\\n     parserState.value =
0;\\n     parserState.valueEnd = 0;\\n
    parserState.textEnd = text.length;\\n }\\n /**\\n * Returns index of next non-whitespace character.\\n *\\n *
@param text Text to scan\\n * @param startIndex Starting index of character where the scan should start.\\n *
@param endIndex Ending index of character where the scan should end.\\n * @returns Index of next non-
whitespace character (May be the same as `start` if no whitespace at\\n *     that location.)\\n */\\n function
consumeWhitespace(text, startIndex, endIndex) {\\n     while (startIndex < endIndex &&
text.charCodeAtAt(startIndex) <= 32 /* SPACE */) {\\n         startIndex++;\\n     }\\n     return startIndex;\\n }\\n
/**\\n * Returns index of last char in class token.\\n *\\n * @param text Text to scan\\n * @param startIndex
Starting index of character where the scan should start.\\n * @param endIndex Ending index of character where
the scan should end.\\n * @returns Index after last char in class token.\\n
*/\\n function consumeClassToken(text, startIndex, endIndex) {\\n     while (startIndex < endIndex &&
text.charCodeAtAt(startIndex) > 32 /* SPACE */) {\\n         startIndex++;\\n     }\\n     return startIndex;\\n }\\n
/**\\n * Consumes all of the characters belonging to style key and token.\\n *\\n * @param text Text to scan\\n
* @param startIndex Starting index of character where the scan should start.\\n * @param endIndex Ending index
of character where the scan should end.\\n * @returns Index after last style key character.\\n */\\n function
consumeStyleKey(text, startIndex, endIndex) {\\n     var ch;\\n     while (startIndex < endIndex &&
((ch = text.charCodeAtAt(startIndex)) === 45 /* DASH */ || ch === 95 /* UNDERSCORE */ ||
((ch & -33 /*
UPPER_CASE */) >= 65 /* A */ && (ch & -33 /* UPPER_CASE */) <= 90 /* Z */) ||
(ch >= 48 /*
ZERO */ && ch <= 57 /* NINE */))) {\\n         startIndex++;\\n

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    }\n    return startIndex;\n }\n /**\n  * Consumes all whitespace and the separator `:` after the style key.\n
  *\n  * @param text Text to scan\n  * @param startIndex Starting index of character where the scan should
  start.\n  * @param endIndex Ending index of character where the scan should end.\n  * @returns Index after
  separator and surrounding whitespace.\n  */\n function consumeSeparator(text, startIndex, endIndex, separator)
{\n    startIndex = consumeWhitespace(text, startIndex, endIndex);\n    if (startIndex < endIndex) {\n        if
  (ngDevMode && text.charCodeAtAt(startIndex) !== separator) {\n            malformedStyleError(text,
  String.fromCharCode(separator), startIndex);\n        }\n        startIndex++;\n    }\n    return startIndex;\n
}\n /**\n  * Consumes style value honoring `url()` and `\"\"` text.\n  *\n  * @param text Text to scan\n  *
  * @param startIndex Starting index of character where
  the scan should start.\n  * @param endIndex Ending index of character where the scan should end.\n  *
  * @returns Index after last style value character.\n  */\n function consumeStyleValue(text, startIndex, endIndex)
{\n    var ch1 = -1; // 1st previous character\n    var ch2 = -1; // 2nd previous character\n    var ch3 = -1; // 3rd
  previous character\n    var i = startIndex;\n    var lastChIndex = i;\n    while (i < endIndex) {\n        var ch
  = text.charCodeAtAt(i++);\n        if (ch === 59 /* SEMI_COLON */) {\n            return lastChIndex;\n        }\n
        else if (ch === 34 /* DOUBLE_QUOTE */ || ch === 39 /* SINGLE_QUOTE */) {\n            lastChIndex = i
  = consumeQuotedText(text, ch, i, endIndex);\n        }\n        else if (startIndex ===\n            i - 4 && // We
  have seen only 4 characters so far \"URL(\" (Ignore \"foo_URL()\")\n            ch3 === 85 /* U */ &&\n
        ch2 === 82 /* R
  */ && ch1 === 76 /* L */ && ch === 40 /* OPEN_PAREN */) {\n            lastChIndex = i =
  consumeQuotedText(text, 41 /* CLOSE_PAREN */, i, endIndex);\n        }\n        else if (ch > 32 /* SPACE */)
  {\n            // if we have a non-whitespace character then capture its location\n            lastChIndex = i;\n
        }\n        ch3 = ch2;\n        ch2 = ch1;\n        ch1 = ch & -33 /* UPPER_CASE */;\n    }\n    return
  lastChIndex;\n }\n /**\n  * Consumes all of the quoted characters.\n  *\n  * @param text Text to scan\n
  * @param quoteCharCode CharCode of either `\"` or `` quote or `` for `url(...)`.\n  * @param startIndex Starting
  index of character where the scan should start.\n  * @param endIndex Ending index of character where the scan
  should end.\n  * @returns Index after quoted characters.\n  */\n function consumeQuotedText(text,
  quoteCharCode, startIndex, endIndex) {\n    var ch1 = -1; // 1st previous
  character\n    var index = startIndex;\n    while (index < endIndex) {\n        var ch =
  text.charCodeAtAt(index++);\n        if (ch === quoteCharCode && ch1 !== 92 /* BACK_SLASH */) {\n
        return index;\n        }\n        if (ch === 92 /* BACK_SLASH */ && ch1 === 92 /* BACK_SLASH */) {\n
        // two back slashes cancel each other out. For example `\"\"` should properly end the\n        // quotation. (It
  should not assume that the last `` is escaped.)\n        ch1 = 0;\n        }\n        else {\n            ch1 = ch;\n
        }\n    }\n    throw ngDevMode ? malformedStyleError(text, String.fromCharCode(quoteCharCode),
  endIndex) : new Error();\n }\n function malformedStyleError(text, expecting, index) {\n
  ngDevMode && assertEquals(typeof text === 'string', true, 'String expected here');\n    throw
  throwError(\"Malformed style at location \" + index + \" in string
  \" + text.substring(0, index) + '[>>' +\n        text.substring(index, index + 1) + '<<]' + text.substr(index + 1) +\n
        (\". Expecting \" + expecting + '\".\"));\n }\n\n /**\n  * @license\n  * Copyright Google LLC All Rights
  Reserved.\n  *\n  * Use of this source code is governed by an MIT-style license that can be\n  * found in the
  LICENSE file at https://angular.io/license\n  */\n\n /**\n  * Update a style binding on an element with the
  provided value.\n  *\n  * If the style value is falsy then it will be removed from the element\n  * (or assigned a
  different value depending if there are any styles placed\n  * on the element with `styleMap` or any static styles that
  are\n  * present from when the element was created with `styling`).\n  *\n  * Note that the styling element is
  updated as part of `stylingApply`.\n  *\n  * @param prop A valid CSS property.\n  * @param value New value
  to write (null or an empty string
  to remove).\n  * @param suffix Optional suffix. Used with scalar values to add unit such as `px`.\n  *\n  *
  Note that this will apply the provided style value to the host element if this function is called\n  * within a host
  binding function.\n  *\n  * @codeGenApi\n  */\n function styleProp(prop, value, suffix) {\n

```



```

checkStylingProperty(prop, value, suffix, false);\n    return styleProp;\n  }\n  /**\n   * Update a class binding
on an element with the provided value.\n   *\n   * This instruction is meant to handle the `[class.foo]="exp"` case
and,\n   * therefore, the class binding itself must already be allocated using\n   * `styling` within the creation
block.\n   *\n   * @param prop A valid CSS class (only one).\n   * @param value A true/false value which will
turn the class on or off.\n   *\n   * Note that this will apply the provided class value to the host element if this
function\n   * is called within a host
binding function.\n   *\n   * @codeGenApi\n   */\n  function classProp(className, value) {\n
checkStylingProperty(className, value, null, true);\n    return classProp;\n  }\n  /**\n   * Update style
bindings using an object literal on an element.\n   *\n   * This instruction is meant to apply styling via the
`[style]="exp"` template bindings.\n   * When styles are applied to the element they will then be updated with
respect to\n   * any styles/classes set via `styleProp`. If any styles are set to falsy\n   * then they will be removed
from the element.\n   *\n   * Note that the styling instruction will not be applied until `stylingApply` is called.\n
*\n   * @param styles A key/value style map of the styles that will be applied to the given element.\n   * Any
missing styles (that have already been applied to the element beforehand) will be\n   * removed (unset) from
the element's styling.\n   *\n   * Note that this
will apply the provided styleMap value to the host element if this function\n   * is called within a host binding.\n
*\n   * @codeGenApi\n   */\n  function styleMap(styles) {\n    checkStylingMap(styleKeyValueArraySet,
styleStringParser, styles, false);\n  }\n  /**\n   * Parse text as style and add values to KeyValueArray.\n   *\n
* This code is pulled out to a separate function so that it can be tree shaken away if it is not\n   * needed. It is only
referenced from `styleMap`.\n   *\n   * @param keyValueArray KeyValueArray to add parsed values to.\n   *
@param text text to parse.\n   */\n  function styleStringParser(keyValueArray, text) {\n    for (var i =
parseStyle(text); i >= 0; i = parseStyleNext(text, i)) {\n      styleKeyValueArraySet(keyValueArray,
getLastParsedKey(text), getLastParsedValue(text));\n    }\n  }\n  /**\n   * Update class bindings using an
object literal or class-string on an element.\n   *\n
* This instruction is meant to apply styling via the `[class]="exp"` template bindings.\n   * When classes are
applied to the element they will then be updated with\n   * respect to any styles/classes set via `classProp`. If any\n
* classes are set to falsy then they will be removed from the element.\n   *\n   * Note that the styling instruction
will not be applied until `stylingApply` is called.\n   * Note that this will the provided classMap value to the host
element if this function is called\n   * within a host binding.\n   *\n   * @param classes A key/value map or
string of CSS classes that will be added to the\n   * given element. Any missing classes (that have already been
applied to the element\n   * beforehand) will be removed (unset) from the element's list of CSS classes.\n
*\n   * @codeGenApi\n   */\n  function classMap(classes) {\n    checkStylingMap(keyValueArraySet,
classStringParser, classes, true);\n  }\n  /**\n
* Parse text as class and add values to KeyValueArray.\n   *\n   * This code is pulled out to a separate function
so that it can be tree shaken away if it is not\n   * needed. It is only referenced from `classMap`.\n   *\n
* @param keyValueArray KeyValueArray to add parsed values to.\n   * @param text text to parse.\n   */\n
function classStringParser(keyValueArray, text) {\n    for (var i = parseClassName(text); i >= 0; i =
parseClassNameNext(text, i)) {\n      keyValueArraySet(keyValueArray, getLastParsedKey(text), true);\n
    }\n  }\n  /**\n   * Common code between `classProp` and `styleProp`.\n   *\n   * @param prop property
name.\n   * @param value binding value.\n   * @param suffix suffix for the property (e.g. `em` or `px`)\n   *
@param isClassBased `true` if `class` change (`false` if `style`)\n   */\n  function checkStylingProperty(prop,
value, suffix, isClassBased) {\n    var IView = getLView();\n    var
tView = getTView();\n    // Styling instructions use 2 slots per binding.\n    // 1. one for the value /
TStylingKey\n    // 2. one for the intermittent-value / TStylingRange\n    var bindingIndex =
incrementBindingIndex(2);\n    if (tView.firstUpdatePass) {\n      stylingFirstUpdatePass(tView, prop,
bindingIndex, isClassBased);\n    }\n    if (value !== NO_CHANGE && bindingUpdated(IView, bindingIndex,
value)) {\n      var tNode = tView.data[getSelectedIndex()];\n      updateStyling(tView, tNode, IView,
IView[RENDERER], prop, IView[bindingIndex + 1] = normalizeSuffix(value, suffix), isClassBased,

```

```

bindingIndex);\n    }\n    }\n    /**\n     * Common code between `classMap` and `styleMap`.\n     *\n     * @param\n     keyValuePairArraySet (See `keyValuePairArraySet` in `util/array_utils`) Gets passed in as a\n     *      function so that\n     `style` can be processed. This is done for tree shaking purposes.\n     * @param stringParser Parser used\n     to parse `value` if `string`. (Passed in as `style` and `class`\n     *      have different parsers.)\n     * @param value\n     bound value from application\n     * @param isClassBased `true` if `class` change (`false` if `style`)\n     */\n    function checkStylingMap(keyValuePairArraySet, stringParser, value, isClassBased) {\n        var tView = getTView();\n        var bindingIndex = incrementBindingIndex(2);\n        if (tView.firstUpdatePass) {\n            stylingFirstUpdatePass(tView, null, bindingIndex, isClassBased);\n        }\n        var IView = getLView();\n        if\n        (value !== NO_CHANGE && bindingUpdated(IView, bindingIndex, value)) {\n            // `getSelectedIndex()`\n            should be here (rather than in instruction) so that it is guarded by the\n            // if so as not to read unnecessarily.\n            var tNode = tView.data[getSelectedIndex()];\n            if (hasStylingInputShadow(tNode, isClassBased) &&\n            !isInHostBindings(tView, bindingIndex)) {\n                if (ngDevMode)\n                {\n                    // verify that if we are shadowing then `TData` is appropriately marked so that we skip\n                    // processing this binding in styling resolution.\n                    var tStylingKey = tView.data[bindingIndex];\n                    assertEquals(Array.isArray(tStylingKey) ? tStylingKey[1] : tStylingKey, false, 'Styling linked list shadow input\n                    should be marked as `false`');\n                }\n                // VE does not concatenate the static portion like we are\n                doing here.\n                // Instead VE just ignores the static completely if dynamic binding is present.\n                //\n                Because of locality we have already set the static portion because we don't know if there\n                // is a dynamic\n                portion until later. If we would ignore the static portion it would look like\n                // the binding has removed it.\n                This would confuse `[ngStyle]^[ngClass]` to do the wrong\n                // thing as it would think that\n                the static portion was removed. For this reason we\n                // concatenate it so that `[ngStyle]^[ngClass]` can\n                continue to work on changed.\n                var staticPrefix = isClassBased ? tNode.classesWithoutHost :\n                tNode.stylesWithoutHost;\n                ngDevMode && isClassBased === false && staticPrefix !== null &&\n                assertEquals(staticPrefix.endsWith(';'), true, 'Expecting static portion to end with `;`');\n                if\n                (staticPrefix !== null) {\n                    // We want to make sure that falsy values of `value` become empty strings.\n                    value = concatStringsWhiteSpace(staticPrefix, value ? value : '');\n                }\n                // Given `

```

```

==== null && !isHostBindings) {\n          // `tStylingKey` === null` implies that we are either `[style]` or `[class]`
binding.\n          // If there is a directive which uses `@Input('style')` or `@Input('class')` than\n          // we
need to neutralize this binding since that directive is shadowing it.\n          // We turn this into a noop by setting
the key to `false`\n          tStylingKey = false;\n          }\n          tStylingKey = wrapInStaticStylingKey(tData,
tNode, tStylingKey, isClassBased);\n          insertTStylingBinding(tData, tNode, tStylingKey, bindingIndex,
isHostBindings, isClassBased);\n          }\n          }\n          /**\n          * Adds static styling information to the binding if
applicable.\n          * The linked list of styles not only stores the list and keys, but also stores static styling\n          * information on some of the keys. This function determines if the key should contain the styling\n          * information
and computes
it.\n          * See `TStylingStatic` for more details.\n          * @param tData `TData` where the linked list is
stored.\n          * @param tNode `TNode` for which the styling is being computed.\n          * @param stylingKey
`TStylingKeyPrimitive` which may need to be wrapped into `TStylingKey`\n          * @param isClassBased `true` if
`class` (`false` if `style`)\n          */\n          function wrapInStaticStylingKey(tData, tNode, stylingKey, isClassBased) {\n
          var hostDirectiveDef = getCurrentDirectiveDef(tData);\n          var residual = isClassBased ? tNode.residualClasses :
tNode.residualStyles;\n          if (hostDirectiveDef === null) {\n          // We are in template node.\n          // If
template node already had styling instruction then it has already collected the static\n          // styling and there is no
need to collect them again. We know that we are the first styling\n          // instruction because the
`TNode.*Bindings` points to 0 (nothing has been inserted yet).\n
          var isFirstStylingInstructionInTemplate = (isClassBased ? tNode.classBindings : tNode.styleBindings) ===
0;\n          if (isFirstStylingInstructionInTemplate) {\n          // It would be nice to be able to get the statics from
`mergeAttrs`, however, at this point\n          // they are already merged and it would not be possible to figure
which property belongs where\n          // in the priority.\n          stylingKey =
collectStylingFromDirectives(null, tData, tNode, stylingKey, isClassBased);\n          stylingKey =
collectStylingFromTAttrs(stylingKey, tNode.attrs, isClassBased);\n          // We know that if we have styling
binding in template we can't have residual.\n          residual = null;\n          }\n          }\n          else {\n          // We
are in host binding node and there was no binding instruction in template node.\n          // This means that we need
to compute the residual.\n          var directiveStylingLast
= tNode.directiveStylingLast;\n          var isFirstStylingInstructionInHostBinding = directiveStylingLast === -1 ||
tData[directiveStylingLast] !== hostDirectiveDef;\n          if (isFirstStylingInstructionInHostBinding) {\n
stylingKey =\n          collectStylingFromDirectives(hostDirectiveDef, tData, tNode, stylingKey,
isClassBased);\n          if (residual === null) {\n          // - If `null` than either:\n          // - Template
styling instruction already ran and it has consumed the static\n          // styling into its `TStylingKey` and so
there is no need to update residual. Instead\n          // we need to update the `TStylingKey` associated with
the first template node\n          // instruction. OR\n          // - Some other styling instruction ran and
determined that there are no residuals\n          var templateStylingKey = getTemplateHeadTStylingKey(tData,
tNode, isClassBased);\n          if (templateStylingKey !== undefined && Array.isArray(templateStylingKey))
{\n          // Only recompute if `templateStylingKey` had static values. (If no static value found\n
// then there is nothing to do since this operation can only produce less static keys, not\n          // more.)\n
          templateStylingKey = collectStylingFromDirectives(null, tData, tNode, templateStylingKey[1] /*
unwrap previous statics */ , isClassBased);\n          templateStylingKey =\n
collectStylingFromTAttrs(templateStylingKey, tNode.attrs, isClassBased);\n
setTemplateHeadTStylingKey(tData, tNode, isClassBased, templateStylingKey);\n          }\n          }\n
          else {\n          // We only need to recompute residual if it is not `null`.\n          // - If existing residual
(implies there was no template styling). This means that some of\n          // the statics may have moved from
the residual to the `stylingKey` and so we have to\n          // recompute.\n          // - If `undefined` this is
the first time we are running.\n          residual = collectResidual(tData, tNode, isClassBased);\n          }\n
          }\n          if (residual !== undefined) {\n          isClassBased ? (tNode.residualClasses = residual) :
(tNode.residualStyles = residual);\n          }\n          return stylingKey;\n          }\n          /**\n          * Retrieve the `TStylingKey`

```

for the template styling instruction.

```

    * This is needed since `hostBinding` styling instructions are inserted
    after the template
    * instruction. While the template instruction needs to update the residual in `TNode` the
    `hostBinding` instructions need to update the `TStylingKey` of the template instruction because
    the
    template instruction is downstream from the `hostBindings` instructions.
    * @param tData `TData` where
    the linked list is stored.
    * @param tNode `TNode` for which the styling is being computed.
    * @param
    isClassBased `true` if `class` (`false` if `style`)
    * @return `TStylingKey` if found or `undefined` if not found.
    */
    function getTemplateHeadTStylingKey(tData, tNode, isClassBased) {
        var bindings = isClassBased ?
        tNode.classBindings : tNode.styleBindings;
        if (getTStylingRangeNext(bindings) === 0) {
            // There
            does not seem to be a styling instruction in the `template`.
            return undefined;
        }
        return
        tData[getTStylingRangePrev(bindings)];
    }
    /**
    * Update the `TStylingKey` of the first template
    instruction in `TNode`.
    * Logically `hostBindings` styling instructions are of lower priority than that of
    the template.
    * However, they execute after the template styling
    instructions. This means that they get inserted
    * in front of the template styling instructions.
    * If we
    have a template styling instruction and a new `hostBindings` styling instruction is
    * executed it means that it
    may need to steal static fields from the template instruction. This
    * method allows us to update the first template
    instruction `TStylingKey` with a new value.
    * Assume:
    * ```
    * <div my-dir style="color: red"
    [style.color]="tmplExp"></div>
    * @Directive({
    *   host: {
    *     'style': 'width: 100px',
    *     '[style.color]': 'dirExp',
    *   }
    * })
    * class MyDir {}
    * ```
    * when
    `[style.color]="tmplExp"` executes it creates this data structure.
    * ```
    * [, 'color', 'color', 'red', 'width',
    '100px'],
    * ```
    * The reason for this is that the template instruction does not know if there are
    styling
    * instructions
    and must assume that there are none and must collect all of the static styling.
    * (both
    * `color` and
    `width`)
    * When `[style.color]': 'dirExp'` executes we need to insert a new data into the linked list.
    * ```
    * [, 'color', 'width', '100px'], // newly inserted
    * [, 'color', 'color', 'red', 'width', '100px'], // this is
    wrong
    * ```
    * Notice that the template statics is now wrong as it incorrectly contains `width` so we
    need to
    * update it like so:
    * ```
    * [, 'color', 'width', '100px'],
    * [, 'color', 'color', 'red'], //
    UPDATE
    * ```
    * @param tData `TData` where the linked list is stored.
    * @param tNode
    `TNode` for which the styling is being computed.
    * @param isClassBased `true` if `class` (`false` if `style`)
    * @param tStylingKey New `TStylingKey` which is replacing the old one.
    */
    function
    setTemplateHeadTStylingKey(tData, tNode,
    isClassBased, tStylingKey) {
        var bindings = isClassBased ? tNode.classBindings : tNode.styleBindings;
        ngDevMode &&
        assertNotEqual(getTStylingRangeNext(bindings), 0, 'Expecting to have at least one
        template styling binding.');
```

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        tData[getTStylingRangePrev(bindings)] = tStylingKey;
    }
    /**
    * Collect
    all static values after the current `TNode.directiveStylingLast` index.
    * Collect the remaining styling
    information which has not yet been collected by an existing
    * styling instruction.
    * @param tData
    `TData` where the `DirectiveDefs` are stored.
    * @param tNode `TNode` which contains the directive range.
    * @param isClassBased `true` if `class` (`false` if `style`)
    */
    function collectResidual(tData, tNode,
    isClassBased) {
        var residual = undefined;
        var directiveEnd = tNode.directiveEnd;
        ngDevMode
        &&
        assertNotEqual(tNode.directiveStylingLast, -1,
        'By the time this function gets called at least one hostBindings-node styling instruction must have executed.');
```

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        // We add `1 + tNode.directiveStart` because we need to skip the current directive (as we are
        // collecting
        things after the last `hostBindings` directive which had a styling instruction.)
        for (var i = 1 +
        tNode.directiveStylingLast; i < directiveEnd; i++) {
            var attrs = tData[i].hostAttrs;
            residual =
            collectStylingFromTAttrs(residual, attrs, isClassBased);
        }
        return collectStylingFromTAttrs(residual,
        tNode.attrs, isClassBased);
    }
    /**
    * Collect the static styling information with lower priority than
    `hostDirectiveDef`.
    * (This is opposite of residual styling.)
    * @param hostDirectiveDef
    `DirectiveDef` for which we want to collect lower priority static
    * styling. (Or `null` if template styling)
    * @param tData `TData` where the linked list is stored.
    */

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```

    * @param tNode `TNode` for which the styling is being computed.\n    * @param stylingKey Existing
`TStylingKey` to update or wrap.\n    * @param isClassBased `true` if `class` (`false` if `style`)\n    */\n    function
collectStylingFromDirectives(hostDirectiveDef, tData, tNode, stylingKey, isClassBased) {\n        // We need to loop
because there can be directives which have `hostAttrs` but don't have\n        // `hostBindings` so this loop catches up
to the current directive.\n        var currentDirective = null;\n        var directiveEnd = tNode.directiveEnd;\n        var
directiveStylingLast = tNode.directiveStylingLast;\n        if (directiveStylingLast === -1) {\n
directiveStylingLast = tNode.directiveStart;\n        }\n        else {\n            directiveStylingLast++;\n        }\n
while (directiveStylingLast < directiveEnd) {\n            currentDirective = tData[directiveStylingLast];\n
ngDevMode && assertDefined(currentDirective, 'expected
to be defined');\n            stylingKey = collectStylingFromTAttrs(stylingKey, currentDirective.hostAttrs,
isClassBased);\n            if (currentDirective === hostDirectiveDef)\n                break;\n
directiveStylingLast++;\n        }\n        if (hostDirectiveDef !== null) {\n            // we only advance the styling cursor
if we are collecting data from host bindings.\n            // Template executes before host bindings and so if we would
update the index,\n            // host bindings would not get their statics.\n            tNode.directiveStylingLast =
directiveStylingLast;\n        }\n        return stylingKey;\n    }\n    /**\n    * Convert `TAttrs` into `TStylingStatic`.\n
*/\n    * @param stylingKey existing `TStylingKey` to update or wrap.\n    * @param attrs `TAttributes` to
process.\n    * @param isClassBased `true` if `class` (`false` if `style`)\n    */\n    function
collectStylingFromTAttrs(stylingKey, attrs, isClassBased) {\n        var
desiredMarker = isClassBased ? 1 /* Classes */ : 2 /* Styles */;\n        var currentMarker = -1 /* ImplicitAttributes
*/;\n        if (attrs !== null) {\n            for (var i = 0; i < attrs.length; i++) {\n                var item = attrs[i];\n
if (typeof item === 'number') {\n                    currentMarker = item;\n                }\n                else {\n                    if
(currentMarker === desiredMarker) {\n                        if (!Array.isArray(stylingKey)) {\n
stylingKey = stylingKey === undefined ? [] : [' ', stylingKey];\n                        }\n
keyValueArraySet(stylingKey, item, isClassBased ? true : attrs[++i]);\n                    }\n                }\n            }\n
return stylingKey === undefined ? null : stylingKey;\n        }\n        /**\n        * Convert user input to
`KeyValueArray`.\n        * This function takes user input which could be `string`, Object literal, or iterable
and converts\n        * it into a consistent representation. The output of this is `KeyValueArray` (which is an array\n
* where\n        * even indexes contain keys and odd indexes contain values for those keys).\n        * The advantage
of converting to `KeyValueArray` is that we can perform diff in an input\n        * independent\n        * way.\n        * (ie we
can compare `foo bar` to `['bar', 'baz']` and determine a set of changes which need to be\n        * applied)\n        * The fact that `KeyValueArray` is sorted is very important because it allows us to compute the\n        * difference in
linear fashion without the need to allocate any additional data.\n        * For example if we kept this as a `Map`
we would have to iterate over previous `Map` to determine\n        * which values need to be deleted, over the new
`Map` to determine additions, and we would have to\n        * keep additional `Map` to keep track of duplicates or
items which have not yet been visited.\n        */\n        * @param keyValueArraySet (See `keyValueArraySet` in `util/array_utils`) Gets passed in as a\n        * function so that `style` can be processed. This is done\n        * for tree shaking purposes.\n        * @param
stringParser The parser is passed in so that it will be tree shakable. See\n        * `styleStringParser` and
`classStringParser`\n        * @param value The value to parse/convert to `KeyValueArray`\n        */\n        function
toStylingKeyValueArray(keyValueArraySet, stringParser, value) {\n            if (value === null || value === undefined
|| value === '')\n                return EMPTY_ARRAY$3;\n            var styleKeyValueArray = [];\n            var
unwrappedValue = unwrapSafeValue(value);\n            if (Array.isArray(unwrappedValue)) {\n                for (var i = 0; i <
unwrappedValue.length; i++) {\n                    keyValueArraySet(styleKeyValueArray, unwrappedValue[i], true);\n                }\n            }\n            else if (typeof unwrappedValue === 'object') {\n                for
(var key in unwrappedValue) {\n                    if (unwrappedValue.hasOwnProperty(key)) {\n
keyValueArraySet(styleKeyValueArray, key, unwrappedValue[key]);\n                    }\n                }\n            }\n            else if
(typeof unwrappedValue === 'string') {\n                stringParser(styleKeyValueArray, unwrappedValue);\n            }\n            else {\n                ngDevMode &&\n                throwError('Unsupported styling type ' + typeof unwrappedValue + ': ' +

```

```

unwrappedValue));\n    }\n    return styleKeyVertexArray;\n  }\n  /**\n   * Set a `value` for a `key`.\n   *\n   * See: `keyVertexArraySet` for details\n   *\n   * @param keyVertexArray KeyVertexArray to add to.\n   * @param key Style key to add.\n   * @param value The value to set.\n   */\n  function\n  styleKeyVertexArraySet(keyVertexArray, key, value) {\n    keyVertexArraySet(keyVertexArray, key,\n    unwrapSafeValue(value));\n  }\n  /**\n   * Update map based styling.\n   *\n   * Map\n   * based styling could be anything which contains more than one binding. For example `string`,\n   * or object literal. Dealing with all of these types would complicate the logic so\n   * instead this function expects that the complex\n   * input is first converted into normalized\n   * `KeyVertexArray`. The advantage of normalization is that we get the\n   * values sorted, which makes it\n   * very cheap to compute deltas between the previous and current value.\n   *\n   * @param tView Associated `TView.data` contains the linked list of binding priorities.\n   * @param tNode `TNode` where the binding is located.\n   * @param lView `LView` contains the values associated with other\n   * styling binding at this `TNode`.\n   * @param renderer Renderer to use if any updates.\n   * @param\n   * oldKeyVertexArray Previous value represented as `KeyVertexArray`\n   * @param newKeyVertexArray Current\n   * value represented as `KeyVertexArray`\n   * @param isClassBased `true` if `class` (`false` if `style`)\n   *\n   * @param bindingIndex Binding index of the binding.\n   */\n  function updateStylingMap(tView, tNode,\n  lView, renderer, oldKeyVertexArray, newKeyVertexArray, isClassBased, bindingIndex) {\n    if\n    (oldKeyVertexArray === NO_CHANGE) {\n      // On first execution the oldKeyVertexArray is NO_CHANGE\n      => treat it as empty KeyVertexArray.\n      oldKeyVertexArray = EMPTY_ARRAY$3;\n    }\n    var\n    oldIndex = 0;\n    var newIndex = 0;\n    var oldKey = 0 < oldKeyVertexArray.length ? oldKeyVertexArray[0] :\n    null;\n    var newKey = 0 < newKeyVertexArray.length ? newKeyVertexArray[0] :\n    null;\n    while (oldKey !==\n    null || newKey !== null) {\n      ngDevMode && assertLessThan(oldIndex, 999, 'Are we stuck in infinite\n      loop?');\n      ngDevMode && assertLessThan(newIndex, 999, 'Are we stuck in infinite loop?');\n      var\n      oldValue = oldIndex < oldKeyVertexArray.length ? oldKeyVertexArray[oldIndex + 1] : undefined;\n      var\n      newValue = newIndex\n      < newKeyVertexArray.length ? newKeyVertexArray[newIndex + 1] : undefined;\n      var setKey = null;\n      var setValue = undefined;\n      if (oldKey === newKey) {\n        // UPDATE: Keys are equal => new value\n        is overwriting old value.\n        oldIndex += 2;\n        newIndex += 2;\n        if (oldValue !==\n        newValue) {\n          setKey = newKey;\n          setValue = newValue;\n        }\n      }\n      else if (newKey === null || oldKey !== null && oldKey < newKey) {\n        // DELETE: oldKey key is missing\n        or we did not find the oldKey in the newValue\n        // (because the keyVertexArray is sorted and `newKey` is\n        found later alphabetically).\n        // `\"background\"` < `\"color\"` so we need to delete `\"background\"` because\n        it is not found in the\n        // new array.\n        oldIndex += 2;\n        setKey = oldKey;\n      }\n      else {\n        // CREATE: newKey's is earlier alphabetically than oldKey's (or no oldKey) => we have\n        new key.\n        // `\"color\"` > `\"background\"` so we need to add `color` because it is in new array but not in\n        // old array.\n        ngDevMode && assertDefined(newKey, 'Expecting to have a valid key');\n        newIndex += 2;\n        setKey = newKey;\n        setValue = newValue;\n      }\n      if (setKey !==\n      null) {\n        updateStyling(tView, tNode, lView, renderer, setKey, setValue, isClassBased, bindingIndex);\n      }\n      oldKey = oldIndex < oldKeyVertexArray.length ? oldKeyVertexArray[oldIndex] : null;\n      newKey = newIndex < newKeyVertexArray.length ? newKeyVertexArray[newIndex] : null;\n    }\n  }\n  /**\n   * Update a simple (property name) styling.\n   *\n   * This function takes `prop` and updates the DOM to that\n   * value. The function takes\n   * the binding\n   * value as well as binding priority into consideration to determine which value should be written\n   * to DOM. (For example it may be determined that there is a higher priority overwrite which blocks\n   * the\n   * DOM write, or if the value goes to `undefined` a lower priority overwrite may be consulted.)\n   *\n   * @param\n   * tView Associated `TView.data` contains the linked list of binding priorities.\n   * @param tNode `TNode` where\n   * the binding is located.\n   * @param lView `LView` contains the values associated with other styling binding at\n   * this `TNode`.\n   * @param renderer Renderer to use if any updates.\n   * @param prop Either style property\n   * name or a class name.\n   * @param value Either style value for `prop` or `true`/`false` if `prop` is class.\n   */

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@param isClassBased `true` if `class` (`false` if `style`)\n    * @param bindingIndex Binding index of the
binding.\n    */\n    function updateStyling(tView, tNode, IView, renderer, prop, value,
isClassBased, bindingIndex) {\n        if (!(tNode.type & 3 /* AnyRNode */)) {\n            // It is possible to have
styling on non-elements (such as ng-container).\n            // This is rare, but it does happen. In such a case, just ignore
the binding.\n            return;\n        }\n        var tData = tView.data;\n        var tRange = tData[bindingIndex + 1];\n        var higherPriorityValue = getTStylingRangeNextDuplicate(tRange) ?\n            findStylingValue(tData, tNode,
IView, prop, getTStylingRangeNext(tRange), isClassBased) :\n            undefined;\n        if
(!isStylingValuePresent(higherPriorityValue)) {\n            // We don't have a next duplicate, or we did not find a
duplicate value.\n            if (!isStylingValuePresent(value)) {\n                // We should delete current value or restore
to lower priority value.\n                if (getTStylingRangePrevDuplicate(tRange)) {\n                    // We have a
possible prev duplicate, let's retrieve it.\n                    value = findStylingValue(tData, null, IView, prop, bindingIndex, isClassBased);\n                }\n            }\n            var rNode = getNativeByIndex(getSelectedIndex(), IView);\n            applyStyling(renderer, isClassBased,
rNode, prop, value);\n        }\n        /**\n         * Search for styling value with higher priority which is overwriting
current value, or a\n         * value of lower priority to which we should fall back if the value is `undefined`.\n         * \n         * When value is being applied at a location, related values need to be consulted.\n         * - If there is a higher priority
binding, we should be using that one instead.\n         * For example `

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valueAtLViewIndex : undefined;\n      if (containsStatics && !isStylingValuePresent(currentValue)) {\n
currentValue = keyValueArrayGet(rawKey, prop);\n      }\n      if (isStylingValuePresent(currentValue)) {\n
        value = currentValue;\n      if (isPrevDirection) {\n          return value;\n      }\n      }\n
      var tRange = tData[index + 1];\n      index = isPrevDirection ? getTStylingRangePrev(tRange) :
getTStylingRangeNext(tRange);\n      }\n      if (tNode !== null) {\n          // in case where we are going in next
direction AND we did not find anything, we need to\n          // consult residual styling\n          var residual =
isClassBased ? tNode.residualClasses : tNode.residualStyles;\n          if (residual != null /** OR residual !==
undefined */) {\n              value = keyValueArrayGet(residual, prop);\n          }\n          }\n      return value;\n      }\n
}

/**\n * Determines if the binding value should be used (or if the value is 'undefined' and hence priority\n *
resolution should be used.)\n * \n * @param value Binding style value.\n * \n function
isStylingValuePresent(value) {\n      // Currently only `undefined` value is considered non-binding. That is
`undefined` says I don't\n      // have an opinion as to what this binding should be and you should consult other
bindings by\n      // priority to determine the valid value.\n      // This is extracted into a single function so that we
have a single place to control this.\n      return value !== undefined;\n      }\n      /**\n * Normalizes and/or adds a
suffix to the value.\n * \n * If value is `null`/`undefined` no suffix is added\n * @param value\n * @param
suffix\n * \n function normalizeSuffix(value, suffix) {\n      if (value == null /** || value === undefined */) {\n
          // do nothing\n      }\n      else if (typeof
suffix === 'string') {\n          value = value + suffix;\n      }\n      else if (typeof value === 'object') {\n
value = stringify(unwrapSafeValue(value));\n      }\n      return value;\n      }\n      /**\n * Tests if the `TNode` has
input shadow.\n * \n * An input shadow is when a directive steals (shadows) the input by using `@Input('style')`
or\n * `@Input('class')` as input.\n * \n * @param tNode `TNode` which we would like to see if it has
shadow.\n * \n * @param isClassBased `true` if `class` `false` if `style`)\n * \n function
hasStylingInputShadow(tNode, isClassBased) {\n      return (tNode.flags & (isClassBased ? 16 /** hasClassInput */
: 32 /** hasStyleInput */)) !== 0;\n      }\n      /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n /**\n
* Create static text node\n * \n * @param index Index of the node in the data array\n * @param value
Static string value to write.\n * \n * @codeGenApi\n * \n function text(index, value) {\n      if (value ===
void 0) { value = ''; }\n      var lView = getLView();\n      var tView = getTView();\n      var adjustedIndex =
index + HEADER_OFFSET;\n      ngDevMode &&\n      assertEquals(getBindingIndex(),
tView.bindingStartIndex, 'text nodes should be created before any bindings');\n      ngDevMode &&
assertIndexInRange(lView, adjustedIndex);\n      var tNode = tView.firstCreatePass ?\n
getOrCreateTNode(tView, adjustedIndex, 1 /** Text */, value, null) :\n      tView.data[adjustedIndex];\n      var
textNative = lView[adjustedIndex] = createTextNode(lView[RENDERER], value);\n      appendChild(tView,
lView, textNative, tNode);\n      // Text nodes are self closing.\n      setCurrentTNode(tNode, false);\n      }\n
}\n
/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed
by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n /**\n
* Update text content with a lone bound value\n * \n * Used when a text node has 1 interpolated value in
it, an no additional text\n * surrounds that interpolated value:\n * \n * ```html\n * <div>{{ v0 }}</div>\n
* ```\n * \n * Its compiled representation is:\n * \n * ```ts\n * textInterpolate(v0);\n * ```\n *
@returns itself, so that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n * \n function
textInterpolate(v0) {\n      textInterpolate1('', v0, '');\n      return textInterpolate;\n      }\n      /**\n * \n * Update
text content with single bound value surrounded by other text.\n * \n * Used when a text node has 1 interpolated
value in
it:\n * \n * ```html\n * <div>prefix{{ v0 }}suffix</div>\n * ```\n * \n * Its compiled representation is:\n
* \n * ```ts\n * textInterpolate1('prefix', v0, 'suffix');\n * ```\n * \n * @returns itself, so that it may be

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chained.\n * @see textInterpolateV\n * @codeGenApi\n */\n function textInterpolate1(prefix, v0, suffix)
{\n     var IView = getLView();\n     var interpolated = interpolation1(IView, prefix, v0, suffix);\n     if
(interpolated !== NO_CHANGE) {\n         textBindingInternal(IView, getSelectedIndex(), interpolated);\n     }\n
     return textInterpolate1;\n }\n /**\n * \n * Update text content with 2 bound values surrounded by other
text.\n * \n * Used when a text node has 2 interpolated values in it:\n * \n * ```html\n *
<div>prefix{{v0}}-{{v1}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n *
textInterpolate2('prefix',
v0, '-', v1, 'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n *
@codeGenApi\n */\n function textInterpolate2(prefix, v0, i0, v1, suffix) {\n     var IView = getLView();\n
var interpolated = interpolation2(IView, prefix, v0, i0, v1, suffix);\n     if (interpolated !== NO_CHANGE) {\n
textBindingInternal(IView, getSelectedIndex(), interpolated);\n     }\n     return textInterpolate2;\n }\n /**\n
* \n * Update text content with 3 bound values surrounded by other text.\n * \n * Used when a text node has
3 interpolated values in it:\n * \n * ```html\n * <div>prefix{{v0}}-{{v1}}-{{v2}}suffix</div>\n * ```\n
* \n * Its compiled representation is:\n * \n * ```ts\n * textInterpolate3(\n *     'prefix', v0, '-', v1, '-', v2,
'suffix');\n * ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n *
@codeGenApi\n */\n function textInterpolate3(prefix, v0, i0, v1, i1, v2, suffix) {\n     var IView =
getLView();\n     var interpolated = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n     if (interpolated
!== NO_CHANGE) {\n         textBindingInternal(IView, getSelectedIndex(), interpolated);\n     }\n     return
textInterpolate3;\n }\n /**\n * \n * Update text content with 4 bound values surrounded by other text.\n
* \n * Used when a text node has 4 interpolated values in it:\n * \n * ```html\n * <div>prefix{{v0}}-
{{v1}}-{{v2}}-{{v3}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n *
textInterpolate4(\n *     'prefix', v0, '-', v1, '-', v2, '-', v3, 'suffix');\n * ```\n * @returns itself, so that it may be
chained.\n * @see textInterpolateV\n * @codeGenApi\n */\n function textInterpolate4(prefix, v0, i0, v1,
i1, v2, i2, v3, suffix)
{\n     var IView = getLView();\n     var interpolated = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3,
suffix);\n     if (interpolated !== NO_CHANGE) {\n         textBindingInternal(IView, getSelectedIndex(),
interpolated);\n     }\n     return textInterpolate4;\n }\n /**\n * \n * Update text content with 5 bound
values surrounded by other text.\n * \n * Used when a text node has 5 interpolated values in it:\n * \n *
```html\n * <div>prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}suffix</div>\n * ```\n * \n * Its compiled
representation is:\n * \n * ```ts\n * textInterpolate5(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n
* ```\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n */\n
function textInterpolate5(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix) {\n var IView = getLView();\n var
interpolated
= interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n if (interpolated !== NO_CHANGE)
{\n textBindingInternal(IView, getSelectedIndex(), interpolated);\n }\n return textInterpolate5;\n
}\n /**\n * \n * Update text content with 6 bound values surrounded by other text.\n * \n * Used when a
text node has 6 interpolated values in it:\n * \n * ```html\n * <div>prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-
{{v4}}-{{v5}}suffix</div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n *
textInterpolate6(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n * ```\n *
@param i4 Static value used for concatenation only.\n * @param v5 Value checked for change. @returns itself, so that it may
be chained.\n * @see textInterpolateV\n * @codeGenApi\n */\n function textInterpolate6(prefix, v0, i0,
v1, i1, v2, i2, v3, i3,
v4, i4, v5, suffix) {\n var IView = getLView();\n var interpolated = interpolation6(IView, prefix, v0, i0, v1,
i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n if (interpolated !== NO_CHANGE) {\n textBindingInternal(IView,
getSelectedIndex(), interpolated);\n }\n return textInterpolate6;\n }\n /**\n * \n * Update text
content with 7 bound values surrounded by other text.\n * \n * Used when a text node has 7 interpolated values
in it:\n * \n * ```html\n * <div>prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix</div>\n
* ```\n * \n * Its compiled representation is:\n * \n * ```ts\n * textInterpolate7(\n * 'prefix', v0, '-', v1,

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'-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n * ``\n * @returns itself, so that it may be chained.\n * @see
textInterpolateV\n * @codeGenApi\n */\n function textInterpolate7(prefix, v0, i0, v1, i1, v2, i2, v3, i3,
 v4, i4, v5, i5, v6, suffix) {\n var IView = getLView();\n var interpolated = interpolation7(IView, prefix, v0,
 i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n if (interpolated !== NO_CHANGE) {\n textBindingInternal(IView, getSelectedIndex(), interpolated);\n }\n return textInterpolate7;\n }\n /**\n *\n * Update text content with 8 bound values surrounded by other text.\n *\n * Used when a text node has 8
interpolated values in it:\n *\n * ``html\n * <div>prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-
 {{v6}}-{{v7}}suffix</div>\n * ``\n *\n * Its compiled representation is:\n *\n * ``ts\n *
textInterpolate8(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n * ``\n *\n * @returns itself, so that it may be chained.\n * @see textInterpolateV\n * @codeGenApi\n */\n function
textInterpolate8(prefix,
 v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix) {\n var IView = getLView();\n var interpolated
 = interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n if (interpolated
 !== NO_CHANGE) {\n textBindingInternal(IView, getSelectedIndex(), interpolated);\n }\n return
textInterpolate8;\n }\n /**\n *\n * Update text content with 9 or more bound values other surrounded by text.\n *\n * Used when the number of interpolated values exceeds 8.\n *\n * ``html\n * <div>prefix{{v0}}-
 {{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-{{v9}}suffix</div>\n * ``\n *\n * Its
compiled representation is:\n *\n * ``ts\n * textInterpolateV(\n * ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4,
 '-', v5, '-', v6, '-', v7, '-', v9,\n * 'suffix']);\n * ``\n *.\n * @param values The collection of values and the
strings
 in between those values, beginning with\n * a string prefix and ending with a string suffix.\n * (e.g. `[prefix',
 value0, '-', value1, '-', value2, ..., value99, 'suffix']`)\n *\n * @returns itself, so that it may be chained.\n *
 @codeGenApi\n */\n function textInterpolateV(values) {\n var IView = getLView();\n var interpolated
 = interpolationV(IView, values);\n if (interpolated !== NO_CHANGE) {\n textBindingInternal(IView,
 getSelectedIndex(), interpolated);\n }\n return textInterpolateV;\n }\n /**\n *\n * @license\n *
 Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
 license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n * Update
 an interpolated class on an element with single bound value surrounded by text.\n *\n * Used when the value
 passed to a property has 1 interpolated
 value in it:\n *\n * ``html\n * <div class=\"prefix{{v0}}suffix\"></div>\n * ``\n *\n * Its compiled
 representation is:\n *\n * ``ts\n * classMapInterpolate1('prefix', v0, 'suffix');\n * ``\n *\n * @param
 prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param suffix
 Static value used for concatenation only.\n * @codeGenApi\n */\n function classMapInterpolate1(prefix, v0,
 suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n
 checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n }\n /**\n *\n * Update
 an interpolated class on an element with 2 bound values surrounded by text.\n *\n * Used when the value
 passed to a property has 2 interpolated values in it:\n *\n * ``html\n * <div class=\"prefix{{v0}}-
 {{v1}}suffix\"></div>\n * ``\n *\n * Its compiled representation is:\n *\n * ``ts\n * classMapInterpolate2('prefix', v0, '-', v1,
 'suffix');\n * ``\n *\n * @param prefix Static value used for concatenation only.\n * @param v0 Value
 checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked
 for change.\n * @param suffix Static value used for concatenation only.\n * @codeGenApi\n */\n function
classMapInterpolate2(prefix, v0, i0, v1, suffix) {\n var IView = getLView();\n var interpolatedValue =
 interpolation2(IView, prefix, v0, i0, v1, suffix);\n checkStylingMap(keyValueArraySet, classStringParser,
 interpolatedValue, true);\n }\n /**\n *\n * Update an interpolated class on an element with 3 bound values
 surrounded by text.\n *\n * Used when the value passed to a property has 3 interpolated values in it:\n *\n * ``html\n * <div class=\"prefix{{v0}}-{{v1}}-{{v2}}suffix\"></div>\n * ``
```

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* ```\n * \n * Its compiled representation is:\n * \n * ```\ts\n * classMapInterpolate3(\n * 'prefix', v0,
'-', v1, '-', v2, 'suffix');\n * ```\n * \n * @param prefix Static value used for concatenation only.\n * @param
v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value
checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked
for change.\n * @param suffix Static value used for concatenation only.\n * @codeGenApi\n */\n function
classMapInterpolate3(prefix, v0, i0, v1, i1, v2, suffix) {\n var IView = getLView();\n var interpolatedValue
= interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n checkStylingMap(keyValueArraySet,
classStringParser, interpolatedValue, true);\n } \n /**\n * \n * Update an interpolated class on an element
with 4 bound values
surrounded by text.\n * \n * Used when the value passed to a property has 4 interpolated values in it:\n * \n
* ```\html\n * <div class="prefix{{ v0 }}-{{ v1 }}-{{ v2 }}-{{ v3 }}suffix"></div>\n * ```\n * \n * Its
compiled representation is:\n * \n * ```\ts\n * classMapInterpolate4(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3,
'suffix');\n * ```\n * \n * @param prefix Static value used for concatenation only.\n * @param v0 Value
checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked
for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for
change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n
* @param suffix Static value used for concatenation only.\n * @codeGenApi\n */\n function
classMapInterpolate4(prefix, v0, i0, v1, i1, v2, i2, v3, suffix) {\n
 var IView = getLView();\n var interpolatedValue = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3,
suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n } \n /**\n
* \n * Update an interpolated class on an element with 5 bound values surrounded by text.\n * \n * Used when
the value passed to a property has 5 interpolated values in it:\n * \n * ```\html\n * <div class="prefix{{ v0 }}-
{{ v1 }}-{{ v2 }}-{{ v3 }}-{{ v4 }}suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n
* ```\ts\n * classMapInterpolate5(\n * 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, 'suffix');\n * ```\n * \n
* @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n *
* @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1
Static value used for concatenation only.\n
* @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n *
* @param v3 Value checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4
Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @codeGenApi\n
*/\n function classMapInterpolate5(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix) {\n var IView =
getLView();\n var interpolatedValue = interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n
 checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n } \n /**\n * \n * Update
an interpolated class on an element with 6 bound values surrounded by text.\n * \n * Used when the value
passed to a property has 6 interpolated values in it:\n * \n * ```\html\n * <div class="prefix{{ v0 }}-{{ v1 }}-
{{ v2 }}-{{ v3 }}-{{ v4 }}-{{ v5 }}suffix"></div>\n * ```\n * \n
* Its compiled representation is:\n * \n * ```\ts\n * classMapInterpolate6(\n * 'prefix', v0, '-', v1, '-', v2,
'-', v3, '-', v4, '-', v5, 'suffix');\n * ```\n * \n * @param prefix Static value used for concatenation only.\n *
* @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1
Value checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value
checked for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked
for change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked for
change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked for change.\n
* @param suffix Static value used for concatenation only.\n * @codeGenApi\n */\n function
classMapInterpolate6(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4,
v5, suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation6(IView, prefix, v0, i0, v1,
i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n checkStylingMap(keyValueArraySet, classStringParser,
interpolatedValue, true);\n } \n /**\n * \n * Update an interpolated class on an element with 7 bound values

```

surrounded by text.\n \* \n \* Used when the value passed to a property has 7 interpolated values in it:\n \* \n \* ```html\n \* <div class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix"></div>\n \* ```\n \* \n \* Its compiled representation is:\n \* \n \* ```ts\n \* classMapInterpolate7(\n \* 'prefix', v0, '-',\n \* v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n \* ```\n \* \n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* \n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* \n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* \n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* \n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* \n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \*/\n function classMapInterpolate7(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, i7, suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation7(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, i7, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n }\n }\n /\*\*\n \* \n \* Update an interpolated class on an element with 8 bound values surrounded by text.\n \* \n \* Used when the value passed to a property has 8 interpolated values in it:\n \* \n \* ```html\n \* <div class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}suffix"></div>\n \* ```\n \* \n \* Its compiled representation is:\n \* \n \* ```ts\n \* classMapInterpolate8(\n \* 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, 'suffix');\n \* ```\n \* \n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param i0 Static value used for concatenation only.\n \* @param v1 Value checked for change.\n \* @param i1 Static value used for concatenation only.\n \* @param v2 Value checked for change.\n \* @param i2 Static value used for concatenation only.\n \* @param v3 Value checked for change.\n \* @param i3 Static value used for concatenation only.\n \* @param v4 Value checked for change.\n \* @param i4 Static value used for concatenation only.\n \* @param v5 Value checked for change.\n \* @param i5 Static value used for concatenation only.\n \* @param v6 Value checked for change.\n \* @param i6 Static value used for concatenation only.\n \* @param v7 Value checked for change.\n \* @param suffix Static value used for concatenation only.\n \* @codeGenApi\n \*/\n function classMapInterpolate8(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, i7, v8, i8, v9, i9, suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, i7, v8, i8, v9, i9, suffix);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n }\n }\n /\*\*\n \* \n \* Update an interpolated class on an element with 9 or more bound values surrounded by text.\n \* \n \* Used when the number of interpolated values exceeds 8.\n \* \n \* ```html\n \* <div\n \* class="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-{{v9}}suffix"></div>\n \* ```\n \* \n \* Its compiled representation is:\n \* \n \* ```ts\n \* classMapInterpolateV(\n \* ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, '-', v7, '-', v8, '-', v9, 'suffix']);\n \* ```\n \* \n \* @param values The collection of values and the strings in-between those values, beginning with\n \* a string prefix and ending with a string suffix.\n \* (e.g. `['prefix', value0, '-', value1, '-', value2, ..., value99, 'suffix']`)\n \* @codeGenApi\n \*/\n function classMapInterpolateV(values) {\n var IView = getLView();\n var interpolatedValue = interpolationV(IView, values);\n checkStylingMap(keyValueArraySet, classStringParser, interpolatedValue, true);\n }\n }\n /\*\*\n \* \n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* \n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at https://angular.io/license\n \* \n \* Update an interpolated style on an element with single bound value surrounded by text.\n \* \n \* Used when the value passed to a property has 1 interpolated value in it:\n \* \n \* ```html\n \* <div style="key: {{v0}}suffix"></div>\n \* ```\n \* \n \* Its compiled representation is:\n \* \n \* ```ts\n \* styleMapInterpolate1('key: ', v0, 'suffix');\n \* ```\n \* \n \* @param prefix Static value used for concatenation only.\n \* @param v0 Value checked for change.\n \* @param suffix Static value

```

used for concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate1(prefix, v0, suffix) {\n
 var IView = getLView();\n var interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n
styleMap(interpolatedValue);\n
 }\n /**\n *\n * Update an interpolated style on an element with 2 bound values surrounded by text.\n *\n * Used when the value passed to a property has 2 interpolated values in it:\n *\n * ```html\n * <div
style=\"key: {{v0}}; key1: {{v1}}suffix\"></div>\n * ```\n *\n * Its compiled representation is:\n *\n * ```ts\n * styleMapInterpolate2('key: ', v0, ' '; key1: ', v1, 'suffix');\n * ```\n *\n * @param prefix Static value
used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for
concatenation only.\n * @param v1 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate2(prefix, v0, i0, v1, suffix) {\n
 var IView = getLView();\n var interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n
styleMap(interpolatedValue);\n
 }\n /**\n *\n * Update an interpolated style on an element with 3 bound values surrounded by text.\n *\n * Used when the value passed to a property has 3 interpolated values in it:\n *\n * ```html\n * <div
style=\"key: {{v0}}; key2: {{v1}}; key2: {{v2}}suffix\"></div>\n * ```\n *\n * Its compiled representation
is:\n *\n * ```ts\n * styleMapInterpolate3(\n * 'key: ', v0, ' '; key1: ', v1, ' '; key2: ', v2, 'suffix');\n * ```\n *\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param
i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param suffix
Static value used for concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate3(prefix, v0,
i0, v1, i1, v2, suffix) {\n var IView
= getLView();\n var interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n
styleMap(interpolatedValue);\n }\n /**\n *\n * Update an interpolated style on an element with 4 bound
values surrounded by text.\n *\n * Used when the value passed to a property has 4 interpolated values in it:\n *\n * ```html\n * <div style=\"key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}suffix\"></div>\n *
``` \n    *\n    * Its compiled representation is:\n    *\n    * ```ts\n    * styleMapInterpolate4(\n    *     'key: ', v0, '
'; key1: ', v1, ' '; key2: ', v2, ' '; key3: ', v3, 'suffix');\n    * ```\n    *\n    * @param prefix Static value used for
concatenation only.\n    * @param v0 Value checked for change.\n    * @param i0 Static value used for
concatenation only.\n    * @param v1 Value checked for change.\n    * @param i1 Static value used for
concatenation only.\n    * @param v2 Value checked for change.\n    *
    * @param i2 Static value used for concatenation only.\n    * @param v3 Value checked for change.\n    *
    * @param suffix Static value used for concatenation only.\n    * @codeGenApi\n    */\n    function
styleMapInterpolate4(prefix, v0, i0, v1, i1, v2, i2, v3, suffix) {\n    var IView = getLView();\n    var
interpolatedValue = interpolation4(IView, prefix, v0, i0, v1, i1, v2, i2, v3, suffix);\n
styleMap(interpolatedValue);\n    }\n    /**\n    *\n    * Update an interpolated style on an element with 5 bound
values surrounded by text.\n    *\n    * Used when the value passed to a property has 5 interpolated values in it:\n    *\n    * ```html\n    * <div style=\"key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4:
{{v4}}suffix\"></div>\n    * ```\n    *\n    * Its compiled representation is:\n    *\n    * ```ts\n    *
styleMapInterpolate5(\n    *     'key: ', v0, ' '; key1: ', v1, ' '; key2: ', v2, ' '; key3: ', v3, ' '; key4: ', v4, 'suffix');\n    *
``` \n    *\n    * @param prefix Static value used for concatenation only.\n    * @param v0 Value checked for
change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n *
 * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param
i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static
value used for concatenation only.\n * @param v4 Value checked for change.\n * @param suffix Static value
used for concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate5(prefix, v0, i0, v1, i1,
v2, i2, v3, i3, v4, suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation5(IView,
prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n styleMap(interpolatedValue);\n }\n /**\n *\n * Update
an interpolated style on an element with 6 bound

```

```

values surrounded by text.\n * \n * Used when the value passed to a property has 6 interpolated values in it:\n
*\n * ```html\n * <div style="key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}};\n *
key5: {{v5}}suffix"></div>\n * ```\n * \n * Its compiled representation is:\n * \n * ```ts\n *
styleMapInterpolate6(\n * 'key: ', v0, ', key1: ', v1, ', key2: ', v2, ', key3: ', v3, ', key4: ', v4, ', key5: ', v5,\n *
'suffix');\n * ```\n * \n * @param prefix Static value used for concatenation only.\n * @param v0 Value
checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked
for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for
change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n
* @param i3 Static value used for
concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used for
concatenation only.\n * @param v5 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate6(prefix, v0, i0, v1, i1, v2, i2, v3,
i3, v4, i4, v5, suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation6(IView, prefix,
v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n styleMap(interpolatedValue);\n }\n /**\n * \n * Update
an interpolated style on an element with 7 bound values surrounded by text.\n * \n * Used when the value
passed to a property has 7 interpolated values in it:\n * \n * ```html\n * <div style="key: {{v0}}; key1:
{{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}};\n *
key6: {{v6}}suffix"></div>\n *
*\n * Its compiled representation is:\n * \n *
*\n * styleMapInterpolate7(\n * 'key: ', v0, ', key1: ', v1, ', key2: ', v2, ', key3: ', v3, ', key4: ', v4, ',
key5: ', v5,\n *
'; key6: ', v6, 'suffix');\n * ```\n * \n * @param prefix Static value used for concatenation
only.\n * @param v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n *
* @param v1 Value checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2
Value checked for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value
checked for change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked
for change.\n * @param i4 Static value used for concatenation only.\n * @param v5 Value checked for
change.\n * @param i5 Static value used for concatenation only.\n * @param v6 Value checked for change.\n
* @param suffix Static value used for concatenation only.\n
*\n * @codeGenApi\n */\n function styleMapInterpolate7(prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6,
suffix) {\n var IView = getLView();\n var interpolatedValue = interpolation7(IView, prefix, v0, i0, v1, i1,
v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n styleMap(interpolatedValue);\n }\n /**\n * \n * Update an
interpolated style on an element with 8 bound values surrounded by text.\n * \n * Used when the value passed
to a property has 8 interpolated values in it:\n * \n * ```html\n * <div style="key: {{v0}}; key1: {{v1}}; key2:
{{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}};\n *
key6: {{v6}}; key7: {{v7}}suffix"></div>\n *
*\n * Its compiled representation is:\n * \n *
*\n * styleMapInterpolate8(\n * 'key: ', v0, ',
key1: ', v1, ', key2: ', v2, ', key3: ', v3, ', key4: ', v4, ', key5: ', v5,\n *
'; key6: ', v6, ', key7: ', v7, 'suffix');\n *
*\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for
change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n
* @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param
i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static
value used for concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used
for concatenation only.\n * @param v5 Value checked for change.\n * @param i5 Static value used for
concatenation only.\n * @param v6 Value checked for change.\n * @param i6 Static value used for
concatenation only.\n * @param v7 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @codeGenApi\n */\n function styleMapInterpolate8(prefix, v0,
i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix) {\n var IView = getLView();\n var
interpolatedValue = interpolation8(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix);\n
styleMap(interpolatedValue);\n }\n /**\n * \n * Update an interpolated style on an element with 9 or more bound
values surrounded by text.\n * \n * Used when the number of interpolated values exceeds 8.\n * \n *

```

```

```html\n    * <div\n        * class=\"key: {{v0}}; key1: {{v1}}; key2: {{v2}}; key3: {{v3}}; key4: {{v4}}; key5: {{v5}}; key6: {{v6}}; key7: {{v7}}; key8: {{v8}}; key9: {{v9}}suffix\"></div>\n    * ```\n    * \n    * Its compiled representation is:\n    * \n    * ``ts\n    * styleMapInterpolateV(\n    *     ['key: ', v0, '; key1: ', v1, '; key2: ', v2, '; key3: ', v3, '; key4: ', v4, '; key5: ', v5, \n    *     'key6: ', v6, '; key7: ', v7, '; key8: ', v8, '; key9: ', v9, 'suffix'];\n    *     ```\n    * \n    * @param values The collection of values and the strings in-between those values, beginning with\n    * a string prefix and ending with a string suffix.\n    * (e.g. `[ 'prefix', value0, '; key2: ', value1, '; key2: ', value2, ..., value99, 'suffix']`)\n    * @codeGenApi\n    * /\n    function styleMapInterpolateV(values) {\n        var IView = getLView();\n        var interpolatedValue = interpolationV(IView, values);\n        styleMap(interpolatedValue);\n    }\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    * \n    * Use of this source code is governed by an MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    * /\n    /**\n    * \n    * Update an interpolated style property on an element with single bound value surrounded by text.\n    * \n    * Used when the value passed to a property has 1 interpolated value in it:\n    * \n    * ```html\n    * <div style.color=\"prefix{{v0}}suffix\"></div>\n    * ```\n    * \n    * Its compiled representation is:\n    * \n    * ``ts\n    * stylePropInterpolate1(0, 'prefix', v0, 'suffix');\n    * ```\n    * \n    * @param styleIndex Index of style to update. This index value refers to the\n    * index of the style in the style bindings array that was passed into\n    * `styling`.\n    * @param prefix Static value used for concatenation only.\n    * @param v0 Value checked for change.\n    * @param suffix Static value used for concatenation only.\n    * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n    * @returns itself, so that it may be chained.\n    * @codeGenApi\n    * /\n    function stylePropInterpolate1(prop, prefix, v0, suffix, valueSuffix) {\n        var IView = getLView();\n        var interpolatedValue = interpolation1(IView, prefix, v0, suffix);\n        checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n        return stylePropInterpolate1;\n    }\n    /**\n    * \n    * Update an interpolated style property on an element with 2 bound values surrounded by text.\n    * \n    * Used when the value passed to a property has 2 interpolated values in it:\n    * \n    * ```html\n    * <div style.color=\"prefix{{v0}}-{{v1}}suffix\"></div>\n    * ```\n    * \n    * Its compiled representation is:\n    * \n    * ``ts\n    * stylePropInterpolate2(0, 'prefix', v0, '-', v1, 'suffix');\n    * ```\n    * \n    * @param styleIndex Index of style to update. This index value refers to the\n    * index of the style in the style bindings array that was passed into\n    * `styling`.\n    * @param prefix Static value used for concatenation only.\n    * @param v0 Value checked for change.\n    * @param i0 Static value used for concatenation only.\n    * @param v1 Value checked for change.\n    * @param suffix Static value used for concatenation only.\n    * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n    * @returns itself, so that it may be chained.\n    * \n    * @codeGenApi\n    * /\n    function stylePropInterpolate2(prop, prefix, v0, i0, v1, suffix, valueSuffix) {\n        var IView = getLView();\n        var interpolatedValue = interpolation2(IView, prefix, v0, i0, v1, suffix);\n        checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n        return stylePropInterpolate2;\n    }\n    /**\n    * \n    * Update an interpolated style property on an element with 3 bound values surrounded by text.\n    * \n    * Used when the value passed to a property has 3 interpolated values in it:\n    * \n    * ```html\n    * <div style.color=\"prefix{{v0}}-{{v1}}-{{v2}}suffix\"></div>\n    * ```\n    * \n    * Its compiled representation is:\n    * \n    * ``ts\n    * stylePropInterpolate3(0, 'prefix', v0, '-', v1, '-', v2, 'suffix');\n    * ```\n    * \n    * @param styleIndex Index of style to update. This index value refers to the\n    * index of the style in the style bindings array that was passed into\n    * `styling`.\n    * @param prefix Static value used for concatenation only.\n    * @param v0 Value checked for change.\n    * @param i0 Static value used for concatenation only.\n    * @param v1 Value checked for change.\n    * @param i1 Static value used for concatenation only.\n    * @param v2 Value checked for change.\n    * @param suffix Static value used for concatenation only.\n    * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n    * @returns itself, so that it may be chained.\n    * \n    * @codeGenApi\n    * /\n    function stylePropInterpolate3(prop, prefix, v0, i0, v1, i1, v2, suffix, valueSuffix) {\n        var IView = getLView();\n        var

```

```

interpolatedValue = interpolation3(IView, prefix, v0, i0, v1, i1, v2, suffix);\n    checkStylingProperty(prop,
interpolatedValue, valueSuffix, false);\n    return
stylePropInterpolate3;\n } \n /**\n * \n * Update an interpolated style property on an element with 4 bound
values surrounded by text.\n * \n * Used when the value passed to a property has 4 interpolated values in it:\n
*\n * ```html\n * <div style.color="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}suffix"></div>\n * ```\n * \n *
Its compiled representation is:\n * \n * ```ts\n * stylePropInterpolate4(0, 'prefix', v0, '-', v1, '-', v2, '-', v3,
'suffix');\n * ```\n * \n * @param styleIndex Index of style to update. This index value refers to the\n *
index of the style in the style bindings array that was passed into\n * `styling`.\n * @param prefix Static
value used for concatenation only.\n * @param v0 Value checked for change.\n * @param i0 Static value used
for concatenation only.\n * @param v1 Value checked for change.\n * @param i1 Static value used for
concatenation only.\n
* @param v2 Value checked for change.\n * @param i2 Static value used for concatenation only.\n * @param
v3 Value checked for change.\n * @param suffix Static value used for concatenation only.\n * @param
valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n * @returns itself, so that it may be
chained.\n * @codeGenApi\n */\n function stylePropInterpolate4(prop, prefix, v0, i0, v1, i1, v2, i2, v3,
suffix, valueSuffix) {\n    var IView = getLView();\n    var interpolatedValue = interpolation4(IView, prefix,
v0, i0, v1, i1, v2, i2, v3, suffix);\n    checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n
return stylePropInterpolate4;\n } \n /**\n * \n * Update an interpolated style property on an element with 5
bound values surrounded by text.\n * \n * Used when the value passed to a property has 5 interpolated values in
it:\n * \n * ```html\n * <div style.color="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}suffix"></div>\n *
``` \n * \n * Its compiled representation is:\n * \n * ```ts\n * stylePropInterpolate5(0, 'prefix', v0, '-',
v1, '-', v2, '-', v3, '-', v4, 'suffix');\n * ```\n * \n * @param styleIndex Index of style to update. This index value
refers to the\n * index of the style in the style bindings array that was passed into\n * `styling`.\n *
@param prefix Static value used for concatenation only.\n * @param v0 Value checked for change.\n *
@param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n * @param i1
Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param i2 Static
value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static value used
for concatenation only.\n * @param v4 Value checked for change.\n * @param suffix Static value
used for concatenation only.\n * @param valueSuffix Optional suffix. Used with scalar values to add unit such as
`px`.\n * @returns itself, so that it may be chained.\n * @codeGenApi\n */\n function
stylePropInterpolate5(prop, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix, valueSuffix) {\n var IView =
getLView();\n var interpolatedValue = interpolation5(IView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, suffix);\n
checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n return stylePropInterpolate5;\n } \n
/**\n * \n * Update an interpolated style property on an element with 6 bound values surrounded by text.\n
*\n * Used when the value passed to a property has 6 interpolated values in it:\n * \n * ```html\n * <div
style.color="prefix{{v0}}-{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}suffix"></div>\n * ``` \n * \n * Its
compiled representation is:\n * \n * ```ts\n * stylePropInterpolate6(0,
'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, 'suffix');\n * ```\n * \n * @param styleIndex Index of style to
update. This index value refers to the\n * index of the style in the style bindings array that was passed into\n
* `styling`.\n * @param prefix Static value used for concatenation only.\n * @param v0 Value checked for
change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked for change.\n
* @param i1 Static value used for concatenation only.\n * @param v2 Value checked for change.\n * @param
i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n * @param i3 Static
value used for concatenation only.\n * @param v4 Value checked for change.\n * @param i4 Static value used
for concatenation only.\n * @param v5 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n
* @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n * @returns itself, so
that it may be chained.\n * @codeGenApi\n */\n function stylePropInterpolate6(prop, prefix, v0, i0, v1, i1,

```



```

v2, i2, v3, i3, v4, i4, v5, suffix, valueSuffix) {\n var lView = getLView();\n var interpolatedValue =
interpolation6(lView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, suffix);\n checkStylingProperty(prop,
interpolatedValue, valueSuffix, false);\n return stylePropInterpolate6;\n } \n /**\n *\n * Update an
interpolated style property on an element with 7 bound values surrounded by text.\n *\n * Used when the value
passed to a property has 7 interpolated values in it:\n *\n * ```html\n * <div style.color=\"prefix{{v0}}-
{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}suffix\"></div>\n * ```\n *\n * Its compiled representation
is:\n *\n * ```ts\n * stylePropInterpolate7(\n
 * 0, 'prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6, 'suffix');\n * ```\n *\n * @param styleIndex
Index of style to update. This index value refers to the\n * index of the style in the style bindings array that
was passed into\n * `styling`.\n * @param prefix Static value used for concatenation only.\n * @param
v0 Value checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value
checked for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked
for change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for
change.\n * @param i3 Static value used for concatenation only.\n * @param v4 Value checked for change.\n
* @param i4 Static value used for concatenation only.\n * @param v5 Value checked for change.\n * @param
i5 Static value used for concatenation only.\n
 * @param v6 Value checked for change.\n * @param suffix Static value used for concatenation only.\n *
 @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n * @returns itself, so that
it may be chained.\n * @codeGenApi\n */\n function stylePropInterpolate7(prop, prefix, v0, i0, v1, i1, v2, i2,
v3, i3, v4, i4, v5, i5, v6, suffix, valueSuffix) {\n var lView = getLView();\n var interpolatedValue =
interpolation7(lView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, suffix);\n checkStylingProperty(prop,
interpolatedValue, valueSuffix, false);\n return stylePropInterpolate7;\n } \n /**\n *\n * Update an
interpolated style property on an element with 8 bound values surrounded by text.\n *\n * Used when the value
passed to a property has 8 interpolated values in it:\n *\n * ```html\n * <div style.color=\"prefix{{v0}}-
{{v1}}-{{v2}}-{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}suffix\"></div>\n * ```\n *\n * Its compiled representation
is:\n *\n * ```ts\n * stylePropInterpolate8(0, 'prefix', v0, '-',
v1, '-', v2, '-', v3, '-', v4, '-', v5, '-', v6,\n * '-', v7, 'suffix');\n * ```\n *\n * @param styleIndex Index of style
to update. This index value refers to the\n * index of the style in the style bindings array that was passed
into\n * `styling`.\n * @param prefix Static value used for concatenation only.\n * @param v0 Value
checked for change.\n * @param i0 Static value used for concatenation only.\n * @param v1 Value checked
for change.\n * @param i1 Static value used for concatenation only.\n * @param v2 Value checked for
change.\n * @param i2 Static value used for concatenation only.\n * @param v3 Value checked for change.\n
* @param i3 Static value used for concatenation only.\n * @param v4 Value checked for change.\n * @param
i4 Static
value used for concatenation only.\n * @param v5 Value checked for change.\n * @param i5 Static value used
for concatenation only.\n * @param v6 Value checked for change.\n * @param i6 Static value used for
concatenation only.\n * @param v7 Value checked for change.\n * @param suffix Static value used for
concatenation only.\n * @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.\n
* @returns itself, so that it may be chained.\n * @codeGenApi\n */\n function stylePropInterpolate8(prop,
prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7, suffix, valueSuffix) {\n var lView = getLView();\n
 var interpolatedValue = interpolation8(lView, prefix, v0, i0, v1, i1, v2, i2, v3, i3, v4, i4, v5, i5, v6, i6, v7,
suffix);\n checkStylingProperty(prop, interpolatedValue, valueSuffix, false);\n return
stylePropInterpolate8;\n } \n /**\n *\n * Update an interpolated style property
on an element with 9 or more bound values surrounded by\n * text.\n *\n * Used when the number of
interpolated values exceeds 8.\n *\n * ```html\n * <div\n * style.color=\"prefix{{v0}}-{{v1}}-{{v2}}-
{{v3}}-{{v4}}-{{v5}}-{{v6}}-{{v7}}-{{v8}}-{{v9}}suffix\">\n * </div>\n * ```\n *\n * Its compiled
representation is:\n *\n * ```ts\n * stylePropInterpolateV(\n * 0, ['prefix', v0, '-', v1, '-', v2, '-', v3, '-', v4, '-',
v5, '-', v6, '-', v7, '-', v9,\n * 'suffix'];\n * ```\n *\n * @param styleIndex Index of style to update. This

```

index value refers to the  
 \* index of the style in the style bindings array that was passed into  
 \*  
 `styling`..  
 \* @param values The collection of values and the strings in-between those values, beginning with  
 \* a string prefix and ending with a string suffix.  
 \* (e.g. `[ 'prefix', value0, '-', value1, '-', value2, ..., value99, 'suffix' ]`)  
 \*  
 \* @param valueSuffix Optional suffix. Used with scalar values to add unit such as `px`.  
 \* @returns itself, so that it may be chained.  
 \* @codeGenApi  
 \*/  
 function stylePropInterpolateV(prop, values, valueSuffix)  
 {  
 var lView = getLView();  
 var interpolatedValue = interpolationV(lView, values);  
 checkStylingProperty(prop, interpolatedValue, valueSuffix, false);  
 return stylePropInterpolateV;  
 }  
 }  
 /\*\*  
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 \*/  
 /\*\*  
 \* Update a property on a host element. Only applies to native node properties, not inputs.  
 \*  
 \* Operates on the element selected by index via the { @link select } instruction.  
 \*  
 \* @param propName Name of property. Because it is going to DOM, this is not subject to  
 \* renaming as part of minification.  
 \* @param value New value to write.  
 \* @param sanitizer An optional function used to sanitize the value.  
 \* @returns This function returns itself so that it may be chained  
 \* (e.g. `property('name', ctx.name)('title', ctx.title)`)  
 \*  
 \* @codeGenApi  
 \*/  
 function hostProperty(propName, value, sanitizer)  
 {  
 var lView = getLView();  
 var bindingIndex = nextBindingIndex();  
 if (bindingUpdated(lView, bindingIndex, value))  
 {  
 var tView = getTView();  
 var tNode = getSelectedTNode();  
 elementPropertyInternal(tView, tNode, lView, propName, value, lView[RENDERER], sanitizer, true);  
 ngDevMode && storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);  
 }  
 return hostProperty;  
 }  
 }  
 /\*\*  
 \* Updates a synthetic host binding (e.g. `[ @foo ]`) on a component or directive.  
 \*  
 \* This instruction is for compatibility purposes and is designed to ensure that a  
 \* synthetic host binding (e.g. `@HostBinding('foo')`) properly gets rendered in  
 \* the component's renderer. Normally all host bindings are evaluated with the parent  
 \* component's renderer, but, in the case of animation @triggers, they need to be  
 \* evaluated with the sub component's renderer (because that's where the animation  
 \* triggers are defined).  
 \*  
 \* Do not use this instruction as a replacement for `elementProperty`. This instruction  
 \* only exists to ensure compatibility with the ViewEngine's host binding behavior.  
 \*  
 \* @param index The index of the element to update in the data array  
 \* @param propName Name of property. Because it is going to DOM, this is not subject to  
 \* renaming as part of minification.  
 \* @param value New value to write.  
 \* @param sanitizer An optional function used to sanitize the value.  
 \*  
 \* @codeGenApi  
 \*/  
 function syntheticHostProperty(propName, value, sanitizer)  
 {  
 var lView = getLView();  
 var bindingIndex = nextBindingIndex();  
 if (bindingUpdated(lView, bindingIndex, value))  
 {  
 var tView = getTView();  
 var tNode = getSelectedTNode();  
 var currentDef = getCurrentDirectiveDef(tView.data);  
 var renderer = loadComponentRenderer(currentDef, tNode, lView);  
 elementPropertyInternal(tView, tNode, lView, propName, value, renderer, sanitizer, true);  
 ngDevMode && storePropertyBindingMetadata(tView.data, tNode, propName, bindingIndex);  
 }  
 return syntheticHostProperty;  
 }  
 }  
 /\*\*  
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 \*/  
 /\*\*  
 \* NOTE: changes to the `ngI18nClosureMode` name must be synced with `compiler-cli/src/tooling.ts`  
 \*/  
 if (typeof ngI18nClosureMode === 'undefined')  
 {  
 // These property accesses can be ignored because ngI18nClosureMode will be set to false  
 // when optimizing code and the whole if statement will be dropped.  
 // Make sure to refer to ngI18nClosureMode as [ngI18nClosureMode] for closure.  
 // NOTE: we need to have it in IIFE so that the tree-shaker is happy.  
 (function ()  
 {  
 // tslint:disable-next-line:no-toplevel-property-access  
 \_global['ngI18nClosureMode']  
 })()  
 // TODO(FW-1250): validate that this actually, you know, works.  
 // tslint:disable-next-line:no-toplevel-property-access  
 typeof goog !== 'undefined' && typeof goog.getMessage === 'function';  
 })()  
 }  
 /\*\*  
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 \* Use of this



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LocaleDataIndex[LocaleDataIndex["DayPeriodsFormat"] = 1] = "DayPeriodsFormat";\n
LocaleDataIndex[LocaleDataIndex["DayPeriodsStandalone"] = 2] = "DayPeriodsStandalone";\n
LocaleDataIndex[LocaleDataIndex["DaysFormat"] = 3] = "DaysFormat";\n
LocaleDataIndex[LocaleDataIndex["DaysStandalone"] = 4] = "DaysStandalone";\n
LocaleDataIndex[LocaleDataIndex["MonthsFormat"] = 5] = "MonthsFormat";\n
LocaleDataIndex[LocaleDataIndex["MonthsStandalone"] = 6] = "MonthsStandalone";\n
LocaleDataIndex[LocaleDataIndex["Eras"]\n
 = 7] = "Eras";\n LocaleDataIndex[LocaleDataIndex["FirstDayOfWeek"] = 8] = "FirstDayOfWeek";\n
LocaleDataIndex[LocaleDataIndex["WeekendRange"] = 9] = "WeekendRange";\n
LocaleDataIndex[LocaleDataIndex["DateFormat"] = 10] = "DateFormat";\n
LocaleDataIndex[LocaleDataIndex["TimeFormat"] = 11] = "TimeFormat";\n
LocaleDataIndex[LocaleDataIndex["DateTimeFormat"] = 12] = "DateTimeFormat";\n
LocaleDataIndex[LocaleDataIndex["NumberSymbols"] = 13] = "NumberSymbols";\n
LocaleDataIndex[LocaleDataIndex["NumberFormats"] = 14] = "NumberFormats";\n
LocaleDataIndex[LocaleDataIndex["CurrencyCode"] = 15] = "CurrencyCode";\n
LocaleDataIndex[LocaleDataIndex["CurrencySymbol"] = 16] = "CurrencySymbol";\n
LocaleDataIndex[LocaleDataIndex["CurrencyName"] = 17] = "CurrencyName";\n
LocaleDataIndex[LocaleDataIndex["Currencies"] = 18] = "Currencies";\n
 LocaleDataIndex[LocaleDataIndex["Directionality"] = 19] = "Directionality";\n
LocaleDataIndex[LocaleDataIndex["PluralCase"] = 20] = "PluralCase";\n
LocaleDataIndex[LocaleDataIndex["ExtraData"] = 21] = "ExtraData";\n })(exports.LocaleDataIndex ||\n (exports.LocaleDataIndex = {}));\n /**\n * Returns the canonical form of a locale name - lowercase with `_`

 replaced with `.`\n */\n function normalizeLocale(locale) {\n return locale.toLowerCase().replace(/_/g, '-');\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source

 code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var pluralMapping = ['zero', 'one', 'two', 'few', 'many'];\n /**\n * Returns the plural case based on the

 locale\n */\n function getPluralCase(value, locale) {\n var plural =

 getLocalePluralCase(locale)(parseInt(value,

 10));\n var result = pluralMapping[plural];\n return (result !== undefined) ? result : 'other';\n }\n /**\n * The locale id that the application is using by default (for translations and ICU expressions).\n */\n var

 DEFAULT_LOCALE_ID = 'en-US';\n /**\n * USD currency code that the application uses by default for

 CurrencyPipe when no\n * DEFAULT_CURRENCY_CODE is provided.\n */\n var

 USD_CURRENCY_CODE = 'USD';\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file

 at https://angular.io/license\n */\n /**\n * Marks that the next string is an element name.\n */\n * See

 `I18nMutateOpCodes` documentation.\n */\n var ELEMENT_MARKER = {\n marker: 'element'\n };\n /**\n * Marks that the next string is comment text need for ICU.\n */\n * See `I18nMutateOpCodes`

 documentation.\n */\n var ICU_MARKER = {\n marker: 'ICU'\n };\n /**\n * See

 `I18nCreateOpCodes`\n */\n var I18nCreateOpCode;\n (function (I18nCreateOpCode) {\n /**\n *

 Number of bits to shift index so that it can be combined with the `APPEND_EAGERLY` and\n *

 `COMMENT`.\n */\n I18nCreateOpCode[I18nCreateOpCode["SHIFT"] = 2] = "SHIFT";\n /**\n *

 Should the node be appended to parent immediately after creation.\n */\n I18nCreateOpCode[I18nCreateOpCode["APPEND_EAGERLY"] = 1] = "APPEND_EAGERLY";\n /**\n *

 If set the node should be comment (rather than a text) node.\n */\n I18nCreateOpCode[I18nCreateOpCode["COMMENT"] = 2] = "COMMENT";\n })(I18nCreateOpCode ||

 (I18nCreateOpCode = {}));\n // Note: This hack is necessary so we don't erroneously get a circular dependency\n // failure based on types.\n var unusedValueExportToPlacateAjd$6

```

```

= 1;\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n /**\n * The locale id that the application is currently using (for translations and ICU expressions).\n *
This is the ivy version of `LOCALE_ID` that was defined as an injection token for the view engine\n * but is now
defined as a global value.\n *\n var LOCALE_ID = DEFAULT_LOCALE_ID;\n /**\n * Sets the locale id
that will be used for translations and ICU expressions.\n * This is the ivy version of `LOCALE_ID` that was
defined as an injection token for the view engine\n * but is now defined as a global value.\n *\n * @param
localeId\n *\n function setLocaleId(localeId) {\n assertDefined(localeId, `Expected localeId to be
defined`);\n if (typeof localeId === 'string')\n {\n LOCALE_ID = localeId.toLowerCase().replace(/_/g, '-');\n }\n }\n /**\n * Gets the locale id
that will be used for translations and ICU expressions.\n * This is the ivy version of `LOCALE_ID` that was
defined as an injection token for the view engine\n * but is now defined as a global value.\n *\n function
getLocaleId() {\n return LOCALE_ID;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n /**\n * Find a node in front of which `currentTNode` should
be inserted (takes i18n into account).\n *\n * This method determines the `RNode` in front of which we should
insert the `currentRNode`. This\n * takes `TNode.insertBeforeIndex` into account.\n *\n * @param
parentTNode parent `TNode`\n * @param currentTNode current
`TNode` (The node which we would like to insert into the DOM)\n * @param IView current `LView`\n *\n
function getInsertInFrontOfRNodeWithI18n(parentTNode, currentTNode, IView) {\n var
tNodeInsertBeforeIndex = currentTNode.insertBeforeIndex;\n var insertBeforeIndex =
Array.isArray(tNodeInsertBeforeIndex) ? tNodeInsertBeforeIndex[0] : tNodeInsertBeforeIndex;\n if
(insertBeforeIndex === null) {\n return getInsertInFrontOfRNodeWithNoI18n(parentTNode, currentTNode,
IView);\n }\n else {\n ngDevMode && assertIndexInRange(IView, insertBeforeIndex);\n return unwrapRNode(IView[insertBeforeIndex]);\n }\n }\n /**\n * Process `TNode.insertBeforeIndex` by
adding i18n text nodes.\n *\n * See `TNode.insertBeforeIndex`\n *\n function
processI18nInsertBefore(renderer, childTNode, IView, childRNode, parentRElement) {\n var
tNodeInsertBeforeIndex = childTNode.insertBeforeIndex;\n
 if (Array.isArray(tNodeInsertBeforeIndex)) {\n // An array indicates that there are i18n nodes that need
to be added as children of this\n // `childRNode`. These i18n nodes were created before this `childRNode`
was available and so\n // only now can be added. The first element of the array is the normal index where we
should\n // insert the `childRNode`. Additional elements are the extra nodes to be added as children of\n
 // `childRNode`.\n ngDevMode && assertDomNode(childRNode);\n var i18nParent = childRNode;\n
 var anchorRNode = null;\n if (!(childTNode.type & 3 /* AnyRNode */)) {\n anchorRNode =
i18nParent;\n i18nParent = parentRElement;\n }\n if (i18nParent !== null &&
(childTNode.flags & 2 /* isComponentHost */) === 0) {\n for (var i = 1; i <
tNodeInsertBeforeIndex.length; i++) {\n // No need to
`unwrapRNode` because all of the indexes point to i18n text nodes.\n // see `assertDomNode` below.\n
 var i18nChild = IView[tNodeInsertBeforeIndex[i]];\n nativeInsertBefore(renderer, i18nParent,
i18nChild, anchorRNode, false);\n }\n }\n }\n }\n\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n *\n /**\n * Add `tNode` to
`previousTNodes` list and update relevant `TNode`s in `previousTNodes` list\n * `tNode.insertBeforeIndex`.\n
*\n * Things to keep in mind:\n * 1. All i18n text nodes are encoded as `TNodeType.Element` and are created
eagerly by the\n * `i18nStart` instruction.\n * 2. All `TNodeType.Placeholder` `TNodes` are elements which
will be created later by\n * `elementStart`
instruction.\n * 3. `elementStart` instruction will create `TNode`s in the ascending `TNode.index` order. (So a\n
* smaller index `TNode` is guaranteed to be created before a larger one)\n *\n * We use the above three

```

invariants to determine `TNode.insertBeforeIndex`. In an ideal world `TNode.insertBeforeIndex` would always be `TNode.next.index`. However, this will not work because `TNode.next.index` may be larger than `TNode.index` which means that the next node is not yet created and therefore we can't insert in front of it.

Rule1: `TNode.insertBeforeIndex = null` if `TNode.next === null` (Initial condition, as we don't know if there will be further `TNode`s inserted after.)

Rule2: If `previousTNode` is created after the `tNode` being inserted, then `previousTNode.insertBeforeNode = tNode.index` (So when a new `tNode` is added we check previous to see if we can update its `insertBeforeTNode`)

See `TNode.insertBeforeIndex` for more context.

@param previousTNodes A list of previous TNodes so that we can easily traverse `TNode`s in reverse order. (If `TNode` would have `previous` this would not be necessary.)

@param newTNode A TNode to add to the `previousTNodes` list.

```
function addTNodeAndUpdateInsertBeforeIndex(previousTNodes,
newTNode) {
 // Start with Rule1
 ngDevMode && assertEqual(newTNode.insertBeforeIndex,
null, 'We expect that insertBeforeIndex is not set');
 previousTNodes.push(newTNode);
 if (previousTNodes.length > 1) {
 for (var i = previousTNodes.length - 2; i >= 0; i--) {
 var existingTNode = previousTNodes[i];
 // Text nodes are created eagerly and so they don't need their
 // `insertBeforeIndex` updated.
 // It is safe to ignore them.
 if (!isI18nText(existingTNode)) {
 if (isNewTNodeCreatedBefore(existingTNode, newTNode) &&
 getInsertBeforeIndex(existingTNode) === null) {
 // If it was created before us in time,
 (and it does not yet have `insertBeforeIndex`)
 // then add the `insertBeforeIndex`.
 setInsertBeforeIndex(existingTNode, newTNode.index);
 }
 }
 }
 }
 function isI18nText(tNode) {
 return !(tNode.type & 64 /* Placeholder */);
 }
 function isNewTNodeCreatedBefore(existingTNode, newTNode) {
 return isI18nText(newTNode) ||
 existingTNode.index > newTNode.index;
 }
 function getInsertBeforeIndex(tNode) {
 var index =
 tNode.insertBeforeIndex;
 return Array.isArray(index) ? index[0] : index;
 }
 function setInsertBeforeIndex(tNode, value) {
 var index = tNode.insertBeforeIndex;
 if (Array.isArray(index)) {
 // Array is stored if we have to insert child nodes. See
 `TNode.insertBeforeIndex`
 index[0] = value;
 } else {
 setI18nHandling(getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore);
 tNode.insertBeforeIndex =
 value;
 }
 }
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 * found in the LICENSE file at
 * https://angular.io/license
 */
 /**
 * Retrieve `Ticu` at a given `index`.
 * The `Ticu` can be
 * stored either directly (if it is nested ICU) OR
 * it is stored inside tho `TicuContainer` if it is top level ICU.
 * The reason for this is that the top level ICU need a `TNode` so that they are part of the render
 * tree, but
 * nested ICU's have no TNode, because we don't know ahead of time if the nested
 * ICU is
 * expressed (parent ICU may have selected a case which does not contain it.)
 * @param
 * tView Current `TView`.
 * @param index Index where the value should be read from.
 */
 function
 getTicu(tView, index) {
 var value = tView.data[index];
 if (value === null || typeof value === 'string')
 return null;
 if (ngDevMode && !(value.hasOwnProperty('tViews') ||
 value.hasOwnProperty('currentCaseLViewIndex'))) {
 throwError('We expect to get
 \\null\\|\\Ticu\\|\\TicuContainer\\, but got: ' + value);
 }
 // Here the
 `value.hasOwnProperty('currentCaseLViewIndex')` is a polymorphic read as it can be
 // either Ticu or
 TicuContainerNode. This is not ideal, but we still think it is OK because it
 // will be just two cases which fits
 into the browser inline cache (inline cache can take up to
 // 4)
 var ticu =
 value.hasOwnProperty('currentCaseLViewIndex')
 ? value :
 value.value;
 ngDevMode && assertTicu(ticu);
 return ticu;
 }
 /**
 * Store
 * `Ticu` at a give `index`.
 * The `Ticu` can be stored either directly (if it is nested ICU) OR
 * it is
 * stored inside tho `TicuContainer` if it is top level ICU.
 * The reason for this is that the top level ICU need
 * a `TNode` so that they are part of the render
 * tree, but nested ICU's have no TNode, because we don't know

```

```

ahead of time if the nested ICU is\n * expressed (parent ICU may have selected a case which does not contain
it.)\n *\n * @param tView Current `TView`.\n * @param index Index where the value should be stored at in
`Tview.data`\n * @param tIcu The Tlcu to store.\n */\n function setTlcu(tView, index, tIcu) {\n var
tNode = tView.data[index];\n ngDevMode &&\n assertEqual(tNode === null ||
tNode.hasOwnProperty('tViews'), true, 'We expect to get `null` or `TlcuContainer`);\n
 if (tNode === null) {\n tView.data[index] = tIcu;\n }\n else {\n ngDevMode &&
assertTNodeType(tNode, 32 /* Icu */);\n tNode.value = tIcu;\n }\n /**\n * Set
`TNode.insertBeforeIndex` taking the `Array` into account.\n * See `TNode.insertBeforeIndex`\n */\n
function setTNodeInsertBeforeIndex(tNode, index) {\n ngDevMode && assertTNodeType(tNode);\n var
insertBeforeIndex = tNode.insertBeforeIndex;\n if (insertBeforeIndex === null) {\n
setI18nHandling(getInsertInFrontOfRNodeWithI18n, processI18nInsertBefore);\n insertBeforeIndex =
tNode.insertBeforeIndex =\n [null /* may be updated to number later */, index];\n }\n else {\n
assertEqual(Array.isArray(insertBeforeIndex), true, 'Expecting array here');\n
insertBeforeIndex.push(index);\n }\n }\n /**\n * Create `TNode.type=TNodeType.Placeholder`
node.\n * See `TNodeType.Placeholder` for more information.\n */\n function
createTNodePlaceholder(tView, previousTNodes, index) {\n var tNode = createTNodeAtIndex(tView, index,
64 /* Placeholder */, null, null);\n addTNodeAndUpdateInsertBeforeIndex(previousTNodes, tNode);\n
return tNode;\n }\n /**\n * Returns current ICU case.\n * ICU cases are stored as index into the
`Tlcu.cases`.\n * At times it is necessary to communicate that the ICU case just switched and that next ICU
update\n * should update all bindings regardless of the mask. In such a case the we store negative numbers\n *
for cases which have just been switched. This function removes the negative flag.\n */\n function
getCurrentICUCaseIndex(tIcu, lView) {\n var currentCase = lView[tIcu.currentCaseLViewIndex];\n return
currentCase === null ? currentCase : (currentCase < 0 ? ~currentCase : currentCase);\n
 }\n function getParentFromIcuCreateOpCode(mergedCode) {\n return mergedCode >>> 17 /*
SHIFT_PARENT */;\n }\n function getRefFromIcuCreateOpCode(mergedCode) {\n return (mergedCode &
131070 /* MASK_REF */) >>> 1 /* SHIFT_REF */;\n }\n function
getInstructionFromIcuCreateOpCode(mergedCode) {\n return mergedCode & 1 /* MASK_INSTRUCTION
*/;\n }\n function icuCreateOpCode(opCode, parentIdx, refIdx) {\n ngDevMode &&
assertGreaterThanOrEqual(parentIdx, 0, 'Missing parent index');\n ngDevMode && assertGreaterThanOrEqual(refIdx,
0, 'Missing ref index');\n return opCode | parentIdx << 17 /* SHIFT_PARENT */ | refIdx << 1 /* SHIFT_REF
*/;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n /**\n * Keep track of which input bindings in `i18nExp`
have changed.\n * This is used to efficiently update expressions in i18n only when the corresponding input
has\n * changed.\n * 1) Each bit represents which of the `i18nExp` has changed.\n * 2) There are 32
bits allowed in JS.\n * 3) Bit 32 is special as it is shared for all changes past 32. (In other words if you have
more\n * than 32 `i18nExp` then all changes past 32nd `i18nExp` will be mapped to same bit. This means\n *
that we may end up changing more than we need to. But i18n expressions with 32 bindings is rare\n * so in
practice it should not be an issue.)\n */\n var changeMask = 0;\n /**\n * Keeps track of which bit needs to
be updated in `changeMask`\n */\n * This value gets incremented on every call to `i18nExp`\n */\n var
changeMaskCounter = 0;\n /**\n * Keep track of which input bindings in `i18nExp` have changed.\n */\n
`setMaskBit` gets invoked by each call to `i18nExp`.\n
 *\n * @param hasChange did `i18nExp` detect a change.\n */\n function setMaskBit(hasChange) {\n
 if (hasChange) {\n changeMask = changeMask | (1 << Math.min(changeMaskCounter, 31));\n }\n
 changeMaskCounter++;\n }\n function applyI18n(tView, lView, index) {\n if (changeMaskCounter > 0) {\n
ngDevMode && assertDefined(tView, 'tView should be defined');\n var tI18n = tView.data[index];\n
 // When `index` points to an `i18nAttributes` then we have an array otherwise `TI18n`\n var
updateOpCodes = Array.isArray(tI18n) ? tI18n : tI18n.update;\n var bindingsStartIndex = getBindingIndex()

```

```

- changeMaskCounter - 1;\n applyUpdateOpCodes(tView, IView, updateOpCodes, bindingsStartIndex,
changeMask);\n }\n // Reset changeMask & maskBit to default for the next update cycle\n changeMask
= 0;\n changeMaskCounter = 0;\n }\n /**\n * Apply `I18nCreateOpCodes` op-codes as stored in `TI18n.create`.\n * Creates text (and comment)
nodes which are internationalized.\n * @param IView Current IView\n * @param createOpCodes Set of
op-codes to apply\n * @param parentRNode Parent node (so that direct children can be added eagerly) or `null` if
it is\n * a root node.\n * @param insertInFrontOf DOM node that should be used as an anchor.\n */\n function applyCreateOpCodes(IView, createOpCodes, parentRNode, insertInFrontOf) {\n var renderer =
IView[RENDERER];\n for (var i = 0; i < createOpCodes.length; i++) {\n var opCode =
createOpCodes[i++];\n var text = createOpCodes[i];\n var isComment = (opCode &
I18nCreateOpCode.COMMENT) === I18nCreateOpCode.COMMENT;\n var appendNow = (opCode &
I18nCreateOpCode.APPEND_EAGERLY) === I18nCreateOpCode.APPEND_EAGERLY;\n var index =
opCode >>> I18nCreateOpCode.SHIFT;\n var rNode = IView[index];\n if (rNode === null) {\n // We only create new DOM nodes if they
don't already exist: If ICU switches case back to a\n // case which was already instantiated, no need to
create new DOM nodes.\n rNode = IView[index] =\n isComment ?
renderer.createComment(text) : createTextNode(renderer, text);\n }\n if (appendNow &&
parentRNode !== null) {\n nativeInsertBefore(renderer, parentRNode, rNode, insertInFrontOf, false);\n }\n }\n }\n /**\n * Apply `I18nMutateOpCodes` OpCodes.\n * @param tView Current
`TView`\n * @param mutableOpCodes Mutable OpCodes to process\n * @param IView Current `LView`\n * @param anchorRNode place where the i18n node should be inserted.\n */\n function
applyMutableOpCodes(tView, mutableOpCodes, IView, anchorRNode) {\n ngDevMode &&
assertDomNode(anchorRNode);\n var renderer = IView[RENDERER];\n // `rootIdx` represents the node into which all inserts happen.\n var rootIdx = null;\n // `rootRNode` represents the real node into which we insert. This can be different from\n // `IView[rootIdx]` if we have projection.\n // - null we don't have a parent (as can be the case in when we are
inserting into a root of\n // LView which has no parent.)\n // - `RElement` The element representing the
root after taking projection into account.\n var rootRNode;\n for (var i = 0; i < mutableOpCodes.length;
i++) {\n var opCode = mutableOpCodes[i];\n if (typeof opCode === 'string') {\n var
textNodeIndex = mutableOpCodes[++i];\n if (IView[textNodeIndex] === null) {\n ngDevMode && ngDevMode.rendererCreateTextNode++;\n ngDevMode &&
assertIndexInRange(IView, textNodeIndex);\n IView[textNodeIndex]
= createTextNode(renderer, opCode);\n }\n }\n else if (typeof opCode === 'number') {\n switch (opCode & 1 /* MASK_INSTRUCTION */) {\n case 0 /* AppendChild */:\n var parentIdx = getParentFromIcuCreateOpCode(opCode);\n if (rootIdx === null) {\n // The first operation should save the `rootIdx` because the first operation\n // must insert into the
root. (Only subsequent operations can insert into a dynamic\n // parent)\n rootIdx
= parentIdx;\n rootRNode = nativeParentNode(renderer, anchorRNode);\n }\n var insertInFrontOf = void 0;\n var parentRNode = void 0;\n if (parentIdx ===
rootIdx) {\n insertInFrontOf = anchorRNode;\n parentRNode = rootRNode;\n }\n else {\n insertInFrontOf = null;\n parentRNode = unwrapRNode(IView[parentIdx]);\n }\n // FIXME(misko): Refactor with `processI18nText`\n if (parentRNode !== null) {\n // This can happen if the `LView` we are adding to is not attached to a parent `LView`.\n // In such a case there is no `\"root\"` we can attach to. This is fine, as we still need to\n // create the
elements. When the `LView` gets later added to a parent these `\"root\"` nodes\n // get picked up and
added.\n ngDevMode && assertDomNode(parentRNode);\n var refIdx =
getRefFromIcuCreateOpCode(opCode);\n ngDevMode

```



```

&& assertGreaterThan(refIdx, HEADER_OFFSET, 'Missing ref');\n // `unwrapRNode` is not
needed here as all of these point to RNodes as part of the i18n\n // which can't have components.\n
 var child = IView[refIdx];\n ngDevMode && assertDomNode(child);\n
 nativeInsertBefore(renderer, parentRNode, child, insertInFrontOf, false);\n var tIcu =
getTicu(tView, refIdx);\n if (tIcu !== null && typeof tIcu === 'object') {\n // If
we just added a comment node which has ICU then that ICU may have already been\n //
rendered and therefore we need to re-add it here.\n ngDevMode && assertTicu(tIcu);\n
 var caseIndex = getCurrentICUCaseIndex(tIcu, IView);\n if (caseIndex
!== null) {\n applyMutableOpCodes(tView, tIcu.create[caseIndex], IView,
IView[tIcu.anchorIdx]);\n }\n }\n }\n break;\n
 case 1 /* Attr */:\n var elementNodeIndex = opCode >>> 1 /* SHIFT_REF */;\n
var attrName = mutableOpCodes[++i];\n var attrValue = mutableOpCodes[++i];\n //
This code is used for ICU expressions only, since we don't support\n // directives/components in
ICUs, we don't need to worry about inputs here\n setElementAttribute(renderer,
getNativeByIndex(elementNodeIndex, IView), null, null, attrName, attrValue, null);\n break;\n
 default:\n throw new Error("Unable to determine the type of mutate operation for '" +
opCode + "'");\n }\n }\n else {\n switch (opCode) {\n case
ICU_MARKER:\n var commentValue = mutableOpCodes[++i];\n var
commentNodeIndex = mutableOpCodes[++i];\n if (IView[commentNodeIndex] === null) {\n
ngDevMode &&\n assertEqual(typeof commentValue, 'string', "Expected '" +
commentValue + "' to be a comment node value");\n ngDevMode &&
ngDevMode.rendererCreateComment++;\n ngDevMode && assertIndexInExpandoRange(IView,
commentNodeIndex);\n var commentRNode = IView[commentNodeIndex] =\n
createCommentNode(renderer, commentValue);\n // FIXME(misko): Attaching patch data is only
needed for the root (Also add tests)\n
 attachPatchData(commentRNode, IView);\n }\n break;\n case
ELEMENT_MARKER:\n var tagName = mutableOpCodes[++i];\n var
elementNodeIndex = mutableOpCodes[++i];\n if (IView[elementNodeIndex] === null) {\n
ngDevMode &&\n assertEqual(typeof tagName, 'string', "Expected '" + tagName +
"' to be an element node tag name");\n ngDevMode &&
ngDevMode.rendererCreateElement++;\n ngDevMode && assertIndexInExpandoRange(IView,
elementNodeIndex);\n var elementRNode = IView[elementNodeIndex] =\n
createElementNode(renderer, tagName, null);\n // FIXME(misko): Attaching patch data is only
needed for the root (Also add tests)\n
 attachPatchData(elementRNode,
IView);\n }\n break;\n default:\n ngDevMode &&\n
 throwError("Unable to determine the type of mutate operation for '" + opCode + "'");\n }\n
}\n }\n }\n /**\n
* Apply `I18nUpdateOpCodes` OpCodes\n
* @param tView Current
`TVView`\n
* @param IView Current `LView`\n
* @param updateOpCodes OpCodes to process\n
* @param
bindingsStartIndex Location of the first `i18nApply`\n
* @param changeMask Each bit corresponds to a
`i18nExp` (Counting backwards from\n
* `bindingsStartIndex`)\n
* ^\n
function
applyUpdateOpCodes(tView, IView, updateOpCodes, bindingsStartIndex, changeMask) {\n
for (var i = 0; i <
updateOpCodes.length; i++) {\n
// bit code to check if we should apply the next update\n
var checkBit
= updateOpCodes[i];\n
// Number of
opCodes to skip until next set of update codes\n
var skipCodes = updateOpCodes[++i];\n
if (checkBit
& changeMask) {\n
// The value has been updated since last checked\n
var value = ";\n
for (var j = i + 1; j <= (i + skipCodes); j++) {\n
var opCode = updateOpCodes[j];\n
if (typeof
opCode === 'string') {\n
value += opCode;\n
}\n
else if (typeof opCode ===
'number') {\n
if (opCode < 0) {\n
// Negative opCode represent `i18nExp` values

```



```

}\n /**\n * Apply OpCodes associated with tearing ICU case.\n *\n * This involves tearing down existing
case and then building up a new case.\n *\n * @param tView Current `TVIEW`\n * @param tIcu Current
`TIcu`\n * @param lView Current `LVIEW`\n */\n function applyIcuSwitchCaseRemove(tView, tIcu, lView)
{\n var activeCaseIndex = getCurrentICUCaseIndex(tIcu, lView);\n if (activeCaseIndex !== null) {\n
var removeCodes = tIcu.remove[activeCaseIndex];\n for (var i = 0; i < removeCodes.length; i++) {\n
var nodeOrIcuIndex = removeCodes[i];\n if (nodeOrIcuIndex > 0) {\n // Positive numbers are
`RNode`s.\n var rNode = getNativeByIndex(nodeOrIcuIndex,
lView);\n rNode !== null && nativeRemoveNode(lView[RENDERER], rNode);\n }\n
else {\n // Negative numbers are ICUs\n applyIcuSwitchCaseRemove(tView,
getTicu(tView, ~nodeOrIcuIndex), lView);\n }\n }\n /**\n * Returns the index of
the current case of an ICU expression depending on the main binding value\n *\n * @param icuExpression\n * @param bindingValue The value of the main binding used by this ICU expression\n */\n function
getCaseIndex(icuExpression, bindingValue) {\n var index = icuExpression.cases.indexOf(bindingValue);\n
if (index === -1) {\n switch (icuExpression.type) {\n case 1 /* plural */: {\n var
resolvedCase = getPluralCase(bindingValue, getLocaleId());\n index =
icuExpression.cases.indexOf(resolvedCase);\n if
(index === -1 && resolvedCase !== 'other') {\n index = icuExpression.cases.indexOf('other');\n
 }\n break;\n }\n case 0 /* select */: {\n index =
icuExpression.cases.indexOf('other');\n break;\n }\n }\n return index === -1
? null : index;\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n function loadIcuContainerVisitor() {\n var _stack = [];\n var _index = -
1;\n var _lView;\n var _removes;\n /**\n * Retrieves a set of root nodes from `TIcu.remove`. Used
by `TNodeType.ICUContainer`\n * to determine which root belong to the ICU.\n *\n * Example of
usage.\n *\n * const nextRNode = icuContainerIteratorStart(tIcuContainerNode, lView);\n * let rNode:
RNode|null;\n * while(rNode = nextRNode()) {\n * console.log(rNode);\n * }\n *\n * @param tIcuContainerNode Current `TIcuContainerNode`\n * @param lView `LVIEW` where the
`RNode`s should be looked up.\n */\n function icuContainerIteratorStart(tIcuContainerNode, lView) {\n
 _lView = lView;\n while (_stack.length)\n _stack.pop();\n ngDevMode &&
assertTNodeTypeForLView(tIcuContainerNode, lView);\n enterIcu(tIcuContainerNode.value, lView);\n
 return icuContainerIteratorNext();\n }\n function enterIcu(tIcu, lView) {\n _index = 0;\n var
currentCase = getCurrentICUCaseIndex(tIcu, lView);\n if (currentCase !== null) {\n ngDevMode
&& assertNumberInRange(currentCase, 0, tIcu.cases.length
- 1);\n _removes = tIcu.remove[currentCase];\n }\n else {\n _removes =
EMPTY_ARRAY;\n }\n }\n function icuContainerIteratorNext() {\n if (_index <
_removes.length) {\n var removeOpCode = _removes[_index++];\n ngDevMode &&
assertNumber(removeOpCode, 'Expecting OpCode number');\n if (removeOpCode > 0) {\n var
rNode = _lView[removeOpCode];\n ngDevMode && assertDomNode(rNode);\n return
rNode;\n }\n else {\n _stack.push(_index, _removes);\n // ICUs are
represented by negative indices\n var tIcuIndex = ~removeOpCode;\n var tIcu =
_lView[TVIEW].data[tIcuIndex];\n ngDevMode && assertTIcu(tIcu);\n enterIcu(tIcu,
lView);\n return icuContainerIteratorNext();\n }\n }\n else {\n if (_stack.length === 0) {\n return null;\n }\n
 else {\n _removes = _stack.pop();\n _index = _stack.pop();\n return
icuContainerIteratorNext();\n }\n }\n }\n return icuContainerIteratorStart;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n }

```

```

Converts `I18nCreateOpCodes` array into a human readable format.\n *\n * This function is attached to the
`I18nCreateOpCodes.debug` property if `ngDevMode` is enabled.\n * This function provides a human readable
view of the opcodes. This is useful when debugging the\n * application as well
as writing more readable tests.\n *\n * @param this `I18nCreateOpCodes` if attached as a method.\n *
@param opcodes `I18nCreateOpCodes` if invoked as a function.\n */\n function
i18nCreateOpCodesToString(opcodes) {\n var createOpCodes = opcodes || (Array.isArray(this) ? this : []);\n
var lines = [];\n for (var i = 0; i < createOpCodes.length; i++) {\n var opCode = createOpCodes[i++];\n
 var text = createOpCodes[i];\n var isComment = (opCode & I18nCreateOpCode.COMMENT) ===
I18nCreateOpCode.COMMENT;\n var appendNow = (opCode & I18nCreateOpCode.APPEND_EAGERLY)
=== I18nCreateOpCode.APPEND_EAGERLY;\n var index = opCode >>> I18nCreateOpCode.SHIFT;\n
 lines.push(`IView[${index}] = document.` + (isComment ? 'createComment' : 'createText') + `("${JSON.stringify(text)}");`);\n
 if (appendNow) {\n lines.push(`parent.appendChild(IView[${index}]`);\n
 }\n }\n return lines;\n }\n /**\n * Converts `I18nUpdateOpCodes` array into a human readable
format.\n *\n * This function is attached to the `I18nUpdateOpCodes.debug` property if `ngDevMode` is
enabled.\n * This function provides a human readable view of the opcodes. This is useful when debugging the\n
 * application as well as writing more readable tests.\n *\n * @param this `I18nUpdateOpCodes` if attached as a
method.\n * @param opcodes `I18nUpdateOpCodes` if invoked as a function.\n */\n function
i18nUpdateOpCodesToString(opcodes) {\n var parser = new OpCodeParser(opcodes || (Array.isArray(this) ?
this : []));\n var lines = [];\n function consumeOpCode(value) {\n var ref = value >>> 2 /*
SHIFT_REF */;\n var opCode = value & 3 /* MASK_OPCODE */;\n switch (opCode) {\n
 case 0 /* Text */:\n return `IView[${ref}]`\n
 as Text).textContent = $$$`;\n case 1 /* Attr */:\n var attrName = parser.consumeString();\n
 var sanitizationFn = parser.consumeFunction();\n var value_1 = sanitizationFn ? `("${sanitizationFn + `")`)" : `$$$`;\n
 return `IView[${ref}] as Element).setAttribute("${attrName} + `", "${value_1}");`\n case 2 /* IcuSwitch */:\n return `icuSwitchCase("${ref} + `",`
 $$$`);\n case 3 /* IcuUpdate */:\n return `icuUpdateCase("${ref} + `")`;\n }\n
 throw new Error('unexpected OpCode');\n }\n while (parser.hasMore()) {\n var mask =
parser.consumeNumber();\n var size = parser.consumeNumber();\n var end = parser.i + size;\n
 var statements = [];\n var statement = ";\n while (parser.i < end) {\n var value
= parser.consumeNumberOrString();\n if (typeof value === 'string') {\n statement += value;\n
 }\n else if (value < 0) {\n // Negative numbers are ref indexes\n // Here `i`
refers to current binding index. It is to signify that the value is relative,\n // rather than absolute.\n
 statement += `${IView[i] + value + `}`;\n }\n else {\n // Positive numbers are
operations.\n var opCodeText = consumeOpCode(value);\n
 statements.push(opCodeText.replace('$$$', ` ` + statement + ` `) + `;`);\n statement = ";\n }\n
 }\n lines.push(`if (mask & 0b${mask.toString(2)} & `) { ` + statements.join(' `) + ` ` }`);\n }\n
 return lines;\n }\n /**\n * Converts `I18nCreateOpCodes` array into a human
readable format.\n *\n * This function is attached to the `I18nCreateOpCodes.debug` if `ngDevMode` is
enabled. This\n * function provides a human readable view of the opcodes. This is useful when debugging the\n
 * application as well as writing more readable tests.\n *\n * @param this `I18nCreateOpCodes` if attached as a
method.\n * @param opcodes `I18nCreateOpCodes` if invoked as a function.\n */\n function
icuCreateOpCodesToString(opcodes) {\n var parser = new OpCodeParser(opcodes || (Array.isArray(this) ?
this : []));\n var lines = [];\n function consumeOpCode(opCode) {\n var parent =
getParentFromIcuCreateOpCode(opCode);\n var ref = getRefFromIcuCreateOpCode(opCode);\n
 switch (getInstructionFromIcuCreateOpCode(opCode)) {\n case 0 /* AppendChild */:\n return
`IView[${parent} + `] as Element).appendChild(IView[${lastRef} + `])`;\n case 1 /*

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Attr */;\n
return \"(IView[\" + ref + \"] as Element).setAttribute(\\\"\\\" + parser.consumeString() + \"\\\"\\\",
\\\"\\\" + parser.consumeString() + \"\\\"\\\"\\\"));\n
}\n
throw new Error('Unexpected OpCode: ' +
getInstructionFromIcuCreateOpCode(opcode));\n
}\n
var lastRef = -1;\n
while (parser.hasMore()) {\n
var value = parser.consumeNumberStringOrMarker();\n
if (value === ICU_MARKER) {\n
var
text = parser.consumeString();\n
lastRef = parser.consumeNumber();\n
lines.push(\"IView[\" +
lastRef + \"] = document.createComment(\\\"\\\" + text + \"\\\"\\\"\\\"));\n
}\n
else if (value ===
ELEMENT_MARKER) {\n
var text = parser.consumeString();\n
lastRef =
parser.consumeNumber();\n
lines.push(\"IView[\" + lastRef + \"] = document.createElement(\\\"\\\" + text +
\"\\\"\\\"\\\"));\n
}\n
else if (typeof value
=== 'string') {\n
lastRef = parser.consumeNumber();\n
lines.push(\"IView[\" + lastRef + \"] =
document.createTextNode(\\\"\\\" + value + \"\\\"\\\"\\\"));\n
}\n
else if (typeof value === 'number') {\n
var line = consumeOpCode(value);\n
line && lines.push(line);\n
}\n
else {\n
throw new Error('Unexpected value');\n
}\n
}\n
return lines;\n
}\n
/**\n
 * Converts
`I18nRemoveOpCodes` array into a human readable format.\n
 * This function is attached to the
`I18nRemoveOpCodes.debug` if `ngDevMode` is enabled. This\n
 * function provides a human readable view of
the opcodes. This is useful when debugging the\n
 * application as well as writing more readable tests.\n
 * @param this `I18nRemoveOpCodes` if attached as a method.\n
 * @param opcodes `I18nRemoveOpCodes` if
invoked as a function.\n
 */\n
function i18nRemoveOpCodesToString(opcodes)
{\n
var removeCodes = opcodes || (Array.isArray(this) ? this : []);\n
var lines = [];\n
for (var i = 0; i <
removeCodes.length; i++) {\n
var nodeOrIcuIndex = removeCodes[i];\n
if (nodeOrIcuIndex > 0) {\n
// Positive numbers are `RNode`s.\n
lines.push(\"remove(IView[\" + nodeOrIcuIndex + \"])\");\n
}\n
else {\n
// Negative numbers are ICUs\n
lines.push(\"removeNestedICU(\" +
~nodeOrIcuIndex + \"])\");\n
}\n
}\n
return lines;\n
}\n
var OpCodeParser = /** @class */
(function () {\n
function OpCodeParser(codes) {\n
this.i = 0;\n
this.codes = codes;\n
}\n
OpCodeParser.prototype.hasMore = function () {\n
return this.i < this.codes.length;\n
};\n
OpCodeParser.prototype.consumeNumber = function () {\n
var value = this.codes[this.i++];\n
assertNumber(value, 'expecting number in OpCode');\n
return value;\n
};\n
OpCodeParser.prototype.consumeString = function () {\n
var value = this.codes[this.i++];\n
assertString(value, 'expecting string in OpCode');\n
return value;\n
};\n
OpCodeParser.prototype.consumeFunction = function () {\n
var value = this.codes[this.i++];\n
if
(value === null || typeof value === 'function') {\n
return value;\n
}\n
throw new
Error('expecting function in OpCode');\n
};\n
OpCodeParser.prototype.consumeNumberOrString = function
()\n
{\n
var value = this.codes[this.i++];\n
if (typeof value === 'string') {\n
return value;\n
}\n
assertNumber(value, 'expecting number or string in OpCode');\n
return value;\n
};\n
OpCodeParser.prototype.consumeNumberStringOrMarker = function
()\n
{\n
var value = this.codes[this.i++];\n
if (typeof value === 'string' || typeof value === 'number' ||
value === ICU_MARKER ||\n
value === ELEMENT_MARKER) {\n
return value;\n
}\n
assertNumber(value, 'expecting number, string, ICU_MARKER or ELEMENT_MARKER in OpCode');\n
return value;\n
};\n
return OpCodeParser;\n
})();\n
/**\n
 * @license\n
 * Copyright Google LLC
All Rights Reserved.\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
var BINDING_REGEXP = /(\\d+):?\\d*/gi;\n
var ICU_REGEXP = /(\\s*\\d+:?\\d*\\s*,\\s*\\{6\\}\\s*,\\[\\s\\S*\\])/gi;\n
var NESTED_ICU = /(\\d+)/;\n
var
ICU_BLOCK_REGEXP = /^(\\s*(\\d+:?\\d*)\\s*,\\s*(select|plural)\\s*,/;\n
var MARKER = \"\\uFFFD\";\n
var
SUBTEMPLATE_REGEXP = /\\/?\\|*(\\d+:\\d+)/gi;\n
var
PH_REGEXP = /(\\|/?[\\#*]\\d+):?\\d*/gi;\n
/**\n
 * Angular Dart introduced as a placeholder for non-
removable space, see:\n
 * https://github.com/dart-
lang/angular/blob/0bb611387d29d65b5af7f9d2515ab571fd3fbee4/_tests/test/compiler/preserve_whitespace_test.dart
#L25-L32\n
 * In Angular Dart is converted to the 0xE500 PUA (Private Use Areas) unicode character\n

```

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* and later on replaced by a space. We are re-implementing the same idea here, since translations
* might contain this special character.
*^n var NGSP_UNICODE_REGEXP = /\uE500/g;
function
replaceNgsp(value) {
 return value.replace(NGSP_UNICODE_REGEXP, ' ');
}
/**
 * Create dynamic nodes from i18n translation block.
 * - Text nodes are created synchronously
 * - TNodes are linked into tree lazily
 * @param tView Current `TView`
 * @param parentTNodeIndex index to the parent TNode of this i18n block
 * @param IView Current `LView`
 * @param index Index of `i18nStart` instruction.
 * @param message Message to translate.
 * @param subTemplateIndex Index into the sub template of message translation. (ie in case of `ngIf` (-1 otherwise))
 */
function i18nStartFirstCreatePass(tView, parentTNodeIndex, IView, index, message, subTemplateIndex) {
 var rootTNode = getCurrentParentTNode();
 var createOpCodes = [];
 var updateOpCodes = [];
 var existingTNodeStack = [];
 if (ngDevMode) {
 attachDebugGetter(createOpCodes, i18nCreateOpCodesToString);
 attachDebugGetter(updateOpCodes, i18nUpdateOpCodesToString);
 }
 message = getTranslationForTemplate(message, subTemplateIndex);
 var msgParts = replaceNgsp(message).split(PH_REGEXP);
 for (var i = 0; i < msgParts.length; i++) {
 var value = msgParts[i];
 if ((i & 1) === 0) {
 // Even indexes are text (including bindings & ICU expressions)
 var parts = i18nParseTextIntoPartsAndICU(value);
 for (var j = 0; j < parts.length; j++) {
 var part = parts[j];
 if ((j & 1) === 0) {
 // `j` is odd therefore `part` is string
 var text = part;
 ngDevMode && assertString(text, 'Parsed ICU part should be string');
 if (text !== '') {
 i18nStartFirstCreatePassProcessTextNode(tView, rootTNode, existingTNodeStack[0], createOpCodes, updateOpCodes, IView, text);
 }
 } else {
 // `j` is Even therefor `part` is an `ICUExpression`
 var icuExpression = part;
 // Verify that ICU expression has the right shape. Translations might contain invalid constructions (while original messages were correct), so ICU parsing at runtime may not succeed (thus `icuExpression` remains a string).
 // Note: we intentionally retain the error here by not using `ngDevMode`, because the value can change based on the locale and users aren't guaranteed to hit an invalid string while they're developing.
 if (typeof icuExpression !== 'object') {
 throw new Error("Unable to parse ICU expression in '" + message + "'");
 }
 var icuContainerTNode = createTNodeAndAddOpCode(tView, rootTNode, existingTNodeStack[0], IView, createOpCodes, ngDevMode ? "ICU " + index + ":" + icuExpression.mainBinding : "", true);
 var icuNodeIndex = icuContainerTNode.index;
 ngDevMode && assertGreaterThanOrEqual(icuNodeIndex, HEADER_OFFSET, 'Index must be in absolute LView offset');
 icuStart(tView, IView, updateOpCodes, parentTNodeIndex, icuExpression, icuNodeIndex);
 }
 }
 } else {
 // Odd indexes are placeholders (elements and sub-templates)
 // At this point value is something like: '#1:2' (originally coming from '#1:2')
 var isClosing = value.charCodeAt(0) === 47 /* SLASH */;
 var type = value.charCodeAt(isClosing ? 1 : 0);
 ngDevMode && assertOneOf(type, 42 /* STAR */, 35 /* HASH */);
 var index_1 = HEADER_OFFSET + Number.parseInt(value.substring((isClosing ? 2 : 1)));
 if (isClosing) {
 existingTNodeStack.shift();
 setCurrentTNode(getCurrentParentTNode(), false);
 } else {
 var tNode = createTNodePlaceholder(tView, existingTNodeStack[0], index_1);
 existingTNodeStack.unshift(tNode);
 setCurrentTNode(tNode, true);
 }
 }
 }
 tView.data[index] = {
 create: createOpCodes,
 update: updateOpCodes,
 };
 /**
 * Allocate space in i18n Range add create OpCode instruction to crete a text or comment node.
 * @param tView Current `TView` needed to allocate space in i18n range.
 * @param rootTNode Root `TNode` of the i18n block. This node determines if the new TNode will be added as part of the `i18nStart` instruction or as part of the `TNode.insertBeforeIndex`.
 * @param existingTNodes internal state for

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`addTNodeAndUpdateInsertBeforeIndex`.n * @param IView Current `LView` needed to allocate space in i18n
range.n * @param createOpCodes Array storing `I18nCreateOpCodes` where new opCodes will
be added.n * @param text Text to be added when the `Text` or `Comment` node will be created.n * @param
isICU true if a `Comment` node for ICU (instead of `Text`) node should be created.n */n function
createTNodeAndAddOpCode(tView, rootTNode, existingTNodes, IView, createOpCodes, text, isICU) {n var
i18nNodeIdx = allocExpando(tView, IView, 1, null);n var opCode = i18nNodeIdx <<
I18nCreateOpCode.SHIFT;n var parentTNode = getCurrentParentTNode();n if (rootTNode ===
parentTNode) {n // FIXME(misko): A null `parentTNode` should represent when we fall of the `LView`
boundary.n // (there is no parent), but in some circumstances (because we are inconsistent about how we
set\n // `previousOrParentTNode`) it could point to `rootTNode` So this is a work around.n
parentTNode = null;n }n if (parentTNode === null) {n // If we don't have a parent that means that
we can eagerly
add nodes.n // If we have a parent than these nodes can't be added now (as the parent has not been created\n
// yet) and instead the `parentTNode` is responsible for adding it. See\n // `TNode.insertBeforeIndex`\n
opCode |= I18nCreateOpCode.APPEND_EAGERLY;n }n if (isICU) {n opCode |=
I18nCreateOpCode.COMMENT;n ensureIcuContainerVisitorLoaded(loadIcuContainerVisitor);n }n
createOpCodes.push(opCode, text === null ? " : text");n // We store `{?}` so that when looking at debug
`TNodeType.template` we can see where the\n // bindings are.n var tNode = createTNodeAtIndex(tView,
i18nNodeIdx, isICU ? 32 /* Icu */ : 1 /* Text */, text === null ? (ngDevMode ? '{?}' : " : text, null);n
addTNodeAndUpdateInsertBeforeIndex(existingTNodes, tNode);n var tNodeIdx = tNode.index;n
setCurrentTNode(tNode, false /* Text nodes are self closing */);n
 if (parentTNode !== null && rootTNode !== parentTNode) {n // We are a child of deeper node (rather
than a direct child of `i18nStart` instruction.)n // We have to make sure to add ourselves to the parent.n
setTNodeInsertBeforeIndex(parentTNode, tNodeIdx);n }n return tNode;n }n /**n * Processes
text node in i18n block.n *n * Text nodes can have:n * - Create instruction in `createOpCodes` for creating
the text node.n * - Allocate spec for text node in i18n range of `LView`\n * - If contains binding:n * -
bindings => allocate space in i18n range of `LView` to store the binding value.n * - populate `updateOpCodes`
with update instructions.n *n * @param tView Current `TVIEW`\n * @param rootTNode Root `TNode` of
the i18n block. This node determines if the new TNode will\n * be added as part of the `i18nStart` instruction
or as part of the\n * `TNode.insertBeforeIndex`.n
 * @param existingTNodes internal state for `addTNodeAndUpdateInsertBeforeIndex`.n * @param
createOpCodes Location where the creation OpCodes will be stored.n * @param IView Current `LView`\n *
@param text The translated text (which may contain binding)n */n function
i18nStartFirstCreatePassProcessTextNode(tView, rootTNode, existingTNodes, createOpCodes, updateOpCodes,
IView, text) {n var hasBinding = text.match(BINDING_REGEX);n var tNode =
createTNodeAndAddOpCode(tView, rootTNode, existingTNodes, IView, createOpCodes, hasBinding ? null : text,
false);n if (hasBinding) {n generateBindingUpdateOpCodes(updateOpCodes, text, tNode.index);n
 }n }n /**n * See `i18nAttributes` above.n */n function i18nAttributesFirstPass(tView, index, values)
{n var previousElement = getCurrentTNode();n var previousElementIndex = previousElement.index;n
 var updateOpCodes = [];n
 if (ngDevMode) {n attachDebugGetter(updateOpCodes, i18nUpdateOpCodesToString);n }n if
(tView.firstCreatePass && tView.data[index] === null) {n for (var i = 0; i < values.length; i += 2) {n
 var attrName = values[i];n var message = values[i + 1];n if (message !== "") {n
 //
Check if attribute value contains an ICU and throw an error if that's the case.n // ICUs in element
attributes are not supported.n // Note: we intentionally retain the error here by not using `ngDevMode`,
because\n // the `value` can change based on the locale and users aren't guaranteed to hit\n //
an invalid string while they're developing.n if (ICU_REGEX.test(message)) {n throw
new Error("ICU expressions are not supported in attributes. Message: \\\\" + message + "\\");n

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 }\n // i18n attributes that hit this code path are guaranteed to have bindings, because\n
 // the compiler treats static i18n attributes as regular attribute bindings.\n
generateBindingUpdateOpCodes(updateOpCodes, message, previousElementIndex, attrName);\n }\n
}\n tView.data[index] = updateOpCodes;\n }\n /**\n * Generate the OpCodes to update the
bindings of a string.\n * @param updateOpCodes Place where the update opcodes will be stored.\n *
@param str The string containing the bindings.\n * @param destinationNode Index of the destination node which
will receive the binding.\n * @param attrName Name of the attribute, if the string belongs to an attribute.\n *
@param sanitizeFn Sanitization function used to sanitize the string after update, if necessary.\n */\n function
generateBindingUpdateOpCodes(updateOpCodes, str, destinationNode,
attrName, sanitizeFn) {\n if (sanitizeFn === void 0) { sanitizeFn = null; }\n ngDevMode &&\n
assertGreaterThanOrEqual(destinationNode, HEADER_OFFSET, 'Index must be in absolute LView offset');\n
var maskIndex = updateOpCodes.length; // Location of mask\n var sizeIndex = maskIndex + 1; // location of
size for skipping\n updateOpCodes.push(null, null); // Alloc space for mask and size\n var startIndex =
maskIndex + 2; // location of first allocation.\n if (ngDevMode) {\n attachDebugGetter(updateOpCodes,
i18nUpdateOpCodesToString);\n }\n var textParts = str.split(BINDING_REGEXP);\n var mask = 0;\n
 for (var j = 0; j < textParts.length; j++) {\n var textValue = textParts[j];\n if (j & 1) {\n //
Odd indexes are bindings\n var bindingIndex = parseInt(textValue, 10);\n updateOpCodes.push(-
1 - bindingIndex);\n
 mask = mask | toMaskBit(bindingIndex);\n }\n else if (textValue !== '') {\n // Even
indexes are text\n updateOpCodes.push(textValue);\n }\n }\n
updateOpCodes.push(destinationNode << 2 /* SHIFT_REF */ | (attrName ? 1 /* Attr */ : 0 /* Text */));\n
 if (attrName) {\n updateOpCodes.push(attrName, sanitizeFn);\n }\n updateOpCodes[maskIndex] =
mask;\n updateOpCodes[sizeIndex] = updateOpCodes.length - startIndex;\n return mask;\n } /**\n
 * Convert binding index to mask bit.\n * @param bindingIndex Binding index\n * @param maskMask Mask bit\n * Each index represents a single bit on the bit-mask. Because bit-
mask only has 32 bits, we make\n * the 32nd bit share all masks for all bindings higher than 32. Since it is
extremely rare to\n * have more than 32 bindings this will be hit very rarely. The downside of hitting this corner\n
 * case is that we will execute binding code more often than
necessary. (penalty of performance)\n */\n function toMaskBit(bindingIndex) {\n return 1 <<
Math.min(bindingIndex, 31);\n } function isRootTemplateMessage(subTemplateIndex) {\n return
subTemplateIndex === -1;\n } /**\n * Removes everything inside the sub-templates of a message.\n */\n
function removeInnerTemplateTranslation(message) {\n var match;\n var res = '';\n var index = 0;\n
 var inTemplate = false;\n var tagMatched;\n while ((match = SUBTEMPLATE_REGEXP.exec(message))
!== null) {\n if (!inTemplate) {\n res += message.substring(index, match.index +
match[0].length);\n tagMatched = match[1];\n inTemplate = true;\n }\n else {\n
 if (match[0] === MARKER + '/' + tagMatched + MARKER) {\n index = match.index;\n
 inTemplate = false;\n }\n }\n }\n
 }\n ngDevMode &&\n assertEqual(inTemplate, false, 'Tag mismatch: unable to find the end of the
sub-template in the translation \'' + message + '\');\n res += message.substr(index);\n return res;\n
 } /**\n * Extracts a part of a message and removes the rest.\n * @param message Message to extract\n * @param subTemplateIndex Index of the sub-template to extract. If undefined it
returns the\n * external template and removes all sub-templates.\n */\n function
getTranslationForTemplate(message, subTemplateIndex) {\n if (isRootTemplateMessage(subTemplateIndex))\n {\n // We want the root template message, ignore all sub-templates\n
 return removeInnerTemplateTranslation(message);\n }\n else {\n // We want a specific sub-
template\n var start = message.indexOf(':' + subTemplateIndex + MARKER) + 2 +
subTemplateIndex.toString().length;\n var end = message.search(new RegExp(MARKER + '//////' + MARKER));\n

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+ subTemplateIndex + MARKER));\n return removeInnerTemplateTranslation(message.substring(start,
end));\n }\n }\n /**\n * Generate the OpCodes for ICU expressions.\n * @param icuExpression\n * @param index Index where the anchor is stored and an optional `TicuContainerNode`\n * -\n * `IView[anchorIdx]` points to a `Comment` node representing the anchor for the ICU.\n * -\n * `tView.data[anchorIdx]` points to the `TicuContainerNode` if ICU is root (`null` otherwise)\n */\n function\n icuStart(tView, IView, updateOpCodes, parentIdx, icuExpression, anchorIdx) {\n ngDevMode &&\n assertDefined(icuExpression,\n 'ICU expression must be defined');\n var bindingMask = 0;\n var tIcu = {\n type:\n icuExpression.type,\n currentCaseLViewIndex: allocExpando(tView, IView, 1, null),\n anchorIdx:\n anchorIdx,\n cases: [],\n create: [],\n remove: [],\n update: []\n };\n addUpdateIcuSwitch(updateOpCodes, icuExpression, anchorIdx);\n setTicu(tView, anchorIdx, tIcu);\n var\n values = icuExpression.values;\n for (var i = 0; i < values.length; i++) {\n // Each value is an array of\n strings & other ICU expressions\n var valueArr = values[i];\n var nestedIcus = [];\n for (var j =\n 0; j < valueArr.length; j++) {\n var value = valueArr[j];\n if (typeof value !== 'string') {\n // It is a nested ICU expression\n var icuIndex = nestedIcus.push(value) - 1;\n // Replace\n nested ICU expression by a comment node\n valueArr[j] = "<!--\\uFFFFD" + icuIndex + "\\uFFFFD-->";\n }\n }\n bindingMask = parseIcuCase(tView, tIcu, IView, updateOpCodes, parentIdx,\n icuExpression.cases[i], valueArr.join(""), nestedIcus);\n bindingMask;\n }\n if (bindingMask) {\n addUpdateIcuUpdate(updateOpCodes, bindingMask, anchorIdx);\n }\n }\n /**\n * Parses text\n * containing an ICU expression and produces a JSON object for it.\n * Original code from closure library, modified\n * for Angular.\n * @param pattern Text containing an ICU expression that needs to be parsed.\n */\n function parseICUBlock(pattern) {\n var cases = [];\n var values = [];\n var icuType = 1 /* plural */;\n var mainBinding = 0;\n pattern = pattern.replace(ICU_BLOCK_REGEXP, function (str, binding, type) {\n if (type === 'select')\n {\n icuType = 0 /* select */;\n }\n else {\n icuType = 1 /* plural */;\n }\n mainBinding = parseInt(binding.substr(1), 10);\n return ";\n });\n var parts =\n i18nParseTextIntoPartsAndICU(pattern);\n // Looking for (key block)+ sequence. One of the keys has to be\n \"other\".\n for (var pos = 0; pos < parts.length;) {\n var key = parts[pos++].trim();\n if (icuType\n === 1 /* plural */) {\n // Key can be \"=x\", we just want \"x\"\n key =\n key.replace(/\\s*(?:=)(\\w+)\\s*/, '$1');\n }\n if (key.length) {\n cases.push(key);\n }\n var blocks = i18nParseTextIntoPartsAndICU(parts[pos++]);\n if (cases.length > values.length) {\n values.push(blocks);\n }\n }\n // TODO(ocombe): support ICU expressions in attributes, see\n #21615\n\n return { type: icuType, mainBinding: mainBinding, cases: cases, values: values };\n }\n /**\n * Breaks\n * pattern into strings and top level {...} blocks.\n * Can be used to break a message into text and ICU expressions,\n * or to break an ICU expression\n * into keys and cases. Original code from closure library, modified for Angular.\n * @param pattern (sub)Pattern to be broken.\n * @returns An `Array<string|IcuExpression>` where:\n * - odd positions: `string` => text between ICU expressions\n * - even positions: `ICUExpression` => ICU\n * expression parsed into `ICUExpression` record.\n */\n function i18nParseTextIntoPartsAndICU(pattern) {\n if (!pattern) {\n return [];\n }\n var prevPos = 0;\n var braceStack = [];\n var results = [];\n var braces = /[{ }]/g;\n // lastIndex doesn't get set to 0 so we have to.\n braces.lastIndex = 0;\n var\n match;\n while\n (match = braces.exec(pattern)) {\n var pos = match.index;\n if (match[0] === '}') {\n braceStack.pop();\n if (braceStack.length === 0) {\n // End of the block.\n var block\n = pattern.substring(prevPos, pos);\n if (ICU_BLOCK_REGEXP.test(block)) {\n results.push(parseICUBlock(block));\n }\n else {\n results.push(block);\n }\n prevPos = pos + 1;\n }\n else {\n if (braceStack.length ===\n 0) {\n var substring_1 = pattern.substring(prevPos, pos);\n results.push(substring_1);\n }\n }\n }\n }\n }\n}

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 prevPos = pos + 1;\n }\n braceStack.push('{');\n }\n }\n var substring =
pattern.substring(prevPos);\n results.push(substring);\n
 return results;\n }\n /**\n * Parses a node, its children and its siblings, and generates the mutate & update
OpCodes.\n *\n */\n function parseIcuCase(tView, tIcu, IView, updateOpCodes, parentIdx, caseName,
unsafeCaseHtml, nestedIcus) {\n var create = [];\n var remove = [];\n var update = [];\n if
(ngDevMode) {\n attachDebugGetter(create, icuCreateOpCodesToString);\n
attachDebugGetter(remove, i18nRemoveOpCodesToString);\n attachDebugGetter(update,
i18nUpdateOpCodesToString);\n }\n tIcu.cases.push(caseName);\n tIcu.create.push(create);\n
tIcu.remove.push(remove);\n tIcu.update.push(update);\n var inertBodyHelper =
getInertBodyHelper(getDocument());\n var inertBodyElement =
inertBodyHelper.getInertBodyElement(unsafeCaseHtml);\n ngDevMode && assertDefined(inertBodyElement,
'Unable to generate inert body element');\n var inertRootNode
= getTemplateContent(inertBodyElement) || inertBodyElement;\n if (inertRootNode) {\n return
walkIcuTree(tView, tIcu, IView, updateOpCodes, create, remove, update, inertRootNode, parentIdx, nestedIcus,
0);\n }\n else {\n return 0;\n }\n }\n function walkIcuTree(tView, tIcu, IView,
sharedUpdateOpCodes, create, remove, update, parentNode, parentIdx, nestedIcus, depth) {\n var bindingMask
= 0;\n var currentNode = parentNode.firstChild;\n while (currentNode) {\n var newIndex =
allocExpando(tView, IView, 1, null);\n switch (currentNode.nodeType) {\n case
Node.ELEMENT_NODE:\n var element = currentNode;\n var tagName =
element.tagName.toLowerCase();\n if (VALID_ELEMENTS.hasOwnProperty(tagName)) {\n
 addCreateNodeAndAppend(create, ELEMENT_MARKER, tagName, parentIdx, newIndex);\n
tView.data[newIndex] = tagName;\n var elAttrs = element.attributes;\n for (var i = 0;
i < elAttrs.length; i++) {\n var attr = elAttrs.item(i);\n var lowerAttrName =
attr.name.toLowerCase();\n var hasBinding_1 = !!attr.value.match(BINDING_REGEXP);\n
 // we assume the input string is safe, unless it's using a binding\n if (hasBinding_1) {\n
 if (VALID_ATTRS.hasOwnProperty(lowerAttrName)) {\n if
(URI_ATTRS[lowerAttrName]) {\n generateBindingUpdateOpCodes(update, attr.value,
newIndex, attr.name, _sanitizeUrl);\n }\n else if
(SRCSET_ATTRS[lowerAttrName]) {\n generateBindingUpdateOpCodes(update,
attr.value,
newIndex, attr.name, sanitizeSrcset);\n }\n else {\n
 generateBindingUpdateOpCodes(update, attr.value, newIndex, attr.name);\n }\n
 }\n }\n else {\n ngDevMode &&\n
console.warn("WARNING: ignoring unsafe attribute value '" +\n (lowerAttrName + "\n
on element '" + tagName + "' (see http://g.co/ng/security#xss)");\n }\n }\n
 else {\n addCreateAttribute(create, newIndex, attr);\n }\n
 }\n // Parse the children of this node (if any)\n bindingMask = walkIcuTree(tView,
tIcu, IView, sharedUpdateOpCodes, create, remove, update, currentNode, newIndex, nestedIcus, depth + 1) |\n
bindingMask;\n addRemoveNode(remove, newIndex, depth);\n }\n
 }\n break;\n case Node.TEXT_NODE:\n var value = currentNode.textContent || "";\n
var hasBinding = value.match(BINDING_REGEXP);\n addCreateNodeAndAppend(create, null,
hasBinding ? " : value, parentIdx, newIndex);\n addRemoveNode(remove, newIndex, depth);\n
 if (hasBinding) {\n bindingMask = generateBindingUpdateOpCodes(update, value, newIndex) |
bindingMask;\n }\n }\n break;\n case Node.COMMENT_NODE:\n //
Check if the comment node is a placeholder for a nested ICU\n var isNestedIcu =
NESTED_ICU.exec(currentNode.textContent
|| "");\n if (isNestedIcu) {\n var nestedIcuIndex = parseInt(isNestedIcu[1], 10);\n
 var icuExpression = nestedIcus[nestedIcuIndex];\n // Create the comment node that will anchor the

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ICU expression\n
 addCreateNodeAndAppend(create, ICU_MARKER, ngDevMode ? \"nested ICU \"
+ nestedIcuIndex : \"\", parentIdx, newIndex);\n
 icuStart(tView, IView, sharedUpdateOpCodes,
parentIdx, icuExpression, newIndex);\n
 addRemoveNestedIcu(remove, newIndex, depth);\n
}\n
break;\n
}\n
currentNode = currentNode.nextSibling;\n
}\n
return
bindingMask;\n
}\n
function addRemoveNode(remove, index, depth) {\n
 if (depth === 0) {\n
remove.push(index);\n
}\n
}\n
function addRemoveNestedIcu(remove, index, depth) {\n
 if (depth ===
0) {\n
 remove.push(~index);\n
// remove ICU at `index`\n
 remove.push(index); // remove ICU comment at `index`\n
}\n
}\n
function addUpdateIcuSwitch(update, icuExpression, index) {\n
update.push(toMaskBit(icuExpression.mainBinding), 2, -1 - icuExpression.mainBinding, index << 2 /* SHIFT_REF
/ | 2 / IcuSwitch */);\n
}\n
function addUpdateIcuUpdate(update, bindingMask, index) {\n
update.push(bindingMask, 1, index << 2 /* SHIFT_REF */ | 3 /* IcuUpdate */);\n
}\n
function
addCreateNodeAndAppend(create, marker, text, appendToParentIdx, createAtIdx) {\n
 if (marker !== null) {\n
 create.push(marker);\n
 }\n
 create.push(text, createAtIdx, icuCreateOpCode(0 /* AppendChild */,\nappendToParentIdx, createAtIdx));\n
}\n
function addCreateAttribute(create, newIndex, attr) {\n
create.push(newIndex << 1 /* SHIFT_REF */ | 1 /* Attr */, attr.name, attr.value);\n
}\n
\n
/**\n
 * @license\n
 * Copyright Google LLC\n
 * All Rights Reserved.\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 */\n
// i18nPostprocess consts\n
var
ROOT_TEMPLATE_ID = 0;\n
var PP_MULTI_VALUE_PLACEHOLDERS_REGEXP = /\[(.+?)\]/;\n
var
PP_PLACEHOLDERS_REGEXP = /\[(.+?)\](\|\/?*\\d+:\\d+)/g;\n
var PP_ICU_VARS_REGEXP =
/((\\s*)(VAR_(PLURAL|SELECT)(\\d+)?)(\\s*,)/g);\n
var PP_ICU_PLACEHOLDERS_REGEXP = /([A-Z0-
9_+])/g;\n
var PP_ICUS_REGEXP = /I18N_EXP_(ICU(\\d+)?)/g;\n
var PP_CLOSE_TEMPLATE_REGEXP
= /\|*\\;/;\n
var PP_TEMPLATE_ID_REGEXP = /\|d+\\:(\\d+)/;\n
/**\n
 * Handles message string post-
processing for internationalization.\n
 * Handles message string post-processing by transforming it from
intermediate\n
 * format (that might contain some markers that we need to replace) to the final\n
 * form,
consumable by i18nStart instruction. Post processing steps
include:\n
 * 1. Resolve all multi-value cases (like [*1:1#2:1#4:1|5])\n
 * 2. Replace all ICU vars (like
\"VAR_PLURAL\")\n
 * 3. Replace all placeholders used inside ICUs in a form of {PLACEHOLDER}\n
 * 4.
Replace all ICU references with corresponding values (like ICU_EXP_ICU_1)\n
 * in case multiple ICUs have
the same placeholder name\n
 * @param message Raw translation string for post processing\n
 * @param
replacements Set of replacements that should be applied\n
 * @returns Transformed string that can be
consumed by i18nStart instruction\n
 * @codeGenApi\n
 */\n
function i18nPostprocess(message,
replacements) {\n
 if (replacements === void 0) { replacements = {}; }\n
 /**\n
 * Step 1: resolve all
multi-value placeholders like [#5*1:1#2:1#4:1]\n
 * Note: due to the way we process nested templates
(BFS), multi-value placeholders are typically\n
 * grouped
by templates, for example: [#5#6#1:1#3:2] where #5 and #6 belong to root\n
 * template, #1:1 belong to
nested template with index 1 and #1:2 - nested template with index\n
 * 3. However in real templates the order
might be different: i.e. #1:1 and/or #3:2 may go in\n
 * front of #6. The post processing step restores the right
order by keeping track of the\n
 * template id stack and looks for placeholders that belong to the currently active
template.\n
 */\n
 var result = message;\n
 if
(PP_MULTI_VALUE_PLACEHOLDERS_REGEXP.test(message)) {\n
 var matches_1 = {};\n
 var
templateIdsStack_1 = [ROOT_TEMPLATE_ID];\n
 result = result.replace(PP_PLACEHOLDERS_REGEXP,\nfunction (m, pbs, tmpl) {\n
 var content = pbs || tmpl;\n
 var placeholders = matches_1[content] ||
[];\n
 if (!placeholders.length) {\n
 content.split('').forEach(function
(placeholder) {\n
 var match = placeholder.match(PP_TEMPLATE_ID_REGEXP);\n
var templateId = match ? parseInt(match[1], 10) : ROOT_TEMPLATE_ID;\n
var
isCloseTemplateTag = PP_CLOSE_TEMPLATE_REGEXP.test(placeholder);\n

```

```

placeholders.push([templateId, isCloseTemplateTag, placeholder]);\n
matches_1[content] = placeholders;\n
if (!placeholders.length) {\n
Error("\i18n postprocess: unmatched placeholder - \" + content);\n
var currentTemplateId =\n
templateIdsStack_1[templateIdsStack_1.length - 1];\n
var idx = 0;\n
// find placeholder index that\n
matches current template id\n
for (var i = 0; i < placeholders.length; i++) {\n
if\n
(placeholders[i][0] === currentTemplateId) {\n
idx\n
= i;\n
break;\n
}\n
}\n
// update template id stack based on the current\n
tag extracted\n
var _a = __read(placeholders[idx], 3), templateId = _a[0], isCloseTemplateTag = _a[1],\n
placeholder = _a[2];\n
if (isCloseTemplateTag) {\n
templateIdsStack_1.pop();\n
}\n
else if (currentTemplateId !== templateId) {\n
templateIdsStack_1.push(templateId);\n
}\n
// remove processed tag from the list\n
placeholders.splice(idx, 1);\n
return\n
placeholder;\n
});\n
}\n
// return current result if no replacements specified\n
if\n
(!Object.keys(replacements).length) {\n
return result;\n
}\n
/**\n
 * Step 2: replace all ICU vars\n
(like \"VAR_PLURAL\")\n
*/\n
result = result.replace(PP_ICU_VARS_REGEXP, function\n
(match, start, key, _type, _idx, end) {\n
return replacements.hasOwnProperty(key) ? \"\" + start +\n
replacements[key] + end : match;\n
});\n
/**\n
 * Step 3: replace all placeholders used inside ICUs in a\n
form of {PLACEHOLDER}\n
*/\n
result = result.replace(PP_ICU_PLACEHOLDERS_REGEXP,\n
function (match, key) {\n
return replacements.hasOwnProperty(key) ? replacements[key] : match;\n
});\n
/**\n
 * Step 4: replace all ICU references with corresponding values (like ICU_EXP_ICU_1) in case\n
* multiple ICUs have the same placeholder name\n
*/\n
result = result.replace(PP_ICUS_REGEXP,\n
function (match, key) {\n
if (replacements.hasOwnProperty(key)) {\n
var list = replacements[key];\n
if (!list.length) {\n
throw new Error("\i18n postprocess: unmatched ICU - \" + match + \" with\n
key: \" + key);\n
}\n
return\n
list.shift();\n
}\n
return match;\n
});\n
return result;\n
}\n
}\n
/**\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 * Use of this source code is governed by an MIT-style\n
license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
*/\n
/**\n
 * Marks a block\n
of text as translatable.\n
 * The instructions `i18nStart` and `i18nEnd` mark the translation block in the\n
template.\n
 * The translation `message` is the value which is locale specific. The translation string may\n
 * contain placeholders which associate inner elements and sub-templates within the translation.\n
 * The\n
translation `message` placeholders are:\n
 * - `{index}:{block}`: *Binding Placeholder*: Marks a location where\n
an expression will be\n
 * interpolated into. The placeholder `index` points to the expression binding index. An\n
optional\n
 * `block` that matches\n
the sub-template in which it was declared.\n
 * - `#{index}:{block}`: *Element\n
Placeholder*: Marks the beginning\n
 * and end of DOM element that were embedded in the original translation\n
block. The placeholder\n
 * `index` points to the element index in the template instructions set. An optional\n
`block` that\n
 * matches the sub-template in which it was declared.\n
 * -\n
`*{index}:{block}`: *Sub-template Placeholder*: Sub-templates must be\n
 * split up and\n
translated separately in each angular template function. The `index` points to the\n
 * `template` instruction\n
index. A `block` that matches the sub-template in which it was declared.\n
 * @param index A unique index\n
of the translation in the static block.\n
 * @param messageIndex An index of the translation message from the\n
`def.consts` array.\n
 * @param subTemplateIndex Optional sub-template index in the `message`.\n
 * @codeGenApi\n
*/\n
function i18nStart(index, messageIndex, subTemplateIndex) {\n
if\n
(subTemplateIndex === void 0) {\n
subTemplateIndex = -1;\n
}\n
var tView = getTView();\n
var IView =\n
getLView();\n
var adjustedIndex = HEADER_OFFSET + index;\n
ngDevMode && assertDefined(tView,\n
\"tView should be defined\");\n
var message = getConstant(tView.consts, messageIndex);\n
var\n
parentTNode = getCurrentParentTNode();\n
if (tView.firstCreatePass) {\n
i18nStartFirstCreatePass(tView, parentTNode === null ? 0 : parentTNode.index, IView, adjustedIndex, message,\n
subTemplateIndex);\n
}\n
var tI18n = tView.data[adjustedIndex];\n
var sameViewParentTNode =

```

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parentTNode === IView[T_HOST] ? null : parentTNode;\n var parentRNode = getClosestRElement(tView,
sameViewParentTNode, IView);\n // If `parentTNode` is an `ElementContainer` than it has `<!--ng-container---
>`.\n // When we do inserts we have
to make sure to insert in front of `<!--ng-container--->`.\n var insertInFrontOf = parentTNode &&
(parentTNode.type & 8 /* ElementContainer */) ?\n IView[parentTNode.index] :\n null;\n applyCreateOpCodes(IView, tI18n.create, parentRNode, insertInFrontOf);\n setInI18nBlock(true);\n }\n /**\n * Translates a translation block marked by `i18nStart` and `i18nEnd`. It inserts the text/ICU nodes
 * into the render tree, moves the placeholder nodes and removes the deleted nodes.\n * @codeGenApi\n *\n * function i18nEnd() {\n * setInI18nBlock(false);\n * }\n */\n * Use this instruction to create a
translation block that doesn't contain any placeholder.\n * It calls both { @link i18nStart } and { @link i18nEnd } in
one instruction.\n * The translation `message` is the value which is locale specific. The translation string
may\n * contain placeholders which associate inner elements
and sub-templates within the translation.\n * The translation `message` placeholders are:\n * -
`{index}(:{block})`: *Binding Placeholder*: Marks a location where an expression will be\n * interpolated into.
The placeholder `index` points to the expression binding index. An optional\n * `block` that matches the sub-
template in which it was declared.\n * - `#{index}(:{block})`/^#{index}(:{block})`: *Element Placeholder*:
Marks the beginning\n * and end of DOM element that were embedded in the original translation block. The
placeholder\n * `index` points to the element index in the template instructions set. An optional `block` that\n
 * matches the sub-template in which it was declared.\n * - `*{index}:{block}`/^*{index}:{block}`: *Sub-
template Placeholder*: Sub-templates must be\n * split up and translated separately in each angular template
function. The `index` points to the\n * `template` instruction index.
A `block` that matches the sub-template in which it was declared.\n * @param index A unique index of the
translation in the static block.\n * @param messageIndex An index of the translation message from the
`def.consts` array.\n * @param subTemplateIndex Optional sub-template index in the `message`.\n * @codeGenApi\n *\n * function i18n(index, messageIndex, subTemplateIndex) {\n * i18nStart(index,
messageIndex, subTemplateIndex);\n * i18nEnd();\n * }\n */\n * Marks a list of attributes as translatable.\n
 * @param index A unique index in the static block\n * @param values\n * @codeGenApi\n *\n * function i18nAttributes(index, attrsIndex) {\n * var tView = getTView();\n * ngDevMode &&
assertDefined(tView, `tView should be defined`);\n * var attrs = getConstant(tView.consts, attrsIndex);\n
 * i18nAttributesFirstPass(tView, index + HEADER_OFFSET, attrs);\n * }\n */\n * Stores the values of the bindings during each update cycle in order to determine if we need to\n
 * update the translated nodes.\n * @param value The binding's value\n * @returns This function returns
itself so that it may be chained\n * (e.g. `i18nExp(ctx.name)(ctx.title)`)\n * @codeGenApi\n *\n * function i18nExp(value) {\n * var IView = getLView();\n * setMaskBit(bindingUpdated(IView,
nextBindingIndex(), value));\n * return i18nExp;\n * }\n */\n * Updates a translation block or an i18n
attribute when the bindings have changed.\n * @param index Index of either { @link i18nStart } (translation
block) or { @link i18nAttributes } (i18n attribute) on which it should update the content.\n * @codeGenApi\n *\n * function i18nApply(index) {\n * applyI18n(getTView(), getLView(), index +
HEADER_OFFSET);\n * }\n */\n * Handles message string post-processing for internationalization.\n
 * Handles message string post-processing by transforming it from intermediate\n * format (that might
contain some markers that we need to replace) to the final\n * form, consumable by i18nStart instruction. Post
processing steps include:\n * 1. Resolve all multi-value cases (like [*1:1#2:1#4:1|5])\n * 2. Replace all
ICU vars (like `\"VAR_PLURAL`\")\n * 3. Replace all placeholders used inside ICUs in a form of
{PLACEHOLDER}\n * 4. Replace all ICU references with corresponding values (like ICU_EXP_ICU_1)\n * in case multiple ICUs have the same placeholder name\n * @param message Raw translation string for post
processing\n * @param replacements Set of replacements that should be applied\n * @returns
Transformed string that can be consumed by i18nStart instruction\n * @codeGenApi\n *\n * function
i18nPostprocess(message, replacements) {\n * if (replacements

```

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==== void 0) { replacements = {}; } \n return i18nPostprocess(message, replacements); \n } \n \n /** \n *
@license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an
MIT-style license that can be \n * found in the LICENSE file at https://angular.io/license \n * \n \n /** \n *
@license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an
MIT-style license that can be \n * found in the LICENSE file at https://angular.io/license \n * \n /** \n *
Resolves the providers which are defined in the DirectiveDef. \n * \n * When inserting the tokens and the
factories in their respective arrays, we can assume that \n * this method is called first for the component (if any),
and then for other directives on the same \n * node. \n * As a consequence, the providers are always processed in
that order: \n * 1) The view providers of the component \n
 * 2) The providers of the component \n * 3) The providers of the other directives \n * This matches the
structure of the injectables arrays of a view (for each node). \n * So the tokens and the factories can be pushed at
the end of the arrays, except \n * in one case for multi providers. \n * \n * @param def the directive
definition \n * @param providers: Array of `providers`. \n * @param viewProviders: Array of
`viewProviders`. \n * \n * function providersResolver(def, providers, viewProviders) { \n var tView =
getTView(); \n if (tView.firstCreatePass) { \n var isComponent = isComponentDef(def); \n // The
list of view providers is processed first, and the flags are updated \n resolveProvider$1(viewProviders,
tView.data, tView.blueprint, isComponent, true); \n // Then, the list of providers is processed, and the flags
are updated \n resolveProvider$1(providers, tView.data, tView.blueprint,
isComponent, false); \n } \n } \n /** \n * Resolves a provider and publishes it to the DI system. \n * \n
function resolveProvider$1(provider, tInjectables, lInjectablesBlueprint, isComponent, isViewProvider) { \n
provider = resolveForwardRef(provider); \n if (Array.isArray(provider)) { \n // Recursively call
`resolveProvider` \n // Recursion is OK in this case because this code will not be in hot-path once we
implement \n // cloning of the initial state. \n for (var i = 0; i < provider.length; i++) { \n
resolveProvider$1(provider[i], tInjectables, lInjectablesBlueprint, isComponent, isViewProvider); \n } \n
} \n else { \n var tView = getTView(); \n var lView = getLView(); \n var token =
isTypeProvider(provider) ? provider : resolveForwardRef(provider.provider); \n var providerFactory =
providerToFactory(provider); \n var tNode =
getCurrentTNode(); \n var beginIndex = tNode.providerIndexes & 1048575 /* ProvidersStartIndexMask */; \n
var endIndex = tNode.directiveStart; \n var cptViewProvidersCount = tNode.providerIndexes >> 20 /*
CptViewProvidersCountShift */; \n if (isTypeProvider(provider) || !provider.multi) { \n // Single
provider case: the factory is created and pushed immediately \n var factory = new
NodeInjectorFactory(providerFactory, isViewProvider, directiveInject); \n var existingFactoryIndex =
indexOf(token, tInjectables, isViewProvider ? beginIndex : beginIndex + cptViewProvidersCount, endIndex); \n
if (existingFactoryIndex === -1) { \n diPublicInInjector(getOrCreateNodeInjectorForNode(tNode,
lView), tView, token); \n registerDestroyHooksIfSupported(tView, provider, tInjectables.length); \n
tInjectables.push(token); \n tNode.directiveStart++; \n
tNode.directiveEnd++; \n if (isViewProvider) { \n tNode.providerIndexes +=
1048576 /* CptViewProvidersCountShifter */; \n } \n lInjectablesBlueprint.push(factory); \n
lView.push(factory); \n } \n else { \n
lInjectablesBlueprint[existingFactoryIndex] = factory; \n lView[existingFactoryIndex] = factory; \n
} \n } \n else { \n // Multi provider case: \n // We create a multi factory which is
going to aggregate all the values. \n // Since the output of such a factory depends on content or view
injection, \n // we create two of them, which are linked together. \n // \n // The first one
(for view providers) is always in the first block of the injectables array, \n // and the
second one (for providers) is always in the second block. \n // This is important because view providers
have higher priority. When a multi token \n // is being looked up, the view providers should be found
first. \n // Note that it is not possible to have a multi factory in the third block (directive block). \n
} \n // The algorithm to process multi providers is as follows: \n // 1) If the multi provider comes

```

```

from the `viewProviders` of the component;\n // a) If the special view providers factory doesn't exist, it is
created and pushed.\n // b) Else, the multi provider is added to the existing multi factory.\n // 2)
If the multi provider comes from the `providers` of the component or of another\n // directive;\n //
a) If the multi factory doesn't exist, it is created and provider pushed into it.\n //
It is also linked to the multi factory for view providers, if it exists.\n // b) Else, the multi provider is
added to the existing multi factory.\n var existingProvidersFactoryIndex = indexOf(token, tInjectables,
beginIndex + cptViewProvidersCount, endIndex);\n var existingViewProvidersFactoryIndex =
indexOf(token, tInjectables, beginIndex, beginIndex + cptViewProvidersCount);\n var
doesProvidersFactoryExist = existingProvidersFactoryIndex >= 0 &&\n
IInjectablesBlueprint[existingProvidersFactoryIndex];\n var doesViewProvidersFactoryExist =
existingViewProvidersFactoryIndex >= 0 &&\n
IInjectablesBlueprint[existingViewProvidersFactoryIndex];\n if (isViewProvider &&
!doesViewProvidersFactoryExist ||\n !isViewProvider && !doesProvidersFactoryExist) {\n
// Cases 1.a and 2.a\n diPublicInInjector(getOrCreateNodeInjectorForNode(tNode,
IView), tView, token);\n var factory = multiFactory(isViewProvider ?
multiViewProvidersFactoryResolver : multiProvidersFactoryResolver, IInjectablesBlueprint.length, isViewProvider,
isComponent, providerFactory);\n if (!isViewProvider && doesViewProvidersFactoryExist) {\n
IInjectablesBlueprint[existingViewProvidersFactoryIndex].providerFactory = factory;\n }\n
registerDestroyHooksIfSupported(tView, provider, tInjectables.length, 0);\n
tInjectables.push(token);\n tNode.directiveStart++;\n tNode.directiveEnd++;\n if
(isViewProvider) {\n tNode.providerIndexes += 1048576 /* CptViewProvidersCountShifter */;\n
}\n IInjectablesBlueprint.push(factory);\n IView.push(factory);\n }\n
else {\n
// Cases 1.b and 2.b\n var indexInFactory =
multiFactoryAdd(IInjectablesBlueprint[isViewProvider ? existingViewProvidersFactoryIndex : \n
existingProvidersFactoryIndex], providerFactory, !isViewProvider && isComponent);\n
registerDestroyHooksIfSupported(tView, provider, existingProvidersFactoryIndex > -1 ?
existingProvidersFactoryIndex : \n existingViewProvidersFactoryIndex, indexInFactory);\n
}\n if (!isViewProvider && isComponent && doesViewProvidersFactoryExist) {\n
IInjectablesBlueprint[existingViewProvidersFactoryIndex].componentProviders++;\n }\n }\n
}\n /**\n * Registers the `ngOnDestroy` hook of a provider, if the provider supports destroy hooks.\n *
@param tView `TView` in which to register the hook.\n * @param provider Provider whose hook should be
registered.\n * @param
contextIndex Index under which to find the context for the hook when it's being invoked.\n * @param
indexInFactory Only required for `multi` providers. Index of the provider in the multi\n * provider factory.\n
*/\n function registerDestroyHooksIfSupported(tView, provider, contextIndex, indexInFactory) {\n var
providerIsTypeProvider = isTypeProvider(provider);\n if (providerIsTypeProvider || isClassProvider(provider))
{\n var prototype = (provider.useClass || provider).prototype;\n var ngOnDestroy =
prototype.ngOnDestroy;\n if (ngOnDestroy) {\n var hooks = tView.destroyHooks ||
(tView.destroyHooks = []);\n if (!providerIsTypeProvider && provider.multi) {\n ngDevMode
&&\n assertDefined(indexInFactory, 'indexInFactory when registering multi factory destroy hook');\n
var existingCallbacksIndex = hooks.indexOf(contextIndex);\n
if (existingCallbacksIndex === -1) {\n hooks.push(contextIndex, [indexInFactory,
ngOnDestroy]);\n }\n else {\n hooks[existingCallbacksIndex +
1].push(indexInFactory, ngOnDestroy);\n }\n }\n hooks.push(contextIndex, ngOnDestroy);\n
}\n }\n /**\n * Add a factory in a
multi factory.\n * @returns Index at which the factory was inserted.\n */\n function
multiFactoryAdd(multiFactory, factory, isComponentProvider) {\n if (isComponentProvider) {\n

```

```

multiFactory.componentProviders++;
 }
 return multiFactory.multi.push(factory) - 1;
}

/**
 * Returns the index of item in the array, but only in the begin to end range.
 */
function indexOf(item, arr, begin, end) {
 for (var i = begin; i < end; i++) {
 if (arr[i] === item)
 return i;
 }
 return -1;
}

/**
 * Use this with `multi` providers.
 */
function multiProvidersFactoryResolver(_, tData, lData, tNode) {
 return multiResolve(this.multi, []);
}

/**
 * Use this with `multi` viewProviders.
 */
function multiViewProvidersFactoryResolver(_, tData, lView, tNode) {
 var factories = this.multi;
 var result;
 if (this.providerFactory) {
 var componentCount = this.providerFactory.componentProviders;
 var multiProviders = getNodeInjectable(lView, lView[TVIEW], this.providerFactory.index, tNode);
 // Copy the section of the array which contains `multi` providers from the component
 result = multiProviders.slice(0, componentCount);
 // Insert the `viewProvider` instances.
 multiResolve(factories, result);
 // Copy the section of the array which contains `multi` providers from other directives
 for (var i = componentCount; i < multiProviders.length; i++) {
 result.push(multiProviders[i]);
 }
 // Insert the `viewProvider` instances.
 multiResolve(factories, result);
 }
 return result;
}

/**
 * Maps an array of factories into an array of values.
 */
function multiResolve(factories, result) {
 for (var i = 0; i < factories.length; i++) {
 var factory = factories[i];
 result.push(factory());
 }
 return result;
}

/**
 * Creates a multi factory.
 */
function multiFactory(factoryFn, index, isViewProvider, isComponent, f) {
 var factory = new NodeInjectorFactory(factoryFn, isViewProvider, directiveInject);
 factory.multi = [];
 factory.index = index;
 factory.componentProviders = 0;
 multiFactoryAdd(factory, f, isComponent && !isViewProvider);
 return factory;
}

/**
 * This feature resolves the providers of a directive (or component), and publish them into the DI system, making it visible to others for injection.
 */
/* For example:
 * class ComponentWithProviders {
 * constructor(private greeter: GreeterDE) {}
 * static cmp = defineComponent({
 * type: ComponentWithProviders,
 * selectors: [['component-with-providers']],
 * factory: () => new ComponentWithProviders(directiveInject(GreeterDE as any)),
 * decls: 1,
 * vars: 1,
 * template: function(fs: RenderFlags, ctx: ComponentWithProviders) {
 * if (fs & RenderFlags.Create) {
 * text(0);
 * }
 * if (fs & RenderFlags.Update) {
 * textInterpolate(ctx.greeter.greet());
 * }
 * },
 * features: [ProvidersFeature([GreeterDE])],
 * });
 * }
 * @param definition
 * @codeGenApi
 */
function ProvidersFeature(providers, viewProviders) {
 if (viewProviders === void 0) {
 viewProviders = [];
 }
 return function (definition) {
 definition.providersResolver = function (def, processProvidersFn) {
 return providersResolver(def, processProvidersFn ? processProvidersFn(providers) : providers, viewProviders);
 };
 };
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */

Represents
a component created by a `ComponentFactory`.
Provides access to the component instance and related objects, and provides the means of destroying the instance.
@publicApi
var ComponentRef = /** @class */ (function () {
 function ComponentRef() {}
 return ComponentRef;
})();

/**
 * Base class for a factory that can create a component dynamically.
 */
Instantiate a factory for a given type of component with `resolveComponentFactory`.
Use the resulting `ComponentFactory.create` method to create a component of that type.
@see [Dynamic Components](guide/dynamic-component-loader)
@publicApi
var ComponentFactory = /** @class */ (function () {
 function ComponentFactory() {}
 return ComponentFactory;
})();

function noComponentFactoryError(component) {
 var error = Error("No component factory

```



```

found for \" + stringify(component) + \". Did you add it to @NgModule.entryComponents?\";\n
error[ERROR_COMPONENT] = component;\n return error;\n } \n var ERROR_COMPONENT =
'ngComponent';\n function getComponent$(error) {\n return error[ERROR_COMPONENT];\n } \n var
_NullComponentFactoryResolver = /** @class */ (function () {\n function _NullComponentFactoryResolver()\n {\n _NullComponentFactoryResolver.prototype.resolveComponentFactory = function (component) {\n
 throw noComponentFactoryError(component);\n };\n return _NullComponentFactoryResolver;\n
 }();\n /**\n * A simple registry that maps `Components` to generated `ComponentFactory` classes\n * that
can be used to create instances of components.\n * Use to obtain the factory for a given component type,\n *
then use the factory's `create()` method to create a component of that type.\n *\n * @see [Dynamic
Components](guide/dynamic-component-loader)\n
 * @publicApi\n */\n var ComponentFactoryResolver = /** @class */ (function () {\n function
ComponentFactoryResolver() {\n }\n return ComponentFactoryResolver;\n }());\n
ComponentFactoryResolver.NULL = new _NullComponentFactoryResolver();\n var
CodegenComponentFactoryResolver = /** @class */ (function () {\n function
CodegenComponentFactoryResolver(factories, _parent, _ngModule) {\n this._parent = _parent;\n
this._ngModule = _ngModule;\n this._factories = new Map();\n for (var i = 0; i < factories.length; i++)\n
{\n var factory = factories[i];\n this._factories.set(factory.componentType, factory);\n }\n
 }\n CodegenComponentFactoryResolver.prototype.resolveComponentFactory = function (component) {\n
 var factory = this._factories.get(component);\n if (!factory && this._parent) {\n
 factory = this._parent.resolveComponentFactory(component);\n }\n if (!factory) {\n throw
noComponentFactoryError(component);\n }\n return new
ComponentFactoryBoundToModule(factory, this._ngModule);\n };\n return
CodegenComponentFactoryResolver;\n }());\n var ComponentFactoryBoundToModule = /** @class */
(function (_super) {\n __extends(ComponentFactoryBoundToModule, _super);\n function
ComponentFactoryBoundToModule(factory, ngModule) {\n var _this = _super.call(this) || this;\n
 _this.factory = factory;\n _this.ngModule = ngModule;\n _this.selector = factory.selector;\n
 _this.componentType = factory.componentType;\n _this.ngContentSelectors = factory.ngContentSelectors;\n
 _this.inputs = factory.inputs;\n _this.outputs = factory.outputs;\n return _this;\n }\n
 ComponentFactoryBoundToModule.prototype.create
 = function (injector, projectableNodes, rootSelectorOrNode, ngModule) {\n return
this.factory.create(injector, projectableNodes, rootSelectorOrNode, ngModule || this.ngModule);\n };\n
 return ComponentFactoryBoundToModule;\n })(ComponentFactory);\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n */\n function noop() {\n var args = [];\n
 for (var _i = 0; _i < arguments.length; _i++) {\n args[_i] = arguments[_i];\n }\n // Do nothing.\n
 }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
 */\n /**\n * Creates an ElementRef from
the most recent node.\n *\n * @returns The ElementRef instance to use\n */\n function injectElementRef()\n {\n return createElementRef(getCurrentTNode(), getLView());\n }\n /**\n * Creates an ElementRef given
a node.\n *\n * @param tNode The node for which you'd like an ElementRef\n * @param lView The view to
which the node belongs\n * @returns The ElementRef instance to use\n */\n function
createElementRef(tNode, lView) {\n return new ElementRef(getNativeByTNode(tNode, lView));\n }\n var
SWITCH_ELEMENT_REF_FACTORY__POST_R3__ = injectElementRef;\n var
SWITCH_ELEMENT_REF_FACTORY__PRE_R3__ = noop;\n var SWITCH_ELEMENT_REF_FACTORY =
SWITCH_ELEMENT_REF_FACTORY__PRE_R3__;\n /**\n * A wrapper around a native element inside of a
View.\n *\n * An `ElementRef` is backed by a render-specific element. In the browser, this is usually a DOM\n
 * element.\n *\n * @security Permitting direct access to

```

the DOM can make your application more vulnerable to XSS attacks. Carefully review any use of `ElementRef` in your code. For more detail, see the [Security Guide](http://g.co/ng/security).

`@publicApi` // Note: We don't expose things like `Injector`, `ViewContainer`, ... here, // i.e. users have to ask for what they need. With that, we can build better analysis tools // and could do better codegen in the future.

```

var ElementRef = /** @class */ (function () {
 function ElementRef(nativeElement) {
 this.nativeElement = nativeElement;
 }
 return ElementRef;
})();
/**
 * @internal
 * @nocollapse
 */
ElementRef.__NG_ELEMENT_ID__ = SWITCH_ELEMENT_REF_FACTORY;
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
var Renderer2Interceptor = new InjectionToken('Renderer2Interceptor');
/**
 * Creates and initializes a custom renderer that implements the `Renderer2` base class.
 */
@publicApi
var
 RendererFactory2 = /** @class */ (function () {
 function RendererFactory2() {}
 return RendererFactory2;
 })();
/**
 * Extend this base class to implement custom rendering. By default, Angular
 * renders a template into DOM. You can use custom rendering to intercept rendering calls, or to
 * render to something other than DOM.
 * Create your custom renderer using `RendererFactory2`.
 * Use a custom renderer to bypass Angular's templating and make custom UI changes that can't be expressed
 * declaratively.
 * For example if you need to set a property or an attribute whose name is not statically
 * known, use the `setProperty()` or `setAttribute()`
 method.
 */
@publicApi
var
 Renderer2 = /** @class */ (function () {
 function Renderer2() {}
 return Renderer2;
 })();
/**
 * @internal
 * @nocollapse
 */
Renderer2.__NG_ELEMENT_ID__ = function () { return SWITCH_RENDERER2_FACTORY(); };
var
 SWITCH_RENDERER2_FACTORY__POST_R3__ = injectRenderer2;
var
 SWITCH_RENDERER2_FACTORY__PRE_R3__ = noop;
var
 SWITCH_RENDERER2_FACTORY = SWITCH_RENDERER2_FACTORY__PRE_R3__;
/** Returns a Renderer2 (or throws when application was bootstrapped with Renderer3) */
function getOrCreateRenderer2(IView) {
 var renderer = IView[RENDERER];
 if (ngDevMode && !isProceduralRenderer(renderer)) {
 throw new Error('Cannot inject Renderer2 when the application uses Renderer3!');
 }
 return renderer;
}
/**
 * Injects a Renderer2 for the current component.
 */
function injectRenderer2() {
 // We need the Renderer to be based on the component that it's being injected into, however since // DI happens before we've entered its view, `getLView` will return the parent view instead.
 var IView = getLView();
 var tNode = getCurrentTNode();
 var nodeAtIndex = getComponentLViewByIndex(tNode.index, IView);
 return getOrCreateRenderer2(isLView(nodeAtIndex) ? nodeAtIndex : IView);
}
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
Sanitizer is used by the views to sanitize potentially dangerous values.
@publicApi
var
 Sanitizer = /** @class */ (function () {
 function Sanitizer() {}
 return Sanitizer;
 })();
/** @nocollapse */
Sanitizer.prototype = defineInjectable({
 token: Sanitizer,
 providedIn: 'root',
 factory: function () { return null; },
});
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
@description
Represents the version of Angular
@publicApi
var
 Version = /** @class */ (function () {
 function Version(full) {
 this.full = full;
 this.major = full.split('.')[0];
 this.minor = full.split('.')[1];
 this.patch = full.split('.').slice(2).join('.');
 }
 return Version;
 })();
/**
 * @publicApi
 */
var
 VERSION = new Version('11.0.2');
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 */
var
 DefaultIterableDifferFactory = /** @class */ (function () {
 function DefaultIterableDifferFactory() {}
 DefaultIterableDifferFactory.prototype.supports = function (obj) {
 return isListLikeIterable(obj);
 };
 });

```

```

DefaultIterableDifferFactory.prototype.create = function (trackByFn) {\n return new
DefaultIterableDiffer(trackByFn);\n };\n return DefaultIterableDifferFactory;\n }());\n var
trackByIdentity = function (index, item) { return item; };\n var 0$b = trackByIdentity;\n /**\n * @deprecated
v4.0.0 - Should not be part of public API.\n * @publicApi\n */\n var DefaultIterableDiffer = /** @class */
(function () {\n function DefaultIterableDiffer(trackByFn) {\n this.length = 0;\n // Keeps track of
the used records at any point in time (during & across `_check()` calls)\n this._linkedRecords = null;\n // Keeps track of the removed records at any point in time during
`_check()` calls.\n this._unlinkedRecords = null;\n this._previousItHead = null;\n this._itHead =
null;\n this._itTail = null;\n this._additionsHead = null;\n this._additionsTail = null;\n
this._movesHead = null;\n this._movesTail = null;\n this._removalsHead = null;\n
this._removalsTail = null;\n // Keeps track of records where custom track by is the same, but item identity has
changed\n this._identityChangesHead = null;\n this._identityChangesTail = null;\n
this._trackByFn = trackByFn || trackByIdentity;\n }\n DefaultIterableDiffer.prototype.forEachItem =
function (fn) {\n var record;\n for (record = this._itHead; record !== null; record = record._next) {\n
fn(record);\n }\n };\n DefaultIterableDiffer.prototype.forEachOperation = function (fn) {\n var nextIt =
this._itHead;\n var nextRemove = this._removalsHead;\n var addRemoveOffset = 0;\n var
moveOffsets = null;\n while (nextIt || nextRemove) {\n // Figure out which is the next record to
process\n // Order: remove, add, move\n var record = !nextRemove ||\n nextIt &&\n
nextIt.currentIndex <\n getNextIndex(nextRemove, addRemoveOffset,\n
moveOffsets) ?\n nextIt :\n nextRemove;\n var adjPreviousIndex =
getNextIndex(record, addRemoveOffset, moveOffsets);\n var currentIndex = record.currentIndex;\n
 // consume the item, and adjust the addRemoveOffset and update moveDistance if necessary\n if
(record === nextRemove)\n {\n addRemoveOffset--;\n nextRemove = nextRemove._nextRemoved;\n }\n
 else {\n nextIt = nextIt._next;\n if (record.previousIndex == null) {\n
addRemoveOffset++;\n }\n else {\n // INVARIANT: currentIndex <
previousIndex\n if (!moveOffsets)\n moveOffsets = [];\n var
localMovePreviousIndex = adjPreviousIndex - addRemoveOffset;\n var localCurrentIndex =
currentIndex - addRemoveOffset;\n if (localMovePreviousIndex != localCurrentIndex) {\n
 for (var i = 0; i < localMovePreviousIndex; i++) {\n var offset = i < moveOffsets.length ?
moveOffsets[i] : (moveOffsets[i] = 0);\n var index = offset + i;\n
 if (localCurrentIndex <= index && index < localMovePreviousIndex) {\n
 moveOffsets[i] = offset + 1;\n }\n }\n var previousIndex =
record.previousIndex;\n moveOffsets[previousIndex] = localCurrentIndex -
localMovePreviousIndex;\n }\n }\n if (adjPreviousIndex !==
currentIndex) {\n fn(record, adjPreviousIndex, currentIndex);\n }\n }\n }\n
 }\n DefaultIterableDiffer.prototype.forEachPreviousItem = function (fn) {\n var record;\n for (record =
this._previousItHead; record !== null; record = record._nextPrevious) {\n fn(record);\n }\n };\n
 DefaultIterableDiffer.prototype.forEachAddedItem = function (fn) {\n var record;\n for (record = this._additionsHead; record !== null; record = record._nextAdded) {\n
fn(record);\n }\n };\n DefaultIterableDiffer.prototype.forEachMovedItem = function (fn) {\n var record;\n
for (record = this._movesHead; record !== null; record = record._nextMoved) {\n fn(record);\n }\n
 };\n DefaultIterableDiffer.prototype.forEachRemovedItem = function (fn) {\n var record;\n for
(record = this._removalsHead; record !== null; record = record._nextRemoved) {\n fn(record);\n }\n
 };\n DefaultIterableDiffer.prototype.forEachIdentityChange = function (fn) {\n var record;\n
for (record = this._identityChangesHead; record !== null; record = record._nextIdentityChange) {\n
fn(record);\n }\n };\n DefaultIterableDiffer.prototype.diff = function (collection) {\n

```

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 if (collection == null)\n collection = [];\n if (!isListLikeIterable(collection)) {\n
throw new Error("Error trying to diff \"" + stringify(collection) + "\". Only arrays and iterables are allowed");\n
 }\n if (this.check(collection)) {\n return this;\n }\n else {\n return null;\n
 }\n };\n DefaultIterableDiffer.prototype.onDestroy = function () {\n
DefaultIterableDiffer.prototype.check = function (collection) {\n var _this = this;\n this._reset();\n
 var record = this._itHead;\n var mayBeDirty = false;\n var index;\n var item;\n var\n
itemTrackBy;\n if (Array.isArray(collection)) {\n this.length = collection.length;\n for (var\n
index_1 = 0; index_1 < this.length; index_1++) {\n item = collection[index_1];\n
 itemTrackBy = this._trackByFn(index_1, item);\n if (record === null ||\n
!Object.is(record.trackById, itemTrackBy)) {\n record = this._mismatch(record, item, itemTrackBy,\n
index_1);\n mayBeDirty = true;\n }\n else {\n if (mayBeDirty)\n
{\n // TODO(misko): can we limit this to duplicates only?\n record =\n
this._verifyReinsertion(record, item, itemTrackBy, index_1);\n }\n if\n
(!Object.is(record.item, item))\n this._addIdentityChange(record, item);\n }\n
 record = record._next;\n }\n }\n else {\n index = 0;\n
iterateListLike(collection, function (item) {\n itemTrackBy = _this._trackByFn(index, item);\n
 if (record === null || !Object.is(record.trackById, itemTrackBy)) {\n record =\n
_this._mismatch(record, item, itemTrackBy, index);\n mayBeDirty = true;\n }\n
 else {\n if (mayBeDirty) {\n // TODO(misko): can we limit this to duplicates only?\n
 record = _this._verifyReinsertion(record, item, itemTrackBy, index);\n }\n
 if (!Object.is(record.item, item))\n _this._addIdentityChange(record, item);\n }\n
 record = record._next;\n index++;\n });\n this.length = index;\n }\n
 this._truncate(record);\n this.collection = collection;\n return this.isDirty;\n };\n
Object.defineProperty(DefaultIterableDiffer.prototype,\n
 \"isDirty\", {\n /* CollectionChanges is considered dirty if it has any additions, moves, removals, or\n
identity\n * changes.\n */\n get: function () {\n return this._additionsHead !== null ||\n
this._movesHead !== null ||\n this._removalsHead !== null || this._identityChangesHead !== null;\n
 },\n enumerable: false,\n configurable: true\n });\n /**\n * Reset the state of the change\n
objects to show no changes. This means set previousKey to\n * currentKey, and clear all of the queues\n
(additions, moves, removals).\n * Set the previousIndexes of moved and added items to their currentIndexes\n
 * Reset the list of additions, moves and removals\n */\n * @internal\n */\n
DefaultIterableDiffer.prototype._reset = function () {\n if (this.isDirty) {\n var record = void 0;\n
 for (record = this._previousItHead = this._itHead; record !== null; record = record._next) {\n
 record._nextPrevious = record._next;\n }\n for (record = this._additionsHead; record !== null;\n
record = record._nextAdded) {\n record.previousIndex = record.currentIndex;\n }\n
 this._additionsHead = this._additionsTail = null;\n for (record = this._movesHead; record !== null; record\n
= record._nextMoved) {\n record.previousIndex = record.currentIndex;\n }\n
 this._movesHead = this._movesTail = null;\n this._removalsHead = this._removalsTail = null;\n
 this._identityChangesHead = this._identityChangesTail = null;\n // TODO(vicb): when assert gets\n
supported\n // assert(!this.isDirty);\n }\n }; \n /**\n * This is the core function which\n
handles differences between collections.\n */\n * - `record` is the record which we saw at this position last\n
time. If null then it is a new\n * item.\n * - `item` is the current item in the collection\n * - `index` is\n
the position of the item in the collection\n */\n * @internal\n */\n
DefaultIterableDiffer.prototype._mismatch = function (record, item, itemTrackBy, index) {\n // The previous\n
record after which we will append the current one.\n var previousRecord;\n if (record === null) {\n
 previousRecord = this._itTail;\n }\n else {\n previousRecord = record._prev;\n
 }\n // Remove the record from the collection since we know it does not match the item.\n
 this._remove(record);\n }\n // Attempt to see if we have seen the item before.\n record =

```

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this._linkedRecords === null
? null : this._linkedRecords.get(itemTrackBy, index);\n if (record !== null) {\n // We have seen this
before, we need to move it forward in the collection.\n // But first we need to check if identity changed, so
we can update in view if necessary\n if (!Object.is(record.item, item))\nthis._addIdentityChange(record, item);\n this._moveAfter(record, previousRecord, index);\n }\n else {\n // Never seen it, check evicted list.\n record = this._unlinkedRecords === null ? null :
this._unlinkedRecords.get(itemTrackBy, null);\n if (record !== null) {\n // It is an item which
we have evicted earlier: reinsert it back into the list.\n // But first we need to check if identity changed,
so we can update in view if necessary\n if (!Object.is(record.item, item))\nthis._addIdentityChange(record, item);\n this._reinsertAfter(record, previousRecord, index);\n }\n } else {\n // It is a new item: add it.\n record =\nthis._addAfter(new IterableChangeRecord_(item, itemTrackBy), previousRecord, index);\n }\n }\n return record;\n };\n /**\n * This check is only needed if an array contains duplicates. (Short
circuit of nothing dirty)\n *\n * Use case: `[a, a] => [b, a, a]`\n *\n * If we did not have this
check then the insertion of `b` would:\n * 1) evict first `a`\n * 2) insert `b` at `0` index.\n * 3)
leave `a` at index `1` as is. <-- this is wrong!\n * 3) reinsert `a` at index 2. <-- this is wrong!\n *\n *
The correct behavior is:\n * 1) evict first `a`\n * 2) insert `b` at `0`
index.\n * 3) reinsert `a` at index 1.\n * 3) move `a` at from `1` to `2`.\n *\n *\n *
Double check that we have not evicted a duplicate item. We need to check if the item type may\n * have
already been removed:\n * The insertion of b will evict the first 'a'. If we don't reinsert it now it will be
reinserted\n * at the end. Which will show up as the two 'a's switching position. This is incorrect, since a\n
* better way to think of it is as insert of 'b' rather than switch 'a' with 'b' and then add 'a'\n * at the end.\n
*\n * @internal\n */\n DefaultIterableDiffer.prototype._verifyReinsertion = function (record, item,
itemTrackBy, index) {\n var reinsertRecord = this._unlinkedRecords === null ? null :
this._unlinkedRecords.get(itemTrackBy, null);\n if (reinsertRecord !== null) {\n record =
this._reinsertAfter(reinsertRecord, record._prev,
index);\n }\n else if (record.currentIndex !== index) {\n record.currentIndex = index;\n
this._addToMoves(record, index);\n }\n return record;\n };\n /**\n * Get rid of any
excess {@link IterableChangeRecord_}s from the previous collection\n *\n * - `record` The first excess
{@link IterableChangeRecord_}.\n *\n * @internal\n */\n DefaultIterableDiffer.prototype._truncate = function (record) {\n // Anything after that needs to be
removed;\n while (record !== null) {\n var nextRecord = record._next;\n
this._addToRemovals(this._unlink(record));\n record = nextRecord;\n }\n if
(this._unlinkedRecords !== null) {\n this._unlinkedRecords.clear();\n }\n if
(this._additionsTail !== null) {\n this._additionsTail._nextAdded
= null;\n }\n if (this._movesTail !== null) {\n this._movesTail._nextMoved = null;\n
 }\n if (this._itTail !== null) {\n this._itTail._next = null;\n }\n if (this._removalsTail
!== null) {\n this._removalsTail._nextRemoved = null;\n }\n if (this._identityChangesTail
!== null) {\n this._identityChangesTail._nextIdentityChange = null;\n }\n };\n /**
*\n * @internal\n */\n DefaultIterableDiffer.prototype._reinsertAfter = function (record, prevRecord, index) {\n
if (this._unlinkedRecords !== null) {\n this._unlinkedRecords.remove(record);\n }\n var prev
= record._prevRemoved;\n var next = record._nextRemoved;\n if (prev === null) {\n
this._removalsHead = next;\n }\n else {\n prev._nextRemoved
= next;\n }\n if (next === null) {\n this._removalsTail = prev;\n }\n else {\n
next._prevRemoved = prev;\n }\n this._insertAfter(record, prevRecord, index);\n
this._addToMoves(record, index);\n return record;\n };\n /** @internal\n */\n DefaultIterableDiffer.prototype._moveAfter = function (record, prevRecord, index) {\n
this._unlink(record);\n this._insertAfter(record, prevRecord, index);\n this._addToMoves(record,

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index);\n return record;\n };\n /** @internal */\n DefaultIterableDiffer.prototype._addAfter =
function (record, prevRecord, index) {\n this._insertAfter(record, prevRecord, index);\n if
(this._additionsTail === null) {\n // TODO(vicb):\n // assert(this._additionsHead === null);\n this._additionsTail = this._additionsHead
= record;\n }\n else {\n // TODO(vicb):\n // assert(_additionsTail._nextAdded ===
null);\n // assert(record._nextAdded === null);\n this._additionsTail =
this._additionsTail._nextAdded = record;\n }\n return record;\n };\n /** @internal */\n DefaultIterableDiffer.prototype._insertAfter = function (record, prevRecord, index) {\n // TODO(vicb):\n // assert(record !== prevRecord);\n // assert(record._next === null);\n // assert(record._prev ===
null);\n var next = prevRecord === null ? this._itHead : prevRecord._next;\n // TODO(vicb):\n // assert(next !== record);\n // assert(prevRecord !== record);\n record._next = next;\n record._prev = prevRecord;\n if (next === null) {\n this._itTail = record;\n }\n else {\n next._prev = record;\n }\n if (prevRecord === null) {\n this._itHead =
record;\n }\n else {\n prevRecord._next = record;\n }\n if (this._linkedRecords
=== null) {\n this._linkedRecords = new _DuplicateMap();\n }\n this._linkedRecords.put(record);\n record.currentIndex = index;\n return record;\n };\n /**
@internal */\n DefaultIterableDiffer.prototype._remove = function (record) {\n return
this._addToRemovals(this._unlink(record));\n };\n /** @internal */\n DefaultIterableDiffer.prototype._unlink = function (record) {\n if (this._linkedRecords !== null) {\n
this._linkedRecords.remove(record);\n }\n var prev = record._prev;\n var next = record._next;\n // TODO(vicb):\n // assert((record._prev
= null) === null);\n // assert((record._next = null) === null);\n if (prev === null) {\n
this._itHead = next;\n }\n else {\n prev._next = next;\n }\n if (next === null)
{\n this._itTail = prev;\n }\n else {\n next._prev = prev;\n }\n return
record;\n };\n /** @internal */\n DefaultIterableDiffer.prototype._addToMoves = function (record,
toIndex) {\n // TODO(vicb):\n // assert(record._nextMoved === null);\n if
(record.previousIndex === toIndex) {\n return record;\n }\n if (this._movesTail === null) {\n
 // TODO(vicb):\n // assert(_movesHead === null);\n this._movesTail = this._movesHead
= record;\n }\n else {\n // TODO(vicb):\n // assert(_movesTail._nextMoved === null);\n this._movesTail = this._movesTail._nextMoved =
record;\n }\n return record;\n };\n DefaultIterableDiffer.prototype._addToRemovals =
function (record) {\n if (this._unlinkedRecords === null) {\n this._unlinkedRecords = new
_DuplicateMap();\n }\n this._unlinkedRecords.put(record);\n record.currentIndex = null;\n
record._nextRemoved = null;\n if (this._removalsTail === null) {\n // TODO(vicb):\n //
assert(_removalsHead === null);\n this._removalsTail = this._removalsHead = record;\n }\n
record._prevRemoved = null;\n }\n else {\n // TODO(vicb):\n //
assert(_removalsTail._nextRemoved === null);\n // assert(record._nextRemoved === null);\n record._prevRemoved = this._removalsTail;\n
 this._removalsTail = this._removalsTail._nextRemoved = record;\n }\n return record;\n };\n /** @internal */\n DefaultIterableDiffer.prototype._addIdentityChange = function (record, item) {\n
 record.item = item;\n if (this._identityChangesTail === null) {\n this._identityChangesTail =
this._identityChangesHead = record;\n }\n else {\n this._identityChangesTail =
this._identityChangesTail._nextIdentityChange = record;\n }\n return record;\n };\n return
DefaultIterableDiffer;\n})();\n var IterableChangeRecord_ = /** @class */ (function () {\n function
IterableChangeRecord_(item, trackById) {\n this.item = item;\n this.trackById = trackById;\n
 this.currentIndex = null;\n this.previousIndex = null;\n /** @internal */\n this._nextPrevious
= null;\n /** @internal */\n this._prev = null;\n /** @internal */\n this._next = null;\n
 /** @internal */\n this._prevDup = null;\n /** @internal */\n this._nextDup = null;\n

```

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/** @internal */\n this._prevRemoved = null;\n /** @internal */\n this._nextAdded = null;\n /** @internal */\n this._nextIdentityChange = null;\n }\n return IterableChangeRecord_;\n }());\n // A linked list of IterableChangeRecords with the same IterableChangeRecord_item\n _DuplicateItemRecordList = /** @class */ (function () {\n function _DuplicateItemRecordList() {\n /** @internal */\n this._head = null;\n /** @internal */\n this._tail = null;\n }\n /**\n * Append the record to the list of duplicates.\n * Note: by design all records in the list of duplicates hold the same value in record.item.\n */\n _DuplicateItemRecordList.prototype.add = function (record) {\n if (this._head === null) {\n this._head = this._tail = record;\n record._nextDup = null;\n record._prevDup = null;\n } else {\n // TODO(vicb):\n // assert(record.item == _head.item ||\n // record.item is num && record.item.isNaN &&\n // _head.item is num && _head.item.isNaN);\n this._tail._nextDup = record;\n record._prevDup = this._tail;\n record._nextDup = null;\n this._tail = record;\n }\n }; \n // Returns a\n IterableChangeRecord_ having IterableChangeRecord_.trackById == trackById and\n //\n IterableChangeRecord_.currentIndex\n >= atOrAfterIndex\n _DuplicateItemRecordList.prototype.get = function (trackById, atOrAfterIndex) {\n var record;\n for (record = this._head; record !== null; record = record._nextDup) {\n if\n ((atOrAfterIndex === null || atOrAfterIndex <= record.currentIndex) &&\n Object.is(record.trackById,\n trackById)) {\n return record;\n }\n }\n return null;\n }; \n /**\n * Remove one { @link IterableChangeRecord_ } from the list of duplicates.\n * Returns whether the list of duplicates is empty.\n */\n _DuplicateItemRecordList.prototype.remove = function (record) {\n // TODO(vicb):\n // assert() {\n // // verify that the record being removed is in the list.\n // for\n (IterableChangeRecord_ cursor = _head; cursor != null; cursor = cursor._nextDup) {\n // if (identical(cursor, record)) return true;\n // }\n // return false;\n // });\n var prev\n = record._prevDup;\n var next = record._nextDup;\n if (prev === null) {\n this._head =\n next;\n }\n else {\n prev._nextDup = next;\n }\n if (next === null) {\n this._tail = prev;\n }\n else {\n next._prevDup = prev;\n }\n return this._head\n === null;\n }; \n return _DuplicateItemRecordList;\n }());\n var _DuplicateMap = /** @class */\n (function () {\n function _DuplicateMap() {\n this.map = new Map();\n }\n _DuplicateMap.prototype.put = function (record) {\n var key = record.trackById;\n var duplicates =\n this.map.get(key);\n if (!duplicates) {\n duplicates = new _DuplicateItemRecordList();\n this.map.set(key, duplicates);\n }\n duplicates.add(record);\n }; \n /**\n * Retrieve the `value` using key. Because the IterableChangeRecord_ value may be one which we\n * have already iterated over, we use the `atOrAfterIndex` to pretend it is not there.\n * Use case: `[a, b, c, a, a]` if we are at index `3` which is the second `a` then asking if we\n * have any more `a`s needs to return the second `a`.\n */\n _DuplicateMap.prototype.get = function (trackById, atOrAfterIndex) {\n var key\n = trackById;\n var recordList = this.map.get(key);\n return recordList ? recordList.get(trackById,\n atOrAfterIndex) : null;\n }; \n /**\n * Removes a { @link IterableChangeRecord_ } from the list of\n duplicates.\n * The list of duplicates also is removed from the map if it gets empty.\n */\n _DuplicateMap.prototype.remove\n = function (record) {\n var key = record.trackById;\n var recordList = this.map.get(key);\n // Remove the list of duplicates when it gets empty\n if (recordList.remove(record)) {\n this.map.delete(key);\n }\n return record;\n }; \n Object.defineProperty(_DuplicateMap.prototype, "isEmpty", {\n get: function () {\n return\n this.map.size === 0;\n },\n enumerable: false,\n configurable: true\n });\n _DuplicateMap.prototype.clear = function () {\n this.map.clear();\n }; \n return _DuplicateMap;\n }());\n function getPreviousIndex(item, addRemoveOffset, moveOffsets) {\n var previousIndex =\n item.previousIndex;\n if (previousIndex === null)\n return previousIndex;\n var moveOffset = 0;\n
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 if (moveOffsets && previousIndex < moveOffsets.length)
 {\n moveOffset = moveOffsets[previousIndex];\n }\n return previousIndex + addRemoveOffset +
moveOffset;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n var DefaultKeyValueDifferFactory = /** @class */ (function () {\n function
DefaultKeyValueDifferFactory() {\n }\n DefaultKeyValueDifferFactory.prototype.supports = function
(obj) {\n return obj instanceof Map || isJsObject(obj);\n };\n DefaultKeyValueDifferFactory.prototype.create = function () {\n return new DefaultKeyValueDiffer();\n };\n return DefaultKeyValueDifferFactory;\n }());\n var DefaultKeyValueDiffer = /** @class */ (function () {\n function
DefaultKeyValueDiffer() {\n this._records = new Map();\n this._mapHead = null;\n // _appendAfter is used in the check loop\n this._appendAfter = null;\n this._previousMapHead = null;\n this._changesHead = null;\n this._changesTail = null;\n this._additionsHead = null;\n this._additionsTail = null;\n this._removalsHead = null;\n this._removalsTail = null;\n }\n Object.defineProperty(DefaultKeyValueDiffer.prototype, "isDirty", {\n get: function () {\n return this._additionsHead !== null || this._changesHead !== null ||\nthis._removalsHead !== null;\n },\n enumerable: false,\n configurable: true\n });\n DefaultKeyValueDiffer.prototype.forEachItem = function (fn) {\n var record;\n for (record =
this._mapHead; record !== null; record = record._next) {\n fn(record);\n }\n }\n DefaultKeyValueDiffer.prototype.forEachPreviousItem = function (fn) {\n var record;\n for (record =
this._previousMapHead; record !== null; record = record._nextPrevious) {\n fn(record);\n }\n }\n DefaultKeyValueDiffer.prototype.forEachChangedItem = function (fn) {\n var record;\n for
(record = this._changesHead; record !== null; record = record._nextChanged) {\n fn(record);\n }\n }\n DefaultKeyValueDiffer.prototype.forEachAddedItem = function (fn) {\n var record;\n for
(record = this._additionsHead; record !== null; record = record._nextAdded) {\n fn(record);\n }\n }\n DefaultKeyValueDiffer.prototype.forEachRemovedItem = function (fn) {\n var record;\n for
(record = this._removalsHead; record !== null; record = record._nextRemoved) {\n fn(record);\n }\n }\n DefaultKeyValueDiffer.prototype.diff = function (map) {\n if (!map) {\n map = new
Map();\n }\n else if (!(map instanceof Map || isJsObject(map))) {\n throw new Error("Error
trying to diff \"" + stringify(map) + "\". Only maps and objects are allowed");\n }\n return
this.check(map) ? this : null;\n }\n DefaultKeyValueDiffer.prototype.onDestroy = function () {\n }\n\n /**\n * Check the current state of the map vs the previous.\n * The algorithm is optimised for when the
keys do no change.\n */\n DefaultKeyValueDiffer.prototype.check = function (map) {\n var _this =
this;\n this._reset();\n var insertBefore = this._mapHead;\n this._appendAfter = null;\n this._forEach(map, function (value, key) {\n if (insertBefore && insertBefore.key === key) {\n _this._maybeAddToChanges(insertBefore, value);\n _this._appendAfter = insertBefore;\n insertBefore = insertBefore._next;\n }\n else {\n var record =
_this._getOrCreateRecordForKey(key, value);\n insertBefore =
_this._insertBeforeOrAppend(insertBefore, record);\n }\n });\n // Items remaining at the end
of the list have been deleted\n if (insertBefore) {\n if (insertBefore._prev) {\n insertBefore._prev._next = null;\n }\n this._removalsHead = insertBefore;\n for (var
record = insertBefore; record !== null; record = record._nextRemoved) {\n if (record ===
this._mapHead) {\n this._mapHead = null;\n }\n }\n this._records.delete(record.key);\n record._nextRemoved = record._next;\n record.previousValue = record.currentValue;\n record.currentValue = null;\n record._prev = null;\n record._next = null;\n }\n // Make sure tails have no
next records from previous runs\n if (this._changesTail)\n this._changesTail._nextChanged = null;\n if (this._additionsTail)\n this._additionsTail._nextAdded = null;\n return this.isDirty;\n }\n\n /**\n * Inserts a record before `before` or append at the end of the list when `before` is null.\n */\n }

```



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 * Notes:\n * - This method appends at `this._appendAfter`,\n * - This method updates\n `this._appendAfter`,\n * - The return value is the new value for the insertion pointer.\n */\n\nDefaultKeyValueDiffer.prototype._insertBeforeOrAppend = function (before, record) {\n if\n (before) {\n var prev = before._prev;\n record._next = before;\n record._prev = prev;\n before._prev = record;\n if (prev) {\n prev._next = record;\n }\n if\n (before === this._mapHead) {\n this._mapHead = record;\n }\n this._appendAfter =\n before;\n return before;\n }\n if (this._appendAfter) {\n this._appendAfter._next =\n record;\n record._prev = this._appendAfter;\n }\n else {\n this._mapHead =\n record;\n }\n this._appendAfter = record;\n return null;\n};\n\nDefaultKeyValueDiffer.prototype._getOrCreateRecordForKey = function (key, value) {\n if\n (this._records.has(key)) {\n var record_1 = this._records.get(key);\n this._maybeAddToChanges(record_1,\n value);\n var prev = record_1._prev;\n var next = record_1._next;\n if (prev) {\n prev._next = next;\n }\n if (next) {\n next._prev = prev;\n }\n record_1._next = null;\n record_1._prev = null;\n return record_1;\n }\n var record\n = new KeyValueChangeRecord_(key);\n this._records.set(key, record);\n record.currentValue =\n value;\n this._addToAdditions(record);\n return record;\n};\n\n/** @internal */\n\nDefaultKeyValueDiffer.prototype._reset = function () {\n if (this.isDirty) {\n var record = void 0;\n // let `_previousMapHead` contain the state of the map before the changes\n this._previousMapHead = this._mapHead;\n for (record = this._previousMapHead;\n record !== null; record = record._next) {\n record._nextPrevious = record._next;\n }\n // Update `record.previousValue` with the value of the item before the changes\n // We need to update all\n changed items (that's those which have been added and changed)\n for (record = this._changesHead; record\n !== null; record = record._nextChanged) {\n record.previousValue = record.currentValue;\n }\n for (record = this._additionsHead; record !== null; record = record._nextAdded) {\n record.previousValue = record.currentValue;\n }\n this._changesHead = this._changesTail =\n null;\n this._additionsHead = this._additionsTail = null;\n this._removalsHead = null;\n }\n};\n\n// Add the record or a given key to the list of changes only when the value has actually changed\n\nDefaultKeyValueDiffer.prototype._maybeAddToChanges = function (record, newValue) {\n if\n (!Object.is(newValue, record.currentValue)) {\n record.previousValue = record.currentValue;\n record.currentValue = newValue;\n this._addToChanges(record);\n }\n};\n\nDefaultKeyValueDiffer.prototype._addToAdditions = function (record) {\n if (this._additionsHead === null)\n {\n this._additionsHead = this._additionsTail = record;\n }\n else {\n this._additionsTail._nextAdded = record;\n this._additionsTail = record;\n }\n};\n\nDefaultKeyValueDiffer.prototype._addToChanges = function (record) {\n if (this._changesHead === null)\n {\n this._changesHead = this._changesTail = record;\n }\n else {\n this._changesTail._nextChanged = record;\n this._changesTail = record;\n }\n};\n\n/** @internal */\n\nDefaultKeyValueDiffer.prototype._forEach = function (obj, fn) {\n if (obj instanceof Map) {\n obj.forEach(fn);\n }\n else {\n Object.keys(obj).forEach(function (k) { return fn(obj[k], k);\n });\n }\n};\n\nreturn DefaultKeyValueDiffer;\n\n})();\n\nvar KeyValueChangeRecord_ = /**\n * @class */ (function () {\n function KeyValueChangeRecord_(key) {\n this.key = key;\n this.previousValue = null;\n this.currentValue = null;\n /** @internal */\n this._nextPrevious =\n null;\n /** @internal */\n this._next = null;\n /** @internal */\n this._prev = null;\n /** @internal */\n this._nextAdded = null;\n /** @internal */\n this._nextRemoved = null;\n /** @internal */\n this._nextChanged = null;\n }\n return KeyValueChangeRecord_;\n\n})();\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an

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MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
/**
 * A repository of different iterable diffing strategies used by NgFor, NgClass, and others.
 */
@publicApi
var IterableDiffers = /** @class */ (function () {
 function IterableDiffers(factories) {
 this.factories = factories;
 }
 IterableDiffers.create = function (factories, parent) {
 if (parent != null) {
 var copied = parent.factories.slice();
 factories = factories.concat(copied);
 }
 return new IterableDiffers(factories);
 };
 /**
 * Takes an array of {@link
 IterableDifferFactory}
 and returns a provider used to extend the
 * inherited {@link IterableDiffers} instance with the provided
 factories and return a new
 * {@link IterableDiffers} instance.
 */
 @usageNotes
 ###
 Example
 * The following example shows how to extend an existing list of factories,
 * which will only be applied to the injector for this component and its children.
 * This step is all that's required to make a new {@link IterableDiffer} available.
 * ``
 * @Component({
 * viewProviders: [
 * IterableDiffers.extend([new ImmutableListDiffer()])
 *])
 * })
 * ``
 *
 * IterableDiffers.extend = function (factories) {
 * return {
 * provide:
 IterableDiffers,
 * useFactory: function (parent) {
 * if (!parent) {
 * // Typically would occur
 * when calling IterableDiffers.extend inside of dependencies passed
 * // to bootstrap(), which would override default pipes instead of extending them.
 * throw new Error('Cannot
 * extend IterableDiffers without a parent injector');
 * }
 * return
 IterableDiffers.create(factories, parent);
 * },
 * // Dependency technically isn't optional, but we
 * can provide a better error message this way.
 * deps: [[IterableDiffers, new SkipSelf(), new Optional()]]
 * };
 * };
 *
 * IterableDiffers.prototype.find = function (iterable) {
 * var factory =
 this.factories.find(function (f) { return f.supports(iterable); });
 * if (factory != null) {
 * return
 * factory;
 * }
 * else {
 * throw new Error("Cannot find a differ supporting object " + iterable
 * + " of type " +
 * getTypeNameForDebugging(iterable) + "`");
 * }
 * return IterableDiffers;
 * }();
 /**
 @nocollapse
 *
 * IterableDiffers.prov = defineInjectable({
 * token: IterableDiffers,
 * providedIn: 'root',
 * factory: function () { return new IterableDiffers([new DefaultIterableDifferFactory()]); },
 * function
 * getTypeNameForDebugging(type) { return type['name'] || typeof type; }
 * });
 /**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style
 * license that can be
 * found in the LICENSE file at https://angular.io/license
 */
 /**
 * A repository of
 * different Map diffing strategies used by NgClass, NgStyle, and others.
 */
 @publicApi
 var
 KeyValueDiffers = /** @class */ (function () {
 function KeyValueDiffers(factories) {
 this.factories =
 factories;
 }
 KeyValueDiffers.create = function (factories, parent) {
 if (parent) {
 var copied =
 parent.factories.slice();
 factories = factories.concat(copied);
 }
 return new
 KeyValueDiffers(factories);
 };
 /**
 * Takes an array of {@link KeyValueDifferFactory} and
 returns a provider used to extend the
 * inherited {@link KeyValueDiffers} instance with the provided
 factories and return a new
 * {@link KeyValueDiffers} instance.
 */
 @usageNotes
 ###
 Example
 * The following example shows how to extend an existing list of factories,
 * which will only be applied to the injector for this component and its children.
 * This step is all that's required to make a new {@link KeyValueDiffer} available.
 * ``
 * @Component({
 * viewProviders: [
 * KeyValueDiffers.extend([new
 * ImmutableListDiffer()])
 *])
 * })
 * ``
 *
 * KeyValueDiffers.extend = function
 (factories) {
 * return {
 * provide: KeyValueDiffers,
 * useFactory: function (parent) {
 * if (!parent) {
 * // Typically would occur when calling KeyValueDiffers.extend inside of
 * dependencies passed
 * // to bootstrap(), which would override default pipes instead of extending
 * them.
 * throw new Error('Cannot extend KeyValueDiffers without a parent injector');
 * }
 * }
 * };
 * };
 });

```

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return KeyValueDiffer.create(factories, parent);\n },\n // Dependency technically\n isn't optional, but we can provide a better error message this way.\n deps: [[KeyValueDiffer, new\n SkipSelf(), new Optional()]]\n });\n KeyValueDiffer.prototype.find = function (kv)\n {\n var factory = this.factories.find(function (f) { return f.supports(kv); });\n if (factory) {\n return factory;\n }\n throw new Error("Cannot find a differ supporting object \"" + kv + "\"");\n };\n return KeyValueDiffer;\n }());\n /** @nocollapse */\n KeyValueDiffer.prototype.prov = defineInjectable({\n token: KeyValueDiffer,\n providedIn: 'root',\n factory: function () { return new KeyValueDiffer([new\n DefaultKeyValueDifferFactory()]); }\n });\n\n function collectNativeNodes(tView, IView, tNode, result,\n isProjection) {\n if (isProjection === void 0) { isProjection = false; }\n while (tNode !== null) {\n ngDevMode &&\n assertTNodeType(tNode, 3 /* AnyRNode */ | 12 /* AnyContainer */ | 16 /* Projection\n */ | 32 /* Icu */);\n var lNode = IView[tNode.index];\n if (lNode !== null) {\n result.push(unwrapRNode(lNode));\n\n }\n // A given lNode can represent either a native node or a LContainer (when it is a host of a\n // ViewContainerRef). When we find a LContainer we need to descend into it to collect root nodes\n // from\n the views in this container.\n if (isLContainer(lNode)) {\n for (var i =\n CONTAINER_HEADER_OFFSET; i < lNode.length; i++) {\n var IViewInAContainer = lNode[i];\n var IViewFirstChildTNode = IViewInAContainer[TVIEW].firstChild;\n if\n (IViewFirstChildTNode !== null) {\n collectNativeNodes(IViewInAContainer[TVIEW],\n IViewInAContainer, IViewFirstChildTNode, result);\n }\n }\n var tNodeType\n = tNode.type;\n if (tNodeType & 8 /* ElementContainer */) {\n collectNativeNodes(tView, IView,\n tNode.child, result);\n }\n else if (tNodeType\n & 32 /* Icu */) {\n var nextRNode = icuContainerIterate(tNode, IView);\n var rNode = void 0;\n while (rNode = nextRNode()) {\n result.push(rNode);\n }\n }\n else if\n (tNodeType & 16 /* Projection */) {\n var componentView =\n IView[DECLARATION_COMPONENT_VIEW];\n var componentHost = componentView[T_HOST];\n var slotIdx = tNode.projection;\n ngDevMode &&\n assertDefined(componentHost.projection, 'Components with projection nodes (<ng-content>) must have projection\n slots defined.);\n var nodesInSlot = componentHost.projection[slotIdx];\n if\n (Array.isArray(nodesInSlot)) {\n result.push.apply(result, __spread(nodesInSlot));\n }\n }\n else {\n var parentView = getLViewParent(componentView);\n ngDevMode\n &&\n assertDefined(parentView, 'Component views should always have a parent view\n (component\\'s host view)');\n collectNativeNodes(parentView[TVIEW], parentView, nodesInSlot,\n result, true);\n }\n }\n tNode = isProjection ? tNode.projectionNext : tNode.next;\n }\n return result;\n }\n\n var ViewRef = /** @class */ (function () {\n function ViewRef(\n /**\n * This represents `LView` associated with the component when ViewRef is a ChangeDetectorRef.\n */\n /**\n * When ViewRef is created for a dynamic component, this also represents the `LView` for the\n */\n /**\n * For a "regular" ViewRef created for an embedded view, this is the `LView` for the embedded\n */\n * view.\n /**\n * @internal\n */\n _IView,\n /**\n * This represents the `LView`\n associated with the point where `ChangeDetectorRef`\n was\n * requested.\n */\n * This may be different from `_IView` if the `_cdRefInjectingView` is an\n embedded view.\n */\n _cdRefInjectingView) {\n this._IView = _IView;\n this._cdRefInjectingView = _cdRefInjectingView;\n this._appRef = null;\n this._viewContainerRef =\n null;\n }\n Object.defineProperty(ViewRef.prototype, \"rootNodes\", {\n get: function () {\n var IView = this._IView;\n var tView = IView[TVIEW];\n return collectNativeNodes(tView,\n IView, tView.firstChild, []);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ViewRef.prototype, \"context\", {\n get: function () {\n return\n this._IView[CONTEXT];\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ViewRef.prototype,\n
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 \"destroyed\", {\n get: function () {\n return (this._IView[FLAGS] & 256 /* Destroyed */) === 256
/* Destroyed */;\n },\n enumerable: false,\n configurable: true\n });\n ViewRef.prototype.destroy = function () {\n if (this._appRef) {\n this._appRef.detachView(this);\n }\n else if (this._viewContainerRef) {\n var index = this._viewContainerRef.indexOf(this);\n if (index > -1) {\n this._viewContainerRef.detach(index);\n }\n }\n this._viewContainerRef = null;\n }\n destroyLView(this._IView[TVIEW], this._IView);\n };\n ViewRef.prototype.onDestroy = function (callback) {\n storeCleanupWithContext(this._IView[TVIEW],\n this._IView, null, callback);\n }; \n /**\n * Marks a view and all of its ancestors dirty.\n *\n * It also triggers change detection by calling `scheduleTick` internally, which coalesces\n * multiple `markForCheck` calls to into one change detection run.\n *\n * This can be used to ensure an\n * {@link ChangeDetectionStrategy#OnPush OnPush} component is\n * checked when it needs to be re-rendered\n * but the two normal triggers haven't marked it\n * dirty (i.e. inputs haven't changed and events haven't fired in\n * the view).\n *\n * <!-- TODO: Add a link to a chapter on OnPush components -->\n *\n *\n * @usageNotes\n * ### Example\n *\n * ```typescript\n * @Component({\n * selector: 'my-app',\n * template: `Number of ticks: {{ numberOfTicks }}`\n * changeDetection:\n * ChangeDetectionStrategy.OnPush,\n * })\n * class AppComponent {\n * numberOfTicks = 0;\n *\n * constructor(private ref: ChangeDetectorRef)\n * {\n * setInterval(() => {\n * this.numberOfTicks++;\n * // the following is required,\n * otherwise the view will not be updated\n * this.ref.markForCheck();\n * }, 1000);\n * }\n * }\n * ```\n */\n * ViewRef.prototype.markForCheck = function () {\n * markViewDirty(this._cdRefInjectingView || this._IView);\n * /**\n * * Detaches the view from the\n * * change detection tree.\n * *\n * * Detached views will not be checked during change detection runs until they\n * * are\n * * re-attached, even if they are dirty. `detach` can be used in combination with\n * * {@link\n * * ChangeDetectorRef#detectChanges detectChanges} to implement local change\n * * detection checks.\n * *\n * * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->\n * * <!-- TODO: Add a live demo\n * * once ref.detectChanges is merged into master\n * *\n * * -->\n * *\n * * @usageNotes\n * * ### Example\n * *\n * * The following example defines a\n * * component with a large list of readonly data.\n * *\n * * Imagine the data changes constantly, many times per second.\n * *\n * * For performance reasons,\n * * we want to check and update the list every five seconds. We can do that by\n * * detaching\n * * the component's change detector and doing a local check every five seconds.\n * *\n * *\n * * ```typescript\n * * class DataProvider {\n * * // in a real application the returned data will be different every\n * * time\n * * get data() {\n * * return [1,2,3,4,5];\n * * }\n * * }\n * *\n * * @Component({\n * * selector: 'giant-list',\n * * template: `\n * * <li *ngFor=\\\"let d of dataProvider.data\\\">Data\n * * {{ d }}\n * * `,\n * * })\n * * class GiantList {\n * * constructor(private ref: ChangeDetectorRef,\n * * private\n * * dataProvider: DataProvider) {\n * * ref.detach();\n * * setInterval(() => {\n * * this.ref.detectChanges();\n * * }, 5000);\n * * }\n * * }\n * *\n * * @Component({\n * * selector: 'app',\n * * providers: [DataProvider],\n * * template: `\n * * <giant-list><giant-list>\n * * `,\n * * })\n * * class App {\n * * }\n * * }\n * * ```\n * *\n * * ViewRef.prototype.detach = function ()\n * * {\n * * this._IView[FLAGS] &= ~128 /* Attached */;\n * * }\n * * /**\n * * Re-attaches a view to the\n * * change detection tree.\n * *\n * * This can be used to re-attach views that were previously detached from the\n * * tree\n * * using {@link ChangeDetectorRef#detach detach}. Views are attached to the tree by default.\n * *\n * * <!-- TODO: Add a link to a chapter on detach/reattach/local digest -->\n * *\n * * @usageNotes\n * * ### Example\n * *\n * * The following example creates a component displaying `live` data. The\n * * component will detach\n * * its change detector from the main change detector tree when the component's live\n * * property\n * * is set to false.\n * *\n * * ```typescript\n * * class DataProvider {\n * * data = 1;\n * *\n * * constructor() {\n * * setInterval(() => {\n * * this.data = this.data * 2;\n * * }, 500);\n * * }\n * * }\n * *\n * * @Component({\n * * selector: 'live-data',\n * * inputs: ['live'],\n
```

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* template: 'Data: {{dataProvider.data}}'\n * }}\n * class LiveData {\n * constructor(private ref:
ChangeDetectorRef, private dataProvider: DataProvider) {\n * \n * set live(value) {\n * if (value)
{\n * this.ref.reattach();\n * } else {\n *
this.ref.detach();\n * }\n * }\n * \n * @Component({\n * selector: 'my-
app',\n * providers: [DataProvider],\n * template: `
Live Update: <input type="checkbox"
[(ngModel)]="live">\n * <live-data [live]="live"><live-data>\n * `,\n * })\n * class
AppComponent {\n * live = true;\n * }\n * ``\n * \n * ViewRef.prototype.reattach =
function () {\n * this._IView[FLAGS] |= 128 /* Attached */;\n * }\n * /**\n * Checks the view and
its children.\n * \n * This can also be used in combination with { @link ChangeDetectorRef#detach detach}
to implement\n * local change detection checks.\n * \n * <!-- TODO: Add a link to a chapter on
detach/reattach/local digest -->\n * <!-- TODO: Add a live demo once ref.detectChanges is merged into master
-->\n
\n * @usageNotes\n * ### Example\n * \n * The following example defines a component
with a large list of readonly data.\n * Imagine, the data changes constantly, many times per second. For
performance reasons,\n * we want to check and update the list every five seconds.\n * \n * We can do
that by detaching the component's change detector and doing a local change detection\n * check every five
seconds.\n * \n * See { @link ChangeDetectorRef#detach detach} for more information.\n * \n
ViewRef.prototype.detectChanges = function () {\n * detectChangesInternal(this._IView[TVIEW], this._IView,
this.context);\n * }\n * /**\n * Checks the change detector and its children, and throws if any changes are
detected.\n * \n * This is used in development mode to verify that running change detection doesn't\n
\n * introduce other changes.\n * \n
ViewRef.prototype.checkNoChanges = function () {\n * checkNoChangesInternal(this._IView[TVIEW],
this._IView, this.context);\n * }\n * ViewRef.prototype.attachToViewContainerRef = function (vcRef) {\n
if (this._appRef) {\n * throw new Error("This view is already attached directly to the ApplicationRef!");\n
}\n * this._viewContainerRef = vcRef;\n * }\n * ViewRef.prototype.detachFromAppRef = function ()
{\n * this._appRef = null;\n * renderDetachView(this._IView[TVIEW], this._IView);\n * }\n
ViewRef.prototype.attachToAppRef = function (appRef) {\n * if (this._viewContainerRef) {\n * throw
new Error("This view is already attached to a ViewContainer!");\n * }\n * this._appRef = appRef;\n
}\n * return ViewRef;\n * }());\n * /** @internal */\n * var RootViewRef = /** @class */ (function (_super) {\n
__extends(RootViewRef,
_super);\n * function RootViewRef(_view) {\n * var _this = _super.call(this, _view) || this;\n
_this._view = _view;\n * return _this;\n * }\n * RootViewRef.prototype.detectChanges = function () {\n
detectChangesInRootView(this._view);\n * }\n * RootViewRef.prototype.checkNoChanges = function ()
{\n * checkNoChangesInRootView(this._view);\n * }\n * Object.defineProperty(RootViewRef.prototype,
"context", {\n * get: function () {\n * return null;\n * },\n * enumerable: false,\n
configurable: true\n * });\n * return RootViewRef;\n * }(ViewRef));\n * \n * /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n * \n * var
SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__
= injectChangeDetectorRef;\n * var SWITCH_CHANGE_DETECTOR_REF_FACTORY__PRE_R3__ = noop;\n * var
SWITCH_CHANGE_DETECTOR_REF_FACTORY =
SWITCH_CHANGE_DETECTOR_REF_FACTORY__PRE_R3__;\n * \n * /**\n * Base class that provides change
detection functionality.\n * A change-detection tree collects all views that are to be checked for changes.\n *
Use the methods to add and remove views from the tree, initiate change-detection,\n * and explicitly mark views
as _dirty_, meaning that they have changed and need to be re-rendered.\n * \n * @see [Using change detection
hooks](guide/lifecycle-hooks#using-change-detection-hooks)\n * @see [Defining custom change
detection](guide/lifecycle-hooks#defining-custom-change-detection)\n * \n * @usageNotes\n * \n * The
following examples demonstrate how to modify default change-detection behavior\n * to perform explicit

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detection when needed.

```

 * ## Use `markForCheck()` with `CheckOnce` strategy
 * The following example sets the `OnPush` change-detection strategy for a component
 * (`CheckOnce`, rather than the default `CheckAlways`), then forces a second check
 * after an interval. See [live demo](http://plnkr.co/edit/GC512b?p=preview).
 * <code-example path="core/ts/change_detect/change-detection.ts"
 * region="mark-for-check">
 * ## Detach change detector to limit how often check occurs
 * The following example defines a component with a large list of read-only
 * data that is expected to change constantly, many times per second.
 * To improve performance, we want to check and update the list
 * less often than the changes actually occur. To do that, we detach
 * the component's change detector and perform an explicit local check every five seconds.
 * <code-example path="core/ts/change_detect/change-detection.ts"
 * region="detach">
 * ## Reattaching a detached component
 * The following example creates a component displaying live data.
 * The component detaches its change detector from the main change detector tree
 * when the `live` property is set to false, and reattaches it when the property
 * becomes true.
 * <code-example path="core/ts/change_detect/change-detection.ts"
 * region="reattach">
 * @publicApi
 * var ChangeDetectorRef = /** @class */ (function () {
 * function ChangeDetectorRef() {}
 * return ChangeDetectorRef;
 * })();
 * @internal
 * @nocollapse
 * ChangeDetectorRef.__NG_ELEMENT_ID__ = SWITCH_CHANGE_DETECTOR_REF_FACTORY;
 * This marker is need so that the JIT compiler can correctly identify this class as special.
 * @internal
 * @nocollapse
 * ChangeDetectorRef.__ChangeDetectorRef__ = true;
 * Returns a ChangeDetectorRef
 * (a.k.a. a ViewRef)
 * function injectChangeDetectorRef(isPipe) {
 * if (isPipe === void 0) { isPipe = false; }
 * return createViewRef(getCurrentTNode(), getLView(), isPipe);
 * }
 * Creates a ViewRef and stores it on the injector as ChangeDetectorRef (public alias).
 * @param tNode The node that is requesting a ChangeDetectorRef
 * @param lView The view to which the node belongs
 * @param isPipe Whether the view is being injected into a pipe.
 * @returns The ChangeDetectorRef to use
 * function createViewRef(tNode, lView, isPipe) {
 * // `isComponentView` will be true for Component and Directives (but not for Pipes).
 * // See https://github.com/angular/angular/pull/33072 for proper fix
 * var isComponentView = !isPipe && isComponentHost(tNode);
 * if (isComponentView) {
 * // The LView represents the location where the component is declared.
 * // Instead we want the LView for the component View and so we need to look it up.
 * var componentView = getComponentLViewByIndex(tNode.index, lView);
 * // look down
 * return new ViewRef(componentView, componentView);
 * } else if (tNode.type & (3 /* AnyRNode */ | 12 /* AnyContainer */ | 32 /* Icu */)) {
 * // The LView represents the location where the injection is requested from.
 * // We need to locate the containing LView (in case where the `lView` is an embedded view)
 * var hostComponentView = lView[DECLARATION_COMPONENT_VIEW];
 * // look up
 * return new ViewRef(hostComponentView, lView);
 * }
 * return null;
 * }
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 * Structural diffing for `Object`s and `Map`s.
 * var keyValDiff = [new DefaultKeyValueDifferFactory()];
 * Structural diffing for `Iterable` types such as `Array`s.
 * var iterableDiff = [new DefaultIterableDifferFactory()];
 * var defaultIterableDiffers = new IterableDiffers(iterableDiff);
 * var defaultKeyValueDiffers = new KeyValueDiffers(keyValDiff);
 * var SWITCH_TEMPLATE_REF_FACTORY__POST_R3__ = injectTemplateRef;
 * var SWITCH_TEMPLATE_REF_FACTORY__PRE_R3__ = noop;
 * SWITCH_TEMPLATE_REF_FACTORY = SWITCH_TEMPLATE_REF_FACTORY__PRE_R3__;
 * Represents an embedded template that can be used to instantiate embedded views.
 * To instantiate embedded views based on a template, use the `ViewContainerRef` method `createEmbeddedView()`.
 * Access a `TemplateRef` instance by placing a directive on an `<ng-template>` element (or directive prefixed with `*`). The `TemplateRef` for the embedded view is injected into the constructor

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of the directive,\n * using the `TemplateRef` token.\n *\n * You can also use a `Query` to find a
`TemplateRef` associated with\n * a component or a directive.\n *\n * @see `ViewContainerRef`\n *
@see [Navigate the Component Tree with DI](guide/dependency-injection-navtree)\n *\n * @publicApi\n
*\n var TemplateRef = /** @class */ (function () {\n function TemplateRef() {\n }\n return
TemplateRef;\n }());\n /**\n * @internal\n * @nocollapse\n */\n
TemplateRef.__NG_ELEMENT_ID__ = SWITCH_TEMPLATE_REF_FACTORY;\n var
ViewEngineTemplateRef = TemplateRef;\n var R3TemplateRef = /** @class */ (function (_super) {\n
__extends(TemplateRef, _super);\n function TemplateRef(_declarationLView, _declarationTContainer,
elementRef) {\n var _this = _super.call(this) || this;\n _this._declarationLView = _declarationLView;\n
_this._declarationTContainer = _declarationTContainer;\n
_this.elementRef = elementRef;\n return _this;\n }\n
TemplateRef.prototype.createEmbeddedView = function (context) {\n var embeddedTView =
this._declarationTContainer.tViews;\n var embeddedLView = createLView(this._declarationLView,
embeddedTView, context, 16 /* CheckAlways */, null, embeddedTView.declTNode, null, null, null);\n
var declarationLContainer = this._declarationLView[this._declarationTContainer.index];\n ngDevMode &&
assertLContainer(declarationLContainer);\n embeddedLView[DECLARATION_LCONTAINER] =
declarationLContainer;\n var declarationViewLQueries = this._declarationLView[QUERIES];\n if
(declarationViewLQueries !== null) {\n embeddedLView[QUERIES] =
declarationViewLQueries.createEmbeddedView(embeddedTView);\n }\n
renderView(embeddedTView, embeddedLView, context);\n return new ViewRef(embeddedLView);\n
});\n return TemplateRef;\n }(ViewEngineTemplateRef));\n /**\n * Creates a TemplateRef given a
node.\n *\n * @returns The TemplateRef instance to use\n */\n function injectTemplateRef() {\n return
createTemplateRef(getCurrentTNode(), getLView());\n }\n /**\n * Creates a TemplateRef and stores it on the
injector.\n *\n * @param hostTNode The node on which a TemplateRef is requested\n * @param hostLView
The `LView` to which the node belongs\n * @returns The TemplateRef instance or null if we can't create a
TemplateRef on a given node type\n */\n function createTemplateRef(hostTNode, hostLView) {\n if
(hostTNode.type & 4 /* Container */) {\n ngDevMode && assertDefined(hostTNode.tViews, 'TView must
be allocated');\n return new R3TemplateRef(hostLView, hostTNode, createElementRef(hostTNode,
hostLView));\n }\n return null;\n }\n /**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Represents an
instance of an `NgModule` created by an `NgModuleFactory`.\n * Provides access to the `NgModule` instance
and related objects.\n *\n * @publicApi\n */\n var NgModuleRef = /** @class */ (function () {\n
function NgModuleRef() {\n }\n return NgModuleRef;\n }());\n /**\n * @publicApi\n */\n var
NgModuleFactory = /** @class */ (function () {\n function NgModuleFactory() {\n }\n return
NgModuleFactory;\n }());\n var SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__ =
injectViewContainerRef;\n var SWITCH_VIEW_CONTAINER_REF_FACTORY__PRE_R3__ = noop;\n var
SWITCH_VIEW_CONTAINER_REF_FACTORY =
SWITCH_VIEW_CONTAINER_REF_FACTORY__PRE_R3__;\n /**\n * Represents a container
where one or more views can be attached to a component.\n *\n * Can contain *host views* (created by
instantiating a\n * component with the `createComponent()` method), and *embedded views*\n * (created by
instantiating a `TemplateRef` with the `createEmbeddedView()` method).\n *\n * A view container instance
can contain other view containers,\n * creating a [view hierarchy](guide/glossary#view-tree).\n *\n * @see
`ComponentRef`\n * @see `EmbeddedViewRef`\n *\n * @publicApi\n */\n var ViewContainerRef = /**
@class */ (function () {\n function ViewContainerRef() {\n }\n return ViewContainerRef;\n }());\n
/**\n * @internal\n * @nocollapse\n */\n ViewContainerRef.__NG_ELEMENT_ID__ =
SWITCH_VIEW_CONTAINER_REF_FACTORY;\n /**\n * Creates a ViewContainerRef and stores it on the
injector. Or, if the ViewContainerRef\n * already exists, retrieves the existing ViewContainerRef.\n */

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* @returns The ViewContainerRef instance to use\n
*/\n
function injectViewContainerRef() {\n
 var previousTNode = getCurrentTNode();\n
 return createContainerRef(previousTNode, getLView());\n
}\n
var VE_ViewContainerRef = ViewContainerRef;\n
var R3ViewContainerRef = /** @class */ (function (_super) {\n
 __extends(ViewContainerRef, _super);\n
 function ViewContainerRef(_IContainer, _hostTNode, _hostLView)\n
 {\n
 var _this = _super.call(this) || this;\n
 _this._IContainer = _IContainer;\n
 _this._hostTNode = _hostTNode;\n
 _this._hostLView = _hostLView;\n
 return _this;\n
 }\n
 Object.defineProperty(ViewContainerRef.prototype, \"element\", {\n
 get: function () {\n
 return createElementRef(this._hostTNode, this._hostLView);\n
 },\n
 enumerable: false,\n
 configurable: true\n
 });\n
 Object.defineProperty(ViewContainerRef.prototype, \"injector\", {\n
 get: function () {\n
 return new NodeInjector(this._hostTNode, this._hostLView);\n
 },\n
 enumerable: false,\n
 configurable: true\n
 });\n
 Object.defineProperty(ViewContainerRef.prototype, \"parentInjector\", {\n
 /** @deprecated No replacement\n
 */\n
 get: function () {\n
 var parentLocation = getParentInjectorLocation(this._hostTNode, this._hostLView);\n
 if (hasParentInjector(parentLocation)) {\n
 var parentView = getParentInjectorView(parentLocation, this._hostLView);\n
 var injectorIndex = getParentInjectorIndex(parentLocation);\n
 ngDevMode && assertNodeInjector(parentView, injectorIndex);\n
 var parentTNode = parentView[TVIEW].data[injectorIndex + 8 /* TNODE */];\n
 return new NodeInjector(parentTNode, parentView);\n
 }\n
 else {\n
 return new NodeInjector(null, this._hostLView);\n
 }\n
 },\n
 enumerable: false,\n
 configurable: true\n
 });\n
 ViewContainerRef.prototype.clear = function () {\n
 while (this.length > 0) {\n
 this.remove(this.length - 1);\n
 }\n
 };\n
 ViewContainerRef.prototype.get = function (index) {\n
 var viewRefs = getViewRefs(this._IContainer);\n
 return viewRefs !== null && viewRefs[index] || null;\n
 };\n
 Object.defineProperty(ViewContainerRef.prototype, \"length\", {\n
 get: function () {\n
 return this._IContainer.length - CONTAINER_HEADER_OFFSET;\n
 },\n
 enumerable: false,\n
 configurable: true\n
 });\n
 ViewContainerRef.prototype.createEmbeddedView = function (templateRef, context, index) {\n
 var viewRef = templateRef.createEmbeddedView(context || {});\n
 this.insert(viewRef, index);\n
 return viewRef;\n
 };\n
 ViewContainerRef.prototype.createComponent = function (componentFactory, index, injector, projectableNodes, NgModuleRef) {\n
 var contextInjector = injector || this.parentInjector;\n
 if (!NgModuleRef && componentFactory.ngModule == null && contextInjector) {\n
 // DO NOT REFACTOR. The code here used to have a `value || undefined` expression\n
 // which seems to cause internal google apps to fail. This is documented in the\n
 // following internal bug issue: go/b/142967802\n
 var result = contextInjector.get(NgModuleRef, null);\n
 if (result) {\n
 NgModuleRef = result;\n
 }\n
 var componentRef = componentFactory.create(contextInjector, projectableNodes, undefined, NgModuleRef);\n
 this.insert(componentRef.hostView, index);\n
 return componentRef;\n
 };\n
 ViewContainerRef.prototype.insert = function (viewRef, index) {\n
 var IView = viewRef._IView;\n
 var tView = IView[TVIEW];\n
 if (ngDevMode && viewRef.destroyed) {\n
 throw new Error('Cannot insert a destroyed View in a ViewContainer!');\n
 }\n
 if (viewAttachedToContainer(IView)) {\n
 // If view is already attached, detach it first so we clean up references appropriately.\n
 var prevIdx = this.indexOf(viewRef);\n
 // A view might be attached either to this or a different container. The `prevIdx` for\n
 // those cases will be:\n
 // equal to -1 for views attached to this ViewContainerRef\n
 // >= 0 for views attached to a different ViewContainerRef\n
 if (prevIdx !== -1) {\n
 this.detach(prevIdx);\n
 }\n
 else {\n
 var prevLContainer = IView[PARENT];\n
 ngDevMode && assertEqual(isLContainer(prevLContainer), true, 'An attached view should have its PARENT point to a container.);\n
 // We need to re-create a R3ViewContainerRef instance since those are not stored on\n

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 // LView (nor anywhere else).\n var prevVCRef = new R3ViewContainerRef(prevLContainer,
prevLContainer[T_HOST], prevLContainer[PARENT]);\n
prevVCRef.detach(prevVCRef.indexOf(viewRef));\n }\n }\n // Logical operation of adding
`LView` to `LContainer`\n var adjustedIdx = this._adjustIndex(index);\n var lContainer =
this._lContainer;\n insertView(tView, lView, lContainer, adjustedIdx);\n // Physical operation of
adding the DOM nodes.\n var beforeNode = getBeforeNodeForView(adjustedIdx, lContainer);\n var
renderer = lView[RENDERER];\n
 var parentRNode = nativeParentNode(renderer, lContainer[NATIVE]);\n if (parentRNode !== null)
{\n addViewToContainer(tView, lContainer[T_HOST], renderer, lView, parentRNode, beforeNode);\n
 }\n viewRef.attachToViewContainerRef(this);\n addToArray(getOrCreateViewRefs(lContainer,
adjustedIdx, viewRef);\n return viewRef;\n };\n ViewContainerRef.prototype.move = function
(viewRef, newIndex) {\n if (ngDevMode && viewRef.destroyed) {\n throw new Error('Cannot
move a destroyed View in a ViewContainer!');\n }\n return this.insert(viewRef, newIndex);\n };\n
 ViewContainerRef.prototype.indexOf = function (viewRef) {\n var viewRefsArr =
getViewRefs(this._lContainer);\n return viewRefsArr !== null ? viewRefsArr.indexOf(viewRef) : -1;\n
 };\n ViewContainerRef.prototype.remove = function (index) {\n
 var adjustedIdx = this._adjustIndex(index, -1);\n var detachedView = detachView(this._lContainer,
adjustedIdx);\n if (detachedView) {\n // Before destroying the view, remove it from the container's
array of `ViewRef`s.\n // This ensures the view container length is updated before calling\n //
`destroyLView`, which could recursively call view container methods that\n // rely on an accurate
container length.\n // (e.g. a method on this view container being called by a child directive's OnDestroy\n
 // lifecycle hook)\n removeFromArray(getOrCreateViewRefs(this._lContainer, adjustedIdx);\n
 destroyLView(detachedView[TVIEW], detachedView);\n }\n };\n
 ViewContainerRef.prototype.detach = function (index) {\n var adjustedIdx = this._adjustIndex(index, -1);\n
 var view = detachView(this._lContainer, adjustedIdx);\n
 var wasDetached = view && removeFromArray(getOrCreateViewRefs(this._lContainer, adjustedIdx) !=
null);\n return wasDetached ? new ViewRef(view) : null;\n };\n
 ViewContainerRef.prototype._adjustIndex = function (index, shift) {\n if (shift === void 0) { shift = 0; }\n
 if (index === null) {\n return this.length + shift;\n }\n if (ngDevMode) {\n
assertGreaterThan(index, -1, `ViewRef index must be positive, got ` + index);\n // +1 because it's legal to
insert at the end.\n assertLessThan(index, this.length + 1 + shift, 'index');\n }\n return
index;\n };\n return ViewContainerRef;\n }(VE_ViewContainerRef));\n function
getViewRefs(lContainer) {\n return lContainer[VIEW_REFS];\n }\n function
getOrCreateViewRefs(lContainer) {\n return (lContainer[VIEW_REFS] || (lContainer[VIEW_REFS]
= []));\n }\n /**\n * Creates a ViewContainerRef and stores it on the injector.\n * @param
ViewContainerRefToken The ViewContainerRef type\n * @param ElementRefToken The ElementRef type\n
 * @param hostTNode The node that is requesting a ViewContainerRef\n * @param hostLView The view to
which the node belongs\n * @returns The ViewContainerRef instance to use\n */\n function
createContainerRef(hostTNode, hostLView) {\n ngDevMode && assertTNodeType(hostTNode, 12 /*
AnyContainer */ | 3 /* AnyRNode */);\n var lContainer;\n var slotValue = hostLView[hostTNode.index];\n
 if (isLContainer(slotValue)) {\n // If the host is a container, we don't need to create a new LContainer\n
 lContainer = slotValue;\n }\n else {\n var commentNode = void 0;\n // If the host is an
element container, the native host element is guaranteed to be a\n // comment and we can reuse
that comment as anchor element for the new LContainer.\n // The comment node in question is already part
of the DOM structure so we don't need to append\n // it again.\n if (hostTNode.type & 8 /*
ElementContainer */) {\n commentNode = unwrapRNode(slotValue);\n }\n else {\n
 // If the host is a regular element, we have to insert a comment node manually which will\n // be used as an
anchor when inserting elements. In this specific case we use low-level DOM\n // manipulation to insert

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it.\n var renderer = hostLView[RENDERER];\n ngDevMode &&
ngDevMode.rendererCreateComment++;\n commentNode = renderer.createComment(ngDevMode ?
'container' : '');\n var hostNative = getNativeByTNode(hostTNode, hostLView);\n var
parentOfHostNative = nativeParentNode(renderer, hostNative);\n nativeInsertBefore(renderer,
parentOfHostNative, commentNode, nativeNextSibling(renderer, hostNative), false);\n }\n
hostLView[hostTNode.index] = IContainer =\n createLContainer(slotValue, hostLView, commentNode,
hostTNode);\n addToViewTree(hostLView, IContainer);\n }\n return new
R3ViewContainerRef(IContainer, hostTNode, hostLView);\n }\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n function
expressionChangedAfterItHasBeenCheckedError(context, oldValue, currValue, isFirstCheck) {\n var msg =
'ExpressionChangedAfterItHasBeenCheckedError: Expression has changed after it was checked. Previous value: \''
+ oldValue + '\'. Current value: \'' + currValue + '\'.';\n if (isFirstCheck) {\n msg +=\n '\n It
seems
like the view has been created after its parent and its children have been dirty checked.' +\n '\n Has it
been created in a change detection hook ?';\n }\n return viewDebugError(msg, context);\n }\n function
viewWrappedDebugError(err, context) {\n if (!(err instanceof Error)) {\n // errors that are not Error
instances don't have a stack,\n // so it is ok to wrap them into a new Error object...\n err = new
Error(err.toString());\n }\n _addDebugContext(err, context);\n return err;\n }\n function
viewDebugError(msg, context) {\n var err = new Error(msg);\n _addDebugContext(err, context);\n
return err;\n }\n function _addDebugContext(err, context) {\n err[ERROR_DEBUG_CONTEXT] =
context;\n err[ERROR_LOGGER] = context.logError.bind(context);\n }\n function isViewDebugError(err)
{\n return !!getDebugContext(err);\n }\n function
viewDestroyedError(action) {\n return new Error('ViewDestroyedError: Attempt to use a destroyed view: \''
+ action);\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n // Called before each cycle of a view's check to detect whether this is in the\n
// initState for which we need to call ngOnInit, ngAfterContentInit or ngAfterViewInit\n // lifecycle methods.
Returns true if this check cycle should call lifecycle\n // methods.\n function shiftInitState(view, priorInitState,
newInitState) {\n // Only update the InitState if we are currently in the prior state.\n // For example, only
move into CallingInit if we are in BeforeInit. Only\n // move into CallingContentInit if we are in CallingInit.
Normally this will\n // always be true because of how
checkCycle is called in checkAndUpdateView.\n // However, if checkAndUpdateView is called recursively or
if an exception is\n // thrown while checkAndUpdateView is running, checkAndUpdateView starts over\n //
from the beginning. This ensures the state is monotonically increasing,\n // terminating in the AfterInit state,
which ensures the Init methods are called\n // at least once and only once.\n var state = view.state;\n var
initState = state & 1792 /* InitState_Mask */;\n if (initState === priorInitState) {\n view.state = (state &
~1792 /* InitState_Mask */) | newInitState;\n view.initIndex = -1;\n return true;\n }\n return
initState === newInitState;\n }\n // Returns true if the lifecycle init method should be called for the node with\n
// the given init index.\n function shouldCallLifecycleInitHook(view, initState, index) {\n if ((view.state &
1792 /* InitState_Mask
*/) === initState && view.initIndex <= index) {\n view.initIndex = index + 1;\n return true;\n }\n
return false;\n }\n /**\n * Node instance data.\n *\n * We have a separate type per NodeType to save
memory\n * (TextData | ElementData | ProviderData | PureExpressionData | QueryList<any>)\n *\n * To
keep our code monomorphic,\n * we prohibit using `NodeData` directly but enforce the use of accessors
(asElementData, ...).\n * This way, no usage site can get a `NodeData` from view.nodes and then use it for
different\n * purposes.\n */\n var NodeData = /** @class */ (function () {\n function NodeData() {\n
}\n return NodeData;\n }());\n /**\n * Accessor for view.nodes, enforcing that every usage site stays

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monomorphic.\n */\n function asTextData(view, index) {\n return view.nodes[index];\n }\n /**\n *
Accessor for view.nodes, enforcing that every
usage site stays monomorphic.\n */\n function asElementData(view, index) {\n return view.nodes[index];\n }\n /**\n * Accessor for view.nodes, enforcing that every usage site stays monomorphic.\n */\n function
asProviderData(view, index) {\n return view.nodes[index];\n }\n /**\n * Accessor for view.nodes,
enforcing that every usage site stays monomorphic.\n */\n function asPureExpressionData(view, index) {\n
return view.nodes[index];\n }\n /**\n * Accessor for view.nodes, enforcing that every usage site stays
monomorphic.\n */\n function asQueryList(view, index) {\n return view.nodes[index];\n }\n var
DebugContext = /** @class */ (function () {\n function DebugContext() {\n }\n return
DebugContext;\n }());\n /**\n * This object is used to prevent cycles in the source files and to have a place
where\n * debug mode can hook it. It is lazily filled when `isDevMode`
is known.\n */\n var Services = {\n setCurrentNode: undefined,\n createRootView: undefined,\n
createEmbeddedView: undefined,\n createComponentView: undefined,\n createNgModuleRef:
undefined,\n overrideProvider: undefined,\n overrideComponentView: undefined,\n clearOverrides:
undefined,\n checkAndUpdateView: undefined,\n checkNoChangesView: undefined,\n destroyView:
undefined,\n resolveDep: undefined,\n createDebugContext: undefined,\n handleEvent: undefined,\n
updateDirectives: undefined,\n updateRenderer: undefined,\n dirtyParentQueries: undefined,\n };\n\n
var NOOP = function () {};\n var _tokenKeyCache = new Map();\n function tokenKey(token) {\n var key =
tokenKeyCache.get(token);\n if (!key) {\n key = stringify(token) + '' + _tokenKeyCache.size;\n
_tokenKeyCache.set(token, key);\n }\n return
key;\n }\n function unwrapValue(view, nodeIdx, bindingIdx, value) {\n if
(WrappedValue.isWrapped(value)) {\n value = WrappedValue.unwrap(value);\n var globalBindingIdx
= view.def.nodes[nodeIdx].bindingIndex + bindingIdx;\n var oldValue =
WrappedValue.unwrap(view.oldValues[globalBindingIdx]);\n view.oldValues[globalBindingIdx] = new
WrappedValue(oldValue);\n }\n return value;\n }\n var UNDEFINED_RENDERER_TYPE_ID =
'$$_undefined';\n var EMPTY_RENDERER_TYPE_ID = '$$_empty';\n // Attention: this function is called as top
level function.\n // Putting any logic in here will destroy closure tree shaking!\n function
createRendererType2(values) {\n return {\n id: UNDEFINED_RENDERER_TYPE_ID,\n styles:
values.styles,\n encapsulation: values.encapsulation,\n data: values.data\n };\n }\n var
_renderCompCount$1 = 0;\n function resolveRendererType2(type)
{\n if (type && type.id === UNDEFINED_RENDERER_TYPE_ID) {\n // first time we see this
RendererType2. Initialize it...\n var isFilled = ((type.encapsulation !== null && type.encapsulation !===
exports.ViewEncapsulation.None) ||\n type.styles.length || Object.keys(type.data).length);\n if
(isFilled) {\n type.id = "c" + _renderCompCount$1++;\n }\n else {\n type.id =
EMPTY_RENDERER_TYPE_ID;\n }\n if (type && type.id ===
EMPTY_RENDERER_TYPE_ID) {\n type = null;\n }\n return type || null;\n }\n function
checkBinding(view, def, bindingIdx, value) {\n var oldValues = view.oldValues;\n if ((view.state & 2 /*
FirstCheck */) ||\n !Object.is(oldValues[def.bindingIndex + bindingIdx], value)) {\n return true;\n
 }\n return false;\n }\n function checkAndUpdateBinding(view, def,
bindingIdx, value) {\n if (checkBinding(view, def, bindingIdx, value)) {\n
 view.oldValues[def.bindingIndex + bindingIdx] = value;\n return true;\n }\n return false;\n }\n function checkBindingNoChanges(view, def, bindingIdx, value) {\n var oldValue =
view.oldValues[def.bindingIndex + bindingIdx];\n if ((view.state & 1 /* BeforeFirstCheck */) ||\n !devModeEqual(oldValue, value)) {\n var bindingName = def.bindings[bindingIdx].name;\n throw
expressionChangedAfterItHasBeenCheckedError(Services.createDebugContext(view, def.nodeIndex), bindingName
+ ":\n" + oldValue, bindingName + ":\n" + value, (view.state & 1 /* BeforeFirstCheck */) !== 0);\n }\n }\n function markParentViewsForCheck(view) {\n var currView = view;\n while (currView) {\n if
(currView.def.flags & 2 /* OnPush */) {\n currView.state |= 8 /* ChecksEnabled */;\n }\n }\n }\n }

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currView
= currView.viewContainerParent || currView.parent;\n }\n }\n function
markParentViewsForCheckProjectedViews(view, endView) {\n var currView = view;\n while (currView
&& currView !== endView) {\n currView.state |= 64 /* CheckProjectedViews */;\n currView =
currView.viewContainerParent || currView.parent;\n }\n }\n function dispatchEvent(view, nodeIndex,
eventName, event) {\n try {\n var nodeDef = view.def.nodes[nodeIndex];\n var startView =
nodeDef.flags & 33554432 /* ComponentView */ ?\n asElementData(view, nodeIndex).componentView
:\n view;\n markParentViewsForCheck(startView);\n return Services.handleEvent(view,
nodeIndex, eventName, event);\n }\n catch (e) {\n // Attention: Don't rethrow, as it would cancel
Observable subscriptions!\n view.root.errorHandler.handleError(e);\n }\n }\n function
declaredViewContainer(view) {\n if (view.parent) {\n var parentView = view.parent;\n return
asElementData(parentView, view.parentNodeDef.nodeIndex);\n }\n return null;\n }\n /**\n * for
component views, this is the host element.\n * for embedded views, this is the index of the parent node\n * that
contains the view container.\n */\n function viewParentEl(view) {\n var parentView = view.parent;\n if
(parentView) {\n return view.parentNodeDef.parent;\n }\n else {\n return null;\n }\n }\n }\n function renderNode(view, def) {\n switch (def.flags & 201347067 /* Types */) {\n case 1 /*
TypeElement */:\n return asElementData(view, def.nodeIndex).renderElement;\n case 2 /*
TypeText */:\n return asTextData(view, def.nodeIndex).renderText;\n }\n }\n function
elementEventFullName(target, name) {\n
return target ? target + ":" + name : name;\n }\n function isComponentView(view) {\n return
!!view.parent && !(view.parentNodeDef.flags & 32768 /* Component */);\n }\n function
isEmbeddedView(view) {\n return !!view.parent && !(view.parentNodeDef.flags & 32768 /* Component */);\n
}\n function filterQueryId(queryId) {\n return 1 << (queryId % 32);\n }\n function
splitMatchedQueriesDsl(matchedQueriesDsl) {\n var matchedQueries = {};\n var matchedQueryIds = 0;\n
var references = {};\n if (matchedQueriesDsl) {\n matchedQueriesDsl.forEach(function (_a) {\n
var _b = __read(_a, 2), queryId = _b[0], valueType = _b[1];\n if (typeof queryId === 'number') {\n
matchedQueries[queryId] = valueType;\n matchedQueryIds |= filterQueryId(queryId);\n
}\n else {\n references[queryId] = valueType;\n
}\n });\n }\n return { matchedQueries: matchedQueries, references: references,
matchedQueryIds: matchedQueryIds };\n }\n function splitDepsDsl(deps, sourceName) {\n return
deps.map(function (value) {\n var _a;\n var token;\n var flags;\n if
(Array.isArray(value)) {\n _a = __read(value, 2), flags = _a[0], token = _a[1];\n }\n else {\n
flags = 0 /* None */;\n token = value;\n }\n if (token && (typeof token === 'function'
|| typeof token === 'object') && sourceName) {\n Object.defineProperty(token, SOURCE, { value:
sourceName, configurable: true });\n }\n return { flags: flags, token: token, tokenKey:
tokenKey(token) };\n });\n }\n function getParentRenderElement(view, renderHost, def) {\n var
renderParent = def.renderParent;\n if (renderParent)
{\n if ((renderParent.flags & 1 /* TypeElement */) === 0 ||\n (renderParent.flags & 33554432 /*
ComponentView */) === 0 ||\n (renderParent.element.componentRendererType &&\n
(renderParent.element.componentRendererType.encapsulation ===\n
exports.ViewEncapsulation.ShadowDom ||\n // TODO(FW-2290): remove the `encapsulation === 1`
fallback logic in v12.\n renderParent.element.componentRendererType.encapsulation === 1))) {\n
// only children of non components, or children of components with native encapsulation should\n
//
be attached.\n return asElementData(view, def.renderParent.nodeIndex).renderElement;\n }\n
}\n else {\n return renderHost;\n }\n }\n var DEFINITION_CACHE = new WeakMap();\n
function resolveDefinition(factory) {\n var value = DEFINITION_CACHE.get(factory);\n
if (!value) {\n value = factory(function () { return NOOP; });\n value.factory = factory;\n
DEFINITION_CACHE.set(factory, value);\n }\n return value;\n }\n function rootRenderNodes(view)

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{\n var renderNodes = [];\n visitRootRenderNodes(view, 0 /* Collect */, undefined, undefined,
renderNodes);\n return renderNodes;\n } \n function visitRootRenderNodes(view, action, parentNode,
nextSibling, target) {\n // We need to re-compute the parent node in case the nodes have been moved around
manually\n if (action === 3 /* RemoveChild */) {\n parentNode =
view.renderer.parentNode(renderNode(view, view.def.lastRenderRootNode));\n }\n visitSiblingRenderNodes(view, action, 0, view.def.nodes.length - 1, parentNode, nextSibling, target);\n } \n
function visitSiblingRenderNodes(view, action, startIndex, endIndex, parentNode, nextSibling, target) {\n
 for (var i = startIndex; i <= endIndex; i++) {\n var nodeDef = view.def.nodes[i];\n if (nodeDef.flags
& (1 /* TypeElement */ | 2 /* TypeText */ | 8 /* TypeNgContent */)) {\n visitRenderNode(view, nodeDef,
action, parentNode, nextSibling, target);\n }\n // jump to next sibling\n i +=
nodeDef.childCount;\n }\n } \n function visitProjectedRenderNodes(view, ngContentIndex, action,
parentNode, nextSibling, target) {\n var compView = view;\n while (compView &&
!isComponentView(compView)) {\n compView = compView.parent;\n }\n var hostView =
compView.parent;\n var hostElDef = viewParentEl(compView);\n var startIndex = hostElDef.nodeIndex +
1;\n var endIndex = hostElDef.nodeIndex + hostElDef.childCount;\n for (var i = startIndex; i <= endIndex;
i++) {\n var nodeDef = hostView.def.nodes[i];\n if (nodeDef.ngContentIndex === ngContentIndex)
{\n visitRenderNode(hostView, nodeDef, action, parentNode, nextSibling, target);\n }\n //
jump to next sibling\n i += nodeDef.childCount;\n }\n if (!hostView.parent) {\n // a root
view\n var projectedNodes = view.root.projectableNodes[ngContentIndex];\n if (projectedNodes) {\n
 for (var i = 0; i < projectedNodes.length; i++) {\n execRenderNodeAction(view,
projectedNodes[i], action, parentNode, nextSibling, target);\n }\n }\n }\n } \n function
visitRenderNode(view, nodeDef, action, parentNode, nextSibling, target) {\n if (nodeDef.flags & 8 /*
TypeNgContent */) {\n visitProjectedRenderNodes(view, nodeDef.ngContent.index, action, parentNode,
nextSibling, target);\n }\n else {\n var rn = renderNode(view, nodeDef);\n if (action === 3 /*
RemoveChild */ && (nodeDef.flags
& 33554432 /* ComponentView */) && (nodeDef.bindingFlags & 48 /* CatSyntheticProperty */)) {\n
 // Note: we might need to do both actions.\n if (nodeDef.bindingFlags & (16 /* SyntheticProperty
*/)) {\n execRenderNodeAction(view, rn, action, parentNode, nextSibling, target);\n }\n
 if (nodeDef.bindingFlags & (32 /* SyntheticHostProperty */)) {\n var compView =
asElementData(view, nodeDef.nodeIndex).componentView;\n execRenderNodeAction(compView, rn,
action, parentNode, nextSibling, target);\n }\n }\n else {\n execRenderNodeAction(view, rn, action, parentNode, nextSibling, target);\n }\n if (nodeDef.flags &
16777216 /* EmbeddedViews */) {\n var embeddedViews = asElementData(view,
nodeDef.nodeIndex).viewContainer._embeddedViews;\n for (var k = 0; k
< embeddedViews.length; k++) {\n visitRootRenderNodes(embeddedViews[k], action, parentNode,
nextSibling, target);\n }\n }\n if (nodeDef.flags & 1 /* TypeElement */ &&
!nodeDef.element.name) {\n visitSiblingRenderNodes(view, action, nodeDef.nodeIndex + 1,
nodeDef.nodeIndex + nodeDef.childCount, parentNode, nextSibling, target);\n }\n }\n } \n function
execRenderNodeAction(view, renderNode, action, parentNode, nextSibling, target) {\n var renderer =
view.renderer;\n switch (action) {\n case 1 /* AppendChild */:\n renderer.appendChild(parentNode, renderNode);\n break;\n case 2 /* InsertBefore */:\n renderer.insertBefore(parentNode, renderNode, nextSibling);\n break;\n case 3 /* RemoveChild
/:\n renderer.removeChild(parentNode, renderNode);\n break;\n case 0 / Collect */:\n target.push(renderNode);\n break;\n }\n }\n var NS_PREFIX_RE
= /^(?:[^\:]+):(?:.+)$/;\n function splitNamespace(name) {\n if (name[0] === ':') {\n var match =
name.match(NS_PREFIX_RE);\n return [match[1], match[2]];\n }\n return ['', name];\n }\n function
calcBindingFlags(bindings) {\n var flags = 0;\n for (var i = 0; i < bindings.length; i++) {\n flags
|= bindings[i].flags;\n }\n return flags;\n }\n function interpolate(valueCount, constAndInterp) {\n

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var result = "";
for (var i = 0; i < valueCount * 2; i = i + 2) {
 result = result + constAndInterp[i] +
 _toStringWithNull(constAndInterp[i + 1]);
}
return result + constAndInterp[valueCount * 2];
}

function inlineInterpolate(valueCount, c0, a1, c1, a2, c2, a3, c3, a4, c4, a5, c5, a6, c6, a7, c7, a8, c8, a9, c9) {
 switch (valueCount) {
 case 1:
 return c0 + _toStringWithNull(a1) + c1;
 case 2:
 return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2;
 case 3:
 return c0 +
 _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3;
 case 4:
 return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3 +
 _toStringWithNull(a4) + c4;
 case 5:
 return c0 + _toStringWithNull(a1) + c1 +
 _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3 + _toStringWithNull(a4) + c4 +
 _toStringWithNull(a5) + c5;
 case 6:
 return c0 + _toStringWithNull(a1) + c1 +
 _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3 + _toStringWithNull(a4) + c4 +
 _toStringWithNull(a5) + c5 + _toStringWithNull(a6) + c6;
 case 7:
 return c0 + _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 +
 _toStringWithNull(a3) + c3 + _toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 +
 _toStringWithNull(a6) + c6 + _toStringWithNull(a7) + c7;
 case 8:
 return c0 +
 _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3 +
 _toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 + _toStringWithNull(a6) + c6 +
 _toStringWithNull(a7) + c7 + _toStringWithNull(a8) + c8;
 case 9:
 return c0 +
 _toStringWithNull(a1) + c1 + _toStringWithNull(a2) + c2 + _toStringWithNull(a3) + c3 +
 _toStringWithNull(a4) + c4 + _toStringWithNull(a5) + c5 + _toStringWithNull(a6) + c6 +
 _toStringWithNull(a7) + c7 + _toStringWithNull(a8) + c8 + _toStringWithNull(a9) + c9;
 default:
 throw new Error("Does not support more than 9 expressions");
 }
}

function _toStringWithNull(v) {
 return v != null ? v.toString() : "";
}

var EMPTY_ARRAY$4 = [];
var EMPTY_MAP = {};
var UNDEFINED_VALUE = {};
var InjectorRefTokenKey = tokenKey(Injector);
var INJECTORRefTokenKey = tokenKey(INJECTOR$1);
var NgModuleRefTokenKey = tokenKey(NgModuleRef);

function moduleProvideDef(flags, token, value, deps) {
 // Need to resolve forwardRefs as e.g. for `useValue` we lowered the expression and then stopped evaluating it, i.e. also didn't unwrap it.
 value = resolveForwardRef(value);
 var depDeps = splitDepsDsl(deps, stringify(token));
 return {
 // will be set by the module definition
 index: -1,
 deps: depDeps,
 flags: flags,
 token: token,
 value: value
 };
}

function moduleDef(providers) {
 var providersByKey = {};
 var modules = [];
 var scope = null;
 for (var i = 0; i < providers.length; i++) {
 var provider = providers[i];
 if (provider.token === INJECTOR_SCOPE) {
 scope = provider.value;
 } else if (provider.flags & 1073741824 /* TypeNgModule */) {
 modules.push(provider.token);
 provider.index = i;
 providersByKey[tokenKey(provider.token)] = provider;
 }
 }
 return {
 // Will be filled later...
 factory: null,
 providersByKey: providersByKey,
 providers: providers,
 modules: modules,
 scope: scope
 };
}

function initNgModule(data) {
 var def = data._def;
 var providers = data._providers = new Array(def.providers.length);
 for (var i = 0; i < def.providers.length; i++) {
 var provDef = def.providers[i];
 if (!(provDef.flags & 4096 /* LazyProvider */) {
 // Make sure the provider has not been already initialized outside this loop.
 if (providers[i] === undefined) {
 providers[i] = _createProviderInstance(data, provDef);
 }
 }
 }
}

function resolveNgModuleDep(data, depDef, notFoundValue) {
 if (notFoundValue === void 0) {
 notFoundValue = Injector.THROW_IF_NOT_FOUND;
 }
 var former = setCurrentInjector(data);
 try {
 if (depDef.flags & 8 /* Value */) {
 return depDef.token;
 } else if (depDef.flags & 2 /* Optional */) {
 notFoundValue = null;
 } else if (depDef.flags & 1 /* SkipSelf */) {
 return data._parent.get(depDef.token, notFoundValue);
 }
 var tokenKey_1 = depDef.tokenKey;
 switch (tokenKey_1) {
 case InjectorRefTokenKey:
 case INJECTORRefTokenKey:
 case NgModuleRefTokenKey:
 return data;
 }
 var providerDef =

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data._def.providersByKey[tokenKey_1];\n var injectableDef = void 0;\n if (providerDef) {\n
var providerInstance = data._providers[providerDef.index];\n if (providerInstance === undefined) {\n
 providerInstance = data._providers[providerDef.index] =\n _createProviderInstance(data,\n
providerDef);\n }\n return providerInstance === UNDEFINED_VALUE ? undefined :\n
providerInstance;\n }\n else if ((injectableDef = getInjectableDef(depDef.token)) &&\n
targetsModule(data, injectableDef)) {\n var index = data._providers.length;\n
data._def.providers[index] = data._def.providersByKey[depDef.tokenKey]\n
= {\n flags: 1024 /* TypeFactoryProvider */ | 4096 /* LazyProvider */,\n value:\n
injectableDef.factory,\n deps: [],\n index: index,\n token: depDef.token,\n
};\n data._providers[index] = UNDEFINED_VALUE;\n return (data._providers[index] =\n
_createProviderInstance(data, data._def.providersByKey[depDef.tokenKey]));\n }\n else if\n
(depDef.flags & 4 /* Self */) {\n return notFoundValue;\n }\n return\n
data._parent.get(depDef.token, notFoundValue);\n }\n finally {\n setCurrentInjector(former);\n
}\n }\n function moduleTransitivelyPresent(ngModule, scope) {\n return\n
ngModule._def.modules.indexOf(scope) > -1;\n }\n function targetsModule(ngModule, def) {\n var\n
providedIn = def.providedIn;\n return providedIn !=\n
null &&\n (providedIn === 'any' || providedIn === ngModule._def.scope ||\n
moduleTransitivelyPresent(ngModule, providedIn));\n }\n function _createProviderInstance(ngModule,\n
providerDef) {\n var injectable;\n switch (providerDef.flags & 201347067 /* Types */) {\n case 512\n
/* TypeClassProvider */:\n injectable = _createClass(ngModule, providerDef.value, providerDef.deps);\n
break;\n case 1024 /* TypeFactoryProvider */:\n injectable = _callFactory(ngModule,\n
providerDef.value, providerDef.deps);\n break;\n case 2048 /* TypeUseExistingProvider */:\n
injectable = resolveNgModuleDep(ngModule, providerDef.deps[0]);\n break;\n case 256 /*\n
TypeValueProvider */:\n injectable = providerDef.value;\n break;\n }\n // The read of\n
`ngOnDestroy` here is slightly expensive as it's megamorphic,\n
so it should be\n // avoided if possible. The sequence of checks here determines whether ngOnDestroy needs to\n
be\n // checked. It might not if the `injectable` isn't an object or if NodeFlags.OnDestroy is already\n // set\n
(ngOnDestroy was detected statically).\n if (injectable !== UNDEFINED_VALUE && injectable !== null &&\n
typeof injectable === 'object' &&\n !(providerDef.flags & 131072 /* OnDestroy */) && typeof\n
injectable.ngOnDestroy === 'function') {\n providerDef.flags |= 131072 /* OnDestroy */;\n }\n
return injectable === undefined ? UNDEFINED_VALUE : injectable;\n }\n function _createClass(ngModule,\n
ctor, deps) {\n var len = deps.length;\n switch (len) {\n case 0:\n return new ctor();\n
case 1:\n return new ctor(resolveNgModuleDep(ngModule, deps[0]));\n case 2:\n return\n
new ctor(resolveNgModuleDep(ngModule, deps[0]),\n
resolveNgModuleDep(ngModule, deps[1]));\n case 3:\n return new\n
ctor(resolveNgModuleDep(ngModule, deps[0]), resolveNgModuleDep(ngModule, deps[1]),\n
resolveNgModuleDep(ngModule, deps[2]));\n default:\n var depValues = [];\n for (var i =\n
0; i < len; i++) {\n depValues[i] = resolveNgModuleDep(ngModule, deps[i]);\n }\n
return new (ctor.bind.apply(ctor, __spread([void 0], depValues)))();\n }\n }\n function\n
_callFactory(ngModule, factory, deps) {\n var len = deps.length;\n switch (len) {\n case 0:\n
return factory();\n case 1:\n return factory(resolveNgModuleDep(ngModule, deps[0]));\n case\n
2:\n return factory(resolveNgModuleDep(ngModule, deps[0]), resolveNgModuleDep(ngModule,\n
deps[1]));\n case 3:\n return factory(resolveNgModuleDep(ngModule, deps[0]),\n
resolveNgModuleDep(ngModule, deps[1]), resolveNgModuleDep(ngModule, deps[2]));\n default:\n
var depValues = [];\n for (var i = 0; i < len; i++) {\n depValues[i] =\n
resolveNgModuleDep(ngModule, deps[i]);\n }\n return factory.apply(void 0,\n
__spread(depValues));\n }\n }\n function callNgModuleLifecycle(ngModule, lifecycles) {\n var def =\n
ngModule._def;\n var destroyed = new Set();\n for (var i = 0; i < def.providers.length; i++) {\n var

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provDef = def.providers[i];\n if (provDef.flags & 131072 /* OnDestroy */) {\n var instance =
ngModule._providers[i];\n if (instance && instance !== UNDEFINED_VALUE) {\n var
onDestroy = instance.ngOnDestroy;\n if (typeof onDestroy === 'function' && !destroyed.has(instance))
{\n onDestroy.apply(instance);\n destroyed.add(instance);\n }\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function
attachEmbeddedView(parentView, elementData, viewIndex, view) {\n var embeddedViews =
elementData.viewContainer._embeddedViews;\n if (viewIndex === null || viewIndex === undefined) {\n
viewIndex = embeddedViews.length;\n }\n view.viewContainerParent = parentView;\n addToArray(embeddedViews, viewIndex, view);\n attachProjectedView(elementData, view);\n Services.dirtyParentQueries(view);\n var prevView = viewIndex > 0 ? embeddedViews[viewIndex - 1] : null;\n renderAttachEmbeddedView(elementData, prevView, view);\n }\n function
attachProjectedView(vcElementData,
view) {\n var dvcElementData = declaredViewContainer(view);\n if (!dvcElementData || dvcElementData
=== vcElementData ||\n view.state & 16 /* IsProjectedView */) {\n return;\n }\n // Note: For
performance reasons, we\n // - add a view to template._projectedViews only 1x throughout its lifetime,\n //
and remove it not until the view is destroyed.\n // (hard, as when a parent view is attached/detached we would
need to attach/detach all\n // nested projected views as well, even across component boundaries).\n // -
don't track the insertion order of views in the projected views array\n // (hard, as when the views of the same
template are inserted different view containers)\n view.state |= 16 /* IsProjectedView */;\n var
projectedViews = dvcElementData.template._projectedViews;\n if (!projectedViews) {\n projectedViews
= dvcElementData.template._projectedViews
= [];\n }\n projectedViews.push(view);\n // Note: we are changing the NodeDef here as we cannot
calculate\n // the fact whether a template is used for projection during compilation.\n markNodeAsProjectedTemplate(view.parent.def, view.parentNodeDef);\n }\n function
markNodeAsProjectedTemplate(viewDef, nodeDef) {\n if (nodeDef.flags & 4 /* ProjectedTemplate */) {\n
return;\n }\n viewDef.nodeFlags |= 4 /* ProjectedTemplate */;\n nodeDef.flags |= 4 /*
ProjectedTemplate */;\n var parentNodeDef = nodeDef.parent;\n while (parentNodeDef) {\n
parentNodeDef.childFlags |= 4 /* ProjectedTemplate */;\n parentNodeDef = parentNodeDef.parent;\n }\n }\n function detachEmbeddedView(elementData, viewIndex) {\n var embeddedViews =
elementData.viewContainer._embeddedViews;\n if (viewIndex == null || viewIndex >= embeddedViews.length)
{\n viewIndex
= embeddedViews.length - 1;\n }\n if (viewIndex < 0) {\n return null;\n }\n var view =
embeddedViews[viewIndex];\n view.viewContainerParent = null;\n removeFromArray(embeddedViews,
viewIndex);\n // See attachProjectedView for why we don't update projectedViews here.\n Services.dirtyParentQueries(view);\n renderDetachView$1(view);\n return view;\n }\n function
detachProjectedView(view) {\n if (!(view.state & 16 /* IsProjectedView */)) {\n return;\n }\n var dvcElementData = declaredViewContainer(view);\n if (dvcElementData) {\n var projectedViews =
dvcElementData.template._projectedViews;\n if (projectedViews) {\n
removeFromArray(projectedViews, projectedViews.indexOf(view));\n Services.dirtyParentQueries(view);\n }\n }\n function moveEmbeddedView(elementData,
oldViewIndex, newViewIndex)
{\n var embeddedViews = elementData.viewContainer._embeddedViews;\n var view =
embeddedViews[oldViewIndex];\n removeFromArray(embeddedViews, oldViewIndex);\n if
(newViewIndex == null) {\n newViewIndex = embeddedViews.length;\n }\n addToArray(embeddedViews, newViewIndex, view);\n // Note: Don't need to change projectedViews as the
order in there\n // as always invalid...\n Services.dirtyParentQueries(view);\n }

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renderDetachView$(view);\n var prevView = newViewIndex > 0 ? embeddedViews[newViewIndex - 1] :
null;\n renderAttachEmbeddedView(elementData, prevView, view);\n return view;\n } \n function
renderAttachEmbeddedView(elementData, prevView, view) {\n var prevRenderNode = prevView ?
renderNode(prevView, prevView.def.lastRenderRootNode) : elementData.renderElement;\n var parentNode =
view.renderer.parentNode(prevRenderNode);\n var nextSibling =
view.renderer.nextSibling(prevRenderNode);\n
 // Note: We can't check if `nextSibling` is present, as on WebWorkers it will always be!\n // However,
browsers automatically do `appendChild` when there is no `nextSibling`.\n visitRootRenderNodes(view, 2 /*
InsertBefore */, parentNode, nextSibling, undefined);\n } \n function renderDetachView$(view) {\n
visitRootRenderNodes(view, 3 /* RemoveChild */, null, null, undefined);\n } \n \n var EMPTY_CONTEXT =
{ };\n // Attention: this function is called as top level function.\n // Putting any logic in here will destroy closure
tree shaking!\n function createComponentFactory(selector, componentType, viewDefFactory, inputs, outputs,
ngContentSelectors) {\n return new ComponentFactory_(selector, componentType, viewDefFactory, inputs,
outputs, ngContentSelectors);\n } \n function GetComponentViewDefinitionFactory(componentFactory) {\n
return componentFactory.viewDefFactory;\n } \n var ComponentFactory_
= /** @class */ (function (_super) {\n __extends(ComponentFactory_, _super);\n function
ComponentFactory_(selector, componentType, viewDefFactory, _inputs, _outputs, ngContentSelectors) {\n
var _this = \n // Attention: this ctor is called as top level function.\n // Putting any logic in here will
destroy closure tree shaking!\n _super.call(this) || this;\n _this.selector = selector;\n
_this.componentType = componentType;\n _this._inputs = _inputs;\n _this._outputs = _outputs;\n
_this.ngContentSelectors = ngContentSelectors;\n _this.viewDefFactory = viewDefFactory;\n return
this;\n } \n Object.defineProperty(ComponentFactory.prototype, \"inputs\", {\n get: function () {\n
var inputsArr = [];\n var inputs = this._inputs;\n for (var propName in inputs) {\n
var templateName = inputs[propName];\n inputsArr.push({ propName: propName, templateName:
templateName });\n }\n return inputsArr;\n },\n enumerable: false,\n
configurable: true\n });\n Object.defineProperty(ComponentFactory_.prototype, \"outputs\", {\n get:
function () {\n var outputsArr = [];\n for (var propName in this._outputs) {\n var
templateName = this._outputs[propName];\n outputsArr.push({ propName: propName, templateName:
templateName });\n }\n return outputsArr;\n },\n enumerable: false,\n
configurable: true\n });\n /**\n * Creates a new component.\n */\n
ComponentFactory_.prototype.create = function (injector, projectableNodes, rootSelectorOrNode, ngModule) {\n
if (!ngModule) {\n
throw new Error('ngModule should be provided');\n }\n var viewDef =
resolveDefinition(this.viewDefFactory);\n var componentNodeIndex =
viewDef.nodes[0].element.componentProvider.nodeIndex;\n var view = Services.createRootView(injector,
projectableNodes || [], rootSelectorOrNode, viewDef, ngModule, EMPTY_CONTEXT);\n var component =
asProviderData(view, componentNodeIndex).instance;\n if (rootSelectorOrNode) {\n
view.renderer.setAttribute(asElementData(view, 0).renderElement, 'ng-version', VERSION.full);\n }\n
return new ComponentRef_(view, new ViewRef_(view), component);\n };\n return ComponentFactory_;\n
})(ComponentFactory_);\n var ComponentRef_ = /** @class */ (function (_super) {\n
__extends(ComponentRef_, _super);\n function ComponentRef_(_view, _viewRef, _component) {\n var
_this = _super.call(this) || this;\n _this._view
= _view;\n _this._viewRef = _viewRef;\n _this._component = _component;\n _this._elDef =
_this._view.def.nodes[0];\n _this.hostView = _viewRef;\n _this.changeDetectorRef = _viewRef;\n
_this.instance = _component;\n return _this;\n } \n
Object.defineProperty(ComponentRef_.prototype, \"location\", {\n get: function () {\n return new
ElementRef(asElementData(this._view, this._elDef.nodeIndex).renderElement);\n },\n enumerable:
false,\n configurable: true\n });\n Object.defineProperty(ComponentRef_.prototype, \"injector\", {\n

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 get: function () {\n return new Injector_(this._view, this._elDef);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ComponentRef_.prototype, \"componentType\", {\n get: function () {\n return this._component.constructor;\n },\n enumerable: false,\n configurable: true\n });\n ComponentRef_.prototype.destroy = function () {\n this._viewRef.destroy();\n };\n ComponentRef_.prototype.onDestroy = function (callback) {\n this._viewRef.onDestroy(callback);\n };\n return ComponentRef_;\n})(ComponentRef));\nfunction createViewContainerData(view, elDef, elData) {\n return new ViewContainerRef_(view, elDef, elData);\n}\nvar ViewContainerRef_ = /**\n@class */(function () {\n function ViewContainerRef_(view, _elDef, _data) {\n this._view = _view;\n this._elDef = _elDef;\n this._data = _data;\n }\n /**\n * @internal\n */\n this._embeddedViews = [];\n Object.defineProperty(ViewContainerRef_.prototype, \"element\", {\n get: function () {\n return new ElementRef(this._data.renderElement);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ViewContainerRef_.prototype, \"injector\", {\n get: function () {\n return new Injector_(this._view, this._elDef);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ViewContainerRef_.prototype, \"parentInjector\", {\n /**\n * @deprecated No replacement\n */\n get: function () {\n var view = this._view;\n var elDef = this._elDef.parent;\n while (!elDef && view) {\n elDef = viewParentEl(view);\n view = view.parent;\n }\n return view ? new Injector_(view, elDef) : new Injector_(this._view, null);\n },\n enumerable: false,\n configurable: true\n });\n ViewContainerRef_.prototype.clear = function () {\n var len = this._embeddedViews.length;\n for (var i = len - 1; i >= 0; i--) {\n var view = detachEmbeddedView(this._data, i);\n Services.destroyView(view);\n }\n };\n ViewContainerRef_.prototype.get = function (index) {\n var view = this._embeddedViews[index];\n if (view) {\n var ref = new ViewRef_(view);\n ref.attachToViewContainerRef(this);\n return ref;\n }\n return null;\n };\n Object.defineProperty(ViewContainerRef_.prototype, \"length\", {\n get: function () {\n return this._embeddedViews.length;\n },\n enumerable: false,\n configurable: true\n });\n ViewContainerRef_.prototype.createEmbeddedView = function (templateRef, context, index) {\n var viewRef = templateRef.createEmbeddedView(context);\n || {});\n this.insert(viewRef, index);\n return viewRef;\n };\n ViewContainerRef_.prototype.createComponent = function (componentFactory, index, injector, projectableNodes, ngModuleRef) {\n var contextInjector = injector || this.parentInjector;\n if (!ngModuleRef && !(componentFactory instanceof ComponentFactoryBoundToModule)) {\n ngModuleRef = contextInjector.get(NgModuleRef);\n }\n var componentRef = componentFactory.create(contextInjector, projectableNodes, undefined, ngModuleRef);\n this.insert(componentRef.hostView, index);\n return componentRef;\n };\n ViewContainerRef_.prototype.insert = function (viewRef, index) {\n if (viewRef.destroyed) {\n throw new Error('Cannot insert a destroyed View in a ViewContainer!');\n }\n var viewRef_ = viewRef;\n var viewData = viewRef._view;\n attachEmbeddedView(this._view, this._data, index, viewData);\n viewRef_.attachToViewContainerRef(this);\n return viewRef;\n };\n ViewContainerRef_.prototype.move = function (viewRef, currentIndex) {\n if (viewRef.destroyed) {\n throw new Error('Cannot move a destroyed View in a ViewContainer!');\n }\n var previousIndex = this._embeddedViews.indexOf(viewRef._view);\n moveEmbeddedView(this._data, previousIndex, currentIndex);\n return viewRef;\n };\n ViewContainerRef_.prototype.indexOf = function (viewRef) {\n return this._embeddedViews.indexOf(viewRef._view);\n };\n ViewContainerRef_.prototype.remove = function (index) {\n var viewData = detachEmbeddedView(this._data, index);\n if (viewData) {\n Services.destroyView(viewData);\n }\n }\n}());

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 }\n }\n ViewContainerRef_.prototype.detach
= function (index) {\n var view = detachEmbeddedView(this._data, index);\n return view ? new
ViewRef_(view) : null;\n }\n return ViewContainerRef_;\n }());\n function
createChangeDetectorRef(view) {\n return new ViewRef_(view);\n }\n var ViewRef_ = /** @class */
(function () {\n function ViewRef_(view) {\n this._view = _view;\n this._viewContainerRef =
null;\n this._appRef = null;\n }\n Object.defineProperty(ViewRef_.prototype, \"rootNodes\", {\n
get: function () {\n return rootRenderNodes(this._view);\n },\n enumerable: false,\n
configurable: true\n });\n Object.defineProperty(ViewRef_.prototype, \"context\", {\n get: function ()
{\n return this._view.context;\n },\n enumerable: false,\n configurable: true\n });\n
 Object.defineProperty(ViewRef_.prototype,
\"destroyed\", {\n get: function () {\n return (this._view.state & 128 /* Destroyed */) !== 0;\n
 },\n enumerable: false,\n configurable: true\n });\n ViewRef_.prototype.markForCheck =
function () {\n markParentViewsForCheck(this._view);\n }\n ViewRef_.prototype.detach = function
() {\n this._view.state &= ~4 /* Attached */;\n }\n ViewRef_.prototype.detectChanges = function ()
{\n var fs = this._view.root.rendererFactory;\n if (fs.begin) {\n fs.begin();\n }\n
 try {\n Services.checkAndUpdateView(this._view);\n }\n finally {\n if (fs.end) {\n
 fs.end();\n }\n }\n }\n ViewRef_.prototype.checkNoChanges = function () {\n
 Services.checkNoChangesView(this._view);\n }\n ViewRef_.prototype.reattach = function () {\n
 this._view.state |= 4 /* Attached */;\n }\n ViewRef_.prototype.onDestroy = function (callback) {\n
 if (!this._view.disposables) {\n this._view.disposables = [];\n }\n this._view.disposables.push(callback);\n }\n
 ViewRef_.prototype.destroy = function () {\n if (this._appRef) {\n this._appRef.detachView(this);\n
 }\n else if (this._viewContainerRef) {\n this._viewContainerRef.detach(this._viewContainerRef.indexOf(this));\n }\n
 Services.destroyView(this._view);\n }\n ViewRef_.prototype.detachFromAppRef = function () {\n
 this._appRef = null;\n renderDetachView$1(this._view);\n Services.dirtyParentQueries(this._view);\n
 }\n ViewRef_.prototype.attachToAppRef = function (appRef) {\n if (this._viewContainerRef) {\n
 throw new Error(\"This view is already attached to a ViewContainer!\");\n }\n this._appRef = appRef;\n }\n
 ViewRef_.prototype.attachToViewContainerRef = function (vcRef) {\n if (this._appRef) {\n throw
new Error(\"This view is already attached directly to the ApplicationRef!\");\n }\n this._viewContainerRef = vcRef;\n }\n return ViewRef_;\n }());\n function createTemplateData(view,
def) {\n return new TemplateRef_(view, def);\n }\n var TemplateRef_ = /** @class */ (function (_super)
{\n __extends(TemplateRef_, _super);\n function TemplateRef_(parentView, _def) {\n var _this =
_super.call(this) || this;\n _this._parentView = _parentView;\n _this._def = _def;\n return
this;\n }\n TemplateRef.prototype.createEmbeddedView = function (context) {\n return new ViewRef_(Services.createEmbeddedView(this._parentView, this._def, this._def.element.template,
context));\n }\n Object.defineProperty(TemplateRef_.prototype, \"elementRef\", {\n get: function ()
{\n return new ElementRef(asElementData(this._parentView, this._def.nodeIndex).renderElement);\n },\n enumerable: false,\n configurable: true\n });\n return TemplateRef_;\n }
(TemplateRef_));\n function createInjector$1(view, elDef) {\n return new Injector_(view, elDef);\n }\n var
Injector_ = /** @class */ (function () {\n function Injector_(view, elDef) {\n this.view = view;\n this.elDef = elDef;\n }\n Injector_.prototype.get = function (token, notFoundValue) {\n if
(notFoundValue === void 0) { notFoundValue = Injector.THROW_IF_NOT_FOUND; }\n var
allowPrivateServices = this.elDef ? (this.elDef.flags & 33554432
/* ComponentView */) !== 0 : false;\n return Services.resolveDep(this.view, this.elDef,
allowPrivateServices, { flags: 0 /* None */, token: token, tokenKey: tokenKey(token) }, notFoundValue);\n }\n return Injector_;\n }());\n function nodeValue(view, index) {\n var def = view.def.nodes[index];\n if

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(def.flags & 1 /* TypeElement */) {\n var elData = asElementData(view, def.nodeIndex);\n return
def.element.template ? elData.template : elData.renderElement;\n }\n else if (def.flags & 2 /* TypeText */)
{\n return asTextData(view, def.nodeIndex).renderText;\n }\n else if (def.flags & (20224 /*
CatProvider */ | 16 /* TypePipe */)) {\n return asProviderData(view, def.nodeIndex).instance;\n }\n
throw new Error(\"Illegal state: read nodeValue for node index \" + index);\n }\n function
createNgModuleRef(moduleType, parent, bootstrapComponents, def) {\n
 return new NgModuleRef_(moduleType, parent, bootstrapComponents, def);\n }\n var NgModuleRef_ = /**
@class */ (function () {\n function NgModuleRef_(moduleType, parent, bootstrapComponents, def) {\n
 this._moduleType = moduleType;\n this._parent = parent;\n this._bootstrapComponents =
_bootstrapComponents;\n this._def = _def;\n this._destroyListeners = [];\n this._destroyed =
false;\n this.injector = this;\n initNgModule(this);\n }\n NgModuleRef_.prototype.get =
function (token, notFoundValue, injectFlags) {\n if (notFoundValue === void 0) { notFoundValue =
Injector.THROW_IF_NOT_FOUND; }\n if (injectFlags === void 0) { injectFlags =
exports.InjectFlags.Default; }\n var flags = 0 /* None */;\n if (injectFlags &
exports.InjectFlags.SkipSelf) {\n flags |= 1 /* SkipSelf */;\n }\n else if
(injectFlags & exports.InjectFlags.Self) {\n flags |= 4 /* Self */;\n }\n return
resolveNgModuleDep(this, { token: token, tokenKey: tokenKey(token), flags: flags }, notFoundValue);\n };\n
 Object.defineProperty(NgModuleRef_.prototype, \"instance\", {\n get: function () {\n return
this.get(this._moduleType);\n },\n enumerable: false,\n configurable: true\n });\n
 Object.defineProperty(NgModuleRef_.prototype, \"componentFactoryResolver\", {\n get: function () {\n
 return this.get(ComponentFactoryResolver);\n },\n enumerable: false,\n configurable: true\n
 });\n NgModuleRef_.prototype.destroy = function () {\n if (this._destroyed) {\n throw new
Error(\"The ng module \" + stringify(this.instance.constructor) + \" has already been destroyed.\");\n }\n
 this._destroyed
= true;\n callNgModuleLifecycle(this, 131072 /* OnDestroy */);\n
 this._destroyListeners.forEach(function (listener) { return listener(); });\n };\n
 NgModuleRef_.prototype.onDestroy = function (callback) {\n this._destroyListeners.push(callback);\n
 };\n return NgModuleRef_;\n })();\n var Renderer2TokenKey = tokenKey(Renderer2);\n var
ElementRefTokenKey = tokenKey(ElementRef);\n var ViewContainerRefTokenKey =
tokenKey(ViewContainerRef);\n var TemplateRefTokenKey = tokenKey(TemplateRef);\n var
ChangeDetectorRefTokenKey = tokenKey(ChangeDetectorRef);\n var InjectorRefTokenKey$1 =
tokenKey(Injector);\n var INJECTORRefTokenKey$1 = tokenKey(INJECTOR$1);\n function
directiveDef(checkIndex, flags, matchedQueries, childCount, ctor, deps, props, outputs) {\n var bindings = [];\n
 if (props) {\n for (var prop in props) {\n var _a = __read(props[prop], 2), bindingIndex
= _a[0], nonMinifiedName = _a[1];\n bindings[bindingIndex] = {\n flags: 8 /* TypeProperty
*/,\n name: prop,\n nonMinifiedName: nonMinifiedName,\n ns: null,\n
 securityContext: null,\n suffix: null\n };\n }\n var outputDefs = [];\n if
(outputs) {\n for (var propName in outputs) {\n outputDefs.push({ type: 1 /* DirectiveOutput */,
propName: propName, target: null, eventName: outputs[propName] });\n }\n flags |= 16384 /*
TypeDirective */;\n return _def(checkIndex, flags, matchedQueries, childCount, ctor, ctor, deps, bindings,
outputDefs);\n }\n function pipeDef(flags, ctor, deps) {\n flags |= 16 /* TypePipe */;\n return _def(-1,
flags, null, 0, ctor, ctor, deps);\n }\n function providerDef(flags, matchedQueries, token,
value, deps) {\n return _def(-1, flags, matchedQueries, 0, token, value, deps);\n }\n function
_def(checkIndex, flags, matchedQueriesDsl, childCount, token, value, deps, bindings, outputs) {\n var _a =
splitMatchedQueriesDsl(matchedQueriesDsl), matchedQueries = _a.matchedQueries, references = _a.references,
matchedQueryIds = _a.matchedQueryIds;\n if (!outputs) {\n outputs = [];\n }\n if (!bindings) {\n
 bindings = [];\n }\n // Need to resolve forwardRefs as e.g. for `useValue` we\n // lowered the
expression and then stopped evaluating it,\n // i.e. also didn't unwrap it.\n value =

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resolveForwardRef(value);\n var depDefs = splitDepsDsl(deps, stringify(token));\n return {\n // will
bet set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n bindingIndex: -1,\n outputIndex: -1,\n // regular values\n checkIndex: checkIndex,\n flags: flags,\n childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries: matchedQueries,\n matchedQueryIds: matchedQueryIds,\n references: references,\n ngContentIndex: -1,\n childCount: childCount,\n bindings: bindings,\n bindingFlags: calcBindingFlags(bindings),\n outputs: outputs,\n element: null,\n provider: { token: token, value: value, deps: depDefs },\n text: null,\n query: null,\n ngContent: null\n };\n function createProviderInstance(view,\n def) {\n return _createProviderInstance$1(view, def);\n } function createPipeInstance(view, def) {\n //
deps are looked up from component.\n var compView = view;\n while (compView.parent &&\n !isComponentView(compView))\n {\n compView = compView.parent;\n }\n // pipes can see the private services of the component\n var allowPrivateServices = true;\n // pipes are always eager and classes!\n return\n createClass(compView.parent, viewParentEl(compView), allowPrivateServices, def.provider.value,\n def.provider.deps);\n } function createDirectiveInstance(view, def) {\n // components can see other private
services, other directives can't.\n var allowPrivateServices = (def.flags & 32768 /* Component */) > 0;\n //
directives are always eager and classes!\n var instance = createClass(view, def.parent, allowPrivateServices,\n def.provider.value, def.provider.deps);\n if (def.outputs.length) {\n for (var i = 0; i < def.outputs.length;\n i++) {\n var output = def.outputs[i];\n var outputObservable = instance[output.propName];\n if (isObservable(outputObservable)) {\n var subscription = outputObservable.subscribe(eventHandlerClosure(view, def.parent.nodeIndex,\n output.eventName));\n view.disposables[def.outputIndex + i] =\n subscription.unsubscribe.bind(subscription);\n } else {\n throw new\n Error("@Output \"" + output.propName + "\" not initialized in \"" + instance.constructor.name + "\"");\n }\n }\n return instance;\n } function eventHandlerClosure(view, index, eventName) {\n return function (event) {\n return dispatchEvent(view, index, eventName, event);\n }; \n } function\n checkAndUpdateDirectiveInline(view, def, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n var providerData =\n asProviderData(view, def.nodeIndex);\n var directive = providerData.instance;\n var changed = false;\n var changes = undefined;\n var bindLen = def.bindings.length;\n if (bindLen > 0 && checkBinding(view,\n def, 0, v0)) {\n changed = true;\n changes = updateProp(view, providerData, def, 0, v0, changes);\n }\n if (bindLen > 1 && checkBinding(view, def, 1, v1)) {\n changed = true;\n changes =\n updateProp(view, providerData, def, 1, v1, changes);\n }\n if (bindLen > 2 && checkBinding(view, def, 2,\n v2)) {\n changed = true;\n changes = updateProp(view, providerData, def, 2, v2, changes);\n }\n if (bindLen > 3 && checkBinding(view, def, 3, v3)) {\n changed = true;\n changes =\n updateProp(view, providerData, def, 3, v3, changes);\n }\n if (bindLen > 4 && checkBinding(view, def, 4,\n v4)) {\n changed = true;\n changes = updateProp(view, providerData, def, 4, v4, changes);\n }\n if (bindLen > 5 && checkBinding(view, def, 5, v5)) {\n changed = true;\n changes =\n updateProp(view, providerData, def,\n 5, v5, changes);\n }\n if (bindLen > 6 && checkBinding(view, def, 6, v6)) {\n changed = true;\n changes = updateProp(view, providerData, def, 6, v6, changes);\n }\n if (bindLen > 7 &&\n checkBinding(view, def, 7, v7)) {\n changed = true;\n changes = updateProp(view, providerData, def,\n 7, v7, changes);\n }\n if (bindLen > 8 && checkBinding(view, def, 8, v8)) {\n changed = true;\n changes = updateProp(view, providerData, def, 8, v8, changes);\n }\n if (bindLen > 9 &&\n checkBinding(view, def, 9, v9)) {\n changed = true;\n changes = updateProp(view, providerData, def,\n 9, v9, changes);\n }\n if (changes) {\n directive.ngOnChanges(changes);\n }\n if ((def.flags\n & 65536 /* OnInit */) &&\n shouldCallLifecycleInitHook(view, 256 /* InitState_CallingOnInit */,\n def.nodeIndex)) {\n directive.ngOnInit();\n }\n }\n }

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 }\n if (def.flags & 262144 /* DoCheck */) {\n directive.ngDoCheck();\n }\n return
changed;\n }\n function checkAndUpdateDirectiveDynamic(view, def, values) {\n var providerData =
asProviderData(view, def.nodeIndex);\n var directive = providerData.instance;\n var changed = false;\n var changes = undefined;\n for (var i = 0; i < values.length; i++) {\n if (checkBinding(view, def, i,
values[i])) {\n changed = true;\n changes = updateProp(view, providerData, def, i, values[i],
changes);\n }\n }\n if (changes) {\n directive.ngOnChanges(changes);\n }\n if
((def.flags & 65536 /* OnInit */) &&\n shouldCallLifecycleInitHook(view, 256 /* InitState_CallingOnInit */,
def.nodeIndex)) {\n directive.ngOnInit();\n }\n if (def.flags & 262144 /* DoCheck */) {\n
directive.ngDoCheck();\n
 }\n return changed;\n }\n function _createProviderInstance$1(view, def) {\n // private services can
see other private services\n var allowPrivateServices = (def.flags & 8192 /* PrivateProvider */) > 0;\n var
providerDef = def.provider;\n switch (def.flags & 201347067 /* Types */) {\n case 512 /*
TypeClassProvider */:\n return createClass(view, def.parent, allowPrivateServices, providerDef.value,
providerDef.deps);\n case 1024 /* TypeFactoryProvider */:\n return callFactory(view, def.parent,
allowPrivateServices, providerDef.value, providerDef.deps);\n case 2048 /* TypeUseExistingProvider */:\n
 return resolveDep(view, def.parent, allowPrivateServices, providerDef.deps[0]);\n case 256 /*
TypeValueProvider */:\n return providerDef.value;\n }\n }\n function createClass(view, elDef,
allowPrivateServices, ctor, deps) {\n
 var len = deps.length;\n switch (len) {\n case 0:\n return new ctor();\n case 1:\n
 return new ctor(resolveDep(view, elDef, allowPrivateServices, deps[0]));\n case 2:\n
 return new
ctor(resolveDep(view, elDef, allowPrivateServices, deps[0]), resolveDep(view, elDef, allowPrivateServices,
deps[1]));\n case 3:\n return new ctor(resolveDep(view, elDef, allowPrivateServices, deps[0]),
resolveDep(view, elDef, allowPrivateServices, deps[1]), resolveDep(view, elDef, allowPrivateServices, deps[2]));\n
 default:\n var depValues = [];\n for (var i = 0; i < len; i++) {\n
 depValues.push(resolveDep(view, elDef, allowPrivateServices, deps[i]));\n }\n
 return new
(ctor.bind.apply(ctor, __spread([void 0], depValues)))();\n }\n }\n function callFactory(view, elDef,
allowPrivateServices, factory,
 deps) {\n var len = deps.length;\n switch (len) {\n case 0:\n return factory();\n case
1:\n return factory(resolveDep(view, elDef, allowPrivateServices, deps[0]));\n case 2:\n
 return factory(resolveDep(view, elDef, allowPrivateServices, deps[0]), resolveDep(view, elDef,
allowPrivateServices, deps[1]));\n case 3:\n return factory(resolveDep(view, elDef,
allowPrivateServices, deps[0]), resolveDep(view, elDef, allowPrivateServices, deps[1]), resolveDep(view, elDef,
allowPrivateServices, deps[2]));\n default:\n var depValues = [];\n for (var i = 0; i < len;
i++) {\n depValues.push(resolveDep(view, elDef, allowPrivateServices, deps[i]));\n }\n
 return factory.apply(void 0, __spread(depValues));\n }\n }\n // This default value is when checking the
hierarchy for a token.\n
 /\n // It means both:\n // - the token is not provided by the current injector,\n // - only the element injectors
should be checked (ie do not check module injectors)\n /\n // mod1\n // /\n // el1 mod2\n //
 /\n // el2\n /\n // When requesting el2.injector.get(token), we should check in the following order
and return the\n // first found value:\n // - el2.injector.get(token, default)\n // - el1.injector.get(token,
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) -> do not check the module\n // -
mod2.injector.get(token, default)\n var NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR = {};\n
 function resolveDep(view, elDef, allowPrivateServices, depDef, notFoundValue) {\n if (notFoundValue ===
void 0) {\n notFoundValue = Injector.THROW_IF_NOT_FOUND;\n }\n if (depDef.flags & 8 /* Value */) {\n
 return depDef.token;\n }\n var startView = view;\n if (depDef.flags & 2 /* Optional
*/) {\n notFoundValue = null;\n }\n var tokenKey = depDef.tokenKey;\n if (tokenKey ===
ChangeDetectorRefTokenKey) {\n // directives on the same element as a component should be able to control
the change detector\n // of that component as well.\n allowPrivateServices = !(elDef &&

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elDef.element.componentView);\n }\n if (elDef && (depDef.flags & 1 /* SkipSelf */)) {\n
allowPrivateServices = false;\n elDef = elDef.parent;\n }\n var searchView = view;\n while
(searchView) {\n if (elDef) {\n switch (tokenKey) {\n case Renderer2TokenKey: {\n
 var compView = findCompView(searchView, elDef, allowPrivateServices);\n return
compView.renderer;\n }\n case ElementRefTokenKey:\n return new
ElementRef(asElementData(searchView,
elDef.nodeIndex).renderElement);\n case ViewContainerRefTokenKey:\n return
asElementData(searchView, elDef.nodeIndex).viewContainer;\n case TemplateRefTokenKey: {\n
 if (elDef.element.template) {\n return asElementData(searchView,
elDef.nodeIndex).template;\n }\n break;\n }\n case
ChangeDetectorRefTokenKey: {\n var cdView = findCompView(searchView, elDef,
allowPrivateServices);\n return createChangeDetectorRef(cdView);\n }\n case
InjectorRefTokenKey$1:\n case INJECTORRefTokenKey$1:\n return
createInjector$1(searchView, elDef);\n default:\n var providerDef_1 =
(allowPrivateServices ? elDef.element.allProviders :\n
elDef.element.publicProviders)[tokenKey];\n if (providerDef_1) {\n var
providerData = asProviderData(searchView, providerDef_1.nodeIndex);\n if (!providerData) {\n
 providerData = { instance: _createProviderInstance$1(searchView, providerDef_1) };\n
 searchView.nodes[providerDef_1.nodeIndex] = providerData;\n }\n return
providerData.instance;\n }\n }\n allowPrivateServices =
isComponentView(searchView);\n elDef = viewParentEl(searchView);\n searchView =
searchView.parent;\n if (depDef.flags & 4 /* Self */) {\n searchView = null;\n }\n }\n
 var value = startView.root.injector.get(depDef.token, NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR);\n
 if (value !==
 NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR ||\n notFoundValue ===
 NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n // Return the value from the root element
injector when\n // - it provides it\n // (value !==
 NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n // - the module injector should not be checked\n
 // (notFoundValue === NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n return value;\n
 }\n return startView.root.ngModule.injector.get(depDef.token, notFoundValue);\n }\n function
findCompView(view, elDef, allowPrivateServices) {\n var compView;\n if (allowPrivateServices) {\n
 compView = asElementData(view, elDef.nodeIndex).componentView;\n }\n else {\n compView =
view;\n while (compView.parent && !isComponentView(compView)) {\n compView =
compView.parent;\n }\n }\n return compView;\n }\n function updateProp(view,
providerData, def, bindingIdx, value, changes) {\n if (def.flags & 32768 /* Component */) {\n var
compView = asElementData(view, def.parent.nodeIndex).componentView;\n if (compView.def.flags & 2 /*
OnPush */) {\n compView.state |= 8 /* ChecksEnabled */;\n }\n }\n var binding =
def.bindings[bindingIdx];\n var propName = binding.name;\n // Note: This is still safe with Closure
Compiler as\n // the user passed in the property name as an object has to `providerDef`,\n // so Closure
Compiler will have renamed the property correctly already.\n providerData.instance[propName] = value;\n
 if (def.flags & 524288 /* OnChanges */) {\n changes = changes || {};\n var oldValue =
WrappedValue.unwrap(view.oldValues[def.bindingIndex + bindingIdx]);\n var binding_1 =
def.bindings[bindingIdx];\n changes[binding_1.nonMinifiedName] =\n
 new SimpleChange(oldValue, value, (view.state & 2 /* FirstCheck */) !== 0);\n }\n
 view.oldValues[def.bindingIndex + bindingIdx] = value;\n return changes;\n }\n // This function calls the
ngAfterContentCheck, ngAfterContentInit,\n // ngAfterViewCheck, and ngAfterViewInit lifecycle hooks
(depending on the node\n // flags in lifecycle). Unlike ngDoCheck, ngOnChanges and ngOnInit, which are\n //
called during a pre-order traversal of the view tree (that is calling the\n // parent hooks before the child hooks)

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these events are sent in using a\n // post-order traversal of the tree (children before parents). This changes the\n // meaning of initIndex in the view state. For ngOnInit, initIndex tracks the\n // expected nodeIndex which a ngOnInit should be called. When sending\n // ngAfterContentInit and ngAfterViewInit it is the expected count of\n // ngAfterContentInit or ngAfterViewInit methods that have been called. This\n // ensure that despite being called recursively or after picking up after an\n // exception, the ngAfterContentInit or ngAfterViewInit will be called on the\n // correct nodes. Consider for example, the following (where E is an element\n // and D is a directive)\n // Tree: pre-order index post-order index\n // E1 0 6\n // E2 1 1\n // D3 2 0\n // E4 3 5\n // E5 4 4\n // E6 5 2\n // E7 6 3\n // As can be seen, the post-order index has an unclear relationship to the\n // pre-order index (postOrderIndex === preOrderIndex - parentCount +\n // childCount). Since number of calls to ngAfterContentInit and ngAfterViewInit\n // are stable (will be the same for the same view regardless of exceptions or\n // recursion) we just need to count them which will roughly correspond to the\n // post-order index (it skips elements and directives that do not have\n // lifecycle hooks).\n //\n // For example, if an exception is raised in the E6.onAfterViewInit() the\n // initIndex is left at 3 (by shouldCallLifecycleInitHook() which set it to\n // initIndex + 1). When checkAndUpdateView() is called again D3, E2 and E6 will\n // not have their ngAfterViewInit() called but, starting with E7, the rest of\n // the view will begin getting ngAfterViewInit() called until a check and\n // pass is complete.\n //\n // This algorithm also handles recursion. Consider if E4's ngAfterViewInit()\n // indirectly calls E1's ChangeDetectorRef.detectChanges(). The expected\n // initIndex is set to 6, the recursive checkAndUpdateView() starts walk again.\n // D3, E2, E6, E7, E5 and E4 are skipped, ngAfterViewInit() is called on E1.\n // When the recursion returns the initIndex will be 7 so E1 is skipped as it\n // has already been called in the recursively called checkAnUpdateView().\n // function callLifecycleHooksChildrenFirst(view, lifecycles) {\n // if (!(view.def.nodeFlags & lifecycles)) {\n // return;\n // }\n // var nodes = view.def.nodes;\n // var initIndex = 0;\n // for (var i = 0; i < nodes.length; i++) {\n // var nodeDef = nodes[i];\n // var parent = nodeDef.parent;\n // if (!parent && nodeDef.flags & lifecycles) {\n // // matching root node (e.g. a pipe)\n // callProviderLifecycles(view, i, nodeDef.flags & lifecycles, initIndex++);\n // }\n // if ((nodeDef.childFlags & lifecycles) === 0) {\n // // no child matches one of the lifecycles\n // i += nodeDef.childCount;\n // }\n // while (parent && (parent.flags & 1 /\* TypeElement \*/) && i === parent.nodeIndex + parent.childCount) {\n // // last child of an element\n // if (parent.directChildFlags & lifecycles) {\n // initIndex = callElementProvidersLifecycles(view, parent, lifecycles, initIndex);\n // }\n // parent = parent.parent;\n // }\n // }\n // function callElementProvidersLifecycles(view, elDef, lifecycles, initIndex) {\n // for (var i = elDef.nodeIndex + 1; i <= elDef.nodeIndex + elDef.childCount; i++) {\n // var nodeDef = view.def.nodes[i];\n // if (nodeDef.flags & lifecycles) {\n // callProviderLifecycles(view, i, nodeDef.flags & lifecycles, initIndex++);\n // }\n // // only visit direct children\n // i += nodeDef.childCount;\n // }\n // return initIndex;\n // }\n // function callProviderLifecycles(view, index, lifecycles, initIndex) {\n // var providerData = asProviderData(view, index);\n // if (!providerData) {\n // return;\n // }\n // var provider = providerData.instance;\n // if (!provider) {\n // return;\n // }\n // Services.setCurrentNode(view, index);\n // if (lifecycles & 1048576 /\* AfterContentInit \*/ && !shouldCallLifecycleInitHook(view, 512 /\* InitState\_CallingAfterContentInit \*/, initIndex)) {\n // provider.ngAfterContentInit();\n // }\n // if (lifecycles & 2097152 /\* AfterContentChecked \*/) {\n // provider.ngAfterContentChecked();\n // }\n // if (lifecycles & 4194304 /\* AfterViewInit \*/ && !shouldCallLifecycleInitHook(view, 768 /\* InitState\_CallingAfterViewInit \*/, initIndex)) {\n // provider.ngAfterViewInit();\n // }\n // if (lifecycles & 8388608 /\* AfterViewChecked \*/) {\n // provider.ngAfterViewChecked();\n // }\n // if (lifecycles & 131072 /\* OnDestroy \*/) {\n // provider.ngOnDestroy();\n // }\n // }\n // var ComponentFactoryResolver\$1 = /\*\* @class \*/ (function (\_super) {\n // \_\_extends(ComponentFactoryResolver, \_super);\n // /\*\*\n // \* @param ngModule



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The NgModuleRef to which all resolved factories are bound.\n */\n function
ComponentFactoryResolver(ngModule) {\n var _this = _super.call(this) || this;\n _this.ngModule =
ngModule;\n return _this;\n }\n ComponentFactoryResolver.prototype.resolveComponentFactory =
function (component) {\n ngDevMode && assertComponentType(component);\n var componentDef =
getComponentDef(component);\n return new ComponentFactory$1(componentDef, this.ngModule);\n };\n return ComponentFactoryResolver;\n })(ComponentFactoryResolver);\n function toRefArray(map) {\n
 var array = [];\n for (var nonMinified in map) {\n if (map.hasOwnProperty(nonMinified)) {\n
var minified = map[nonMinified];\n array.push({ propName: minified, templateName: nonMinified });\n
 }\n }\n return array;\n }\n function getNamespace$1(elementName)
{\n var name = elementName.toLowerCase();\n return name === 'svg' ? SVG_NAMESPACE : (name ===
'math' ? MATH_ML_NAMESPACE : null);\n }\n /**\n * A change detection scheduler token for { @link
RootContext }. This token is the default value used\n * for the default `RootContext` found in the { @link
ROOT_CONTEXT } token.\n */\n var SCHEDULER = new InjectionToken('SCHEDULER_TOKEN', {\n
providedIn: 'root',\n factory: function () { return defaultScheduler; },\n });\n function
createChainedInjector(rootViewInjector, moduleInjector) {\n return {\n get: function (token,
notFoundValue, flags) {\n var value = rootViewInjector.get(token,
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR, flags);\n if (value !==
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR ||\n notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n // Return the value from the root element
injector\n when\n // - it provides it\n // (value !==
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n // - the module injector should not be
checked\n // (notFoundValue === NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)\n return value;\n }\n return moduleInjector.get(token, notFoundValue, flags);\n }\n };\n }\n /**\n * Render3 implementation of { @link viewEngine_ComponentFactory }.\n */\n var
ComponentFactory$1 = /** @class */ (function (_super) {\n __extends(ComponentFactory, _super);\n
 } /**\n * @param componentDef The component definition.\n * @param ngModule The NgModuleRef to
which the factory is bound.\n */\n function ComponentFactory(componentDef, ngModule) {\n var
_this = _super.call(this) || this;\n _this.componentDef = componentDef;\n _this.ngModule =
ngModule;\n
 _this.componentType = componentDef.type;\n _this.selector =
stringifyCSSSelectorList(componentDef.selectors);\n _this.ngContentSelectors =\n componentDef.ngContentSelectors ? componentDef.ngContentSelectors : [];\n _this.isBoundToModule =
!!ngModule;\n return _this;\n })\n Object.defineProperty(ComponentFactory.prototype, 'inputs',
{\n get: function () {\n return toRefArray(this.componentDef.inputs);\n },\n
enumerable: false,\n configurable: true\n });\n Object.defineProperty(ComponentFactory.prototype,
'outputs', {\n get: function () {\n return toRefArray(this.componentDef.outputs);\n },\n
enumerable: false,\n configurable: true\n });\n ComponentFactory.prototype.create = function
(injector, projectableNodes, rootSelectorOrNode, ngModule) {\n ngModule
= ngModule || this.ngModule;\n var rootViewInjector = ngModule ? createChainedInjector(injector,
ngModule.injector) : injector;\n var rendererFactory = rootViewInjector.get(RendererFactory2,
domRendererFactory3);\n var sanitizer = rootViewInjector.get(Sanitizer, null);\n var hostRenderer =
rendererFactory.createRenderer(null, this.componentDef);\n // Determine a tag name used for creating host
elements when this component is created\n // dynamically. Default to 'div' if this component did not specify
any tag name in its selector.\n var elementName = this.componentDef.selectors[0][0] || 'div';\n var
hostRNode = rootSelectorOrNode ?\n locateHostElement(hostRenderer, rootSelectorOrNode,
this.componentDef.encapsulation) :\n createElementNode(rendererFactory.createRenderer(null,
this.componentDef), elementName, getNamespace$1(elementName));\n var rootFlags =

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this.componentDef.onPush ? 64 /* Dirty */ | 512 /* IsRoot */ : \n 16 /* CheckAlways */ | 512 /* IsRoot
*/; \n var rootContext = createRootContext(); \n // Create the root view. Uses empty TView and
ContentTemplate. \n var rootTVView = createTVView(0 /* Root */, null, null, 1, 0, null, null, null, null); \n
 var rootLView = createLView(null, rootTVView, rootContext, rootFlags, null, null, rendererFactory,
hostRenderer, sanitizer, rootViewInjector); \n // rootView is the parent when bootstrapping \n //
TODO(misko): it looks like we are entering view here but we don't really need to as \n // `renderView` does
that. However as the code is written it is needed because \n // `createRootComponentView` and
`createRootComponent` both read global state. Fixing those \n // issues would allow us to drop this. \n
enterView(rootLView); \n var component; \n var tElementNode; \n
 try { \n var componentView = createRootComponentView(hostRNode, this.componentDef,
rootLView, rendererFactory, hostRenderer); \n if (hostRNode) { \n if (rootSelectorOrNode) { \n
 setUpAttributes(hostRenderer, hostRNode, ['ng-version', VERSION.full]); \n } \n
 else { \n // If host element is created as a part of this function call (i.e. `rootSelectorOrNode` \n
 // is not defined), also apply attributes and classes extracted from component selector. \n // Extract
attributes and classes from the first selector only to match VE behavior. \n var _a =
extractAttrsAndClassesFromSelector(this.componentDef.selectors[0]), attrs = _a.attrs, classes = _a.classes; \n
 if (attrs) { \n setUpAttributes(hostRenderer, hostRNode, attrs); \n
 } \n if (classes && classes.length > 0) { \n writeDirectClass(hostRenderer,
hostRNode, classes.join(' ')); \n } \n } \n tElementNode =
getNode(rootTVView, HEADER_OFFSET); \n if (projectableNodes !== undefined) { \n var
projection = tElementNode.projection = []; \n for (var i = 0; i < this.ngContentSelectors.length; i++) { \n
 var nodesforSlot = projectableNodes[i]; \n // Projectable nodes can be passed as array of
arrays or an array of iterables (ngUpgrade \n // case). Here we do normalize passed data structure to be
an array of arrays to avoid \n // complex checks down the line. \n // We also normalize
the length of the passed in projectable nodes (to match the number of \n //
<ng-container> slots defined by a component). \n projection.push(nodesforSlot !== null ?
Array.from(nodesforSlot) : null); \n } \n } \n // TODO: should LifecycleHooksFeature
and other host features be generated by the compiler and \n // executed here? \n // Angular 5
reference: https://stackblitz.com/edit/lifecycle-hooks-vcref \n component =
createRootComponent(componentView, this.componentDef, rootLView, rootContext, [LifecycleHooksFeature]); \n
 renderView(rootTVView, rootLView, null); \n } \n finally { \n leaveView(); \n } \n
 return new ComponentRef$1(this.componentType, component, createElementRef(tElementNode, rootLView),
rootLView, tElementNode); \n }; \n return ComponentFactory; \n }(ComponentFactory)); \n var
componentFactoryResolver = new ComponentFactoryResolver$1(); \n /** \n * Creates
a ComponentFactoryResolver and stores it on the injector. Or, if the \n * ComponentFactoryResolver \n *
already exists, retrieves the existing ComponentFactoryResolver. \n * \n * @returns The
ComponentFactoryResolver instance to use \n * \n function injectComponentFactoryResolver() { \n return
componentFactoryResolver; \n } \n /** \n * Represents an instance of a Component created via a {@link
ComponentFactory}. \n * \n * `ComponentRef` provides access to the Component Instance as well other objects
related to this \n * Component Instance and allows you to destroy the Component Instance via the {@link
#destroy} \n * method. \n * \n * \n var ComponentRef$1 = /** @class */ (function (_super) { \n
 __extends(ComponentRef, _super); \n function ComponentRef(componentType, instance, location, _rootLView,
_tNode) { \n var _this = _super.call(this) || this; \n _this.location = location; \n _this._rootLView
= _rootLView; \n _this._tNode = _tNode; \n _this.destroyCbs = []; \n _this.instance = instance; \n
 _this.hostView = _this.changeDetectorRef = new RootViewRef(_rootLView); \n _this.componentType
= componentType; \n return _this; \n } \n Object.defineProperty(ComponentRef.prototype,
'injector', { \n get: function () { \n return new NodeInjector(this._tNode, this._rootLView); \n
 }, \n enumerable: false, \n configurable: true \n }); \n ComponentRef.prototype.destroy =

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function () {\n if (this.destroyCbs) {\n this.destroyCbs.forEach(function (fn) { return fn(); });\n this.destroyCbs = null;\n !this.hostView.destroyed && this.hostView.destroy();\n }\n ComponentRef.prototype.onDestroy = function (callback) {\n if (this.destroyCbs) {\n this.destroyCbs.push(callback);\n }\n return ComponentRef;\n }(ComponentRef));\n\n /**\n * Adds decorator, constructor, and property metadata to a given type via static metadata fields\n * on the type.\n * These metadata fields can later be read with Angular's `ReflectionCapabilities` API.\n * Calls to `setClassMetadata` can be marked as pure, resulting in the metadata assignments being\n * tree-shaken away during production builds.\n */\n function setClassMetadata(type, decorators, ctorParameters, propDecorators) {\n return noSideEffects(function () {\n var _a;\n var clazz = type;\n if (decorators !== null) {\n if (clazz.hasOwnProperty('decorators') && clazz.decorators !== undefined) {\n (_a = clazz.decorators).push.apply(_a, __spread(decorators));\n } else {\n clazz.decorators = decorators;\n }\n }\n if (ctorParameters !== null) {\n // Rather than merging, clobber the existing parameters. If other projects exist which\n // use tsickle-style annotations and reflect over them in the same way, this could\n // cause issues, but that is vanishingly unlikely.\n clazz.ctorParameters = ctorParameters;\n }\n if (propDecorators !== null) {\n // The property decorator objects are merged as it is possible different fields have\n // different decorator types. Decorators on individual fields are not merged, as it's\n // also incredibly unlikely that a field will be decorated both with an Angular\n // decorator and a non-Angular decorator that's also been downleveled.\n if (clazz.hasOwnProperty('propDecorators') && clazz.propDecorators !== undefined) {\n clazz.propDecorators = Object.assign(Object.assign({}, clazz.propDecorators), propDecorators);\n } else {\n clazz.propDecorators = propDecorators;\n }\n }\n\n /**\n * Map of module-id to the corresponding NgModule.\n * - In pre Ivy we track NgModuleFactory,\n * - In post Ivy we track the NgModuleType\n */\n var modules = new Map();\n\n /**\n * Registers a loaded module. Should only be called from generated NgModuleFactory code.\n */\n @publicApi\n function registerModuleFactory(id, factory) {\n var existing = modules.get(id);\n assertSameOrNotExisting(id, existing && existing.moduleType, factory.moduleType);\n modules.set(id, factory);\n }\n\n function assertSameOrNotExisting(id, type, incoming) {\n if (type && type !== incoming) {\n throw new Error(`Duplicate module registered for \"${id} - \" + stringify(type) + \" vs \" + stringify(type.name));\n }\n }\n\n function registerNgModuleType(ngModuleType) {\n var visited = new Set();\n recurse(ngModuleType);\n function recurse(ngModuleType) {\n var e_1, _a;\n\n // The imports array of an NgModule must refer to other NgModules,\n // so an error is thrown if no module definition is available.\n var def = getNgModuleDef(ngModuleType, /* throwNotFound */ true);\n var id = def.id;\n if (id !== null) {\n var existing = modules.get(id);\n assertSameOrNotExisting(id, existing, ngModuleType);\n modules.set(id, ngModuleType);\n }\n\n var imports = maybeUnwrapFn(def.imports);\n try {\n for (var imports_1 = __values(imports), imports_1_1 = imports_1.next(); !imports_1_1.done; imports_1_1 = imports_1.next()) {\n var i = imports_1_1.value;\n if (!visited.has(i)) {\n visited.add(i);\n recurse(i);\n }\n }\n } catch (e_1_1) {\n e_1 = { error: e_1_1 }; \n } finally {\n try {\n if (imports_1_1 && !imports_1_1.done && (_a = imports_1.return)) _a.call(imports_1);\n } finally {\n if (e_1) throw e_1.error;\n }\n }\n }\n }\n\n function clearModulesForTest() {\n modules.clear();\n }\n\n function getRegisteredNgModuleType(id) {\n return modules.get(id) || autoRegisterModuleById[id];\n }\n\n var NgModuleRef$1 = /** @class */ (function (_super) {\n __extends(NgModuleRef$1, _super);\n function NgModuleRef$1(ngModuleType, _parent) {\n var _this = _super.call(this) || this;\n _this._parent = _parent;\n // tslint:disable-next-line:require-internal-with-underscore\n _this._bootstrapComponents\n
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= [];\n _this.injector = _this;\n _this.destroyCbs = [];\n // When bootstrapping a module we
have a dependency graph that looks like this:\n // ApplicationRef -> ComponentFactoryResolver ->
NgModuleRef. The problem is that if the\n // module being resolved tries to inject the
ComponentFactoryResolver, it'll create a\n // circular dependency which will result in a runtime error,
because the injector doesn't\n // exist yet. We work around the issue by creating the
ComponentFactoryResolver ourselves\n // and providing it, rather than letting the injector resolve it.\n
_this.componentFactoryResolver = new ComponentFactoryResolver$1(_this);\n var ngModuleDef =
getNgModuleDef(ngModuleType);\n ngDevMode &&\n assertDefined(ngModuleDef, \"NgModule
\" + stringify(ngModuleType) + \" is not a subtype of 'NgModuleType'.\");\n var
ngLocaleIdDef = getNgLocaleIdDef(ngModuleType);\n ngLocaleIdDef && setLocaleId(ngLocaleIdDef);\n
_this._bootstrapComponents = maybeUnwrapFn(ngModuleDef.bootstrap);\n _this._r3Injector =
createInjectorWithoutInjectorInstances(ngModuleType, _parent, [\n { provide: NgModuleRef, useValue:
_this }, {\n provide: ComponentFactoryResolver,\n useValue:
_this.componentFactoryResolver\n }], stringify(ngModuleType));\n // We need to resolve
the injector types separately from the injector creation, because\n // the module might be trying to use this ref
in its constructor for DI which will cause a\n // circular error that will eventually error out, because the injector
isn't created yet.\n _this._r3Injector._resolveInjectorDefTypes();\n _this.instance =
_this.get(ngModuleType);\n return _this;\n }\n NgModuleRef$1.prototype.get
= function (token, notFoundValue, injectFlags) {\n if (notFoundValue === void 0) { notFoundValue =
Injector.THROW_IF_NOT_FOUND; }\n if (injectFlags === void 0) { injectFlags =
exports.InjectFlags.Default; }\n if (token === Injector || token === NgModuleRef || token ===
INJECTOR$1) {\n return this;\n }\n return this._r3Injector.get(token, notFoundValue,
injectFlags);\n };\n NgModuleRef$1.prototype.destroy = function () {\n ngDevMode &&
assertDefined(this.destroyCbs, 'NgModule already destroyed');\n var injector = this._r3Injector;\n
!injector.destroyed && injector.destroy();\n this.destroyCbs.forEach(function (fn) { return fn(); });\n
this.destroyCbs = null;\n };\n NgModuleRef$1.prototype.onDestroy = function (callback) {\n
ngDevMode && assertDefined(this.destroyCbs, 'NgModule already destroyed');\n
 this.destroyCbs.push(callback);\n };\n return NgModuleRef$1;\n }(NgModuleRef));\n var
NgModuleFactory$1 = /** @class */ (function (_super) {\n __extends(NgModuleFactory, _super);\n
function NgModuleFactory(moduleType) {\n var _this = _super.call(this) || this;\n _this.moduleType =
moduleType;\n var ngModuleDef = getNgModuleDef(moduleType);\n if (ngModuleDef !== null) {\n
 // Register the NgModule with Angular's module registry. The location (and hence timing) of\n //
this call is critical to ensure this works correctly (modules get registered when expected)\n // without
bloating bundles (modules are registered when otherwise not referenced).\n //\n // In View
Engine, registration occurs in the .ngfactory.js file as a side effect. This has\n // several practical
consequences:\n //\n // - If an .ngfactory file is not imported from, the module won't be registered (and can be\n // tree shaken).\n
 // - If an .ngfactory file is imported from, the module will be registered even if an instance\n // is
not actually created (via `create` below).\n // - Since an .ngfactory file in View Engine references the
.ngfactory files of the NgModule's\n // imports,\n //\n // In Ivy, things are a bit
different. .ngfactory files still exist for compatibility, but are\n // not a required API to use - there are other
ways to obtain an NgModuleFactory for a given\n // NgModule. Thus, relying on a side effect in the
.ngfactory file is not sufficient. Instead,\n // the side effect of registration is added here, in the constructor
of NgModuleFactory,\n // ensuring no matter how a factory is created, the module is registered correctly.\n
 //\n // An alternative would be to include the registration side effect inline following the actual\n
 // NgModule definition. This also has the correct timing, but breaks tree-shaking - modules\n // will
be registered and retained even if they're otherwise never referenced.\n
 registerNgModuleType(moduleType);\n }\n return _this;\n }\n

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NgModuleFactory.prototype.create = function (parentInjector) {\n return new
NgModuleRef$1(this.moduleType, parentInjector);\n };\n return NgModuleFactory;\n
})(NgModuleFactory));\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n * Bindings for pure functions are stored after regular bindings.\n *
|-----decls-----|-----vars-----| |---- hostVars (dir1) ----|\n * -----
-----\n * | nodes/refs/pipes | bindings | fn slots | injector | dir1 | host bindings |
host slots |\n * -----\n * \n * ^
\n * TView.bindingStartIndex TView.expandoStartIndex\n * \n * Pure function instructions
are given an offset from the binding root. Adding the offset to the\n * binding root gives the first index where the
bindings are stored. In component views, the binding\n * root is the bindingStartIndex. In host bindings, the
binding root is the expandoStartIndex +\n * any directive instances + any hostVars in directives evaluated before
it.\n * \n * See VIEW_DATA.md for more information about host binding resolution.\n */\n *
/**\n * If the value hasn't been saved, calls the pure function to store and return the\n * value. If it has been
saved, returns the saved value.\n * \n * @param slotOffset the offset from binding root to the reserved slot\n
* @param pureFn Function that returns a value\n * @param thisArg Optional calling context of pureFn\n *
@returns value\n * \n * @codeGenApi\n */\n function pureFunction0(slotOffset, pureFn, thisArg) {\n
var bindingIndex = getBindingRoot() + slotOffset;\n var IView = getLView();\n return
IView[bindingIndex] === NO_CHANGE ?\n updateBinding(IView, bindingIndex, thisArg ?
pureFn.call(thisArg) : pureFn()) :\n getBinding(IView, bindingIndex);\n }\n /**\n * If the value of the
provided exp has changed, calls the pure function to return\n * an updated value. Or if the value has not changed,
returns cached value.\n * \n * @param slotOffset the offset from binding
root to the reserved slot\n * @param pureFn Function that returns an updated value\n * @param exp Updated
expression value\n * @param thisArg Optional calling context of pureFn\n * @returns Updated or cached
value\n * \n * @codeGenApi\n */\n function pureFunction1(slotOffset, pureFn, exp, thisArg) {\n return
pureFunction1Internal(getLView(), getBindingRoot(), slotOffset, pureFn, exp, thisArg);\n }\n /**\n * If the
value of any provided exp has changed, calls the pure function to return\n * an updated value. Or if no values
have changed, returns cached value.\n * \n * @param slotOffset the offset from binding root to the reserved
slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param thisArg Optional calling
context of pureFn\n * @returns Updated or cached value\n * \n * @codeGenApi\n */\n function
pureFunction2(slotOffset, pureFn, exp1, exp2, thisArg) {\n return pureFunction2Internal(getLView(),
getBindingRoot(), slotOffset, pureFn, exp1, exp2, thisArg);\n }\n /**\n * If the value of any provided exp has
changed, calls the pure function to return\n * an updated value. Or if no values have changed, returns cached
value.\n * \n * @param slotOffset the offset from binding root to the reserved slot\n * @param pureFn\n
* @param exp1\n * @param exp2\n * @param exp3\n * @param thisArg Optional calling context of pureFn\n
* @returns Updated or cached value\n * \n * @codeGenApi\n */\n function pureFunction3(slotOffset,
pureFn, exp1, exp2, exp3, thisArg) {\n return pureFunction3Internal(getLView(), getBindingRoot(), slotOffset,
pureFn, exp1, exp2, exp3, thisArg);\n }\n /**\n * If the value of any provided exp has changed, calls the pure
function to return\n * an updated value. Or if no values have changed, returns cached value.\n * \n * @param
slotOffset the offset from binding
root to the reserved slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param exp3\n *
@param exp4\n * @param thisArg Optional calling context of pureFn\n * @returns Updated or cached value\n
* \n * @codeGenApi\n */\n function pureFunction4(slotOffset, pureFn, exp1, exp2, exp3, exp4, thisArg) {\n
return pureFunction4Internal(getLView(), getBindingRoot(), slotOffset, pureFn, exp1, exp2, exp3, exp4,
thisArg);\n }\n /**\n * If the value of any provided exp has changed, calls the pure function to return\n * an
updated value. Or if no values have changed, returns cached value.\n * \n * @param slotOffset the offset from
binding root to the reserved slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param

```

```

exp3\n * @param exp4\n * @param exp5\n * @param thisArg Optional calling context of pureFn\n *
@returns Updated or cached value\n *\n * @codeGenApi\n */\n
function pureFunction5(slotOffset, pureFn, exp1, exp2, exp3, exp4, exp5, thisArg) {\n var bindingIndex =
getBindingRoot() + slotOffset;\n var IView = getLView();\n var different = bindingUpdated4(IView,
bindingIndex, exp1, exp2, exp3, exp4);\n return bindingUpdated(IView, bindingIndex + 4, exp5) || different ?\n updateBinding(IView, bindingIndex + 5, thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4, exp5) :\n pureFn(exp1, exp2, exp3, exp4, exp5)) :\n getBinding(IView, bindingIndex + 5);\n} \n /**\n * If the
value of any provided exp has changed, calls the pure function to return\n * an updated value. Or if no values
have changed, returns cached value.\n *\n * @param slotOffset the offset from binding root to the reserved
slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param exp3\n * @param exp4\n
* @param exp5\n * @param exp6\n * @param thisArg Optional
calling context of pureFn\n * @returns Updated or cached value\n *\n * @codeGenApi\n */\n
function pureFunction6(slotOffset, pureFn, exp1, exp2, exp3, exp4, exp5, exp6, thisArg) {\n var bindingIndex =
getBindingRoot() + slotOffset;\n var IView = getLView();\n var different = bindingUpdated4(IView,
bindingIndex, exp1, exp2, exp3, exp4);\n return bindingUpdated2(IView, bindingIndex + 4, exp5, exp6) ||
different ?\n updateBinding(IView, bindingIndex + 6, thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4,
exp5, exp6) :\n pureFn(exp1, exp2, exp3, exp4, exp5, exp6)) :\n getBinding(IView, bindingIndex +
6);\n} \n /**\n * If the value of any provided exp has changed, calls the pure function to return\n * an
updated value. Or if no values have changed, returns cached value.\n *\n * @param slotOffset the offset from
binding root to the reserved slot\n * @param pureFn\n *
@param exp1\n * @param exp2\n * @param exp3\n * @param exp4\n * @param exp5\n * @param
exp6\n * @param exp7\n * @param thisArg Optional calling context of pureFn\n * @returns Updated or
cached value\n *\n * @codeGenApi\n */\n
function pureFunction7(slotOffset, pureFn, exp1, exp2, exp3,
exp4, exp5, exp6, exp7, thisArg) {\n var bindingIndex = getBindingRoot() + slotOffset;\n var IView =
getLView();\n var different = bindingUpdated4(IView, bindingIndex, exp1, exp2, exp3, exp4);\n return
bindingUpdated3(IView, bindingIndex + 4, exp5, exp6, exp7) || different ?\n updateBinding(IView,
bindingIndex + 7, thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4, exp5, exp6, exp7) :\n pureFn(exp1, exp2, exp3, exp4, exp5, exp6, exp7)) :\n getBinding(IView, bindingIndex + 7);\n} \n /**\n
* If the value of any provided exp has changed, calls the pure function to return\n * an
updated value. Or if no values have changed, returns cached value.\n *\n * @param slotOffset the offset from
binding root to the reserved slot\n * @param pureFn\n * @param exp1\n * @param exp2\n * @param
exp3\n * @param exp4\n * @param exp5\n * @param exp6\n * @param exp7\n * @param exp8\n *
@param thisArg Optional calling context of pureFn\n * @returns Updated or cached value\n *\n *
@codeGenApi\n */\n
function pureFunction8(slotOffset, pureFn, exp1, exp2, exp3, exp4, exp5, exp6, exp7,
exp8, thisArg) {\n var bindingIndex = getBindingRoot() + slotOffset;\n var IView = getLView();\n var
different = bindingUpdated4(IView, bindingIndex, exp1, exp2, exp3, exp4);\n return bindingUpdated4(IView,
bindingIndex + 4, exp5, exp6, exp7, exp8) || different ?\n updateBinding(IView, bindingIndex + 8, thisArg ?
pureFn.call(thisArg, exp1, exp2, exp3, exp4, exp5, exp6, exp7, exp8) :\n pureFn(exp1, exp2, exp3, exp4, exp5, exp6, exp7, exp8)) :\n getBinding(IView, bindingIndex + 8);\n} \n
/**\n * pureFunction instruction that can support any number of bindings.\n *\n * If the value of any
provided exp has changed, calls the pure function to return\n * an updated value. Or if no values have changed,
returns cached value.\n *\n * @param slotOffset the offset from binding root to the reserved slot\n * @param
pureFn A pure function that takes binding values and builds an object or array\n * containing those values.\n *
@param exps An array of binding values\n * @param thisArg Optional calling context of pureFn\n * @returns
Updated or cached value\n *\n * @codeGenApi\n */\n
function pureFunctionV(slotOffset, pureFn, exps,
thisArg) {\n return pureFunctionVInternal(getLView(), getBindingRoot(), slotOffset, pureFn, exps, thisArg);\n} \n
/**\n * Results of a pure function invocation

```

are stored in LView in a dedicated slot that is initialized to NO\_CHANGE. In rare situations a pure pipe might throw an exception on the very first invocation and not produce any valid results. In this case LView would keep holding the NO\_CHANGE value. The NO\_CHANGE is not something that we can use in expressions / bindings thus we convert it to 'undefined'. function

```

getPureFunctionReturnValue(IView, returnValueIndex) {
 ngDevMode && assertIndexInRange(IView,
 returnValueIndex);
 var lastReturnValue = IView[returnValueIndex];
 return lastReturnValue ===
 NO_CHANGE ? undefined : lastReturnValue;
}

/**
 * If the value of the provided exp has changed,
 calls the pure function to return an updated value. Or if the value has not changed, returns cached value.
 *
 * @param IView LView in which the function is being executed.
 * @param bindingRoot Binding root index.
 * @param slotOffset the offset from binding root to the reserved slot
 * @param pureFn Function that returns an updated value
 * @param exp Updated expression value
 * @param thisArg Optional calling context of pureFn
 * @returns Updated or cached value
 */
function pureFunction1Internal(IView, bindingRoot, slotOffset, pureFn, exp, thisArg) {
 var bindingIndex = bindingRoot + slotOffset;
 return bindingUpdated(IView, bindingIndex, exp) ?
 updateBinding(IView, bindingIndex + 1, thisArg ? pureFn.call(thisArg, exp) : pureFn(exp)) :
 getPureFunctionReturnValue(IView, bindingIndex + 1);
}

/**
 * If the value of any provided exp has
 changed, calls the pure function to return an updated value. Or if no values have changed, returns cached
 value.
 *
 * @param IView LView in which the function is being executed.
 * @param bindingRoot Binding root index.
 * @param slotOffset the offset from binding
 root to the reserved slot
 * @param pureFn
 * @param exp1
 * @param exp2
 * @param thisArg Optional calling context of pureFn
 * @returns Updated or cached value
 */
function pureFunction2Internal(IView, bindingRoot, slotOffset, pureFn, exp1, exp2, thisArg) {
 var bindingIndex =
 bindingRoot + slotOffset;
 return bindingUpdated2(IView, bindingIndex, exp1, exp2) ?
 updateBinding(IView, bindingIndex + 2, thisArg ? pureFn.call(thisArg, exp1, exp2) : pureFn(exp1, exp2)) :
 getPureFunctionReturnValue(IView, bindingIndex + 2);
}

/**
 * If the value of any provided exp has
 changed, calls the pure function to return an updated value. Or if no values have changed, returns cached
 value.
 *
 * @param IView LView in which the function is being executed.
 * @param bindingRoot Binding root index.
 * @param slotOffset the offset from binding root to the reserved slot
 * @param pureFn
 * @param exp1
 * @param exp2
 * @param exp3
 * @param thisArg Optional calling context of pureFn
 * @returns Updated or cached value
 */
function pureFunction3Internal(IView, bindingRoot, slotOffset, pureFn, exp1, exp2, exp3, thisArg) {
 var bindingIndex = bindingRoot + slotOffset;
 return bindingUpdated3(IView, bindingIndex, exp1, exp2, exp3) ?
 updateBinding(IView, bindingIndex + 3, thisArg ? pureFn.call(thisArg, exp1, exp2, exp3) : pureFn(exp1, exp2, exp3)) :
 getPureFunctionReturnValue(IView, bindingIndex + 3);
}

/**
 * If the value of any provided exp has
 changed, calls the pure function to return an updated value. Or if no values have changed, returns cached
 value.
 *
 * @param IView LView in which the function is being executed.
 * @param bindingRoot Binding root index.
 * @param slotOffset the offset from binding root to the reserved slot
 * @param pureFn
 * @param exp1
 * @param exp2
 * @param exp3
 * @param exp4
 * @param thisArg Optional calling context of pureFn
 * @returns Updated or cached value
 */
function pureFunction4Internal(IView, bindingRoot, slotOffset, pureFn, exp1, exp2, exp3, exp4, thisArg) {
 var bindingIndex = bindingRoot + slotOffset;
 return bindingUpdated4(IView, bindingIndex, exp1, exp2, exp3, exp4) ?
 updateBinding(IView, bindingIndex + 4, thisArg ? pureFn.call(thisArg, exp1, exp2, exp3, exp4) : pureFn(exp1, exp2, exp3, exp4)) :
 getPureFunctionReturnValue(IView, bindingIndex + 4);
}

/**
 * pureFunction instruction that can support any number of bindings.
 *
 * If the value of any provided exp
 has changed, calls the pure function to return an updated value. Or if no values have changed, returns cached
 value.
 *
 * @param IView LView in which the function is being executed.

```

```

* @param bindingRoot Binding root index.\n * @param slotOffset the offset from binding root to the reserved
slot\n * @param pureFn A pure function that takes binding values and builds an object or array\n * containing
those values.\n * @param exps An array of binding values\n * @param thisArg Optional calling context of
pureFn\n * @returns Updated or cached value\n */\n function pureFunctionVInternal(IView, bindingRoot,
slotOffset, pureFn, exps, thisArg) {\n var bindingIndex = bindingRoot + slotOffset;\n var different =
false;\n for (var i = 0; i < exps.length; i++) {\n bindingUpdated(IView, bindingIndex++, exps[i]) &&
(different = true);\n }\n return different ? updateBinding(IView, bindingIndex, pureFn.apply(thisArg, exps))
:\n getPureFunctionReturnValue(IView, bindingIndex);\n }\n\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n /**\n * Create a pipe.\n */\n * @param index Pipe index where the pipe will be stored.\n * @param
pipeName The name of the pipe\n * @returns T the instance of the pipe.\n */\n * @codeGenApi\n */\n
function pipe(index, pipeName) {\n var tView = getTView();\n var pipeDef;\n var adjustedIndex =
index + HEADER_OFFSET;\n if (tView.firstCreatePass) {\n pipeDef = getPipeDef$1(pipeName,
tView.pipeRegistry);\n tView.data[adjustedIndex] = pipeDef;\n if (pipeDef.onDestroy) {\n
(tView.destroyHooks || (tView.destroyHooks = [])).push(adjustedIndex, pipeDef.onDestroy);\n }\n }\n
else {\n pipeDef = tView.data[adjustedIndex];\n }\n var pipeFactory = pipeDef.factory ||
(pipeDef.factory = getFactoryDef(pipeDef.type, true));\n\n var previousInjectImplementation = setInjectImplementation(directiveInject);\n try {\n // DI for
pipes is supposed to behave like directives when placed on a component\n // host node, which means that we
have to disable access to `viewProviders`.\n var previousIncludeViewProviders =
setIncludeViewProviders(false);\n var pipeInstance = pipeFactory();\n setIncludeViewProviders(previousIncludeViewProviders);\n store(tView, getLView(), adjustedIndex,
pipeInstance);\n return pipeInstance;\n }\n finally {\n // we have to restore the injector
implementation in finally, just in case the creation of the\n // pipe throws an error.\n setInjectImplementation(previousInjectImplementation);\n }\n }\n\n /**\n * Searches the pipe registry for a
pipe with the given name. If one is found,\n * returns the pipe. Otherwise, an error is thrown because
the pipe cannot be resolved.\n */\n * @param name Name of pipe to resolve\n * @param registry Full list of
available pipes\n * @returns Matching PipeDef\n */\n function getPipeDef$1(name, registry) {\n if
(registry) {\n for (var i = registry.length - 1; i >= 0; i--) {\n var pipeDef = registry[i];\n if
(name === pipeDef.name) {\n return pipeDef;\n }\n }\n }\n throw new
RuntimeError(`302" /* PIPE_NOT_FOUND */, "The pipe "${name} could not be found!");\n }\n\n /**\n
* Invokes a pipe with 1 arguments.\n */\n * This instruction acts as a guard to { @link
PipeTransform#transform} invoking\n * the pipe only when an input to the pipe changes.\n */\n * @param
index Pipe index where the pipe was stored on creation.\n * @param slotOffset the offset in the reserved slot
space\n * @param v1 1st argument to { @link PipeTransform#transform}.\n\n *\n * @codeGenApi\n */\n function pipeBind1(index, slotOffset, v1) {\n var adjustedIndex = index +
HEADER_OFFSET;\n var lView = getLView();\n var pipeInstance = load(lView, adjustedIndex);\n return unwrapValue$1(lView, isPure(lView, adjustedIndex) ?\n pureFunction1Internal(lView,
getBindingRoot(), slotOffset, pipeInstance.transform, v1, pipeInstance) :\n pipeInstance.transform(v1));\n }\n\n /**\n * Invokes a pipe with 2 arguments.\n */\n * This instruction acts as a guard to { @link
PipeTransform#transform} invoking\n * the pipe only when an input to the pipe changes.\n */\n * @param
index Pipe index where the pipe was stored on creation.\n * @param slotOffset the offset in the reserved slot
space\n * @param v1 1st argument to { @link PipeTransform#transform}.\n * @param v2 2nd argument to
{ @link PipeTransform#transform}.\n */\n * @codeGenApi\n */\n
function pipeBind2(index, slotOffset, v1, v2) {\n var adjustedIndex = index + HEADER_OFFSET;\n var
lView = getLView();\n var pipeInstance = load(lView, adjustedIndex);\n return unwrapValue$1(lView,
isPure(lView, adjustedIndex) ?\n pureFunction2Internal(lView, getBindingRoot(), slotOffset,

```



```

pipeInstance.transform, v1, v2, pipeInstance) : \n pipeInstance.transform(v1, v2)); \n } \n /** \n * Invokes
a pipe with 3 arguments. \n * \n * This instruction acts as a guard to { @link PipeTransform#transform }
invoking \n * the pipe only when an input to the pipe changes. \n * \n * @param index Pipe index where the
pipe was stored on creation. \n * @param slotOffset the offset in the reserved slot space \n * @param v1 1st
argument to { @link PipeTransform#transform }. \n * @param v2 2nd argument to { @link
PipeTransform#transform }. \n * @param v3 4rd argument to { @link PipeTransform#transform }. \n * \n *
@codeGenApi \n
 */ \n function pipeBind3(index, slotOffset, v1, v2, v3) { \n var adjustedIndex = index +
HEADER_OFFSET; \n var IView = getLView(); \n var pipeInstance = load(IView, adjustedIndex); \n
return unwrapValue$1(IView, isPure(IView, adjustedIndex) ? pureFunction3Internal(IView, getBindingRoot(),
slotOffset, pipeInstance.transform, v1, v2, v3, pipeInstance) : \n pipeInstance.transform(v1, v2, v3)); \n } \n
/** \n * Invokes a pipe with 4 arguments. \n * \n * This instruction acts as a guard to { @link
PipeTransform#transform } invoking \n * the pipe only when an input to the pipe changes. \n * \n * @param
index Pipe index where the pipe was stored on creation. \n * @param slotOffset the offset in the reserved slot
space \n * @param v1 1st argument to { @link PipeTransform#transform }. \n * @param v2 2nd argument to
{ @link PipeTransform#transform }. \n * @param v3 3rd argument to { @link PipeTransform#transform }. \n *
@param v4 4th argument to { @link PipeTransform#transform }. \n * \n * @codeGenApi \n
 */ \n function
pipeBind4(index, slotOffset, v1, v2, v3, v4) { \n var adjustedIndex = index + HEADER_OFFSET; \n var
IView = getLView(); \n var pipeInstance = load(IView, adjustedIndex); \n return unwrapValue$1(IView,
isPure(IView, adjustedIndex) ? pureFunction4Internal(IView, getBindingRoot(), slotOffset, pipeInstance.transform,
v1, v2, v3, v4, pipeInstance) : \n pipeInstance.transform(v1, v2, v3, v4)); \n } \n /** \n * Invokes a pipe
with variable number of arguments. \n * \n * This instruction acts as a guard to { @link
PipeTransform#transform } invoking \n * the pipe only when an input to the pipe changes. \n * \n * @param
index Pipe index where the pipe was stored on creation. \n * @param slotOffset the offset in the reserved slot
space \n * @param values Array of arguments to pass to { @link PipeTransform#transform } method. \n
 */ \n * @codeGenApi \n
 */ \n function pipeBindV(index, slotOffset, values) { \n var adjustedIndex =
index + HEADER_OFFSET; \n var IView = getLView(); \n var pipeInstance = load(IView,
adjustedIndex); \n return unwrapValue$1(IView, isPure(IView, adjustedIndex) ? \n
pureFunctionVInternal(IView, getBindingRoot(), slotOffset, pipeInstance.transform, values, pipeInstance) : \n
pipeInstance.transform.apply(pipeInstance, values)); \n } \n function isPure(IView, index) { \n return
IView[TVIEW].data[index].pure; \n } \n /** \n * Unwrap the output of a pipe transformation. \n * In order to
trick change detection into considering that the new value is always different from \n * the old one, the old value is
overwritten by NO_CHANGE. \n * \n * @param newValue the pipe transformation output. \n * \n * function
unwrapValue$1(IView, newValue) { \n if (WrappedValue.isWrapped(newValue)) { \n newValue
= WrappedValue.unwrap(newValue); \n // The NO_CHANGE value needs to be written at the index where
the impacted binding value is \n // stored \n var bindingToInvalidateIdx = getBindingIndex(); \n
IView[bindingToInvalidateIdx] = NO_CHANGE; \n } \n return newValue; \n } \n var EventEmitter_ =
/** @class */ (function (_super) { \n __extends(EventEmitter_, _super); \n function EventEmitter_(isAsync)
{ \n if (isAsync === void 0) { isAsync = false; } \n var _this = _super.call(this) || this; \n
_this.__isAsync = isAsync; \n return _this; \n } \n EventEmitter_.prototype.emit = function (value) { \n
 super.prototype.next.call(this, value); \n }; \n EventEmitter.prototype.subscribe = function
(generatorOrNext, error, complete) { \n var schedulerFn; \n var errorFn = function (err) { return null;
}; \n var completeFn = function
() { return null; }; \n if (generatorOrNext && typeof generatorOrNext === 'object') { \n schedulerFn
= this.__isAsync ? function (value) { \n setTimeout(function () { return generatorOrNext.next(value);
}); \n } : function (value) { \n generatorOrNext.next(value); \n }; \n if
(generatorOrNext.error) { \n errorFn = this.__isAsync ? function (err) { \n
 setTimeout(function () { return generatorOrNext.error(err); }); \n } : function (err) { \n

```

```

generatorOrNext.error(err);\n }\n if (generatorOrNext.complete) {\n
completeFn = this.__isAsync ? function () {\n setTimeout(function () { return
generatorOrNext.complete(); });\n } : function () {\n generatorOrNext.complete();\n
 };\n }\n else {\n schedulerFn = this.__isAsync ? function (value) {\n
 setTimeout(function () { return generatorOrNext(value); });\n } : function (value) {\n
generatorOrNext(value);\n };\n if (error) {\n errorFn = this.__isAsync ? function (err)
{\n setTimeout(function () { return error(err); });\n } : function (err) {\n
error(err);\n };\n }\n if (complete) {\n completeFn = this.__isAsync ?
function () {\n setTimeout(function () { return complete(); });\n } : function () {\n
 complete();\n };\n }\n }\n var sink = _super.prototype.subscribe.call(this,
schedulerFn, errorFn,
completeFn);\n if (generatorOrNext instanceof rxjs.Subscription) {\n generatorOrNext.add(sink);\n
 }\n return sink;\n };\n return EventEmitter_;\n } (rxjs.Subject));\n /**\n * @publicApi\n
 */\n var EventEmitter = EventEmitter_;\n /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n function symbolIterator() {\n return
this._results[getSymbolIterator()]();\n }\n /**\n * An unmodifiable list of items that Angular keeps up to date
when the state\n * of the application changes.\n * The type of object that { @link ViewChildren }, { @link
ContentChildren }, and { @link QueryList }\n * provide.\n * Implements an iterable interface, therefore it
can be used in both ES6\n * javascript
`for (var i of items)` loops as well as in Angular templates with\n * `*ngFor`.\n * Changes can be observed by subscribing to the changes `Observable`.\n * NOTE: In the future this class
will implement an `Observable` interface.\n * @usageNotes\n * ### Example\n * ```typescript\n *
@Component({ ... })\n * class Container {\n * @ViewChildren(Item) items: QueryList<Item>;\n * }\n *
```\n          * @publicApi\n          */\n          var QueryList = /** @class */ (function () {\n          function QueryList() {\n
          this.dirty = true;\n          this._results = [];\n          this.changes = new EventEmitter();\n          this.length =
0;\n          // This function should be declared on the prototype, but doing so there will cause the class\n          //
declaration to have side-effects and become not tree-shakable. For this reason we do it in\n          // the
constructor.\n          // [getSymbolIterator]()(): Iterator<T> { ... }\n          var symbol = getSymbolIterator();\n          var proto =
QueryList.prototype;\n          if (!proto[symbol])\n          proto[symbol] = symbolIterator;\n          }\n          /**\n          * See\n          * [Array.map](https://developer.mozilla.org/en-
US/docs/Web/JavaScript/Reference/Global_Objects/Array/map)\n          */\n          QueryList.prototype.map =
function (fn) {\n          return this._results.map(fn);\n          };\n          /**\n          * See\n          *
[Array.filter](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/filter)\n          */\n          QueryList.prototype.filter = function (fn) {\n          return this._results.filter(fn);\n          };\n          /**\n          * See\n          *
[Array.find](https://developer.mozilla.org/en-
US/docs/Web/JavaScript/Reference/Global_Objects/Array/find)\n          */\n          QueryList.prototype.find = function
(fn) {\n          return
this._results.find(fn);\n          };\n          /**\n          * See\n          * [Array.reduce](https://developer.mozilla.org/en-
US/docs/Web/JavaScript/Reference/Global_Objects/Array/reduce)\n          */\n          QueryList.prototype.reduce =
function (fn, init) {\n          return this._results.reduce(fn, init);\n          };\n          /**\n          * See\n          *
[Array.forEach](https://developer.mozilla.org/en-
US/docs/Web/JavaScript/Reference/Global_Objects/Array/forEach)\n          */\n          QueryList.prototype.forEach =
function (fn) {\n          this._results.forEach(fn);\n          };\n          /**\n          * See\n          *
[Array.some](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/some)\n          */\n          QueryList.prototype.some = function (fn) {\n          return this._results.some(fn);\n          };\n          /**\n          * Returns a copy of the internal results list as an Array.\n          */\n          QueryList.prototype.toArray

```

```

= function () {\n      return this._results.slice();\n    };\n    QueryList.prototype.toString = function () {\n      return this._results.toString();\n    };\n    /**\n     * Updates the stored data of the query list, and resets the  

`dirty` flag to `false`, so that\n     * on change detection, it will not notify of changes to the queries, unless a new  

change\n     * occurs.\n     */\n     * @param resultsTree The query results to store\n     */\n    QueryList.prototype.reset = function (resultsTree) {\n      this._results = flatten(resultsTree);\n      this.dirty =  

false;\n      this.length = this._results.length;\n      this.last = this._results[this.length - 1];\n      this.first =  

this._results[0];\n    };\n    /**\n     * Triggers a change event by emitting on the `changes` { @link  

EventEmitter}.\n     */\n    QueryList.prototype.notifyOnChanges = function () {\n  

this.changes.emit(this);\n  

    };\n    /** internal */\n    QueryList.prototype.setDirty = function () {\n      this.dirty = true;\n    };\n  

    /** internal */\n    QueryList.prototype.destroy = function () {\n      this.changes.complete();\n  

this.changes.unsubscribe();\n    };\n    return QueryList;\n  }());\n  /**\n   * @license\n   * Copyright  

Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can  

be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  // Note: This hack is necessary so we  

don't erroneously get a circular dependency\n  // failure based on types.\n  var unusedValueExportToPlacateAjd$7  

= 1;\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source  

code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n  

   */\n  // Note: This hack is necessary so we don't erroneously get a circular dependency\n  // failure based on  

types.\n  var unusedValueExportToPlacateAjd$8 = 1;\n  /**\n   * @license\n   * Copyright Google LLC All  

Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found  

in the LICENSE file at https://angular.io/license\n   */\n  var unusedValueToPlacateAjd$2 =  

unusedValueExportToPlacateAjd$7 + unusedValueExportToPlacateAjd$3 + unusedValueExportToPlacateAjd$4 +  

unusedValueExportToPlacateAjd$8;\n  var LQuery_ = /** @class */ (function () {\n    function  

LQuery_(queryList) {\n      this.queryList = queryList;\n      this.matches = null;\n    }\n  

LQuery_.prototype.clone = function () {\n      return new LQuery_(this.queryList);\n    };\n  

LQuery_.prototype.setDirty = function () {\n      this.queryList.setDirty();\n    };\n    return LQuery_;\n  

  }());\n  var LQueries_ = /** @class */ (function () {\n    function LQueries_(queries) {\n      if (queries ===  

void 0) { queries = []; }\n      this.queries = queries;\n    }\n  

LQueries_.prototype.createEmbeddedView =  

function (tView) {\n      var tQueries = tView.queries;\n      if (tQueries !== null) {\n        var  

noOfInheritedQueries = tView.contentQueries !== null ? tView.contentQueries[0] : tQueries.length;\n        var  

viewLQueries = [];\n        // An embedded view has queries propagated from a declaration view at the  

beginning of the\n        // TQueries collection and up until a first content query declared in the embedded view.  

Only\n        // propagated LQueries are created at this point (LQuery corresponding to declared content\n  

// queries will be instantiated from the content query instructions for each directive).\n        for (var i = 0; i <  

noOfInheritedQueries;  

i++) {\n          var tQuery = tQueries.getByIndex(i);\n          var parentLQuery =  

this.queries[tQuery.indexInDeclarationView];\n          viewLQueries.push(parentLQuery.clone());\n        }\n        return new LQueries_(viewLQueries);\n      }\n      return null;\n    };\n  

LQueries_.prototype.insertView = function (tView) {\n      this.dirtyQueriesWithMatches(tView);\n    };\n  

LQueries_.prototype.detachView = function (tView) {\n      this.dirtyQueriesWithMatches(tView);\n    };\n  

LQueries_.prototype.dirtyQueriesWithMatches = function (tView) {\n      for (var i = 0; i < this.queries.length;  

i++) {\n        if (getTQuery(tView, i).matches !== null) {\n          this.queries[i].setDirty();\n        }\n      }\n      return LQueries_;\n    }();\n    var TQueryMetadata_ = /** @class */ (function () {\n  

function TQueryMetadata_(predicate,  

descendants, isStatic, read) {\n      if (read === void 0) { read = null; }\n      this.predicate = predicate;\n      this.descendants = descendants;\n      this.isStatic = isStatic;\n      this.read = read;\n    }\n    return  

TQueryMetadata_;\n  }());\n  var TQueries_ = /** @class */ (function () {\n    function TQueries_(queries) {\n      if (queries === void 0) { queries = []; }\n      this.queries = queries;\n    }\n  }

```

```

TQueries_.prototype.elementStart = function (tView, tNode) {\n      ngDevMode &&\nassertFirstCreatePass(tView, 'Queries should collect results on the first template pass only');\n      for (var i = 0; i\n< this.queries.length; i++) {\n          this.queries[i].elementStart(tView, tNode);\n      }\n};\nTQueries_.prototype.elementEnd = function (tNode) {\n      for (var i = 0; i < this.queries.length; i++) {\n          this.queries[i].elementEnd(tNode);\n      }\n};\nTQueries_.prototype.embeddedTView = function (tNode) {\n      var\nqueriesForTemplateRef = null;\n      for (var i = 0; i < this.length; i++) {\n          var childQueryIndex =\nqueriesForTemplateRef !== null ? queriesForTemplateRef.length : 0;\n          var tqueryClone =\nthis.getByIndex(i).embeddedTView(tNode, childQueryIndex);\n          if (tqueryClone) {\n              tqueryClone.indexInDeclarationView = i;\n              if (queriesForTemplateRef !== null) {\n                  queriesForTemplateRef.push(tqueryClone);\n              }\n              else {\n                  queriesForTemplateRef = [tqueryClone];\n              }\n          }\n          return\nqueriesForTemplateRef !== null ? new TQueries_(queriesForTemplateRef) : null;\n      }\n};\nTQueries_.prototype.template = function (tView, tNode) {\n      ngDevMode &&\n      assertFirstCreatePass(tView, 'Queries should collect results on the first template\npass only');\n      for (var i = 0; i < this.queries.length; i++) {\n          this.queries[i].template(tView, tNode);\n      }\n};\nTQueries_.prototype.getByIndex = function (index) {\n      ngDevMode &&\nassertIndexInRange(this.queries, index);\n      return this.queries[index];\n};\nObject.defineProperty(TQueries_.prototype, 'length', {\n      get: function () {\n          return\nthis.queries.length;\n      },\n      enumerable: false,\n      configurable: true\n});\nTQueries_.prototype.track = function (tquery) {\n      this.queries.push(tquery);\n      return\nTQueries_;\n};\nvar TQuery_ = /** @class */ (function () {\n      function TQuery_(metadata, nodeIndex)\n{\n          if (nodeIndex === void 0) {\n              nodeIndex = -1;\n          }\n          this.metadata = metadata;\n          this.matches = null;\n          this.indexInDeclarationView = -1;\n          this.crossesNgTemplate = false;\n          /**\n           * A flag indicating if a given query still applies to nodes it is\n           * crossing. We use this flag\n           * (alongside with _declarationNodeIndex) to know when to stop applying\n           * content queries to\n           * elements in a template.\n           */\n          this._appliesToNextNode = true;\n          this._declarationNodeIndex = nodeIndex;\n      }\n      TQuery_.prototype.elementStart = function (tView, tNode)\n{\n          if (this.isApplyingToNode(tNode)) {\n              this.matchTNode(tView, tNode);\n          }\n      }\n      TQuery_.prototype.elementEnd = function (tNode) {\n          if (this._declarationNodeIndex === tNode.index) {\n              this._appliesToNextNode = false;\n          }\n      }\n      TQuery_.prototype.template = function (tView,\ntNode) {\n          this.elementStart(tView, tNode);\n      }\n      TQuery_.prototype.embeddedTView = function\n(tNode, childQueryIndex) {\n          if (this.isApplyingToNode(tNode)) {\n              this.crossesNgTemplate =\ntrue;\n              // A marker indicating a <ng-template> element (a placeholder for query results from\n              //\n              embedded views created based on this <ng-template>).\n              this.addMatch(-tNode.index,\nchildQueryIndex);\n              return new TQuery_(this.metadata);\n          }\n          return null;\n      }\n      TQuery_.prototype.isApplyingToNode = function (tNode) {\n          if (this._appliesToNextNode &&\nthis.metadata.descendants === false) {\n              var declarationNodeIdx = this._declarationNodeIndex;\n              var parent = tNode.parent;\n              // Determine if a given TNode is a "direct" child of a node on which a\n              content query was\n              // declared (only direct\n              children of query's host node can match with the descendants: false\n              // option). There are 3 main use-case\n              / conditions to consider here:\n              // - <needs-target><i #target></i></needs-target>: here <i #target> parent\n              node is a query\n              // host node;\n              // - <needs-target><ng-template [ngIf]="true"><i\n              #target></i></ng-template></needs-target>:\n              // here <i #target> parent node is null;\n              // -\n              <needs-target><ng-container><i #target></i></ng-container></needs-target>: here we need\n              // to go past\n              `<ng-container>` to determine <i #target> parent node (but we shouldn't traverse\n              // up past the query's\n              host node!).\n              while (parent !== null && (parent.type & 8 /* ElementContainer */) &&\nparent.index !== declarationNodeIdx) {\n                  parent = parent.parent;\n              }\n              return\n
```

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declarationNodeIdx === (parent
! == null ? parent.index : -1);\n        }\n        return this._appliesToNextNode;\n    };\n
TQuery_.prototype.matchTNode = function (tView, tNode) {\n        var predicate = this.metadata.predicate;\n        if (Array.isArray(predicate)) {\n            for (var i = 0; i < predicate.length; i++) {\n                var name = predicate[i];\n                this.matchTNodeWithReadOption(tView, tNode, getIdxOfMatchingSelector(tNode, name));\n                // Also try matching the name to a provider since strings can be used as DI tokens too.\n                this.matchTNodeWithReadOption(tView, tNode, locateDirectiveOrProvider(tNode, tView, name, false, false));\n            }\n        } else {\n            if (predicate === TemplateRef) {\n                if (tNode.type & 4 /* Container */) {\n                    this.matchTNodeWithReadOption(tView, tNode, -1);\n                }\n            } else {\n                this.matchTNodeWithReadOption(tView, tNode, locateDirectiveOrProvider(tNode, tView, predicate, false, false));\n            }\n        };\n
TQuery_.prototype.matchTNodeWithReadOption = function (tView, tNode, nodeMatchIdx) {\n        if (nodeMatchIdx !== null) {\n            var read = this.metadata.read;\n            if (read !== null) {\n                if (read === ElementRef || read === ViewContainerRef ||\n                    read === TemplateRef && (tNode.type & 4 /* Container */)) {\n                    this.addMatch(tNode.index, -2);\n                } else {\n                    var directiveOrProviderIdx = locateDirectiveOrProvider(tNode, tView, read, false, false);\n                    if (directiveOrProviderIdx !== null) {\n                        this.addMatch(tNode.index, directiveOrProviderIdx);\n                    }\n                }\n            } else {\n                this.addMatch(tNode.index, nodeMatchIdx);\n            }\n        };\n
TQuery_.prototype.addMatch = function (tNodeIdx, matchIdx) {\n        if (this.matches === null) {\n            this.matches = [tNodeIdx, matchIdx];\n        } else {\n            this.matches.push(tNodeIdx, matchIdx);\n        };\n        return TQuery_;\n    }();\n    /**\n     * Iterates over local names for a given node and returns directive index\n     * (or -1 if a local name points to an element).\n     *\n     * @param tNode static data of a node to check\n     * @param selector selector to match\n     * @returns directive index, -1 or null if a selector didn't match any of the local names\n     */\n    function getIdxOfMatchingSelector(tNode, selector) {\n        var localNames = tNode.localNames;\n        if (localNames !== null) {\n            for (var i = 0; i < localNames.length; i += 2) {\n                if (localNames[i] === selector) {\n                    return localNames[i + 1];\n                }\n            }\n            return null;\n        }\n        function createResultByTNodeType(tNode, currentView) {\n            if (tNode.type & (3 /* AnyRNode */ | 8 /* ElementContainer */)) {\n                return createElementRef(tNode, currentView);\n            } else if (tNode.type & 4 /* Container */) {\n                return createTemplateRef(tNode, currentView);\n            }\n            return null;\n        }\n        function createResultForNode(IView, tNode, matchingIdx, read) {\n            if (matchingIdx === -1) {\n                // if read token and / or strategy is not specified, detect it using appropriate tNode type\n                return createResultByTNodeType(tNode, IView);\n            } else if (matchingIdx === -2) {\n                // read a special token from a node injector\n                return createSpecialToken(IView, tNode, read);\n            } else {\n                // read a token\n                return getNodeInjectable(IView, IView[TVIEW], matchingIdx, tNode);\n            }\n        }\n        function createSpecialToken(IView, tNode, read) {\n            if (read === ElementRef) {\n                return createElementRef(tNode, IView);\n            } else if (read === TemplateRef) {\n                return createTemplateRef(tNode, IView);\n            } else if (read === ViewContainerRef) {\n                ngDevMode && assertTNodeType(tNode, 3 /* AnyRNode */ | 12 /* AnyContainer */);\n                return createContainerRef(tNode, IView);\n            } else {\n                ngDevMode && throwError(`Special token to read should be one of ElementRef, TemplateRef or ViewContainerRef but got ` + stringify(read) + `.`);\n            }\n        }\n    }\n    /**\n     * A helper function that creates query results for a given view. This function is meant to do the\n     * processing once and only once for a given view instance (a set of results for a given view\n     * doesn't change).\n     */\n    function materializeViewResults(tView, IView, tQuery, queryIndex) {\n        var lQuery = IView[QUERIES].queries[queryIndex];\n        if (lQuery.matches ===

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null) {\n        var tViewData = tView.data;\n        var tQueryMatches = tQuery.matches;\n        var result =
[];\n        for (var i = 0; i < tQueryMatches.length; i += 2) {\n            var matchedNodeIdx =
tQueryMatches[i];\n            if (matchedNodeIdx < 0) {\n                // we at the <ng-template> marker which
might have results in views created based on this\n                // <ng-template> - those results will be in separate
views though, so here we just leave\n                // null as a placeholder\n                result.push(null);\n            }\n            else {\n                ngDevMode && assertIndexInRange(tViewData, matchedNodeIdx);\n                var tNode = tViewData[matchedNodeIdx];\n                result.push(createResultForNode(IView, tNode, tQueryMatches[i + 1], tQuery.metadata.read));\n            }\n        }\n        lQuery.matches = result;\n        return lQuery.matches;\n    }\n    /**\n     * A helper
function that collects (already materialized) query results from a tree of views,\n     * starting with a provided
LView.\n     */\n    function collectQueryResults(tView, lView, queryIndex, result) {\n        var tQuery =
tView.queries.getByIndex(queryIndex);\n        var tQueryMatches = tQuery.matches;\n        if (tQueryMatches !==
null) {\n            var lViewResults = materializeViewResults(tView, lView, tQuery, queryIndex);\n            for (var i =
0; i < tQueryMatches.length; i += 2) {\n                var tNodeIdx = tQueryMatches[i];\n                if (tNodeIdx > 0)
{\n                    result.push(lViewResults[i / 2]);\n                }\n                else {\n                    var childQueryIndex =
tQueryMatches[i + 1];\n                    var declarationLContainer = lView[-tNodeIdx];\n                    ngDevMode &&
assertLContainer(declarationLContainer);\n                    // collect matches for views inserted in this container\n
                    for (var i_1 = CONTAINER_HEADER_OFFSET; i_1 < declarationLContainer.length; i_1++) {\n
                        var embeddedLView = declarationLContainer[i_1];\n                        if
(embeddedLView[DECLARATION_LCONTAINER] === embeddedLView[PARENT]) {\n
                            collectQueryResults(embeddedLView[TVIEW], embeddedLView, childQueryIndex, result);\n
                        }\n                        // collect matches for views created from this declaration container and inserted into\n
                        // different containers\n                        if (declarationLContainer[MOVED_VIEWS] !== null) {\n                            var
embeddedLViews = declarationLContainer[MOVED_VIEWS];\n                            for (var i_2 = 0; i_2 < embeddedLViews.length; i_2++) {\n
                                var embeddedLView =
embeddedLViews[i_2];\n                                collectQueryResults(embeddedLView[TVIEW], embeddedLView,
childQueryIndex, result);\n                            }\n                        }\n                    }\n                    return result;\n                }\n            }\n            /**\n             * Refreshes a query by combining matches from all active views and removing matches from
deleted\n             * views.\n             */\n            * @returns `true` if a query got dirty during change detection or if this is a static
query\n            * resolving in creation mode, `false` otherwise.\n            */\n            * @codeGenApi\n            */\n            function
queryRefresh(queryList) {\n                var lView = getLView();\n                var tView = getTView();\n                var queryIndex =
getCurrentQueryIndex();\n                setCurrentQueryIndex(queryIndex + 1);\n                var tQuery = getTQuery(tView,
queryIndex);\n                if (queryList.dirty && (isCreationMode(lView)
=== tQuery.metadata.isStatic)) {\n                    if (tQuery.matches === null) {\n                        queryList.reset([]);\n                    }\n                    else {\n                        var result = tQuery.crossesNgTemplate ?\n                        collectQueryResults(tView,
lView, queryIndex, []) :\n                        materializeViewResults(tView, lView, tQuery, queryIndex);\n                        queryList.reset(result);\n                        queryList.notifyOnChanges();\n                    }\n                    return true;\n                }\n                return false;\n            }\n            /**\n             * Creates new QueryList for a static view query.\n             */\n            * @param predicate The
type for which the query will search\n            * @param descend Whether or not to descend into children\n            * @param read What to save in the query\n            */\n            * @codeGenApi\n            */\n            function staticViewQuery(predicate, descend,
read) {\n                viewQueryInternal(getTView(), getLView(), predicate, descend, read, true);\n            }\n            /**\n             *
Creates
new QueryList, stores the reference in LView and returns QueryList.\n            */\n            * @param predicate The type for
which the query will search\n            * @param descend Whether or not to descend into children\n            * @param read
What to save in the query\n            */\n            * @codeGenApi\n            */\n            function viewQuery(predicate, descend, read) {\n
                viewQueryInternal(getTView(), getLView(), predicate, descend, read, false);\n            }\n            function
viewQueryInternal(tView, lView, predicate, descend, read, isStatic) {\n                if (tView.firstCreatePass) {\n
                    createTQuery(tView, new TQueryMetadata_(predicate, descend, isStatic, read), -1);\n                    if (isStatic) {\n

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tView.staticViewQueries = true;\n      }\n      }\n      createLQuery(tView, IView);\n      }\n      /**\n      * Registers a QueryList, associated with a content query, for later refresh (part of a view\n      * refresh).\n      *\n      * @param directiveIndex Current directive index\n      * @param predicate The type for which the query will search\n      * @param descend Whether or not to descend into children\n      * @param read What to save in the query\n      * @returns QueryList<T>\n      *\n      * @codeGenApi\n      */\n      function contentQuery(directiveIndex, predicate, descend, read) {\n        contentQueryInternal(getTView(),\n        getLView(), predicate, descend, read, false, getCurrentTNode(), directiveIndex);\n      }\n      /**\n      * Registers a QueryList, associated with a static content query, for later refresh\n      * (part of a view refresh).\n      *\n      * @param directiveIndex Current directive index\n      * @param predicate The type for which the query will search\n      * @param descend Whether or not to descend into children\n      * @param read What to save in the query\n      * @returns QueryList<T>\n      *\n      * @codeGenApi\n      */\n      function staticContentQuery(directiveIndex,\n      predicate, descend, read) {\n        contentQueryInternal(getTView(), getLView(),\n        predicate, descend, read, true, getCurrentTNode(), directiveIndex);\n      }\n      function contentQueryInternal(tView,\n      IView, predicate, descend, read, isStatic, tNode, directiveIndex) {\n        if (tView.firstCreatePass) {\n          createTQuery(tView, new TQueryMetadata_(predicate, descend, isStatic, read), tNode.index);\n          saveContentQueryAndDirectiveIndex(tView, directiveIndex);\n          if (isStatic) {\n            tView.staticContentQueries = true;\n          }\n          }\n          createLQuery(tView, IView);\n          }\n          /**\n          * Loads a QueryList corresponding to the current view or content query.\n          *\n          * @codeGenApi\n          */\n          function loadQuery() {\n            return loadQueryInternal(getLView(), getCurrentQueryIndex());\n          }\n          function loadQueryInternal(IView, queryIndex) {\n            ngDevMode &&\n            assertDefined(IView[QUERIES],\n            'LQueries should be defined when trying to load a query');\n            ngDevMode &&\n            assertIndexInRange(IView[QUERIES].queries,\n            queryIndex);\n            return IView[QUERIES].queries[queryIndex].queryList;\n          }\n          function createLQuery(tView, IView) {\n            var queryList = new QueryList();\n            storeCleanupWithContext(tView,\n            IView, queryList, queryList.destroy);\n            if (IView[QUERIES] === null)\n              IView[QUERIES] = new LQueries_();\n            IView[QUERIES].queries.push(new LQuery_(queryList));\n          }\n          function createTQuery(tView, metadata, nodeIndex) {\n            if (tView.queries === null)\n              tView.queries = new TQueries_();\n            tView.queries.track(new TQuery_(metadata, nodeIndex));\n          }\n          function saveContentQueryAndDirectiveIndex(tView, directiveIndex) {\n            var tViewContentQueries =\n            tView.contentQueries || (tView.contentQueries = []);\n            var lastSavedDirectiveIndex =\n            tViewContentQueries.length ? tViewContentQueries[tViewContentQueries.length - 1] : -1;\n            if (directiveIndex\n            !== lastSavedDirectiveIndex) {\n              tViewContentQueries.push(tView.queries.length\n              - 1, directiveIndex);\n            }\n            }\n            function getTQuery(tView, index) {\n              ngDevMode &&\n              assertDefined(tView.queries, 'TQueries must be defined to retrieve a TQuery');\n              return\n              tView.queries.getByIndex(index);\n            }\n            }\n            /**\n            * @license\n            * Copyright Google LLC All Rights Reserved.\n            * Use of this source code is governed by an MIT-style license that can be\n            * found in the LICENSE file at https://angular.io/license\n            */\n            /**\n            * Retrieves `TemplateRef` instance from `Injector`\n            * when a local reference is placed on the\n            * <ng-template> element.\n            *\n            * @codeGenApi\n            */\n            function templateRefExtractor(tNode, IView) {\n              return createTemplateRef(tNode, IView);\n            }\n            /**\n            * Returns the appropriate `ChangeDetectorRef` for a pipe.\n            *\n            * @codeGenApi\n            */\n            function injectPipeChangeDetectorRef(flags) {\n              if (flags === void 0) { flags\n              = exports.InjectFlags.Default; }\n              var value = injectChangeDetectorRef(true);\n              if (value === null &&\n              !(flags & exports.InjectFlags.Optional)) {\n                throwProviderNotFoundError('ChangeDetectorRef');\n              }\n              }\n              else {\n                return value;\n              }\n            }\n            }\n            /**\n            * @license\n            * Copyright Google LLC All Rights Reserved.\n            * Use of this source code is governed by an MIT-style license that can be\n            * found in the LICENSE file at https://angular.io/license\n            */\n            /**\n            * @license\n            * Copyright Google LLC All Rights Reserved.\n            * Use of this source code is governed by an MIT-style license that can be\n            * found in the LICENSE file at https://angular.io/license\n            */\n            var O$c = function () { return ({\n            'attribute': attribute,\n
```

'attributeInterpolate1': attributeInterpolate1,\n 'attributeInterpolate2': attributeInterpolate2,\n
 'attributeInterpolate3':
 attributeInterpolate3,\n 'attributeInterpolate4': attributeInterpolate4,\n 'attributeInterpolate5':
 attributeInterpolate5,\n 'attributeInterpolate6': attributeInterpolate6,\n 'attributeInterpolate7':
 attributeInterpolate7,\n 'attributeInterpolate8': attributeInterpolate8,\n 'attributeInterpolateV':
 attributeInterpolateV,\n 'defineComponent': defineComponent,\n 'defineDirective': defineDirective,\n
 'defineInjectable': defineInjectable,\n 'defineInjector': defineInjector,\n 'defineNgModule':
 defineNgModule,\n 'definePipe': definePipe,\n 'directiveInject': directiveInject,\n 'getFactoryOf':
 getFactoryOf,\n 'getInheritedFactory': getInheritedFactory,\n 'inject': inject,\n 'injectAttribute':
 injectAttribute,\n 'invalidFactory': invalidFactory,\n 'invalidFactoryDep': invalidFactoryDep,\n
 'injectPipeChangeDetectorRef': injectPipeChangeDetectorRef,\n 'templateRefExtractor':
 templateRefExtractor,\n 'NgOnChangesFeature': NgOnChangesFeature,\n 'ProvidersFeature':
 ProvidersFeature,\n 'CopyDefinitionFeature': CopyDefinitionFeature,\n 'InheritDefinitionFeature':
 InheritDefinitionFeature,\n 'nextContext': nextContext,\n 'namespaceHTML': namespaceHTML,\n
 'namespaceMathML': namespaceMathML,\n 'namespaceSVG': namespaceSVG,\n 'enableBindings':
 enableBindings,\n 'disableBindings': disableBindings,\n 'elementStart': elementStart,\n 'elementEnd':
 elementEnd,\n 'element': element,\n 'elementContainerStart': elementContainerStart,\n
 'elementContainerEnd': elementContainerEnd,\n 'elementContainer': elementContainer,\n 'pureFunction0':
 pureFunction0,\n 'pureFunction1':
 pureFunction1,\n 'pureFunction2': pureFunction2,\n 'pureFunction3': pureFunction3,\n 'pureFunction4':
 pureFunction4,\n 'pureFunction5': pureFunction5,\n 'pureFunction6': pureFunction6,\n 'pureFunction7':
 pureFunction7,\n 'pureFunction8': pureFunction8,\n 'pureFunctionV': pureFunctionV,\n
 'getCurrentView': getCurrentView,\n 'restoreView': restoreView,\n 'listener': listener,\n 'projection':
 projection,\n 'syntheticHostProperty': syntheticHostProperty,\n 'syntheticHostListener':
 syntheticHostListener,\n 'pipeBind1': pipeBind1,\n 'pipeBind2': pipeBind2,\n 'pipeBind3': pipeBind3,\n
 'pipeBind4': pipeBind4,\n 'pipeBindV': pipeBindV,\n 'projectionDef': projectionDef,\n
 'hostProperty': hostProperty,\n 'property': property,\n 'propertyInterpolate':
 propertyInterpolate,\n 'propertyInterpolate1': propertyInterpolate1,\n 'propertyInterpolate2':
 propertyInterpolate2,\n 'propertyInterpolate3': propertyInterpolate3,\n 'propertyInterpolate4':
 propertyInterpolate4,\n 'propertyInterpolate5': propertyInterpolate5,\n 'propertyInterpolate6':
 propertyInterpolate6,\n 'propertyInterpolate7': propertyInterpolate7,\n 'propertyInterpolate8':
 propertyInterpolate8,\n 'propertyInterpolateV': propertyInterpolateV,\n 'pipe': pipe,\n 'queryRefresh':
 queryRefresh,\n 'viewQuery': viewQuery,\n 'staticViewQuery': staticViewQuery,\n
 'staticContentQuery': staticContentQuery,\n 'loadQuery': loadQuery,\n 'contentQuery': contentQuery,\n
 'reference': reference,\n 'classMap': classMap,\n 'classMapInterpolate1': classMapInterpolate1,\n
 'classMapInterpolate2':
 classMapInterpolate2,\n 'classMapInterpolate3': classMapInterpolate3,\n 'classMapInterpolate4':
 classMapInterpolate4,\n 'classMapInterpolate5': classMapInterpolate5,\n 'classMapInterpolate6':
 classMapInterpolate6,\n 'classMapInterpolate7': classMapInterpolate7,\n 'classMapInterpolate8':
 classMapInterpolate8,\n 'classMapInterpolateV': classMapInterpolateV,\n 'styleMap': styleMap,\n
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 'styleMapInterpolate3': styleMapInterpolate3,\n 'styleMapInterpolate4': styleMapInterpolate4,\n
 'styleMapInterpolate5': styleMapInterpolate5,\n 'styleMapInterpolate6': styleMapInterpolate6,\n
 'styleMapInterpolate7': styleMapInterpolate7,\n 'styleMapInterpolate8': styleMapInterpolate8,\n
 'styleMapInterpolateV': styleMapInterpolateV,\n
 'styleProp': styleProp,\n 'stylePropInterpolate1': stylePropInterpolate1,\n 'stylePropInterpolate2':
 stylePropInterpolate2,\n 'stylePropInterpolate3': stylePropInterpolate3,\n 'stylePropInterpolate4':
 stylePropInterpolate4,\n
 stylePropInterpolate4,\n 'stylePropInterpolate5': stylePropInterpolate5,\n 'stylePropInterpolate6':


```

stylePropInterpolate6,\n      'stylePropInterpolate7': stylePropInterpolate7,\n      'stylePropInterpolate8': stylePropInterpolate8,\n      'stylePropInterpolateV': stylePropInterpolateV,\n      'classProp': classProp,\n      'advance': advance,\n      'template': template,\n      'text': text,\n      'textInterpolate': textInterpolate,\n      'textInterpolate1': textInterpolate1,\n      'textInterpolate2': textInterpolate2,\n      'textInterpolate3': textInterpolate3,\n      'textInterpolate4': textInterpolate4,\n      'textInterpolate5': textInterpolate5,\n      'textInterpolate6': textInterpolate6,\n      'textInterpolate7': textInterpolate7,\n      'textInterpolate8': textInterpolate8,\n      'textInterpolateV': textInterpolateV,\n      'i18n': i18n,\n      'i18nAttributes': i18nAttributes,\n      'i18nExp': i18nExp,\n      'i18nStart': i18nStart,\n      'i18nEnd': i18nEnd,\n      'i18nApply': i18nApply,\n      'i18nPostprocess': i18nPostprocess,\n      'resolveWindow': resolveWindow,\n      'resolveDocument': resolveDocument,\n      'resolveBody': resolveBody,\n      'setComponentScope': setComponentScope,\n      'setNgModuleScope': setNgModuleScope,\n      'sanitizeHtml': sanitizeHtml,\n      'sanitizeStyle': sanitizeStyle,\n      'sanitizeResourceUrl': sanitizeResourceUrl,\n      'sanitizeScript': sanitizeScript,\n      'sanitizeUrl': sanitizeUrl,\n      'sanitizeUrlOrResourceUrl': sanitizeUrlOrResourceUrl,\n      'trustConstantHtml': trustConstantHtml,\n      'trustConstantScript': trustConstantScript,\n      'trustConstantResourceUrl': trustConstantResourceUrl,\n    });\n\n    /**\n     * A mapping of the @angular/core API surface used in generated expressions to the actual symbols.\n     *\n     * This should be kept up to date with the public exports of @angular/core.\n     *\n     * var angularCoreEnv = (0$c());\n     *\n     * var jitOptions = null;\n     * function setJitOptions(options) {\n     *   if (jitOptions !== null) {\n     *     if (options.defaultEncapsulation !== jitOptions.defaultEncapsulation) {\n     *       ngDevMode &&\n     * console.error('Provided value for `defaultEncapsulation` can not be changed once it has been set.');

```

```

will allow duplicate declarations in its\n
 * root.\n
 */\n
function compileNgModuleDefs(moduleType,
ngModule, allowDuplicateDeclarationsInRoot) {\n
  if (allowDuplicateDeclarationsInRoot === void 0) {\n
    allowDuplicateDeclarationsInRoot = false; }\n
  ngDevMode && assertDefined(moduleType, 'Required value\n
moduleType');\n
  ngDevMode && assertDefined(ngModule, 'Required value ngModule');\n
  var declarations\n
= flatten(ngModule.declarations || EMPTY_ARRAY$5);\n
  var ngModuleDef = null;\n
Object.defineProperty(moduleType, NG_MOD_DEF, {\n
  configurable: true,\n
  get: function () {\n
    if (ngModuleDef === null) {\n
      if (ngDevMode && ngModule.imports &&\n
ngModule.imports.indexOf(moduleType) > -1) {\n
        // We need to assert this immediately, because\n
allowing it to continue will cause it to\n
        // go into an infinite loop before we've reached the point\n
where we throw\n
all the errors.\n
        throw new Error("'" + stringifyForError(moduleType) + "' module can't import\n
itself");\n
      }\n
      ngModuleDef = getCompilerFacade().compileNgModule(angularCoreEnv,\n
\'ng://\' + moduleType.name + \'^\u0275mod.js\', {\n
        type: moduleType,\n
        bootstrap:\n
flatten(ngModule.bootstrap || EMPTY_ARRAY$5).map(resolveForwardRef),\n
        declarations:\n
declarations.map(resolveForwardRef),\n
        imports: flatten(ngModule.imports || EMPTY_ARRAY$5)\n
        .map(resolveForwardRef)\n
        .map(expandModuleWithProviders),\n
        exports: flatten(ngModule.exports || EMPTY_ARRAY$5)\n
        .map(resolveForwardRef)\n
        .map(expandModuleWithProviders),\n
        schemas: ngModule.schemas ?\n
flatten(ngModule.schemas) : null,\n
        id: ngModule.id || null,\n
      });\n
      // Set `schemas` on ngModuleDef to an empty\n
array in JIT mode to indicate that runtime\n
      // should verify that there are no unknown elements in a\n
template. In AOT mode, that check\n
      // happens at compile time and `schemas` information is not\n
present on Component and Module\n
      // defs after compilation (so the check doesn't happen the second\n
time at runtime).\n
      if (!ngModuleDef.schemas) {\n
        ngModuleDef.schemas = [];\n
      }\n
      return ngModuleDef;\n
    }\n
  });\n
  var ngInjectorDef = null;\n
Object.defineProperty(moduleType, NG_INJ_DEF, {\n
  get: function () {\n
    if (ngInjectorDef ===\n
null) {\n
      ngDevMode &&\n
      verifySemanticsOfNgModuleDef(moduleType,\n
allowDuplicateDeclarationsInRoot);\n
      var meta = {\n
        name: moduleType.name,\n
        type: moduleType,\n
        deps: reflectDependencies(moduleType),\n
        providers: ngModule.providers ||\n
EMPTY_ARRAY$5,\n
        imports: [\n
          (ngModule.imports ||\n
EMPTY_ARRAY$5).map(resolveForwardRef),\n
          (ngModule.exports ||\n
EMPTY_ARRAY$5).map(resolveForwardRef),\n
        ],\n
      };\n
      ngInjectorDef =\n
getCompilerFacade().compileInjector(angularCoreEnv, \'ng://\' + moduleType.name + \'^\u0275inj.js\', meta);\n
      return ngInjectorDef;\n
    }\n
  },\n
  // Make the property configurable in dev mode to\n
allow overriding in tests\n
  configurable: !!ngDevMode,\n
});\n
}\n
function\n
verifySemanticsOfNgModuleDef(moduleType, allowDuplicateDeclarationsInRoot,\n
importingModule) {\n
  if (verifiedNgModule.get(moduleType))\n
    return;\n
  verifiedNgModule.set(moduleType, true);\n
  moduleType = resolveForwardRef(moduleType);\n
  var\n
ngModuleDef;\n
  if (importingModule) {\n
    ngModuleDef = getNgModuleDef(moduleType);\n
    if\n
(!ngModuleDef) {\n
      throw new Error(\'Unexpected value \'' + moduleType.name + '\' imported by the\n
module \'' + importingModule.name + '\'. Please add an @NgModule annotation.\');\n
    }\n
  } else\n
{\n
    ngModuleDef = getNgModuleDef(moduleType, true);\n
    var errors = [];\n
    var\n
declarations = maybeUnwrapFn(ngModuleDef.declarations);\n
    var imports =\n
maybeUnwrapFn(ngModuleDef.imports);\n
    flatten(imports).map(unwrapModuleWithProvidersImports).forEach(function (mod) {\n
      verifySemanticsOfNgModuleImport(mod, moduleType);\n
      verifySemanticsOfNgModuleDef(mod, false,\n
moduleType);\n
    });\n
  }

```

```

});\n    var exports = maybeUnwrapFn(ngModuleDef.exports);\n    declarations.forEach(verifyDeclarationsHaveDefinitions);\n    declarations.forEach(verifyDirectivesHaveSelector);\n    var combinedDeclarations =\n    __spread(declarations.map(resolveForwardRef),\n    flatten(imports.map(computeCombinedExports)).map(resolveForwardRef));\n    exports.forEach(verifyExportsAreDeclaredOrReExported);\n    declarations.forEach(function (decl) { return\n    verifyDeclarationIsUnique(decl, allowDuplicateDeclarationsInRoot); });\n    declarations.forEach(verifyComponentEntryComponentsIsPartOfNgModule);\n    var ngModule =\n    getAnnotation(moduleType, 'NgModule');\n    if (ngModule) {\n        ngModule.imports &&\n        flatten(ngModule.imports).map(unwrapModuleWithProvidersImports).forEach(function (mod) {\n            verifySemanticsOfNgModuleImport(mod, moduleType);\n            verifySemanticsOfNgModuleDef(mod, false,\n            moduleType);\n        });\n        ngModule.bootstrap && deepForEach(ngModule.bootstrap, verifyCorrectBootstrapType);\n        ngModule.bootstrap && deepForEach(ngModule.bootstrap, verifyComponentIsPartOfNgModule);\n        ngModule.entryComponents &&\n        deepForEach(ngModule.entryComponents,\n        verifyComponentIsPartOfNgModule);\n    }\n    // Throw Error if any errors were detected.\n    if\n    (errors.length) {\n        throw new Error(errors.join('\\n'));\n    }\n    ///////////////////////////////////////////\n    function\n    verifyDeclarationsHaveDefinitions(type) {\n        type = resolveForwardRef(type);\n        var def =\n        getComponentDef(type) || getDirectiveDef(type) || getPipeDef(type);\n        if (!def) {\n            errors.push("Unexpected value \"" + stringifyForError(type) + "\" declared by the module \"" +\n            stringifyForError(moduleType) + "\". Please add a @Pipe/@Directive/@Component\n            annotation.");\n        }\n    }\n    function verifyDirectivesHaveSelector(type) {\n        type =\n        resolveForwardRef(type);\n        var def = getDirectiveDef(type);\n        if (!getComponentDef(type) && def\n        && def.selectors.length == 0) {\n            errors.push("Directive \"" + stringifyForError(type) + "\" has no selector,\n            please add it!");\n        }\n    }\n    function verifyExportsAreDeclaredOrReExported(type) {\n        type =\n        resolveForwardRef(type);\n        var kind = getComponentDef(type) && 'component' || getDirectiveDef(type) &&\n        'directive' ||\n        getPipeDef(type) && 'pipe';\n        if (kind) {\n            // only checked if we are declared\n            as Component, Directive, or Pipe\n            // Modules don't need to be declared or imported.\n            if\n            (combinedDeclarations.lastIndexOf(type) === -1) {\n                // We are exporting something which we don't\n                explicitly\n                declare or import.\n                errors.push("Can't export \"" + kind + "\" from \"" +\n                stringifyForError(moduleType) + "\" as it was neither declared nor imported!");\n            }\n        }\n    }\n    function verifyDeclarationIsUnique(type, suppressErrors) {\n        type = resolveForwardRef(type);\n        var\n        existingModule = ownerNgModule.get(type);\n        if (existingModule && existingModule !== moduleType) {\n            if (!suppressErrors) {\n                var modules = [existingModule,\n                moduleType].map(stringifyForError).sort();\n                errors.push("Type \"" + stringifyForError(type) + "\" is part\n                of the declarations of 2 modules: \"" + modules[0] + "\" and \"" + modules[1] + "\"!\n                \"Please\n                consider moving \"" + stringifyForError(type) + "\" to a higher module that imports \"" + modules[0] + "\" and \"" +\n                modules[1] + "\". \"")\n                ("You\n                can also create a new NgModule that exports and includes \"" + stringifyForError(type) + "\" then import that\n                NgModule in \"" + modules[0] + "\" and \"" + modules[1] + "\".");\n            }\n        }\n        else {\n            //\n            Mark type as having owner.\n            ownerNgModule.set(type, moduleType);\n        }\n    }\n    function\n    verifyComponentIsPartOfNgModule(type) {\n        type = resolveForwardRef(type);\n        var existingModule\n        = ownerNgModule.get(type);\n        if (!existingModule) {\n            errors.push("Component \"" +\n            stringifyForError(type) + "\" is not part of any NgModule or the module has not been imported into your\n            module.");\n        }\n    }\n    function verifyCorrectBootstrapType(type) {\n        type =\n        resolveForwardRef(type);\n        if (!getComponentDef(type)) {\n            errors.push(stringifyForError(type) +

```

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    \" cannot be used as an entry component.\");\n        }\n\n        }\n        function verifyComponentEntryComponentsIsPartOfNgModule(type) {\n            type =\n            resolveForwardRef(type);\n            if (getComponentDef(type)) {\n                // We know we are component\n                var component = getAnnotation(type, 'Component');\n                if (component && component.entryComponents)\n                {\n                    deepForEach(component.entryComponents, verifyComponentIsPartOfNgModule);\n                }\n            }\n            }\n            function verifySemanticsOfNgModuleImport(type, importingModule) {\n                type =\n                resolveForwardRef(type);\n                if (getComponentDef(type) || getDirectiveDef(type)) {\n                    throw new\n                    Error(\"Unexpected directive \" + type.name + \" imported by the module \" + importingModule.name + \". Please\n                    add an @NgModule annotation.\");\n                }\n                if (getPipeDef(type)) {\n                    throw new\n                    Error(\"Unexpected pipe \" + type.name + \" imported by the module \" + importingModule.name\n                    + \". Please add an @NgModule annotation.\");\n                }\n            }\n            }\n            function\n            unwrapModuleWithProvidersImports(typeOrWithProviders) {\n                typeOrWithProviders =\n                resolveForwardRef(typeOrWithProviders);\n                return typeOrWithProviders.ngModule || typeOrWithProviders;\n            }\n            function getAnnotation(type, name) {\n                var annotation = null;\n                collect(type.__annotations__);\n                collect(type.decorators);\n                return annotation;\n            }\n            function collect(annotations) {\n                if (annotations) {\n                    annotations.forEach(readAnnotation);\n                }\n            }\n            function readAnnotation(decorator) {\n                if (!annotation) {\n                    var proto = Object.getPrototypeOf(decorator);\n                    if (proto.ngMetadataName\n                    == name) {\n                        annotation = decorator;\n                    }\n                    else if (decorator.type) {\n                        var\n                        proto_1 = Object.getPrototypeOf(decorator.type);\n                        if (proto_1.ngMetadataName == name) {\n                            annotation = decorator.args[0];\n                        }\n                    }\n                }\n            }\n            }\n            }\n            }\n            /**\n            * Keep track of compiled components. This is needed because in\n            tests we often want to compile the\n            * same component with more than one NgModule. This would cause an error\n            unless we reset which\n            * NgModule the component belongs to. We keep the list of compiled components here so\n            that the\n            * TestBed can reset it later.\n            */\n            var ownerNgModule = new Map();\n            var verifiedNgModule =\n            new Map();\n            function resetCompiledComponents() {\n                ownerNgModule = new Map();\n                verifiedNgModule = new Map();\n                moduleQueue.length = 0;\n            }\n            /**\n            * Computes the combined\n            declarations of explicit declarations, as well as declarations inherited by\n            * traversing the exports of imported\n            modules.\n            * @param type\n            */\n            function computeCombinedExports(type) {\n                type = resolveForwardRef(type);\n                var ngModuleDef =\n                getNgModuleDef(type, true);\n                return __spread(flatten(maybeUnwrapFn(ngModuleDef.exports).map(function\n                (type) {\n                    var ngModuleDef = getNgModuleDef(type);\n                    if (ngModuleDef) {\n                        verifySemanticsOfNgModuleDef(type, false);\n                        return computeCombinedExports(type);\n                    }\n                }\n                else {\n                    return type;\n                }\n            }));\n            }\n            /**\n            * Some declared components may be compiled\n            asynchronously, and thus may not have their\n            * cmp set yet. If this is the case, then a reference to the module is\n            written into\n            * the `ngSelectorScope` property of the declared type.\n            */\n            function\n            setScopeOnDeclaredComponents(moduleType, ngModule) {\n                var declarations = flatten(ngModule.declarations\n                || EMPTY_ARRAY$5);\n                var transitiveScopes = transitiveScopesFor(moduleType);\n                declarations.forEach(function (declaration) {\n                    if (declaration.hasOwnProperty(NG_COMP_DEF)) {\n                        // A `cmp` field exists - go ahead and patch the component directly.\n                        var component =\n                        declaration;\n                        var componentDef = getComponentDef(component);\n                        patchComponentDefWithScope(componentDef, transitiveScopes);\n                    }\n                    else if\n                    (!declaration.hasOwnProperty(NG_DIR_DEF) && !declaration.hasOwnProperty(NG_PIPE_DEF)) {\n                        //\n                        Set `ngSelectorScope` for future reference when the component compilation finishes.\n                        declaration.ngSelectorScope = moduleType;\n                    }\n                });\n            }\n            /**\n            * Patch the definition of a\n            component with directives and pipes from the compilation scope of\n            * a given module.\n            */\n            function\n            patchComponentDefWithScope(componentDef, transitiveScopes) {\n                componentDef.directiveDefs = function\n                () { return Array.from(transitiveScopes.compilation.directives);\n            }

```

```

    .map(function (dir) { return dir.hasOwnProperty(NG_COMP_DEF) ? getComponentDef(dir) :
getDirectiveDef(dir); })\n        .filter(function (def) { return !!def; });\n        componentDef.pipeDefs = function
() { return Array.from(transitiveScopes.compilation.pipes).map(function (pipe) { return getPipeDef(pipe); }); }\n
    componentDef.schemas = transitiveScopes.schemas;\n    // Since we avoid Components/Directives/Pipes
recompiling in case there are no overrides, we\n    // may face a problem where previously compiled defs
available to a given Component/Directive\n    // are cached in TVView and may become stale (in case any of these
defs gets recompiled). In\n    // order to avoid this problem, we force fresh TVView to be created.\n
    componentDef.tView = null;\n    }\n    /**\n     * Compute the pair of transitive scopes (compilation scope and
exported scope) for a given module.\n     *\n     * This operation
is memoized and the result is cached on the module's definition. This function can\n     * be called on modules with
components that have not fully compiled yet, but the result should not\n     * be used until they have.\n     *\n     *
@param moduleType module that transitive scope should be calculated for.\n     */\n    function
transitiveScopesFor(moduleType) {\n        if (!isNgModule(moduleType)) {\n            throw new
Error(moduleType.name + \" does not have a module def (\\u0275mod property)\");\n        }\n        var def =
getNgModuleDef(moduleType);\n        if (def.transitiveCompileScopes !== null) {\n            return
def.transitiveCompileScopes;\n        }\n        var scopes = {\n            schemas: def.schemas || null,\n
compilation: {\n                directives: new Set(),\n                pipes: new Set(),\n            },\n            exported: {\n
                directives: new Set(),\n                pipes: new Set(),\n            },\n        };\n
        maybeUnwrapFn(def.imports).forEach(function (imported) {\n            var importedType = imported;\n
if (!isNgModule(importedType)) {\n                throw new Error(\"Importing \" + importedType.name + \" which
does not have a \\u0275mod property\");\n            }\n            // When this module imports another, the imported
module's exported directives and pipes are\n            // added to the compilation scope of this module.\n            var
importedScope = transitiveScopesFor(importedType);\n            importedScope.exported.directives.forEach(function
(entry) { return scopes.compilation.directives.add(entry); });\n
            importedScope.exported.pipes.forEach(function (entry) { return scopes.compilation.pipes.add(entry); });\n
            maybeUnwrapFn(def.declarations).forEach(function (declared) {\n                var declaredWithDefs = declared;\n
if (getPipeDef(declaredWithDefs)) {\n                    scopes.compilation.pipes.add(declared);\n
                }\n                else {\n                    // Either declared has a cmp or dir, or it's a component which hasn't\n                    //
had its template compiled yet. In either case, it gets added to the compilation's\n                    // directives.\n
scopes.compilation.directives.add(declared);\n                }\n            });\n
            maybeUnwrapFn(def.exports).forEach(function (exported) {\n                var exportedType = exported;\n
// Either the type is a module, a pipe, or a component/directive (which may not have a\n                // cmp as it might be
compiled asynchronously).\n                if (isNgModule(exportedType)) {\n                    // When this module exports
another, the exported module's exported directives and pipes are\n                    // added to both the compilation and
exported scopes of this module.\n                    var exportedScope = transitiveScopesFor(exportedType);\n
                    exportedScope.exported.directives.forEach(function
                    (entry) {\n                        scopes.compilation.directives.add(entry);\n
scopes.exported.directives.add(entry);\n                    });\n                    exportedScope.exported.pipes.forEach(function
                    (entry) {\n                        scopes.compilation.pipes.add(entry);\n
scopes.exported.pipes.add(entry);\n                    });\n                    }\n                else if (getPipeDef(exportedType)) {\n
scopes.exported.pipes.add(exportedType);\n                }\n                else {\n
scopes.exported.directives.add(exportedType);\n                }\n            });\n            def.transitiveCompileScopes = scopes;\n
return scopes;\n        }\n        function expandModuleWithProviders(value) {\n            if (isModuleWithProviders(value))
{\n                return value.ngModule;\n            }\n            return value;\n        }\n        function isModuleWithProviders(value) {\n
return value.ngModule !== undefined;\n        }\n        function isNgModule(value) {\n
return !!getNgModuleDef(value);\n        }\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights
Reserved.\n     *\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the
LICENSE file at https://angular.io/license\n     */\n    /**\n     * Keep track of the compilation depth to avoid

```

reentrancy issues during JIT compilation. This matters in the following scenario:

- Consider a component 'A' that extends component 'B', both declared in module 'M'. During the compilation of 'A' the definition of 'B' is requested to capture the inheritance chain, potentially triggering compilation of 'B'. If this nested compilation were to trigger ``flushModuleScopingQueueAsMuchAsPossible`` it may happen that module 'M' is still pending in the queue, resulting in 'A' and 'B' to be patched with the NgModule scope. As the compilation of 'A' is still in progress, this would introduce a circular dependency on its compilation. To avoid this issue, the module scope queue is only flushed for compilations at the depth 0, to ensure all compilations have finished.

```

var compilationDepth = 0;
/**
 * Compile an Angular component according to its decorator metadata, and patch the resulting component def
 * (cmp) onto the component type.
 * Compilation may be asynchronous (due to the need to resolve URLs
 * for the component template or other resources, for example). In the event that compilation is not immediate,
 * `compileComponent` will enqueue resource resolution into a global queue and will fail to return the `cmp`
 * until the global queue has been resolved with a call to `resolveComponentResources`.
 */
function compileComponent(type, metadata) {
  // Initialize ngDevMode. This must be the first statement in
  compileComponent.
  // See the `initNgDevMode` docstring for more information.
  (typeof ngDevMode === 'undefined' || ngDevMode) && initNgDevMode();
  var ngComponentDef = null;
  // Metadata may have resources which need to be resolved.
  maybeQueueResolutionOfComponentResources(type, metadata);
  // Note that we're using the same function as
  `Directive`, because that's only subset of metadata
  // that we need to create the ngFactoryDef. We're avoiding
  using the component metadata
  // because we'd have to resolve the asynchronous templates.
  addDirectiveFactoryDef(type, metadata);
  Object.defineProperty(type, NG_COMP_DEF, {
    get: function () {
      if (ngComponentDef === null) {
        var compiler = getCompilerFacade();
        if (componentNeedsResolution(metadata)) {
          var error = ["Component \"" + type.name + "\" is
not resolved:"];
          if (metadata.templateUrl) {
            error.push("- templateUrl: " + metadata.templateUrl);
          }
          if (metadata.styleUrls
&& metadata.styleUrls.length) {
            error.push("- styleUrls: " +
JSON.stringify(metadata.styleUrls));
          }
          error.push("Did you run and wait for
`resolveComponentResources`?");
          throw new Error(error.join("\n"));
        }
        // This const was called `jitOptions` previously but had to be renamed to `options` because
        // of a bug
        with Terser that caused optimized JIT builds to throw a `ReferenceError`.
        // This bug was investigated
        in https://github.com/angular/angular-cli/issues/17264.
        // We should not rename it back until
        https://github.com/terser/terser/issues/615 is fixed.
        var options = getJitOptions();
        var preserveWhitespaces
= metadata.preserveWhitespaces;
        if (preserveWhitespaces === undefined) {
          if
(options !== null && options.preserveWhitespaces !== undefined) {
            preserveWhitespaces =
options.preserveWhitespaces;
          }
          else {
            preserveWhitespaces =
false;
          }
        }
        var encapsulation = metadata.encapsulation;
        if
(encapsulation === undefined) {
          if (options !== null && options.defaultEncapsulation !==
undefined) {
            encapsulation = options.defaultEncapsulation;
          }
          else {
            encapsulation = exports.ViewEncapsulation.Emulated;
          }
        }
        var templateUrl = metadata.templateUrl || "ng://"
+ type.name + "/template.html";
        var meta = Object.assign(Object.assign({}, directiveMetadata(type,
metadata)), { typeSourceSpan: compiler.createParseSourceSpan('Component', type.name, templateUrl), template:
metadata.template || "", preserveWhitespaces: preserveWhitespaces, styles: metadata.styles || EMPTY_ARRAY,
animations: metadata.animations, directives: [], changeDetection: metadata.changeDetection, pipes: new Map(),
encapsulation: encapsulation, interpolation: metadata.interpolation, viewProviders: metadata.viewProviders || null
});
        compilationDepth++;
        try {
          if (meta.usesInheritance) {
            addDirectiveDefToUndecoratedParents(type);
          }
          ngComponentDef =

```

```

compiler.compileComponent(angularCoreEnv, templateUrl, meta);\n          }\n          finally {\n
    // Ensure that the compilation
    depth is decremented even when the compilation failed.\n          compilationDepth--;\n          }\n
    if (compilationDepth === 0) {\n          // When NgModule decorator executed, we enqueued the
    module definition such that\n          // it would only dequeue and add itself as module scope to all of its
    declarations,\n          // but only if if all of its declarations had resolved. This call runs the check\n
    // to see if any modules that are in the queue can be dequeued and add scope to\n          // their
    declarations.\n          flushModuleScopingQueueAsMuchAsPossible();\n          }\n          // If
    component compilation is async, then the @NgModule annotation which declares the\n          // component
    may execute and set an ngSelectorScope property on the component type. This\n          // allows the
    component
    to patch itself with directiveDefs from the module after it\n          // finishes compiling.\n          if
    (hasSelectorScope(type)) {\n          var scopes = transitiveScopesFor(type.ngSelectorScope);\n
    patchComponentDefWithScope(ngComponentDef, scopes);\n          }\n          }\n          return
    ngComponentDef;\n          },\n          // Make the property configurable in dev mode to allow overriding in tests\n
    configurable: !!ngDevMode,\n          });\n          }\n          function hasSelectorScope(component) {\n          return
    component.ngSelectorScope !== undefined;\n          }\n          /**\n          * Compile an Angular directive according to its
    decorator metadata, and patch the resulting\n          * directive def onto the component type.\n          *\n          * In the event
    that compilation is not immediate, `compileDirective` will return a `Promise` which\n          * will resolve when
    compilation completes and the directive
    becomes usable.\n          *\n          function compileDirective(type, directive) {\n          var ngDirectiveDef = null;\n
    addDirectiveFactoryDef(type, directive || {});\n          Object.defineProperty(type, NG_DIR_DEF, {\n          get:
    function () {\n          if (ngDirectiveDef === null) {\n          // `directive` can be null in the case of abstract
    directives as a base class\n          // that use `@Directive()` with no selector. In that case, pass empty object to
    the\n          // `directiveMetadata` function instead of null.\n          var meta = getDirectiveMetadata(type,
    directive || {});\n          ngDirectiveDef =\n
    getCompilerFacade().compileDirective(angularCoreEnv, meta.sourceMapUrl, meta.metadata);\n          }\n
    return ngDirectiveDef;\n          },\n          // Make the property configurable in dev mode to allow overriding in
    tests\n          configurable: !!ngDevMode,\n
    });\n          }\n          function getDirectiveMetadata(type, metadata) {\n          var name = type && type.name;\n          var
    sourceMapUrl = \"ng:///\" + name + \"\\u0275dir.js\";\n          var compiler = getCompilerFacade();\n          var facade
    = directiveMetadata(type, metadata);\n          facade.typeSourceSpan = compiler.createParseSourceSpan('Directive',
    name, sourceMapUrl);\n          if (facade.usesInheritance) {\n          addDirectiveDefToUndecoratedParents(type);\n
          }\n          return { metadata: facade, sourceMapUrl: sourceMapUrl };\n          }\n          function
    addDirectiveFactoryDef(type, metadata) {\n          var ngFactoryDef = null;\n          Object.defineProperty(type,
    NG_FACTORY_DEF, {\n          get: function () {\n          if (ngFactoryDef === null) {\n          var meta
    = getDirectiveMetadata(type, metadata);\n          var compiler = getCompilerFacade();\n
    ngFactoryDef = compiler.compileFactory(angularCoreEnv, \"ng:///\"
    + type.name + \"\\u0275fac.js\", Object.assign(Object.assign({}, meta.metadata), { injectFn: 'directiveInject',
    target: compiler.R3FactoryTarget.Directive }));\n          }\n          return ngFactoryDef;\n          },\n          //
    Make the property configurable in dev mode to allow overriding in tests\n          configurable: !!ngDevMode,\n
    });\n          }\n          function extendsDirectlyFromObject(type) {\n          return Object.getPrototypeOf(type.prototype) ===
    Object.prototype;\n          }\n          /**\n          * Extract the `R3DirectiveMetadata` for a particular directive (either a
    `Directive` or a\n          * `Component`).\n          *\n          function directiveMetadata(type, metadata) {\n          // Reflect inputs
    and outputs.\n          var reflect = getReflect();\n          var propMetadata = reflect.ownPropMetadata(type);\n          return
    {\n          name: type.name,\n          type: type,\n          typeArgumentCount: 0,\n          selector:
    metadata.selector !== undefined

```

```

? metadata.selector : null,\n      deps: reflectDependencies(type),\n      host: metadata.host || EMPTY_OBJ,\n      propMetadata: propMetadata,\n      inputs: metadata.inputs || EMPTY_ARRAY,\n      outputs: metadata.outputs || EMPTY_ARRAY,\n      queries: extractQueriesMetadata(type, propMetadata, isContentQuery),\n      lifecycle: { usesOnChanges: reflect.hasLifecycleHook(type, 'ngOnChanges') },\n      typeSourceSpan: null,\n      usesInheritance: !extendsDirectlyFromObject(type),\n      exportAs: extractExportAs(metadata.exportAs),\n      providers: metadata.providers || null,\n      viewQueries: extractQueriesMetadata(type, propMetadata, isViewQuery)\n    };\n  }\n  /**\n   * Adds a directive definition to all parent classes of a type that don't have an Angular decorator.\n   */\n  function addDirectiveDefToUndecoratedParents(type) {\n    var objPrototype = Object.prototype;\n    var parent = Object.getPrototypeOf(type.prototype).constructor;\n    // Go up the prototype until we hit `Object`.\n    while (parent && parent !== objPrototype) {\n      // Since inheritance works if the class was annotated already, we only need to add\n      // the def if there are no annotations and the def hasn't been created already.\n      if (!getDirectiveDef(parent) && !getComponentDef(parent) && shouldAddAbstractDirective(parent)) {\n        compileDirective(parent, null);\n      }\n      parent = Object.getPrototypeOf(parent);\n    }\n  }\n  function convertToR3QueryPredicate(selector) {\n    return typeof selector === 'string' ? splitByComma(selector) : resolveForwardRef(selector);\n  }\n  function convertToR3QueryMetadata(propertyName, ann) {\n    return {\n      propertyName: propertyName,\n      predicate: convertToR3QueryPredicate(ann.selector),\n      descendants: ann.descendants,\n      first: ann.first,\n      read: ann.read ? ann.read : null,\n      static: !!ann.static\n    };\n  }\n  function extractQueriesMetadata(type, propMetadata, isQueryAnn) {\n    var queriesMeta = [];\n    var _loop_1 = function (field) {\n      if (propMetadata.hasOwnProperty(field)) {\n        var annotations_1 = propMetadata[field];\n        annotations_1.forEach(function (ann) {\n          if (isQueryAnn(ann)) {\n            if (!ann.selector) {\n              throw new Error("Can't construct a query for the property '" + field + "' of '" +\n                ("'" + stringifyForError(type) + "' since the query selector wasn't defined.(')");\n            }\n            if (annotations_1.some(isInputAnnotation)) {\n              throw new Error("Cannot combine @Input decorators with query decorators");\n            }\n            queriesMeta.push(convertToR3QueryMetadata(field, ann));\n          }\n        });\n      }\n    }; \n    for (var field in propMetadata) {\n      _loop_1(field);\n    }\n    return queriesMeta;\n  }\n  function extractExportAs(exportAs) {\n    return exportAs === undefined ? null : splitByComma(exportAs);\n  }\n  function isContentQuery(value) {\n    var name = value.ngMetadataName;\n    return name === 'ContentChild' || name === 'ContentChildren';\n  }\n  function isViewQuery(value) {\n    var name = value.ngMetadataName;\n    return name === 'ViewChild' || name === 'ViewChildren';\n  }\n  function isInputAnnotation(value) {\n    return value.ngMetadataName === 'Input';\n  }\n  function splitByComma(value) {\n    return value.split(',').map(function (piece) {\n      return piece.trim();\n    });\n  }\n  var LIFECYCLE_HOOKS = [\n    'ngOnChanges', 'ngOnInit', 'ngOnDestroy', 'ngDoCheck', 'ngAfterViewInit', 'ngAfterViewChecked',\n    'ngAfterContentInit', 'ngAfterContentChecked'\n  ];\n  function shouldAddAbstractDirective(type) {\n    var reflect = getReflect();\n    if (LIFECYCLE_HOOKS.some(function (hookName) {\n      return reflect.hasLifecycleHook(type, hookName);\n    })) {\n      return true;\n    }\n    var propMetadata = reflect.propMetadata(type);\n    for (var field in propMetadata) {\n      var annotations = propMetadata[field];\n      for (var i = 0; i < annotations.length; i++) {\n        var current = annotations[i];\n        var metadataName = current.ngMetadataName;\n        if (isInputAnnotation(current) || isContentQuery(current) || isViewQuery(current) ||\n          metadataName === 'Output' || metadataName === 'HostBinding' ||\n          metadataName === 'HostListener') {\n          return true;\n        }\n      }\n    }\n    return false;\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at\n   * https://angular.io/license\n   */\n  function compilePipe(type, meta) {\n    var ngPipeDef = null;\n    var ngFactoryDef = null;\n    Object.defineProperty(type, NG_FACTORY_DEF, {\n      get: function () {\n
```



```

    if (ngFactoryDef === null) {\n
        compiler = getCompilerFacade();\n
        + metadata.name + \"\\u0275fac.js\", Object.assign(Object.assign({}, metadata), { injectFn: 'directiveInject', target:\n
        compiler.R3FactoryTarget.Pipe }));\n
        return ngFactoryDef;\n
        // Make the\n
        property configurable in dev mode\n
        to allow overriding in tests\n
        configurable: !!ngDevMode,\n
        Object.defineProperty(type,\n
        NG_PIPE_DEF, {\n
            get: function () {\n
                if (ngPipeDef === null) {\n
                    var metadata =\n
                    getPipeMetadata(type, meta);\n
                    ngPipeDef = getCompilerFacade().compilePipe(angularCoreEnv,\n
                    \"ng:///\" + metadata.name + \"\\u0275pipe.js\", metadata);\n
                    return ngPipeDef;\n
                }\n
                // Make the property configurable in dev mode to allow overriding in tests\n
                configurable:\n
                !!ngDevMode,\n
                });\n
            }\n
            function getPipeMetadata(type, meta) {\n
                return {\n
                    type: type,\n
                    typeArgumentCount: 0,\n
                    name: type.name,\n
                    deps: reflectDependencies(type),\n
                    pipeName:\n
                    meta.name,\n
                    pure: meta.pure !== undefined ? meta.pure : true\n
                };\n
            }\n
        });\n
    }\n
    /**\n
    * @license\n
    * Copyright Google\n
    * LLC All Rights Reserved.\n
    * Use of this source code is governed by an MIT-style license that can be\n
    * found in the LICENSE file at https://angular.io/license\n
    * var 0$d = function (dir) {\n
    *     if (dir === void\n
    *     0) {\n
    *         dir = {};\n
    *     }\n
    *     return dir;\n
    * }, 1$3 = function (type, meta) {\n
    *     return\n
    *     SWITCH_COMPILE_DIRECTIVE(type, meta);\n
    * }, 2$1 =\n
    * @publicApi\n
    * var Directive = makeDecorator('Directive', 0$d, undefined, undefined, 1$3);\n
    * var 2$1 =\n
    * function (c) {\n
    *     if (c === void 0) {\n
    *         c = {};\n
    *     }\n
    *     return (Object.assign({\n
    *     changeDetection:\n
    *     exports.ChangeDetectionStrategy.Default\n
    *     }, c));\n
    * }, 3$1 = function (type, meta) {\n
    *     return\n
    *     SWITCH_COMPILE_COMPONENT(type, meta);\n
    * }, 4$1 =\n
    * @Annotation\n
    * @publicApi\n
    * var Component = makeDecorator('Component', 2$1, Directive,\n
    *     undefined, 3$1);\n
    * var 4$1 =\n
    * function (p) {\n
    *     return (Object.assign({\n
    *     pure: true\n
    *     }, p));\n
    * }, 5$1 = function (type, meta) {\n
    *     return\n
    *     SWITCH_COMPILE_PIPE(type, meta);\n
    * }, 6$1 =\n
    * @Annotation\n
    * @publicApi\n
    * var Pipe =\n
    * makeDecorator('Pipe', 4$1, undefined, undefined, 5$1);\n
    * var 6$1 = function (bindingPropertyName) {\n
    *     return ({\n
    *     bindingPropertyName: bindingPropertyName\n
    *     });\n
    * }, 7$1 =\n
    * @Annotation\n
    * @publicApi\n
    * var\n
    * Input = makePropDecorator('Input', 6$1);\n
    * var 7$1 = function (bindingPropertyName) {\n
    *     return ({\n
    *     bindingPropertyName: bindingPropertyName\n
    *     });\n
    * }, 8$1 =\n
    * @Annotation\n
    * @publicApi\n
    * var\n
    * Output = makePropDecorator('Output', 7$1);\n
    * var 8$1 = function (hostPropertyName) {\n
    *     return ({\n
    *     hostPropertyName:\n
    *     hostPropertyName\n
    *     });\n
    * }, 9$1 =\n
    * @Annotation\n
    * @publicApi\n
    * var\n
    * HostBinding =\n
    * makePropDecorator('HostBinding', 8$1);\n
    * var 9$1 = function (eventName, args) {\n
    *     return ({\n
    *     eventName: eventName,\n
    *     args: args\n
    *     });\n
    * }, 10$1 =\n
    * Decorator that binds a DOM event to a host listener and supplies configuration metadata.\n
    * Angular\n
    * invokes the supplied handler method when the host element emits the specified event,\n
    * and updates the bound\n
    * element with the result.\n
    * If the handler method returns false, applies `preventDefault` on the bound\n
    * element.\n
    * @usageNotes\n
    * The following example declares a directive\n
    * that attaches a\n
    * click listener to a button and counts clicks.\n
    * @Directive({\n
    *     selector: 'button[counting]'\n
    * })\n
    * class CountClicks {\n
    *     numberOfClicks = 0;\n
    *     @HostListener('click', ['$event.target'])\n
    *     onClick(btn) {\n
    *         console.log('button', btn, 'number of clicks:', this.numberOfClicks++);\n
    *     }\n
    * }\n
    * @Component({\n
    *     selector: 'app',\n
    *     template: '<button counting>Increment</button>'\n
    * })\n
    * class App {\n
    * }\n
    * The following example registers another DOM event handler that listens for key-press events.\n
    * @Component({\n
    *     selector:\n
    *     'app',\n
    *     template: '<h1>Hello, you have pressed keys {counter} number of times!</h1> Press any key to\n
    *     increment the counter.\n
    *     <button (click)=\"resetCounter()\">Reset Counter</button>'\n
    * })\n
    * class\n
    * AppComponent {\n
    *     counter = 0;\n
    *     @HostListener('window:keydown', ['$event'])\n
    *

```

```

handleKeyDown(event: KeyboardEvent) {\n * this.counter++; \n * } \n * resetCounter() {\n *
this.counter = 0; \n * } \n * } \n * `` \n * \n * @Annotation \n * @publicApi \n * \n var
HostListener = makePropDecorator('HostListener', 9); \n var SWITCH_COMPILE_COMPONENT__POST_R3__
= compileComponent; \n var SWITCH_COMPILE_DIRECTIVE__POST_R3__ = compileDirective; \n var
SWITCH_COMPILE_PIPE__POST_R3__ = compilePipe; \n var
SWITCH_COMPILE_COMPONENT__PRE_R3__ = noop; \n var
SWITCH_COMPILE_DIRECTIVE__PRE_R3__ = noop; \n var SWITCH_COMPILE_PIPE__PRE_R3__ =
noop; \n var SWITCH_COMPILE_COMPONENT = SWITCH_COMPILE_COMPONENT__PRE_R3__; \n var
SWITCH_COMPILE_DIRECTIVE = SWITCH_COMPILE_DIRECTIVE__PRE_R3__; \n var
SWITCH_COMPILE_PIPE = SWITCH_COMPILE_PIPE__PRE_R3__; \n \n var 0$e = function (ngModule) {
return ngModule; }, 1$4 = \n /** \n * Decorator that marks the following class as an NgModule, and supplies \n
* configuration metadata for it. \n * \n * The `declarations` and `entryComponents` options configure the
compiler \n * with information about what belongs to the NgModule. \n * \n * The `providers` options configures
the NgModule's injector to provide \n * dependencies the NgModule members. \n * \n * The `imports` and
`exports` options bring in members from other modules, and make \n * this module's members available
to others. \n * \n function (type, meta) { return SWITCH_COMPILE_NGMODULE(type, meta); }; \n /** \n
* @Annotation \n * @publicApi \n * \n var NgModule = makeDecorator('NgModule', 0$e, undefined,
undefined, 1$4); \n function preR3NgModuleCompile(moduleType, metadata) {\n var imports = (metadata
&& metadata.imports) || []; \n if (metadata && metadata.exports) {\n imports = __spread(imports,
[metadata.exports]); \n } \n moduleType.inj = defineInjector({ \n factory:
convertInjectableProviderToFactory(moduleType, { useClass: moduleType }), \n providers: metadata &&
metadata.providers, \n imports: imports, \n }); \n } \n var
SWITCH_COMPILE_NGMODULE__POST_R3__ = compileNgModule; \n var
SWITCH_COMPILE_NGMODULE__PRE_R3__ = preR3NgModuleCompile; \n var
SWITCH_COMPILE_NGMODULE = SWITCH_COMPILE_NGMODULE__PRE_R3__; \n \n /** \n *
@license \n * Copyright Google LLC All Rights Reserved. \n
* \n * Use of this source code is governed by an MIT-style license that can be \n * found in the LICENSE file
at https://angular.io/license \n * \n /** \n * @license \n * Copyright Google LLC All Rights Reserved. \n
* \n * Use of this source code is governed by an MIT-style license that can be \n * found in the LICENSE file at
https://angular.io/license \n * \n /** \n * A [DI token](guide/glossary#di-token "DI token definition") that you
can use to provide \n * one or more initialization functions. \n * \n * The provided functions are injected at
application startup and executed during \n * app initialization. If any of these functions returns a Promise,
initialization \n * does not complete until the Promise is resolved. \n * \n * You can, for example, create a
factory function that loads language data \n * or an external configuration, and provide that function to the
`APP_INITIALIZER` token. \n * \n * The function
is executed during the application bootstrap process, \n * and the needed data is available on startup. \n * \n *
@see `ApplicationInitStatus` \n * \n * @publicApi \n * \n var APP_INITIALIZER = new
InjectionToken('Application_INITIALIZER'); \n /** \n * A class that reflects the state of running { @link
APP_INITIALIZER } functions. \n * \n * @publicApi \n * \n var ApplicationInitStatus = /** @class */
(function () {\n function ApplicationInitStatus(appInits) {\n var _this = this; \n this.appInits =
appInits; \n this.resolve = noop; \n this.reject = noop; \n this.initialized = false; \n this.done
= false; \n this.donePromise = new Promise(function (res, rej) {\n _this.resolve = res; \n
_this.reject = rej; \n }); \n } \n /** @internal */ \n ApplicationInitStatus.prototype.runInitializers =
function () {\n var _this = this; \n if (this.initialized) {\n return; \n } \n var asyncInitPromises = []; \n
var complete = function () {\n _this.done = true; \n _this.resolve(); \n }; \n if
(this.appInits) {\n for (var i = 0; i < this.appInits.length; i++) {\n var initResult =
this.appInits[i](); \n if (isPromise(initResult)) {\n asyncInitPromises.push(initResult); \n

```

```

    }\n        }\n        }\n        Promise.all(asyncInitPromises)\n        .then(function () {\n
complete();\n        })\n        .catch(function (e) {\n        _this.reject(e);\n        });\n        if
(asyncInitPromises.length === 0) {\n        complete();\n        }\n        this.initialized = true;\n        };\n
return ApplicationInitStatus;\n    }());\n
    ApplicationInitStatus.decorators = [\n        { type: Injectable }\n    ];\n    ApplicationInitStatus.ctorParameters =
function () { return [\n        { type: Array, decorators: [{ type: Inject, args: [APP_INITIALIZER, ] }, { type: Optional
}] }\n    ]; }; \n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this
source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at
https://angular.io/license\n     * \n     * A [DI token](guide/glossary#di-token \"DI token definition\")
representing a unique string ID, used\n     * primarily for prefixing application attributes and CSS styles when\n     *
{ @link ViewEncapsulation#Emulated ViewEncapsulation.Emulated} is being used.\n     * \n     * BY default, the
value is randomly generated and assigned to the application by Angular.\n     * To provide a custom ID value, use a
DI provider <!-- TODO: provider --> to configure\n     * the root { @link Injector}
that uses this token.\n     * \n     * @publicApi\n     * \n     * var APP_ID = new InjectionToken('AppId');\n     * function
_appIdRandomProviderFactory() {\n     *     return \"\" + _randomChar() + _randomChar() + _randomChar();\n     * }\n     *
/**\n     * Providers that generate a random `APP_ID_TOKEN`.\n     * @publicApi\n     * \n     * var
APP_ID_RANDOM_PROVIDER = {\n     *     provide: APP_ID,\n     *     useFactory: _appIdRandomProviderFactory,\n     *
deps: [],\n     * }; \n     * function _randomChar() {\n     *     return String.fromCharCode(97 + Math.floor(Math.random()
* 25));\n     * }\n     * /**\n     * A function that is executed when a platform is initialized.\n     * @publicApi\n     * \n     *
var PLATFORM_INITIALIZER = new InjectionToken('Platform Initializer');\n     * /**\n     * A token that indicates
an opaque platform ID.\n     * @publicApi\n     * \n     * var PLATFORM_ID = new InjectionToken('Platform ID');\n     *
/**\n     * A [DI token](guide/glossary#di-token \"DI token definition\") that provides
a set of callbacks to\n     * be called for every component that is bootstrapped.\n     * \n     * Each callback must take
a `ComponentRef` instance and return nothing.\n     * \n     * `(componentRef: ComponentRef) => void`\n     * \n     *
@publicApi\n     * \n     * var APP_BOOTSTRAP_LISTENER = new InjectionToken('appBootstrapListener');\n     *
/**\n     * A [DI token](guide/glossary#di-token \"DI token definition\") that indicates the root directory of\n     * the
application\n     * @publicApi\n     * \n     * var PACKAGE_ROOT_URL = new InjectionToken('Application
Packages Root URL');\n     * \n     * /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     *
Use of this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at
https://angular.io/license\n     * \n     * var Console = /** @class */ (function () {\n     *     function Console() {\n     *
}\n     *     Console.prototype.log = function (message) {\n     *         // tslint:disable-next-line:no-console\n     *
console.log(message);\n     *     }; \n     *     // Note: for reporting errors use `DOM.logError()` as it is platform
specific\n     *     Console.prototype.warn = function (message) {\n     *         // tslint:disable-next-line:no-console\n     *
console.warn(message);\n     *     }; \n     *     return Console;\n     * }());\n     * Console.decorators = [\n     *     { type: Injectable
}]\n     * ]; \n\n     * /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * \n     * Use of this source
code is governed by an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     *
\n     * /**\n     * Provide this token to set the locale of your application.\n     * It is used for i18n extraction, by i18n
pipes (DatePipe, I18nPluralPipe, CurrencyPipe,\n     * DecimalPipe and PercentPipe) and by ICU expressions.\n     *
\n     * See the [i18n guide](guide/i18n#setting-up-locale) for more information.\n     * \n     * @usageNotes\n     *
    * ### Example\n     * \n     * ```typescript\n     * import { LOCALE_ID } from '@angular/core';\n     * import {
platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n     * import { AppModule } from
'/app/app.module';\n     * \n     * platformBrowserDynamic().bootstrapModule(AppModule, {\n     *     providers:
[{\n     *         provide: LOCALE_ID, useValue: 'en-US' }\n     *     ]);\n     *     ```\n     * \n     * @publicApi\n     * \n     * var
LOCALE_ID$1 = new InjectionToken('LocaleId');\n     * /**\n     * Provide this token to set the default currency code
your application uses for\n     * CurrencyPipe when there is no currency code passed into it. This is only used by\n     *
CurrencyPipe and has no relation to locale currency. Defaults to USD if not configured.\n     * \n     * See the [i18n
guide](guide/i18n#setting-up-locale) for more information.\n     * \n     * <div class=\"alert is-helpful\">\n     * \n     *
**Deprecation notice:**\n     * \n     * The default currency code is currently

```

always `USD` but this is deprecated from v9.\n * In v10 the default currency code will be taken from the current locale.**\n * If you need the previous behavior then set it by creating a

```

`DEFAULT_CURRENCY_CODE` provider in\n * your application `NgModule`:\n * ``ts\n *
{provide: DEFAULT_CURRENCY_CODE, useValue: 'USD'}\n * ``\n *
</div>\n *
@usageNotes\n * ### Example\n * ``typescript\n * import { platformBrowserDynamic } from
'@angular/platform-browser-dynamic';\n * import { AppModule } from './app/app.module';\n *
platformBrowserDynamic().bootstrapModule(AppModule, {\n * providers: [{provide:
DEFAULT_CURRENCY_CODE, useValue: 'EUR'}]\n * });\n * ``\n * @publicApi\n */\n var
DEFAULT_CURRENCY_CODE = new InjectionToken('DefaultCurrencyCode');\n /**\n * Use this token at
bootstrap to provide the content of your translation file (`xtb`,\n
* `xlf` or `xlf2`) when you want to translate your application in another language.\n * See the [i18n
guide](guide/i18n#merge) for more information.\n * @usageNotes\n * ### Example\n *
``typescript\n * import { TRANSLATIONS } from '@angular/core';\n * import { platformBrowserDynamic }
from '@angular/platform-browser-dynamic';\n * import { AppModule } from './app/app.module';\n * //
content of your translation file\n * const translations = '...';\n *
platformBrowserDynamic().bootstrapModule(AppModule, {\n * providers: [{provide: TRANSLATIONS,
useValue: translations }]\n * });\n * ``\n * @publicApi\n */\n var TRANSLATIONS = new
InjectionToken('Translations');\n /**\n * Provide this token at bootstrap to set the format of your { @link
TRANSLATIONS }:\n * `xtb`,\n * `xlf` or `xlf2`.\n * See the [i18n guide](guide/i18n#merge) for more
information.\n
*\n * @usageNotes\n * ### Example\n * ``typescript\n * import { TRANSLATIONS_FORMAT
} from '@angular/core';\n * import { platformBrowserDynamic } from '@angular/platform-browser-dynamic';\n
* import { AppModule } from './app/app.module';\n *
platformBrowserDynamic().bootstrapModule(AppModule, {\n * providers: [{provide:
TRANSLATIONS_FORMAT, useValue: 'xlf'}]\n * });\n * ``\n * @publicApi\n */\n var
TRANSLATIONS_FORMAT = new InjectionToken('TranslationsFormat');\n (function
(MissingTranslationStrategy) {\n MissingTranslationStrategy[MissingTranslationStrategy["Error"] = 0] =
"Error";\n MissingTranslationStrategy[MissingTranslationStrategy["Warning"] = 1] = "Warning";\n
MissingTranslationStrategy[MissingTranslationStrategy["Ignore"] = 2] = "Ignore";\n
})(exports.MissingTranslationStrategy || (exports.MissingTranslationStrategy = {}));\n\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var
SWITCH_IVY_ENABLED__POST_R3__ = true;\n var SWITCH_IVY_ENABLED__PRE_R3__ = false;\n var
ivyEnabled = SWITCH_IVY_ENABLED__PRE_R3__;\n\n /**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\n /**\n * Combination of NgModuleFactory and
ComponentFactories.\n * @publicApi\n */\n var ModuleWithComponentFactories = /** @class */
(function () {\n function ModuleWithComponentFactories(ngModuleFactory, componentFactories) {\n
this.ngModuleFactory = ngModuleFactory;\n this.componentFactories = componentFactories;\n }\n
return ModuleWithComponentFactories;\n
}());\n function _throwError() {\n throw new Error("Runtime compiler is not loaded");\n }\n var
Compiler_compileModuleSync__PRE_R3__ = _throwError;\n var Compiler_compileModuleSync__POST_R3__
= function (moduleType) {\n return new NgModuleFactory$1(moduleType);\n };\n var
Compiler_compileModuleSync = Compiler_compileModuleSync__PRE_R3__;\n var
Compiler_compileModuleAsync__PRE_R3__ = _throwError;\n var
Compiler_compileModuleAsync__POST_R3__ = function (moduleType) {\n return
Promise.resolve(Compiler_compileModuleSync__POST_R3__(moduleType));\n };\n var
Compiler_compileModuleAsync = Compiler_compileModuleAsync__PRE_R3__;\n var

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Compiler_compileModuleAndAllComponentsSync__PRE_R3__ = _throwError;\n  var
Compiler_compileModuleAndAllComponentsSync__POST_R3__ = function (moduleType) {\n    var
ngModuleFactory = Compiler_compileModuleSync__POST_R3__(moduleType);\n    var moduleDef =
getNgModuleDef(moduleType);\n
    var componentFactories = maybeUnwrapFn(moduleDef.declarations)\n      .reduce(function (factories,
declaration) {\n        var componentDef = getComponentDef(declaration);\n        componentDef &&
factories.push(new ComponentFactory$1(componentDef));\n        return factories;\n      }, []);\n    return new
ModuleWithComponentFactories(ngModuleFactory, componentFactories);\n  };\n  var
Compiler_compileModuleAndAllComponentsSync =
Compiler_compileModuleAndAllComponentsSync__PRE_R3__;\n  var
Compiler_compileModuleAndAllComponentsAsync__PRE_R3__ = _throwError;\n  var
Compiler_compileModuleAndAllComponentsAsync__POST_R3__ = function (moduleType) {\n    return
Promise.resolve(Compiler_compileModuleAndAllComponentsSync__POST_R3__(moduleType));\n  };\n  var
Compiler_compileModuleAndAllComponentsAsync =
Compiler_compileModuleAndAllComponentsAsync__PRE_R3__;\n  /**\n   * Low-level service for running the
angular compiler during runtime\n
   * to create {@link ComponentFactory}s, which\n   * can later be used to create and render a Component
instance.\n   * Each `@NgModule` provides an own `Compiler` to its injector,\n   * that will use the
directives/pipes of the ng module for compilation\n   * of components.\n   * @publicApi\n   */\n  var
Compiler = /** @class */ (function () {\n    function Compiler() {\n      /**\n       * Compiles the given
NgModule and all of its components. All templates of the components listed\n       * in `entryComponents` have
to be inlined.\n       */\n      this.compileModuleSync = Compiler_compileModuleSync;\n      /**\n       * Compiles the given NgModule and all of its components\n       */\n      this.compileModuleAsync =
Compiler_compileModuleAsync;\n      /**\n       * Same as {@link #compileModuleSync} but also creates
ComponentFactories for all components.\n       */\n      this.compileModuleAndAllComponentsSync = Compiler_compileModuleAndAllComponentsSync;\n      /**\n       * Same as {@link #compileModuleAsync} but also creates ComponentFactories for all components.\n       */\n      this.compileModuleAndAllComponentsAsync =
Compiler_compileModuleAndAllComponentsAsync;\n    }\n    /**\n     * Clears all caches.\n     */\n    Compiler.prototype.clearCache = function () {\n      /**\n       * Clears the cache for the given
component/ngModule.\n       */\n      Compiler.prototype.clearCacheFor = function (type) {\n        /**\n         *
Returns the id for a given NgModule, if one is defined and known to the compiler.\n         */\n        return undefined;\n      };\n      return
Compiler;\n    }();\n    Compiler.decorators = [\n      { type: Injectable }\n    ];\n    /**\n     * Token to provide
CompilerOptions in the
platform injector.\n     */\n    @publicApi\n    var COMPILER_OPTIONS = new
InjectionToken('compilerOptions');\n    /**\n     * A factory for creating a Compiler\n     */\n    @publicApi\n    var CompilerFactory = /** @class */ (function () {\n      function CompilerFactory() {\n        return
CompilerFactory;\n      }();\n      /**\n       * @license\n       * Copyright Google LLC All Rights Reserved.\n       */\n      *
Use of this source code is governed by an MIT-style license that can be\n       * found in the LICENSE file at
https://angular.io/license\n       */\n      var promise = (function () { return Promise.resolve(0); })();\n      function
scheduleMicroTask(fn) {\n        if (typeof Zone === 'undefined') {\n          // use promise to schedule microTask
instead of use Zone\n          promise.then(function () {\n            fn && fn.apply(null, null);\n          });\n        }\n        else {\n          Zone.current.scheduleMicroTask('scheduleMicrotask',
fn);\n        }\n      }\n      /**\n       * @license\n       * Copyright Google LLC All Rights Reserved.\n       */\n      *
Use of this source code is governed by an MIT-style license that can be\n       * found in the LICENSE file at
https://angular.io/license\n       */\n      function getNativeRequestAnimationFrame() {\n        var
nativeRequestAnimationFrame = _global['requestAnimationFrame'];\n        var nativeCancelAnimationFrame =

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_global['cancelAnimationFrame'];\n    if (typeof Zone !== 'undefined' && nativeRequestAnimationFrame &&
nativeCancelAnimationFrame) {\n        // use unpatched version of requestAnimationFrame(native delegate) if
possible\n        // to avoid another Change detection\n        var unpatchedRequestAnimationFrame =
nativeRequestAnimationFrame[Zone.__symbol__('OriginalDelegate')];\n        if
(unpatchedRequestAnimationFrame) {\n            nativeRequestAnimationFrame =
unpatchedRequestAnimationFrame;\n        }\n        var
unpatchedCancelAnimationFrame = nativeCancelAnimationFrame[Zone.__symbol__('OriginalDelegate')];\n    if (unpatchedCancelAnimationFrame) {\n        nativeCancelAnimationFrame =
unpatchedCancelAnimationFrame;\n    }\n    }\n    return { nativeRequestAnimationFrame:
nativeRequestAnimationFrame, nativeCancelAnimationFrame: nativeCancelAnimationFrame };\n    }\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    * \n    * Use of this source code is governed by
an MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    * \n    */\n    *
An injectable service for executing work inside or outside of the Angular zone.\n    * \n    * The most common use
of this service is to optimize performance when starting a work consisting of\n    * one or more asynchronous tasks
that don't require UI updates or error handling to be handled by\n    * Angular. Such tasks can be kicked off via
{ @link
#runOutsideAngular} and if needed, these tasks\n    * can reenter the Angular zone via { @link #run}.\n    * \n    *
<!-- TODO: add/fix links to:\n    * - docs explaining zones and the use of zones in Angular and change-detection\n    *
- link to runOutsideAngular/run (throughout this file!)\n    * -->\n    * \n    * @usageNotes\n    * ###
Example\n    * \n    * ```\n    * import {Component, NgZone} from '@angular/core';\n    * import {NgIf} from
'@angular/common';\n    * \n    * @Component({\n    *   selector: 'ng-zone-demo',\n    *   template: `\n    *
<h2>Demo: NgZone</h2>\n    * \n    * <p>Progress: {{progress}}%</p>\n    * <p *ngIf="progress >=
100">Done processing {{label}} of Angular zone!</p>\n    * \n    * <button
(click)="processWithinAngularZone()">Process within Angular zone</button>\n    * <button
(click)="processOutsideOfAngularZone()">Process outside of Angular zone</button>\n    * \n    * `,\n    * })\n    *
export class NgZoneDemo
{\n    *   progress: number = 0;\n    *   label: string;\n    * \n    *   constructor(private _ngZone: NgZone) {\n    *
\n    *   // Loop inside the Angular zone\n    *   // so the UI DOES refresh after each setTimeout cycle\n    *
processWithinAngularZone() {\n    *     this.label = 'inside';\n    *     this.progress = 0;\n    *
this._increaseProgress(() => console.log('Inside Done!'));\n    *   }\n    * \n    *   // Loop outside of the Angular
zone\n    *   // so the UI DOES NOT refresh after each setTimeout cycle\n    *   processOutsideOfAngularZone()\n    *
{\n    *     this.label = 'outside';\n    *     this.progress = 0;\n    *     this._ngZone.runOutsideAngular(() => {\n    *
this._increaseProgress(() => {\n    *         // reenter the Angular zone and display done\n    *
this._ngZone.run(() => { console.log('Outside Done!'); });\n    *     });\n    *   });\n    * \n    *   _increaseProgress(doneCallback: () => void)
{\n    *     this.progress += 1;\n    *     console.log(`Current progress: ${this.progress}%`);\n    *     if
(this.progress < 100) {\n    *       window.setTimeout(() => this._increaseProgress(doneCallback), 10);\n    *     }
else {\n    *       doneCallback();\n    *     }\n    *   }\n    * \n    *   @publicApi\n    *   \n    *   var
NgZone = /** @class */ (function () {\n    *     function NgZone(_a) {\n    *       var _b = _a.enableLongStackTrace,
enableLongStackTrace = _b === void 0 ? false : _b, _c = _a.shouldCoalesceEventChangeDetection,
shouldCoalesceEventChangeDetection = _c === void 0 ? false : _c;\n    *       this.hasPendingMacrotasks = false;\n    *
this.hasPendingMicrotasks = false;\n    *       /**\n    *        * Whether there are no outstanding microtasks or
macrotasks.\n    *        *\n    *       this.isStable = true;\n    *       /**\n    *        * Notifies when code enters Angular
Zone. This gets fired first on VM Turn.\n    *        *\n    *       this.onUnstable = new EventEmitter(false);\n    *       /**\n    *        * Notifies when there is no more
microtasks enqueued in the current VM Turn.\n    *        * This is a hint for Angular to do change detection, which
may enqueue more microtasks.\n    *        * For this reason this event can fire multiple times per VM Turn.\n    *        *\n    *       this.onMicrotaskEmpty = new EventEmitter(false);\n    *       /**\n    *        * Notifies when the last

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`onMicrotaskEmpty` has run and there are no more microtasks, which\n      * implies we are about to relinquish
VM turn.\n      * This event gets called just once.\n      */\n      this.onStable = new
EventEmitter(false);\n      /**\n      * Notifies that an error has been delivered.\n      */\n      this.onError = new EventEmitter(false);\n      if (typeof Zone == 'undefined') {\n      throw new Error(`In
this configuration Angular requires
Zone.js`);\n      }\n      Zone.assertZonePatched();\n      var self = this;\n      self._nesting = 0;\n      self._outer = self._inner = Zone.current;\n      if (Zone['TaskTrackingZoneSpec']) {\n      self._inner =
self._inner.fork(new Zone['TaskTrackingZoneSpec']);\n      }\n      if (enableLongStackTrace &&
Zone['longStackTraceZoneSpec']) {\n      self._inner = self._inner.fork(Zone['longStackTraceZoneSpec']);\n      }\n      self.shouldCoalesceEventChangeDetection = shouldCoalesceEventChangeDetection;\n      self.lastRequestAnimationFrameId = -1;\n      self.nativeRequestAnimationFrame =
getNativeRequestAnimationFrame().nativeRequestAnimationFrame;\n      forkInnerZoneWithAngularBehavior(self);\n      }\n      NgZone.isInAngularZone = function () {\n      return
Zone.current.get('isAngularZone') === true;\n      };\n      NgZone.assertInAngularZone = function () {\n      if
(!NgZone.isInAngularZone()) {\n      throw new Error('Expected to be in Angular Zone, but it is
not!');\n      }\n      };\n      NgZone.assertNotInAngularZone = function () {\n      if
(NgZone.isInAngularZone()) {\n      throw new Error('Expected to not be in Angular Zone, but it is!');\n      }\n      };\n      /**\n      * Executes the `fn` function synchronously within the Angular zone and returns value
returned by\n      * the function.\n      */\n      * Running functions via `run` allows you to reenter Angular zone
from a task that was executed\n      * outside of the Angular zone (typically started via {@link
#runOutsideAngular}).\n      * Any future tasks or microtasks scheduled from within this function will
continue executing from\n      * within the Angular zone.\n      * If a synchronous error happens it will
be rethrown and not reported via `onError`.\n      */\n      NgZone.prototype.run = function (fn, applyThis, applyArgs) {\n      return this._inner.run(fn, applyThis,
applyArgs);\n      };\n      /**\n      * Executes the `fn` function synchronously within the Angular zone as a task
and returns value\n      * returned by the function.\n      */\n      * Running functions via `run` allows you to
reenter Angular zone from a task that was executed\n      * outside of the Angular zone (typically started via
{@link #runOutsideAngular}).\n      * Any future tasks or microtasks scheduled from within this function
will continue executing from\n      * within the Angular zone.\n      * If a synchronous error happens it
will be rethrown and not reported via `onError`.\n      */\n      NgZone.prototype.runTask = function (fn,
applyThis, applyArgs, name) {\n      var zone = this._inner;\n      var task =
zone.scheduleEventTask('NgZoneEvent: ' + name, fn, EMPTY_PAYLOAD, noop$1,
noop$1);\n      try {\n      return zone.runTask(task, applyThis, applyArgs);\n      }\n      finally {\n      zone.cancelTask(task);\n      }\n      };\n      /**\n      * Same as `run`, except that synchronous errors
are caught and forwarded via `onError` and not\n      * rethrown.\n      */\n      NgZone.prototype.runGuarded =
function (fn, applyThis, applyArgs) {\n      return this._inner.runGuarded(fn, applyThis, applyArgs);\n      };\n      /**\n      * Executes the `fn` function synchronously in Angular's parent zone and returns value returned by\n      * the function.\n      */\n      * Running functions via {@link #runOutsideAngular} allows you to escape
Angular's zone and do\n      * work that\n      * doesn't trigger Angular change-detection or is subject to
Angular's error handling.\n      * Any future tasks or microtasks scheduled from within this function will
continue executing
from\n      * outside of the Angular zone.\n      */\n      * Use {@link #run} to reenter the Angular zone and do
work that updates the application model.\n      */\n      NgZone.prototype.runOutsideAngular = function (fn) {\n      return this._outer.run(fn);\n      };\n      return NgZone;\n      }());\n      function noop$1() {\n      }\n      var
EMPTY_PAYLOAD = {};\n      function checkStable(zone) {\n      if (zone._nesting == 0 &&
!zone.hasPendingMicrotasks && !zone.isStable) {\n      try {\n      zone._nesting++;\n      zone.onMicrotaskEmpty.emit(null);\n      }\n      finally {\n      zone._nesting--;\n      if
(!zone.hasPendingMicrotasks) {\n      try {\n      zone.runOutsideAngular(function () { return

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zone.onStable.emit(null); });\n          }\n          finally {\n              zone.isStable = true;\n          }\n      }\n      }\n      }\n      function delayChangeDetectionForEvents(zone) {\n          if\n      (zone.lastRequestAnimationFrameId !== -1) {\n          return;\n      }\n      zone.lastRequestAnimationFrameId =\n      zone.nativeRequestAnimationFrame.call(_global, function () {\n          // This is a work around for\n      https://github.com/angular/angular/issues/36839.\n          // The core issue is that when event coalescing is enabled\n      it is possible for microtasks\n          // to get flushed too early (As is the case with `Promise.then`) between the\n          // coalescing eventTasks.\n          // To workaround this we schedule a \"fake\" eventTask before we\n      process the\n          // coalescing eventTasks. The benefit of this is that the \"fake\" container eventTask\n          // will prevent the microtasks queue from getting drained in between the coalescing\n          // eventTask execution.\n          if (!zone.fakeTopEventTask) {\n              zone.fakeTopEventTask = Zone.root.scheduleEventTask('fakeTopEventTask', function () {\n                  zone.lastRequestAnimationFrameId = -1;\n                  updateMicroTaskStatus(zone);\n                  checkStable(zone);\n              }, undefined, function () { }, function () { });\n          }\n          zone.fakeTopEventTask.invoke();\n      });\n      updateMicroTaskStatus(zone);\n      }\n      function\n      forkInnerZoneWithAngularBehavior(zone) {\n          var delayChangeDetectionForEventsDelegate = function () {\n              delayChangeDetectionForEvents(zone);\n          };\n          var maybeDelayChangeDetection =\n          !!zone.shouldCoalesceEventChangeDetection &&\n              zone.nativeRequestAnimationFrame &&\n              delayChangeDetectionForEventsDelegate;\n          zone._inner = zone._inner.fork({\n              name: 'angular',\n              properties: { 'isAngularZone': true, 'maybeDelayChangeDetection': maybeDelayChangeDetection },\n              onInvokeTask: function (delegate,\n                  current, target, task, applyThis, applyArgs) {\n                      try {\n                          onEnter(zone);\n                          return\n                      delegate.invokeTask(target, task, applyThis, applyArgs);\n                      }\n                      finally {\n                          if\n                      (maybeDelayChangeDetection && task.type === 'eventTask') {\n                          maybeDelayChangeDetection();\n                      }\n                      onLeave(zone);\n                  },\n                  },\n                  onInvoke: function (delegate, current,\n                      target, callback, applyThis, applyArgs, source) {\n                          try {\n                              onEnter(zone);\n                              return\n                          delegate.invoke(target, callback, applyThis, applyArgs, source);\n                          }\n                          finally {\n                              onLeave(zone);\n                          }\n                      },\n                      onHasTask: function (delegate, current, target, hasTaskState) {\n                          delegate.hasTask(target, hasTaskState);\n                          if (current === target) {\n                              // We are only interested in hasTask events which originate from our zone\n                              // (A child hasTask event is not interesting to us)\n                              if (hasTaskState.change === 'microTask') {\n                                  zone._hasPendingMicrotasks = hasTaskState.microTask;\n                                  updateMicroTaskStatus(zone);\n                                  checkStable(zone);\n                              }\n                              else if\n                              (hasTaskState.change === 'macroTask') {\n                                  zone.hasPendingMacrotasks = hasTaskState.macroTask;\n                                  }\n                                  }\n                                  },\n                                  onHandleError: function (delegate, current, target, error) {\n                                      delegate.handleError(target, error);\n                                      zone.runOutsideAngular(function () { return\n                                      zone.onError.emit(error); });\n                                      return false;\n                                  });\n                                  }\n                                  function\n                                  updateMicroTaskStatus(zone) {\n                                      if\n                                      (zone._hasPendingMicrotasks ||\n                                      (zone.shouldCoalesceEventChangeDetection &&\n                                      zone.lastRequestAnimationFrameId !== -1)) {\n                                          zone.hasPendingMicrotasks = true;\n                                      }\n                                      else {\n                                          zone.hasPendingMicrotasks = false;\n                                      }\n                                      }\n                                      function onEnter(zone) {\n                                          zone._nesting++;\n                                          if\n                                          (zone.isStable) {\n                                              zone.isStable = false;\n                                              zone.onUnstable.emit(null);\n                                          }\n                                      }\n                                      function\n                                      onLeave(zone) {\n                                          zone._nesting--;\n                                          checkStable(zone);\n                                      }\n                                      /**\n                                       * Provides a noop\n                                       implementation of `NgZone` which does nothing. This zone requires explicit calls\n                                       * to framework to perform\n                                       rendering.\n                                       */\n                                       var NoopNgZone = /** @class */ (function () {\n                                           function NoopNgZone() {\n                                               this.hasPendingMicrotasks = false;\n                                               this.hasPendingMacrotasks = false;\n                                               this.isStable = true;\n                                               this.onUnstable = new EventEmitter();\n                                               this.onMicrotaskEmpty

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= new EventEmitter();\n      this.onStable = new EventEmitter();\n      this.onError = new EventEmitter();\n    }\n    NoopNgZone.prototype.run = function (fn, applyThis, applyArgs) {\n      return fn.apply(applyThis,\n        applyArgs);\n    };\n    NoopNgZone.prototype.runGuarded = function (fn, applyThis, applyArgs) {\n      return fn.apply(applyThis, applyArgs);\n    };\n    NoopNgZone.prototype.runOutsideAngular = function (fn)\n    {\n      return fn();\n    };\n    NoopNgZone.prototype.runTask = function (fn, applyThis, applyArgs, name)\n    {\n      return fn.apply(applyThis, applyArgs);\n    };\n    return NoopNgZone;\n  }());\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an\n   MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n\n  The\n  Testability service provides\n  testing hooks that can be accessed from\n  * the browser and by services such as Protractor. Each bootstrapped\n  Angular\n  * application on the page will have an instance of Testability.\n  * @publicApi\n  */\n  var\n  Testability = /** @class */ (function () {\n    function Testability(_ngZone) {\n      var _this = this;\n      this._ngZone = _ngZone;\n      this._pendingCount = 0;\n      this._isZoneStable = true;\n      /**\n       * Whether any work was done since the last 'whenStable' callback. This is\n       * useful to detect if this could\n       have potentially destabilized another\n       * component while it is stabilizing.\n       */\n      @internal\n      this._didWork = false;\n      this._callbacks = [];\n      this.taskTrackingZone = null;\n      this._watchAngularEvents();\n      _ngZone.run(function () {\n        _this.taskTrackingZone =\n        typeof Zone == 'undefined' ? null : Zone.current.get('TaskTrackingZone');\n      });\n    }\n\n    Testability.prototype._watchAngularEvents = function () {\n      var _this = this;\n      this._ngZone.onUnstable.subscribe({\n        next: function () {\n          _this._didWork = true;\n          _this._isZoneStable = false;\n        }\n      });\n      this._ngZone.runOutsideAngular(function () {\n        _this._ngZone.onStable.subscribe({\n          next: function () {\n            NgZone.assertNotInAngularZone();\n            scheduleMicroTask(function () {\n              _this._isZoneStable = true;\n              _this._runCallbacksIfReady();\n            });\n          }\n        });\n      });\n      /**\n       * Increases the number of pending request\n       */\n      @deprecated\n      pending\n      requests are now tracked with zones.\n      */\n      Testability.prototype.increasePendingRequestCount = function\n      () {\n        this._pendingCount += 1;\n        this._didWork = true;\n        return this._pendingCount;\n      };\n      /**\n       * Decreases the number of pending request\n       */\n      @deprecated\n      pending requests are now tracked\n      with zones.\n      */\n      Testability.prototype.decreasePendingRequestCount = function () {\n        this._pendingCount -= 1;\n        if (this._pendingCount < 0) {\n          throw new Error('pending async requests\n            below zero');\n        }\n        this._runCallbacksIfReady();\n        return this._pendingCount;\n      };\n      /**\n       * Whether an associated application is stable\n       */\n      Testability.prototype.isStable = function ()\n      {\n        return this._isZoneStable && this._pendingCount === 0 && !this._ngZone.hasPendingMacrotasks;\n      };\n      Testability.prototype._runCallbacksIfReady\n      = function () {\n        var _this = this;\n        if (this.isStable()) {\n          // Schedules the call backs in a new\n          frame so that it is always async.\n          scheduleMicroTask(function () {\n            while\n            (_this._callbacks.length !== 0) {\n              var cb = _this._callbacks.pop();\n              clearTimeout(cb.timeoutId);\n              cb.doneCb(_this._didWork);\n            }\n            _this._didWork = false;\n          });\n          else {\n            // Still not stable, send updates.\n            var pending_1 = this.getPendingTasks();\n            this._callbacks = this._callbacks.filter(function (cb) {\n              if (cb.updateCb && cb.updateCb(pending_1)) {\n                clearTimeout(cb.timeoutId);\n              }\n            });\n            return\n            true;\n          };\n          this._didWork = true;\n        }\n      };\n      Testability.prototype.getPendingTasks = function () {\n        if (!this.taskTrackingZone) {\n          return [];\n        }\n        // Copy the tasks data so that we don't leak tasks.\n        return\n        this.taskTrackingZone宏观Tasks.map(function (t) {\n          return {\n            source: t.source,\n            // From TaskTrackingZone\n            // https://github.com/angular/zone.js/blob/master/lib/zone-spec/task-

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tracking.ts#L40\n          creationLocation: t.creationLocation,\n          data: t.data\n        });\n    });\n    Testability.prototype.addCallback = function (cb, timeout, updateCb) {\n      var _this = this;\n      var timeoutId = -1;\n      if (timeout && timeout > 0) {\n        timeoutId = setTimeout(function () {\n\n          _this._callbacks = _this._callbacks.filter(function (cb) { return cb.timeoutId !== timeoutId; });\n          cb(_this._didWork, _this.getPendingTasks());\n        }, timeout);\n      }\n      this._callbacks.push({\n        doneCb: cb, timeoutId: timeoutId, updateCb: updateCb\n      });\n      /**\n       * Wait for the application to be\n       * stable with a timeout. If the timeout is reached before that\n       * happens, the callback receives a list of the macro\n       * tasks that were pending, otherwise null.\n       * @param doneCb The callback to invoke when Angular is\n       * stable or the timeout expires\n       * whichever comes first.\n       * @param timeout Optional. The maximum\n       * time to wait for Angular to become stable. If not\n       * specified, whenStable() will wait forever.\n       * @param updateCb Optional. If specified, this callback will be invoked whenever the set of\n       * pending\n       * macrotasks changes. If this callback\n       * returns true doneCb will not be invoked\n       * and no further updates will be issued.\n       */\n    }\n    Testability.prototype.whenStable = function (doneCb, timeout, updateCb) {\n      if (updateCb &&\n      !this.taskTrackingZone) {\n        throw new Error("Task tracking zone is required when passing an update\n        callback to 'whenStable(). Is \"zone.js/dist/task-tracking.js\" loaded?");\n      }\n      // These\n      arguments are 'Function' above to keep the public API simple.\n      this.addCallback(doneCb, timeout,\n      updateCb);\n      this._runCallbacksIfReady();\n      /**\n       * Get the number of pending requests\n       * @deprecated pending requests are now tracked with zones\n       */\n    }\n    Testability.prototype.getPendingRequestCount = function () {\n      return this._pendingCount;\n    }; \n    /**\n     * Find providers by name\n     * @param using The root element to\n     * search from\n     * @param provider The name of binding variable\n     * @param exactMatch Whether using\n     * exactMatch\n     */\n    Testability.prototype.findProviders = function (using, provider, exactMatch) {\n      // TODO(juliemr): implement.\n      return [];\n    }; \n    return Testability;\n  }());\n  Testability.decorators = [\n    { type: Injectable }\n  ];\n  Testability.ctorParameters = function () { return [\n    { type: NgZone }\n  ];\n  /**\n   * A global registry of {@link Testability} instances for specific elements.\n   * @publicApi\n   */\n  var TestabilityRegistry = /** @class */ (function () {\n    function TestabilityRegistry()\n    /** @internal */\n    this._applications = new Map();\n    _testabilityGetter.addToWindow(this);\n  })\n  /**\n   * Registers an application with a testability hook so\n   * that it can be tracked\n   * @param token token of application,\n   * root element\n   * @param testability Testability hook\n   */\n  TestabilityRegistry.prototype.registerApplication = function (token, testability) {\n    this._applications.set(token, testability);\n  }; \n  /**\n   * Unregisters an application.\n   * @param\n   * token token of application, root element\n   */\n  TestabilityRegistry.prototype.unregisterApplication =\n  function (token) {\n    this._applications.delete(token);\n  }; \n  /**\n   * Unregisters all\n   * applications\n   */\n  TestabilityRegistry.prototype.unregisterAllApplications = function () {\n    this._applications.clear();\n  }; \n  /**\n   * Get a testability hook associated with the application\n   * @param elem root element\n   */\n  TestabilityRegistry.prototype.getTestability = function (elem) {\n    return this._applications.get(elem) || null;\n  }; \n  /**\n   * Get all registered testabilities\n   */\n  TestabilityRegistry.prototype.getAllTestabilities = function ()\n  {\n    return Array.from(this._applications.values());\n  }; \n  /**\n   * Get all registered\n   * applications(root elements)\n   */\n  TestabilityRegistry.prototype.getAllRootElement = function () {\n    return Array.from(this._applications.keys());\n  }; \n  /**\n   * Find testability of a node in the Tree\n   * @param elem node\n   * @param findInAncestors whether finding testability in ancestors if testability was not\n   * found in\n   * current node\n   */\n  TestabilityRegistry.prototype.findTestabilityInTree = function (elem,\n  findInAncestors) {\n    if (findInAncestors === void 0) { findInAncestors = true; }\n    return\n    _testabilityGetter.findTestabilityInTree(this, elem, findInAncestors);\n  }; \n  return TestabilityRegistry;\n}

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})();\n
    TestabilityRegistry.decorators = [\n      { type: Injectable }\n    ];\n    TestabilityRegistry.ctorParameters =
function () { return []; };\n    var _NoopGetTestability = /** @class */ (function () {\n      function
    _NoopGetTestability() {\n      }\n      _NoopGetTestability.prototype.addToWindow = function (registry) {\n      }\n      _NoopGetTestability.prototype.findTestabilityInTree = function (registry, elem, findInAncestors) {\n      return
    null;\n      }\n      return _NoopGetTestability;\n    }());\n    /**\n     * Set the {@link GetTestability}
    implementation used by the Angular testing framework.\n     * @publicApi\n     */\n    function
    setTestabilityGetter(getter) {\n      _testabilityGetter = getter;\n      }\n    var _testabilityGetter = new
    _NoopGetTestability();\n\n    var _platform;\n    var compileNgModuleFactory =
    compileNgModuleFactory__PRE_R3__;\n    function compileNgModuleFactory__PRE_R3__(injector, options,
    moduleType) {\n      var compilerFactory
    = injector.get(CompilerFactory);\n      var compiler = compilerFactory.createCompiler([options]);\n      return
    compiler.compileModuleAsync(moduleType);\n      }\n    function compileNgModuleFactory__POST_R3__(injector,
    options, moduleType) {\n      ngDevMode && assertNgModuleType(moduleType);\n      var moduleFactory =
    new NgModuleFactory$1(moduleType);\n      // All of the logic below is irrelevant for AOT-compiled code.\n
    if (typeof ngJitMode !== 'undefined' && !ngJitMode) {\n      return Promise.resolve(moduleFactory);\n      }\n
    var compilerOptions = injector.get(COMPILER_OPTIONS, []).concat(options);\n      // Configure the compiler
    to use the provided options. This call may fail when multiple modules\n      // are bootstrapped with incompatible
    options, as a component can only be compiled according to\n      // a single set of options.\n      setJitOptions({\n
      defaultEncapsulation: _lastDefined(compilerOptions.map(function
    (opts) { return opts.defaultEncapsulation; })),\n      preserveWhitespaces:
    _lastDefined(compilerOptions.map(function (opts) { return opts.preserveWhitespaces; })),\n      });\n      if
    (isComponentResourceResolutionQueueEmpty()) {\n      return Promise.resolve(moduleFactory);\n      }\n
    var compilerProviders = _mergeArrays(compilerOptions.map(function (o) { return o.providers; }));\n      // In case
    there are no compiler providers, we just return the module factory as\n      // there won't be any resource loader.
    This can happen with Ivy, because AOT compiled\n      // modules can be still passed through \"bootstrapModule\".
    In that case we shouldn't\n      // unnecessarily require the JIT compiler.\n      if (compilerProviders.length === 0)
    {\n      return Promise.resolve(moduleFactory);\n      }\n      var compiler = getCompilerFacade();\n      var
    compilerInjector = Injector.create({ providers: compilerProviders });\n      var resourceLoader
    = compilerInjector.get(compiler.ResourceLoader);\n      // The resource loader can also return a string while the
    \"resolveComponentResources\"\n      // always expects a promise. Therefore we need to wrap the returned value in
    a promise.\n      return resolveComponentResources(function (url) { return
    Promise.resolve(resourceLoader.get(url)); })\n      .then(function () { return moduleFactory; });\n      }\n    // the
    `window.ng` global utilities are only available in non-VE versions of\n    // Angular. The function switch below will
    make sure that the code is not\n    // included into Angular when PRE mode is active.\n    function
    publishDefaultGlobalUtils__PRE_R3__() {\n      }\n    function publishDefaultGlobalUtils__POST_R3__() {\n      ngDevMode && publishDefaultGlobalUtils();\n      }\n    var publishDefaultGlobalUtils$1 =
    publishDefaultGlobalUtils__PRE_R3__;\n    var isBoundToModule = isBoundToModule__PRE_R3__;\n    function
    isBoundToModule__PRE_R3__(cf) {\n      return cf instanceof ComponentFactoryBoundToModule;\n      }\n    function isBoundToModule__POST_R3__(cf)
    {\n      return cf.isBoundToModule;\n      }\n    var ALLOW_MULTIPLE_PLATFORMS = new
    InjectionToken('AllowMultipleToken');\n    /**\n     * A token for third-party components that can register
    themselves with NgProbe.\n     * @publicApi\n     */\n    var NgProbeToken = /** @class */ (function () {\n
    function NgProbeToken(name, token) {\n      this.name = name;\n      this.token = token;\n      }\n
    return NgProbeToken;\n    }());\n    /**\n     * Creates a platform.\n     * Platforms must be created on launch using
    this function.\n     * @publicApi\n     */\n    function createPlatform(injector) {\n      if (_platform &&
    !_platform.destroyed &&\n      !_platform.injector.get(ALLOW_MULTIPLE_PLATFORMS, false)) {\n      throw new Error('There can be only one platform. Destroy the previous one to create a new one.);\n      }\n
  
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    publishDefaultGlobalUtils$1();\n    _platform = injector.get(PlatformRef);\n    var inits =
injector.get(PLATFORM_INITIALIZER, null);\n    if (inits)\n        inits.forEach(function (init) { return init();
});\n    return _platform;\n    }\n    /**\n     * Creates a factory for a platform. Can be used to provide or override
`Providers` specific to\n     * your application's runtime needs, such as `PLATFORM_INITIALIZER` and
`PLATFORM_ID`.\n     * @param parentPlatformFactory Another platform factory to modify. Allows you to
compose factories\n     * to build up configurations that might be required by different libraries or parts of the\n     * application.\n     * @param name Identifies the new platform factory.\n     * @param providers A set of dependency
providers for platforms created with the new factory.\n     *\n     * @publicApi\n     */\n    function
createPlatformFactory(parentPlatformFactory, name, providers) {\n        if (providers === void 0) { providers
= []; }\n        var desc = "Platform: " + name;\n        var marker = new InjectionToken(desc);\n        return function
(extraProviders) {\n            if (extraProviders === void 0) { extraProviders = []; }\n            var platform =
getPlatform();\n            if (!platform || platform.injector.get(ALLOW_MULTIPLE_PLATFORMS, false)) {\n
                if (parentPlatformFactory) {\n                    parentPlatformFactory(providers.concat(extraProviders).concat({
provide: marker, useValue: true }));\n                }\n                else {\n                    var injectedProviders =
providers.concat(extraProviders).concat({ provide: marker, useValue: true }, {\n                        provide:
INJECTOR_SCOPE,\n                        useValue: 'platform'\n                    });\n                    createPlatform(Injector.create({ providers: injectedProviders, name: desc }));\n                }\n                }\n                return
assertPlatform(marker);\n            }\n        }\n    }\n    /**\n     * Checks that there is currently a platform that contains the given token as a provider.\n     *\n     * @publicApi\n     */\n    function assertPlatform(requiredToken) {\n        var platform = getPlatform();\n        if
(!platform) {\n            throw new Error('No platform exists!');\n        }\n        if
(!platform.injector.get(requiredToken, null)) {\n            throw new Error('A platform with a different configuration
has been created. Please destroy it first.);\n        }\n        return platform;\n    }\n    /**\n     * Destroys the current
Angular platform and all Angular applications on the page.\n     * Destroys all modules and listeners registered with
the platform.\n     *\n     * @publicApi\n     */\n    function destroyPlatform() {\n        if (_platform &&
!_platform.destroyed) {\n            _platform.destroy();\n        }\n    }\n    /**\n     * Returns the current platform.\n     *\n     * @publicApi\n     */\n    function getPlatform() {\n
        return _platform && !_platform.destroyed ? _platform : null;\n    }\n    /**\n     * The Angular platform is the
entry point for Angular on a web page.\n     * Each page has exactly one platform. Services (such as reflection)
which are common\n     * to every Angular application running on the page are bound in its scope.\n     * A page's
platform is initialized implicitly when a platform is created using a platform\n     * factory such as
`PlatformBrowser`, or explicitly by calling the `createPlatform()` function.\n     *\n     * @publicApi\n     */\n    var
PlatformRef = /** @class */ (function () {\n        /** @internal */\n        function PlatformRef(_injector) {\n            this._injector = _injector;\n            this._modules = [];\n            this._destroyListeners = [];\n            this._destroyed =
false;\n        }\n        /**\n         * Creates an instance of an `@NgModule` for the given platform for offline
compilation.\n         *\n         * @usageNotes\n         *\n         * The following example creates the NgModule for a browser platform.\n         *\n         *
```\n         * my_module.ts\n         * @NgModule({\n         *   imports: [BrowserModule]\n         *
})\n * class MyModule {}\n * main.ts\n * import { MyModuleNgFactory } from
'./my_module.ngfactory';\n * import { platformBrowser } from '@angular/platform-browser';\n *
let moduleRef = platformBrowser().bootstrapModuleFactory(MyModuleNgFactory);\n * ```\n *\n * PlatformRef.prototype.bootstrapModuleFactory = function (moduleFactory, options) {\n var _this = this;\n
 // Note: We need to create the NgZone _before_ we instantiate the module,\n // as instantiating the module
creates some providers eagerly.\n // So we create a mini parent injector that just contains the new NgZone
and\n // pass that as parent to the NgModuleFactory.\n
 var ngZoneOption = options ? options.ngZone : undefined;\n var ngZoneEventCoalescing = (options
&& options.ngZoneEventCoalescing) || false;\n var ngZone = getNgZone(ngZoneOption,
ngZoneEventCoalescing);\n var providers = [{ provide: NgZone, useValue: ngZone }];\n // Attention:

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Don't use ApplicationRef.run here,\n // as we want to be sure that all possible constructor calls are inside
`ngZone.run`!\n return ngZone.run(function () {\n var ngZoneInjector = Injector.create({ providers:
providers, parent: _this.injector, name: moduleFactory.moduleType.name });\n var moduleRef =
moduleFactory.create(ngZoneInjector);\n var exceptionHandler = moduleRef.injector.get(ErrorHandler,
null);\n if (!exceptionHandler) {\n throw new Error('No ErrorHandler. Is platform module
(BrowserModule) included?');\n }\n moduleRef.onDestroy(function () { return remove(_this._modules, moduleRef); });\n
ngZone.runOutsideAngular(function () { return ngZone.onError.subscribe({\n next: function (error) {\n
 exceptionHandler.handleError(error);\n }\n }); });\n return
_callAndReportToErrorHandler(exceptionHandler, ngZone, function () {\n var initStatus =
moduleRef.injector.get(ApplicationInitStatus);\n initStatus.runInitializers();\n return
initStatus.donePromise.then(function () {\n if (ivyEnabled) {\n // If the
`LOCALE_ID` provider is defined at bootstrap then we set the value for ivy\n var localeId =
moduleRef.injector.get(LOCALE_ID$1, DEFAULT_LOCALE_ID);\n setLocaleId(localeId ||
DEFAULT_LOCALE_ID);\n }\n _this._moduleDoBootstrap(moduleRef);\n return moduleRef;\n });\n });\n
});\n };\n /**\n * Creates an instance of an `@NgModule` for a given platform using the given
runtime compiler.\n *\n * @usageNotes\n * ### Simple Example\n *\n * ``typescript\n * @NgModule({\n * imports: [BrowserModule]\n * })\n * class MyModule {\n *\n * let
moduleRef = platformBrowser().bootstrapModule(MyModule);\n * ``\n *\n * \n
PlatformRef.prototype.bootstrapModule = function (moduleType, compilerOptions) {\n var _this = this;\n
 if (compilerOptions === void 0) { compilerOptions = []; }\n var options = optionsReducer({},
compilerOptions);\n return compileNgModuleFactory(this.injector, options, moduleType)\n
 .then(function (moduleFactory)
 { return _this.bootstrapModuleFactory(moduleFactory, options); });\n };\n
PlatformRef.prototype._moduleDoBootstrap = function (moduleRef) {\n var appRef =
moduleRef.injector.get(ApplicationRef);\n if (moduleRef._bootstrapComponents.length > 0) {\n
moduleRef._bootstrapComponents.forEach(function (f) { return appRef.bootstrap(f); });\n }\n else if
(moduleRef.instance.ngDoBootstrap) {\n moduleRef.instance.ngDoBootstrap(appRef);\n }\n
 else {\n throw new Error(`The module ` + stringify(moduleRef.instance\n
 .constructor) + `
was bootstrapped, but it does not declare ` + `@NgModule.bootstrap` + ` components nor a ` + `ngDoBootstrap` + `
method.` + ` + `Please define one of these.`);\n }\n this._modules.push(moduleRef);\n
 };\n /**\n * Registers a listener to be called when the platform
is destroyed.\n *\n PlatformRef.prototype.onDestroy = function (callback) {\n
this._destroyListeners.push(callback);\n };\n Object.defineProperty(PlatformRef.prototype, `injector`, {\n
 /**\n * Retrieves the platform { @link Injector}, which is the parent injector for\n * every
Angular application on the page and provides singleton providers.\n *\n get: function () {\n
return this._injector;\n },\n enumerable: false,\n configurable: true\n });\n /**\n *
Destroys the current Angular platform and all Angular applications on the page.\n * Destroys all modules and
listeners registered with the platform.\n *\n PlatformRef.prototype.destroy = function () {\n if
(this._destroyed) {\n throw new Error('The platform has already been destroyed!');\n }\n
this._modules.slice().forEach(function
 (module) { return module.destroy(); });\n this._destroyListeners.forEach(function (listener) { return
listener(); });\n this._destroyed = true;\n };\n Object.defineProperty(PlatformRef.prototype,
`destroyed`, {\n get: function () {\n return this._destroyed;\n },\n enumerable:
false,\n configurable: true\n });\n return PlatformRef;\n }));\n PlatformRef.decorators = [\n
 { type: Injectable }\n];\n PlatformRef.ctorParameters = function () { return [\n { type: Injector }\n];\n };\n
function getNgZone(ngZoneOption, ngZoneEventCoalescing) {\n var ngZone;\n if (ngZoneOption ===

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'noop') {\n ngZone = new NoopNgZone();\n }\n else {\n ngZone = (ngZoneOption ===\n'zone.js' ? undefined : ngZoneOption) || new NgZone({\n enableLongStackTrace: isDevMode(),\n shouldCoalesceEventChangeDetection: ngZoneEventCoalescing\n });\n }\n return ngZone;\n}\n\nfunction _callAndReportToErrorHandler(errorHandler, ngZone, callback) {\n try {\n var result =\ncallback();\n if (isPromise(result)) {\n return result.catch(function (e) {\n ngZone.runOutsideAngular(function () { return errorHandler.handleError(e); });\n // rethrow as the\n exception handler might not do it\n throw e;\n });\n }\n return result;\n }\n catch (e) {\n ngZone.runOutsideAngular(function () { return errorHandler.handleError(e); });\n // rethrow as the exception handler might not do it\n throw e;\n }\n}\n\nfunction optionsReducer(dst, objs) {\n if (Array.isArray(objs)) {\n dst = objs.reduce(optionsReducer, dst);\n }\n else {\n dst = Object.assign(Object.assign({}, dst), objs);\n }\n return dst;\n}\n\n/**\n * A reference to\n an Angular application running on a page.\n *\n * @usageNotes\n *\n * {@a isStable-examples}\n *\n ### isStable examples and caveats\n *\n * Note two important points about `isStable`, demonstrated in the\n examples below:\n * - the application will never be stable if you start any kind\n * of recurrent asynchronous\n task when the application starts\n * (for example for a polling process, started with a `setInterval`, a\n `setTimeout`\n * or using RxJS operators like `interval`);\n * - the `isStable` Observable runs outside of the\n Angular zone.\n *\n * Let's imagine that you start a recurrent task\n * (here incrementing a counter, using\n RxJS `interval`),\n * and at the same time subscribe to `isStable`.\n *\n * ```\n * constructor(appRef:\n ApplicationRef) {\n * appRef.isStable.pipe(\n\n * filter(stable => stable)\n *).subscribe(() => console.log('App is stable now'));\n\n * interval(1000).subscribe(counter => console.log(counter));\n\n * }\n\n * ```\n\n * In this example, `isStable` will\n never emit `true`,\n * and the trace `\"App is stable now\"` will never get logged.\n *\n * If you want to\n execute something when the app is stable,\n * you have to wait for the application to be stable\n * before\n starting your polling process.\n *\n * ```\n\n * constructor(appRef: ApplicationRef) {\n\n * appRef.isStable.pipe(\n\n * first(stable => stable),\n\n * tap(stable => console.log('App is stable now')),\n\n * switchMap(() => interval(1000))\n\n *).subscribe(counter => console.log(counter));\n\n * }\n\n * ```\n\n * In\n this example, the trace `\"App is stable now\"` will be logged\n * and then the counter starts incrementing every\n second.\n *\n * Note also that this Observable\n runs outside of the Angular zone,\n * which means that the code in the subscription\n * to this Observable will\n not trigger the change detection.\n *\n * Let's imagine that instead of logging the counter value,\n * you\n update a field of your component\n * and display it in its template.\n *\n * ```\n\n * constructor(appRef:\n ApplicationRef) {\n\n * appRef.isStable.pipe(\n\n * first(stable => stable),\n\n * switchMap(() =>\n\n * interval(1000))\n\n *).subscribe(counter => this.value = counter);\n\n * }\n\n * ```\n\n * As the `isStable`\n Observable runs outside the zone,\n * the `value` field will be updated properly,\n * but the template will not be\n refreshed!\n *\n * You'll have to manually trigger the change detection to update the template.\n *\n * ```\n\n * constructor(appRef: ApplicationRef, cd: ChangeDetectorRef) {\n\n * appRef.isStable.pipe(\n\n * first(stable => stable),\n\n * switchMap(()\n\n * => interval(1000))\n\n *).subscribe(counter => {\n\n * this.value = counter;\n\n * cd.detectChanges();\n\n * });\n\n * }\n\n * ```\n\n * Or make the subscription callback run inside the zone.\n *\n * ```\n\n * constructor(appRef: ApplicationRef, zone: NgZone) {\n\n * appRef.isStable.pipe(\n\n * first(stable =>\n\n * stable),\n\n * switchMap(() => interval(1000))\n\n *).subscribe(counter => zone.run(() => this.value =\n\n * counter));\n\n * }\n\n * ```\n\n * @publicApi\n */\n\n var ApplicationRef = /** @class */ (function () {\n\n /** @internal */\n function ApplicationRef(_zone, _console, _injector, _exceptionHandler,\n _componentFactoryResolver, _initStatus) {\n var _this = this;\n this._zone = _zone;\n this._console = _console;\n this._injector = _injector;\n this._exceptionHandler =\n _exceptionHandler;\n this._componentFactoryResolver\n\n = _componentFactoryResolver;\n this._initStatus = _initStatus;\n /** @internal */\n this._bootstrapListeners = [];\n this._views = [];\n this._runningTick = false;\n
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this._enforceNoNewChanges = false;\n this._stable = true;\n /**\n * Get a list of component
types registered to this application.\n * This list is populated even before the component is created.\n
*\n this.componentTypes = [];\n /**\n * Get a list of components registered to this
application.\n *\n this.components = [];\n this._enforceNoNewChanges = isDevMode();\n
 this._zone.onMicrotaskEmpty.subscribe({\n next: function () {\n _this._zone.run(function ()
{\n _this.tick();\n });\n });\n var isCurrentlyStable
= new rxjs.Observable(function (observer) {\n _this._stable = _this._zone.isStable &&
!_this._zone.hasPendingMacrotasks &&\n !_this._zone.hasPendingMicrotasks;\n
 _this._zone.runOutsideAngular(function () {\n observer.next(_this._stable);\n
 observer.complete();\n });\n });\n var isStable = new rxjs.Observable(function (observer) {\n
 // Create the subscription to onStable outside the Angular Zone so that\n // the callback is run
outside the Angular Zone.\n var stableSub;\n _this._zone.runOutsideAngular(function () {\n
 stableSub = _this._zone.onStable.subscribe(function () {\n
NgZone.assertNotInAngularZone();\n // Check whether there are no pending macro/micro tasks in the
next tick\n // to allow for NgZone to update
the state.\n scheduleMicroTask(function () {\n if (!_this._stable &&
!_this._zone.hasPendingMacrotasks &&\n !_this._zone.hasPendingMicrotasks) {\n
 _this._stable = true;\n observer.next(true);\n }\n });\n
 });\n });\n var unstableSub = _this._zone.onUnstable.subscribe(function () {\n
NgZone.assertInAngularZone();\n if (_this._stable) {\n _this._stable = false;\n
 _this._zone.runOutsideAngular(function () {\n observer.next(false);\n });\n
 });\n });\n return function () {\n stableSub.unsubscribe();\n
 unstableSub.unsubscribe();\n
 });\n });\n this.isStable =\n rxjs.merge(isCurrentlyStable,
isStable.pipe(operators.share()));\n }\n /**\n * Bootstrap a new component at the root level of the
application.\n *\n * @usageNotes\n * ### Bootstrap process\n *\n * When bootstrapping a
new root component into an application, Angular mounts the\n * specified application component onto DOM
elements identified by the componentType's\n * selector and kicks off automatic change detection to finish
initializing the component.\n *\n * Optionally, a component can be mounted onto a DOM element that
does not match the\n * componentType's selector.\n *\n * ### Example\n * {\n * @example
core/ts/platform/platform.ts region='longform'}\n *\n ApplicationRef.prototype.bootstrap = function
(componentOrFactory, rootSelectorOrNode) {\n var _this = this;\n
 if (!this._initStatus.done) {\n throw new Error('Cannot bootstrap as there are still asynchronous
initializers running. Bootstrap components in the `ngDoBootstrap` method of the root module.);\n }\n
 var componentFactory;\n if (componentOrFactory instanceof ComponentFactory) {\n
 componentFactory = componentOrFactory;\n }\n else {\n componentFactory =\n
this._componentFactoryResolver.resolveComponentFactory(componentOrFactory);\n }\n
 this.componentTypes.push(componentFactory.componentType);\n // Create a factory associated with the
current module if it's not bound to some other\n var ngModule = isBoundToModule(componentFactory) ?
undefined : this._injector.get(NgModuleRef);\n var selectorOrNode = rootSelectorOrNode ||
componentFactory.selector;\n var compRef = componentFactory.create(Injector.NULL,
[], selectorOrNode, ngModule);\n compRef.onDestroy(function () {\n
 _this._unloadComponent(compRef);\n });\n var testability = compRef.injector.get(Testability, null);\n
 if (testability) {\n compRef.injector.get(TestabilityRegistry)\n
 .registerApplication(compRef.location.nativeElement, testability);\n }\n
 this._loadComponent(compRef);\n if (isDevMode()) {\n this._console.log('Angular is running in
development mode. Call enableProdMode() to enable production mode.);\n }\n return compRef;\n
 };\n /**\n * Invoke this method to explicitly process change detection and its side-effects.\n *\n

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* In development mode, `tick()` also performs a second change detection cycle to ensure that no
changes are detected. If additional changes are picked up during this second cycle,
 * bindings in the app have side-effects that cannot be resolved in a single change detection
 * pass.
* In this case, Angular throws an error, since an Angular application can only have one change
 * detection
pass during which all change detection must complete.
 */
ApplicationRef.prototype.tick = function ()
{
 var e_1, _a, e_2, _b;
 var _this = this;
 if (this._runningTick) {
 throw new
Error('ApplicationRef.tick is called recursively');
 }
 try {
 this._runningTick = true;
 try {
 for (var _c = __values(this._views), _d = _c.next(); !_d.done; _d = _c.next()) {
 var view = _d.value;
 view.detectChanges();
 }
 } catch (e_1_1) {
 e_1 = { error: e_1_1 };
 }
 finally {
 try {
 if (_d && !_d.done && (_a = _c.return)) _a.call(_c);
 } finally {
 if (e_1) throw e_1.error;
 }
 if (this._enforceNoNewChanges) {
 try {
 for (var _e = __values(this._views), _f = _e.next(); !_f.done; _f = _e.next()) {
 var view =
_f.value;
 view.checkNoChanges();
 }
 } catch (e_2_1) {
 e_2 = { error: e_2_1 };
 }
 finally {
 try {
 if (_f && !_f.done &&
(_b = _e.return)) _b.call(_e);
 } finally {
 if (e_2) throw e_2.error;
 }
 }
 }
 } catch (e) {
 // Attention: Don't rethrow as it could cancel subscriptions to
Observables!
 this._zone.runOutsideAngular(function () { return _this._exceptionHandler.handleError(e); });
 }
 finally {
 this._runningTick = false;
 }
 }
 /**
 * Attaches a view so that it
 * will be dirty checked.
 * The view will be automatically detached when it is destroyed.
 * This will
 * throw if the view is already attached to a ViewContainer.
 */
 ApplicationRef.prototype.attachView =
function (viewRef) {
 var view = viewRef;
 this._views.push(view);
 view.attachToAppRef(this);
}
 /**
 * Detaches a view from dirty checking again.
 */
 ApplicationRef.prototype.detachView = function (viewRef) {
 var view = viewRef;
 remove(this._views, view);
 view.detachFromAppRef();
};
 ApplicationRef.prototype._loadComponent = function (componentRef) {
 this.attachView(componentRef.hostView);
 this.tick();
 this.components.push(componentRef);
 // Get the listeners lazily to prevent DI cycles.
 var listeners
= this._injector.get(APP_BOOTSTRAP_LISTENER, []).concat(this._bootstrapListeners);
 listeners.forEach(function (listener) { return listener(componentRef); });
 ApplicationRef.prototype._unloadComponent = function (componentRef) {
 this.detachView(componentRef.hostView);
 remove(this.components, componentRef);
 };
 /**
 @internal
 */
 ApplicationRef.prototype.ngOnDestroy = function () {
 // TODO(alxhub): Dispose of the
NgZone.
 this._views.slice().forEach(function (view) { return view.destroy(); });
 };
 Object.defineProperty(ApplicationRef.prototype, 'viewCount', {
 /**
 * Returns the number of
 * attached views.
 */
 get: function () {
 return this._views.length;
 },
 enumerable: false,
 configurable: true
 });
 return ApplicationRef;
})();
 ApplicationRef.decorators = [
 { type:
Injectable },
];
 ApplicationRef.ctorParameters = function () {
 return [
 { type: NgZone },
 { type:
Console },
 { type: Injector },
 { type: ErrorHandler },
 { type: ComponentFactoryResolver },
 { type: ApplicationInitStatus }
];
 };
 function remove(list, el) {
 var index = list.indexOf(el);
 if (index > -1) {
 list.splice(index, 1);
 }
 }
 function _lastDefined(args) {
 for (var i =
args.length - 1; i >= 0; i--) {
 if (args[i] !== undefined) {
 return args[i];
 }
 }
 return undefined;
 }
 function _mergeArrays(parts) {
 var result = [];
 parts.forEach(function
(part) { return part && result.push.apply(result, __spread(part)); });
 return result;
 }
 /**
 @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an
 MIT-style license that can be
 found in the LICENSE file at https://angular.io/license
 */
}

```



```

@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
Used to load ng module factories.\n * @publicApi\n * @deprecated the `string` form of `loadChildren` is
deprecated, and `NgModuleFactoryLoader`
is\n * part of its implementation. See `LoadChildren` for more details.\n */\n var NgModuleFactoryLoader =
/** @class */ (function () {\n function NgModuleFactoryLoader() {\n }\n return
NgModuleFactoryLoader;\n }());\n function getNgModuleFactory__PRE_R3__(id) {\n var factory =
getRegisteredNgModuleType(id);\n if (!factory)\n throw noModuleError(id);\n return factory;\n }\n function getNgModuleFactory__POST_R3__(id) {\n var type = getRegisteredNgModuleType(id);\n if
(!type)\n throw noModuleError(id);\n return new NgModuleFactory$1(type);\n }\n /**\n * Returns
the NgModuleFactory with the given id, if it exists and has been loaded.\n * Factories for modules that do not
specify an `id` cannot be retrieved. Throws if the module\n * cannot be found.\n * @publicApi\n */\n var
getNgModuleFactory = getNgModuleFactory__PRE_R3__;\n function noModuleError(id)
{\n return new Error("No module with ID '" + id + "' loaded");\n }\n var _SEPARATOR = '#';\n var
FACTORY_CLASS_SUFFIX = 'NgFactory';\n /**\n * Configuration for SystemJsNgModuleLoader.\n *
token.\n * @publicApi\n * @deprecated the `string` form of `loadChildren` is deprecated, and
`SystemJsNgModuleLoaderConfig`\n * is part of its implementation. See `LoadChildren` for more details.\n
*/\n var SystemJsNgModuleLoaderConfig = /** @class */ (function () {\n function
SystemJsNgModuleLoaderConfig() {\n }\n return SystemJsNgModuleLoaderConfig;\n }());\n var
DEFAULT_CONFIG = {\n factoryPathPrefix: '',\n factoryPathSuffix: '.ngfactory',\n }; \n /**\n *
NgModuleFactoryLoader that uses SystemJS to load NgModuleFactory\n * @publicApi\n * @deprecated the
`string` form of `loadChildren` is deprecated, and `SystemJsNgModuleLoader` is\n * part of its implementation.
See `LoadChildren`
for more details.\n */\n var SystemJsNgModuleLoader = /** @class */ (function () {\n function
SystemJsNgModuleLoader(_compiler, config) {\n this._compiler = _compiler;\n this._config = config
|| DEFAULT_CONFIG;\n }\n SystemJsNgModuleLoader.prototype.load = function (path) {\n var
legacyOfflineMode = !ivyEnabled && this._compiler instanceof Compiler;\n return legacyOfflineMode ?
this.loadFactory(path) : this.loadAndCompile(path);\n };\n SystemJsNgModuleLoader.prototype.loadAndCompile = function (path) {\n var _this = this;\n var _a
= __read(path.split(_SEPARATOR), 2), module = _a[0], exportName = _a[1];\n if (exportName ===
undefined) {\n exportName = 'default';\n }\n return System.import(module)\n .then(function (module) { return module[exportName]; })\n .then(function (type) { return
checkNotEmpty(type,
module, exportName); })\n .then(function (type) { return _this._compiler.compileModuleAsync(type);
});\n }\n SystemJsNgModuleLoader.prototype.loadFactory = function (path) {\n var _a =
__read(path.split(_SEPARATOR), 2), module = _a[0], exportName = _a[1];\n var factoryClassSuffix =
FACTORY_CLASS_SUFFIX;\n if (exportName === undefined) {\n exportName = 'default';\n }\n factoryClassSuffix = '';\n }\n return System.import(this._config.factoryPathPrefix + module +
this._config.factoryPathSuffix)\n .then(function (module) { return module[exportName +
factoryClassSuffix]; })\n .then(function (factory) { return checkNotEmpty(factory, module, exportName);
});\n }\n return SystemJsNgModuleLoader;\n }());\n SystemJsNgModuleLoader.decorators = [\n {
type: Injectable }\n];\n SystemJsNgModuleLoader.ctorParameters
= function () { return [\n { type: Compiler },\n { type: SystemJsNgModuleLoaderConfig, decorators: [{
type: Optional }] }\n];\n }\n function checkNotEmpty(value, modulePath, exportName) {\n if (!value) {\n
throw new Error("Cannot find '" + exportName + "' in '" + modulePath + "'");\n }\n return value;\n
}\n\n /**\n * Represents an Angular [view](guide/glossary#view "Definition").\n * @see { @link

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ChangeDetectorRef#usage-notes Change detection usage}\n *\n * @publicApi\n */\n var ViewRef$1 = /**
@class */ (function (_super) {\n __extends(ViewRef, _super);\n function ViewRef() {\n return
_super !== null && _super.apply(this, arguments) || this;\n }\n return ViewRef;\n
})(ChangeDetectorRef);\n /**\n * Represents an Angular [view](guide/glossary#view) in a view container.\n
 * An [embedded view](guide/glossary#view-tree) can be referenced from
 a component\n * other than the hosting component whose template defines it, or it can be defined\n *
independently by a `TemplateRef`.\n *\n * Properties of elements in a view can change, but the structure
(number and order) of elements in\n * a view cannot. Change the structure of elements by inserting, moving, or\n
 * removing nested views in a view container.\n *\n * @see `ViewContainerRef`\n *\n * @usageNotes\n
 *\n * The following template breaks down into two separate `TemplateRef` instances,\n * an outer one and an
inner one.\n *\n * ```\n * Count: {{ items.length }}\n * \n * <li *ngFor="let item of
items">{{ item }}\n * \n * ```\n *\n * This is the outer `TemplateRef`:\n *\n * ```\n *
Count: {{ items.length }}\n * \n * <ng-template ngFor let-item [ngForOf]="items"></ng-template>\n
 * \n * ```\n *\n * This is the inner `TemplateRef`:\n
 *\n * ```\n * {{ item }}\n * ```\n *\n * The outer and inner `TemplateRef` instances are
assembled into views as follows:\n *\n * ```\n * <!-- ViewRef: outer-0 -->\n * Count: 2\n * \n *
 * <ng-template view-container-ref></ng-template>\n * <!-- ViewRef: inner-1 -->first<!-- /ViewRef:
inner-1 -->\n * <!-- ViewRef: inner-2 -->second<!-- /ViewRef: inner-2 -->\n * \n * <!--
/VViewRef: outer-0 -->\n * ```\n *\n * @publicApi\n */\n var EmbeddedViewRef = /** @class */ (function
(_super) {\n __extends(EmbeddedViewRef, _super);\n function EmbeddedViewRef() {\n return
_super !== null && _super.apply(this, arguments) || this;\n }\n return EmbeddedViewRef;\n
})(ViewRef$1));\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n */\n\n /**\n * @publicApi\n */\n var
DebugEventListener = /** @class */ (function () {\n function DebugEventListener(name, callback) {\n
this.name = name;\n this.callback = callback;\n }\n return DebugEventListener;\n })();\n var
DebugNode__PRE_R3__ = /** @class */ (function () {\n function DebugNode__PRE_R3__(nativeNode,
parent, _debugContext) {\n this.listeners = [];\n this.parent = null;\n this._debugContext =
_debugContext;\n this.nativeNode = nativeNode;\n if (parent && parent instanceof
DebugElement__PRE_R3__) {\n parent.addChild(this);\n }\n }\n Object.defineProperty(DebugNode__PRE_R3__.prototype, \"injector\", {\n get: function () {\n
return this._debugContext.injector;\n },\n enumerable: false,\n
 configurable: true\n });\n Object.defineProperty(DebugNode__PRE_R3__.prototype,
\"componentInstance\", {\n get: function () {\n return this._debugContext.component;\n },\n
 enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__PRE_R3__.prototype, \"context\", {\n get: function () {\n
return this._debugContext.context;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__PRE_R3__.prototype, \"references\", {\n get: function () {\n
return this._debugContext.references;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__PRE_R3__.prototype, \"providerTokens\", {\n get: function () {\n
return this._debugContext.providerTokens;\n },\n enumerable: false,\n configurable: true\n });\n return DebugNode__PRE_R3__;\n })();\n var DebugElement__PRE_R3__ = /** @class */ (function (_super) {\n
__extends(DebugElement__PRE_R3__, _super);\n function DebugElement__PRE_R3__(nativeNode, parent,
_debugContext) {\n var _this = _super.call(this, nativeNode, parent, _debugContext) || this;\n
 _this.properties = {};\n _this.attributes = {};\n _this.classes = {};\n _this.styles = {};\n
 _this.childNodes = [];\n _this.nativeElement = nativeNode;\n return _this;\n }\n DebugElement__PRE_R3__.prototype.addChild = function (child) {\n if (child) {\n

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this.childNodes.push(child);\n child.parent = this;\n }\n };\n DebugElement__PRE_R3__.prototype.removeChild = function (child) {\n var childIndex =\n this.childNodes.indexOf(child);\n if (childIndex !== -1) {\n child.parent = null;\n this.childNodes.splice(childIndex, 1);\n }\n };\n DebugElement__PRE_R3__.prototype.insertChildrenAfter = function (child, newChildren) {\n var _a;\n var _this = this;\n var siblingIndex = this.childNodes.indexOf(child);\n if\n (siblingIndex !== -1) {\n (_a = this.childNodes).splice.apply(_a, __spread([siblingIndex + 1, 0],\n newChildren));\n newChildren.forEach(function (c) {\n if (c.parent) {\n c.parent.removeChild(c);\n }\n child.parent = _this;\n });\n }\n };\n DebugElement__PRE_R3__.prototype.insertBefore = function (refChild, newChild) {\n var refIndex =\n this.childNodes.indexOf(refChild);\n if (refIndex === -1) {\n this.addChild(newChild);\n }\n else {\n if (newChild.parent) {\n newChild.parent.removeChild(newChild);\n }\n newChild.parent = this;\n this.childNodes.splice(refIndex, 0, newChild);\n }\n };\n DebugElement__PRE_R3__.prototype.query = function (predicate) {\n var results =\n this.queryAll(predicate);\n return results[0] || null;\n };\n DebugElement__PRE_R3__.prototype.queryAll = function (predicate) {\n var matches = [];\n _queryElementChildren(this, predicate, matches);\n return matches;\n };\n DebugElement__PRE_R3__.prototype.queryAllNodes = function (predicate) {\n var matches = [];\n _queryNodeChildren(this, predicate, matches);\n return matches;\n };\n Object.defineProperty(DebugElement__PRE_R3__.prototype, "children", {\n get: function () {\n return this.childNodes //\n .filter(function (node) { return node instanceof\n DebugElement__PRE_R3__; });\n },\n enumerable: false,\n configurable: true\n });\n DebugElement__PRE_R3__.prototype.triggerEventHandler = function (eventName, eventObj) {\n this.listeners.forEach(function (listener) {\n if (listener.name === eventName) {\n listener.callback(eventObj);\n }\n });\n return DebugElement__PRE_R3__;\n };\n (DebugNode__PRE_R3__); /**\n * @publicApi\n */\n function asNativeElements(debugEls) {\n return debugEls.map(function (el) { return el.nativeElement; });\n }\n function _queryElementChildren(element,\n predicate, matches) {\n element.childNodes.forEach(function (node) {\n if (node instanceof\n DebugElement__PRE_R3__) {\n if (predicate(node))\n {\n matches.push(node);\n }\n _queryElementChildren(node, predicate, matches);\n }\n });\n }\n function _queryNodeChildren(parentNode, predicate, matches) {\n if (parentNode\n instanceof DebugElement__PRE_R3__) {\n parentNode.childNodes.forEach(function (node) {\n if\n (predicate(node)) {\n matches.push(node);\n }\n if (node instanceof\n DebugElement__PRE_R3__) {\n _queryNodeChildren(node, predicate, matches);\n }\n });\n }\n }\n var DebugNode__POST_R3__ = /** @class */ (function () {\n function\n DebugNode__POST_R3__(nativeNode) {\n this.nativeNode = nativeNode;\n }\n Object.defineProperty(DebugNode__POST_R3__.prototype, "parent", {\n get: function () {\n var\n parent = this.nativeNode.parentNode;\n return\n parent ? new DebugElement__POST_R3__(parent) : null;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype, "injector", {\n get: function () {\n return\n getInjector(this.nativeNode);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype,\n "componentInstance", {\n get: function () {\n var\n nativeElement = this.nativeNode;\n return\n nativeElement &&\n (getComponent(nativeElement) || getOwningComponent(nativeElement));\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype, "context", {\n get: function () {\n return\n getComponent(this.nativeNode) || getContext(this.nativeNode);\n }\n });\n }());

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 },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype, \"listeners\", {\n get: function () {\n return getListeners(this.nativeNode).filter(function (listener) { return listener.type === 'dom'; });\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype, \"references\", {\n get: function () {\n return getLocalRefs(this.nativeNode);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugNode__POST_R3__.prototype, \"providerTokens\", {\n get: function () {\n return getInjectionTokens(this.nativeNode);\n },\n enumerable: false,\n configurable: true\n });\n return DebugNode__POST_R3__;\n})();\n\nvar DebugElement__POST_R3__ = /** @class */ (function (_super) {\n __extends(DebugElement__POST_R3__, _super);\n function DebugElement__POST_R3__(nativeNode) {\n var _this = this;\n ngDevMode && assertDomNode(nativeNode);\n _this = _super.call(this, nativeNode) || this;\n return _this;\n }\n Object.defineProperty(DebugElement__POST_R3__.prototype, \"nativeElement\", {\n get: function () {\n return this.nativeNode.nodeType === Node.ELEMENT_NODE ? this.nativeNode : null;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugElement__POST_R3__.prototype, \"name\", {\n get: function () {\n try {\n var context = loadLContext(this.nativeNode);\n var IView = context.IView;\n var tData = IView[TVIEW].data;\n var tNode = tData[context.nodeIndex];\n return tNode.value;\n } catch (e) {\n return this.nativeNode.nodeName;\n }\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugElement__POST_R3__.prototype, \"properties\", {\n /**\n * Gets a map of property names to property values for an element.\n * * This map includes:\n * - Regular property bindings (e.g. `[id]='id'`)\n * - Host property bindings (e.g. `host: { '[id]': 'id' }`)\n * - Interpolated property bindings (e.g. `id='{ { value } }'`)\n * - It does not include:\n * - input property bindings (e.g. `[myCustomInput]='value'`)\n * - attribute bindings (e.g. `[attr.role]='menu'`)\n */\n get: function () {\n var context = loadLContext(this.nativeNode, false);\n if (context === null) {\n return {};\n }\n var IView = context.IView;\n var tData = IView[TVIEW].data;\n var tNode = tData[context.nodeIndex];\n var properties = {};\n // Collect properties from the DOM.\n copyDomProperties(this.nativeElement, properties);\n // Collect properties from the bindings. This is needed for animation renderer which has\n // synthetic properties which don't get reflected into the DOM.\n collectPropertyBindings(properties, tNode, IView, tData);\n return properties;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(DebugElement__POST_R3__.prototype, \"attributes\", {\n get: function () {\n var attributes = {};\n\n var element = this.nativeElement;\n if (!element) {\n return attributes;\n }\n var context = loadLContext(element, false);\n if (context === null) {\n return {};\n }\n var IView = context.IView;\n var tNodeAttrs = IView[TVIEW].data[context.nodeIndex].attrs;\n var lowercaseTNodeAttrs = [];\n // For debug nodes we take the element's attribute directly from the DOM since it allows us\n // to account for ones that weren't set via bindings (e.g. ViewEngine keeps track of the ones\n // that are set through `Renderer2`). The problem is that the browser will lowercase all names,\n // however since we have the attributes already on the TNode, we can preserve the case by going\n // through them once, adding them to the `attributes` map and putting their lower-cased\n name\n // into an array. Afterwards when we're going through the native DOM attributes, we can check\n // whether we haven't run into an attribute already through the TNode.\n if (tNodeAttrs) {\n var i = 0;\n while (i < tNodeAttrs.length) {\n var attrName = tNodeAttrs[i];\n
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 // Stop as soon as we hit a marker. We only care about the regular attributes. Everything\n
 will be handled below when we read the final attributes off the DOM.\n
 'string')\n
 attributes[attrName] = attrValue;\n
 i += 2;\n
 }
 for (var i = 0; i < eAttrs.length; i++) {\n
 = attr.name.toLowerCase();\n
 // case-sensitive form and the lower-cased one from the browser.\n
 (lowercaseTNodeAttrs.indexOf(lowercaseName) === -1) {\n
 behavior between browsers.\n
 case.\n
 attributes[lowercaseName] = attr.value;\n
 attributes;\n
 Object.defineProperty(DebugElement__POST_R3__.prototype, \"styles\", {\n
 (this.nativeElement\n
 && this.nativeElement.style) {\n
 },\n
 Object.defineProperty(DebugElement__POST_R3__.prototype, \"classes\", {\n
 var result = {};\n
 `SVGAnimatedString` instead of a plain string for the `className`.\n
 element.className;\n
 className.baseVal.split(' ');\n
 result[value] = true; });\n
 });\n
 \"childNodes\", {\n
 var children = [];\n
 childNodes[i];\n
 children;\n
 Object.defineProperty(DebugElement__POST_R3__.prototype, \"children\", {\n
 var nativeElement = this.nativeElement;\n
 childNodes = nativeElement.children;\n
 i++) {\n
 children.push(getDebugNode__POST_R3__(element));\n
 }\n
 return children;\n
 DebugElement__POST_R3__.prototype.query = function (predicate) {\n
 this.queryAll(predicate);\n
 DebugElement__POST_R3__.prototype.queryAll = function (predicate) {\n
 _queryAllR3(this, predicate, matches, true);\n
 DebugElement__POST_R3__.prototype.queryAllNodes = function (predicate) {\n
 _queryAllR3(this, predicate, matches, false);\n
 DebugElement__POST_R3__.prototype.triggerEventHandler = function (eventName, eventObj) {\n
 = this.nativeNode;\n
 {
 callback.call(node, eventObj);\n
 We need to check whether `eventListeners` exists, because it's something\n
 `EventTarget` in browser environments.\n
 that in Ivy we wrap event listeners with a call to `event.preventDefault` in some\n
 '.__ngUnwrap__' as a special token that gives us access to the actual event\n
 node.eventListeners(eventName).forEach(function (listener) {\n

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the special __ngUnwrap__ token described above, we\n // use `toString` on the listener and see if it
contains
the token. We use this approach to\n // ensure that it still worked with compiled code since it cannot
remove or rename string\n // literals. We also considered using a special function name (i.e.
if(listener.name ===\n // special)) but that was more cumbersome and we were also concerned the
compiled code could\n // strip the name, turning the condition in to (\"\" === \"\") and always returning
true.\n if (listener.toString().indexOf('__ngUnwrap__') !== -1) {\n var unwrappedListener
= listener('__ngUnwrap__');\n return invokedListeners.indexOf(unwrappedListener) === -1 &&\n unwrappedListener.call(node, eventObj);\n }\n });\n }\n };\n return
DebugElement__POST_R3__;\n }(DebugNode__POST_R3__);\n function copyDomProperties(element,
properties) {\n if
(element) {\n // Skip own properties (as those are patched)\n var obj =
Object.getPrototypeOf(element);\n var NodePrototype = Node.prototype;\n while (obj !== null &&
obj !== NodePrototype) {\n var descriptors = Object.getOwnPropertyDescriptors(obj);\n for (var
key in descriptors) {\n if (!key.startsWith('__') && !key.startsWith('on')) {\n // don't
include properties starting with `__` and `on`.\n // `__` are patched values which should not be
included.\n // `on` are listeners which also should not be included.\n var value =
element[key];\n if (isPrimitiveValue(value)) {\n properties[key] = value;\n }\n }\n }\n obj = Object.getPrototypeOf(obj);\n }\n }\n }\n function
isPrimitiveValue(value) {\n return typeof value === 'string' || typeof value === 'boolean' || typeof value ===
'number' ||\n value === null;\n }\n function _queryAllR3(parentElement, predicate, matches,
elementsOnly) {\n var context = loadLContext(parentElement.nativeNode, false);\n if (context !== null) {\n
 var parentTNode = context.IView[TVIEW].data[context.nodeIndex];\n
 _queryNodeChildrenR3(parentTNode, context.IView, predicate, matches, elementsOnly,
parentElement.nativeNode);\n }\n else {\n // If the context is null, then `parentElement` was either
created with Renderer2 or native DOM\n // APIs.\n
 _queryNativeNodeDescendants(parentElement.nativeNode, predicate, matches, elementsOnly);\n }\n }\n
 /**\n * Recursively match the current TNode against the predicate, and goes on with the next ones.\n *\n *
@param tNode the current TNode\n * @param
 IView the LView of this TNode\n * @param predicate the predicate to match\n * @param matches the list of
positive matches\n * @param elementsOnly whether only elements should be searched\n * @param
 rootNativeNode the root native node on which predicate should not be matched\n */\n function
_queryNodeChildrenR3(tNode, IView, predicate, matches, elementsOnly, rootNativeNode) {\n var e_1, _a;\n
 ngDevMode && assertTNodeForLView(tNode, IView);\n var nativeNode = getNativeByTNodeOrNull(tNode,
IView);\n // For each type of TNode, specific logic is executed.\n if (tNode.type & (3 /* AnyRNode */ | 8 /*
ElementContainer */)) {\n // Case 1: the TNode is an element\n // The native node has to be checked.\n
 _addQueryMatchR3(nativeNode, predicate, matches, elementsOnly, rootNativeNode);\n if
(isComponentHost(tNode)) {\n // If the element is the host of a component, then all nodes in
its view have to be processed.\n // Note: the component's content (tNode.child) will be processed from the
insertion points.\n var componentView = getComponentLViewByIndex(tNode.index, IView);\n if
(componentView && componentView[TVIEW].firstChild) {\n
 _queryNodeChildrenR3(componentView[TVIEW].firstChild, componentView, predicate, matches, elementsOnly,
rootNativeNode);\n }\n }\n else {\n if (tNode.child) {\n // Otherwise, its
children have to be processed.\n _queryNodeChildrenR3(tNode.child, IView, predicate, matches,
elementsOnly, rootNativeNode);\n }\n // We also have to query the DOM directly in order to
catch elements inserted through\n // Renderer2. Note that this is __not__ optimal, because we're walking
similar trees multiple\n // times. ViewEngine could do it more efficiently,

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because all the insertions go through\n // Renderer2, however that's not the case in Ivy. This approach is being used because:\n // 1. Matching the ViewEngine behavior would mean potentially introducing a dependency\n // from `Renderer2` to Ivy which could bring Ivy code into ViewEngine.\n // 2. We would have to make `Renderer3` \"know\" about debug nodes.\n // 3. It allows us to capture nodes that were inserted directly via the DOM.\n nativeNode && \_queryNativeNodeDescendants(nativeNode, predicate, matches, elementsOnly);\n }\n // In all cases, if a dynamic container exists for this node, each view inside it has to be\n // processed.\n var nodeOrContainer = lView[tNode.index];\n if (isLContainer(nodeOrContainer)) {\n \_queryNodeChildrenInContainerR3(nodeOrContainer, predicate, matches, elementsOnly, rootNativeNode);\n }\n }\n else if (tNode.type & 4 /\* Container \*/) {\n // Case 2: the TNode is a container\n // The native node has to be checked.\n var lContainer = lView[tNode.index];\n \_addQueryMatchR3(lContainer[NATIVE], predicate, matches, elementsOnly, rootNativeNode);\n // Each view inside the container has to be processed.\n \_queryNodeChildrenInContainerR3(lContainer, predicate, matches, elementsOnly, rootNativeNode);\n }\n else if (tNode.type & 16 /\* Projection \*/) {\n // Case 3: the TNode is a projection insertion point (i.e. a <ng-content>).\n // The nodes projected at this location all need to be processed.\n var componentView = lView[DECLARATION\_COMPONENT\_VIEW];\n var componentHost = componentView[T\_HOST];\n var head = componentHost.projection[tNode.projection];\n if (Array.isArray(head)) {\n try {\n for (var head\_1 = \_\_values(head), head\_1\_1 = head\_1.next(); !head\_1\_1.done; head\_1\_1 = head\_1.next()) {\n var nativeNode\_1 = head\_1\_1.value;\n \_addQueryMatchR3(nativeNode\_1, predicate, matches, elementsOnly, rootNativeNode);\n }\n catch (e\_1\_1) { e\_1 = { error: e\_1\_1 }; }\n finally {\n try {\n if (head\_1\_1 && !head\_1\_1.done && (\_a = head\_1.return)) \_a.call(head\_1);\n }\n finally { if (e\_1) throw e\_1.error; }\n }\n }\n else if (head) {\n var nextLView = componentView[PARENT];\n var nextTNode = nextLView[TVIEW].data[head.index];\n \_queryNodeChildrenR3(nextTNode, nextLView, predicate, matches, elementsOnly, rootNativeNode);\n }\n }\n else if (tNode.child) {\n // Case 4: the TNode is a view.\n \_queryNodeChildrenR3(tNode.child, lView, predicate, matches, elementsOnly, rootNativeNode);\n }\n // We don't want to go to the next sibling of the root node.\n if (rootNativeNode !== nativeNode) {\n // To determine the next node to be processed, we need to use the next or the projectionNext\n // link, depending on whether the current node has been projected.\n var nextTNode = (tNode.flags & 4 /\* isProjected \*/) ? tNode.projectionNext : tNode.next;\n if (nextTNode) {\n \_queryNodeChildrenR3(nextTNode, lView, predicate, matches, elementsOnly, rootNativeNode);\n }\n }\n }\n /\*\*\n \* Process all TNodes in a given container.\n \*\n \* @param lContainer the container to be processed\n \* @param predicate the predicate to match\n \* @param matches the list of positive matches\n \* @param elementsOnly whether only elements should be searched\n \*\n \* @param rootNativeNode the root native node on which predicate should not be matched\n \*/\n function \_queryNodeChildrenInContainerR3(lContainer, predicate, matches, elementsOnly, rootNativeNode) {\n for (var i = CONTAINER\_HEADER\_OFFSET; i < lContainer.length; i++) {\n var childView = lContainer[i];\n var firstChild = childView[TVIEW].firstChild;\n if (firstChild) {\n \_queryNodeChildrenR3(firstChild, childView, predicate, matches, elementsOnly, rootNativeNode);\n }\n }\n }\n /\*\*\n \* Match the current native node against the predicate.\n \*\n \* @param nativeNode the current native node\n \* @param predicate the predicate to match\n \* @param matches the list of positive matches\n \* @param elementsOnly whether only elements should be searched\n \*\n \* @param rootNativeNode the root native node on which predicate should not be matched\n \*/\n function \_addQueryMatchR3(nativeNode, predicate, matches, elementsOnly, rootNativeNode) {\n if (rootNativeNode !== nativeNode) {\n var debugNode = getDebugNode\$1(nativeNode);\n if (!debugNode) {\n return;\n }\n // Type of the \"predicate and \"matches\" array are set based on the value of\n // the \"elementsOnly\" parameter. TypeScript is not able to properly infer these\n // types with generics, so we manually cast the

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parameters accordingly.\n if (elementsOnly && debugNode instanceof DebugElement__POST_R3__ &&
predicate(debugNode) &&\n matches.indexOf(debugNode) === -1) {\n
matches.push(debugNode);\n }\n else if (!elementsOnly && predicate(debugNode) &&\n
matches.indexOf(debugNode) === -1) {\n matches.push(debugNode);\n }\n }\n }\n /**\n
* Match all the descendants of a DOM node against a predicate.\n
* \n * @param nativeNode the current native node\n * @param predicate the predicate to match\n *
@param matches the list where matches are stored\n * @param elementsOnly whether only elements should be
searched\n */\n function _queryNativeNodeDescendants(parentNode, predicate, matches, elementsOnly) {\n
var nodes = parentNode.childNodes;\n var length = nodes.length;\n for (var i = 0; i < length; i++) {\n
var node = nodes[i];\n var debugNode = getDebugNode$1(node);\n if (debugNode) {\n if
(elementsOnly && debugNode instanceof DebugElement__POST_R3__ && predicate(debugNode) &&\n
 matches.indexOf(debugNode) === -1) {\n matches.push(debugNode);\n }\n else if
(!elementsOnly && predicate(debugNode) &&\n matches.indexOf(debugNode) === -1) {\n
 matches.push(debugNode);\n }\n
 _queryNativeNodeDescendants(node, predicate, matches, elementsOnly);\n }\n }\n }\n /**\n
* Iterates through the property bindings for a given node and generates\n * a map of property names to values. This
map only contains property bindings\n * defined in templates, not in host bindings.\n */\n function
collectPropertyBindings(properties, tNode, IView, tData) {\n var bindingIndexes = tNode.propertyBindings;\n
 if (bindingIndexes !== null) {\n for (var i = 0; i < bindingIndexes.length; i++) {\n var
bindingIndex = bindingIndexes[i];\n var propMetadata = tData[bindingIndex];\n var
metadataParts = propMetadata.split(INTERPOLATION_DELIMITER);\n var propertyName =
metadataParts[0];\n if (metadataParts.length > 1) {\n var value = metadataParts[1];\n
 for (var j = 1; j < metadataParts.length - 1; j++) {\n
 value += renderStringify(IView[bindingIndex + j - 1]) + metadataParts[j + 1];\n }\n
 properties[propertyName] = value;\n }\n else {\n properties[propertyName] =
IView[bindingIndex];\n }\n }\n }\n }\n // Need to keep the nodes in a global Map so that
multiple angular apps are supported.\n var _nativeNodeToDebugNode = new Map();\n function
getDebugNode__PRE_R3__(nativeNode) {\n return _nativeNodeToDebugNode.get(nativeNode) || null;\n }\n
 var NG_DEBUG_PROPERTY = '__ng_debug__';\n function getDebugNode__POST_R3__(nativeNode) {\n
 if (nativeNode instanceof Node) {\n if (!(nativeNode.hasOwnProperty(NG_DEBUG_PROPERTY))) {\n
 nativeNode[NG_DEBUG_PROPERTY] = nativeNode.nodeType == Node.ELEMENT_NODE ?\n
 new DebugElement__POST_R3__(nativeNode) : \n new DebugNode__POST_R3__(nativeNode);\n
 }\n return nativeNode[NG_DEBUG_PROPERTY];\n }\n return null;\n }\n /**\n
* @publicApi\n */\n var getDebugNode$1 = getDebugNode__PRE_R3__;\n function
getDebugNodeR2__PRE_R3__(nativeNode) {\n return getDebugNode__PRE_R3__(nativeNode);\n }\n
 function getDebugNodeR2__POST_R3__(nativeNode) {\n return null;\n }\n var getDebugNodeR2 =
getDebugNodeR2__PRE_R3__;\n function getAllDebugNodes() {\n return
Array.from(_nativeNodeToDebugNode.values());\n }\n function indexDebugNode(node) {\n
 _nativeNodeToDebugNode.set(node.nativeNode, node);\n }\n function removeDebugNodeFromIndex(node) {\n
 _nativeNodeToDebugNode.delete(node.nativeNode);\n }\n /**\n
* @publicApi\n */\n var
DebugNode = DebugNode__PRE_R3__;\n /**\n
* @publicApi\n */\n var DebugElement =
DebugElement__PRE_R3__;\n /**\n
* @license\n * Copyright Google LLC All
Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n * @license\n * Copyright Google LLC All
Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n var _CORE_PLATFORM_PROVIDERS = [\n // Set
a default platform name for platforms that don't set it explicitly.\n { provide: PLATFORM_ID, useValue:
'unknown' },\n { provide: PlatformRef, deps: [Injector] },\n { provide: TestabilityRegistry, deps: [] },\n

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{ provide: Console, deps: [] },\n];\n /**\n * This platform has to be included in any other platform\n *\n * @publicApi\n */\n var platformCore = createPlatformFactory(null, 'core',\n _CORE_PLATFORM_PROVIDERS);\n /**\n * @license\n * Copyright Google\n * LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function _iterableDiffersFactory() {\n return\n defaultIterableDiffers;\n }\n function _keyValueDiffersFactory() {\n return\n defaultKeyValueDiffers;\n }\n function _localeFactory(locale) {\n locale = locale || getGlobalLocale();\n if (ivyEnabled) {\n setLocaleId(locale);\n }\n return\n locale;\n }\n /**\n * Work out the locale from the potential global\n * properties.\n *\n * * Closure Compiler: use `goog.LOCALE`.\n * * Ivy enabled: use `$localize.locale`\n */\n function getGlobalLocale() {\n if (typeof ngI18nClosureMode !== 'undefined' && ngI18nClosureMode\n &&\n typeof goog !== 'undefined' && goog.LOCALE !== 'en') {\n // * The default `goog.LOCALE`\n value is `en`, while Angular used `en-US`.\n\n // * In order to preserve backwards compatibility, we use Angular default value over\n // Closure\n Compiler's one.\n return\n goog.LOCALE;\n }\n else {\n // KEEP `typeof $localize !==\n 'undefined' && $localize.locale` IN SYNC WITH THE LOCALIZE\n // COMPILE-TIME INLINER.\n /\n // * During compile time inlining of translations the expression will be replaced\n // with a string\n literal that is the current locale. Other forms of this expression are not\n // guaranteed to be replaced.\n /\n // * During runtime translation evaluation, the developer is required to set `$localize.locale`\n // if\n required, or just to provide their own `LOCALE_ID` provider.\n return\n (ivyEnabled && typeof $localize !==\n 'undefined' && $localize.locale) ||\n DEFAULT_LOCALE_ID;\n }\n }\n var 0$f =\n USD_CURRENCY_CODE;\n\n /**\n * A built-in [dependency injection token](guide/glossary#di-token)\n * that is used to configure the root\n injector for bootstrapping.\n */\n var APPLICATION_MODULE_PROVIDERS = [\n {\n provide:\n ApplicationRef,\n useClass: ApplicationRef,\n deps: [NgZone, Console, Injector, ErrorHandler,\n ComponentFactoryResolver, ApplicationInitStatus]\n },\n {\n provide: SCHEDULER,\n deps: [NgZone],\n useFactory: zoneSchedulerFactory\n },\n {\n provide: ApplicationInitStatus,\n useClass:\n ApplicationInitStatus,\n deps: [[new Optional(), APP_INITIALIZER]]\n },\n {\n provide: Compiler,\n useClass: Compiler,\n deps: []\n },\n APP_ID_RANDOM_PROVIDER,\n {\n provide: IterableDiffers,\n useFactory: _iterableDiffersFactory,\n deps: []\n },\n {\n provide: KeyValueDiffers,\n useFactory:\n _keyValueDiffersFactory,\n deps: []\n },\n {\n provide: LOCALE_ID$1,\n useFactory:\n _localeFactory,\n deps: [[new Inject(LOCALE_ID$1), new Optional(), new SkipSelf()]]\n },\n {\n provide: DEFAULT_CURRENCY_CODE,\n useValue: 0$f\n },\n];\n\n /**\n * Schedule work at next available\n slot.\n *\n * In Ivy this is just `requestAnimationFrame`. For compatibility reasons when bootstrapped\n *\n * using `platformRef.bootstrap` we need to use `NgZone.onStable` as the scheduling mechanism.\n *\n * This overrides\n the scheduling mechanism in Ivy to `NgZone.onStable`.\n *\n * @param ngZone NgZone to use for\n scheduling.\n */\n function zoneSchedulerFactory(ngZone) {\n var queue = [];\n ngZone.onStable.subscribe(function () {\n while (queue.length) {\n queue.pop();\n }\n });\n return\n function (fn) {\n queue.push(fn);\n };\n }\n\n /**\n * Configures the root injector for\n an app with\n * providers of `@angular/core` dependencies that `ApplicationRef`\n needs\n * to bootstrap components.\n *\n * Re-exported by `BrowserModule`, which is included\n automatically in the root\n * `AppModule` when you create a new app with the CLI `new` command.\n *\n * @publicApi\n */\n var ApplicationModule = /** @class */ (function () {\n // Inject ApplicationRef to make\n it eager...\n function ApplicationModule(appRef) {\n }\n return\n ApplicationModule;\n })();\n\n ApplicationModule.decorators = [\n {\n type: NgModule,\n args: [{\n providers:\n APPLICATION_MODULE_PROVIDERS\n },]\n }];\n\n ApplicationModule.ctorParameters = function () {\n return\n [\n {\n type: ApplicationRef\n }]\n };\n\n function anchorDef(flags, matchedQueriesDsl, ngContentIndex,\n childCount, handleEvent, templateFactory) {\n flags |= 1 /* TypeElement */;\n var _a =\n splitMatchedQueriesDsl(matchedQueriesDsl),\n matchedQueries = _a.matchedQueries,\n references = _a.references,\n
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matchedQueryIds = _a.matchedQueryIds;\n
 var template = templateFactory ? resolveDefinition(templateFactory) : null;\n return {\n // will bet
set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n bindingIndex: -1,\n outputIndex: -1,\n // regular values\n flags: flags,\n checkIndex: -1,\n childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries:
matchedQueries,\n matchedQueryIds: matchedQueryIds,\n references: references,\n ngContentIndex: ngContentIndex,\n childCount: childCount,\n bindings: [],\n bindingFlags:
0,\n outputs: [],\n element: {\n ns: null,\n name: null,\n attrs: null,\n template: template,\n componentProvider: null,\n componentView: null,\n componentRendererType: null,\n publicProviders: null,\n allProviders: null,\n handleEvent: handleEvent || NOOP\n },\n provider: null,\n text:
null,\n query: null,\n ngContent: null\n };\n }\n function elementDef(checkIndex, flags,
matchedQueriesDsl, ngContentIndex, childCount, namespaceAndName, fixedAttrs, bindings, outputs, handleEvent,
componentView, componentRendererType) {\n var _a;\n if (fixedAttrs === void 0) { fixedAttrs = []; }\n if (!handleEvent) {\n handleEvent = NOOP;\n }\n var _b =
splitMatchedQueriesDsl(matchedQueriesDsl), matchedQueries = _b.matchedQueries, references = _b.references,
matchedQueryIds = _b.matchedQueryIds;\n var ns = null;\n var name = null;\n if
(namespaceAndName) {\n _a = __read(splitNamespace(namespaceAndName), 2), ns = _a[0],
name = _a[1];\n }\n bindings = bindings || [];\n var bindingDefs = [];\n for (var i = 0; i <
bindings.length; i++) {\n var _c = __read(bindings[i], 3), bindingFlags = _c[0], namespaceAndName_1 =
_c[1], suffixOrSecurityContext = _c[2];\n var _d = __read(splitNamespace(namespaceAndName_1), 2), ns_1
= _d[0], name_1 = _d[1];\n var securityContext = undefined;\n var suffix = undefined;\n switch
(bindingFlags & 15 /* Types */) {\n case 4 /* TypeElementStyle */:\n suffix =
suffixOrSecurityContext;\n break;\n case 1 /* TypeElementAttribute */:\n case 8 /*
TypeProperty */:\n securityContext = suffixOrSecurityContext;\n break;\n }\n bindingDefs[i] =\n { flags: bindingFlags, ns: ns_1, name: name_1, nonMinifiedName: name_1,
securityContext: securityContext,
suffix: suffix };\n }\n outputs = outputs || [];\n var outputDefs = [];\n for (var i = 0; i <
outputs.length; i++) {\n var _e = __read(outputs[i], 2), target = _e[0], eventName = _e[1];\n outputDefs[i] =\n { type: 0 /* ElementOutput */, target: target, eventName: eventName, propName: null
};\n }\n fixedAttrs = fixedAttrs || [];\n var attrs = fixedAttrs.map(function (_a) {\n var _b =
__read(_a, 2), namespaceAndName = _b[0], value = _b[1];\n var _c =
__read(splitNamespace(namespaceAndName), 2), ns = _c[0], name = _c[1];\n return [ns, name, value];\n });\n componentRendererType = resolveRendererType2(componentRendererType);\n if (componentView)
{\n flags |= 33554432 /* ComponentView */;\n }\n flags |= 1 /* TypeElement */;\n return {\n // will bet set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n bindingIndex: -1,\n outputIndex: -1,\n // regular
values\n checkIndex: checkIndex,\n flags: flags,\n childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries: matchedQueries,\n matchedQueryIds:
matchedQueryIds,\n references: references,\n ngContentIndex: ngContentIndex,\n childCount:
childCount,\n bindings: bindingDefs,\n bindingFlags: calcBindingFlags(bindingDefs),\n outputs: outputDefs,\n element: {\n ns: ns,\n name: name,\n attrs: attrs,\n template: null,\n // will bet set by the view definition\n componentProvider: null,\n componentView: componentView || null,\n componentRendererType: componentRendererType,\n publicProviders: null,\n allProviders: null,\n handleEvent: handleEvent || NOOP,\n },\n provider: null,\n text: null,\n query: null,\n ngContent: null\n };\n }\n function createElement(view, renderHost, def) {\n var elDef = def.element;\n var rootSelectorOrNode =
view.root.selectorOrNode;\n var renderer = view.renderer;\n var el;\n if (view.parent ||

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!rootSelectorOrNode) {\n if (elDef.name) {\n el = renderer.createElement(elDef.name, elDef.ns);\n }\n else {\n el = renderer.createComment("");\n }\n var parentEl =\n getParentRenderElement(view, renderHost, def);\n if (parentEl) {\n renderer.appendChild(parentEl,\n el);\n }\n else {\n // when using native Shadow DOM, do not clear the root element\n contents to allow slot projection\n var preserveContent = (!!elDef.componentRendererType &&\n elDef.componentRendererType.encapsulation === exports.ViewEncapsulation.ShadowDom);\n el =\n renderer.selectRootElement(rootSelectorOrNode, preserveContent);\n }\n if (elDef.attrs) {\n for (var\n i = 0; i < elDef.attrs.length; i++) {\n var _a = __read(elDef.attrs[i], 3), ns = _a[0], name = _a[1], value =\n _a[2];\n renderer.setAttribute(el, name, value, ns);\n }\n }\n return el;\n }\n function\n listenToElementOutputs(view, compView, def, el) {\n for (var i = 0; i < def.outputs.length; i++) {\n var\n output = def.outputs[i];\n var handleEventClosure = renderEventHandlerClosure(view, def.nodeIndex,\n elementEventFullName(output.target, output.eventName));\n var listenTarget = output.target;\n var\n listenerView = view;\n if (output.target === 'component') {\n listenTarget = null;\n listenerView = compView;\n }\n var disposable = listenerView.renderer.listen(listenTarget || el, output.eventName, handleEventClosure);\n view.disposables[def.outputIndex + i] = disposable;\n }\n }\n function\n renderEventHandlerClosure(view, index, eventName) {\n return function (event) {\n return dispatchEvent(view,\n index, eventName, event);\n };\n }\n function checkAndUpdateElementInline(view, def, v0, v1, v2, v3, v4, v5, v6,\n v7, v8, v9) {\n var bindLen = def.bindings.length;\n var changed = false;\n if (bindLen > 0 &&\n checkAndUpdateElementValue(view, def, 0, v0))\n changed = true;\n if (bindLen > 1 &&\n checkAndUpdateElementValue(view, def, 1, v1))\n changed = true;\n if (bindLen > 2 &&\n checkAndUpdateElementValue(view, def, 2, v2))\n changed = true;\n if (bindLen >\n 3 && checkAndUpdateElementValue(view, def, 3, v3))\n changed = true;\n if (bindLen > 4 &&\n checkAndUpdateElementValue(view, def, 4, v4))\n changed = true;\n if (bindLen > 5 &&\n checkAndUpdateElementValue(view, def, 5, v5))\n changed = true;\n if (bindLen > 6 &&\n checkAndUpdateElementValue(view, def, 6, v6))\n changed = true;\n if (bindLen > 7 &&\n checkAndUpdateElementValue(view, def, 7, v7))\n changed = true;\n if (bindLen > 8 &&\n checkAndUpdateElementValue(view, def, 8, v8))\n changed = true;\n if (bindLen > 9 &&\n checkAndUpdateElementValue(view, def, 9, v9))\n changed = true;\n return changed;\n }\n function\n checkAndUpdateElementDynamic(view, def, values) {\n var changed = false;\n for (var i = 0; i <\n values.length; i++) {\n if (checkAndUpdateElementValue(view, def, i, values[i]))\n changed =\n true;\n }\n return\n changed;\n }\n function checkAndUpdateElementValue(view, def, bindingIdx, value) {\n if\n (!checkAndUpdateBinding(view, def, bindingIdx, value)) {\n return false;\n }\n var binding =\n def.bindings[bindingIdx];\n var elData = asElementData(view, def.nodeIndex);\n var renderNode =\n elData.renderElement;\n var name = binding.name;\n switch (binding.flags & 15 /* Types */) {\n case 1 /* TypeElementAttribute */:\n setElementAttribute$1(view, binding, renderNode, binding.ns, name,\n value);\n break;\n case 2 /* TypeElementClass */:\n setElementClass(view, renderNode,\n name, value);\n break;\n case 4 /* TypeElementStyle */:\n setElementStyle(view, binding,\n renderNode, name, value);\n break;\n case 8 /* TypeProperty */:\n var bindView =\n (def.flags & 33554432 /* ComponentView */ &&\n binding.flags & 32 /* SyntheticHostProperty */) ?\n elData.componentView :\n view;\n setElementProperty(bindView, binding, renderNode, name, value);\n break;\n }\n return true;\n }\n function setElementAttribute$1(view, binding, renderNode, ns, name, value) {\n var\n securityContext = binding.securityContext;\n var renderValue = securityContext ?\n view.root.sanitizer.sanitize(securityContext, value) : value;\n renderValue = renderValue != null ?\n renderValue.toString() : null;\n var renderer = view.renderer;\n if (value != null) {\n renderer.setAttribute(renderNode, name, renderValue, ns);\n }\n else {\n \n }\n }\n}

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renderer.removeAttribute(renderNode, name, ns);\n }\n }\n function setElementClass(view, renderNode,
name, value) {\n var renderer = view.renderer;\n if (value) {\n renderer.addClass(renderNode,
name);\n }\n else {\n renderer.removeClass(renderNode, name);\n }\n }\n function
setElementStyle(view, binding, renderNode, name, value) {\n var renderValue =
view.root.sanitizer.sanitize(exports.SecurityContext.STYLE, value);\n if (renderValue != null) {\n
renderValue = renderValue.toString();\n var unit = binding.suffix;\n if (unit != null) {\n
renderValue = renderValue + unit;\n }\n }\n else {\n renderValue = null;\n }\n var
renderer = view.renderer;\n if (renderValue != null) {\n renderer.setStyle(renderNode, name,
renderValue);\n }\n else {\n renderer.removeStyle(renderNode, name);\n }\n }\n function
setElementProperty(view, binding, renderNode, name, value) {\n var securityContext =
binding.securityContext;\n var renderValue = securityContext ? view.root.sanitizer.sanitize(securityContext,
value) : value;\n view.renderer.setProperty(renderNode, name, renderValue);\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function queryDef(flags,
id, bindings) {\n var bindingDefs = [];\n for (var propName in bindings) {\n var bindingType =
bindings[propName];\n bindingDefs.push({ propName: propName, bindingType: bindingType });\n }\n return {\n // will be set by the view definition\n nodeId: -1,\n parent: null,\n
renderParent: null,\n bindingIndex: -1,\n outputIndex: -1,\n // regular values\n //
TODO(vicb): check\n checkIndex: -1,\n flags: flags,\n childFlags:\n 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n ngContentIndex: -1,\n
matchedQueries: {},\n matchedQueryIds: 0,\n references: {},\n childCount: 0,\n
bindings: [],\n bindingFlags: 0,\n outputs: [],\n element: null,\n provider: null,\n
text: null,\n query: { id: id, filterId: filterQueryId(id), bindings: bindingDefs },\n ngContent: null\n
};\n }\n function createQuery() {\n return new QueryList();\n }\n function dirtyParentQueries(view) {\n
 var queryIds = view.def.nodeMatchedQueries;\n while (view.parent && isEmbeddedView(view)) {\n
var tplDef = view.parentNodeDef;\n view = view.parent;\n // content queries\n var end =
tplDef.nodeIndex + tplDef.childCount;\n for (var i = 0; i <= end; i++) {\n var nodeDef =
view.def.nodes[i];\n\n if ((nodeDef.flags & 67108864 /* TypeContentQuery */) &&\n (nodeDef.flags & 536870912
/* DynamicQuery */) &&\n (nodeDef.query.filterId & queryIds) === nodeDef.query.filterId) {\n
 asQueryList(view, i).setDirty();\n }\n if ((nodeDef.flags & 1 /* TypeElement */ && i +
nodeDef.childCount < tplDef.nodeIndex) ||\n !(nodeDef.childFlags & 67108864 /* TypeContentQuery
/) ||\n !(nodeDef.childFlags & 536870912 / DynamicQuery */)) {\n // skip elements that
don't contain the template element or no query.\n i += nodeDef.childCount;\n }\n }\n }\n // view queries\n if (view.def.nodeFlags & 134217728 /* TypeViewQuery */) {\n for (var i = 0; i
< view.def.nodes.length; i++) {\n var nodeDef = view.def.nodes[i];\n if ((nodeDef.flags
& 134217728 /* TypeViewQuery */) && (nodeDef.flags & 536870912 /* DynamicQuery */)) {\n asQueryList(view, i).setDirty();\n }\n // only visit the root nodes\n i +=
nodeDef.childCount;\n }\n }\n }\n }\n function checkAndUpdateQuery(view, nodeDef) {\n var
queryList = asQueryList(view, nodeDef.nodeIndex);\n if (!queryList.dirty) {\n return;\n }\n var
directiveInstance;\n var newValues = undefined;\n if (nodeDef.flags & 67108864 /* TypeContentQuery */) {\n
 var elementDef = nodeDef.parent.parent;\n newValues = calcQueryValues(view,
elementDef.nodeIndex, elementDef.nodeIndex + elementDef.childCount, nodeDef.query, []);\n directiveInstance =
asProviderData(view, nodeDef.parent.nodeIndex).instance;\n }\n else if (nodeDef.flags
& 134217728 /* TypeViewQuery */) {\n newValues = calcQueryValues(view,
0, view.def.nodes.length - 1, nodeDef.query, []);\n directiveInstance = view.component;\n }\n queryList.reset(newValues);\n var bindings = nodeDef.query.bindings;\n var notify = false;\n for (var i
= 0; i < bindings.length; i++) {\n var binding = bindings[i];\n var boundValue = void 0;\n

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switch (binding.bindingType) {\n case 0 /* First */:\n boundValue = queryList.first;\n break;\n case 1 /* All */:\n boundValue = queryList;\n notify = true;\n break;\n }\n directiveInstance[binding.propName] = boundValue;\n }\n if (notify) {\n queryList.notifyOnChanges();\n }\n }\n function calcQueryValues(view, startIndex, endIndex, queryDef,\n values) {\n for (var i = startIndex; i <= endIndex; i++) {\n var nodeDef = view.def.nodes[i];\n var valueType = nodeDef.matchedQueries[queryDef.id];\n if (valueType != null) {\n values.push(getQueryValue(view, nodeDef, valueType));\n }\n if (nodeDef.flags & 1 /* TypeElement\n */ && nodeDef.element.template &&\n (nodeDef.element.template.nodeMatchedQueries &\n queryDef.filterId) ===\n queryDef.filterId) {\n var elementData = asElementData(view, i);\n // check embedded views that were attached at the place of their template,\n // but process child\n nodes first if some match the query (see issue #16568)\n if ((nodeDef.childMatchedQueries &\n queryDef.filterId) === queryDef.filterId) {\n calcQueryValues(view, i + 1, i + nodeDef.childCount,\n queryDef, values);\n i += nodeDef.childCount;\n }\n if (nodeDef.flags & 16777216 /*\n EmbeddedViews */) {\n var embeddedViews = elementData.viewContainer._embeddedViews;\n for (var k = 0; k <\n embeddedViews.length; k++) {\n var embeddedView = embeddedViews[k];\n var dvc\n = declaredViewContainer(embeddedView);\n if (dvc && dvc === elementData) {\n calcQueryValues(embeddedView, 0, embeddedView.def.nodes.length - 1, queryDef, values);\n }\n }\n }\n var projectedViews = elementData.template._projectedViews;\n if\n (projectedViews) {\n for (var k = 0; k < projectedViews.length; k++) {\n var\n projectedView = projectedViews[k];\n calcQueryValues(projectedView, 0,\n projectedView.def.nodes.length - 1, queryDef, values);\n }\n }\n }\n if\n ((nodeDef.childMatchedQueries & queryDef.filterId)\n !== queryDef.filterId) {\n // if no child matches the query, skip the children.\n i +=\n nodeDef.childCount;\n }\n }\n return values;\n }\n function getQueryValue(view, nodeDef,\n queryValueType) {\n if (queryValueType != null) {\n // a match\n switch (queryValueType) {\n case 1 /* RenderElement */:\n return asElementData(view, nodeDef.nodeIndex).renderElement;\n case 0 /* ElementRef */:\n return new ElementRef(asElementData(view,\n nodeDef.nodeIndex).renderElement);\n case 2 /* TemplateRef */:\n return\n asElementData(view, nodeDef.nodeIndex).template;\n case 3 /* ViewContainerRef */:\n return\n asElementData(view, nodeDef.nodeIndex).viewContainer;\n case 4 /* Provider */:\n return\n asProviderData(view, nodeDef.nodeIndex).instance;\n }\n }\n }\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of\n this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n function ngContentDef(ngContentIndex, index) {\n return {\n // will\n bet set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n bindingIndex: -1,\n outputIndex: -1,\n // regular values\n checkIndex: -1,\n flags: 8 /*\n TypeNgContent */,\n childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries: {},\n matchedQueryIds: 0,\n references: {},\n ngContentIndex:\n ngContentIndex,\n childCount: 0,\n bindings: [],\n bindingFlags: 0,\n outputs: [],\n element: null,\n provider: null,\n text: null,\n query: null,\n ngContent: { index: index\n }\n }\n }\n function appendNgContent(view, renderHost, def) {\n var parentEl =\n getParentRenderElement(view, renderHost, def);\n if (!parentEl) {\n // Nothing to do if there is no parent\n element.\n }\n return;\n }\n var ngContentIndex = def.ngContent.index;\n visitProjectedRenderNodes(view, ngContentIndex, 1 /* AppendChild */, parentEl, null, undefined);\n }\n function purePipeDef(checkIndex, argCount) {\n // argCount + 1 to include the pipe as first arg\n return\n _pureExpressionDef(128 /* TypePurePipe */, checkIndex, newArray(argCount + 1));\n }\n function\n pureArrayDef(checkIndex, argCount) {\n return _pureExpressionDef(32 /* TypePureArray */, checkIndex,\n
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newArray(argCount));\n }\n function pureObjectDef(checkIndex, propToIndex) {\n var keys
= Object.keys(propToIndex);\n var nbKeys = keys.length;\n var propertyNames = [];\n for (var i = 0; i
< nbKeys; i++) {\n var key = keys[i];\n var index = propToIndex[key];\n
propertyNames.push(key);\n }\n return _pureExpressionDef(64 /* TypePureObject */, checkIndex,
propertyNames);\n }\n function _pureExpressionDef(flags, checkIndex, propertyNames) {\n var bindings =
[];\n for (var i = 0; i < propertyNames.length; i++) {\n var prop = propertyNames[i];\n
bindings.push({\n flags: 8 /* TypeProperty */,\n name: prop,\n ns: null,\n
nonMinifiedName: prop,\n securityContext: null,\n suffix: null\n });\n }\n return
{\n // will bet set by the view definition\n nodeIndex: -1,\n parent: null,\n renderParent:
null,\n bindingIndex:
-1,\n outputIndex: -1,\n // regular values\n checkIndex: checkIndex,\n flags: flags,\n
childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries: 0,\n matchedQueries: {},\n
matchedQueryIds: 0,\n references: {},\n ngContentIndex: -1,\n childCount: 0,\n
bindings: bindings,\n bindingFlags: calcBindingFlags(bindings),\n outputs: [],\n element: null,\n
provider: null,\n text: null,\n query: null,\n ngContent: null\n };\n }\n function
createPureExpression(view, def) {\n return { value: undefined };\n }\n function
checkAndUpdatePureExpressionInline(view, def, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n var bindings =
def.bindings;\n var changed = false;\n var bindLen = bindings.length;\n if (bindLen > 0 &&
checkAndUpdateBinding(view,
def, 0, v0))\n changed = true;\n if (bindLen > 1 && checkAndUpdateBinding(view, def, 1, v1))\n
changed = true;\n if (bindLen > 2 && checkAndUpdateBinding(view, def, 2, v2))\n changed = true;\n
if (bindLen > 3 && checkAndUpdateBinding(view, def, 3, v3))\n changed = true;\n if (bindLen > 4 &&
checkAndUpdateBinding(view, def, 4, v4))\n changed = true;\n if (bindLen > 5 &&
checkAndUpdateBinding(view, def, 5, v5))\n changed = true;\n if (bindLen > 6 &&
checkAndUpdateBinding(view, def, 6, v6))\n changed = true;\n if (bindLen > 7 &&
checkAndUpdateBinding(view, def, 7, v7))\n changed = true;\n if (bindLen > 8 &&
checkAndUpdateBinding(view, def, 8, v8))\n changed = true;\n if (bindLen > 9 &&
checkAndUpdateBinding(view, def, 9, v9))\n changed = true;\n if (changed) {\n var data =
asPureExpressionData(view,
def.nodeIndex);\n var value = void 0;\n switch (def.flags & 201347067 /* Types */) {\n case
32 /* TypePureArray */:\n value = [];\n if (bindLen > 0)\n value.push(v0);\n
if (bindLen > 1)\n value.push(v1);\n if (bindLen > 2)\n
value.push(v2);\n if (bindLen > 3)\n value.push(v3);\n if (bindLen > 4)\n
value.push(v4);\n if (bindLen > 5)\n value.push(v5);\n if (bindLen >
6)\n value.push(v6);\n if (bindLen > 7)\n value.push(v7);\n if
(bindLen > 8)\n value.push(v8);\n if (bindLen > 9)\n value.push(v9);\n
break;\n case 64 /* TypePureObject */:\n value = {};\n if (bindLen >
0)\n value[bindings[0].name] = v0;\n if (bindLen > 1)\n
value[bindings[1].name] = v1;\n if (bindLen > 2)\n value[bindings[2].name] = v2;\n
if (bindLen > 3)\n value[bindings[3].name] = v3;\n if (bindLen > 4)\n
value[bindings[4].name] = v4;\n if (bindLen > 5)\n value[bindings[5].name] = v5;\n
if (bindLen > 6)\n value[bindings[6].name] = v6;\n if (bindLen > 7)\n
value[bindings[7].name] = v7;\n if (bindLen > 8)\n value[bindings[8].name] = v8;\n
if (bindLen > 9)\n value[bindings[9].name] = v9;\n break;\n case 128 /* TypePurePipe */:\n var
pipe = v0;\n switch (bindLen) {\n case 1:\n value = pipe.transform(v0);\n
break;\n case 2:\n value = pipe.transform(v1);\n
break;\n case 3:\n value = pipe.transform(v1, v2);\n
break;\n }\n }\n }\n }\n }\n }

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 case 4:\n value = pipe.transform(v1, v2, v3);\n break;\n case
5:\n value = pipe.transform(v1, v2, v3, v4);\n break;\n case 6:\n
 value = pipe.transform(v1, v2, v3, v4, v5);\n break;\n
 case 7:\n value = pipe.transform(v1, v2, v3, v4, v5, v6);\n break;\n
 case 8:\n value = pipe.transform(v1, v2, v3, v4, v5, v6, v7);\n break;\n
 case 9:\n value = pipe.transform(v1, v2, v3, v4, v5, v6, v7, v8);\n break;\n
 case 10:\n value = pipe.transform(v1, v2, v3, v4, v5, v6, v7, v8, v9);\n
break;\n }\n break;\n }\n data.value = value;\n }\n return changed;\n
}\n function checkAndUpdatePureExpressionDynamic(view, def, values) {\n var bindings = def.bindings;\n var changed = false;\n for (var i = 0; i < values.length; i++) {\n // Note: We need to loop over all values,
so that\n // the old values are updates as well!\n if (checkAndUpdateBinding(view, def, i, values[i])) {\n
changed = true;\n }\n if (changed) {\n var data = asPureExpressionData(view,
def.nodeIndex);\n var value = void 0;\n switch (def.flags & 201347067 /* Types */) {\n case
32 /* TypePureArray */:\n value = values;\n break;\n case 64 /* TypePureObject
*/:\n value = {};\n for (var i = 0; i < values.length; i++) {\n
value[bindings[i].name] = values[i];\n }\n break;\n case 128 /* TypePurePipe */:\n
 var pipe = values[0];\n var params = values.slice(1);\n value =
pipe.transform.apply(pipe, __spread(params));\n break;\n }\n data.value = value;\n
 }\n return changed;\n }\n\n /*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
 *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n function textDef(checkIndex, ngContentIndex, staticText) {\n var bindings
= [];\n for (var i = 1; i < staticText.length; i++) {\n bindings[i - 1] = {\n flags: 8 /* TypeProperty
*/,\n name: null,\n ns: null,\n nonMinifiedName: null,\n securityContext:
null,\n suffix: staticText[i],\n };\n }\n return {\n // will bet set by the view
definition\n nodeIndex: -1,\n parent: null,\n renderParent: null,\n bindingIndex: -1,\n
 outputIndex: -1,\n // regular values\n checkIndex: checkIndex,\n
 flags: 2 /* TypeText */,\n childFlags: 0,\n directChildFlags: 0,\n childMatchedQueries:
0,\n matchedQueries: {},\n matchedQueryIds: 0,\n references: {},\n ngContentIndex:
ngContentIndex,\n childCount: 0,\n bindings: bindings,\n bindingFlags: 8 /* TypeProperty */,\n
 outputs: [],\n element: null,\n provider: null,\n text: { prefix: staticText[0] },\n
 query: null,\n ngContent: null,\n };\n }\n function createText(view, renderHost, def) {\n var
renderNode;\n var renderer = view.renderer;\n renderNode = renderer.createText(def.text.prefix);\n var
parentEl = getParentRenderElement(view, renderHost, def);\n if (parentEl) {\n renderer.appendChild(parentEl, renderNode);\n }\n return { renderText: renderNode }; \n }\n function
checkAndUpdateTextInline(view,
def, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n var changed = false;\n var bindings = def.bindings;\n var
bindLen = bindings.length;\n if (bindLen > 0 && checkAndUpdateBinding(view, def, 0, v0))\n changed
= true;\n if (bindLen > 1 && checkAndUpdateBinding(view, def, 1, v1))\n changed = true;\n if
(bindLen > 2 && checkAndUpdateBinding(view, def, 2, v2))\n changed = true;\n if (bindLen > 3 &&
checkAndUpdateBinding(view, def, 3, v3))\n changed = true;\n if (bindLen > 4 &&
checkAndUpdateBinding(view, def, 4, v4))\n changed = true;\n if (bindLen > 5 &&
checkAndUpdateBinding(view, def, 5, v5))\n changed = true;\n if (bindLen > 6 &&
checkAndUpdateBinding(view, def, 6, v6))\n changed = true;\n if (bindLen > 7 &&
checkAndUpdateBinding(view, def, 7, v7))\n changed = true;\n if (bindLen > 8 &&
checkAndUpdateBinding(view,
def, 8, v8))\n changed = true;\n if (bindLen > 9 && checkAndUpdateBinding(view, def, 9, v9))\n
changed = true;\n if (changed) {\n var value = def.text.prefix;\n if (bindLen > 0)\n value

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+= _addInterpolationPart(v0, bindings[0]);\n if (bindLen > 1)\n value += _addInterpolationPart(v1,
bindings[1]);\n if (bindLen > 2)\n value += _addInterpolationPart(v2, bindings[2]);\n if
(bindLen > 3)\n value += _addInterpolationPart(v3, bindings[3]);\n if (bindLen > 4)\n
value += _addInterpolationPart(v4, bindings[4]);\n if (bindLen > 5)\n value +=
_addInterpolationPart(v5, bindings[5]);\n if (bindLen > 6)\n value += _addInterpolationPart(v6,
bindings[6]);\n if (bindLen > 7)\n value += _addInterpolationPart(v7, bindings[7]);\n
 if (bindLen > 8)\n value += _addInterpolationPart(v8, bindings[8]);\n if (bindLen > 9)\n
 value += _addInterpolationPart(v9, bindings[9]);\n var renderNode = asTextData(view,
def.nodeIndex).renderText;\n view.renderer.setValue(renderNode, value);\n }\n return changed;\n
}\n function checkAndUpdateTextDynamic(view, def, values) {\n var bindings = def.bindings;\n var
changed = false;\n for (var i = 0; i < values.length; i++) {\n // Note: We need to loop over all values, so
that\n // the old values are updates as well!\n if (checkAndUpdateBinding(view, def, i, values[i])) {\n
changed = true;\n }\n }\n if (changed) {\n var value = ";\n for (var i = 0; i <
values.length; i++) {\n value = value + _addInterpolationPart(values[i], bindings[i]);\n }\n
value = def.text.prefix + value;\n var renderNode = asTextData(view, def.nodeIndex).renderText;\n
view.renderer.setValue(renderNode, value);\n }\n return changed;\n }\n function
_addInterpolationPart(value, binding) {\n var valueStr = value != null ? value.toString() : ";\n return
valueStr + binding.suffix;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n function viewDef(flags, nodes, updateDirectives, updateRenderer) {\n //
clone nodes and set auto calculated values\n var viewBindingCount = 0;\n var viewDisposableCount = 0;\n
 var viewNodeFlags = 0;\n var viewRootNodeFlags = 0;\n var viewMatchedQueries = 0;\n var
currentParent = null;\n var currentRenderParent = null;\n
 var currentElementHasPublicProviders = false;\n var currentElementHasPrivateProviders = false;\n var
lastRenderRootNode = null;\n for (var i = 0; i < nodes.length; i++) {\n var node = nodes[i];\n
node.nodeIndex = i;\n node.parent = currentParent;\n node.bindingIndex = viewBindingCount;\n
node.outputIndex = viewDisposableCount;\n node.renderParent = currentRenderParent;\n
viewNodeFlags |= node.flags;\n viewMatchedQueries |= node.matchedQueryIds;\n if (node.element)
{\n var elDef = node.element;\n elDef.publicProviders =\n currentParent ?
currentParent.element.publicProviders : Object.create(null);\n elDef.allProviders =
elDef.publicProviders;\n // Note: We assume that all providers of an element are before any child
element!\n currentElementHasPublicProviders = false;\n
 currentElementHasPrivateProviders = false;\n if (node.element.template) {\n
viewMatchedQueries |= node.element.template.nodeMatchedQueries;\n }\n }\n
validateNode(currentParent, node, nodes.length);\n viewBindingCount += node.bindings.length;\n
viewDisposableCount += node.outputs.length;\n if (!currentRenderParent && (node.flags & 3 /*
CatRenderNode */)) {\n lastRenderRootNode = node;\n }\n if (node.flags & 20224 /*
CatProvider */) {\n if (!currentElementHasPublicProviders) {\n
currentElementHasPublicProviders = true;\n // Use prototypical inheritance to not get O(n^2)
complexity...\n currentParent.element.publicProviders =\n
Object.create(currentParent.element.publicProviders);\n currentParent.element.allProviders =
currentParent.element.publicProviders;\n
 }\n var isPrivateService = (node.flags & 8192 /* PrivateProvider */) !== 0;\n var
isComponent = (node.flags & 32768 /* Component */) !== 0;\n if (!isPrivateService || isComponent) {\n
currentParent.element.publicProviders[tokenKey(node.provider.token)] = node;\n }\n
else {\n if (!currentElementHasPrivateProviders) {\n currentElementHasPrivateProviders
= true;\n // Use prototypical inheritance to not get O(n^2) complexity...\n
currentParent.element.allProviders =\n Object.create(currentParent.element.publicProviders);\n

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 }\n currentParent.element.allProviders[tokenKey(node.provider.token)] = node;\n }\n if (isComponent) {\n currentParent.element.componentProvider\n = node;\n }\n }\n if (currentParent) {\n currentParent.childFlags |= node.flags;\n currentParent.directChildFlags |= node.flags;\n currentParent.childMatchedQueries |=\n node.matchedQueryIds;\n if (node.element && node.element.template) {\n currentParent.childMatchedQueries |= node.element.template.nodeMatchedQueries;\n }\n }\n else {\n viewRootNodeFlags |= node.flags;\n }\n if (node.childCount > 0) {\n currentParent = node;\n if (!isNgContainer(node)) {\n currentRenderParent = node;\n }\n }\n else {\n // When the current node has no children, check if it is the last children of its\n parent.\n // When it is, propagate the flags up.\n // The loop is required because\n an element could be the last transitive children of several\n // elements. We loop to either the root or the\n highest opened element (= with remaining\n // children)\n while (currentParent && i ===\n currentParent.nodeIndex + currentParent.childCount) {\n var newParent = currentParent.parent;\n if (newParent) {\n newParent.childFlags |= currentParent.childFlags;\n newParent.childMatchedQueries |= currentParent.childMatchedQueries;\n }\n currentParent\n = newParent;\n // We also need to update the render parent & account for ng-container\n if\n (currentParent && isNgContainer(currentParent)) {\n currentRenderParent =\n currentParent.renderParent;\n }\n else {\n currentRenderParent =\n currentParent;\n }\n }\n }\n }\n }\n }\n var handleEvent = function (view, nodeIndex, eventName, event) {\n return nodes[nodeIndex].element.handleEvent(view, eventName, event); }\n return {\n // Will be filled\n later...\n factory: null,\n nodeFlags: viewNodeFlags,\n rootNodeFlags: viewRootNodeFlags,\n nodeMatchedQueries: viewMatchedQueries,\n flags: flags,\n nodes: nodes,\n updateDirectives: updateDirectives || NOOP,\n updateRenderer: updateRenderer || NOOP,\n handleEvent: handleEvent,\n bindingCount: viewBindingCount,\n outputCount:\n viewDisposableCount,\n lastRenderRootNode: lastRenderRootNode\n };\n }\n function\n isNgContainer(node) {\n return (node.flags & 1 /* TypeElement */) !== 0 && node.element.name === null;\n }\n function validateNode(parent, node, nodeCount) {\n var template\n = node.element && node.element.template;\n if (template) {\n if (!template.lastRenderRootNode) {\n throw new Error("Illegal State: Embedded templates without nodes are not allowed!");\n }\n if\n (template.lastRenderRootNode &&\n template.lastRenderRootNode.flags & 16777216 /* EmbeddedViews\n */) {\n throw new Error("Illegal State: Last root node of a template can't have embedded views, at index \"\n + node.nodeIndex + \"!\");\n }\n }\n if (node.flags & 20224 /* CatProvider */) {\n var\n parentFlags = parent ? parent.flags : 0;\n if ((parentFlags & 1 /* TypeElement */) === 0) {\n throw\n new Error("Illegal State: StaticProvider/Directive nodes need to be children of elements or anchors, at index \"\n + node.nodeIndex + \"!\");\n }\n }\n }\n if (node.query) {\n if (node.flags & 67108864 /*\n TypeContentQuery */ &&\n (!parent || (parent.flags & 16384 /* TypeDirective */) === 0)) {\n throw new Error("Illegal\n State: Content Query nodes need to be children of directives, at index \"\n + node.nodeIndex + \"!\");\n }\n }\n }\n if (node.flags & 134217728 /* TypeViewQuery */ && parent) {\n throw new Error("Illegal State: View\n Query nodes have to be top level nodes, at index \"\n + node.nodeIndex + \"!\");\n }\n }\n }\n if\n (node.childCount) {\n var parentEnd = parent ? parent.nodeIndex + parent.childCount : nodeCount - 1;\n if (node.nodeIndex <= parentEnd && node.nodeIndex + node.childCount > parentEnd) {\n throw new\n Error("Illegal State: childCount of node leads outside of parent, at index \"\n + node.nodeIndex + \"!\");\n }\n }\n }\n }\n function createEmbeddedView(parent, anchorDef, viewDef, context) {\n // embedded views are\n seen as siblings to the anchor, so we need\n \n // to get the parent of the anchor and use it as parentIndex.\n var view = createView(parent.root,\n parent.renderer, parent, anchorDef, viewDef);\n initView(view, parent.component, context);\n }\n }\n }\n }\n}

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createViewNodes(view);\n return view;\n }\n function createRootView(root, def, context) {\n var view
= createView(root, root.renderer, null, null, def);\n initView(view, context, context);\n createViewNodes(view);\n return view;\n }\n function createComponentView(parentView, nodeDef,
viewDef, hostElement) {\n var rendererType = nodeDef.element.componentRendererType;\n var
compRenderer;\n if (!rendererType) {\n compRenderer = parentView.root.renderer;\n }\n else
{\n compRenderer = parentView.root.rendererFactory.createRenderer(hostElement, rendererType);\n }\n return createView(parentView.root, compRenderer, parentView, nodeDef.element.componentProvider,
viewDef);\n }\n function createView(root, renderer, parent, parentNodeDef, def) {\n var nodes = new
Array(def.nodes.length);\n var disposables = def.outputCount ? new Array(def.outputCount) : null;\n var
view = {\n def: def,\n parent: parent,\n viewContainerParent: null,\n parentNodeDef:
parentNodeDef,\n context: null,\n component: null,\n nodes: nodes,\n state: 13 /* CatInit
*/,\n root: root,\n renderer: renderer,\n oldValues: new Array(def.bindingCount),\n
disposables: disposables,\n initIndex: -1\n };\n return view;\n }\n function initView(view,
component, context) {\n view.component = component;\n view.context = context;\n }\n function
createViewNodes(view) {\n var renderHost;\n if (isComponentView(view)) {\n var hostDef =
view.parentNodeDef;\n renderHost = asElementData(view.parent, hostDef.parent.nodeIndex).renderElement;\n }\n var def
= view.def;\n var nodes = view.nodes;\n for (var i = 0; i < def.nodes.length; i++) {\n var nodeDef =
def.nodes[i];\n Services.setCurrentNode(view, i);\n var nodeData = void 0;\n switch
(nodeDef.flags & 201347067 /* Types */) {\n case 1 /* TypeElement */:\n var el =
createElement(view, renderHost, nodeDef);\n var componentView = undefined;\n if
(nodeDef.flags & 33554432 /* ComponentView */) {\n var compViewDef =
resolveDefinition(nodeDef.element.componentView);\n componentView =
Services.createComponentView(view, nodeDef, compViewDef, el);\n }\n listenToElementOutputs(view, componentView, nodeDef, el);\n nodeData = {\n
renderElement: el,\n componentView: componentView,\n viewContainer: null,\n
template: nodeDef.element.template ? createTemplateData(view, nodeDef) : undefined\n };\n if (nodeDef.flags & 16777216 /* EmbeddedViews */) {\n nodeData.viewContainer =
createViewContainerData(view, nodeDef, nodeData);\n }\n break;\n case 2 /*
TypeText */:\n nodeData = createText(view, renderHost, nodeDef);\n break;\n case
512 /* TypeClassProvider */:\n case 1024 /* TypeFactoryProvider */:\n case 2048 /*
TypeUseExistingProvider */:\n case 256 /* TypeValueProvider */:\n {\n nodeData = nodes[i];\n if (!nodeData && !(nodeDef.flags & 4096 /* LazyProvider */)) {\n var instance =
createProviderInstance(view,
nodeDef);\n nodeData = { instance: instance };\n }\n break;\n }\n case 16 /* TypePipe */:\n {\n var instance = createPipeInstance(view, nodeDef);\n nodeData = { instance: instance };\n break;\n }\n case 16384 /* TypeDirective */:\n {\n nodeData = nodes[i];\n if (!nodeData) {\n var instance =
createDirectiveInstance(view, nodeDef);\n nodeData = { instance: instance };\n }\n if (nodeDef.flags & 32768 /* Component */) {\n var compView = asElementData(view,
nodeDef.parent.nodeIndex).componentView;\n initView(compView, nodeData.instance,
nodeData.instance);\n }\n break;\n }\n case 32 /* TypePureArray */:\n case 64 /* TypePureObject */:\n case 128 /*
TypePurePipe */:\n {\n nodeData = createPureExpression(view, nodeDef);\n break;\n }\n case 67108864 /* TypeContentQuery */:\n case 134217728 /* TypeViewQuery */:\n {\n nodeData
= createQuery();\n break;\n }\n case 8 /* TypeNgContent */:\n {\n appendNgContent(view,
renderHost, nodeDef);\n // no runtime data needed for NgContent...\n nodeData =
undefined;\n break;\n }\n }\n nodes[i] = nodeData;\n }\n // Create the

```

```

ViewData.nodes of component views after we created everything else,\n // so that e.g. ng-content works\nexecComponentViewsAction(view, ViewAction.CreateViewNodes);\n // fill static content and view queries\n execQueriesAction(view,\n 67108864 /* TypeContentQuery */ | 134217728 /* TypeViewQuery */ , 268435456 /* StaticQuery */ , 0 /*\nCheckAndUpdate */);\n }\n function checkNoChangesView(view) {\n markProjectedViewsForCheck(view);\n Services.updateDirectives(view, 1 /* CheckNoChanges */);\n execEmbeddedViewsAction(view, ViewAction.CheckNoChanges);\n Services.updateRenderer(view, 1 /*\nCheckNoChanges */);\n execComponentViewsAction(view, ViewAction.CheckNoChanges);\n // Note: We\ndon't check queries for changes as we didn't do this in v2.x.\n // TODO(tbosch): investigate if we can enable the\n check again in v5.x with a nicer error message.\n view.state &= ~(64 /* CheckProjectedViews */ | 32 /*\nCheckProjectedView */);\n }\n function checkAndUpdateView(view) {\n if (view.state & 1 /*\nBeforeFirstCheck */) {\n view.state &= ~1 /* BeforeFirstCheck */;\n view.state |= 2 /* FirstCheck\n*/;\n }\n else {\n view.state &= ~2 /* FirstCheck */;\n }\n shiftInitState(view, 0 /* InitState_BeforeInit */ , 256 /*\nInitState_CallingOnInit */);\n markProjectedViewsForCheck(view);\n Services.updateDirectives(view, 0 /*\nCheckAndUpdate */);\n execEmbeddedViewsAction(view, ViewAction.CheckAndUpdate);\n execQueriesAction(view, 67108864 /* TypeContentQuery */ , 536870912 /* DynamicQuery */ , 0 /*\nCheckAndUpdate */);\n var callInit = shiftInitState(view, 256 /* InitState_CallingOnInit */ , 512 /*\nInitState_CallingAfterContentInit */);\n callLifecycleHooksChildrenFirst(view, 2097152 /*\nAfterContentChecked */ | (callInit ? 1048576 /* AfterContentInit */ : 0));\n Services.updateRenderer(view, 0 /*\nCheckAndUpdate */);\n execComponentViewsAction(view, ViewAction.CheckAndUpdate);\n execQueriesAction(view, 134217728 /* TypeViewQuery */ , 536870912 /* DynamicQuery */ , 0 /*\nCheckAndUpdate */);\n callInit = shiftInitState(view, 512 /* InitState_CallingAfterContentInit\n*/ , 768 /* InitState_CallingAfterViewInit */);\n callLifecycleHooksChildrenFirst(view, 8388608 /*\nAfterViewInit */ | (callInit ? 4194304 /* AfterViewInit */ : 0));\n if (view.def.flags & 2 /* OnPush */) {\n view.state &= ~8 /* ChecksEnabled */;\n }\n view.state &= ~(64 /* CheckProjectedViews */ | 32 /*\nCheckProjectedView */);\n shiftInitState(view, 768 /* InitState_CallingAfterViewInit */ , 1024 /*\nInitState_AfterInit */);\n }\n function checkAndUpdateNode(view, nodeDef, argStyle, v0, v1, v2, v3, v4, v5, v6,\nv7, v8, v9) {\n if (argStyle === 0 /* Inline */) {\n return checkAndUpdateNodeInline(view, nodeDef, v0,\nv1, v2, v3, v4, v5, v6, v7, v8, v9);\n }\n else {\n return checkAndUpdateNodeDynamic(view,\nnodeDef, v0);\n }\n }\n function markProjectedViewsForCheck(view) {\n var def = view.def;\n if\n(! (def.nodeFlags & 4 /* ProjectedTemplate\n*/)) {\n return;\n }\n for (var i = 0; i < def.nodes.length; i++) {\n var nodeDef =\ndef.nodes[i];\n if (nodeDef.flags & 4 /* ProjectedTemplate */) {\n var projectedViews =\nasElementData(view, i).template._projectedViews;\n if (projectedViews) {\n for (var i_1 = 0;\ni_1 < projectedViews.length; i_1++) {\n var projectedView = projectedViews[i_1];\n projectedView.state |= 32 /* CheckProjectedView */;\n markParentViewsForCheckProjectedViews(projectedView, view);\n }\n }\n }\n }\n else if ((nodeDef.childFlags & 4 /* ProjectedTemplate */) === 0) {\n // a parent with leafs\n // no\n child is a component,\n // then skip the children\n i += nodeDef.childCount;\n }\n }\n }\n function checkAndUpdateNodeInline(view,\nnodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n switch (nodeDef.flags & 201347067 /* Types */) {\n case 1 /* TypeElement */:\n return checkAndUpdateElementInline(view, nodeDef, v0, v1, v2, v3, v4, v5,\nv6, v7, v8, v9);\n case 2 /* TypeText */:\n return checkAndUpdateTextInline(view, nodeDef, v0,\nv1, v2, v3, v4, v5, v6, v7, v8, v9);\n case 16384 /* TypeDirective */:\n return\ncheckAndUpdateDirectiveInline(view, nodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9);\n case 32 /*\nTypePureArray */:\n case 64 /* TypePureObject */:\n case 128 /* TypePurePipe */:\n return\ncheckAndUpdatePureExpressionInline(view, nodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9);\n default:\n return\n
```

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 throw 'unreachable';\n }\n }\n function checkAndUpdateNodeDynamic(view, nodeDef, values) {\n
switch (nodeDef.flags & 201347067 /* Types
/) {\n case 1 / TypeElement */:\n return checkAndUpdateElementDynamic(view, nodeDef,
values);\n case 2 /* TypeText */:\n return checkAndUpdateTextDynamic(view, nodeDef, values);\n
 case 16384 /* TypeDirective */:\n return checkAndUpdateDirectiveDynamic(view, nodeDef,
values);\n case 32 /* TypePureArray */:\n case 64 /* TypePureObject */:\n case 128 /*
TypePurePipe */:\n return checkAndUpdatePureExpressionDynamic(view, nodeDef, values);\n
 default:\n throw 'unreachable';\n }\n }\n function checkNoChangesNode(view, nodeDef, argStyle,
v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n if (argStyle === 0 /* Inline */) {\n
checkNoChangesNodeInline(view, nodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9);\n }\n else {\n
checkNoChangesNodeDynamic(view, nodeDef, v0);\n }\n // Returning
false is ok here as we would have thrown in case of a change.\n return false;\n }\n function
checkNoChangesNodeInline(view, nodeDef, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n var bindLen =
nodeDef.bindings.length;\n if (bindLen > 0)\n checkBindingNoChanges(view, nodeDef, 0, v0);\n if
(bindLen > 1)\n checkBindingNoChanges(view, nodeDef, 1, v1);\n if (bindLen > 2)\n
checkBindingNoChanges(view, nodeDef, 2, v2);\n if (bindLen > 3)\n checkBindingNoChanges(view,
nodeDef, 3, v3);\n if (bindLen > 4)\n checkBindingNoChanges(view, nodeDef, 4, v4);\n if (bindLen
> 5)\n checkBindingNoChanges(view, nodeDef, 5, v5);\n if (bindLen > 6)\n
checkBindingNoChanges(view, nodeDef, 6, v6);\n if (bindLen > 7)\n checkBindingNoChanges(view,
nodeDef, 7, v7);\n if (bindLen > 8)\n checkBindingNoChanges(view, nodeDef, 8, v8);\n
 if (bindLen > 9)\n checkBindingNoChanges(view, nodeDef, 9, v9);\n }\n function
checkNoChangesNodeDynamic(view, nodeDef, values) {\n for (var i = 0; i < values.length; i++) {\n
checkBindingNoChanges(view, nodeDef, i, values[i]);\n }\n }\n /**\n * Workaround
https://github.com/angular/tsickle/issues/497\n * @suppress {misplacedTypeAnnotation}\n */\n function
checkNoChangesQuery(view, nodeDef) {\n var queryList = asQueryList(view, nodeDef.nodeIndex);\n if
(queryList.dirty) {\n throw
expressionChangedAfterItHasBeenCheckedError(Services.createDebugContext(view, nodeDef.nodeIndex), \"Query
\\\" + nodeDef.query.id + \\\" not dirty\\\", \"Query \\\" + nodeDef.query.id + \\\" dirty\\\", (view.state & 1 /*
BeforeFirstCheck */) !== 0);\n }\n }\n function destroyView(view) {\n if (view.state & 128 /*
Destroyed */) {\n return;\n }\n execEmbeddedViewsAction(view, ViewAction.Destroy);\n
 execComponentViewsAction(view, ViewAction.Destroy);\n callLifecycleHooksChildrenFirst(view,
131072 /* OnDestroy */);\n if (view.disposables) {\n for (var i = 0; i < view.disposables.length; i++) {\n
view.disposables[i]();\n }\n }\n detachProjectedView(view);\n if
(view.renderer.destroyNode) {\n destroyViewNodes(view);\n }\n if (isComponentView(view)) {\n
view.renderer.destroy();\n }\n view.state |= 128 /* Destroyed */;\n }\n function
destroyViewNodes(view) {\n var len = view.def.nodes.length;\n for (var i = 0; i < len; i++) {\n var
def = view.def.nodes[i];\n if (def.flags & 1 /* TypeElement */) {\n
view.renderer.destroyNode(asElementData(view, i).renderElement);\n }\n else if (def.flags & 2 /*
TypeText */) {\n view.renderer.destroyNode(asTextData(view, i).renderText);\n }\n
 else if (def.flags & 67108864 /* TypeContentQuery */ || def.flags & 134217728 /*
TypeViewQuery */) {\n asQueryList(view, i).destroy();\n }\n }\n }\n var ViewAction;\n
(function (ViewAction) {\n ViewAction[ViewAction[\"CreateViewNodes\"] = 0] = \"CreateViewNodes\";\n
ViewAction[ViewAction[\"CheckNoChanges\"] = 1] = \"CheckNoChanges\";\n
ViewAction[ViewAction[\"CheckNoChangesProjectedViews\"] = 2] = \"CheckNoChangesProjectedViews\";\n
ViewAction[ViewAction[\"CheckAndUpdate\"] = 3] = \"CheckAndUpdate\";\n
ViewAction[ViewAction[\"CheckAndUpdateProjectedViews\"] = 4] = \"CheckAndUpdateProjectedViews\";\n
ViewAction[ViewAction[\"Destroy\"] = 5] = \"Destroy\";\n })(ViewAction || (ViewAction = {}));\n function
execComponentViewsAction(view, action) {\n var def = view.def;\n if (!(def.nodeFlags & 33554432 /*

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ComponentView */)) {\n return;\n
 }\n for (var i = 0; i < def.nodes.length; i++) {\n var nodeDef = def.nodes[i];\n if\n
(nodeDef.flags & 33554432 /* ComponentView */) {\n // a leaf\n
callViewAction(asElementData(view, i).componentView, action);\n }\n else if ((nodeDef.childFlags &\n
33554432 /* ComponentView */) === 0) {\n // a parent with leaf\n // no child is a component,\n
// then skip the children\n i += nodeDef.childCount;\n }\n }\n function\n
execEmbeddedViewsAction(view, action) {\n var def = view.def;\n if (!(def.nodeFlags & 16777216 /*\n
EmbeddedViews */) {\n return;\n }\n for (var i = 0; i < def.nodes.length; i++) {\n var\n
nodeDef = def.nodes[i];\n if (nodeDef.flags & 16777216 /* EmbeddedViews */) {\n // a leaf\n
var embeddedViews = asElementData(view,\n
i).viewContainer._embeddedViews;\n for (var k = 0; k < embeddedViews.length; k++) {\n
callViewAction(embeddedViews[k], action);\n }\n }\n else if ((nodeDef.childFlags &\n
16777216 /* EmbeddedViews */) === 0) {\n // a parent with leaf\n // no child is a component,\n
// then skip the children\n i += nodeDef.childCount;\n }\n }\n }\n function\n
callViewAction(view, action) {\n var viewState = view.state;\n switch (action) {\n case\n
ViewAction.CheckNoChanges:\n if ((viewState & 128 /* Destroyed */) === 0) {\n if\n
((viewState & 12 /* CatDetectChanges */) === 12 /* CatDetectChanges */) {\n
checkNoChangesView(view);\n }\n else if (viewState & 64 /* CheckProjectedViews */) {\n
execProjectedViewsAction(view,\n
ViewAction.CheckNoChangesProjectedViews);\n }\n }\n break;\n case\n
ViewAction.CheckNoChangesProjectedViews:\n if ((viewState & 128 /* Destroyed */) === 0) {\n
if (viewState & 32 /* CheckProjectedView */) {\n checkNoChangesView(view);\n }\n
 else if (viewState & 64 /* CheckProjectedViews */) {\n execProjectedViewsAction(view,\n
action);\n }\n }\n break;\n case ViewAction.CheckAndUpdate:\n if\n
((viewState & 128 /* Destroyed */) === 0) {\n if ((viewState & 12 /* CatDetectChanges */) === 12 /*\n
CatDetectChanges */) {\n checkAndUpdateView(view);\n }\n else if\n
(viewState & 64 /* CheckProjectedViews */) {\n execProjectedViewsAction(view,\n
ViewAction.CheckAndUpdateProjectedViews);\n }\n }\n break;\n case ViewAction.CheckAndUpdateProjectedViews:\n
if ((viewState & 128 /* Destroyed */) === 0) {\n if (viewState & 32 /* CheckProjectedView */) {\n
checkAndUpdateView(view);\n }\n else if (viewState & 64 /*\n
CheckProjectedViews */) {\n execProjectedViewsAction(view, action);\n }\n }\n
 break;\n case ViewAction.Destroy:\n // Note: destroyView recurses over all views,\n
// so we don't need to special case projected views here.\n destroyView(view);\n break;\n
 case ViewAction.CreateViewNodes:\n createViewNodes(view);\n break;\n }\n }\n
function execProjectedViewsAction(view, action) {\n execEmbeddedViewsAction(view,\n
action);\n execComponentViewsAction(view, action);\n }\n function execQueriesAction(view, queryFlags,\n
staticDynamicQueryFlag, checkType) {\n if (!(view.def.nodeFlags & queryFlags) || !(view.def.nodeFlags &\n
staticDynamicQueryFlag)) {\n return;\n }\n var nodeCount = view.def.nodes.length;\n for (var i\n
= 0; i < nodeCount; i++) {\n var nodeDef = view.def.nodes[i];\n if ((nodeDef.flags & queryFlags) &&\n
(nodeDef.flags & staticDynamicQueryFlag)) {\n Services.setCurrentNode(view, nodeDef.nodeIndex);\n
switch (checkType) {\n case 0 /* CheckAndUpdate */:\n
checkAndUpdateQuery(view, nodeDef);\n break;\n case 1 /* CheckNoChanges */:\n
checkNoChangesQuery(view, nodeDef);\n break;\n }\n }\n if\n
(!!(nodeDef.childFlags\n
& queryFlags) || !(nodeDef.childFlags & staticDynamicQueryFlag)) {\n // no child has a matching query\n
// then skip the children\n i += nodeDef.childCount;\n }\n }\n }\n var initialized =\n
false;\n function initServicesIfNeeded() {\n if (initialized) {\n return;\n }\n initialized = true;\n
}

```

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var services = isDevMode() ? createDebugServices() : createProdServices();\n Services.setCurrentNode =
services.setCurrentNode;\n Services.createRootView = services.createRootView;\n\nServices.createEmbeddedView = services.createEmbeddedView;\n Services.createComponentView =
services.createComponentView;\n Services.createNgModuleRef = services.createNgModuleRef;\n\nServices.overrideProvider = services.overrideProvider;\n Services.overrideComponentView =
services.overrideComponentView;\n Services.clearOverrides = services.clearOverrides;\n\n Services.checkAndUpdateView = services.checkAndUpdateView;\n Services.checkNoChangesView =
services.checkNoChangesView;\n Services.destroyView = services.destroyView;\n Services.resolveDep =
resolveDep;\n Services.createDebugContext = services.createDebugContext;\n Services.handleEvent =
services.handleEvent;\n Services.updateDirectives = services.updateDirectives;\n Services.updateRenderer =
services.updateRenderer;\n Services.dirtyParentQueries = dirtyParentQueries;\n } \n function
createProdServices() {\n return {\n setCurrentNode: function () { },\n createRootView:
createProdRootView,\n createEmbeddedView: createEmbeddedView,\n createComponentView:
createComponentView,\n createNgModuleRef: createNgModuleRef,\n overrideProvider: NOOP,\n overrideComponentView: NOOP,\n clearOverrides: NOOP,\n checkAndUpdateView:
checkAndUpdateView,\n checkNoChangesView: checkNoChangesView,\n destroyView:
destroyView,\n createDebugContext: function (view, nodeIndex) { return new DebugContext_(view,
nodeIndex); },\n handleEvent: function (view, nodeIndex, eventName, event) { return
view.def.handleEvent(view, nodeIndex, eventName, event); },\n updateDirectives: function (view,
checkType) { return view.def.updateDirectives(checkType === 0 /* CheckAndUpdate */ ?
prodCheckAndUpdateNode : prodCheckNoChangesNode, view); },\n updateRenderer: function (view,
checkType) { return view.def.updateRenderer(checkType === 0 /* CheckAndUpdate */ ?
prodCheckAndUpdateNode : prodCheckNoChangesNode, view); },\n }; \n } \n function
createDebugServices() {\n return {\n setCurrentNode: debugSetCurrentNode,\n createRootView:
debugCreateRootView,\n createEmbeddedView: debugCreateEmbeddedView,\n createComponentView:
debugCreateComponentView,\n createNgModuleRef: debugCreateNgModuleRef,\n overrideProvider:
debugOverrideProvider,\n overrideComponentView: debugOverrideComponentView,\n clearOverrides: debugClearOverrides,\n checkAndUpdateView: debugCheckAndUpdateView,\n checkNoChangesView: debugCheckNoChangesView,\n destroyView: debugDestroyView,\n createDebugContext: function (view, nodeIndex) { return new DebugContext_(view, nodeIndex); },\n handleEvent: debugHandleEvent,\n updateDirectives: debugUpdateDirectives,\n updateRenderer:
debugUpdateRenderer,\n }; \n } \n function createProdRootView(elInjector, projectableNodes,
rootSelectorOrNode, def, ngModule, context) {\n var rendererFactory =
ngModule.injector.get(RendererFactory2);\n return createRootView(createRootData(elInjector, ngModule,
rendererFactory, projectableNodes, rootSelectorOrNode),
def, context);\n } \n function debugCreateRootView(elInjector, projectableNodes, rootSelectorOrNode, def,
ngModule, context) {\n var rendererFactory = ngModule.injector.get(RendererFactory2);\n var root =
createRootData(elInjector, ngModule, new DebugRendererFactory2(rendererFactory), projectableNodes,
rootSelectorOrNode);\n var defWithOverride = applyProviderOverridesToView(def);\n return
callWithDebugContext(DebugAction.create, createRootView, null, [root, defWithOverride, context]);\n } \n
function createRootData(elInjector, ngModule, rendererFactory, projectableNodes, rootSelectorOrNode) {\n var
sanitizer = ngModule.injector.get(Sanitizer);\n var errorHandler = ngModule.injector.get(ErrorHandler);\n var renderer = rendererFactory.createRenderer(null, null);\n return {\n ngModule: ngModule,\n injector: elInjector,\n projectableNodes: projectableNodes,\n selectorOrNode:
rootSelectorOrNode,\n sanitizer: sanitizer,\n rendererFactory: rendererFactory,\n renderer:
renderer,\n errorHandler: errorHandler\n }; \n } \n function debugCreateEmbeddedView(parentView,
anchorDef, viewDef, context) {\n var defWithOverride = applyProviderOverridesToView(viewDef);\n

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return callWithDebugContext(DebugAction.create, createEmbeddedView, null, [parentView, anchorDef,
defWithOverride, context]);\n } \n function debugCreateComponentView(parentView, nodeDef, viewDef,
hostElement) {\n var overrideComponentView =
viewDefOverrides.get(nodeDef.element.componentProvider.provider.token);\n if (overrideComponentView)
{\n viewDef = overrideComponentView;\n } \n else {\n viewDef =
applyProviderOverridesToView(viewDef);\n } \n return callWithDebugContext(DebugAction.create,
createComponentView, null, [parentView, nodeDef, viewDef, hostElement]);\n } \n
function debugCreateNgModuleRef(moduleType, parentInjector, bootstrapComponents, def) {\n var
defWithOverride = applyProviderOverridesToNgModule(def);\n return createNgModuleRef(moduleType,
parentInjector, bootstrapComponents, defWithOverride);\n } \n var providerOverrides = new Map();\n var
providerOverridesWithScope = new Map();\n var viewDefOverrides = new Map();\n function
debugOverrideProvider(override) {\n providerOverrides.set(override.token, override);\n var
injectableDef;\n if (typeof override.token === 'function' && (injectableDef = getInjectableDef(override.token))
&&\n typeof injectableDef.providedIn === 'function') {\n
providerOverridesWithScope.set(override.token, override);\n } \n } \n function
debugOverrideComponentView(comp, compFactory) {\n var hostViewDef =
resolveDefinition(getComponentViewDefinitionFactory(compFactory));\n var compViewDef =
resolveDefinition(hostViewDef.nodes[0].element.componentView);\n
viewDefOverrides.set(comp, compViewDef);\n } \n function debugClearOverrides() {\n
providerOverrides.clear();\n providerOverridesWithScope.clear();\n viewDefOverrides.clear();\n } \n //
Notes about the algorithm:\n // 1) Locate the providers of an element and check if one of them was overwritten\n
// 2) Change the providers of that element\n // \n // We only create new datastructures if we need to, to keep perf
impact\n // reasonable.\n function applyProviderOverridesToView(def) {\n if (providerOverrides.size ===
0) {\n return def;\n } \n var elementIndicesWithOverwrittenProviders =
findElementIndicesWithOverwrittenProviders(def);\n if (elementIndicesWithOverwrittenProviders.length ===
0) {\n return def;\n } \n // clone the whole view definition,\n // as it maintains references between
the nodes that are hard to update.\n
def = def.factory(function () { return NOOP; });\n for (var i = 0; i <
elementIndicesWithOverwrittenProviders.length; i++) {\n applyProviderOverridesToElement(def,
elementIndicesWithOverwrittenProviders[i]);\n } \n return def;\n function
findElementIndicesWithOverwrittenProviders(def) {\n var elIndicesWithOverwrittenProviders = [];\n
var lastElementDef = null;\n for (var i = 0; i < def.nodes.length; i++) {\n var nodeDef =
def.nodes[i];\n if (nodeDef.flags & 1 /* TypeElement */) {\n lastElementDef = nodeDef;\n
} \n if (lastElementDef && nodeDef.flags & 3840 /* CatProviderNoDirective */ &&\n
providerOverrides.has(nodeDef.provider.token)) {\n
elIndicesWithOverwrittenProviders.push(lastElementDef.nodeIndex);\n lastElementDef = null;\n
} \n } \n return
elIndicesWithOverwrittenProviders;\n } \n function applyProviderOverridesToElement(viewDef, elIndex)
{\n for (var i = elIndex + 1; i < viewDef.nodes.length; i++) {\n var nodeDef = viewDef.nodes[i];\n
if (nodeDef.flags & 1 /* TypeElement */) {\n // stop at the next element\n return;\n
} \n if (nodeDef.flags & 3840 /* CatProviderNoDirective */) {\n var provider =
nodeDef.provider;\n var override = providerOverrides.get(provider.token);\n if (override)
{\n nodeDef.flags = (nodeDef.flags & ~3840 /* CatProviderNoDirective */) | override.flags;\n
provider.deps = splitDepsDsl(override.deps);\n provider.value = override.value;\n
} \n } \n } \n } \n } \n // Notes about the algorithm:\n // We
only create new datastructures if we need to, to keep perf impact\n // reasonable.\n function
applyProviderOverridesToNgModule(def) {\n var _a = calcHasOverrides(def), hasOverrides = _a.hasOverrides,
hasDeprecatedOverrides = _a.hasDeprecatedOverrides;\n if (!hasOverrides) {\n return def;\n } \n

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// clone the whole view definition,\n // as it maintains references between the nodes that are hard to update.\n
def = def.factory(function () { return NOOP; });\n applyProviderOverrides(def);\n return def;\n
function calcHasOverrides(def) {\n var hasOverrides = false;\n var hasDeprecatedOverrides = false;\n
 if (providerOverrides.size === 0) {\n return { hasOverrides: hasOverrides, hasDeprecatedOverrides:\n
hasDeprecatedOverrides };}\n }\n def.providers.forEach(function (node) {\n var override =\n
providerOverrides.get(node.token);\n
 if ((node.flags & 3840 /* CatProviderNoDirective */) && override) {\n hasOverrides = true;\n
 hasDeprecatedOverrides = hasDeprecatedOverrides || override.deprecatedBehavior;\n }\n
});\n def.modules.forEach(function (module) {\n providerOverridesWithScope.forEach(function\n
(override, token) {\n if (getInjectableDef(token).providedIn === module) {\n
hasOverrides = true;\n hasDeprecatedOverrides = hasDeprecatedOverrides ||\n
override.deprecatedBehavior;\n }\n });\n });\n return { hasOverrides:\n
hasOverrides, hasDeprecatedOverrides: hasDeprecatedOverrides };}\n }\n function\n
applyProviderOverrides(def) {\n for (var i = 0; i < def.providers.length; i++) {\n var provider =\n
def.providers[i];\n if (hasDeprecatedOverrides) {\n
 // We had a bug where me made\n // all providers lazy. Keep this logic behind a flag\n
 // for migrating existing users.\n provider.flags |= 4096 /* LazyProvider */;\n }\n
var override = providerOverrides.get(provider.token);\n if (override) {\n provider.flags =\n
(provider.flags & ~3840 /* CatProviderNoDirective */) | override.flags;\n provider.deps =\n
splitDepsDsl(override.deps);\n provider.value = override.value;\n }\n }\n if\n
(providerOverridesWithScope.size > 0) {\n var moduleSet_1 = new Set(def.modules);\n
providerOverridesWithScope.forEach(function (override, token) {\n if\n
(moduleSet_1.has(getInjectableDef(token).providedIn)) {\n var provider = {\n token:\n
token,\n
 flags: override.flags | (hasDeprecatedOverrides ? 4096 /* LazyProvider */ : 0 /* None */),\n
 deps: splitDepsDsl(override.deps),\n value: override.value,\n index:\n
def.providers.length,\n });\n def.providers.push(provider);\n
def.providersByKey[tokenKey(token)] = provider;\n }\n });\n }\n }\n }\n
function prodCheckAndUpdateNode(view, checkIndex, argStyle, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9) {\n var\n
nodeDef = view.def.nodes[checkIndex];\n checkAndUpdateNode(view, nodeDef, argStyle, v0, v1, v2, v3, v4,\n
v5, v6, v7, v8, v9);\n return (nodeDef.flags & 224 /* CatPureExpression */) ?\n
asPureExpressionData(view, checkIndex).value : undefined;\n }\n function\n
prodCheckNoChangesNode(view, checkIndex, argStyle, v0, v1, v2, v3,\n
v4, v5, v6, v7, v8, v9) {\n var nodeDef = view.def.nodes[checkIndex];\n checkNoChangesNode(view,\n
nodeDef, argStyle, v0, v1, v2, v3, v4, v5, v6, v7, v8, v9);\n return (nodeDef.flags & 224 /* CatPureExpression\n
*/) ?\n
asPureExpressionData(view, checkIndex).value : undefined;\n }\n function\n
debugCheckAndUpdateView(view) {\n return callWithDebugContext(DebugAction.detectChanges,\n
checkAndUpdateView, null, [view]);\n }\n function debugCheckNoChangesView(view) {\n return\n
callWithDebugContext(DebugAction.checkNoChanges, checkNoChangesView, null, [view]);\n }\n function\n
debugDestroyView(view) {\n return callWithDebugContext(DebugAction.destroy, destroyView, null,\n
[view]);\n }\n var DebugAction;\n (function (DebugAction) {\n DebugAction[DebugAction["create"] =\n
0] = "create";\n DebugAction[DebugAction["detectChanges"] = 1] = "detectChanges";\n
DebugAction[DebugAction["checkNoChanges"]\n
= 2] = "checkNoChanges";\n DebugAction[DebugAction["destroy"] = 3] = "destroy";\n
DebugAction[DebugAction["handleEvent"] = 4] = "handleEvent";\n })(DebugAction || (DebugAction = {}));\n
var _currentAction;\n var _currentView;\n var _currentNodeIndex;\n function debugSetCurrentNode(view,\n
nodeIndex) {\n _currentView = view;\n _currentNodeIndex = nodeIndex;\n }\n function\n
debugHandleEvent(view, nodeIndex, eventName, event) {\n debugSetCurrentNode(view, nodeIndex);\n

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return callWithDebugContext(DebugAction.handleEvent, view.def.handleEvent, null, [view, nodeIndex,
eventName, event]);\n }\n function debugUpdateDirectives(view, checkType) {\n if (view.state & 128 /*
Destroyed */) {\n throw viewDestroyedError(DebugAction[_currentAction]);\n }\n
debugSetCurrentNode(view, nextDirectiveWithBinding(view, 0));\n return
view.def.updateDirectives(debugCheckDirectivesFn, view);\n
function debugCheckDirectivesFn(view, nodeIndex, argStyle) {\n var values = [];\n for (var _i =
3; _i < arguments.length; _i++) {\n values[_i - 3] = arguments[_i];\n }\n var nodeDef =
view.def.nodes[nodeIndex];\n if (checkType === 0 /* CheckAndUpdate */) {\n
debugCheckAndUpdateNode(view, nodeDef, argStyle, values);\n }\n else {\n
debugCheckNoChangesNode(view, nodeDef, argStyle, values);\n }\n if (nodeDef.flags & 16384 /*
TypeDirective */) {\n debugSetCurrentNode(view, nextDirectiveWithBinding(view, nodeIndex));\n
}\n return (nodeDef.flags & 224 /* CatPureExpression */) ?\n asPureExpressionData(view,
nodeDef.nodeIndex).value :\n undefined;\n }\n }\n function debugUpdateRenderer(view,
checkType) {\n if (view.state & 128 /* Destroyed */) {\n
throw viewDestroyedError(DebugAction[_currentAction]);\n }\n debugSetCurrentNode(view,
nextRenderNodeWithBinding(view, 0));\n return view.def.updateRenderer(debugCheckRenderNodeFn,
view);\n function debugCheckRenderNodeFn(view, nodeIndex, argStyle) {\n var values = [];\n for
(var _i = 3; _i < arguments.length; _i++) {\n values[_i - 3] = arguments[_i];\n }\n var
nodeDef = view.def.nodes[nodeIndex];\n if (checkType === 0 /* CheckAndUpdate */) {\n
debugCheckAndUpdateNode(view, nodeDef, argStyle, values);\n }\n else {\n
debugCheckNoChangesNode(view, nodeDef, argStyle, values);\n }\n if (nodeDef.flags & 3 /*
CatRenderNode */) {\n debugSetCurrentNode(view, nextRenderNodeWithBinding(view, nodeIndex));\n
}\n return (nodeDef.flags & 224 /* CatPureExpression */) ?\n asPureExpressionData(view,
nodeDef.nodeIndex).value :\n undefined;\n }\n }\n function debugCheckAndUpdateNode(view,
nodeDef, argStyle, givenValues) {\n var changed = checkAndUpdateNode.apply(void 0, __spread([view,
nodeDef, argStyle], givenValues));\n if (changed) {\n var values = argStyle === 1 /* Dynamic */ ?
givenValues[0] : givenValues;\n if (nodeDef.flags & 16384 /* TypeDirective */) {\n var
bindingValues = {};\n for (var i = 0; i < nodeDef.bindings.length; i++) {\n var binding =
nodeDef.bindings[i];\n var value = values[i];\n if (binding.flags & 8 /* TypeProperty */) {\n
bindingValues[normalizeDebugBindingName(binding.nonMinifiedName)] =\n
normalizeDebugBindingValue(value);\n }\n }\n var elDef = nodeDef.parent;\n
var el = asElementData(view,
elDef.nodeIndex).renderElement;\n if (!elDef.element.name) {\n // a comment.\n
view.renderer.setValue(el, \"bindings=\" + JSON.stringify(bindingValues, null, 2));\n }\n else {\n
// a regular element.\n for (var attr in bindingValues) {\n var value =
bindingValues[attr];\n if (value != null) {\n view.renderer.setAttribute(el, attr,
value);\n }\n }\n else {\n view.renderer.removeAttribute(el, attr);\n }\n }\n }\n }\n
function debugCheckNoChangesNode(view,
nodeDef, argStyle, values) {\n checkNoChangesNode.apply(void 0, __spread([view, nodeDef, argStyle],
values));\n }\n function nextDirectiveWithBinding(view, nodeIndex)
{\n for (var i = nodeIndex; i < view.def.nodes.length; i++) {\n var nodeDef = view.def.nodes[i];\n
if (nodeDef.flags & 16384 /* TypeDirective */ && nodeDef.bindings && nodeDef.bindings.length) {\n
return i;\n }\n }\n return null;\n }\n function nextRenderNodeWithBinding(view, nodeIndex) {\n
for (var i = nodeIndex; i < view.def.nodes.length; i++) {\n var nodeDef = view.def.nodes[i];\n if
((nodeDef.flags & 3 /* CatRenderNode */) && nodeDef.bindings && nodeDef.bindings.length) {\n
return
i;\n }\n }\n return null;\n }\n var DebugContext_ = /** @class */ (function () {\n function
DebugContext_(view, nodeIndex) {\n this.view = view;\n this.nodeIndex = nodeIndex;\n if
(nodeIndex == null) {\n this.nodeIndex = nodeIndex = 0;\n }\n this.nodeDef =

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view.def.nodes[nodeIndex];\n
 var elDef = this.nodeDef;\n var elView = view;\n while (elDef && (elDef.flags & 1 /*
TypeElement */) === 0) {\n elDef = elDef.parent;\n }\n if (!elDef) {\n while (!elDef
&& elView) {\n elDef = viewParentEl(elView);\n elView = elView.parent;\n }\n }\n this.elDef = elDef;\n this.elView = elView;\n }\n
Object.defineProperty(DebugContext_.prototype, "elOrCompView", {\n get: function () {\n // Has
to be done lazily as we use the DebugContext also during creation of elements...\n return
asElementData(this.elView, this.elDef.nodeIndex).componentView || this.view;\n },\n enumerable:
false,\n configurable: true\n});\n Object.defineProperty(DebugContext_.prototype, "injector", {\n
get: function () {\n
 return createInjector$(this.elView, this.elDef);\n },\n enumerable: false,\n
configurable: true\n});\n Object.defineProperty(DebugContext_.prototype, "component", {\n get:
function () {\n return this.elOrCompView.component;\n },\n enumerable: false,\n
configurable: true\n});\n Object.defineProperty(DebugContext_.prototype, "context", {\n get:
function () {\n return this.elOrCompView.context;\n },\n enumerable: false,\n
configurable: true\n});\n Object.defineProperty(DebugContext_.prototype, "providerTokens", {\n
get: function () {\n var tokens = [];\n if (this.elDef) {\n for (var i =
this.elDef.nodeIndex + 1; i <= this.elDef.nodeIndex + this.elDef.childCount; i++) {\n var childDef =
this.elView.def.nodes[i];\n
 if (childDef.flags & 20224 /* CatProvider */) {\n
tokens.push(childDef.provider.token);\n }\n i += childDef.childCount;\n }\n
 }\n return tokens;\n },\n enumerable: false,\n configurable: true\n});\n
Object.defineProperty(DebugContext_.prototype, "references", {\n get: function () {\n var
references = {};\n if (this.elDef) {\n collectReferences(this.elView, this.elDef, references);\n
 for (var i = this.elDef.nodeIndex + 1; i <= this.elDef.nodeIndex + this.elDef.childCount; i++) {\n
 var childDef = this.elView.def.nodes[i];\n if (childDef.flags & 20224 /* CatProvider */) {\n
collectReferences(this.elView, childDef, references);\n }\n i += childDef.childCount;\n }\n
 }\n return
references;\n },\n enumerable: false,\n configurable: true\n});\n
Object.defineProperty(DebugContext_.prototype, "componentRenderElement", {\n get: function () {\n
 var elData = findHostElement(this.elOrCompView);\n return elData ? elData.renderElement :
undefined;\n },\n enumerable: false,\n configurable: true\n});\n
Object.defineProperty(DebugContext_.prototype, "renderNode", {\n get: function () {\n return
this.nodeDef.flags & 2 /* TypeText */ ? renderNode(this.view, this.nodeDef) :\n renderNode(this.elView, this.elDef);\n },\n enumerable: false,\n configurable: true\n});\n
 DebugContext_.prototype.logError = function
 (console) {\n var values = [];\n for (var _i = 1; _i < arguments.length; _i++) {\n values[_i -
1] = arguments[_i];\n }\n var logViewDef;\n var logNodeIndex;\n if (this.nodeDef.flags
& 2 /* TypeText */) {\n logViewDef = this.view.def;\n logNodeIndex =
this.nodeDef.nodeIndex;\n }\n else {\n logViewDef = this.elView.def;\n
logNodeIndex = this.elDef.nodeIndex;\n }\n // Note: we only generate a log function for text and
element nodes\n // to make the generated code as small as possible.\n var renderNodeIndex =
getRenderNodeIndex(logViewDef, logNodeIndex);\n var currRenderNodeIndex = -1;\n var
nodeLogger = function () {\n var _a;\n currRenderNodeIndex++;\n if
(currRenderNodeIndex === renderNodeIndex) {\n
 return (_a = console.error).bind.apply(_a, __spread([console], values));\n }\n else {\n
 return NOOP;\n }\n };\n logViewDef.factory(nodeLogger);\n if
(currRenderNodeIndex < renderNodeIndex) {\n console.error("Illegal state: the ViewDefinitionFactory did

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not call the logger!');\n console.error.apply(console, __spread(values));\n }\n };\n return
DebugContext_;\n }());\n function getRenderNodeIndex(viewDef, nodeIndex) {\n var renderNodeIndex = -
1;\n for (var i = 0; i <= nodeIndex; i++) {\n var nodeDef = viewDef.nodes[i];\n if (nodeDef.flags
& 3 /* CatRenderNode */) {\n renderNodeIndex++;\n }\n }\n return renderNodeIndex;\n }\n function findHostElement(view) {\n while (view && !isComponentView(view)) {\n view =
view.parent;\n }\n if (view.parent) {\n return asElementData(view.parent, viewParentEl(view).nodeIndex);\n }\n return null;\n }\n function collectReferences(view, nodeDef, references) {\n for (var refName in
nodeDef.references) {\n references[refName] = getQueryValue(view, nodeDef,
nodeDef.references[refName]);\n }\n }\n function callWithDebugContext(action, fn, self, args) {\n var
oldAction = _currentAction;\n var oldView = _currentView;\n var oldNodeIndex = _currentNodeIndex;\n try {\n _currentAction = action;\n var result = fn.apply(self, args);\n _currentView =
oldView;\n _currentNodeIndex = oldNodeIndex;\n _currentAction = oldAction;\n return
result;\n }\n catch (e) {\n if (isViewDebugError(e) || !_currentView) {\n throw e;\n }\n throw viewWrappedDebugError(e, getCurrentDebugContext());\n }\n }\n function getCurrentDebugContext() {\n return _currentView ? new
DebugContext_(_currentView, _currentNodeIndex) : null;\n }\n var DebugRendererFactory2 = /** @class */
(function () {\n function DebugRendererFactory2(delegate) {\n this.delegate = delegate;\n }\n DebugRendererFactory2.prototype.createRenderer = function (element, renderData) {\n return new
DebugRenderer2(this.delegate.createRenderer(element, renderData));\n }\n DebugRendererFactory2.prototype.begin = function () {\n if (this.delegate.begin) {\n this.delegate.begin();\n }\n }\n DebugRendererFactory2.prototype.end = function () {\n if
(this.delegate.end) {\n this.delegate.end();\n }\n }\n DebugRendererFactory2.prototype.whenRenderingDone = function () {\n if
(this.delegate.whenRenderingDone) {\n return this.delegate.whenRenderingDone();\n }\n return Promise.resolve(null);\n }\n };\n return DebugRendererFactory2;\n }());\n var DebugRenderer2 = /** @class */ (function () {\n function
DebugRenderer2(delegate) {\n this.delegate = delegate;\n /**\n * Factory function used to
create a `DebugContext` when a node is created.\n *\n * The `DebugContext` allows to retrieve
information about the nodes that are useful in tests.\n *\n * The factory is configurable so that the
`DebugRenderer2` could instantiate either a View Engine\n * or a Render context.\n */\n this.debugContextFactory = getCurrentDebugContext;\n this.data = this.delegate.data;\n }\n DebugRenderer2.prototype.createDebugContext = function (nativeElement) {\n return
this.debugContextFactory(nativeElement);\n }\n DebugRenderer2.prototype.destroyNode = function (node) {\n var debugNode =
getDebugNode$1(node);\n removeDebugNodeFromIndex(debugNode);\n if (debugNode instanceof
DebugNode__PRE_R3__) {\n debugNode.listeners.length = 0;\n }\n if
(this.delegate.destroyNode) {\n this.delegate.destroyNode(node);\n }\n }\n DebugRenderer2.prototype.destroy = function () {\n this.delegate.destroy();\n }\n DebugRenderer2.prototype.createElement = function (name, namespace) {\n var el =
this.delegate.createElement(name, namespace);\n var debugCtx = this.createDebugContext(el);\n if
(debugCtx) {\n var debugEl = new DebugElement__PRE_R3__(el, null, debugCtx);\n debugEl.name = name;\n indexDebugNode(debugEl);\n }\n return el;\n }\n DebugRenderer2.prototype.createComment
= function (value) {\n var comment = this.delegate.createComment(value);\n var debugCtx =
this.createDebugContext(comment);\n if (debugCtx) {\n indexDebugNode(new
DebugNode__PRE_R3__(comment, null, debugCtx));\n }\n return comment;\n }\n DebugRenderer2.prototype.createText = function (value) {\n var text = this.delegate.createText(value);\n }

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 var debugCtx = this.createDebugContext(text);\n if (debugCtx) {\n indexDebugNode(new
DebugNode__PRE_R3__(text, null, debugCtx));\n }\n return text;\n };\n
DebugRenderer2.prototype.appendChild = function (parent, newChild) {\n var debugEl =
getDebugNode$1(parent);\n var debugChildEl = getDebugNode$1(newChild);\n if (debugEl &&
debugChildEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.addChild(debugChildEl);\n
 }\n this.delegate.appendChild(parent, newChild);\n };\n
DebugRenderer2.prototype.insertBefore = function (parent, newChild, refChild, isMove) {\n var debugEl =
getDebugNode$1(parent);\n var debugChildEl = getDebugNode$1(newChild);\n var debugRefEl =
getDebugNode$1(refChild);\n if (debugEl && debugChildEl && debugEl instanceof
DebugElement__PRE_R3__) {\n debugEl.insertBefore(debugRefEl, debugChildEl);\n }\n
this.delegate.insertBefore(parent, newChild, refChild, isMove);\n };\n
DebugRenderer2.prototype.removeChild = function (parent, oldChild) {\n var debugEl =
getDebugNode$1(parent);\n var debugChildEl = getDebugNode$1(oldChild);\n if (debugEl &&
debugChildEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.removeChild(debugChildEl);\n }\n this.delegate.removeChild(parent, oldChild);\n
 };\n
DebugRenderer2.prototype.selectRootElement = function (selectorOrNode, preserveContent) {\n
var el = this.delegate.selectRootElement(selectorOrNode, preserveContent);\n var debugCtx =
getCurrentDebugContext();\n if (debugCtx) {\n indexDebugNode(new
DebugElement__PRE_R3__(el, null, debugCtx));\n }\n return el;\n };\n
DebugRenderer2.prototype.setAttribute = function (el, name, value, namespace) {\n var debugEl =
getDebugNode$1(el);\n if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n var
fullName = namespace ? namespace + ':' + name : name;\n debugEl.attributes[fullName] = value;\n
 }\n this.delegate.setAttribute(el, name, value, namespace);\n };\n
DebugRenderer2.prototype.removeAttribute = function (el, name, namespace) {\n var debugEl =
getDebugNode$1(el);\n if (debugEl
&& debugEl instanceof DebugElement__PRE_R3__) {\n var fullName = namespace ? namespace + ':' +
name : name;\n debugEl.attributes[fullName] = null;\n }\n this.delegate.removeAttribute(el,
name, namespace);\n };\n
DebugRenderer2.prototype.addClass = function (el, name) {\n var
debugEl = getDebugNode$1(el);\n if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.classes[name] = true;\n }\n this.delegate.addClass(el, name);\n };\n
DebugRenderer2.prototype.removeClass = function (el, name) {\n var debugEl = getDebugNode$1(el);\n
if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n debugEl.classes[name] = false;\n
 }\n this.delegate.removeClass(el, name);\n };\n
DebugRenderer2.prototype.setStyle = function
(el, style, value, flags) {\n var debugEl
= getDebugNode$1(el);\n if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.styles[style] = value;\n }\n this.delegate.setStyle(el, style, value, flags);\n };\n
DebugRenderer2.prototype.removeStyle = function (el, style, flags) {\n var debugEl =
getDebugNode$1(el);\n if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.styles[style] = null;\n }\n this.delegate.removeStyle(el, style, flags);\n };\n
DebugRenderer2.prototype.setProperty = function (el, name, value) {\n var debugEl =
getDebugNode$1(el);\n if (debugEl && debugEl instanceof DebugElement__PRE_R3__) {\n
debugEl.properties[name] = value;\n }\n this.delegate.setProperty(el, name, value);\n };\n
DebugRenderer2.prototype.listen = function (target, eventName, callback) {\n if (typeof
target !== 'string') {\n var debugEl = getDebugNode$1(target);\n if (debugEl) {\n
debugEl.listeners.push(new DebugEventListener(eventName, callback));\n }\n }\n return
this.delegate.listen(target, eventName, callback);\n };\n
DebugRenderer2.prototype.parentNode = function
(node) {\n return this.delegate.parentNode(node);\n };\n
DebugRenderer2.prototype.nextSibling =

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function (node) {\n return this.delegate.nextSibling(node);\n };\n
DebugRenderer2.prototype.setValue = function (node, value) {\n return this.delegate.setValue(node,\nvalue);\n };\n return DebugRenderer2;\n }());\n\n function overrideProvider(override) {\ninitServicesIfNeeded();\n return Services.overrideProvider(override);\n }\n function\noverrideComponentView(comp, componentFactory) {\n initServicesIfNeeded();\n return Services.overrideComponentView(comp, componentFactory);\n }\n function clearOverrides() {\ninitServicesIfNeeded();\n return Services.clearOverrides();\n }\n // Attention: this function is called as top\nlevel function.\n // Putting any logic in here will destroy closure tree shaking!\n function\ncreateNgModuleFactory(ngModuleType, bootstrapComponents, defFactory) {\n return new\nNgModuleFactory_(ngModuleType, bootstrapComponents, defFactory);\n }\n function\ncloneNgModuleDefinition(def) {\n var providers = Array.from(def.providers);\n var modules =\nArray.from(def.modules);\n var providersByKey = {};\n for (var key in def.providersByKey) {\nprovidersByKey[key] = def.providersByKey[key];\n }\n return {\n factory: def.factory,\nscope: def.scope,\n providers: providers,\n modules: modules,\n providersByKey:\nprovidersByKey,\n };\n }\n var NgModuleFactory_ = /** @class */ (function (_super) {\n __extends(NgModuleFactory_,\n_super);\n function NgModuleFactory_(moduleType, _bootstrapComponents, _ngModuleDefFactory) {\nvar _this = \n // Attention: this ctor is called as top level function.\n // Putting any logic in here will\ndestroy closure tree shaking!\n _super.call(this) || this;\n _this.moduleType = moduleType;\n _this._bootstrapComponents = _bootstrapComponents;\n _this._ngModuleDefFactory =\n_ngModuleDefFactory;\n return _this;\n }\n NgModuleFactory_.prototype.create = function\n(parentInjector) {\n initServicesIfNeeded();\n // Clone the NgModuleDefinition so that any tree\nshakeable provider definition\n // added to this instance of the NgModuleRef doesn't affect the cached\ncopy.\n // See https://github.com/angular/angular/issues/25018.\n var def = cloneNgModuleDefinition(resolveDefinition(this._ngModuleDefFactory));\n return\nServices.createNgModuleRef(this.moduleType, parentInjector || Injector.NULL, this._bootstrapComponents, def);\n };\n return NgModuleFactory_;\n })(NgModuleFactory_);\n\n /**\n * @license\n * Copyright\nGoogle LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\nbe\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright\nGoogle LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\nbe\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright\nGoogle LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can\nbe\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\n if (typeof ngDevMode !== 'undefined' && ngDevMode) {\n // This helper\nis to give a reasonable error message to people upgrading to v9 that have not yet\n // installed\n`@angular/localize` in their app.\n // tslint:disable-next-line: no-toplevel-property-access\n _global.$localize = _global.$localize || function () {\n throw new Error('It looks like your application or one\nof its dependencies is using i18n.\n\n' +\n 'Angular 9\nintroduced a global `$localize()` function that needs to be loaded.\n\n' +\n 'Please run `ng add\n@angular/localize` from the Angular CLI.\n\n' +\n '(For non-CLI projects, add `import\n`@angular/localize/init` to your `polyfills.ts` file.\n\n' +\n 'For server-side rendering applications add the\nimport to your `main.server.ts` file.);\n };\n }\n\n /**\n * @license\n * Copyright Google LLC All\nRights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\nin the LICENSE file at https://angular.io/license\n */\n // This file only reexports content of the `src` folder.

```

Keep it that way.\n\n /\*\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \*\n \* Use of  
this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at  
<https://angular.io/license>\n \*\n /\*\*\n \* Generated bundle index.

Do not edit.\n \*\n\n exports.ANALYZE\_FOR\_ENTRY\_COMPONENTS =  
ANALYZE\_FOR\_ENTRY\_COMPONENTS;\n exports.APP\_BOOTSTRAP\_LISTENER =  
APP\_BOOTSTRAP\_LISTENER;\n exports.APP\_ID = APP\_ID;\n exports.APP\_INITIALIZER =  
APP\_INITIALIZER;\n exports.ApplicationInitStatus = ApplicationInitStatus;\n exports.ApplicationModule =  
ApplicationModule;\n exports.ApplicationRef = ApplicationRef;\n exports.Attribute = Attribute;\n exports.COMPILER\_OPTIONS = COMPILER\_OPTIONS;\n exports.CUSTOM\_ELEMENTS\_SCHEMA =  
CUSTOM\_ELEMENTS\_SCHEMA;\n exports.ChangeDetectorRef = ChangeDetectorRef;\n exports.Compiler =  
Compiler;\n exports.CompilerFactory = CompilerFactory;\n exports.Component = Component;\n exports.ComponentFactory = ComponentFactory;\n exports.ComponentFactoryResolver =  
ComponentFactoryResolver;\n exports.ComponentRef = ComponentRef;\n exports.ContentChild =  
ContentChild;\n exports.ContentChildren = ContentChildren;\n exports.DEFAULT\_CURRENCY\_CODE  
= DEFAULT\_CURRENCY\_CODE;\n exports.DebugElement = DebugElement;\n exports.DebugEventListener  
= DebugEventListener;\n exports.DebugNode = DebugNode;\n exports.DefaultIterableDiffer =  
DefaultIterableDiffer;\n exports.Directive = Directive;\n exports.ElementRef = ElementRef;\n exports.EmbeddedViewRef = EmbeddedViewRef;\n exports.ErrorHandler = ErrorHandler;\n exports.EventEmitter = EventEmitter;\n exports.Host = Host;\n exports.HostBinding = HostBinding;\n exports.HostListener = HostListener;\n exports.INJECTOR = INJECTOR\$1;\n exports.Inject = Inject;\n exports.Injectable = Injectable;\n exports.InjectionToken = InjectionToken;\n exports.Injector = Injector;\n exports.Input = Input;\n exports.IterableDiffers = IterableDiffers;\n exports.KeyValueDiffers =  
KeyValueDiffers;\n exports.LOCALE\_ID = LOCALE\_ID\$1;\n exports.ModuleWithComponentFactories =  
ModuleWithComponentFactories;\n exports.NO\_ERRORS\_SCHEMA = NO\_ERRORS\_SCHEMA;\n\n exports.NgModule = NgModule;\n exports.NgModuleFactory = NgModuleFactory;\n exports.NgModuleFactoryLoader = NgModuleFactoryLoader;\n exports.NgModuleRef = NgModuleRef;\n exports.NgProbeToken = NgProbeToken;\n exports.NgZone = NgZone;\n exports.Optional = Optional;\n exports.Output = Output;\n exports.PACKAGE\_ROOT\_URL = PACKAGE\_ROOT\_URL;\n exports.PLATFORM\_ID = PLATFORM\_ID;\n exports.PLATFORM\_INITIALIZER =  
PLATFORM\_INITIALIZER;\n exports.Pipe = Pipe;\n exports.PlatformRef = PlatformRef;\n exports.Query =  
Query;\n exports.QueryList = QueryList;\n exports.ReflectiveInjector = ReflectiveInjector;\n exports.ReflectiveKey = ReflectiveKey;\n exports.Renderer2 = Renderer2;\n exports.RendererFactory2 =  
RendererFactory2;\n exports.ResolvedReflectiveFactory = ResolvedReflectiveFactory;\n exports.Sanitizer =  
Sanitizer;\n exports.Self = Self;\n exports.SimpleChange = SimpleChange;\n exports.SkipSelf = SkipSelf;\n exports.SystemJsNgModuleLoader  
= SystemJsNgModuleLoader;\n exports.SystemJsNgModuleLoaderConfig = SystemJsNgModuleLoaderConfig;\n\n exports.TRANSLATIONS = TRANSLATIONS;\n exports.TRANSLATIONS\_FORMAT =  
TRANSLATIONS\_FORMAT;\n exports.TemplateRef = TemplateRef;\n exports.Testability = Testability;\n exports.TestabilityRegistry = TestabilityRegistry;\n exports.Type = Type;\n exports.VERSION = VERSION;\n exports.Version = Version;\n exports.ViewChild = ViewChild;\n exports.ViewChildren = ViewChildren;\n exports.ViewContainerRef = ViewContainerRef;\n exports.ViewRef = ViewRef\$1;\n exports.WrappedValue =  
WrappedValue;\n exports.asNativeElements = asNativeElements;\n exports.assertPlatform = assertPlatform;\n exports.createPlatform = createPlatform;\n exports.createPlatformFactory = createPlatformFactory;\n exports.defineInjectable = defineInjectable;\n exports.destroyPlatform = destroyPlatform;\n\n exports.enableProdMode = enableProdMode;\n\n exports.forwardRef = forwardRef;\n exports.getDebugNode = getDebugNode\$1;\n exports.getModuleFactory  
= getModuleFactory;\n exports.getPlatform = getPlatform;\n exports.inject = inject;\n exports.isDevMode =  
isDevMode;\n exports.platformCore = platformCore;\n exports.resolveForwardRef = resolveForwardRef;\n

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exports.setTestabilityGetter = setTestabilityGetter;\n exports.0 = 0;\n exports.1 = 1;\n
exports.ALLOW_MULTIPLE_PLATFORMS = ALLOW_MULTIPLE_PLATFORMS;\n
exports.APP_ID_RANDOM_PROVIDER = APP_ID_RANDOM_PROVIDER;\n
exports.CodegenComponentFactoryResolver = CodegenComponentFactoryResolver;\n
exports.Compiler_compileModuleAndAllComponentsAsync__POST_R3__ =
Compiler_compileModuleAndAllComponentsAsync__POST_R3__;\n
exports.Compiler_compileModuleAndAllComponentsSync__POST_R3__ =
Compiler_compileModuleAndAllComponentsSync__POST_R3__;\n
exports.Compiler_compileModuleAsync__POST_R3__ = Compiler_compileModuleAsync__POST_R3__;\n
exports.Compiler_compileModuleSync__POST_R3__
= Compiler_compileModuleSync__POST_R3__;\n exports.ComponentFactory = ComponentFactory;\n
exports.Console = Console;\n exports.DEFAULT_LOCALE_ID = DEFAULT_LOCALE_ID;\n
exports.EMPTY_ARRAY = EMPTY_ARRAY$4;\n exports.EMPTY_MAP = EMPTY_MAP;\n
exports.INJECTOR_IMPL__POST_R3__ = INJECTOR_IMPL__POST_R3__;\n exports.INJECTOR_SCOPE =
INJECTOR_SCOPE;\n exports.LifecycleHooksFeature = LifecycleHooksFeature;\n exports.NG_COMP_DEF =
NG_COMP_DEF;\n exports.NG_DIR_DEF = NG_DIR_DEF;\n exports.NG_ELEMENT_ID =
NG_ELEMENT_ID;\n exports.NG_INJ_DEF = NG_INJ_DEF;\n exports.NG_MOD_DEF = NG_MOD_DEF;\n
 exports.NG_PIPE_DEF = NG_PIPE_DEF;\n exports.NG_PROV_DEF = NG_PROV_DEF;\n
exports.NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR =
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR;\n exports.NO_CHANGE = NO_CHANGE;\n
exports.NgModuleFactory = NgModuleFactory$1;\n exports.NoopNgZone = NoopNgZone;\n
exports.ReflectionCapabilities
= ReflectionCapabilities;\n exports.Render3ComponentFactory = ComponentFactory$1;\n
exports.Render3ComponentRef = ComponentRef$1;\n exports.Render3NgModuleRef = NgModuleRef$1;\n
exports.SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__ =
SWITCH_CHANGE_DETECTOR_REF_FACTORY__POST_R3__;\n
exports.SWITCH_COMPILE_COMPONENT__POST_R3__ =
SWITCH_COMPILE_COMPONENT__POST_R3__;\n
exports.SWITCH_COMPILE_DIRECTIVE__POST_R3__ = SWITCH_COMPILE_DIRECTIVE__POST_R3__;\n
exports.SWITCH_COMPILE_INJECTABLE__POST_R3__ =
SWITCH_COMPILE_INJECTABLE__POST_R3__;\n
exports.SWITCH_COMPILE_NGMODULE__POST_R3__ =
SWITCH_COMPILE_NGMODULE__POST_R3__;\n exports.SWITCH_COMPILE_PIPE__POST_R3__ =
SWITCH_COMPILE_PIPE__POST_R3__;\n exports.SWITCH_ELEMENT_REF_FACTORY__POST_R3__ =
SWITCH_ELEMENT_REF_FACTORY__POST_R3__;\n exports.SWITCH_IVY_ENABLED__POST_R3__ =
SWITCH_IVY_ENABLED__POST_R3__;\n exports.SWITCH_RENDERER2_FACTORY__POST_R3__ =
SWITCH_RENDERER2_FACTORY__POST_R3__;\n
 exports.SWITCH_TEMPLATE_REF_FACTORY__POST_R3__ =
SWITCH_TEMPLATE_REF_FACTORY__POST_R3__;\n
exports.SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__ =
SWITCH_VIEW_CONTAINER_REF_FACTORY__POST_R3__;\n exports._sanitizeHtml = _sanitizeHtml;\n
exports._sanitizeUrl = _sanitizeUrl;\n exports.allowSanitizationBypassAndThrow =
allowSanitizationBypassAndThrow;\n exports.and = anchorDef;\n exports.angular_packages_core_core_a =
isForwardRef;\n exports.angular_packages_core_core_b = injectInjectorOnly;\n
exports.angular_packages_core_core_ba = DebugContext;\n exports.angular_packages_core_core_bb =
NgOnChangesFeatureImpl;\n exports.angular_packages_core_core_bc = SCHEDULER;\n
exports.angular_packages_core_core_bd = injectAttributeImpl;\n exports.angular_packages_core_core_be =
getLView;\n exports.angular_packages_core_core_bf = getBindingRoot;\n

```

```

exports.angular_packages_core_core_bg = nextContextImpl;\n exports.angular_packages_core_core_bi
= pureFunction1Internal;\n exports.angular_packages_core_core_bj = pureFunction2Internal;\n
exports.angular_packages_core_core_bk = pureFunction3Internal;\n exports.angular_packages_core_core_bl =
pureFunction4Internal;\n exports.angular_packages_core_core_bm = pureFunctionVInternal;\n
exports.angular_packages_core_core_bn = getUrlSanitizer;\n exports.angular_packages_core_core_bo =
makeParamDecorator;\n exports.angular_packages_core_core_bp = makePropDecorator;\n
exports.angular_packages_core_core_bq = getClosureSafeProperty;\n exports.angular_packages_core_core_br =
NullInjector;\n exports.angular_packages_core_core_bs = getInjectImplementation;\n
exports.angular_packages_core_core_bu = getNativeByTNode;\n exports.angular_packages_core_core_bw =
getRootContext;\n exports.angular_packages_core_core_bx = i18nPostprocess;\n
exports.angular_packages_core_core_by = trustedHTMLFromString;\n exports.angular_packages_core_core_bz
= trustedScriptURLFromString;\n exports.angular_packages_core_core_c = ReflectiveInjector_;\n
exports.angular_packages_core_core_ca = trustedScriptFromString;\n exports.angular_packages_core_core_d =
ReflectiveDependency;\n exports.angular_packages_core_core_e = resolveReflectiveProviders;\n
exports.angular_packages_core_core_f = _appIdRandomProviderFactory;\n
exports.angular_packages_core_core_g = injectRenderer2;\n exports.angular_packages_core_core_h =
injectElementRef;\n exports.angular_packages_core_core_i = createElementRef;\n
exports.angular_packages_core_core_j = getModuleFactory__PRE_R3__;\n
exports.angular_packages_core_core_k = injectTemplateRef;\n exports.angular_packages_core_core_l =
createTemplateRef;\n exports.angular_packages_core_core_m = injectViewContainerRef;\n
exports.angular_packages_core_core_n = DebugNode__PRE_R3__;\n exports.angular_packages_core_core_o =
DebugElement__PRE_R3__;\n exports.angular_packages_core_core_p
= getDebugNodeR2__PRE_R3__;\n exports.angular_packages_core_core_q = injectChangeDetectorRef;\n
exports.angular_packages_core_core_r = DefaultIterableDifferFactory;\n exports.angular_packages_core_core_s
= DefaultKeyValueDifferFactory;\n exports.angular_packages_core_core_t = _iterableDiffersFactory;\n
exports.angular_packages_core_core_u = _keyValueDiffersFactory;\n exports.angular_packages_core_core_v =
_localeFactory;\n exports.angular_packages_core_core_w = APPLICATION_MODULE_PROVIDERS;\n
exports.angular_packages_core_core_x = zoneSchedulerFactory;\n exports.angular_packages_core_core_y =
USD_CURRENCY_CODE;\n exports.angular_packages_core_core_z = _def;\n
exports.bypassSanitizationTrustHtml = bypassSanitizationTrustHtml;\n
exports.bypassSanitizationTrustResourceUrl = bypassSanitizationTrustResourceUrl;\n
exports.bypassSanitizationTrustScript = bypassSanitizationTrustScript;\n exports.bypassSanitizationTrustStyle
= bypassSanitizationTrustStyle;\n exports.bypassSanitizationTrustUrl = bypassSanitizationTrustUrl;\n
exports.ccf = createComponentFactory;\n exports.clearOverrides = clearOverrides;\n
exports.clearResolutionOfComponentResourcesQueue = clearResolutionOfComponentResourcesQueue;\n
exports.cmf = createNgModuleFactory;\n exports.compileComponent = compileComponent;\n
exports.compileDirective = compileDirective;\n exports.compileNgModule = compileNgModule;\n
exports.compileNgModuleDefs = compileNgModuleDefs;\n exports.compileNgModuleFactory__POST_R3__ =
compileNgModuleFactory__POST_R3__;\n exports.compilePipe = compilePipe;\n exports.createInjector =
createInjector;\n exports.crt = createRendererType2;\n exports.defaultIterableDiffers = defaultIterableDiffers;\n
exports.defaultKeyValueDiffers = defaultKeyValueDiffers;\n exports.detectChanges = detectChanges;\n
exports.devModeEqual = devModeEqual;\n exports.did
= directiveDef;\n exports.eld = elementDef;\n exports.findLocaleData = findLocaleData;\n
exports.flushModuleScopingQueueAsMuchAsPossible = flushModuleScopingQueueAsMuchAsPossible;\n
exports.getComponentViewDefinitionFactory = getComponentViewDefinitionFactory;\n
exports.getDebugNodeR2 = getDebugNodeR2;\n exports.getDebugNode__POST_R3__ =
getDebugNode__POST_R3__;\n exports.getDirectives = getDirectives;\n exports.getHostElement =
getHostElement;\n exports.getInjectableDef = getInjectableDef;\n exports.getLContext = getLContext;\n

```



```

exports.getLocaleCurrencyCode = getLocaleCurrencyCode;\n exports.getLocalePluralCase =
getLocalePluralCase;\n exports.getModuleFactory__POST_R3__ = getModuleFactory__POST_R3__;\n
exports.getSanitizationBypassType = getSanitizationBypassType;\n exports.global = _global;\n
exports.initServicesIfNeeded = initServicesIfNeeded;\n exports.inlineInterpolate = inlineInterpolate;\n
exports.interpolate
= interpolate;\n exports.isBoundToModule__POST_R3__ = isBoundToModule__POST_R3__;\n
exports.isDefaultChangeDetectionStrategy = isDefaultChangeDetectionStrategy;\n exports.isListLikeIterable =
isListLikeIterable;\n exports.isObservable = isObservable;\n exports.isPromise = isPromise;\n
exports.ivyEnabled = ivyEnabled;\n exports.makeDecorator = makeDecorator;\n exports.markDirty =
markDirty;\n exports.mod = moduleDef;\n exports.mpd = moduleProvideDef;\n exports.ncd =
ngContentDef;\n exports.noSideEffects = noSideEffects;\n exports.nov = nodeValue;\n
exports.overrideComponentView = overrideComponentView;\n exports.overrideProvider = overrideProvider;\n
exports.pad = pureArrayDef;\n exports.patchComponentDefWithScope = patchComponentDefWithScope;\n
exports.pid = pipeDef;\n exports.pod = pureObjectDef;\n exports.ppd = purePipeDef;\n exports.prd =
providerDef;\n exports.publishDefaultGlobalUtils =
publishDefaultGlobalUtils;\n exports.publishGlobalUtil = publishGlobalUtil;\n exports.qud = queryDef;\n
exports.registerLocaleData = registerLocaleData;\n exports.registerModuleFactory = registerModuleFactory;\n
exports.registerNgModuleType = registerNgModuleType;\n exports.renderComponent = renderComponent$1;\n
exports.resetCompiledComponents = resetCompiledComponents;\n exports.resetJitOptions = resetJitOptions;\n
exports.resolveComponentResources = resolveComponentResources;\n exports.setClassMetadata =
setClassMetadata;\n exports.setCurrentInjector = setCurrentInjector;\n exports.setDocument = setDocument;\n
exports.setLocaleId = setLocaleId;\n exports.store = store;\n exports.stringify = stringify;\n exports.ted =
textDef;\n exports.transitiveScopesFor = transitiveScopesFor;\n exports.unregisterLocaleData =
unregisterAllLocaleData;\n exports.unv = unwrapValue;\n exports.unwrapSafeValue = unwrapSafeValue;\n
 exports.vid = viewDef;\n exports.whenRendered = whenRendered;\n exports.CopyDefinitionFeature =
CopyDefinitionFeature;\n exports.InheritDefinitionFeature = InheritDefinitionFeature;\n
exports.NgOnChangesFeature = NgOnChangesFeature;\n exports.ProvidersFeature = ProvidersFeature;\n
exports.advance = advance;\n exports.attribute = attribute;\n exports.attributeInterpolate1 =
attributeInterpolate1;\n exports.attributeInterpolate2 = attributeInterpolate2;\n exports.attributeInterpolate3 =
attributeInterpolate3;\n exports.attributeInterpolate4 = attributeInterpolate4;\n exports.attributeInterpolate5 =
attributeInterpolate5;\n exports.attributeInterpolate6 = attributeInterpolate6;\n exports.attributeInterpolate7 =
attributeInterpolate7;\n exports.attributeInterpolate8 = attributeInterpolate8;\n exports.attributeInterpolateV =
attributeInterpolateV;\n exports.classMap =
classMap;\n exports.classMapInterpolate1 = classMapInterpolate1;\n exports.classMapInterpolate2 =
classMapInterpolate2;\n exports.classMapInterpolate3 = classMapInterpolate3;\n exports.classMapInterpolate4 =
classMapInterpolate4;\n exports.classMapInterpolate5 = classMapInterpolate5;\n
exports.classMapInterpolate6 = classMapInterpolate6;\n exports.classMapInterpolate7 = classMapInterpolate7;\n
exports.classMapInterpolate8 = classMapInterpolate8;\n exports.classMapInterpolateV = classMapInterpolateV;\n
exports.classProp = classProp;\n exports.contentQuery = contentQuery;\n exports.defineComponent =
defineComponent;\n exports.defineDirective = defineDirective;\n exports.defineInjectable = defineInjectable;\n
exports.defineInjector = defineInjector;\n exports.defineNgModule = defineNgModule;\n exports.definePipe =
definePipe;\n exports.directiveInject = directiveInject;\n
 exports.disableBindings = disableBindings;\n exports.element = element;\n exports.elementContainer =
elementContainer;\n exports.elementContainerEnd = elementContainerEnd;\n exports.elementContainerStart =
elementContainerStart;\n exports.elementEnd = elementEnd;\n exports.elementStart = elementStart;\n
exports.enableBindings = enableBindings;\n exports.getCurrentView = getCurrentView;\n exports.getFactoryOf
= getFactoryOf;\n exports.getInheritedFactory = getInheritedFactory;\n exports.hostProperty = hostProperty;\n
exports.i18n = i18n;\n exports.i18nApply = i18nApply;\n exports.i18nAttributes = i18nAttributes;\n

```

```

exports.i18nEnd = i18nEnd;\n exports.i18nExp = i18nExp;\n exports.i18nPostprocess = i18nPostprocess;\n
exports.i18nStart = i18nStart;\n exports.inject = inject;\n exports.injectAttribute = injectAttribute;\n
exports.injectPipeChangeDetectorRef
 = injectPipeChangeDetectorRef;\n exports.invalidFactory = invalidFactory;\n exports.invalidFactoryDep =
invalidFactoryDep;\n exports.listener = listener;\n exports.loadQuery = loadQuery;\n
exports.namespaceHTML = namespaceHTML;\n exports.namespaceMathML = namespaceMathML;\n
exports.namespaceSVG = namespaceSVG;\n exports.nextContext = nextContext;\n exports.pipe = pipe;\n
exports.pipeBind1 = pipeBind1;\n exports.pipeBind2 = pipeBind2;\n exports.pipeBind3 = pipeBind3;\n
exports.pipeBind4 = pipeBind4;\n exports.pipeBindV = pipeBindV;\n exports.projection = projection;\n
exports.projectionDef = projectionDef;\n exports.property = property;\n exports.propertyInterpolate =
propertyInterpolate;\n exports.propertyInterpolate1 = propertyInterpolate1;\n exports.propertyInterpolate2 =
propertyInterpolate2;\n exports.propertyInterpolate3
 = propertyInterpolate3;\n exports.propertyInterpolate4 = propertyInterpolate4;\n exports.propertyInterpolate5 =
propertyInterpolate5;\n exports.propertyInterpolate6 = propertyInterpolate6;\n exports.propertyInterpolate7 =
propertyInterpolate7;\n exports.propertyInterpolate8 = propertyInterpolate8;\n exports.propertyInterpolateV =
propertyInterpolateV;\n exports.pureFunction0 = pureFunction0;\n exports.pureFunction1 = pureFunction1;\n
exports.pureFunction2 = pureFunction2;\n exports.pureFunction3 = pureFunction3;\n exports.pureFunction4 =
pureFunction4;\n exports.pureFunction5 = pureFunction5;\n exports.pureFunction6 = pureFunction6;\n
exports.pureFunction7 = pureFunction7;\n exports.pureFunction8 = pureFunction8;\n exports.pureFunctionV =
pureFunctionV;\n exports.queryRefresh = queryRefresh;\n exports.reference = reference;\n
exports.resolveBody
 = resolveBody;\n exports.resolveDocument = resolveDocument;\n exports.resolveWindow = resolveWindow;\n
exports.restoreView = restoreView;\n exports.sanitizeHtml = sanitizeHtml;\n exports.sanitizeResourceUrl =
sanitizeResourceUrl;\n exports.sanitizeScript = sanitizeScript;\n exports.sanitizeStyle = sanitizeStyle;\n
exports.sanitizeUrl = sanitizeUrl;\n exports.sanitizeUrlOrResourceUrl = sanitizeUrlOrResourceUrl;\n
exports.setComponentScope = setComponentScope;\n exports.setNgModuleScope = setNgModuleScope;\n
exports.staticContentQuery = staticContentQuery;\n exports.staticViewQuery = staticViewQuery;\n
exports.styleMap = styleMap;\n exports.styleMapInterpolate1 = styleMapInterpolate1;\n
exports.styleMapInterpolate2 = styleMapInterpolate2;\n exports.styleMapInterpolate3 = styleMapInterpolate3;\n
exports.styleMapInterpolate4 = styleMapInterpolate4;\n exports.styleMapInterpolate5
 = styleMapInterpolate5;\n exports.styleMapInterpolate6 = styleMapInterpolate6;\n
exports.styleMapInterpolate7 = styleMapInterpolate7;\n exports.styleMapInterpolate8 = styleMapInterpolate8;\n
exports.styleMapInterpolateV = styleMapInterpolateV;\n exports.styleProp = styleProp;\n
exports.stylePropInterpolate1 = stylePropInterpolate1;\n exports.stylePropInterpolate2 = stylePropInterpolate2;\n
exports.stylePropInterpolate3 = stylePropInterpolate3;\n exports.stylePropInterpolate4 = stylePropInterpolate4;\n
exports.stylePropInterpolate5 = stylePropInterpolate5;\n exports.stylePropInterpolate6 = stylePropInterpolate6;\n
exports.stylePropInterpolate7 = stylePropInterpolate7;\n exports.stylePropInterpolate8 = stylePropInterpolate8;\n
exports.stylePropInterpolateV = stylePropInterpolateV;\n exports.syntheticHostListener =
syntheticHostListener;\n exports.syntheticHostProperty
 = syntheticHostProperty;\n exports.template = template;\n exports.templateRefExtractor =
templateRefExtractor;\n exports.text = text;\n exports.textInterpolate = textInterpolate;\n
exports.textInterpolate1 = textInterpolate1;\n exports.textInterpolate2 = textInterpolate2;\n
exports.textInterpolate3 = textInterpolate3;\n exports.textInterpolate4 = textInterpolate4;\n
exports.textInterpolate5 = textInterpolate5;\n exports.textInterpolate6 = textInterpolate6;\n
exports.textInterpolate7 = textInterpolate7;\n exports.textInterpolate8 = textInterpolate8;\n
exports.textInterpolateV = textInterpolateV;\n exports.trustConstantHtml = trustConstantHtml;\n
exports.trustConstantResourceUrl = trustConstantResourceUrl;\n exports.trustConstantScript =
trustConstantScript;\n exports.viewQuery = viewQuery;\n\n Object.defineProperty(exports, '__esModule', {

```

```
value: true
});\n\n}});\n// # sourceMappingURL=core.umd.js.map\n"]}
```

Found in path(s):

- \* /core-11-0-2-tgz/package/bundles/core.umd.min.js.map

No license file was found, but licenses were detected in source scan.

```
/**
 * @license Angular v11.0.2
 * (c) 2010-2020 Google LLC. https://angular.io/
 * License: MIT
 */
```

Found in path(s):

- \* /core-11-0-2-tgz/package/testing/testing.d.ts
- \* /core-11-0-2-tgz/package/src/r3\_symbols.d.ts
- \* /core-11-0-2-tgz/package/testing.d.ts
- \* /core-11-0-2-tgz/package/core.d.ts

## 1.440 @angular/platform-browser 11.0.2

### 1.440.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
{ "version": 3, "file": "platform-browser-
animations.umd.js", "sources": ["../external/npm/node_modules/tslib/tslib.es6.js",
"../packages/platform-browser/animations/src/animation_builder.ts",
"../packages/platform-browser/animations/src/animation_renderer.ts",
"../packages/platform-browser/animations/src/providers.ts",
"../packages/platform-browser/animations/src/module.ts",
"../packages/platform-browser/animations/src/private_export.ts",
"../packages/platform-browser/animations/src/animations.ts",
"../packages/platform-browser/animations/public_api.ts",
"../packages/platform-browser/animations/index.ts",
"../packages/platform-browser/animations/animations.ts"], "sourcesContent": ["/*!
```

```
*****\r\nCopyright (c)
```

Microsoft Corporation.\r\n\r\nPermission

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SOFTWARE.\r\n\*\*\*\*\*

```
/\r\n global Reflect, Promise */\r\n\r\nvar extendStatics = function(d, b) {\r\n extendStatics =
```

```

Object.setPrototypeOf || ({} instanceof Array && function (d, b) { d.__proto__ = b; }) ||
function (d, b) { for (var p in b) if (b.hasOwnProperty(p))
d[p] = b[p]; }; return extendStatics(d, b); }
export function __extends(d, b) { __extends(d, b);
function __() { this.constructor = d; }
d.prototype = b === null ? Object.create(b) : (
__proto__ = b.prototype, new __()); }
export var __assign = function() { __assign = Object.assign || function
__assign(t) { for (var s, i = 1, n = arguments.length; i < n; i++) {
s = arguments[i]; for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p]; }
return t; }
__assign.apply(this, arguments); }
export function __rest(s, e) { var t = {}; for (var p in s) if
(Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0) t[p] = s[p];
if (s != null && typeof Object.getOwnPropertySymbols === "function")
for (var i = 0, p = Object.getOwnPropertySymbols(s); i <
p.length; i++) {
if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))
t[p[i]] = s[p[i]]; }
return t; }
export function __decorate(decorators, target, key, desc) { var c =
arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc,
d; if (typeof Reflect === "object" && typeof Reflect.decorate === "function") r =
Reflect.decorate(decorators, target, key, desc); else for (var i = decorators.length - 1; i >= 0; i--) if (d =
decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;
return c > 3 && r && Object.defineProperty(target, key, r, r); }
export function __param(paramIndex, decorator) { return
function (target, key) { decorator(target, key, paramIndex); } }
export function __metadata(metadataKey, metadataValue) { if (typeof Reflect === "object" && typeof Reflect.metadata
=== "function") return Reflect.metadata(metadataKey, metadataValue); }
export function __awaiter(thisArg, _arguments, P, generator) { function adopt(value) { return value instanceof P ? value : new
P(function (resolve) { resolve(value); }); }
return new (P || (P = Promise))(function (resolve, reject) { function
fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }
function
rejected(value) { try { step(generator["throw"](value)); } catch (e) { reject(e); } }
function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }
step((generator = generator.apply(thisArg, _arguments || [])).next()); }
}); }
export function __generator(thisArg, body) { var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;
return g = { next: verb(0), "throw": verb(1), "return":
verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function() { return this; }), g;
function verb(n) { return function (v) { return step([n, v]); }; }
function step(op) { if (f) throw new
TypeError("Generator is already executing.");
while (1) try { if (f = 1, y && (t = op[0] & 2 ?
y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done)
return t;
if (y = 0, t) op = [op[0] & 2, t.value];
switch (op[0]) { case 0: case 1: t =
op; break;
case 4: _label++; return { value: op[1], done: false };
case 5: _label++; y =
op[1]; op = [0]; continue;
case 7: op = _ops.pop(); _trys.pop(); continue;
default:
if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }
if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _label = op[1]; break; }
if (op[0] === 6 && _label < t[1]) { _label = t[1]; t = op; break; }
if (t && _label < t[2]) { _label =
t[2]; _ops.push(op); break; }
if (t[2]) _ops.pop(); _trys.pop(); continue; }
}
op = body.call(thisArg, _);
} catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }
if (op[0] & 5) throw op[1]; return { value: op[0] ? op[1] : void 0, done: true }; }
}
export var __createBinding = Object.create ? (function(o, m, k, k2) { if (k2 === undefined) k2 = k;
Object.defineProperty(o, k2, { enumerable: true, get: function() { return m[k]; } }); }) : (function(o, m, k, k2) { if (k2 === undefined) k2 =
k;
o[k2] = m[k]; });
export function __exportStar(m, exports) { for (var p in m)
if (p !== "default" && !exports.hasOwnProperty(p)) __createBinding(exports, m, p); }
export function __values(o) { var s = typeof Symbol === "function" && Symbol.iterator, m = s && o[s], i = 0;
if (m) return m.call(o);
if (o && typeof o.length === "number") return {
next: function () { if (o

```

```

 && i >= o.length) o = void 0;\r\n return { value: o && o[i++], done: !o };\r\n };\r\n throw new
TypeError(s ? "Object is not iterable." : "Symbol.iterator is not defined.");\r\n\r\n\r\nexport function __read(o, n)
{\r\n var m = typeof Symbol === "function" && o[Symbol.iterator];\r\n if (!m) return o;\r\n var i = m.call(o),
r, ar = [], e;\r\n try {\r\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done) ar.push(r.value);\r\n }\r\n
catch (error) { e = { error: error }; }\r\n finally {\r\n try {\r\n if (r && !r.done && (m = i["return"]))
m.call(i);\r\n }\r\n finally { if (e) throw e.error; }\r\n }\r\n return ar;\r\n}\r\n\r\nexport function __spread() {\r\n for
(var ar = [], i = 0; i < arguments.length; i++)\r\n ar = ar.concat(__read(arguments[i]));\r\n return
ar;\r\n}\r\n\r\nexport function __spreadArrays() {\r\n for (var s = 0, i = 0, il = arguments.length; i < il; i++) s +=
arguments[i].length;\r\n for (var r = Array(s), k = 0, i = 0; i < il; i++)\r\n for (var a = arguments[i], j = 0, jl =
a.length; j < jl; j++, k++)\r\n r[k] = a[j];\r\n return r;\r\n};\r\n\r\nexport function __await(v) {\r\n return
this instanceof __await ? (this.v = v, this) : new __await(v);\r\n}\r\n\r\nexport function __asyncGenerator(thisArg,
_arguments, generator) {\r\n if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n var g = generator.apply(thisArg, _arguments || []), i, q = [];\r\n return i = { }, verb("next"),
verb("throw"), verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i;\r\n function verb(n) { if (g[n]) i[n] = function (v) { return
new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\r\n function resume(n, v) { try {
step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n function step(r) { r.value instanceof __await ?
Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\r\n function fulfill(value) { resume("next",
value); }\r\n function reject(value) { resume("throw", value); }\r\n function settle(f, v) { if (f(v), q.shift(),
q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\nexport function __asyncDelegator(o) {\r\n var i, p;\r\n return i =
{ }, verb("next"), verb("throw"), function (e) { throw e; }, }, verb("return"), i[Symbol.iterator] = function () {
return this; }, i;\r\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\nexport function __asyncValues(o) {\r\n if (!Symbol.asyncIterator) throw new
TypeError("Symbol.asyncIterator is not defined.");\r\n var m = o[Symbol.asyncIterator], i;\r\n return m ?
m.call(o) : (o = typeof __values === "function" ? __values(o) : o[Symbol.iterator](), i = { }, verb("next"),
verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i);\r\n function verb(n) {
i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject,
v.done, v.value); }); }; }\r\n function settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) { resolve({
value: v, done: d }); }, reject); }\r\n}\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n if
(Object.defineProperty) { Object.defineProperty(cooked, "raw", { value: raw }); } else { cooked.raw = raw; }\r\n
return cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create ? (function(o,
v) {\r\n Object.defineProperty(o, "default", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n
o["default"] = v;\r\n};\r\n\r\nexport function __importStar(mod) {\r\n if (mod && mod.__esModule) return
mod;\r\n var result = {};\r\n if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k))
__createBinding(result, mod, k);\r\n __setModuleDefault(result, mod);\r\n return result;\r\n}\r\n\r\nexport
function __importDefault(mod) {\r\n return (mod && mod.__esModule) ? mod : { default: mod
};\r\n}\r\n\r\nexport function __classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver))
{\r\n throw new TypeError("attempted to get private field on non-instance");\r\n }\r\n return
privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver)) {\r\n throw new TypeError("attempted to set private field on non-instance");\r\n
 }\r\n privateMap.set(receiver, value);\r\n return value;\r\n}\r\n\r\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\nimport { AnimationBuilder, AnimationFactory,
AnimationMetadata, AnimationOptions, AnimationPlayer, sequence } from '@angular/animations';\nimport
{ DOCUMENT } from '@angular/common';\nimport { Inject, Injectable, RendererFactory2, RendererType2,
ViewEncapsulation } from '@angular/core';\nimport { AnimationRenderer } from

```

```

'/animation_renderer';\n\n@Injectable()\nexport class BrowserAnimationBuilder extends AnimationBuilder {\n
private _nextAnimationId = 0;\n private _renderer: AnimationRenderer;\n\n constructor(rootRenderer:
RendererFactory2, @Inject(DOCUMENT) doc: any) {\n super();\n const typeData =\n {id: 'O',
encapsulation: ViewEncapsulation.None, styles: [], data: {animation: []}} as\n
 RendererType2;\n this._renderer = rootRenderer.createRenderer(doc.body, typeData) as
AnimationRenderer;\n }\n\n build(animation: AnimationMetadata|AnimationMetadata[]): AnimationFactory {\n
const id = this._nextAnimationId.toString();\n this._nextAnimationId++;\n const entry =
Array.isArray(animation) ? sequence(animation) : animation;\n issueAnimationCommand(this._renderer, null, id,
'register', [entry]);\n return new BrowserAnimationFactory(id, this._renderer);\n }\n}\n\nexport class
BrowserAnimationFactory extends AnimationFactory {\n constructor(private _id: string, private _renderer:
AnimationRenderer) {\n super();\n }\n\n create(element: any, options?: AnimationOptions): AnimationPlayer {\n
return new RendererAnimationPlayer(this._id, element, options || {}, this._renderer);\n }\n}\n\nexport class
RendererAnimationPlayer implements AnimationPlayer {\n public parentPlayer: AnimationPlayer|null = null;\n
private _started = false;\n\n constructor(\n
 public id: string, public element: any, options: AnimationOptions,\n private _renderer: AnimationRenderer)
{\n this._command('create', options);\n }\n\n private _listen(eventName: string, callback: (event: any) => any): ()
=> void {\n return this._renderer.listen(this.element, `@@${this.id}:${eventName}`, callback);\n }\n\n private
_command(command: string, ...args: any[]) {\n return issueAnimationCommand(this._renderer, this.element,
this.id, command, args);\n }\n\n onDone(fn: () => void): void {\n this._listen('done', fn);\n }\n\n onStart(fn: ()
=> void): void {\n this._listen('start', fn);\n }\n\n onDestroy(fn: () => void): void {\n this._listen('destroy', fn);\n
}\n\n init(): void {\n this._command('init');\n }\n\n hasStarted(): boolean {\n return this._started;\n }\n\n
play(): void {\n this._command('play');\n this._started = true;\n }\n\n pause(): void {\n
this._command('pause');\n }\n\n restart(): void {\n
this._command('restart');\n }\n\n finish(): void {\n this._command('finish');\n }\n\n destroy(): void {\n
this._command('destroy');\n }\n\n reset(): void {\n this._command('reset');\n }\n\n setPosition(p: number): void
{\n this._command('setPosition', p);\n }\n\n getPosition(): number {\n return 0;\n }\n\n public totalTime =
0;\n}\n\nfunction issueAnimationCommand(\n renderer: AnimationRenderer, element: any, id: string, command:
string, args: any[]): any {\n return renderer.setProperty(element, `@@${id}:${command}`, args);\n }\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport
{AnimationTriggerMetadata} from '@angular/animations';\nimport {AnimationEngine as AnimationEngine} from
'@angular/animations/browser';\nimport {Injectable, NgZone, Renderer2, RendererFactory2, RendererStyleFlags2,
RendererType2} from '@angular/core';\n\nconst ANIMATION_PREFIX = '@';\nconst
DISABLE_ANIMATIONS_FLAG = '@.disabled';\n\n// Define a recursive type to allow for nested arrays of
`AnimationTriggerMetadata`. Note that an\n// interface declaration is used as TypeScript prior to 3.7 does not
support recursive type\n// references, see https://github.com/microsoft/TypeScript/pull/33050 for details.\ntype
NestedAnimationTriggerMetadata = AnimationTriggerMetadata|RecursiveAnimationTriggerMetadata;\n\ninterface
RecursiveAnimationTriggerMetadata extends Array<NestedAnimationTriggerMetadata>
{\n}\n\n@Injectable()\nexport class AnimationRendererFactory implements RendererFactory2 {\n private _currentId:
number = 0;\n private _microtaskId: number = 1;\n private _animationCallbacksBuffer: [(e: any) => any, any][] =
[];\n private _rendererCache = new Map<Renderer2, BaseAnimationRenderer>();\n private _cdRecurDepth = 0;\n
private promise: Promise<any> = Promise.resolve(0);\n\n constructor(\n
 private delegate: RendererFactory2, private engine: AnimationEngine, private _zone: NgZone) {\n
 engine.onRemovalComplete = (element: any, delegate: Renderer2) => {\n // Note: if an component element has a
leave animation, and the component\n // a host leave animation, the view engine will call `removeChild` for the
parent\n // component renderer as well as for the child component renderer.\n // Therefore, we need to check if
we already removed the element.\n if (delegate && delegate.parentNode(element)) {\n
 delegate.removeChild(element.parentNode, element);\n }\n }\n }\n\n createRenderer(hostElement: any, type:

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RendererType2): Renderer2 {\n const EMPTY_NAMESPACE_ID = '';\n // cache the delegates to find out
which cached delegate can\n // be used by which cached renderer\n const delegate =
this.delegate.createRenderer(hostElement, type);\n if (!hostElement || !type || !type.data || !type.data['animation'])
{\n let renderer:
BaseAnimationRenderer|undefined = this._rendererCache.get(delegate);\n if (!renderer) {\n renderer = new
BaseAnimationRenderer(EMPTY_NAMESPACE_ID, delegate, this.engine);\n // only cache this result when
the base renderer is used\n this._rendererCache.set(delegate, renderer);\n }\n return renderer;\n }\n\n const componentId = type.id;\n const namespaceId = type.id + '-' + this._currentId;\n this._currentId++;\n\n this.engine.register(namespaceId, hostElement);\n\n const registerTrigger = (trigger:
NestedAnimationTriggerMetadata) => {\n if (Array.isArray(trigger)) {\n trigger.forEach(registerTrigger);\n } else {\n this.engine.registerTrigger(componentId, namespaceId, hostElement, trigger.name, trigger);\n }\n };\n const animationTriggers = type.data['animation'] as NestedAnimationTriggerMetadata[];\n animationTriggers.forEach(registerTrigger);\n\n return new AnimationRenderer(this, namespaceId,
delegate, this.engine);\n}\n\nbegin() {\n this._cdRecurDepth++;\n if (this.delegate.begin) {\n this.delegate.begin();\n }\n}\n\nprivate _scheduleCountTask() {\n // always use promise to schedule microtask
instead of use Zone\n this.promise.then(() => {\n this._microtaskId++;\n });\n}\n\n/** @internal */\nscheduleListenerCallback(count: number, fn: (e: any) => any, data: any) {\n if (count >= 0 && count <
this._microtaskId) {\n this._zone.run(() => fn(data));\n return;\n }\n\n if
(this._animationCallbacksBuffer.length == 0) {\n Promise.resolve(null).then(() => {\n this._zone.run(() =>
{\n this._animationCallbacksBuffer.forEach(tuple => {\n const [fn, data] = tuple;\n fn(data);\n });\n this._animationCallbacksBuffer = [];\n });\n });\n }\n\n this._animationCallbacksBuffer.push([fn, data]);\n}\n\nend() {\n this._cdRecurDepth--;\n\n //
this is to prevent animations from running twice when an inner\n // component does CD when a parent component
instead has inserted it\n if (this._cdRecurDepth == 0) {\n this._zone.runOutsideAngular(() => {\n this._scheduleCountTask();\n this.engine.flush(this._microtaskId);\n });\n }\n\n if (this.delegate.end) {\n this.delegate.end();\n }\n}\n\nwhenRenderingDone(): Promise<any> {\n return
this.engine.whenRenderingDone();\n}\n}\n\nexport class BaseAnimationRenderer implements Renderer2 {\n constructor(\n protected namespaceId: string, public delegate: Renderer2, public engine: AnimationEngine) {\n this.destroyNode = this.delegate.destroyNode ? (n) => delegate.destroyNode!(n) : null;\n }\n\n get data() {\n return this.delegate.data;\n }\n\n destroyNode: ((n: any) => void)|null;\n\n destroy(): void {\n this.engine.destroy(this.namespaceId, this.delegate);\n this.delegate.destroy();\n }\n\n createElement(name:
string,
namespace?: string|null|undefined) {\n return this.delegate.createElement(name, namespace);\n }\n\n createComment(value: string) {\n return this.delegate.createComment(value);\n }\n\n createText(value: string)
{\n return this.delegate.createText(value);\n }\n\n appendChild(parent: any, newChild: any): void {\n this.delegate.appendChild(parent, newChild);\n this.engine.onInsert(this.namespaceId, newChild, parent, false);\n }\n\n insertBefore(parent: any, newChild: any, refChild: any, isMove: boolean = true): void {\n this.delegate.insertBefore(parent, newChild, refChild);\n // If `isMove` true than we should animate this insert.\n this.engine.onInsert(this.namespaceId, newChild, parent, isMove);\n }\n\n removeChild(parent: any, oldChild: any,
isHostElement: boolean): void {\n this.engine.onRemove(this.namespaceId, oldChild, this.delegate,
isHostElement);\n }\n\n selectRootElement(selectorOrNode: any, preserveContent?: boolean) {\n return
this.delegate.selectRootElement(selectorOrNode,
preserveContent);\n }\n\n parentNode(node: any) {\n return this.delegate.parentNode(node);\n }\n\n nextSibling(node: any) {\n return this.delegate.nextSibling(node);\n }\n\n setAttribute(el: any, name: string,
value: string, namespace?: string|null|undefined): void {\n this.delegate.setAttribute(el, name, value,
namespace);\n }\n\n removeAttribute(el: any, name: string, namespace?: string|null|undefined): void {\n this.delegate.removeAttribute(el, name, namespace);\n }\n\n addClass(el: any, name: string): void {\n this.delegate.addClass(el, name);\n }\n\n removeClass(el: any, name: string): void {\n

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this.delegate.removeClass(el, name);\n }\n\n setStyle(el: any, style: string, value: any, flags?:
RendererStyleFlags2|undefined): void {\n this.delegate.setStyle(el, style, value, flags);\n }\n\n removeStyle(el:
any, style: string, flags?: RendererStyleFlags2|undefined): void {\n this.delegate.removeStyle(el,
style, flags);\n }\n\n setProperty(el: any, name: string, value: any): void {\n if (name.charAt(0) ==
ANIMATION_PREFIX && name == DISABLE_ANIMATIONS_FLAG) {\n this.disableAnimations(el,
!!value);\n } else {\n this.delegate.setProperty(el, name, value);\n }\n }\n\n setValue(node: any, value:
string): void {\n this.delegate.setValue(node, value);\n }\n\n listen(target: any, eventName: string, callback:
(event: any) => boolean | void): () => void {\n return this.delegate.listen(target, eventName, callback);\n }\n\n
protected disableAnimations(element: any, value: boolean) {\n this.engine.disableAnimations(element, value);\n
}\n}\n\nexport class AnimationRenderer extends BaseAnimationRenderer implements Renderer2 {\n constructor(\n
 public factory: AnimationRendererFactory, namespaceId: string, delegate: Renderer2,\n engine:
AnimationEngine) {\n super(namespaceId, delegate, engine);\n this.namespaceId = namespaceId;\n }\n\n
setProperty(el:
any, name: string, value: any): void {\n if (name.charAt(0) == ANIMATION_PREFIX) {\n if (name.charAt(1)
== '.' && name == DISABLE_ANIMATIONS_FLAG) {\n value = value === undefined ? true : !!value;\n
this.disableAnimations(el, value as boolean);\n } else {\n this.engine.process(this.namespaceId, el,
name.substr(1), value);\n }\n } else {\n this.delegate.setProperty(el, name, value);\n }\n }\n\n
listen(target: 'window'|'document'|'body'|any, eventName: string, callback: (event: any) => any): \n () => void {\n
if (eventName.charAt(0) == ANIMATION_PREFIX) {\n const element = resolveElementFromTarget(target);\n
 let name = eventName.substr(1);\n let phase = ";\n // @listener.phase is for trigger animation callbacks\n
// @@listener is for animation builder callbacks\n if (name.charAt(0) != ANIMATION_PREFIX) {\n [name,
phase] = parseTriggerCallbackName(name);\n }\n return this.engine.listen(this.namespaceId,
element, name, phase, event => {\n const countId = (event as any)['_data'] || -1;\n
this.factory.scheduleListenerCallback(countId, callback, event);\n });\n }\n\n return this.delegate.listen(target,
eventName, callback);\n }\n\nfunction resolveElementFromTarget(target: 'window'|'document'|'body'|any): any
{\n switch (target) {\n case 'body':\n return document.body;\n case 'document':\n return document;\n
case 'window':\n return window;\n default:\n return target;\n }\n }\n\nfunction
parseTriggerCallbackName(triggerName: string) {\n const dotIndex = triggerName.indexOf('.');\n const trigger =
triggerName.substring(0, dotIndex);\n const phase = triggerName.substr(dotIndex + 1);\n return [trigger,
phase];\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { AnimationBuilder } from '@angular/animations';\nimport { AnimationDriver, AnimationEngine as
AnimationEngine, AnimationStyleNormalizer as AnimationStyleNormalizer, CssKeyframesDriver as
CssKeyframesDriver, NoopAnimationDriver as NoopAnimationDriver, supportsWebAnimations as
supportsWebAnimations, WebAnimationsDriver as WebAnimationsDriver, WebAnimationsStyleNormalizer as
WebAnimationsStyleNormalizer } from '@angular/animations/browser';\nimport { DOCUMENT } from
'@angular/common';\nimport { Inject, Injectable, InjectionToken, NgZone, Provider, RendererFactory2 } from
'@angular/core';\nimport { DomRendererFactory2 as DomRendererFactory2 } from '@angular/platform-
browser';\nimport { BrowserAnimationBuilder } from './animation_builder';\nimport { AnimationRendererFactory }
from './animation_renderer';\n\n@Injectable()\nexport class InjectableAnimationEngine extends AnimationEngine
{\n constructor(\n @Inject(DOCUMENT) doc: any, driver: AnimationDriver, normalizer:
AnimationStyleNormalizer) {\n super(doc.body, driver, normalizer);\n }\n\n\nexport function
instantiateSupportedAnimationDriver() {\n return supportsWebAnimations() ? new WebAnimationsDriver() : new
CssKeyframesDriver();\n }\n\nexport function instantiateDefaultStyleNormalizer() {\n return new
WebAnimationsStyleNormalizer();\n }\n\nexport function instantiateRendererFactory(\n renderer:
DomRendererFactory2, engine: AnimationEngine, zone: NgZone) {\n return new
AnimationRendererFactory(renderer, engine, zone);\n }\n\n/**\n * @publicApi\n */\nexport const
ANIMATION_MODULE_TYPE =\n new

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InjectionToken<'NoopAnimations'|'BrowserAnimations'>('AnimationModuleType');\n\nconst
SHARED_ANIMATION_PROVIDERS: Provider[] = [\n {provide: AnimationBuilder, useClass:
BrowserAnimationBuilder},\n {provide: AnimationStyleNormalizer, useFactory:
instantiateDefaultStyleNormalizer},\n {provide: AnimationEngine, useClass: InjectableAnimationEngine}, {\n
provide: RendererFactory2,\n
 useFactory: instantiateRendererFactory,\n deps: [DomRendererFactory2, AnimationEngine, NgZone]\n
}]\n\n/**\n * Separate providers from the actual module so that we can do a local modification in Google3 to\n *
include them in the BrowserModule.\n */\nexport const BROWSER_ANIMATIONS_PROVIDERS: Provider[] =
[\n {provide: AnimationDriver, useFactory: instantiateSupportedAnimationDriver},\n {provide:
ANIMATION_MODULE_TYPE, useValue: 'BrowserAnimations'},
...SHARED_ANIMATION_PROVIDERS]\n\n/**\n * Separate providers from the actual module so that we can
do a local modification in Google3 to\n * include them in the BrowserTestingModule.\n */\nexport const
BROWSER_NOOP_ANIMATIONS_PROVIDERS: Provider[] = [\n {provide: AnimationDriver, useClass:
NoopAnimationDriver},\n {provide: ANIMATION_MODULE_TYPE, useValue: 'NoopAnimations'},
...SHARED_ANIMATION_PROVIDERS]\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {NgModule} from
'@angular/core';\nimport {BrowserModule} from '@angular/platform-browser';\nimport
{BROWSER_ANIMATIONS_PROVIDERS, BROWSER_NOOP_ANIMATIONS_PROVIDERS} from
'./providers';\n\n/**\n * Exports `BrowserModule` with additional [dependency-injection
providers](guide/glossary#provider)\n * for use with animations. See [Animations](guide/animations).\n */
\n@publicApi\n */\n@NgModule({\n exports: [BrowserModule],\n providers:
BROWSER_ANIMATIONS_PROVIDERS,\n})\nexport class BrowserAnimationsModule {\n}\n\n/**\n * A null
player that must be imported to allow disabling of animations.\n */\n@publicApi\n */\n@NgModule({\n exports:
[BrowserModule],\n providers: BROWSER_NOOP_ANIMATIONS_PROVIDERS,\n})\nexport class
NoopAnimationsModule {\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of
this source code is governed by an MIT-style license that can be\n
\n * found in the LICENSE file at https://angular.io/license\n */\nexport {BrowserAnimationBuilder as
BrowserAnimationBuilder, BrowserAnimationFactory as BrowserAnimationFactory} from
'./animation_builder';\nexport {AnimationRenderer as AnimationRenderer, AnimationRendererFactory as
AnimationRendererFactory} from './animation_renderer';\nexport {InjectableAnimationEngine as
InjectableAnimationEngine} from './providers';\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n/**\n * @module\n * @description\n * Entry point for all
animation APIs of the animation browser package.\n */\nexport {BrowserAnimationsModule,
NoopAnimationsModule} from './module';\n\nexport {ANIMATION_MODULE_TYPE} from
'./providers';\n\nexport * from './private_export';\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n/**\n * @module\n * @description\n * Entry point for all public APIs of this
package.\n */\nexport * from './src/animations';\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this module. It is only used during
editing\n// by the TypeScript language service and during build for verification. `ngc` replaces this file with
production index.ts when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n\n"/**\n * Generated
bundle index. Do not edit.\n */\n\nexport * from './index';\n\nexport {BaseAnimationRenderer as
angular_packages_platform_browser_animations_animations_f} from './src/animation_renderer';\n\nexport
{BROWSER_ANIMATIONS_PROVIDERS

```

as

```
angular_packages_platform_browser_animations_animations_d,BROWSER_NOOP_ANIMATIONS_PROVIDER
S as angular_packages_platform_browser_animations_animations_e,instantiateDefaultStyleNormalizer as
angular_packages_platform_browser_animations_animations_b,instantiateRendererFactory as
angular_packages_platform_browser_animations_animations_c,instantiateSupportedAnimationDriver as
angular_packages_platform_browser_animations_animations_a} from
'./src/providers';"],"names":["ViewEncapsulation","sequence","AnimationBuilder","Injectable","RendererFactory2",
"Inject","DOCUMENT","AnimationFactory","AnimationEngine","NgZone","AnimationDriver","AnimationStyleN
ormalizer","supportsWebAnimations","WebAnimationsDriver","CssKeyframesDriver","WebAnimationsStyleNorm
alizer","InjectionToken","DomRendererFactory2","NoopAnimationDriver","NgModule","BrowserModule"],"mappi
ngs":",,,,,,,,,,IAAA,,,,,,,,,IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,
MAAM,CAAC,cAAc;aAchC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,IAAI,UAAU,CAAC,EAAE,CAA
C,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EAAE,CAAC,IAAI,KA
AK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBAAE,CAAC,CAAC,C
AAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa,CAAC,CAAC,EAA
E,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC1B,aAAa,CAAC,C
AAC,EAAE,CAAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,WAAW,GAAG,CAAC,CAAC,EA
AE;QACvC,CAAC,CAAC,SAAS,GAAG,CAAC,KAAK,IAAI,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,CA
AC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE,EAAE,CAAC,CAAC;IACzF,CA
AC;IAEM,IAAI,QAAQ,GAAG;QACIB,QAAQ,GAAG,MAAM,CAAC,MAAM,IAAI,SAAS,QAAQ,CAAC,CAA
C;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,
CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;g
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 ,CAAC,CAAC;SAC/C;oCACF;KAAA,IAAA;;QAEsC,qCAAqB;QAC1D,2BACW,OAAiC,EAAE,WAAmB,EAA  
 E,QAAmB,EACIF,MAAuB;YAF3B,YAGE,kBAAM,WAAW,EAAE,QAAQ,EAAE,MAAM,CAAC,SAErC;YAJU  
 ,aAAO,GAAP,OAAO,CAA0B;YAG1C,KAAI,CAAC,WAAW,GAAG,WAAW,CAAC;;SACHC;QAED,uCAAW,G  
 AAX,UAAy,EAAO,EAAE,IAAY,EAAE,KAAU;YAC3C,IAAI,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,  
 gBAAGB,EAAE;gBACtC,IAAI,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,GAAG,IAAI,IAAI,IAAI,uBAAu  
 B,EAAE;oBAC5D,KAAK,GAAG,KAAK,KAAK,SAAS,GAAG,IAAI,GAAG,CAAC,CAAC,KAAK,CAAC;oBAC  
 7C,IAAI,CAAC,iBAAiB,CAAC,EAAE,EAAE,KAAgB,CAAC,CAAC;iBAC9C;qBAAM;oBACL,IAAI,CAAC,M  
 AAM,CAAC,OAAO,CAAC,IAAI,CAAC,WAAW,EAAE,EAAE,EAAE,IAAI,CAAC,MAAM,CAAC,CAAC,CAA  
 C,EAAE,KAAK,CAAC,CAAC;iBACIE;aACF;iBAAM;gBACL,IAAI,CAAC,QAAQ,CAAC,WAAW,CAAC,EAA  
 E,EAAE,IAAI,EAAE,KAAK,CAAC,CAAC;aAC5C;SACF;QAED,kCAAM,GAAN,UAAO,MAAsC,EAAE,SAAi  
 B,EAAE,QAA6B;;YAA/F,iBAiBC;YAfC,IAAI,SAAS,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,gBAAGB,EAA  
 E;gBAC3C,IAAM,OAAO,GAAG,wBAAwB,CAAC,MAAM,CAAC,CAAC;gBACjD,IAAI,IAAI,GAAG,SAAS,C  
 AAC,MAAM,CAAC,CAAC,CAAC,CAAC;gBAC/B,IAAI,KAAK,GAAG,EAAE,CAAC;;;gBAGf,IAAI,IAAI,CA  
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 ,IAAA,EAA7C,IAAI,QAAA,EAAE,KAAK,QAAA,CAAmC;iBACHD;gBACD,OAAO,IAAI,CAAC,MAAM,CAA  
 C,MAAM,CAAC,IAAI,CAAC,WAAW,EAAE,OAAO,EAAE,IAAI,EAAE,KAAK,EAAE,UAAA,KAAK;oBACrE,  
 IAAM,OAAO,GAAI,KAAa,CAAC,OAAO,CAAC,IAAI,CAAC,CAAC,CAAC;oBAC9C,KAAI,CAAC,OAAO,CA  
 AC,wBAAwB,CAAC,OAAO,EAAE,QAAQ,EAAE,KAAK,CAAC,CAAC;iBACjE,CAAC,CAAC;aACJ;YACD,O  
 AAO,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC,MAAM,EAAE,SAAS,EAAE,QAAQ,CAAC,CAAC;SAC1D;gC  
 ACF;KAvCD,CAAuC,qBAAqB,GAuC3D;IAED,SAAS,wBAAwB,CAAC,MAAsC;QACtE,QAAQ,MAAM;YACZ  
 ,KAAK,MAAM;gBACT,OAAO,QAAQ,CAAC,IAAI,CAAC;YACvB,KAAK,UAAU;gBACb,OAAO,QAAQ,CAA  
 C;YACIB,KAAK,QAAQ;gBACX,OAAO,MAAM,CAAC;YACHb;gBACE,OAAO,MAAM,CAAC;SACjB;IACH,  
 CAAC;IAED,SAAS,wBAAwB,CAAC,WAAmB;QACnD,IAAM,QAAQ,GAAG,WAAW,CAAC,OAAO,CAAC,G  
 AAG,CAAC,CAAC;QAC1C,IAAM,OAAO,GAAG,WAAW,CAAC,SAAS,CAAC,CAAC,EAAE,QAAQ,CAAC,C  
 AAC;QACnD,IAAM,KAAK,GAAG,WAAW,CAAC,MAAM,CAAC,QAAQ,GAAG,CAAC,CAAC,CAAC;QAC/C  
 ,OAAO,CAAC,OAAO,EAAE,KAAK,CAAC,CAAC;IAC1B;;;QCPr+C,6CAAe;QAC5D,mCACsB,GAAQ,EAAE,  
 MAAuB,EAAE,UAAoC;mBAC3F,kBAAM,GAAG,CAAC,IAAI,EAAE,MAAM,EAAE,UAAU,CAAC;SACpC;;K  
 AJH,CAA+CD,wBAAE;;gBAD7DL,eAAU;;;gDAGJE,WAAm,SAACC,eAAQ;gBAXdI,uBAAE;gBAAoEC,iCAA  
 wB;;aAgBnG,mCAAmC;QACjD,OAAOC,8BAAqB,EAAE,GAAG,IAAIC,4BAAmB,EAAE,GAAG,IAAIC,2BAA  
 kB,EAAE,CAAC;IACxF,CAAC;aAEe,iCAAiC;QAC/C,OAAO,IAAIC,qCAA4B,EAAE,CAAC;IAC5C,CAAC;aA



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Ee,0BAA0B,CACtC,QAA6B,EAAE,MAAuB,EAAE,IAAY;QACtE,OAAO,IAAI,wBAAwB,CAAC,QAAQ,EAAE,MAAM,EAAE,IAAI,CAAC,CAAC;IAC9D,CAAC;IAED;;;QAGa,qBAAqB,GAC9B,IAAIC,mBAAC,CAAuC,qBAAqB,EAAE;IAEpF,IAAM,0BAA0B,GAAe;QAC7C,EAAC,OAAO,EAAEd,2BAAGB,EAAE,QAAQ,EAAE,uBA AuB,EAAC;QAC9D,EAAC,OAAO,EAAES,iCAAwB,EAAE,UAAU,EAAE,iCAAiC,EAAC;QACIF,EAAC,OAA O,EAAEH,wBAAe,EAAE,QAAQ,EAAE,yBAAyB,EAAC,EAAE;YAC/D,OAAO,EAAEJ,qBAAGB;YACzB,UAA U,EAAE,0BAA0B;YACtC,IAAI,EAAE,CAACa,oCAAmB,EAAET,wBAAe,EAAEC,WAAM,CAAC;SACrD;KA CF,CAAC;IAEF;;;QAIa,4BAA4B;QACvC,EAAC,OAAO,EAAEC,uBAAe,EAAE,UAAU,EAAE,mCAAmC,EAAC;QAC3E,EAAC,OAAO,EAAE,qBAAqB,EAAE,QAAQ,EAAE,mBAAmB,EAAC;OAAK,0BAA0B,EAC9F;IAEF ;;;QAIa,iCAAiC;QAC5C,EAAC,OAAO,EAAEA,uBAAe,EAAE,QAAQ,EAAEQ,4BAAmB,EAAC;QACzD,EAAC,OAAO,EAAE,qBAAqB,EAAE,QAAQ,EAAE,gBAAGB,EAAC;OAAK,0BAA0B;;ICrE7F;;;;;;IAYa;;;;;;QASA; ;;;gBAJCC,aAAQ,SAAC;oBACR,OAAO,EAAE,CAACC,6BAAa,CAAC;oBACxB,SAAS,EAAE,4BAA4B;iBAC xC;;IAID;;;;;QAQA;;;;;gBAJCD,aAAQ,SAAC;oBACR,OAAO,EAAE,CAACC,6BAAa,CAAC;oBACxB,SAAS,E AAE,iCAAiC;iBAC7C;;IC/BD;;;;;;ICAA;;;;;;ICAA;;;;;;ICAA;;;;;;ICAA;;;;;;ICAA;;;;;;ICAA; } }
```

in path(s):

No license file was found, but licenses were detected in source scan.

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introduce XSS risks.\n */\nexport abstract class GenericBrowserDomAdapter extends DomAdapter {\n
 constructor() {\n super();\n }\n\n supportsDOMEvents(): boolean {\n return true;\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {parseCookieValue as\n parseCookieValue, setRootDomAdapter as setRootDomAdapter}\n from '@angular/common';\nimport {global as global} from '@angular/core';\nimport\n {GenericBrowserDomAdapter} from './generic_browser_adapter';\n\nconst nodeContains: (this: Node, other: Node)\n => boolean = (() => {\n if (global['Node']) {\n return global['Node'].prototype.contains || function(this: Node,\n node: any) {\n return !(this.compareDocumentPosition(node) & 16);\n };\n }\n\n return undefined as\n any;\n })();\n\n/*\n * A `DomAdapter` powered by full browser DOM APIs.\n *\n * @security Tread carefully!\n Interacting with the DOM directly is dangerous and\n * can introduce XSS risks.\n */\n\n/*\n tslint:disable:requireParameterType no-console\n */\n\nexport class BrowserDomAdapter extends\n GenericBrowserDomAdapter {\n static makeCurrent() {\n setRootDomAdapter(new BrowserDomAdapter());\n }\n\n getProperty(el: Node, name: string): any {\n return (<any>el)[name];\n }\n\n log(error: string): void {\n if\n (window.console) {\n window.console.log && window.console.log(error);\n }\n }\n\n logGroup(error: string): void {\n if (window.console) {\n window.console.group &&\n window.console.group(error);\n }\n }\n\n logGroupEnd(): void {\n if (window.console) {\n window.console.groupEnd && window.console.groupEnd();\n }\n }\n\n onCancel(el: Node, evt: any,\n listener: any): Function {\n el.addEventListener(evt, listener, false);\n // Needed to follow Dart's subscription\n semantic, until fix of\n // https://code.google.com/p/dart/issues/detail?id=17406\n return () => {\n el.removeEventListener(evt, listener, false);\n };\n }\n\n dispatchEvent(el: Node, evt: any) {\n el.dispatchEvent(evt);\n }\n\n remove(node: Node): Node {\n if (node.parentNode) {\n node.parentNode.removeChild(node);\n }\n return node;\n }\n\n getValue(el: any): string {\n return el.value;\n }\n\n createElement(tagName: string, doc?: Document): HTMLElement {\n doc = doc ||\n this.getDefaultDocument();\n return doc.createElement(tagName);\n }\n\n createHtmlDocument(): HTMLDocument {\n return\n document.implementation.createHTMLDocument('fakeTitle');\n }\n\n getDefaultDocument(): Document {\n return\n document;\n }\n\n isElementNode(node: Node): boolean {\n return node.nodeType ===\n Node.ELEMENT_NODE;\n }\n\n isShadowRoot(node: any): boolean {\n return node instanceof\n DocumentFragment;\n }\n\n getGlobalEventTarget(doc: Document, target: string): EventTarget|null {\n if (target\n === 'window') {\n return window;\n }\n if (target === 'document') {\n return doc;\n }\n if (target ===\n 'body') {\n return doc.body;\n }\n return null;\n }\n\n getHistory(): History {\n return window.history;\n }\n\n getLocation(): Location {\n return window.location;\n }\n\n getBaseHref(doc: Document): string|null {\n const\n href = getBaseElementHref();\n return href == null ? null : relativePath(href);\n }\n\n resetBaseElement(): void {\n baseElement = null;\n }\n\n getUserAgent(): string {\n return window.navigator.userAgent;\n }\n\n performanceNow(): number {\n //\n performance.now() is not available in all browsers, see\n // http://caniuse.com/#search=performance.now\n return window.performance && window.performance.now ? window.performance.now() :\n new Date().getTime();\n }\n\n supportsCookies(): boolean {\n return true;\n }\n\n getCookie(name:\n string): string|null {\n return parseCookieValue(document.cookie, name);\n }\n\n let baseElement:\n HTMLElement|null = null;\n\n getBaseElementHref(): string|null {\n if (!baseElement) {\n baseElement =\n document.querySelector('base');\n }\n if (!baseElement) {\n return null;\n }\n return\n baseElement.getAttribute('href');\n }\n\n // based on urlUtils.js in AngularJS\n let urlParsingNode: any;\n\n relativePath(url: any): string {\n if (!urlParsingNode) {\n urlParsingNode = document.createElement('a');\n }\n\n urlParsingNode.setAttribute('href', url);\n return (urlParsingNode.pathname.charAt(0) === '/') ?\n urlParsingNode.pathname :\n '/' + urlParsingNode.pathname;\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-\n * style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {DOCUMENT,\n
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getDOM as getDOM} from '@angular/common';\nimport { APP_INITIALIZER, ApplicationInitStatus, Inject,
InjectionToken, Injector, StaticProvider} from '@angular/core';\n\n/**\n * An id that identifies a particular
application being bootstrapped, that should\n * match across the client/server boundary.\n */\nexport const
TRANSITION_ID = new InjectionToken('TRANSITION_ID');\n\nexport function
appInitializerFactory(transitionId: string, document: any, injector: Injector) {\n return () => {\n // Wait for all
application initializers
to be completed before removing the styles set by\n // the server.\n\n injector.get(ApplicationInitStatus).donePromise.then(() => {\n const dom = getDOM();\n const styles: any[]
=\n Array.prototype.slice.apply(document.querySelectorAll(`style[ng-transition]`));\n styles.filter(el =>
el.getAttribute('ng-transition') === transitionId)\n .forEach(el => dom.remove(el));\n });\n });\n}\n\nexport
const SERVER_TRANSITION_PROVIDERS: StaticProvider[] = [\n {\n provide: APP_INITIALIZER,\n useFactory: appInitializerFactory,\n deps: [TRANSITION_ID, DOCUMENT, Injector],\n multi: true\n },\n];\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {getDOM as getDOM} from '@angular/common';\nimport {GetTestability, setTestabilityGetter,
Testability, TestabilityRegistry, global
as global} from '@angular/core';\n\nexport class BrowserGetTestability implements GetTestability {\n static init()
{\n setTestabilityGetter(new BrowserGetTestability());\n }\n\n addToWindow(registry: TestabilityRegistry):
void {\n global['getAngularTestability'] = (elem: any, findInAncestors: boolean = true) => {\n const testability
= registry.findTestabilityInTree(elem, findInAncestors);\n if (testability == null) {\n throw new Error('Could
not find testability for element.);\n }\n return testability;\n };\n\n global['getAllAngularTestabilities'] = ()
=> registry.getAllTestabilities();\n\n global['getAllAngularRootElements'] = () =>
registry.getAllRootElements();\n\n const whenAllStable = (callback: any /** TODO #9100 */) => {\n const
testabilities = global['getAllAngularTestabilities']();\n let count = testabilities.length;\n let didWork = false;\n const decrement = function(didWork_: any /** TODO #9100 */) {\n
 didWork = didWork || didWork_;\n count--;\n if (count == 0) {\n callback(didWork);\n }\n
 };\n testabilities.forEach(function(testability: any /** TODO #9100 */) {\n
 testability.whenStable(decrement);\n });\n };\n\n if (!global['frameworkStabilizers']) {\n
 global['frameworkStabilizers'] = [];\n global['frameworkStabilizers'].push(whenAllStable);\n }\n\n findTestabilityInTree(registry: TestabilityRegistry, elem: any, findInAncestors: boolean): Testability|null {\n
 if (elem == null) {\n return null;\n }\n const t = registry.getTestability(elem);\n if (t != null) {\n return
t;\n } else if (!findInAncestors) {\n return null;\n }\n if (getDOM().isShadowRoot(elem)) {\n return
this.findTestabilityInTree(registry, (<any>elem).host, true);\n }\n return this.findTestabilityInTree(registry,
elem.parentElement, true);\n }\n }\n\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {global as global} from '@angular/core';\n\nconst
CAMEL_CASE_REGEXP = /[A-Z]/g;\nconst DASH_CASE_REGEXP = /[a-z]/g;\n\nexport function
camelCaseToDashCase(input: string): string {\n return input.replace(CAMEL_CASE_REGEXP, (...m: string[]) =>
'-' + m[1].toLowerCase());\n}\n\nexport function dashCaseToCamelCase(input: string): string {\n return
input.replace(DASH_CASE_REGEXP, (...m: string[]) => m[1].toUpperCase());\n}\n\n/**\n * Exports the value
under a given `name` in the global property `ng`. For example `ng.probe` if\n * `name` is `probe`. \n * @param
name Name under which it will be exported. Keep in mind this will be a property of the\n * global `ng` object.\n *
@param value The value to export.\n */\nexport function exportNgVar(name: string, value: any): void {\n if (typeof
COMPILED === 'undefined'\n || !COMPILED) {\n // Note: we can't export `ng` when using closure enhanced optimization as:\n // - closure
declares globals itself for minified names, which sometimes clobber our `ng` global\n // - we can't declare a
closure extern as the namespace `ng` is already used within Google\n // for typings for angularJS (via
`goog.provide('ng....')`).\n const ng = global['ng'] = (global['ng'] as {[key: string]: any} | undefined) || {};\n

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ng[name] = value;\n }\n}\n"/,**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { APP_INITIALIZER, ApplicationRef, DebugNode, NgProbeToken, NgZone, Optional, Provider, getDebugNodeR2 } from '@angular/core';\nimport { exportNgVar } from './util';\nconst CORE_TOKENS = (() => ({\n ApplicationRef: ApplicationRef,\n NgZone:\n NgZone,\n })());\nconst INSPECT_GLOBAL_NAME = 'probe';\nconst CORE_TOKENS_GLOBAL_NAME = 'coreTokens';\n\n/**\n * Returns a { @link DebugElement } for the given native DOM element, or\n * null if the given native element does not have an Angular view associated\n * with it.\n */\nexport function inspectNativeElementR2(element: any): DebugNode|null {\n return getDebugNodeR2(element);\n}\n\nexport function _createNgProbeR2(coreTokens: NgProbeToken[]): any {\n exportNgVar(INSPECT_GLOBAL_NAME, inspectNativeElementR2);\n exportNgVar(CORE_TOKENS_GLOBAL_NAME, {...CORE_TOKENS, ..._ngProbeTokensToMap(coreTokens || [])});\n return () => inspectNativeElementR2;\n}\n\nfunction _ngProbeTokensToMap(tokens: NgProbeToken[]): {[name: string]: any} {\n return tokens.reduce((prev: any, t: any) => (prev[t.name] = t.token, prev), {});\n}\n\n/**\n * In Ivy, we don't support NgProbe because we have our own set of testing utilities\n * with more robust functionality.\n *\n * We shouldn't bring in NgProbe because it prevents DebugNode and friends from\n * tree-shaking properly.\n */\nexport const ELEMENT_PROBE_PROVIDERS__POST_R3__ = [];\n\n/**\n * Providers which support debugging Angular applications (e.g. via `ng.probe`).\n */\nexport const ELEMENT_PROBE_PROVIDERS__PRE_R3__: Provider[] = [\n {\n provide: APP_INITIALIZER,\n useFactory: _createNgProbeR2,\n deps: [\n [NgProbeToken, new Optional()],\n],\n multi: true,\n },\n];\n\nexport const ELEMENT_PROBE_PROVIDERS = ELEMENT_PROBE_PROVIDERS__PRE_R3__;\n\n"/,**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { getDOM as getDOM } from '@angular/common';\nimport { Inject, Injectable, InjectionToken, NgZone } from '@angular/core';\n\n/**\n * The injection token for the event-manager plug-in service.\n */\n@publicApi\nexport const EVENT_MANAGER_PLUGINS =\n new InjectionToken<EventManagerPlugin>('EventManagerPlugins');\n\n/**\n * An injectable service that provides event management for Angular\n * through a browser plug-in.\n */\n@publicApi\n@Injectable()\nexport class EventManager {\n private _plugins: EventManagerPlugin[];\n private _eventNameToPlugin = new Map<string, EventManagerPlugin>();\n\n /**\n * Initializes an instance of the event-manager service.\n */\n constructor(@Inject(EVENT_MANAGER_PLUGINS) plugins: EventManagerPlugin[], private _zone: NgZone) {\n plugins.forEach(p => p.manager = this);\n this._plugins = plugins.slice().reverse();\n }\n\n /**\n * Registers a handler for a specific element and event.\n *\n * @param element The HTML element to receive event notifications.\n * @param eventName The name of the event to listen for.\n * @param handler A function to call when the notification occurs. Receives the\n * event object as an argument.\n * @returns A callback function that can be used to remove the handler.\n */\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function {\n const plugin = this._findPluginFor(eventName);\n return plugin.addEventListener(element, eventName, handler);\n }\n\n /**\n * Registers a global handler for an event in a target view.\n *\n * @param target A target for global event notifications. One of \"window\", \"document\", or \"body\".\n * @param eventName The name of the event to listen for.\n * @param handler A function to call when the notification occurs. Receives the\n * event object as an argument.\n * @returns A callback function that can be used to remove the handler.\n */\n addGlobalEventListener(target: string, eventName: string, handler: Function): Function {\n const plugin = this._findPluginFor(eventName);\n return plugin.addGlobalEventListener(target, eventName, handler);\n }\n\n /**\n * Retrieves the compilation zone in which
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event listeners are registered.\n */\n getZone(): NgZone {\n return this._zone;\n }\n\n /** @internal */\n _findPluginFor(eventName: string): EventManagerPlugin {\n const plugin =\n this._eventNameToPlugin.get(eventName);\n if (plugin) {\n return plugin;\n }\n\n const plugins =\n this._plugins;\n for (let i = 0; i < plugins.length; i++) {\n const plugin = plugins[i];\n if\n (plugin.supports(eventName)) {\n this._eventNameToPlugin.set(eventName, plugin);\n return plugin;\n }\n }\n throw new Error(`No event manager plugin found for event ${eventName}`);\n }\n}\n\nexport abstract\n class EventManagerPlugin {\n constructor(private _doc: any) {}\n\n // TODO(issue/24571): remove '!'.\n manager!: EventManager;\n\n abstract supports(eventName: string): boolean;\n\n abstract\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function;\n\n abstract\n addGlobalEventListener(element: string, eventName: string, handler:\n Function): Function {\n const target: HTMLElement = getDOM().getGlobalEventTarget(this._doc, element);\n if (!target) {\n throw new Error(`Unsupported event target ${target} for event ${eventName}`);\n }\n return\n this.addEventListener(target, eventName, handler);\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All\n * Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n * LICENSE file at https://angular.io/license\n */\n import {DOCUMENT, getDOM as getDOM} from\n '@angular/common';\n import {Inject, Injectable, OnDestroy} from '@angular/core';\n\n @Injectable()\n export class\n SharedStylesHost {\n /** @internal */\n protected _stylesSet = new Set<string>();\n\n addStyles(styles: string[]):\n void {\n const additions = new Set<string>();\n styles.forEach(style => {\n if (!this._stylesSet.has(style)) {\n this._stylesSet.add(style);\n additions.add(style);\n }\n });\n this.onStylesAdded(additions);\n }\n\n onStylesAdded(additions: Set<string>): void {\n }\n\n getAllStyles(): string[] {\n return\n Array.from(this._stylesSet);\n }\n }\n\n @Injectable()\n export class DomSharedStylesHost extends\n SharedStylesHost implements OnDestroy {\n private _hostNodes = new Set<Node>();\n private _styleNodes =\n new Set<Node>();\n constructor(@Inject(DOCUMENT) private _doc: any) {\n super();\n this._hostNodes.add(_doc.head);\n }\n\n private _addStylesToHost(styles: Set<string>, host: Node): void {\n styles.forEach((style: string) => {\n const styleEl = this._doc.createElement('style');\n styleEl.textContent =\n style;\n this._styleNodes.add(host.appendChild(styleEl));\n });\n }\n\n addHost(hostNode: Node): void {\n this._addStylesToHost(this._stylesSet, hostNode);\n this._hostNodes.add(hostNode);\n }\n\n removeHost(hostNode: Node): void {\n this._hostNodes.delete(hostNode);\n }\n\n onStylesAdded(additions:\n Set<string>): void {\n this._hostNodes.forEach(hostNode => this._addStylesToHost(additions, hostNode));\n }\n\n ngOnDestroy(): void\n {\n this._styleNodes.forEach(styleNode => getDOM().remove(styleNode));\n }\n }\n\n /**\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n import {APP_ID, Inject, Injectable,\n Renderer2, RendererFactory2, RendererStyleFlags2, RendererType2, ViewEncapsulation} from\n '@angular/core';\n import {EventManager} from './events/event_manager';\n import {DomSharedStylesHost} from\n './shared_styles_host';\n export const NAMESPACE_URIS: {[ns: string]: string} = {\n 'svg':\n 'http://www.w3.org/2000/svg',\n 'xhtml': 'http://www.w3.org/1999/xhtml',\n 'xlink':\n 'http://www.w3.org/1999/xlink',\n 'xml': 'http://www.w3.org/XML/1998/namespace',\n 'xmlns':\n 'http://www.w3.org/2000/xmlns',\n };\n const COMPONENT_REGEX = /%COMP%/g;\n const NG_DEV_MODE =\n typeof ngDevMode === 'undefined' || !!ngDevMode;\n export const COMPONENT_VARIABLE =\n '%COMP%';\n export const HOST_ATTR = `_ngghost-${COMPONENT_VARIABLE}`;\n export const\n CONTENT_ATTR = `_ngcontent-${COMPONENT_VARIABLE}`;\n export function\n shimContentAttribute(componentShortId: string): string {\n return\n CONTENT_ATTR.replace(COMPONENT_REGEX, componentShortId);\n }\n export function\n shimHostAttribute(componentShortId: string): string {\n return HOST_ATTR.replace(COMPONENT_REGEX,\n componentShortId);\n }\n export function flattenStyles(\n compId: string, styles: Array<any>[], target:\n string[]): string[] {\n for (let i = 0; i < styles.length; i++) {\n let style = styles[i];\n if (Array.isArray(style)) {\n flattenStyles(compId, style, target);\n } else {\n style = style.replace(COMPONENT_REGEX, compId);\n }\n }\n }\n
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target.push(style);\n }\n return target;\n}\n\nfunction decoratePreventDefault(eventHandler: Function):
Function {\n // `DebugNode.triggerEventHandler`
 needs to know if the listener was created with\n // decoratePreventDefault or is a listener added outside the Angular
 context so it can handle the\n // two differently. In the first case, the special '___ngUnwrap__' token is passed to the
 unwrap\n // the listener (see below).\n return (event: any) => {\n // Ivy uses '___ngUnwrap__' as a special token
 that allows us to unwrap the function\n // so that it can be invoked programmatically by
 `DebugNode.triggerEventHandler`. The debug_node\n // can inspect the listener toString contents for the existence
 of this special token. Because\n // the token is a string literal, it is ensured to not be modified by compiled code.\n if (event === '___ngUnwrap__') {\n return eventHandler;\n }\n const allowDefaultBehavior =
 eventHandler(event);\n if (allowDefaultBehavior === false) {\n // TODO(tbosch): move preventDefault into
 event plugins...\n event.preventDefault();\n event.returnValue
 = false;\n }\n return undefined;\n };\n}\n\nlet hasLoggedNativeEncapsulationWarning =
false;\n\n@Injectable()\nexport class DomRendererFactory2 implements RendererFactory2 {\n private
 rendererByCompId = new Map<string, Renderer2>();\n private defaultRenderer: Renderer2;\n constructor(\n
 private eventManager: EventManager, private sharedStylesHost: DomSharedStylesHost,\n @Inject(APP_ID)
 private appId: string) {\n this.defaultRenderer = new DefaultDomRenderer2(eventManager);\n }\n createRenderer(element: any, type: RendererType2|null): Renderer2 {\n if (!element || !type) {\n return
 this.defaultRenderer;\n }\n switch (type.encapsulation) {\n case ViewEncapsulation.Emulated: {\n let
 renderer = this.rendererByCompId.get(type.id);\n if (!renderer) {\n renderer = new
 EmulatedEncapsulationDomRenderer2(\n this.eventManager, this.sharedStylesHost, type, this.appId);\n this.rendererByCompId.set(type.id,
 renderer);\n }\n (<EmulatedEncapsulationDomRenderer2>renderer).applyToHost(element);\n return
 renderer;\n }\n case 1:\n case ViewEncapsulation.ShadowDom: {\n // TODO(FW-2290): remove the
 `case 1:` fallback logic and the warning in v12.\n if ((typeof ngDevMode === 'undefined' || ngDevMode) && \n
 !hasLoggedNativeEncapsulationWarning && type.encapsulation === 1) {\n
 hasLoggedNativeEncapsulationWarning = true;\n console.warn(\n 'ViewEncapsulation.Native is no
 longer supported. Falling back to ViewEncapsulation.ShadowDom. The fallback will be removed in v12.);\n
 }\n return new ShadowDomRenderer(this.eventManager, this.sharedStylesHost, element, type);\n }\n default:
 {\n if (!this.rendererByCompId.has(type.id)) {\n const styles = flattenStyles(type.id, type.styles, []);\n
 this.sharedStylesHost.addStyles(styles);\n this.rendererByCompId.set(type.id, this.defaultRenderer);\n
 }\n return this.defaultRenderer;\n }\n }\n }\n begin() {\n end() {\n }\n}\n\nclass
 DefaultDomRenderer2 implements Renderer2 {\n data: {[key: string]: any} = Object.create(null);\n constructor(private eventManager: EventManager) {\n }\n destroy(): void {\n }\n destroyNode: null;\n createElement(name: string, namespace?: string): any {\n if (namespace) {\n // In cases where Ivy (not
 ViewEngine) is giving us the actual namespace, the look up by key\n // will result in undefined, so we just return
 the namespace here.\n return document.createElementNS(NAMESPACE_URIS[namespace] || namespace,
 name);\n }\n return document.createElement(name);\n }\n createComment(value: string): any {\n return
 document.createComment(value);\n }\n createText(value: string): any {\n return
 document.createTextNode(value);\n }\n appendChild(parent: any, newChild: any): void {\n
 parent.appendChild(newChild);\n }\n insertBefore(parent: any, newChild: any, refChild: any): void {\n if (parent) {\n parent.insertBefore(newChild,
 refChild);\n }\n }\n removeChild(parent: any, oldChild: any): void {\n if (parent) {\n
 parent.removeChild(oldChild);\n }\n }\n selectRootElement(selectorOrNode: string|any, preserveContent?:
 boolean): any {\n let el: any = typeof selectorOrNode === 'string' ? document.querySelector(selectorOrNode) :\n
 selectorOrNode;\n if (!el) {\n throw new Error(`The selector
 \"${selectorOrNode}\" did not match any elements`);\n }\n if (!preserveContent) {\n el.textContent = \";\n
 }\n return el;\n }\n parentNode(node: any): any {\n return node.parentNode;\n }\n nextSibling(node: any):
 any {\n return node.nextSibling;\n }\n setAttribute(el: any, name: string, value: string, namespace?: string):

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void {\n if (namespace) {\n name = namespace + ':' + name;\n // TODO(FW-811): Ivy may cause issues here because it's passing around\n // full URIs for namespaces, therefore this lookup will fail.\n const namespaceUri = NAMESPACE_URIS[namespace];\n if (namespaceUri) {\n el.setAttributeNS(namespaceUri, name, value);\n } else {\n el.setAttribute(name, value);\n }\n } else {\n el.setAttribute(name, value);\n }\n}\n\nremoveAttribute(el: any, name: string, namespace?: string): void {\n if (namespace) {\n // TODO(FW-811): Ivy may cause issues here because it's passing around\n // full URIs for namespaces, therefore this lookup will fail.\n const namespaceUri = NAMESPACE_URIS[namespace];\n if (namespaceUri) {\n el.removeAttributeNS(namespaceUri, name);\n } else {\n // TODO(FW-811): Since ivy is passing around full URIs for namespaces\n // this could result in properties like `http://www.w3.org/2000/svg:cx=\"123\"`,\n // which is wrong.\n el.removeAttribute(`${namespace}:${name}`);\n }\n } else {\n el.removeAttribute(name);\n }\n}\n\naddClass(el: any, name: string): void {\n el.classList.add(name);\n}\n\nremoveClass(el: any, name: string): void {\n el.classList.remove(name);\n}\n\nsetStyle(el: any, style: string, value: any, flags: RendererStyleFlags2): void {\n if (flags & (RendererStyleFlags2.DashCase | RendererStyleFlags2.Important)) {\n el.style.setProperty(style, value, flags & RendererStyleFlags2.Important ? 'important' : '');\n } else {\n el.style[style] = value;\n }\n}\n\nremoveStyle(el: any, style: string, flags: RendererStyleFlags2): void {\n if (flags & RendererStyleFlags2.DashCase) {\n el.style.removeProperty(style);\n } else {\n // IE requires \" instead of null\n // see https://github.com/angular/angular/issues/7916\n el.style[style] = \";\n }\n}\n\nsetProperty(el: any, name: string, value: any): void {\n NG_DEV_MODE && checkNoSyntheticProp(name, 'property');\n el[name] = value;\n}\n\nsetValue(node: any, value: string): void {\n node.nodeValue = value;\n}\n\nlisten(target: 'window'|'document'|'body'|any, event: string, callback: (event: any) => boolean): void {\n () => void {\n NG_DEV_MODE && checkNoSyntheticProp(event, 'listener');\n if (typeof target === 'string') {\n return <() => void>this.eventManager.addGlobalEventListener(\n target, event, decoratePreventDefault(callback));\n }\n return <() => void>this.eventManager.addEventListener(\n target, event, decoratePreventDefault(callback)) as () => void;\n }\n}\n\nconst AT_CHARCODE = (() => '@'.charCodeAt(0));\nfunction checkNoSyntheticProp(name: string, nameKind: string) {\n if (name.charCodeAt(0) === AT_CHARCODE) {\n throw new Error(`Found the synthetic ${nameKind} ${name}. Please include either \"BrowserAnimationsModule\" or \"NoopAnimationsModule\" in your application.`);\n }\n}\n\nclass EmulatedEncapsulationDomRenderer2 extends DefaultDomRenderer2 {\n private contentAttr: string;\n private hostAttr: string;\n constructor(\n eventManager: EventManager, sharedStylesHost: DomSharedStylesHost,\n private component: RendererType2, appId: string) {\n super(eventManager);\n const styles = flattenStyles(appId + '-' + component.id, component.styles, []);\n sharedStylesHost.addStyles(styles);\n this.contentAttr = shimContentAttribute(appId + '-' + component.id);\n this.hostAttr = shimHostAttribute(appId + '-' + component.id);\n }\n\n applyToHost(element: any) {\n super.setAttribute(element, this.hostAttr, '');\n }\n\n createElement(parent: any, name: string): Element {\n const el = super.createElement(parent, name);\n super.setAttribute(el, this.contentAttr, '');\n return el;\n }\n}\n\nclass ShadowDomRenderer extends DefaultDomRenderer2 {\n private shadowRoot: any;\n constructor(\n eventManager: EventManager,\n private sharedStylesHost: DomSharedStylesHost,\n private hostEl: any, component: RendererType2) {\n super(eventManager);\n this.shadowRoot = (hostEl as any).attachShadow({mode: 'open'});\n this.sharedStylesHost.addHost(this.shadowRoot);\n const styles = flattenStyles(component.id, component.styles, []);\n for (let i = 0; i < styles.length; i++) {\n const styleEl = document.createElement('style');\n styleEl.textContent = styles[i];\n this.shadowRoot.appendChild(styleEl);\n }\n }\n\n private nodeOrShadowRoot(node: any): any {\n return node === this.hostEl ? this.shadowRoot : node;\n }\n\n destroy() {\n this.sharedStylesHost.removeHost(this.shadowRoot);\n }\n\n appendChild(parent: any, newChild: any): void {\n return super.appendChild(this.nodeOrShadowRoot(parent), newChild);\n }\n\n insertBefore(parent: any, newChild: any, refChild: any): void {\n return super.insertBefore(this.nodeOrShadowRoot(parent), newChild, refChild);\n }\n}

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 }\n removeChild(parent: any, oldChild: any): void {\n return
super.removeChild(this.nodeOrShadowRoot(parent), oldChild);\n }\n parentNode(node: any): any {\n return
this.nodeOrShadowRoot(super.parentNode(this.nodeOrShadowRoot(node)));\n }\n}\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {DOCUMENT} from
'@angular/common';\nimport {Inject, Injectable} from '@angular/core';\nimport {EventManagerPlugin} from
'./event_manager';\n\n@Injectable()\nexport class DomEventsPlugin extends EventManagerPlugin {\n
constructor(@Inject(DOCUMENT) doc: any) {\n super(doc);\n }\n\n // This plugin should come last in the list of
plugins, because it accepts all\n // events.\n supports(eventName: string): boolean {\n return true;\n }\n\n
addEventListener(element: HTMLElement, eventName: string, handler:
Function): Function {\n element.addEventListener(eventName, handler as EventListener, false);\n return () =>
this.removeEventListener(element, eventName, handler as EventListener);\n }\n\n removeEventListener(target:
any, eventName: string, callback: Function): void {\n return target.removeEventListener(eventName, callback as
EventListener);\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {DOCUMENT} from '@angular/common';\nimport {Inject, Injectable,
InjectionToken, NgModule, Optional, Provider, Console as Console} from '@angular/core';\n\nimport
{EVENT_MANAGER_PLUGINS, EventManagerPlugin} from './event_manager';\n\n\n/*\n * Supported
HammerJS recognizer event names.\n */\nconst EVENT_NAMES = {\n // pan\n 'pan': true,\n 'panstart': true,\n
'panmove': true,\n 'panend': true,\n 'pancancel':
true,\n 'panleft': true,\n 'panright': true,\n 'panup': true,\n 'pandown': true,\n // pinch\n 'pinch': true,\n 'pinchstart':
true,\n 'pinchmove': true,\n 'pinchend': true,\n 'pinchcancel': true,\n 'pinchin': true,\n 'pinchout': true,\n // press\n
'press': true,\n 'pressup': true,\n // rotate\n 'rotate': true,\n 'rotatestart': true,\n 'rotatemove': true,\n 'rotateend':
true,\n 'rotatecancel': true,\n // swipe\n 'swipe': true,\n 'swipeleft': true,\n 'swiperight': true,\n 'swipeup': true,\n
'swipedown': true,\n // tap\n 'tap': true,\n};\n\n\n/*\n * DI token for providing
[HammerJS](http://hammerjs.github.io/) support to Angular.\n * @see `HammerGestureConfig`\n */\n *
@ngModule HammerModule\n * @publicApi\n */\nexport const HAMMER_GESTURE_CONFIG = new
InjectionToken<HammerGestureConfig>('HammerGestureConfig');\n\n\n\n/*\n * Function that loads HammerJS,
returning a promise that is resolved once HammerJs is loaded.\n */\n * @publicApi\n */\nexport type
HammerLoader

= () => Promise<void>;\n\n\n/*\n * Injection token used to provide a { @link HammerLoader } to Angular.\n */\n *
@publicApi\n */\nexport const HAMMER_LOADER = new
InjectionToken<HammerLoader>('HammerLoader');\n\n\nexport interface HammerInstance {\n on(eventName:
string, callback?: Function): void;\n off(eventName: string, callback?: Function): void;\n destroy?():
void;\n}\n\n\n/*\n * An injectable [HammerJS Manager](http://hammerjs.github.io/api/#hammer.manager)\n * for
gesture recognition. Configures specific event recognition.\n * @publicApi\n */\n@Injectable()\nexport class
HammerGestureConfig {\n /**\n * A set of supported event names for gestures to be used in Angular.\n *
Angular supports all built-in recognizers, as listed in\n * [HammerJS documentation](http://hammerjs.github.io/).\n
*/\n events: string[] = [];\n\n /**\n * Maps gesture event names to a set of configuration options\n * that specify
overrides to the default values for specific properties.\n */\n
* The key is a supported event name to be configured,\n * and the options object contains a set of properties, with
override values\n * to be applied to the named recognizer event.\n * For example, to disable recognition of the
rotate event, specify\n * `{"rotate": {"enable": false}}`. \n */\n * Properties that are not present take the
HammerJS default values.\n * For information about which properties are supported for which events,\n * and
their allowed and default values, see\n * [HammerJS documentation](http://hammerjs.github.io/).\n */\n * \n
overrides: {[key: string]: Object} = {};\n\n /**\n * Properties whose default values can be overridden for a given
event.\n * Different sets of properties apply to different events.\n * For information about which properties are
supported for which events,\n * and their allowed and default values, see\n * [HammerJS

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documentation](http://hammerjs.github.io/).\n */\n options?: {\n cssProps?: any;\n domEvents?: boolean;\n enable?: boolean | ((manager: any) => boolean);\n preset?: any[];\n touchAction?: string;\n recognizers?: any[];\n inputClass?: any;\n inputTarget?: EventTarget;\n };\n\n /**\n * Creates a [HammerJS Manager](http://hammerjs.github.io/api/#hammer.manager)\n * and attaches it to a given HTML element.\n * @param element The element that will recognize gestures.\n * @returns A HammerJS event-manager object.\n */\n buildHammer(element: HTMLElement): HammerInstance {\n const mc = new Hammer!(element, this.options);\n mc.get('pinch').set({enable: true});\n mc.get('rotate').set({enable: true});\n for (const eventName in this.overrides) {\n mc.get(eventName).set(this.overrides[eventName]);\n }\n return mc;\n }\n}\n\n /**\n * Event plugin that adds Hammer support to an application.\n */\n * @ngModule HammerModule\n * @Injectable()\n\n export class HammerGesturesPlugin extends EventManagerPlugin {\n constructor(\n @Inject(DOCUMENT) doc: any,\n @Inject(HAMMER_GESTURE_CONFIG) private _config: HammerGestureConfig,\n private console: Console,\n @Optional() @Inject(HAMMER_LOADER) private loader?: HammerLoader\n) {\n super(doc);\n }\n\n supports(eventName: string): boolean {\n if (!EVENT_NAMES.hasOwnProperty(eventName.toLowerCase()) && !this.isCustomEvent(eventName)) {\n return false;\n }\n if (!(window as any).Hammer && !this.loader) {\n this.console.warn(`The "${eventName}" event cannot be bound because Hammer.JS is not ` +\n `loaded and no custom loader has been specified.`);\n return false;\n }\n return true;\n }\n\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function {\n const zone = this.manager.getZone();\n eventName = eventName.toLowerCase();\n // If Hammer is not present but a loader is specified, we defer adding the event listener\n // until Hammer is loaded.\n if (!(window as any).Hammer && this.loader) {\n // This `addEventListener` method returns a function to remove the added listener.\n // Until Hammer is loaded, the returned function needs to `cancel` the registration rather\n // than remove anything.\n let cancelRegistration = false;\n let deregister: Function = () => {\n cancelRegistration = true;\n };\n this.loader().then(() => {\n // If Hammer isn't actually loaded when the custom loader resolves, give up.\n if (!(window as any).Hammer) {\n this.console.warn(`The custom HAMMER_LOADER completed, but Hammer.JS is not present.`);\n deregister = () => {};\n return;\n }\n if (!cancelRegistration) {\n // Now that Hammer is loaded and the listener is being loaded for real,\n // the deregistration function changes from canceling registration to removal.\n deregister = this.addEventListener(element, eventName, handler);\n }\n }).catch(() => {\n this.console.warn(`The "${eventName}" event cannot be bound because the custom ` +\n `Hammer.JS loader failed.`);\n deregister = () => {};\n });\n // Return a function that `executes` `deregister` (and not `deregister` itself) so that we\n // can change the behavior of `deregister` once the listener is added. Using a closure in\n // this way allows us to avoid any additional data structures to track listener removal.\n return () => {\n deregister();\n };\n }\n return zone.runOutsideAngular(() => {\n // Creating the manager bind events, must be done outside of angular\n const mc = this._config.buildHammer(element);\n const callback = function(eventObj: HammerInput) {\n zone.runGuarded(function() {\n handler(eventObj);\n });\n };\n mc.on(eventName, callback);\n return () => {\n mc.off(eventName, callback);\n // destroy mc to prevent memory leak\n if (typeof mc.destroy === 'function') {\n mc.destroy();\n }\n };\n };\n }\n\n isCustomEvent(eventName: string): boolean {\n return this._config.events.indexOf(eventName) > -1;\n }\n}\n\n /**\n * In Ivy, support for Hammer gestures is optional, so applications must\n * import the `HammerModule` at root to turn on support. This means that\n * Hammer-specific code can be tree-shaken away if not needed.\n */\n\n export const HAMMER_PROVIDERS__POST_R3__ = [];\n\n /**\n * In View Engine, support for Hammer gestures is built-in by default.\n */\n\n export const HAMMER_PROVIDERS__PRE_R3__: Provider[] = [\n {\n provide: EVENT_MANAGER_PLUGINS,\n useClass: HammerGesturesPlugin,\n multi: true,\n deps: [DOCUMENT, HAMMER_GESTURE_CONFIG, Console, [new Optional(), HAMMER_LOADER]]\n },\n]

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{provide:
 HAMMER_GESTURE_CONFIG, useClass: HammerGestureConfig, deps: [],\n);\n\nexport const
HAMMER_PROVIDERS = HAMMER_PROVIDERS__PRE_R3__;\n\n/**\n * Adds support for HammerJS.\n *\n * Import this module at the root of your application so that Angular can work with\n * HammerJS to detect gesture events.\n *\n * Note that applications still need to include the HammerJS script itself. This module\n * simply sets up the coordination layer between HammerJS and Angular's EventManager.\n *\n * @publicApi\n *\n @NgModule({ providers: HAMMER_PROVIDERS__PRE_R3__ })\nexport class HammerModule\n{\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {DOCUMENT, getDOM as getDOM} from '@angular/common';\nimport {Inject, Injectable, NgZone} from '@angular/core';\nimport {EventManagerPlugin} from './event_manager';\n\n/**\n * Defines supported modifiers for key events.\n *\nconst MODIFIER_KEYS = ['alt', 'control', 'meta', 'shift'];\n\nconst DOM_KEY_LOCATION_NUMPAD = 3;\n\n// Map to convert some key or keyIdentifier values to what will be returned by getEventKey\nconst _keyMap: {[k: string]: string} = {\n // The following values are here for cross-browser compatibility and to match the W3C standard\n // cf http://www.w3.org/TR/DOM-Level-3-Events-key/\n '\\b': 'Backspace',\n '\\t': 'Tab',\n '\\x7F': 'Delete',\n '\\x1B': 'Escape',\n 'Del': 'Delete',\n 'Esc': 'Escape',\n 'Left': 'ArrowLeft',\n 'Right': 'ArrowRight',\n 'Up': 'ArrowUp',\n 'Down': 'ArrowDown',\n 'Menu': 'ContextMenu',\n 'Scroll': 'ScrollLock',\n 'Win': 'OS',\n};\n\n// There is a bug in Chrome for numeric keypad keys:\n// https://code.google.com/p/chromium/issues/detail?id=155654\n// 1, 2, 3 ... are reported as A, B, C ... \nconst _chromeNumKeyPadMap = {\n 'A': '1',\n 'B': '2',\n 'C': '3',\n 'D': '4',\n 'E': '5',\n 'F': '6',\n 'G': '7',\n 'H': '8',\n 'I': '9',\n 'J': '*',\n 'K': '+',\n 'M': '-',\n 'N': '.',\n 'O': '/',\n '\\x60': '0',\n '\\x90': 'NumLock',\n};\n\n/**\n * Retrieves modifiers from key-event objects.\n *\nconst MODIFIER_KEY_GETTERS: {[key: string]: (event: KeyboardEvent) => boolean} = {\n 'alt': (event: KeyboardEvent) => event.altKey,\n 'control': (event: KeyboardEvent) => event.ctrlKey,\n 'meta': (event: KeyboardEvent) => event.metaKey,\n 'shift': (event: KeyboardEvent) => event.shiftKey,\n};\n\n/**\n * @publicApi\n * A browser plug-in that provides support for handling of key events in Angular.\n *\n @Injectable()\nexport class KeyEventsPlugin extends EventManagerPlugin {\n /**\n * Initializes an instance of the browser plug-in.\n * @param doc The document in which key events will be detected.\n *\n constructor(@Inject(DOCUMENT) doc: any) {\n super(doc);\n }\n\n /**\n * Reports whether a named key event is supported.\n * @param eventName The event name to query.\n *\n @return\n True if the named key event is supported.\n *\n supports(eventName: string): boolean {\n return KeyEventsPlugin.parseEventName(eventName) != null;\n }\n\n /**\n * Registers a handler for a specific element and key event.\n * @param element The HTML element to receive event notifications.\n * @param eventName The name of the key event to listen for.\n * @param handler A function to call when the notification occurs. Receives the\n * event object as an argument.\n * @returns The key event that was registered.\n *\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function {\n const parsedEvent = KeyEventsPlugin.parseEventName(eventName);\n const outsideHandler =\n KeyEventsPlugin.eventCallback(parsedEvent['fullKey'], handler, this.manager.getZone());\n return this.manager.getZone().runOutsideAngular(() => {\n return getDOM().onAndCancel(element, parsedEvent['domEventName'], outsideHandler);\n });\n }\n\n static parseEventName(eventName: string): {fullKey: string, domEventName: string}|null {\n const parts: string[] = eventName.toLowerCase().split('.');\n const domEventName = parts.shift();\n if ((parts.length === 0) || !(domEventName === 'keydown' || domEventName === 'keyup')) {\n return null;\n }\n const key = KeyEventsPlugin._normalizeKey(parts.pop());\n let fullKey = '';\n MODIFIER_KEYS.forEach(modifierName => {\n const index: number = parts.indexOf(modifierName);\n if (index > -1) {\n parts.splice(index, 1);\n fullKey += modifierName + '.';\n }\n });\n fullKey += key;\n if (parts.length != 0 || key.length === 0) {\n // returning null instead of throwing to let another plugin process the event\n return null;\n }\n // NOTE: Please don't rewrite this as so, as it will break JSCompiler

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property renaming.\n // The code must remain in the result['domEventName'] form.\n // return\n {domEventName, fullKey};\n const result: {fullKey: string, domEventName: string} = {} as any;\n result['domEventName'] = domEventName;\n result['fullKey'] = fullKey;\n return result;\n }\n\n static\n getEventFullKey(event: KeyboardEvent): string {\n let fullKey = '';\n let key = getEventKey(event);\n key =\n key.toLowerCase();\n if (key === ' ') {\n key = 'space'; // for readability\n } else if (key === '.') {\n key =\n 'dot'; // because '.' is used as a separator in event names\n }\n MODIFIER_KEYS.forEach(modifierName => {\n if (modifierName !== key) {\n const modifierGetter = MODIFIER_KEY_GETTERS[modifierName];\n if\n (modifierGetter(event)) {\n fullKey += modifierName + ' ';\n }\n });\n fullKey += key;\n return fullKey;\n })\n /**\n * Configures a handler callback for a key event.\n * @param fullKey The event\n name that combines all simultaneous keystrokes.\n * @param handler The function\n that responds to the key event.\n * @param zone The zone in which the event occurred.\n * @returns A callback\n function.\n */\n static eventCallback(fullKey: any, handler: Function, zone: NgZone): Function {\n return (event:\n any /** TODO #9100 */) => {\n if (KeyEventsPlugin.getEventFullKey(event) === fullKey) {\n zone.runGuarded(() => handler(event));\n }\n }\n }\n\n /** @internal */\n static _normalizeKey(keyName:\n string): string {\n // TODO: switch to a Map if the mapping grows too much\n switch (keyName) {\n case\n 'esc':\n return 'escape';\n default:\n return keyName;\n }\n }\n\nfunction getEventKey(event: any):\n string {\n let key = event.key;\n if (key == null) {\n key = event.keyCodeIdentifier;\n // keyCodeIdentifier is defined in\n the old draft of DOM Level 3 Events implemented by Chrome and\n // Safari cf\n //\n http://www.w3.org/TR/2007/WD-DOM-Level-3-Events-20071221/events.html#Events-KeyBoardEvents-\n Interfaces\n\n if (key == null) {\n return 'Unidentified';\n }\n if (key.startsWith('U+')) {\n key =\n String.fromCharCode(parseInt(key.substring(2), 16));\n if (event.location ===\n DOM_KEY_LOCATION_NUMPAD && !_chromeNumKeyPadMap.hasOwnProperty(key)) {\n // There is a\n bug in Chrome for numeric keypad keys:\n // https://code.google.com/p/chromium/issues/detail?id=155654\n // 1, 2, 3 ... are reported as A, B, C ...\n key = (_chromeNumKeyPadMap as any)[key];\n }\n }\n }\n return _keyMap[key] || key;\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of\n this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\nimport {DOCUMENT} from '@angular/common';\nimport {forwardRef, Inject,\n Injectable, Injector, Sanitizer, SecurityContext, _sanitizeHtml as _sanitizeHtml, _sanitizeUrl as _sanitizeUrl,\n allowSanitizationBypassAndThrow as allowSanitizationBypassOrThrow,\n bypassSanitizationTrustHtml as bypassSanitizationTrustHtml, bypassSanitizationTrustResourceUrl as\n bypassSanitizationTrustResourceUrl, bypassSanitizationTrustScript as bypassSanitizationTrustScript,\n bypassSanitizationTrustStyle as bypassSanitizationTrustStyle, bypassSanitizationTrustUrl as\n bypassSanitizationTrustUrl, BypassType as BypassType, getSanitizationBypassType as getSanitizationBypassType,\n unwrapSafeValue as unwrapSafeValue} from '@angular/core';\nexport {SecurityContext};\n\n/**\n * Marker\n interface for a value that's safe to use in a particular context.\n */\n * @publicApi\n */\nexport interface SafeValue\n {}\n\n/**\n * Marker\n interface for a value that's safe to use as HTML.\n */\n * @publicApi\n */\nexport interface\n SafeHtml extends SafeValue {}\n\n/**\n * Marker\n interface for a value that's safe to use as style (CSS).\n */\n * @publicApi\n */\nexport interface\n SafeStyle extends SafeValue {}\n\n/**\n * Marker\n interface for a value that's\n safe to use as JavaScript.\n */\n * @publicApi\n */\nexport interface\n SafeScript extends SafeValue {}\n\n/**\n * Marker\n interface for a value that's safe to use as a URL linking to a document.\n */\n * @publicApi\n */\nexport\n interface SafeUrl extends SafeValue {}\n\n/**\n * Marker\n interface for a value that's safe to use as a URL to load\n executable code from.\n */\n * @publicApi\n */\nexport\n interface SafeResourceUrl extends SafeValue {}\n\nDomSanitizer helps preventing Cross Site Scripting Security bugs (XSS) by sanitizing\n values to be safe to use in\n the different DOM contexts.\n\nFor example, when binding a URL in an `<a [href]="someValue">` hyperlink,\n `someValue` will be\n sanitized so that an attacker cannot inject e.g. a `javascript:` URL that would execute code\n on\n the website.\n\nIn specific situations, it might be necessary to disable sanitization, for example if the\n application genuinely needs to produce a `javascript:` style link with a dynamic
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value in it.\n \* Users can bypass security by constructing a value with one of the `bypassSecurityTrust...`\n \* methods, and then binding to that value from the template.\n \*\n \* These situations should be very rare, and extraordinary care must be taken to avoid creating a\n \* Cross Site Scripting (XSS) security bug!\n \*\n \* When using `bypassSecurityTrust...`, make sure to call the method as early as possible and as\n \* close as possible to the source of the value, to make it easy to verify no security bug is\n \* created by its use.\n \*\n \* It is not required (and not recommended) to bypass security if the value is safe, e.g. a URL that\n \* does not start with a suspicious protocol, or an HTML snippet that does not contain dangerous\n \* code. The sanitizer leaves safe values intact.\n \*\n \* @security Calling any of the `bypassSecurityTrust...` APIs disables Angular's built-in\n \* sanitization for the value passed in. Carefully check and audit all values and code paths going\n \* into this call. Make sure any user data is appropriately escaped for this security context.\n \* For more detail, see the [Security Guide](http://g.co/ng/security).\n \*\n \* @publicApi\n \*/\n @Injectable({providedIn: 'root', useExisting: forwardRef(() => DomSanitizerImpl)})\n export abstract class DomSanitizer implements Sanitizer {\n /\*\*\n \* Sanitizes a value for use in the given SecurityContext.\n \*\n \* If value is trusted for the context, this method will unwrap the contained safe value and use\n \* it directly. Otherwise, value will be sanitized to be safe in the given context, for example\n \* by replacing URLs that have an unsafe protocol part (such as `javascript:`). The implementation\n \* is responsible to make sure that the value can definitely be safely used in the given context.\n \*/\n abstract sanitize(context: SecurityContext, value: SafeValue|string|null): string|null;\n\n /\*\*\n \* Bypass security and trust the given value to be safe HTML. Only use this when the bound HTML\n \* is unsafe (e.g. contains `

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BypassType.ResourceUrl)) {\n return unwrapSafeValue(value);\n }\n throw new Error(\n
'unsafe value used in a resource URL context (see http://g.co/ng/security#xss)');\n default:\n throw new
Error('Unexpected SecurityContext ${ctx} (see http://g.co/ng/security#xss)');\n }\n }\n\n
bypassSecurityTrustHtml(value: string): SafeHtml {\n return bypassSanitizationTrustHtml(value);\n }\n
bypassSecurityTrustStyle(value: string): SafeStyle {\n return bypassSanitizationTrustStyle(value);\n }\n
bypassSecurityTrustScript(value: string): SafeScript {\n return bypassSanitizationTrustScript(value);\n }\n
bypassSecurityTrustUrl(value: string): SafeUrl {\n return bypassSanitizationTrustUrl(value);\n }\n
bypassSecurityTrustResourceUrl(value:
string): SafeResourceUrl {\n return bypassSanitizationTrustResourceUrl(value);\n }\n}\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { CommonModule,
DOCUMENT, PLATFORM_BROWSER_ID as PLATFORM_BROWSER_ID } from '@angular/common';\nimport
{ APP_ID, ApplicationModule, createPlatformFactory, ErrorHandler, Inject, ModuleWithProviders, NgModule,
NgZone, Optional, PLATFORM_ID, PLATFORM_INITIALIZER, platformCore, PlatformRef, RendererFactory2,
Sanitizer, SkipSelf, StaticProvider, Testability, Console as Console, INJECTOR_SCOPE as INJECTOR_SCOPE,
setDocument } from '@angular/core';\nimport { BrowserDomAdapter } from './browser/browser_adapter';\nimport
{ SERVER_TRANSITION_PROVIDERS, TRANSITION_ID } from './browser/server-transition';\nimport
{ BrowserGetTestability } from './browser/testability';\nimport
{ ELEMENT_PROBE_PROVIDERS } from './dom/debug/ng_probe';\nimport { DomRendererFactory2 } from
'./dom/dom_renderer';\nimport { DomEventsPlugin } from './dom/events/dom_events';\nimport
{ EVENT_MANAGER_PLUGINS, EventManager } from './dom/events/event_manager';\nimport
{ HAMMER_PROVIDERS } from './dom/events/hammer_gestures';\nimport { KeyEventsPlugin } from
'./dom/events/key_events';\nimport { DomSharedStylesHost, SharedStylesHost } from
'./dom/shared_styles_host';\nimport { DomSanitizer, DomSanitizerImpl } from
'./security/dom_sanitization_service';\n\nexport function initDomAdapter() {\n
BrowserDomAdapter.makeCurrent();\n BrowserGetTestability.init();\n}\n\nexport function errorHandler():
ErrorHandler {\n return new ErrorHandler();\n}\n\nexport function _document(): any {\n // Tell ivy about the
global document\n setDocument(document);\n return document;\n}\n\nexport const
INTERNAL_BROWSER_PLATFORM_PROVIDERS: StaticProvider[] = [\n { provide: PLATFORM_ID,
useValue: PLATFORM_BROWSER_ID },\n
 { provide: PLATFORM_INITIALIZER, useValue: initDomAdapter, multi: true },\n
 { provide: DOCUMENT, useFactory: _document, deps: [],\n\nconst BROWSER_SANITIZATION_PROVIDERS__PRE_R3__:
StaticProvider[] = [\n { provide: Sanitizer, useExisting: DomSanitizer },\n
 { provide: DomSanitizer, useClass: DomSanitizerImpl, deps: [DOCUMENT] },\n\nexport const
BROWSER_SANITIZATION_PROVIDERS__POST_R3__ = [];\n\n/**\n * @security Replacing built-in
sanitization providers exposes the application to XSS risks.\n * Attacker-controlled data introduced by an
unsanitized provider could expose your\n * application to XSS risks. For more detail, see the [Security
Guide](http://g.co/ng/security).\n * @publicApi\n */\nexport const BROWSER_SANITIZATION_PROVIDERS =
BROWSER_SANITIZATION_PROVIDERS__PRE_R3__;\n\n/**\n * A factory function that returns a
`PlatformRef` instance associated with browser service\n * providers.\n */\n * @publicApi\n */\nexport const
platformBrowser: (extraProviders?: StaticProvider[])
=> PlatformRef =\n createPlatformFactory(platformCore, 'browser',
INTERNAL_BROWSER_PLATFORM_PROVIDERS);\n\nexport const BROWSER_MODULE_PROVIDERS:
StaticProvider[] = [\n BROWSER_SANITIZATION_PROVIDERS,\n
 { provide: INJECTOR_SCOPE, useValue: 'root' },\n
 { provide: ErrorHandler, useFactory: errorHandler, deps: [],\n
 { provide:
EVENT_MANAGER_PLUGINS,\n useClass: DomEventsPlugin,\n multi: true,\n deps: [DOCUMENT,
NgZone, PLATFORM_ID]\n },\n
 { provide: EVENT_MANAGER_PLUGINS, useClass: KeyEventsPlugin, multi:
true, deps: [DOCUMENT] },\n
 HAMMER_PROVIDERS,\n
 {\n provide: DomRendererFactory2,\n useClass:

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DomRendererFactory2,\n deps: [EventManager, DomSharedStylesHost, APP_ID]\n },\n {provide:
RendererFactory2, useExisting: DomRendererFactory2},\n {provide: SharedStylesHost, useExisting:
DomSharedStylesHost},\n {provide: DomSharedStylesHost, useClass: DomSharedStylesHost, deps:
[DOCUMENT]},\n {provide: Testability, useClass: Testability, deps: [NgZone]},\n {provide:
EventManager, useClass: EventManager, deps: [EVENT_MANAGER_PLUGINS, NgZone]},\n
ELEMENT_PROBE_PROVIDERS,\n];\n\n/**\n * Exports required infrastructure for all Angular apps.\n *
Included by default in all Angular apps created with the CLI\n * `new` command.\n * Re-exports `CommonModule`
and `ApplicationModule`, making their\n * exports and providers available to all apps.\n *\n * @publicApi\n
*/\n\n@NgModule({providers: BROWSER_MODULE_PROVIDERS, exports: [CommonModule,
ApplicationModule]})\nexport class BrowserModule {\n constructor(@Optional() @SkipSelf()
@Inject(BrowserModule) parentModule: BrowserModule|null) {\n if (parentModule) {\n throw new Error(\n
`BrowserModule has already been loaded. If you need access to common directives such as NgIf and NgFor from
a lazy loaded module, import CommonModule instead.`);\n }\n }\n\n /**\n * Configures a browser-based app to
transition from a server-rendered app, if\n * one is present on the page.\n *\n *
@param params An object containing an identifier for the app to transition.\n * The ID must match between the
client and server versions of the app.\n * @returns The reconfigured `BrowserModule` to import into the app's root
`AppModule`.\n */\n static withServerTransition(params: {appId: string}):
ModuleWithProviders<BrowserModule> {\n return {\n ngModule: BrowserModule,\n providers: [\n
{provide: APP_ID, useValue: params.appId},\n {provide: TRANSITION_ID, useExisting: APP_ID},\n
SERVER_TRANSITION_PROVIDERS,\n],\n };\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {DOCUMENT, DomAdapter as DomAdapter, getDOM as
getDOM} from '@angular/common';\nimport {Inject, Injectable, inject} from '@angular/core';\n\n/**\n *
Represents the attributes of an HTML `<meta>`
element. The element itself is\n * represented by the internal `HTMLMetaElement`.\n *\n * @see [HTML meta
tag](https://developer.mozilla.org/docs/Web/HTML/Element/meta)\n * @see `Meta`\n *\n * @publicApi\n
*/\n\nexport type MetaDefinition = {\n charset?: string;\n content?: string;\n httpEquiv?: string;\n id?: string;\n
itemprop?: string;\n name?: string;\n property?: string;\n scheme?: string;\n url?: string;\n}&{\n //
TODO(IgorMinar): this type looks wrong\n [prop: string]: string;\n};\n\n/**\n * Factory to create a `Meta` service
instance for the current DOM document.\n */\n\nexport function createMeta() {\n return new
Meta(inject(DOCUMENT));\n}\n\n/**\n * A service for managing HTML `<meta>` tags.\n *\n * Properties of the
`MetaDefinition` object match the attributes of the\n * HTML `<meta>` tag. These tags define document metadata
that is important for\n * things like configuring a Content Security Policy, defining browser compatibility\n * and
security settings, setting
HTTP Headers, defining rich content for social sharing,\n * and Search Engine Optimization (SEO).\n *\n * To
identify specific `<meta>` tags in a document, use an attribute selection\n * string in the format
`"tag_attribute='value string'".\n * For example, an `attrSelector` value of `"name='description'"` matches a tag\n
* whose `name` attribute has the value `"description".\n * Selectors are used with the `querySelector()` Document
method,\n * in the format `meta[{attrSelector}]`.\n *\n * @see [HTML meta
tag](https://developer.mozilla.org/docs/Web/HTML/Element/meta)\n * @see
[Document.querySelector()](https://developer.mozilla.org/docs/Web/API/Document/querySelector)\n *\n *
@publicApi\n */\n\n@Injectable({providedIn: 'root', useFactory: createMeta, deps: []})\nexport class Meta {\n
 private _dom: DomAdapter;\n constructor(@Inject(DOCUMENT) private _doc: any) {\n this._dom =
getDOM();\n }\n\n /**\n * Retrieves or creates a specific `<meta>` tag element in the current
HTML document.\n *\n * In searching for an existing tag, Angular attempts to match the `name` or `property`
attribute\n * values in the provided tag definition, and verifies that all other attribute values are equal.\n *
If an existing element is found, it is returned and is not modified in any way.\n * @param tag The definition of a
`<meta>` element to match or create.\n * @param forceCreation True to create a new element without checking

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whether one already exists.\n * @returns The existing element with the same attributes and values if found,\n *
the new element if no match is found, or `null` if the tag parameter is not defined.\n */\n addTag(tag:
MetaDefinition, forceCreation: boolean = false): HTMLMetaElement{\n if (!tag) return null;\n return
this._getOrCreateElement(tag, forceCreation);\n }\n\n /**\n * Retrieves or creates a set of `<meta>` tag elements
in the current HTML document.\n * In searching for an existing tag, Angular attempts to match
the `name` or `property` attribute\n * values in the provided tag definition, and verifies that all other attribute
values are equal.\n * @param tags An array of tag definitions to match or create.\n * @param forceCreation True
to create new elements without checking whether they already exist.\n * @returns The matching elements if found,
or the new elements.\n */\n addTags(tags: MetaDefinition[], forceCreation: boolean = false):
HTMLMetaElement[] {\n if (!tags) return [];\n return tags.reduce((result: HTMLMetaElement[], tag:
MetaDefinition) => {\n if (tag) {\n result.push(this._getOrCreateElement(tag, forceCreation));\n }\n
return result;\n }, []);\n }\n\n /**\n * Retrieves a `<meta>` tag element in the current HTML document.\n *
@param attrSelector The tag attribute and value to match against, in the format\n * `"tag_attribute='value
string'"`.\n * @returns The matching element, if any.\n */\n getTag(attrSelector: string):
HTMLMetaElement|null
{\n if (!attrSelector) return null;\n return this._doc.querySelector(`meta[${attrSelector}]`) || null;\n }\n\n /**\n
* Retrieves a set of `<meta>` tag elements in the current HTML document.\n * @param attrSelector The tag
attribute and value to match against, in the format\n * `"tag_attribute='value string'"`.\n * @returns The
matching elements, if any.\n */\n getTags(attrSelector: string): HTMLMetaElement[] {\n if (!attrSelector) return
[];\n const list /*NodeList*/ = this._doc.querySelectorAll(`meta[${attrSelector}]`);\n return list ?
[].slice.call(list) : [];\n }\n\n /**\n * Modifies an existing `<meta>` tag element in the current HTML document.\n
* @param tag The tag description with which to replace the existing tag content.\n * @param selector A tag
attribute and value to match against, to identify\n * an existing tag. A string in the format `"tag_attribute='value
string'"`.\n * If not supplied, matches a tag with the
same `name` or `property` attribute value as the\n * replacement tag.\n * @return The modified element.\n */\n
updateTag(tag: MetaDefinition, selector?: string): HTMLMetaElement|null {\n if (!tag) return null;\n selector =
selector || this._parseSelector(tag);\n const meta: HTMLMetaElement = this.getTag(selector);\n if (meta) {\n
return this._setMetaElementAttributes(tag, meta);\n }\n return this._getOrCreateElement(tag, true);\n }\n\n
/**\n * Removes an existing `<meta>` tag element from the current HTML document.\n * @param attrSelector A
tag attribute and value to match against, to identify\n * an existing tag. A string in the format
`"tag_attribute='value string'"`.\n */\n removeTag(attrSelector: string): void {\n
this.removeTagElement(this.getTag(attrSelector));\n }\n\n /**\n * Removes an existing `<meta>` tag element
from the current HTML document.\n * @param meta The tag definition to match against to identify an existing
tag.\n
*/\n removeTagElement(meta: HTMLMetaElement): void {\n if (meta) {\n this._dom.remove(meta);\n }\n
}\n\n private _getOrCreateElement(meta: MetaDefinition, forceCreation: boolean = false):\n
HTMLMetaElement {\n if (!forceCreation) {\n const selector: string = this._parseSelector(meta);\n const
elem: HTMLMetaElement = this.getTag(selector);\n // It's allowed to have multiple elements with the same
name so it's not enough to\n // just check that element with the same name already present on the page. We also
need to\n // check if element has tag attributes\n if (elem && this._containsAttributes(meta, elem)) return
elem;\n }\n const element: HTMLMetaElement = this._dom.createElement('meta') as HTMLMetaElement;\n
this._setMetaElementAttributes(meta, element);\n const head = this._doc.getElementsByTagName('head')[0];\n
head.appendChild(element);\n return element;\n }\n\n private _setMetaElementAttributes(tag: MetaDefinition,
el: HTMLMetaElement): HTMLMetaElement {\n Object.keys(tag).forEach((prop: string) => el.setAttribute(prop,
tag[prop]));\n return el;\n }\n\n private _parseSelector(tag: MetaDefinition): string {\n const attr: string =
tag.name ? 'name' : 'property';\n return `${attr}="${tag[attr]}"`; }\n\n private _containsAttributes(tag:
MetaDefinition, elem: HTMLMetaElement): boolean {\n return Object.keys(tag).every((key: string) =>
elem.getAttribute(key) === tag[key]);\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights

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Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {DOCUMENT, getDOM as getDOM} from
'@angular/common';\nimport {Inject, Injectable, inject} from '@angular/core';\n\n/**\n * Factory to create Title
service.\n *\nexport function createTitle() {\n return new Title(inject(DOCUMENT));\n}\n\n/**\n * A service that
can
be used to get and set the title of a current HTML document.\n *\n * Since an Angular application can't be
bootstrapped on the entire HTML document (<html> tag)\n * it is not possible to bind to the `text` property of the
`HTMLTitleElement` elements\n * (representing the <title> tag). Instead, this service can be used to set and get
the current\n * title value.\n *\n * @publicApi\n *\n@Injectable({providedIn: 'root', useFactory: createTitle, deps:
[]})\nexport class Title {\n constructor(@Inject(DOCUMENT) private _doc: any) {} \n /**\n * Get the title of the
current HTML document.\n *\n getTitle(): string {\n return this._doc.title;\n }\n /**\n * Set the title of the
current HTML document.\n * @param newTitle\n *\n setTitle(newTitle: string) {\n this._doc.title = newTitle\n }\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE
file at https://angular.io/license\n *\n\nconst win = typeof window !== 'undefined' && window || <any>{};\nexport
{win as window};\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {getDOM as getDOM} from '@angular/common';\nimport {ApplicationRef, ComponentRef} from
'@angular/core';\nimport {window} from './browser';\n\nexport class ChangeDetectionPerfRecord {\n
 constructor(public msPerTick: number, public numTicks: number) {} \n}\n\n/**\n * Entry point for all Angular
profiling-related debug tools. This object\n * corresponds to the `ng.profiler` in the dev console.\n *\nexport class
AngularProfiler {\n appRef: ApplicationRef;\n\n constructor(ref: ComponentRef<any>) {\n this.appRef =
ref.injector.get(ApplicationRef);\n }\n\n // tslint:disable:no-console\n /**\n * Exercises change detection in a
loop and
then prints the average amount of\n * time in milliseconds how long a single round of change detection takes for\n
* the current state of the UI. It runs a minimum of 5 rounds for a minimum\n * of 500 milliseconds.\n *\n *
Optionally, a user may pass a `config` parameter containing a map of\n * options. Supported options are:\n *\n *
`record` (boolean) - causes the profiler to record a CPU profile while\n * it exercises the change detector.
Example:\n *\n * ```\n * ng.profiler.timeChangeDetection({record: true})\n *\n * ```\n *\n\n timeChangeDetection(config: any): ChangeDetectionPerfRecord {\n const record = config && config['record'];\n
 const profileName = 'Change Detection';\n // Profiler is not available in Android browsers without dev tools
opened\n const isProfilerAvailable = window.console.profile !== null;\n if (record && isProfilerAvailable) {\n
 window.console.profile(profileName);\n }\n const start = getDOM().performanceNow();\n
 let numTicks = 0;\n while (numTicks < 5 || (getDOM().performanceNow() - start) < 500) {\n
 this.appRef.tick();\n numTicks++;\n }\n const end = getDOM().performanceNow();\n if (record &&
isProfilerAvailable) {\n window.console.profileEnd(profileName);\n }\n const msPerTick = (end - start) /
numTicks;\n window.console.log(`ran ${numTicks} change detection cycles`);\n
 window.console.log(`${msPerTick.toFixed(2)} ms per check`);\n return new
ChangeDetectionPerfRecord(msPerTick, numTicks);\n }\n}\n\n", /**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {ComponentRef} from '@angular/core';\nimport
{exportNgVar} from '../dom/util';\nimport {AngularProfiler} from './common_tools';\n\nconst
PROFILER_GLOBAL_NAME = 'profiler';\n\n/**\n * Enabled Angular debug tools that are accessible
via your browser's\n * developer console.\n *\n * Usage:\n *\n * 1. Open developer console (e.g. in Chrome Ctrl +
Shift + j)\n *\n * 1. Type `ng.` (usually the console will show auto-complete suggestion)\n *\n * 1. Try the change detection
profiler `ng.profiler.timeChangeDetection()`\n * then hit Enter.\n *\n * @publicApi\n *\nexport function
enableDebugTools<T>(ref: ComponentRef<T>): ComponentRef<T> {\n
 exportNgVar(PROFILER_GLOBAL_NAME, new AngularProfiler(ref));\n return ref;\n}\n\n/**\n * Disables

```



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Angular tools.\n *\n * @publicApi\n *\nexport function disableDebugTools(): void {\n
exportNgVar(PROFILER_GLOBAL_NAME, null);\n}\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {DOCUMENT} from '@angular/common';\nimport
{APP_ID, Injectable, NgModule} from '@angular/core';\n\nexport function escapeHtml(text: string):
string {\n const escapedText: {[k: string]: string} = {\n '&': '&',\n '\\': '\\&',\n '<': '<',\n '>':
'>',\n ' ' : ' ';\n return text.replace(/&["<>]/g, s => escapedText[s]);\n}\n\nexport function unescapeHtml(text:
string): string {\n const unescapedText: {[k: string]: string} = {\n '&': '&',\n '&': '\\',\n '&': '&',\n '<': '<',\n '>': '>',\n ' ' : ' ';\n return text.replace(/&["<>]/g, s => unescapedText[s]);\n}\n\n/**\n * A type-safe key to use
with `TransferState`.\n *\n * Example:\n *\n * ``\n * const COUNTER_KEY =
makeStateKey<number>('counter');\n * let value = 10;\n * \n * transferState.set(COUNTER_KEY, value);\n * ``\n
*\n * @publicApi\n *\nexport type StateKey<T> = string & {__not_a_string: never};\n\n/**\n * Create a
`StateKey<T>` that can be used to store value of type T with `TransferState`.\n *\n * Example:\n *\n * ``\n * const
COUNTER_KEY = makeStateKey<number>('counter');\n * let value = 10;\n * \n *
transferState.set(COUNTER_KEY,
value);\n * ``\n *\n * @publicApi\n *\nexport function makeStateKey<T = void>(key: string): StateKey<T> {\n
return key as StateKey<T>;\n}\n\n/**\n * A key value store that is transferred from the application on the server
side to the application\n * on the client side.\n *\n * `TransferState` will be available as an injectable token. To use it
import\n * `ServerTransferStateModule` on the server and `BrowserTransferStateModule` on the client.\n *\n * The
values in the store are serialized/deserialized using JSON.stringify/JSON.parse. So only\n * boolean, number, string,
null and non-class objects will be serialized and deserialzied in a\n * non-lossy manner.\n *\n * @publicApi\n
*\n@Injectable()\nexport class TransferState {\n private store: {[k: string]: {}}|undefined = {};\n private
onSerializeCallbacks: {[k: string]: () => {}}|undefined = {};\n\n /**\n * @internal\n * static init(initState: {}) {\n
const transferState = new TransferState();\n transferState.store
= initState;\n return transferState;\n }\n\n /**\n * Get the value corresponding to a key. Return `defaultValue` if
key is not found.\n *\n * get<T>(key: StateKey<T>, defaultValue: T): T {\n return this.store[key] !== undefined
? this.store[key] as T : defaultValue;\n }\n\n /**\n * Set the value corresponding to a key.\n *\n * set<T>(key:
StateKey<T>, value: T): void {\n this.store[key] = value;\n }\n\n /**\n * Remove a key from the store.\n *\n *
remove<T>(key: StateKey<T>): void {\n delete this.store[key];\n }\n\n /**\n * Test whether a key exists in the
store.\n *\n * hasKey<T>(key: StateKey<T>) {\n return this.store.hasOwnProperty(key);\n }\n\n /**\n *
Register a callback to provide the value for a key when `toJson` is called.\n *\n * onSerialize<T>(key:
StateKey<T>, callback: () => T): void {\n this.onSerializeCallbacks[key] = callback;\n }\n\n /**\n * Serialize
the current state of the store to JSON.\n *\n * toJson():
string {\n // Call the onSerialize callbacks and put those values into the store.\n for (const key in
this.onSerializeCallbacks) {\n if (this.onSerializeCallbacks.hasOwnProperty(key)) {\n try {\n
this.store[key] = this.onSerializeCallbacks[key]();\n } catch (e) {\n console.warn('Exception in onSerialize
callback: ', e);\n }\n }\n }\n return JSON.stringify(this.store);\n }\n}\n\nexport function
initTransferState(doc: Document, appId: string) {\n // Locate the script tag with the JSON data transferred from the
server.\n // The id of the script tag is set to the Angular appId + 'state'.\n const script = doc.getElementById(appId +
'-state');\n let initialState = {};\n if (script && script.textContent) {\n try {\n initialState =
JSON.parse(unescapeHtml(script.textContent));\n } catch (e) {\n console.warn('Exception while restoring
TransferState for app ' + appId, e);\n }\n }\n return TransferState.init(initialState);\n}\n\n/**\n *
NgModule to install on the client side while using the `TransferState` to transfer state from\n * server to client.\n
*\n * @publicApi\n *\n@NgModule({\n providers: [{provide: TransferState, useFactory: initTransferState, deps:
[DOCUMENT, APP_ID]}],\n})\nexport class BrowserTransferStateModule {\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {getDOM as getDOM} from
'@angular/common';\nimport {DebugElement, DebugNode, Predicate, Type} from '@angular/core';\n\n\n/**\n *

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// predicates for use with { @link DebugElement }'s query functions.\n * \n * @publicApi\n *\nexport class By {\n
/**\n * Match all nodes.\n * \n * @usageNotes\n * ### Example\n * \n * {\n * @example platform-browser/dom/debug/ts/by/by.ts region='by_all'\n * }\n * static all(): Predicate<DebugNode> {\n * return\n * () => true;\n * }\n * \n * Match elements by the given CSS selector.\n * \n * @usageNotes\n * ###\n * Example\n * \n * {\n * @example platform-browser/dom/debug/ts/by/by.ts region='by_css'\n * }\n * static\n * css(selector: string): Predicate<DebugElement> {\n * return (debugElement) => {\n * return\n * debugElement.nativeElement != null ?\n * elementMatches(debugElement.nativeElement, selector) :\n * false;\n * };\n * }\n * \n * Match nodes that have the given directive present.\n * \n * @usageNotes\n * ###\n * Example\n * \n * {\n * @example platform-browser/dom/debug/ts/by/by.ts region='by_directive'\n * }\n * static\n * directive(type: Type<any>): Predicate<DebugNode> {\n * return (debugNode) =>\n * debugNode.providerTokens!.indexOf(type) !== -1;\n * }\n * \nfunction elementMatches(n: any, selector: string):\n * boolean {\n * if (getDOM().isElementNode(n)) {\n * return n.matches && n.matches(selector) ||\n * n.msMatchesSelector && n.msMatchesSelector(selector) ||\n * n.webkitMatchesSelector && n.webkitMatchesSelector(selector);\n * }\n * return false;\n * }\n */\n *\n@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\nexport { getDOM } from '@angular/common';\nexport { BROWSER_SANITIZATION_PROVIDERS as\n * BROWSER_SANITIZATION_PROVIDERS,\n * BROWSER_SANITIZATION_PROVIDERS__POST_R3__ as\n * BROWSER_SANITIZATION_PROVIDERS__POST_R3__,\n * initDomAdapter as initDomAdapter,\n * INTERNAL_BROWSER_PLATFORM_PROVIDERS as\n * INTERNAL_BROWSER_PLATFORM_PROVIDERS } from './browser';\nexport { BrowserDomAdapter as\n * BrowserDomAdapter } from './browser/browser_adapter';\nexport { TRANSITION_ID as\n * TRANSITION_ID } from './browser/server-transition';\nexport { BrowserGetTestability as\n * BrowserGetTestability } from './browser/testability';\nexport { escapeHtml as\n * escapeHtml } from './browser/transfer_state';\nexport { ELEMENT_PROBE_PROVIDERS\n * as ELEMENT_PROBE_PROVIDERS } from './dom/debug/ng_probe';\nexport { DomRendererFactory2 as\n * DomRendererFactory2,\n * flattenStyles as flattenStyles,\n * NAMESPACE_URI as NAMESPACE_URI,\n * shimContentAttribute as shimContentAttribute,\n * shimHostAttribute as shimHostAttribute } from './dom/dom_renderer';\nexport { DomEventsPlugin as\n * DomEventsPlugin } from './dom/events/dom_events';\nexport { HammerGesturesPlugin as\n * HammerGesturesPlugin } from './dom/events/hammer_gestures';\nexport { KeyEventsPlugin as\n * KeyEventsPlugin } from './dom/events/key_events';\nexport { DomSharedStylesHost as\n * DomSharedStylesHost,\n * SharedStylesHost as SharedStylesHost } from './dom/shared_styles_host';\nexport { DomSanitizerImpl as\n * DomSanitizerImpl } from './security/dom_sanitization_service';\n\n"/**\n * \n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n*/\n *\n * @module\n * @description\n *\n * Entry point for all public APIs of the common package.\n *\nimport { Version } from '@angular/core';\n\n/**\n * \n * @publicApi\n *\nexport const VERSION = new Version('11.0.2');\n\n"/**\n * \n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nexport { BrowserModule, platformBrowser } from './browser';\nexport { Meta, MetaDefinition } from './browser/meta';\nexport { Title } from './browser/title';\nexport { disableDebugTools, enableDebugTools } from './browser/tools/tools';\nexport { BrowserTransferStateModule,\n * makeStateKey, StateKey, TransferState } from './browser/transfer_state';\nexport { By } from './dom/debug/by';\nexport { EVENT_MANAGER_PLUGINS, EventManager } from './dom/events/event_manager';\nexport { HAMMER_GESTURE_CONFIG, HAMMER_LOADER,\n * HAMMER_PROVIDERS__POST_R3__ as\n * HAMMER_PROVIDERS__POST_R3__,\n * HammerGestureConfig, HammerLoader,\n * HammerModule } from './dom/events/hammer_gestures';\nexport { DomSanitizer, SafeHtml,\n * SafeResourceUrl, SafeScript, SafeStyle, SafeUrl,\n * SafeValue } from './security/dom_sanitization_service';\n\nexport * from './private_export';\nexport { VERSION } from './version';\n\n// This must be exported so it doesn't get tree-shaken away

```

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prematurely\nexport {ELEMENT_PROBE_PROVIDERS__POST_R3__ as
ELEMENT_PROBE_PROVIDERS__POST_R3__} from './dom/debug/ng_probe';\n","/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n/*\n * @module\n * @description\n
* Entry point for all public APIs of this package.\n *\nexport * from './src/platform-browser';\n// This file only
reexports content of the `src` folder. Keep it that way.\n","/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n// This file is not used to build this
module. It is only used during editing\n// by the TypeScript language service and during build for verification.
`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n","/*\n * Generated bundle index. Do not edit.\n *\n\nexport * from './index';\n\nexport
{BROWSER_MODULE_PROVIDERS as angular_packages_platform_browser_platform_browser_c,_document as
angular_packages_platform_browser_platform_browser_b,errorHandler as
angular_packages_platform_browser_platform_browser_a} from './src/browser';\nexport
{GenericBrowserDomAdapter as angular_packages_platform_browser_platform_browser_o} from
'./src/browser/generic_browser_adapter';\nexport {createMeta as
angular_packages_platform_browser_platform_browser_d} from './src/browser/meta';\nexport
{SERVER_TRANSITION_PROVIDERS as
angular_packages_platform_browser_platform_browser_l,appInitializerFactory
as angular_packages_platform_browser_platform_browser_k} from './src/browser/server-transition';\nexport
{createTitle as angular_packages_platform_browser_platform_browser_e} from './src/browser/title';\nexport
{initTransferState as angular_packages_platform_browser_platform_browser_f} from
'./src/browser/transfer_state';\nexport {ELEMENT_PROBE_PROVIDERS__PRE_R3__ as
angular_packages_platform_browser_platform_browser_n,createNgProbeR2 as
angular_packages_platform_browser_platform_browser_m} from './src/dom/debug/ng_probe';\nexport
{EventManagerPlugin as angular_packages_platform_browser_platform_browser_g} from
'./src/dom/events/event_manager';\nexport {HAMMER_PROVIDERS as
angular_packages_platform_browser_platform_browser_i,HAMMER_PROVIDERS__PRE_R3__ as
angular_packages_platform_browser_platform_browser_h} from './src/dom/events/hammer_gestures';\nexport
{domSanitizerImplFactory as angular_packages_platform_browser_platform_browser_j}
from
'./src/security/dom_sanitization_service';\n"],"names":["DomAdapter","global","setRootDomAdapter","parseCookieV
alue","getDOM","Console","allowSanitizationBypassOrThrow","unwrapSafeValue","_sanitizeHtml","getSanitizatio
nBypassType","_sanitizeUrl","bypassSanitizationTrustHtml","bypassSanitizationTrustStyle","bypassSanitizationTr
ustScript","bypassSanitizationTrustUrl","bypassSanitizationTrustResourceUrl","PLATFORM_BROWSER_ID","IN
JECTOR_SCOPE","window"],"mappings":":;;;;;;;;;AAAAA;;;;;;;;;AAYA;;;;;;;;;MAMsB,wBAAYB,SAAQA,WAAU;IA
C/D;QACE,KAAK,EAAE,CAAC;KACT;IAED,iBAAiB;QACf,OAAO,IAAI,CAAC;KACb;;;ACzBH;;;;;;;;;WAa4D;
IAC1D,IAAIC,OAAO,CAAC,MAAM,CAAC,EAAE;QACIB,OAAOA,OAAO,CAAC,MAAM,CAAC,CAAC,SA
AS,CAAC,QAAQ,IAAI,UAAqB,IAAS;YACxE,OAAO,CAAC,EAAE,IAAI,CAAC,uBAAuB,CAAC,IAAI,CAAC,
GAAG,EAAE,CAAC,CAAC;SACpD,CAAC;KACH;IAED,OAAO,SAAGB,CAAC;AAC1B,CAAC;AARD,MAA
M,YAAY,GAAyC,MAQvD,CAAC;AAEL;;;;;;;;;AAMA;MACa,iBAAkB,SAAQ,wBAAwB;IAC7D,OAAO,WAAW;
QACHBC,kBAAiB,CAAC,IAAI,iBAAiB,EAAE,CAAC,CAAC;KAC5C;IACD,WAAW,CAAC,EAAQ,EAAE,IAA
Y;QACHc,OAAa,EAAG,CAAC,IAAI,CAAC,CAAC;KACxB;IAED,GAAG,CAAC,KAAa;QACf,IAAI,MAAM,C
AAC,OAAO,EAAE;YACIB,MAAM,CAAC,OAAO,CAAC,GAAG,IAAI,MAAM,CAAC,OAAO,CAAC,GAAG,C
AAC,KAAK,CAAC,CAAC;SACjD;KACF;IAED,QAAQ,CAAC,KAAa;QACpB,IAAI,MAAM,CAAC,OAAO,EA
AE;YACIB,MAAM,CAAC,OAAO,CAAC,KAAK,IAAI,MAAM,CAAC,OAAO,CAAC,KAAK,CAAC,KAAK,CA
AC,CAAC;SACrD;KACF;IAED,WAAW;QACT,IAAI,MAAM,CAAC,OAAO,EAAE;YACIB,MAAM,CAAC,OA
AO,CAAC,QAAQ,IAAI,MAAM,CAAC,OAAO,CAAC,QAAQ,EAAE,CAAC;SACtD;KACF;IAED,WAAW,CAA

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C,EAAQ,EAAE,GAAQ,EAAE,QAAa;QAC3C,EAAE,CAAC,gBAAGB,CAAC,GAAG,EAAE,QAAQ,EAAE,KAA  
 K,CAAC,CAAC;;;QAG1C,OAAO;YACL,EAAE,CAAC,mBAAMb,CAAC,GAAG,EAAE,QAAQ,EAAE,KAAK,  
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 ,QAAQ,CAAC,EAAO;QACd,OAAO,EAAE,CAAC,KAAK,CAAC;KACjB;IACD,aAAa,CAAC,OAAe,EAAE,GA  
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 C,IAAU;QACtB,OAAO,IAAI,CAAC,QAAQ,KAAK,IAAI,CAAC,YAAY,CAAC;KAC5C;IAED,YAAY,CAAC,IA  
 AS;QACpB,OAAO,IAAI,YAAY,gBAAGB,CAAC;KACzC;IAED,oBAAoB,CAAC,GAAa,EAAE,MAAc;QACd,I  
 AAI,MAAM,KAAK,QAAQ,EAAE;YACvB,OAAO,MAAM,CAAC;SACf;QACD,IAAI,MAAM,KAAK,UAAU,E  
 AAE;YACzB,OAAO,GAAG,CAAC;SACZ;QACD,IAAI,MAAM,KAAK,MAAM,EAAE;YACrB,OAAO,GAAG,C  
 AAC,IAAI,CAAC;SACjB;QACD,OAAO,IAAI,CAAC;KACb;IACD,UAAU;QACR,OAAO,MAAM,CAAC,OAA  
 O,CAAC;KACvB;IACD,WAAW;QACT,OAAO,MAAM,CAAC,QAAQ,CAAC;KACxB;IACD,WAAW,CAAC,G  
 AAa;QACvB,MAAM,IAAI,GAAG,kBAaKB,EAAE,CAAC;QACIC,OAAO,IAAI,IAAI,IAAI,GAAG,IAAI,GAAG  
 ,YAAY,CAAC,IAAI,CAAC,CAAC;KACjD;IACD,gBAAGB;QACd,WAAW,GAAG,IAAI,CAAC;KACpB;IACD,  
 YAAY;QACV,OAAO,MAAM,CAAC,SAAS,CAAC,SAAS,CAAC;KACnC;IACD,cAAc;;;QAGZ,OAAO,MAAM,  
 CAAC,WAAW,IAAI,MAAM,CAAC,WAAW,CAAC,GAAG,GAAG,MAAM,CAAC,WAAW,CAAC,GAAG,EAA  
 E;YACxB,IAAI,IAAI,EAAE,CAAC,OAAO,EAAE,CAAC;KAC5E;IAED,eAAe;QACb,OAAO,IAAI,CAAC;KAC  
 b;IAED,SAAS,CAAC,IAAY;QACpB,OAAOC,iBAAGB,CAAC,QAAQ,CAAC,MAAM,EAAE,IAAI,CAAC,CAA  
 C;KACHD;CACF;AAED,IAAI,WAAW,GAAqB,IAAI,CAAC;AACzC,SAAS,kBAaKB;IACzB,IAAI,CAAC,WAA  
 W,EAAE;QACb,WAAW,GAAG,QAAQ,CAAC,aAAa,CAAC,MAAM,CAAE,CAAC;QAC9C,IAAI,CAAC,WA  
 AW,EAAE;YACb,OAAO,IAAI,CAAC;SACb;KACF;IACD,OAAO,WAAW,CAAC,YAAY,CAAC,MAAM,CA  
 AC,CAAC;AAC1C,CAAC;AAED;AACA,IAAI,cAAmB,CAAC;AACxB,SAAS,YAAY,CAAC,GAAQ;IAC5B,IA  
 AI,CAAC,cAAc,EAAE;QACnB,cAAc,GAAG,QAAQ,CAAC,aAAa,CAAC,GAAG,CAAC,CAAC;KAC9C;IACD,c  
 AAc,CAAC,YAAY,CAAC,MAAM,EAAE,GAAG,CAAC,CAAC;IACzC,OAAO,CAAC,cAAc,CAAC,QAAQ,CA  
 AC,MAAM,CAAC,CAAC,CAAC,KAAK,GAAG,IAAI,cAAc,CAAC,QAAQ;QACvB,GAAG,GAAG,cAAc,CAAC  
 ,QAAQ,CAAC;AACrF;;AC/JA;;;;;AAWA;;;MAIa,aAAa,GAAG,IAAI,cAAc,CAAC,eAAe,EAAE;SAEjD,qBAA  
 qB,CAAC,YAAoB,EAAE,QAAa,EAAE,QAakB;IAC3F,OAAO;;;QAGL,QAAQ,CAAC,GAAG,CAAC,qBAAqB,  
 CAAC,CAAC,WAAW,CAAC,IAAI,CAAC;YACnD,MAAM,GAAG,GAAGC,OAAM,EAAE,CAAC;YACrB,MA  
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Found

in path(s):

\* /platform-browser-11-0-2-tgz/package/fesm2015/platform-browser.js.map

No license file was found, but licenses were detected in source scan.

```
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browser/animations/animations.ts"],"sourcesContent":["/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n\n */\nimport { AnimationBuilder, AnimationFactory, AnimationMetadata, AnimationOptions, AnimationPlayer, sequence } from '@angular/animations';\nimport { DOCUMENT } from '@angular/common';\nimport { Inject, Injectable, RendererFactory2, RendererType2, ViewEncapsulation } from '@angular/core';\nimport { AnimationRenderer } from './animation_renderer';\n\n@Injectable()\nexport class BrowserAnimationBuilder extends AnimationBuilder {\n private _nextAnimationId = 0;\n private _renderer: AnimationRenderer;\n\n constructor(rootRenderer: RendererFactory2, @Inject(DOCUMENT) doc: any) {\n super();\n const typeData = {\n id: '0', encapsulation: ViewEncapsulation.None, styles: [], data: { animation: [] } } as\n RendererType2;\n this._renderer = rootRenderer.createRenderer(doc.body, typeData) as AnimationRenderer;\n }\n\n build(animation: AnimationMetadata|AnimationMetadata[]): AnimationFactory {\n const id = this._nextAnimationId.toString();\n this._nextAnimationId++;\n\n const entry = Array.isArray(animation) ? sequence(animation) : animation;\n issueAnimationCommand(this._renderer, null, id, 'register', [entry]);\n return new BrowserAnimationFactory(id, this._renderer);\n }\n}\n\nexport class BrowserAnimationFactory extends AnimationFactory {\n constructor(private _id: string, private _renderer: AnimationRenderer) {\n super();\n }\n\n create(element: any, options?: AnimationOptions): AnimationPlayer {\n return new RendererAnimationPlayer(this._id, element, options || {}, this._renderer);\n }\n}\n\nexport class RendererAnimationPlayer implements AnimationPlayer {\n public parentPlayer: AnimationPlayer|null = null;\n private _started = false;\n\n constructor(\n public id: string, public element: any, options: AnimationOptions,\n private _renderer: AnimationRenderer) {\n this._command('create', options);\n }\n\n private _listen(eventName: string, callback: (event: any) => any): () => void {\n return this._renderer.listen(this.element, `@@${this.id}:${eventName}`, callback);\n }\n\n private _command(command: string, ...args: any[]) {\n return issueAnimationCommand(this._renderer, this.element, this.id, command, args);\n }\n\n onDone(fn: () => void): void {\n this._listen('done', fn);\n }\n\n onStart(fn: () => void): void {\n this._listen('start', fn);\n }\n\n onDestroy(fn: () => void): void {\n this._listen('destroy', fn);\n }\n\n init(): void {\n this._command('init');\n }\n\n hasStarted(): boolean {\n return this._started;\n }\n\n play(): void {\n this._command('play');\n this._started = true;\n }\n\n pause(): void {\n this._command('pause');\n }\n\n restart(): void {\n this._command('restart');\n }\n\n finish(): void {\n this._command('finish');\n }\n\n destroy(): void {\n this._command('destroy');\n }\n\n reset(): void {\n this._command('reset');\n }\n\n setPosition(p: number): void {\n this._command('setPosition', p);\n }\n\n getPosition(): number {\n return 0;\n }\n\n public totalTime = 0;\n}\n\nfunction issueAnimationCommand(\n renderer: AnimationRenderer, element: any, id: string, command: string, args: any[]):\n any {\n return renderer.setProperty(element, `@@${id}:${command}`, args);\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport { AnimationTriggerMetadata } from '@angular/animations';\nimport { AnimationEngine as AnimationEngine } from '@angular/animations/browser';\nimport { Injectable, NgZone, Renderer2, RendererFactory2, RendererStyleFlags2, RendererType2 } from '@angular/core';\n\nconst ANIMATION_PREFIX = '@';\nconst DISABLE_ANIMATIONS_FLAG = '@.disabled';\n\n// Define a recursive type to allow for nested arrays of\n// `AnimationTriggerMetadata`. Note that an\n// interface declaration is used as TypeScript prior to 3.7 does not support recursive type\n// references, see https://github.com/microsoft/TypeScript/pull/33050 for details.\ntype NestedAnimationTriggerMetadata =\n AnimationTriggerMetadata|RecursiveAnimationTriggerMetadata;\n\ninterface RecursiveAnimationTriggerMetadata

```

```

extends Array<NestedAnimationTriggerMetadata> {}
@injectable()
export class AnimationRendererFactory
implements RendererFactory2 {
 private _currentId: number = 0;
 private _microtaskId: number = 1;
 private _animationCallbacksBuffer: [(e: any) => any, any][] = [];
 private _rendererCache = new Map<Renderer2, BaseAnimationRenderer>();
 private _cdRecurDepth = 0;
 private promise: Promise<any> = Promise.resolve(0);

 constructor(
 private delegate: RendererFactory2,
 private engine: AnimationEngine,
 private _zone: NgZone
) {
 engine.onRemovalComplete = (element: any, delegate: Renderer2) => {
 // Note: if an component element has a leave animation, and the component
 // a host leave animation, the view engine will call `removeChild` for the parent
 // component renderer as well as for the child component renderer.
 // Therefore, we need to check if we already removed the element.
 if (delegate && delegate.parentNode(element)) {
 delegate.removeChild(element.parentNode, element);
 }
 };

 createRenderer(hostElement: any, type: RendererType2): Renderer2 {
 const EMPTY_NAMESPACE_ID = "";
 // cache the delegates to find out which cached delegate can
 // be used by which cached renderer
 const delegate = this.delegate.createRenderer(hostElement, type);
 if (!hostElement || !type || !type.data || !type.data['animation']) {
 let renderer: BaseAnimationRenderer | undefined = this._rendererCache.get(delegate);
 if (!renderer) {
 renderer = new BaseAnimationRenderer(EMPTY_NAMESPACE_ID, delegate, this.engine);
 // only cache this result when the base renderer is used
 this._rendererCache.set(delegate, renderer);
 }
 return renderer;
 }
 const componentId = type.id;
 const namespaceId = type.id + '-' + this._currentId;
 this._currentId++;

 this.engine.register(namespaceId, hostElement);

 const registerTrigger = (trigger: NestedAnimationTriggerMetadata) => {
 if (Array.isArray(trigger)) {
 trigger.forEach(registerTrigger);
 } else {
 this.engine.registerTrigger(componentId, namespaceId, hostElement, trigger.name, trigger);
 }
 };
 const animationTriggers = type.data['animation'] as NestedAnimationTriggerMetadata[];
 animationTriggers.forEach(registerTrigger);

 return new AnimationRenderer(this, namespaceId, delegate, this.engine);
 }

 begin() {
 this._cdRecurDepth++;
 if (this.delegate.begin()) {
 this.delegate.begin();
 }
 }

 private _scheduleCountTask() {
 // always use promise to schedule microtask instead of use Zone
 this.promise.then(() => {
 this._microtaskId++;
 });
 }

 /** @internal */
 scheduleListenerCallback(count: number, fn: (e: any) => any, data: any) {
 if (count >= 0 && count < this._microtaskId) {
 this._zone.run(() => fn(data));
 return;
 }
 if (this._animationCallbacksBuffer.length === 0) {
 Promise.resolve(null).then(() => {
 this._zone.run(() => {
 this._animationCallbacksBuffer.forEach(tuple => {
 const [fn, data] = tuple;
 fn(data);
 });
 this._animationCallbacksBuffer = [];
 });
 });
 }
 this._animationCallbacksBuffer.push([fn, data]);
 }

 end() {
 this._cdRecurDepth--;
 // this is to prevent animations from running twice when an inner
 // component does CD when a parent component instead has inserted it
 if (this._cdRecurDepth === 0) {
 this._zone.runOutsideAngular(() => {
 this._scheduleCountTask();
 this.engine.flush(this._microtaskId);
 });
 }
 if (this.delegate.end()) {
 this.delegate.end();
 }
 }

 whenRenderingDone(): Promise<any> {
 return this.engine.whenRenderingDone();
 }
 }
}

export class BaseAnimationRenderer
implements Renderer2 {
 constructor(
 protected namespaceId: string,
 public delegate: Renderer2,
 public engine: AnimationEngine
) {
 this.destroyNode = this.delegate.destroyNode ? (n) => delegate.destroyNode!(n) : null;
 }

 get data() {
 return this.delegate.data;
 }

 destroyNode: ((n: any) => void) | null;
 destroy(): void {
 this.engine.destroy(this.namespaceId, this.delegate);
 this.delegate.destroy();
 }

 createElement(name: string, namespace?: string | null | undefined) {
 return this.delegate.createElement(name, namespace);
 }

 createComment(value: string) {
 return this.delegate.createComment(value);
 }

 createText(value: string) {
 return this.delegate.createText(value);
 }

 appendChild(parent: any, newChild: any): void {
 this.delegate.appendChild(parent, newChild);
 this.engine.onInsert(this.namespaceId, newChild, parent, false);
 }

 insertBefore(parent: any, newChild: any, refChild: any, isMove: boolean = true): void {
 this.delegate.insertBefore(parent, newChild, refChild);
 // If `isMove` true than we should animate this insert.
 this.engine.onInsert(this.namespaceId, newChild, parent,

```

```
isMove);\n }\n\n removeChild(parent: any, isHostElement: boolean): void {\n\nthis.engine.onRemove(this.namespaceId, oldChild, this.delegate, isHostElement);\n }\n\n\nselectRootElement(selectorOrNode: any, preserveContent?: boolean) {\n return\n\nthis.delegate.selectRootElement(selectorOrNode, preserveContent);\n }\n\n\n parentNode(node: any) {\n return\n\nthis.delegate.parentNode(node);\n }\n\n\n nextSibling(node: any) {\n return this.delegate.nextSibling(node);\n\n}\n\n\n setAttribute(el: any, name: string, value:\n\nstring, namespace?: string|null|undefined): void {\n this.delegate.setAttribute(el, name, value, namespace);\n\n}\n\n\n removeAttribute(el: any, name: string, namespace?: string|null|undefined): void {\n\nthis.delegate.removeAttribute(el, name, namespace);\n }\n\n\n addClass(el: any, name: string): void {\n\nthis.delegate.addClass(el, name);\n }\n\n\n removeClass(el: any, name: string): void {\n\nthis.delegate.removeClass(el, name);\n }\n\n\n setStyle(el: any, style: string, value: any, flags?:\n\nRendererStyleFlags2|undefined): void {\n this.delegate.setStyle(el, style, value, flags);\n }\n\n\n removeStyle(el:\n\nany, style: string, flags?: RendererStyleFlags2|undefined): void {\n this.delegate.removeStyle(el, style, flags);\n\n}\n\n\n setProperty(el: any, name: string, value: any): void {\n if (name.charAt(0) == ANIMATION_PREFIX &&\n\nname == DISABLE_ANIMATIONS_FLAG) {\n this.disableAnimations(el, !!value);\n } else {\n\nthis.delegate.setProperty(el, name, value);\n\n}\n\n\n\n setValue(node: any, value: string): void {\n this.delegate.setValue(node, value);\n }\n\n\n\n listen(target: any, eventName: string, callback: (event: any) => boolean | void): () => void {\n return\n\nthis.delegate.listen(target, eventName, callback);\n }\n\n\n\n protected disableAnimations(element: any, value:\n\nboolean) {\n this.engine.disableAnimations(element, value);\n }\n\n\n\n\nexport class AnimationRenderer extends\n\nBaseAnimationRenderer implements Renderer2 {\n constructor(\n public factory: AnimationRendererFactory,\n\nnamespaceId: string, delegate: Renderer2,\n engine: AnimationEngine) {\n super(namespaceId, delegate,\n\nengine);\n this.namespaceId = namespaceId;\n }\n\n\n\n setProperty(el: any, name: string, value: any): void {\n if\n\n(name.charAt(0) == ANIMATION_PREFIX) {\n if (name.charAt(1) == '.' && name ==\n\nDISABLE_ANIMATIONS_FLAG) {\n value = value === undefined ? true : !!value;\n\nthis.disableAnimations(el, value as boolean);\n\n}\n\n\n\n } else {\n this.engine.process(this.namespaceId, el, name.substr(1), value);\n }\n } else {\n\nthis.delegate.setProperty(el, name, value);\n }\n\n\n\n\n listen(target: 'window'|'document'|'body'|any, eventName:\n\nstring, callback: (event: any) => any):\n () => void {\n if (eventName.charAt(0) == ANIMATION_PREFIX)\n\n{\n const element = resolveElementFromTarget(target);\n let name = eventName.substr(1);\n let phase =\n\n";\n // @listener.phase is for trigger animation callbacks\n // @@listener is for animation builder callbacks\n\nif (name.charAt(0) != ANIMATION_PREFIX) {\n [name, phase] = parseTriggerCallbackName(name);\n\n}\n\n return this.engine.listen(this.namespaceId, element, name, phase, event => {\n const countId = (event as\n\nany)['_data'] || -1;\n this.factory.scheduleListenerCallback(countId, callback, event);\n });\n }\n\n return\n\nthis.delegate.listen(target, eventName, callback);\n\n}\n\n\n\n\nfunction resolveElementFromTarget(target: 'window'|'document'|'body'|any): any {\n switch (target) {\n\n\n\n case 'body':\n return document.body;\n case 'document':\n return document;\n case 'window':\n return\n\nwindow;\n default:\n return target;\n }\n}\n\n\n\nfunction parseTriggerCallbackName(triggerName: string) {\n\nconst dotIndex = triggerName.indexOf('.');\n const trigger = triggerName.substring(0, dotIndex);\n const phase =\n\ntriggerName.substr(dotIndex + 1);\n return [trigger, phase];\n}\n\n\n","/**\n * @license\n * Copyright Google LLC All\n\nRights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n\nLICENSE file at https://angular.io/license\n */\n\nimport {AnimationBuilder} from '@angular/animations';\nimport\n\n{AnimationDriver, AnimationEngine as AnimationEngine, AnimationStyleNormalizer as\n\nAnimationStyleNormalizer, CssKeyframesDriver as CssKeyframesDriver, NoopAnimationDriver as\n\nNoopAnimationDriver,\n\nsupportsWebAnimations as supportsWebAnimations, WebAnimationsDriver as WebAnimationsDriver,\n\nWebAnimationsStyleNormalizer as WebAnimationsStyleNormalizer} from '@angular/animations/browser';\nimport\n\n{DOCUMENT} from '@angular/common';\nimport {Inject, Injectable, InjectionToken, NgZone, Provider,
```



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RendererFactory2} from '@angular/core';\nimport {DomRendererFactory2 as DomRendererFactory2} from
'@angular/platform-browser';\n\nimport {BrowserAnimationBuilder} from './animation_builder';\nimport
{AnimationRendererFactory} from './animation_renderer';\n\n@Injectable()\nexport class
InjectableAnimationEngine extends AnimationEngine {\n constructor(\n @Inject(DOCUMENT) doc: any,
driver: AnimationDriver, normalizer: AnimationStyleNormalizer) {\n super(doc.body, driver, normalizer);\n
}\n}\n\nexport function instantiateSupportedAnimationDriver() {\n return supportsWebAnimations() ? new
WebAnimationsDriver() : new CssKeyframesDriver();\n}\n\nexport function instantiateDefaultStyleNormalizer()
{\n return new WebAnimationsStyleNormalizer();\n}\n\nexport function instantiateRendererFactory(\n renderer:
DomRendererFactory2, engine: AnimationEngine, zone: NgZone) {\n return new
AnimationRendererFactory(renderer, engine, zone);\n}\n\n/**\n * @publicApi\n */\nexport const
ANIMATION_MODULE_TYPE =\n new
InjectionToken<'NoopAnimations'|'BrowserAnimations'>('AnimationModuleType');\n\nconst
SHARED_ANIMATION_PROVIDERS: Provider[] = [\n {provide: AnimationBuilder, useClass:
BrowserAnimationBuilder},\n {provide: AnimationStyleNormalizer, useFactory:
instantiateDefaultStyleNormalizer},\n {provide: AnimationEngine, useClass: InjectableAnimationEngine}, {\n
provide: RendererFactory2,\n useFactory: instantiateRendererFactory,\n deps: [DomRendererFactory2,
AnimationEngine, NgZone]\n }]\n};\n\n/**\n * Separate providers from the actual module so that we can do a local
modification in Google3 to\n * include them in the BrowserModule.\n */\nexport const
BROWSER_ANIMATIONS_PROVIDERS:
Provider[] = [\n {provide: AnimationDriver, useFactory: instantiateSupportedAnimationDriver},\n {provide:
ANIMATION_MODULE_TYPE, useValue: 'BrowserAnimations'},
...SHARED_ANIMATION_PROVIDERS\n];\n\n/**\n * Separate providers from the actual module so that we can
do a local modification in Google3 to\n * include them in the BrowserTestingModule.\n */\nexport const
BROWSER_NOOP_ANIMATIONS_PROVIDERS: Provider[] = [\n {provide: AnimationDriver, useClass:
NoopAnimationDriver},\n {provide: ANIMATION_MODULE_TYPE, useValue: 'NoopAnimations'},
...SHARED_ANIMATIONS_PROVIDERS\n];\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\nimport {NgModule} from '@angular/core';\nimport
{BrowserModule} from '@angular/platform-browser';\n\nimport {BROWSER_ANIMATIONS_PROVIDERS,
BROWSER_NOOP_ANIMATIONS_PROVIDERS} from
'./providers';\n\n/**\n * Exports `BrowserModule` with additional [dependency-injection
providers](guide/glossary#provider)\n * for use with animations. See [Animations](guide/animations).\n */
@publicApi\n */\n@NgModule({\n exports: [BrowserModule],\n providers:
BROWSER_ANIMATIONS_PROVIDERS,\n})\nexport class BrowserAnimationsModule {\n}\n\n/**\n * A null
player that must be imported to allow disabling of animations.\n */\n * @publicApi\n */\n@NgModule({\n exports:
[BrowserModule],\n providers: BROWSER_NOOP_ANIMATIONS_PROVIDERS,\n})\nexport class
NoopAnimationsModule {\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nexport {BrowserAnimationBuilder as BrowserAnimationBuilder,
BrowserAnimationFactory as BrowserAnimationFactory} from './animation_builder';\nexport {AnimationRenderer
as AnimationRenderer, AnimationRendererFactory
as AnimationRendererFactory} from './animation_renderer';\nexport {InjectableAnimationEngine as
InjectableAnimationEngine} from './providers';\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n/**\n * @module\n * @description\n * Entry point for all
animation APIs of the animation browser package.\n */\nexport {BrowserAnimationsModule,
NoopAnimationsModule} from './module';\n\nexport {ANIMATION_MODULE_TYPE} from
'./providers';\n\nexport * from './private_export';\n\n"/**\n * @license\n * Copyright Google LLC All Rights

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Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\n\n * @module\n * @description\n * Entry point for all public
APIs of this package.\n * \n\nexport * from './src/animations';\n", "/*\n * @license\n
 * Copyright Google LLC All Rights Reserved.\n * \n\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\n// This file is not used to build this
module. It is only used during editing\n// by the TypeScript language service and during build for verification.
`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n", "/*\n * Generated bundle index. Do not edit.\n * \n\nexport * from './index';\n\nexport
{BaseAnimationRenderer as angular_packages_platform_browser_animations_animations_f} from
'./src/animation_renderer';\n\nexport {BROWSER_ANIMATIONS_PROVIDERS as
angular_packages_platform_browser_animations_animations_d,BROWSER_NOOP_ANIMATIONS_PROVIDER
S as angular_packages_platform_browser_animations_animations_e,instantiateDefaultStyleNormalizer as
angular_packages_platform_browser_animations_animations_b,instantiateRendererFactory
as angular_packages_platform_browser_animations_animations_c,instantiateSupportedAnimationDriver as
angular_packages_platform_browser_animations_animations_a} from
'./src/providers';\n\n], "names":["AnimationEngine", "AnimationStyleNormalizer", "supportsWebAnimations", "WebAni
mationsDriver", "CssKeyframesDriver", "WebAnimationsStyleNormalizer", "DomRendererFactory2", "NoopAnimati
onDriver"], "mappings":":;AAAA;MAcA,uBAAwB,SAAQ,gBAAgB;IAI3D,YAAAY,YAA8B,EAAoB,GA
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No license file was found, but licenses were detected in source scan.

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* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\nrequire('@angular/core'), require('@angular/platform-browser'), require('@angular/common')) :\n typeof define === 'function' && define.amd ? define('@angular/platform-browser/testing', ['exports', '@angular/core',\n '@angular/platform-browser', '@angular/common'], factory) :\n (global = global || self, factory((global.ng =\nglobal.ng || {}, global.ng.platformBrowser = global.ng.platformBrowser\n|| {}, global.ng.platformBrowser.testing = {}), global.ng.core, global.ng.platformBrowser,\nglobal.ng.common));\n})(this, (function (exports, core, platformBrowser, common) { 'use strict';\n\n
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## CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

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***** */n /* global
Reflect, Promise */n var extendStatics = function (d, b) {n extendStatics = Object.setPrototypeOf ||n
(({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||n function (d, b) { for (var p in
b)n if (b.hasOwnProperty(p))n d[p] = b[p]; };n return extendStatics(d, b);n };n
function __extends(d, b) {n extendStatics(d, b);n function __() { this.constructor = d; }n d.prototype
= b === null ? Object.create(b) : (__proto__ = b.prototype, new __());n }n var __assign = function () {n
__assign = Object.assign || function __assign(t) {n for (var s, i = 1, n = arguments.length; i < n; i++) {n
s = arguments[i];n for (var p in s)n if (Object.prototype.hasOwnProperty.call(s, p))n
t[p] = s[p];n }n return t;n };n return __assign.apply(this, arguments);n };n
function __rest(s, e) {n var t = {};n for (var p in s)n if (Object.prototype.hasOwnProperty.call(s, p)
&& e.indexOf(p) < 0)n t[p] = s[p];n if (s != null && typeof Object.getOwnPropertySymbols ===
\"function\")n for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {n if
(e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))n t[p[i]] = s[p[i]];n
 }n return t;n }n function __decorate(decorators, target, key, desc) {n var c = arguments.length, r = c
< 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;n if (typeof Reflect
=== \"object\" && typeof Reflect.decorate === \"function\")n r = Reflect.decorate(decorators, target,
key, desc);n elsen for (var i = decorators.length - 1; i >= 0; i--)n if (d = decorators[i])n
r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;n return c > 3 && r &&
Object.defineProperty(target, key, r, r);n }n function __param(paramIndex, decorator) {n return function
(target, key) { decorator(target, key, paramIndex); };n }n function __metadata(metadataKey, metadataValue)
{n if (typeof Reflect === \"object\" && typeof Reflect.metadata === \"function\")n return
Reflect.metadata(metadataKey, metadataValue);n }n function __awaiter(thisArg, _arguments, P, generator) {n
 function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }n
 return new (P || (P = Promise))(function (resolve, reject) {n function fulfilled(value) { try {n
step(generator.next(value));n }n catch (e) {n reject(e);n } }n function rejected(value) { try {n
step(generator[\"throw\"](value));n }n catch (e) {n reject(e);n } }n function
step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }n
step((generator = generator.apply(thisArg, _arguments || [])).next());n });n }n function
__generator(thisArg, body) {n var _ = { label: 0, sent: function () { if (t[0] & 1)n throw t[1]; return
t[1]; }, trys: [], ops: [] }, f, y, t, g;n return g = { next: verb(0), \"throw\": verb(1), \"return\": verb(2) }, typeof
Symbol === \"function\" && (g[Symbol.iterator] = function () { return this; }), g;n function verb(n) { return
function (v) { return step([n, v]); }; }n function step(op) {n if (f)n throw new
TypeError(\"Generator
is already executing.\");n while (_n try {n if (f = 1, y && (t = op[0] & 2 ?
y[\"return\"] : op[0] ? y[\"throw\"] : ((t = y[\"return\"] && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done)n
 return t;n if (y = 0, t)n op = [op[0] & 2, t.value];n switch (op[0])
{n case 0:n case 1:n t = op;n break;n
 case 4:n __.label++;n return { value: op[1], done: false };n case
5:n __.label++;n y = op[1];n op = [0];n continue;n
 case 7:n op = __.ops.pop();n __.trys.pop();n continue;n
 default:n if (!(t = __.trys, t = t.length > 0
&& t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) {n __ = 0;n continue;n
 }n if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) {n
 __.label = op[1];n break;n }n if (op[0] === 6 && __.label <
t[1]) {n __.label = t[1];n t = op;n break;n
 }n if (t && __.label < t[2]) {n __.label = t[2];n
 }n }n }n }n }n }n

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 _ops.push(op);\n break;\n }\n if (t[2])\n _ops.pop();\n _trys.pop();\n continue;\n }\n op = body.call(thisArg, _);\n }\n catch (e) {\n op = [6, e];\n y = 0;\n }\n finally {\n f = t = 0;\n }\n if (op[0] & 5)\n throw op[1];\n return { value: op[0] ? op[1] : void 0, done: true }; }\n }\n var __createBinding =\n Object.create ? (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n Object.defineProperty(o,\n k2, { enumerable: true, get: function () { return m[k]; } });\n }) : (function (o, m, k, k2) {\n if (k2 ===\n undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, exports) {\n for (var p in\n m)\n if (p !==\n \"default\" && !exports.hasOwnProperty(p))\n __createBinding(exports, m, p);\n }\n function\n __values(o) {\n var s = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0;\n if\n (m)\n return m.call(o);\n if (o && typeof o.length === \"number\")\n return {\n next:\n function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o &&\n o[i++], done: !o }; }\n }\n }\n throw new TypeError(s ? \"Object is not iterable.\" :\n \"Symbol.iterator is not defined.\");\n }\n function __read(o, n) {\n var m = typeof Symbol === \"function\" &&\n o[Symbol.iterator];\n if (!m)\n return o;\n var i = m.call(o), r, ar = [], e;\n try {\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n ar.push(r.value);\n }\n catch (error) {\n e = { error: error };\n }\n finally {\n try {\n if (r && !r.done && (m =\n i[\"return\"])\n m.call(i);\n }\n finally {\n if (e)\n throw e.error;\n }\n }\n return ar;\n }\n function __spread() {\n for (var ar = [], i = 0; i < arguments.length; i++)\n ar = ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for (var s =\n 0, i = 0, il = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0;\n i < il; i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return\n r;\n }\n function __await(v) {\n return this instanceof __await ? (this.v = v, this) : new __await(v);\n }\n function __asyncGenerator(thisArg, _arguments, generator)\n {\n if (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n var g = generator.apply(thisArg, _arguments || []), i, q = [];\n return i = {}, verb(\"next\"), verb(\"throw\"),\n verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i;\n function verb(n) { if (g[n])\n i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\n function resume(n, v) { try {\n step(g[n](v));\n }\n catch (e) {\n settle(q[0][3], e);\n }\n }\n function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);\n }\n function fulfill(value) { resume(\"next\", value); }\n function reject(value) { resume(\"throw\", value);\n }\n function settle(f, v) { if (f(v), q.shift(), q.length)\n resume(q[0][0], q[0][1]); }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i = {}, verb(\"next\"), verb(\"throw\"), function (e) {\n throw e; }, verb(\"return\"), i[Symbol.iterator] = function () { return this; }, i;\n function verb(n, f) { i[n] = o[n] ?\n function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === \"return\" } : f ? f(v) : v; } : f; }\n }\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator\n is not defined.\");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values ===\n \"function\" ? __values(o) : o[Symbol.iterator](), i = {}, verb(\"next\"), verb(\"throw\"), verb(\"return\"),\n i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) {\n return new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }\n }\n function settle(resolve, reject,\n d, v) { Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }\n }\n function\n __makeTemplateObject(cooked, raw) {\n if (Object.defineProperty)\n Object.defineProperty(cooked,\n \"raw\", { value: raw });\n }\n else {\n cooked.raw = raw;\n }\n return cooked;\n }\n }\n var __setModuleDefault = Object.create ? (function (o, v) {\n Object.defineProperty(o, \"default\", {\n enumerable: true, value: v });\n }) : function (o, v) {\n o[\"default\"] = v;\n }\n function\n __importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var result = {};\n if (mod

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!= null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n__createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function\n__importDefault(mod) {\n return (mod &&\n mod.__esModule) ? mod : { default: mod };}\n }\n function __classPrivateFieldGet(receiver, privateMap) {\n if (!privateMap.has(receiver)) {\n throw new TypeError("attempted to get private field on non-instance");\n }\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver, privateMap, value)\n {\n if (!privateMap.has(receiver)) {\n throw new TypeError("attempted to set private field on non-\ninstance");\n }\n privateMap.set(receiver, value);\n return value;\n }\n\n var BrowserDetection =\n/** @class */ (function () {\n function BrowserDetection(ua) {\n this._overrideUa = ua;\n }\n Object.defineProperty(BrowserDetection.prototype, \"_ua\", {\n get: function () {\n if (typeof\nthis._overrideUa === 'string') {\n return this._overrideUa;\n }\n return\ncommon.getDOM() ? common.getDOM().getUserAgent()\n : \";\n },\n enumerable: false,\n configurable: true\n });\n BrowserDetection.setup =\nfunction () {\n return new BrowserDetection(null);\n };\n Object.defineProperty(BrowserDetection.prototype, \"isFirefox\", {\n get: function () {\n return\nthis._ua.indexOf('Firefox') > -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype, \"isAndroid\", {\n get: function () {\n return\nthis._ua.indexOf('Mozilla/5.0') > -1 && this._ua.indexOf('Android') > -1 &&\nthis._ua.indexOf('AppleWebKit') > -1 && this._ua.indexOf('Chrome') == -1 &&\nthis._ua.indexOf('IEMobile') == -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype,\n \"isEdge\", {\n get: function () {\n return this._ua.indexOf('Edge') > -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype,\n \"isIE\", {\n get: function () {\n return this._ua.indexOf('Trident') > -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype,\n \"isWebkit\", {\n get: function () {\n return this._ua.indexOf('AppleWebKit') > -1 &&\nthis._ua.indexOf('Edge') == -1 &&\nthis._ua.indexOf('IEMobile') == -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype,\n \"isIOS7\", {\n get: function () {\n return (this._ua.indexOf('iPhone OS 7') > -1 ||\nthis._ua.indexOf('iPad\nOS 7') > -1) &&\nthis._ua.indexOf('IEMobile') == -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype, \"isSlow\", {\n get:\nfunction () {\n return this.isAndroid || this.isIE || this.isIOS7;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype, \"supportsNativeIntlApi\", {\n // The Intl API is only natively supported in Chrome, Firefox, IE11 and Edge.\n // This detector is\n // needed in tests to make the difference between:\n // 1) IE11/Edge: they have a native Intl API, but with some\n // discrepancies\n // 2) IE9/IE10: they use the polyfill, and so no discrepancies\n get: function () {\n return !core.global.Intl && core.global.Intl !== core.global.IntlPolyfill;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype, \"isChromeDesktop\", {\n get: function () {\n return this._ua.indexOf('Chrome') > -1 && this._ua.indexOf('Mobile Safari') == -1 &&\nthis._ua.indexOf('Edge') == -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype, \"isOldChrome\", {\n // \"Old Chrome\" means Chrome\n // 3X, where there are some discrepancies in the Intl API.\n // Android 4.4 and 5.X have such browsers by\n // default (respectively 30 and 39).\n get: function () {\n return this._ua.indexOf('Chrome') > -1 &&\nthis._ua.indexOf('Chrome/3') > -1 &&\nthis._ua.indexOf('Edge') == -1;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(BrowserDetection.prototype,

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'supportsCustomElements'\", {\n get: function () {\n return (typeof core.global.customElements\n !== 'undefined');\n },\n enumerable: false,\n configurable: true\n });\nObject.defineProperty(BrowserDetection.prototype, \"supportsDeprecatedCustomCustomElementsV0\", {\n get: function () {\n return (typeof document.registerElement !== 'undefined');\n },\n enumerable: false,\n configurable: true\n});\nObject.defineProperty(BrowserDetection.prototype, \"supportsRegExUnicodeFlag\", {\n get: function () {\n return\n RegExp.prototype.hasOwnProperty('unicode');\n },\n enumerable: false,\n configurable: true\n});\nObject.defineProperty(BrowserDetection.prototype, \"supportsShadowDom\", {\n get: function () {\n var testEl = document.createElement('div');\n return (typeof testEl.attachShadow !== 'undefined');\n },\n enumerable: false,\n configurable: true\n});\nObject.defineProperty(BrowserDetection.prototype, \"supportsDeprecatedShadowDomV0\", {\n get: function () {\n var testEl = document.createElement('div');\n return (typeof testEl.createShadowRoot !==\n'undefined');\n },\n enumerable: false,\n configurable: true\n});\nreturn\nBrowserDetection;\n})();\nvar browserDetection = BrowserDetection.setup();\nfunction\ndispatchEvent(element, eventType) {\n var evt =\ncommon.getDOM().getDefaultDocument().createEvent('Event');\n evt.initEvent(eventType, true, true);\ncommon.getDOM().dispatchEvent(element, evt);\n}\nfunction createMouseEvent(eventType) {\n var evt =\ncommon.getDOM().getDefaultDocument().createEvent('MouseEvent');\n evt.initEvent(eventType, true, true);\n return evt;\n}\nfunction el(html) {\n return\ngetContent(createTemplate(html)).firstChild;\n}\nfunction normalizeCSS(css) {\n return\ncss.replace(/\\s+/g, ' ').replace(/:/g, ':').replace(/\\/g, '\\\\').replace(/ }/g, '}')\n.replace(/url\\(\\((\\\\|\\s)(.+)(\\\\|\\s)\\\\(\\s*)/g, function () {\n var match = [];\n for (var _i = 0; _i <\narguments.length; _i++) {\n match[_i] = arguments[_i];\n }\n return \"url(\" + match[2] +\n\"\\\\\\\\\")\";\n })\n.replace(/\\[[.(+)=([^\"])]+)\\]/g, function () {\n var match = [];\n for (var _i =\n0; _i < arguments.length; _i++) {\n match[_i] = arguments[_i];\n }\n return \"[\" + match[1] +\n\"=\" + match[2] + \"\\\\\\\\\"]\";\n });\n}\nfunction getAttributeMap(element)\n{\n var res = new Map();\n var elAttrs = element.attributes;\n for (var i = 0; i < elAttrs.length; i++) {\n var attrib = elAttrs.item(i);\n res.set(attrib.name, attrib.value);\n }\n return res;\n}\nvar\n_selfClosingTags = ['br', 'hr', 'input'];\nfunction stringifyElement(el /** TODO #9100 */) {\n var e_1, _a;\n var result = \"\";\n if (common.getDOM().isElementNode(el)) {\n var tagName =\nel.tagName.toLowerCase();\n // Opening tag\n result += \"<\" + tagName;\n // Attributes in an\nordered way\n var attributeMap = getAttributeMap(el);\n var sortedKeys =\nArray.from(attributeMap.keys()).sort();\n try {\n for (var sortedKeys_1 = __values(sortedKeys),\nsortedKeys_1_1 = sortedKeys_1.next(); !sortedKeys_1_1.done; sortedKeys_1_1 = sortedKeys_1.next()) {\n var key = sortedKeys_1_1.value;\n\n var lowerCaseKey = key.toLowerCase();\n var attValue = attributeMap.get(key);\n\nif (typeof attValue !== 'string') {\n result += \" \" + lowerCaseKey;\n }\nelse {\n // Browsers order style rules differently. Order them alphabetically for consistency.\n\nif (lowerCaseKey === 'style') {\n attValue = attValue.split(/;/ ?).filter(function (s) { return !!s;\n}).sort().map(function (s) { return s + \";\"; }).join(' '); \n }\nresult += \" \" +\nlowerCaseKey + \"=\" + \"\\\\\\\\\" + attValue + \"\\\\\\\\\"\";\n }\n }\ncatch (e_1_1) {\ne_1 =\n{ error: e_1_1 }; }\nfinally {\n try {\n if (sortedKeys_1_1 && !sortedKeys_1_1.done\n&& (_a = sortedKeys_1.return)) _a.call(sortedKeys_1);\n\n }\n finally {\n if (e_1) throw e_1.error;\n }\n result += '>';\n }\n // Children\n var childrenRoot = templateAwareRoot(el);\n var children = childrenRoot ? childrenRoot.childNodes :\n[];\n for (var j = 0; j < children.length; j++) {\n result += stringifyElement(children[j]);\n }\n // Closing tag\n if (selfClosingTags.indexOf(tagName) == -1) {\n result += \"<^\" + tagName\n
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+ ">";\n }\n }\n else if (isCommentNode(el)) {\n result += "<!--" + el.nodeValue + "-->";\n }\n else {\n result += el.textContent;\n }\n return result;\n }\n function createNgZone() {\n return new core.NgZone({ enableLongStackTrace: true, shouldCoalesceEventChangeDetection: false });\n }\n function isCommentNode(node) {\n return node.nodeType === Node.COMMENT_NODE;\n }\n function isTextNode(node) {\n return node.nodeType === Node.TEXT_NODE;\n }\n function getContent(node) {\n if ('content' in node) {\n return node.content;\n }\n else {\n return node;\n }\n }\n function templateAwareRoot(el) {\n return common.getDOM().isElementNode(el) && el.nodeName === 'TEMPLATE' ? getContent(el) : el;\n }\n function setCookie(name, value) {\n // document.cookie is magical, assigning into it assigns/overrides one cookie value, but does\n // not clear other cookies.\n document.cookie = encodeURIComponent(name) + '=' + encodeURIComponent(value);\n }\n function supportsWebAnimation() {\n return typeof Element.prototype['animate'] === 'function';\n }\n function hasStyle(element, styleName, styleValue) {\n var value = element.style[styleName] || '';\n return styleValue ? value === styleValue : value.length > 0;\n }\n function hasClass(element, className) {\n return element.classList.contains(className);\n }\n function sortedClassList(element) {\n return Array.prototype.slice.call(element.classList, 0).sort();\n }\n function createTemplate(html) {\n var t = common.getDOM().getDefaultDocument().createElement('template');\n t.innerHTML = html;\n return t;\n }\n function childNodesAsList(el) {\n var childNodes = el.childNodes;\n var res = [];\n for (var i = 0; i < childNodes.length; i++) {\n res[i] = childNodes[i];\n }\n return res;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function initBrowserTests() {\n platformBrowser.BrowserDomAdapter.makeCurrent();\n BrowserDetection.setup();\n }\n var _TEST_BROWSER_PLATFORM_PROVIDERS = [{ provide: core.PLATFORM_INITIALIZER, useValue: initBrowserTests, multi: true }];\n /**\n * Platform for testing\n */\n @publicApi\n var platformBrowserTesting = core.createPlatformFactory(core.platformCore, 'browserTesting', _TEST_BROWSER_PLATFORM_PROVIDERS);\n var 0 = createNgZone;\n /**\n * NgModule for testing\n */\n @publicApi\n var BrowserTestingModule = /** @class */ (function () {\n function BrowserTestingModule() {\n }\n return BrowserTestingModule;\n })();\n BrowserTestingModule.decorators = [\n { type: core.NgModule, args: [\n exports:\n [platformBrowser.BrowserModule],\n providers: [\n { provide: core.APP_ID, useValue: 'a' },\n platformBrowser.ELEMENT_PROBE_PROVIDERS,\n { provide: core.NgZone, useFactory: 0 },\n],\n],\n],\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Generated bundle index. Do not edit.\n */\n exports.BrowserTestingModule = BrowserTestingModule;\n exports.platformBrowserTesting = platformBrowserTesting;\n exports.0 = 0;\n exports.angular_packages_platform_browser_testing_testing_a = createNgZone;\n Object.defineProperty(exports, '__esModule', { value: true });\n sourceMappingURL=platform-browser-testing.umd.js.map\n"]

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Found in path(s):

\* /platform-browser-11-0-2-tgz/package/bundles/platform-browser-testing.umd.min.js.map

MIT

No license file was found, but licenses were detected in source scan.

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AAImB,EAAOnB,EAAIrd,KAAO,OAAS,WAC/B,OAAOwe,EAAO,KAAQnB,EAAImB,GAAQ,KAETCzB,EAAK9d,UAAUmf,oBAAsB,SAAUf,EAAKtX,GACbD,OAAOvH,OAAO8f,KAAKjB,GAAKoB,OAAM,SAAUtG,GAAO,OAAOpS,EAAKhD,aAAaoV,KAASKf,EAAIIF,OAEIf4E,EAhIc;,,,,,AAoJzB,SAAS2B,KACL,OAAO,IAAIC,GAAMvgB,EAAgqb,SAASxb,EAAOqH,WAnBxCyX,GAAKzD,MAAQlb,EAAgmb,mBAAMb,CAAE/b,QAASsf,GAAY5U,MAAO6U,GAAMrD,WAAy,SACnFqD,GAAKpT,WAAa,CACd,CAAEC,KAAMxL,EAAGyL,WAAyG,KAAM,CAAC,CAAEOp,WAAy,OAAQtU,WAAy0X,GAAYzX,KAAM,OAETf0X,GAAKjT,eAAiB,WAAc,MAAO,CACvC,CAAEF,UAMiC,EAAWIC,WAAy,CAAC,CAAEC,KAAMxL,EAAG2L,OAAQC,KAAM,CAAC/L,EAAOqH,eA0BrE,IAAIqZ,GAAuB,WACvB,SAASA,EAAMzU,GACX/L,KAAK+L,KAAOA,EAehB,OAVAyU,EAAM1f,UAAU2f,SAAW,WACvB,OAAOzgB,KAAK+L,KAAK2U,OAMrBF,EAAM1f,UAAU6f,SAAW,SAAUc,GACjC5gB,KAAK+L,KAAK2U,MAAQE,GAAY,IAE3BJ,EajBe,GAmB1BA,GAAMrF,MAAQlb,EAAgmb,mBAAMb,CAAE/b,QAASkb,GAAaxW,MAAOyW,GAAOjF,WAAy,SACtFiF,GAAMhV,WAAa,CACf,CAAEC,KAAMxL,EAAGyL,WAAyG,KAAM,CAAC,CAAEOp,WAAy,OAAQtU,WAAyS,Z,GAAarZ,KAAM,OAEvFsZ,GAAM7U,eAAiB,WAAc,MAAO,CACx,C,CAAEF,UAMiC,EAAWIC,WAAy,CAAC,CAAEC,KAAMxL,EAAG2L,OAAQC,KAAM,CAAC/L,EAAOqH;,,,,,AAUre,IakPI0Z,GAlPAC,GAAwB,oBAAX9e,QAA0BA,QAAU,GASjD+e,GACA,SAASA,GAA0BC,EAAWC,GAC1CjhB,KAAKghB,UAAyA,EACjBhhB,KAAKihB,SAAWA,GAQpBC,GAAiC,WACjC,SAASA,EAAGBC,GACrBnhB,KAAKohB,OAASD,EAAIhb,SAASC,IAAIInG,EAAGkJ,gBA0CtC,OAvBA+X,EAAGBpgB,UAAUugB,oBAAsB,SAAUC,GACtD,IAAIC,EAASD,GAAUA,EAAe,OAGICE,EAA6C,MAAvBV,GAAl7e,QAAQwf,QACICF,GAAUC,GACVV,GAAl7e,QAAQwf,QAJE,oBAQIB,IAFA,IAAIC,EAQ5hB,EAAO2G,UAAUnB,iBACzB2b,EAAW,EACRA,EAAW,GAAMnhB,EAAO2G,UAAUnB,iBAAMBoc,EAAS,KACjE1hB,KAAKohB,OAAOO,OACZV,IAEJ,IAAIjR,EAAMIQ,EAAO2G,UAAUnB,iBACvBic,GAUc,GACVV,GAAl7e,QAAQ2f,WAdE,oBAgBIB,IAAIZ,GAAahR,EAAM0R,GAASST,EAGhC,OAFah,GAAl7e,QAAQH,IAAI,OAASmf,EAAW,4BACpCH,GAAl7e,QAAQH,IAAIkf,EAAUa,QAAQ,GAAK,iBACHc,IAAIId,GAA0BC,EAAWC,IAE7CC,EA5CyB,GA0lhCY,GAA+B,WAC/B,SAASA,IACL9hB,KAAK+hB,MAAQ,GACb/hB,KAAKgiB,qBAAuB,GAuDhC,OAAPDAF,EAACva,KAAO,SAAU0a,GAC3B,IAAIC,EAAGB,IAAIJ,EAExB,OADAI,EAACH,MAAQE,EACfC,GAKXJ,EAACHhB,UAAUsF,IAAM,SAAU4T,EAAKmI,GACzC,YAA2BzU,IAApB1N,KAAK+hB,MAAM/H,GAAqBha,KAAK+hB,MAAM/H,GAAOmI,GAK7DL,EAACHhB,UAAUyK,IAAM,SAAUyO,EAAK/W,GACzCjD,KAAK+hB,MAAM/H,GAAO/W,GAKtB6e,EAACHhB,UAAU8B,OAAS,SAAUoX,UACHCha,KAAK+hB,MAAM/H,IAKtB8H,EAACHhB,UAAUshB,OAAS,SAAUpI,GACvC,OAAOha,KAAK+hB,MAAMrhB,eAAesZ,IAKrc8H,EAACHhB,UAAUuhB,YAAc,SAAUrI,EAAK5R,GACjDpI,KAAKgiB,qBAAQbhl,GA05R,GAKrc0Z,EAACHhB,UAAUwhB,OAAS,WAE7B,IAAK,IAAIIt,KAAOha,KAAKgiB,qBACjB,GAAlhiB,KAAKgiB,qBAAQbthB,eAAesZ,GACzC,IACIha,KAAK+hB,MAAM/H,GAAOha,KAAKgiB,qBAAQbhl,KAehD,MAAOuI,GACHtgB,QAAQ2T,KAAK,sCAAuC2M,GAlHe,OAAOC,KAAKC,UAAUziB,KAAK+hB,QAExBD,EAlDuB;,,,,,OA+DIC,SAASY,GAABtf,EAAK6L,GAG5B,IAAI0T,EAASvf,EAAIwf,eAAe3T,EAAGQ,UACpC4T,EAAe,GACnB,GAAIF,GAAUA,EAAOzV,YACjB,IACI2V,EAAeL,KAAKM,MA9GhC,SAASC,EAAaC,GACIB,IAAIC,EAAGB,CACHBC,MAAO,IACPC,MAAO,IACPC,MAAO,IACPC,MAAO,IACPC,MAAO,KAEX,OAAON,EAAK5U,QAAQ,YAAy,SAAUmV,GAAK,OAAON,EAAcM,MASGICR,CAAaJ,EAAOzV,cAEID,MAAOqV,GACHtgB,QAAQ2T,KAAK,mDAAqD3G,EAAOsT,GAGjF,OAAOT,GAACva,KAAKsb,GAhB9Bf,GAACTW,WAAa,CACvB,CAAEC,KAAMxL,EAAGyL,cAuBXmV,GACA,SAASA,QAIcrV,WAAa,CACpC,CAAEC,KAAMxL,EAAG2W,SAAU/K,KAAM,CAAC,CACHBgL,UAAW,CAAC,CAAEP,QAAS+a,GAAe7a,WAAyYb,GAAMbxb,KAAAM,CAACpH,EAAOqH,SAAUIH,EAAGiQ;,,,,,AAgBhH,IAAIst,GAAoB,WACpB,SAASA,KAuCT,OA7BA,A,EAAGC,IAAM,WACL,OAAO,WAAc,OAAO,IAUhcD,EAAGE,IAAM,SAAU9D,GACf,OAAO,SAAU+D,GACb,OAAqC,MAA9BA,EAAaC,eAKbHC,SAASC,EAAEC,EAAGIE,GACvB,QAAl9f,EAAO2G,UAAU/C,cAAcogB,KACxBA,EAaec,SAAWD,EAaec,QAAQnE,IAC1Bke,EAAEE,mBAAQBF,EAAEE,kBAABkBP,E,IAC3CkE,EAAEG,uBAAYBH,EAAEG,sBAASBrE;,,,,,OArB/CiE,CAAeF,EAAaC,cAAehE,KAYvD4D,EAAGU,UAAyY,SAAUzY,GACrB,OAAO,SAAU0Y,GAAa,OAAMd,IAA5CA,EAauc,eAAe9N,QAAQ7K,KAEnE+X,EAxCY,GACqEnBa,GAAU,IAAIpkB,EAAGqkB,QAAQ;,,,,,AA+B7BjkB,OAAOkkB,eAAejlB,EAAS,UAAW,CACtCkIB,YAAy,EACZpe,IAAK,WACD,OAAOtG,EAAO2G,WAGtBnH,EAAGqf,cAAgBA,GACxBhf,EAAGuhB,2BAA6BA,GACrCvB,EAAQkB,GAAGA,GACblkB,EAAQwX,aAAeA,EACvBxX,EAAG8K,sBAAwBA,EACH

C9K,EAAQ+K,aAAeA,EACvB/K,EAAQuV,sBAAwBA,EAChCvV,EAAQwV,cAAgBA,EACxBxV,EAAQyV,oB  
AAsBA,EAC9BzV,EAAQkX,aAAeA,EACvBIX,EAAQsf,KAAOA,GACftf,EAAQkhB,MAAQA,GACbBlhB,EAA  
QwiB,cAAgBA,GACxBxiB,EAAQ+kB,QAAUA,GACIB/kB,EAAQmlB,kBAhSR,SAASA,KACLzb,EAxBuB,WA  
wBW;;;;;QAgStC1J,EAAQoIB,iBA1SR,SAASA,GAAiBvD,GAETb,OADAnY,EAfuB,WaEw,IAAIkY,GAAgBC  
,IAC/CA,GAYSX7hB,EAAQqlB,aArPR,SAASA,GAAa3K,GACIB,OAAOA,GAqPX1a,EAAQO,gBAAkBA,GAC1  
BP,EAAQsIB,gCAAKC9G,GAC1Cxe,EAAQulB,2CA7rBwC,GA8rBhDvlB,EAAQwlB,mBAAqBxjB,EAC7BhC,E  
AAQylB,uBAAYbzd,EACjChI,EAAQ0IB,iBAAmBIS,EAC3BxT,EAAQ2IB,qBAAuBnW,EAC/BxP,EAAQ4IB,kB  
AAoBhK,EAC5B5b,EAAQ6IB,qBAAuBvY,EAC/BtN,EAAQ8IB,yBAA2Bjb,EACnC7K,EAAQ+IB,oCAhwDiC,G  
AiwDzC/IB,EAAQgmB,6BA7tC0B,GAUjClChmB,EAAQimB,sBAAwBhQ,EACbCjW,EAAQkmB,qCAAuC/H,GA  
C/Cne,EAAQmmB,iBAAmBjM,EAC3Bla,EAAQomB,gBAAkB/X,EAC1BrO,EAAQqmB,kBAAoB3Z,EAC5B1M  
,EAAQsmB,eAAiB7f,EACzBzG,EAAQumB,sDAAwD1I,EACHe7d,EAAQwmB,sDAAwDzI,EACHe/d,EAAQym  
B,sDAAwD7H,GACHe5e,EAAQ0mB,sDAAwDrH,GACHErf,EAAQ2mB,sDAAwD1F,GACHEjhB,EAAQ4mB,sD  
AAwDxD,GACHEpjB,EAAQ6mB,sDAAwDra,EACHExm,EAAQ8mB,sDAAwD3P,EACHEnX,EAAQ+mB,sDAA  
wD1P,EACHErX,EAAQgnB,sDAAwDrL,EACHE3b,EAAQinB,sDAAwDtgB,EACHE3G,EAAQknB,sDAAwD1f,E  
ACHExH,EAAQmnB,sDAAwDjd,EACHEIk,EAAQonB,sDAAwD1c,EACHE1K,EAAQqnB,sDAAwD1IB,EACHE  
3B,EAAQsnB,YAZTR,SAASC,GAAW7D,GACbB,IAAI8D,EAAC,CACdC,IAAK,MACLC,IAAK,MACLC,IAAM  
,MACNC,IAAK,MACLC,IAAK,OAET,OAAOnE,EAAS5U,QAAQ,YAAY,SAAUmV,GAAC,OAAOuD,EAAYv  
D,OAkTtEjKB,EAAQ8nB,eAAiB9Y,EACzBhP,EAAQ+nB,gBAAkBnK,EAC1B5d,EAAQgoB,sBAAwBpZ,EAC  
C5O,EAAQioB,mBAAqBlZ,EAE7BhO,OAAOkkB,eAAejlB,EAAS,aAAc,CAAE2D,OAAO","sourcesContent":["/  
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* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function
(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,
require('@angular/common'), require('@angular/core')) :\n typeof define === 'function' && define.amd ?
define('@angular/platform-browser', ['exports', '@angular/common', '@angular/core'], factory) :\n (global = global
|| self, factory((global.ng = global.ng || {}), global.ng.platformBrowser = {}), global.ng.common,
global.ng.core));\n}(this, (function (exports, common, i0) {\n 'use strict';\n /*!
```

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CONTRACT, NEGLIGENCE OR\n OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION  
WITH THE USE OR\n PERFORMANCE OF THIS SOFTWARE.\n

\*\*\*\*\*\n /\* global

```
Reflect, Promise *\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ __proto__: [] } instanceof Array && function (d, b) {\n d.__proto__ = b;\n }) ||\n function (d, b) {\n for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n }; \n return extendStatics(d, b);\n }\n\nfunction __extends(d, b) {\n extendStatics(d, b);\n\n function __() {\n this.constructor = d;\n }\n d.prototype = b === null ? Object.create(b) : (__.prototype = b.prototype, new __());\n\n var __assign = function () {\n __assign = Object.assign || function __assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n return __assign.apply(this, arguments);\n };\n\n function __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getOwnPropertySymbols === 'function')\n for (var i = 0, p =
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Object.getOwnPropertySymbols(s); i < p.length; i++) {\n if (e.indexOf(p[i]) < 0 &&
Object.prototype.propertyIsEnumerable.call(s,
p[i]))\n t[p[i]] = s[p[i]]; \n }\n return t; \n }\n function __decorate(decorators, target, key,
desc) {\n var c = arguments.length, r = c < 3 ? target : desc === null ? desc =
Object.getOwnPropertyDescriptor(target, key) : desc, d; \n if (typeof Reflect === "object" && typeof
Reflect.decorate === "function")\n r = Reflect.decorate(decorators, target, key, desc); \n else \n for (var i = decorators.length - 1; i >= 0; i--) \n if (d = decorators[i]) \n r = (c < 3 ? d(r) : c > 3 ?
d(target, key, r) : d(target, key)) || r; \n return c > 3 && r && Object.defineProperty(target, key, r), r; \n }\n function __param(paramIndex, decorator) {\n return function (target, key) { decorator(target, key, paramIndex);
}; \n }\n function __metadata(metadataKey, metadataValue) {\n if (typeof Reflect === "object" && typeof
Reflect.metadata
=== "function")\n return Reflect.metadata(metadataKey, metadataValue); \n }\n function
__awaiter(thisArg, _arguments, P, generator) {\n function adopt(value) { return value instanceof P ? value : new
P(function (resolve) { resolve(value); }); } \n return new (P || (P = Promise))(function (resolve, reject) {\n
function fulfilled(value) { try {\n step(generator.next(value)); \n } \n catch (e) {\n
reject(e); \n } \n function rejected(value) { try {\n step(generator["throw"](value)); \n
 } \n catch (e) {\n reject(e); \n } \n function step(result) { result.done ?
resolve(result.value) : adopt(result.value).then(fulfilled, rejected); \n } \n step((generator =
generator.apply(thisArg, _arguments || [])).next()); \n }); \n }\n function __generator(thisArg, body) {\n
var _ = { label:
0, sent: function () { if (t[0] & 1)\n throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g; \n return g = {
next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] =
function () { return this; }), g; \n function verb(n) { return function (v) { return step([n, v]); }; } \n function
step(op) {\n if (f)\n throw new TypeError("Generator is already executing."); \n while (__) \n try {\n if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"])
&& t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) \n return t; \n if (y = 0, t) \n op = [op[0] & 2, t.value]; \n switch (op[0]) {\n case 0: \n case 1: \n
 break; \n case 4: \n __.label++; \n return { value: op[1], done: false
}; \n case 5: \n __.label++; \n y = op[1]; \n op = [0]; \n
 continue; \n case 7: \n op = __.ops.pop(); \n
 __.trys.pop(); \n continue; \n default: \n if (!(t = __.trys, t = t.length > 0
&& t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) {\n _ = 0; \n continue; \n } \n
 if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) {\n __.label = op[1]; \n
 break; \n } \n if (op[0] === 6 && __.label < t[1]) {\n __.label = t[1]; \n
 break; \n } \n if (t && __.label < t[2]) {\n __.label =
t[2]; \n __.ops.push(op); \n break; \n } \n if
(t[2]) \n __.ops.pop(); \n __.trys.pop(); \n continue; \n } \n
 op = body.call(thisArg, __); \n } \n catch (e) {\n op = [6, e]; \n
 y = 0; \n } \n finally {\n f = t = 0; \n } \n if (op[0] & 5) \n throw
op[1]; \n return { value: op[0] ? op[1] : void 0, done: true }; \n } \n } \n var __createBinding = Object.create ? (function (o, m, k, k2) {\n
 if (k2 === undefined) \n k2 = k; \n Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; } }); \n }) : (function
(o, m, k, k2) {\n if (k2 === undefined) \n k2 = k; \n o[k2] = m[k]; \n }); \n function __exportStar(m,
exports) {\n for (var p in m) \n if (p !== "default" && !exports.hasOwnProperty(p)) \n __createBinding(exports, m, p); \n } \n function __values(o) {\n var s = typeof Symbol === "function" &&
Symbol.iterator, m = s && o[s], i = 0; \n if (m) \n return m.call(o); \n if (o && typeof o.length ===

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"number")\n return {\n next: function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o && o[i++], done: !o }; }\n }\n }\n throw new TypeError(s ? "Object is not iterable." : "Symbol.iterator is not defined.");\n }\n function __read(o, n) {\n var m = typeof Symbol === "function" && o[Symbol.iterator];\n if (!m)\n return o;\n var i = m.call(o), r, ar = [], e;\n try {\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n ar.push(r.value);\n } catch (error) {\n e = { error: error };\n } finally {\n try {\n if (r && !r.done && (m = i["return"]))\n m.call(i);\n } finally {\n if (e)\n throw e.error;\n }\n }\n return ar;\n }\n function __spread() {\n for (var ar = [], i = 0; i < arguments.length; i++)\n ar = ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for (var s = 0, i = 0, il = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0; i < il; i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return r;\n }\n function __await(v) {\n return this instanceof __await ? (this.v = v, this) : new __await(v);\n }\n function __asyncGenerator(thisArg, _arguments, generator) {\n if (!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator is not defined.");\n var g = generator.apply(thisArg, _arguments || []), i, q = [];\n return i = {}, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () {\n return this;\n }, i;\n function verb(n) {\n if (g[n])\n i[n] = function (v) {\n return new Promise(function (a, b) {\n q.push([n, v, a, b]) > 1 || resume(n, v); });\n }\n }\n }\n function resume(n, v) {\n try {\n step(g[n](v));\n } catch (e) {\n settle(q[0][3], e);\n }\n function step(r) {\n r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r);\n }\n function fulfill(value) {\n resume("next", value);\n }\n function reject(value) {\n resume("throw", value);\n }\n function settle(f, v) {\n if (f(v), q.shift(), q.length)\n resume(q[0][0], q[0][1]);\n }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i = {}, verb("next"), verb("throw"), function (e) {\n throw e;\n }, verb("return"), i[Symbol.iterator] = function () {\n return this;\n }, i;\n function verb(n, f) {\n i[n] = o[n] ? function (v) {\n return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v;\n } : f;\n }\n }\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator is not defined.");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values === "function" ? __values(o) : o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () {\n return this;\n }, i);\n function verb(n) {\n i[n] = o[n] && function (v) {\n return new Promise(function (resolve, reject) {\n v = o[n](v), settle(resolve, reject, v.done, v.value); });\n }\n }\n function settle(resolve, reject, d, v) {\n Promise.resolve(v).then(function (v) {\n resolve({ value: v, done: d });\n }, reject);\n }\n }\n function __makeTemplateObject(cooked, raw) {\n if (Object.defineProperty)\n Object.defineProperty(cooked, "raw", {\n value: raw\n });\n else\n cooked.raw = raw;\n return cooked;\n }\n var __setModuleDefault = Object.create ? (function (o, v) {\n Object.defineProperty(o, "default", {\n enumerable: true, value: v\n });\n }) : function (o, v) {\n o["default"] = v;\n }\n function __importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var result = {};\n if (mod != null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod && mod.__esModule) ? mod : { default: mod }\n }\n function __classPrivateFieldGet(receiver, privateMap) {\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to get private field on non-instance");\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver, privateMap, value) {\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to set private field on non-instance");\n privateMap.set(receiver, value);\n }\n return value;\n }\n /**\n * Provides DOM operations in any browser environment.\n *\n * @security Tread carefully! Interacting with the DOM directly is dangerous and\n * can introduce XSS risks.\n *\n * var GenericBrowserDomAdapter = /** @class */ (function (_super) {\n
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__extends(GenericBrowserDomAdapter, _super);\n function GenericBrowserDomAdapter() {\n return
 _super.call(this) || this;\n }\n GenericBrowserDomAdapter.prototype.supportsDOMEvents = function () {\n
 return true;\n };\n return GenericBrowserDomAdapter;\n }(common.DomAdapter));\n\n var 0 =
function () {\n if (i0.global['Node']) {\n return i0.global['Node'].prototype.contains || function (node) {\n
 return !(this.compareDocumentPosition(node) & 16);\n };\n }\n return undefined;\n };\n
var nodeContains = (0)();\n /**\n * A `DomAdapter` powered by full
 browser DOM APIs.\n * @security Tread carefully! Interacting with the DOM directly is dangerous and\n
 * can introduce XSS risks.\n */\n /* tslint:disable:requireParameterType no-console */\n var
BrowserDomAdapter = /** @class */ (function (_super) {\n __extends(BrowserDomAdapter, _super);\n
function BrowserDomAdapter() {\n return _super !== null && _super.apply(this, arguments) || this;\n
 }\n BrowserDomAdapter.makeCurrent = function () {\n common.setRootDomAdapter(new
BrowserDomAdapter());\n };\n BrowserDomAdapter.prototype.getProperty = function (el, name) {\n
return el[name];\n };\n BrowserDomAdapter.prototype.log = function (error) {\n if
(window.console) {\n window.console.log && window.console.log(error);\n }\n };\n
BrowserDomAdapter.prototype.logGroup = function (error) {\n if (window.console) {\n
 window.console.group && window.console.group(error);\n }\n };\n
BrowserDomAdapter.prototype.logGroupEnd = function () {\n if (window.console) {\n
 window.console.groupEnd && window.console.groupEnd();\n }\n };\n
BrowserDomAdapter.prototype.onAndCancel = function (el, evt, listener) {\n el.addEventListener(evt,
listener, false);\n // Needed to follow Dart's subscription semantic, until fix of\n //
https://code.google.com/p/dart/issues/detail?id=17406\n return function () {\n
 el.removeEventListener(evt, listener, false);\n }\n };\n
BrowserDomAdapter.prototype.dispatchEvent = function (el, evt) {\n el.dispatchEvent(evt);\n };\n
BrowserDomAdapter.prototype.remove = function (node) {\n if (node.parentNode) {\n
 node.parentNode.removeChild(node);\n }\n return node;\n };\n
BrowserDomAdapter.prototype.getValue = function (el) {\n return el.value;\n };\n
BrowserDomAdapter.prototype.createElement = function (tagName, doc) {\n doc = doc ||
this.getDefaultDocument();\n return doc.createElement(tagName);\n };\n
BrowserDomAdapter.prototype.createHtmlDocument = function () {\n return
document.implementation.createHTMLDocument('fakeTitle');\n };\n
BrowserDomAdapter.prototype.getDefaultDocument = function () {\n return document;\n };\n
BrowserDomAdapter.prototype.isElementNode = function (node) {\n return node.nodeType ===
Node.ELEMENT_NODE;\n };\n BrowserDomAdapter.prototype.isShadowRoot = function (node) {\n
 return node instanceof DocumentFragment;\n };\n BrowserDomAdapter.prototype.getGlobalEventTarget =
function (doc, target) {\n if (target === 'window') {\n
 return window;\n }\n if (target === 'document') {\n
 return doc;\n }\n if (target === 'body') {\n
 return doc.body;\n }\n return null;\n };\n
BrowserDomAdapter.prototype.getHistory = function () {\n return window.history;\n };\n
BrowserDomAdapter.prototype.getLocation = function () {\n return window.location;\n };\n
BrowserDomAdapter.prototype.getBaseHref = function (doc) {\n var href = getBaseElementHref();\n
 return href == null ? null : relativePath(href);\n };\n BrowserDomAdapter.prototype.resetBaseElement =
function () {\n baseElement = null;\n };\n BrowserDomAdapter.prototype.getUserAgent = function
() {\n return window.navigator.userAgent;\n };\n BrowserDomAdapter.prototype.performanceNow =
function () {\n // performance.now()\n is not available in all browsers, see\n // http://caniuse.com/#search=performance.now\n return
window.performance && window.performance.now ? window.performance.now() : new
Date().getTime();\n };\n BrowserDomAdapter.prototype.supportsCookies = function () {\n return
true;\n };\n BrowserDomAdapter.prototype.getCookie = function (name) {\n return

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common.parseCookieValue(document.cookie, name);\n }\n return BrowserDomAdapter;\n
})(GenericBrowserDomAdapter);\n var baseElement = null;\n function getBaseElementHref() {\n if\n (!baseElement) {\n baseElement = document.querySelector('base');\n if (!baseElement) {\n return null;\n }\n }\n return baseElement.getAttribute('href');\n }\n // based on urlUtils.js in\n AngularJS 1\n var urlParsingNode;\n function relativePath(url) {\n if (!urlParsingNode)\n {\n urlParsingNode = document.createElement('a');\n urlParsingNode.setAttribute('href', url);\n return (urlParsingNode.pathname.charAt(0) === '/') ? urlParsingNode.pathname :\n '/' +\n urlParsingNode.pathname;\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n * https://angular.io/license\n */\n /**\n * An id that identifies a particular application being bootstrapped, that\n * should\n * match across the client/server boundary.\n */\n var TRANSITION_ID = new\n i0.InjectionToken("TRANSITION_ID");\n function appInitializerFactory(transitionId, document, injector) {\n return function () {\n // Wait for all application initializers to be completed before removing the styles set\n by\n // the server.\n injector.get(i0.ApplicationInitStatus).donePromise.then(function\n () {\n var dom = common.getDOM();\n var styles =\n Array.prototype.slice.apply(document.querySelectorAll(\"style[ng-transition]\")); \n styles.filter(function\n (el) { return el.getAttribute('ng-transition') === transitionId; })\n .forEach(function (el) { return\n dom.remove(el); });\n });\n });\n }\n var SERVER_TRANSITION_PROVIDERS = [\n {\n provide: i0.APP_INITIALIZER,\n useFactory: appInitializerFactory,\n deps: [TRANSITION_ID,\n common.DOCUMENT, i0.Injector],\n multi: true\n },\n];\n /**\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can\n * be\n * found in the LICENSE file at https://angular.io/license\n */\n var BrowserGetTestability = /** @class\n */ (function () {\n function BrowserGetTestability()\n {\n BrowserGetTestability.init = function () {\n i0.setTestabilityGetter(new\n BrowserGetTestability());\n };\n BrowserGetTestability.prototype.addToWindow = function (registry) {\n i0.global['getAngularTestability'] = function (elem, findInAncestors) {\n if (findInAncestors === void\n 0) {\n findInAncestors = true;\n }\n var testability = registry.findTestabilityInTree(elem, findInAncestors);\n if (testability == null) {\n throw new Error('Could not find testability for element.);\n }\n return testability;\n };\n i0.global['getAllAngularTestabilities'] = function () {\n return\n registry.getAllTestabilities();\n };\n i0.global['getAllAngularRootElements'] = function () {\n return\n registry.getAllRootElements();\n };\n var whenAllStable = function (callback /** TODO #9100 */) {\n {\n var testabilities = i0.global['getAllAngularTestabilities']();\n var count = testabilities.length;\n var didWork = false;\n var decrement = function (didWork_ /** TODO #9100 */) {\n didWork\n = didWork || didWork_;\n count--;\n if (count == 0) {\n callback(didWork);\n }\n };\n testabilities.forEach(function (testability /** TODO #9100 */) {\n testability.whenStable(decrement);\n });\n if (!i0.global['frameworkStabilizers']) {\n i0.global['frameworkStabilizers'] = [];\n }\n i0.global['frameworkStabilizers'].push(whenAllStable);\n }\n };\n BrowserGetTestability.prototype.findTestabilityInTree = function (registry, elem, findInAncestors) {\n if\n (elem == null) {\n return null;\n }\n var t = registry.getTestability(elem);\n if (t != null) {\n return t;\n }\n else if (!findInAncestors) {\n return null;\n }\n if (common.getDOM().isShadowRoot(elem))\n {\n return this.findTestabilityInTree(registry, elem.host, true);\n }\n return\n this.findTestabilityInTree(registry, elem.parentElement, true);\n };\n return BrowserGetTestability;\n }();\n }\n })\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source\n * code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var CAMEL_CASE_REGEXP = /[A-Z]/g;\n var DASH_CASE_REGEXP = /-([a-z])/g;\n function\n camelCaseToDashCase(input) {\n return input.replace(CAMEL_CASE_REGEXP, function () {\n var m

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= [];\n for (var _i = 0;\n _i < arguments.length; _i++) {\n m[_i] = arguments[_i];\n }\n return '-' +\n m[1].toLowerCase();\n });\n }\n function dashCaseToCamelCase(input) {\n return\n input.replace(DASH_CASE_REGEXP, function () {\n var m = [];\n for (var _i = 0; _i <\n arguments.length; _i++) {\n m[_i] = arguments[_i];\n }\n return m[1].toUpperCase();\n });\n }\n /**\n * Exports the value under a given `name` in the global property `ng`. For example `ng.probe`\n if\n * `name` is `probe`.\n * @param name Name under which it will be exported. Keep in mind this will be a\n property of the\n * global `ng` object.\n * @param value The value to export.\n */\n function\n exportNgVar(name, value) {\n if (typeof COMPILED === 'undefined' || !COMPILED) {\n // Note: we\n can't export `ng` when using closure enhanced optimization as:\n // - closure declares\n globals itself for minified names, which sometimes clobber our `ng` global\n // - we can't declare a closure\n extern as the namespace `ng` is already used within Google\n // for typings for angularJS (via\n `goog.provide('ng...')`),\n var ng = i0.global['ng'] = i0.global['ng'] || {};\n ng[name] = value;\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code\n is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var O$1 = function () { return ({\n 'ApplicationRef': i0.ApplicationRef,\n 'NgZone': i0.NgZone,\n });\n};\n var CORE_TOKENS = (O$1());\n var INSPECT_GLOBAL_NAME = 'probe';\n var\n CORE_TOKENS_GLOBAL_NAME = 'coreTokens';\n /**\n * Returns a {@link DebugElement} for the given\n native DOM element, or\n * null if the given native element does not have\n an Angular view associated\n * with it.\n */\n function inspectNativeElementR2(element) {\n return\n i0.getDebugNodeR2(element);\n }\n function _createNgProbeR2(coreTokens) {\n exportNgVar(INSPECT_GLOBAL_NAME, inspectNativeElementR2);\n exportNgVar(CORE_TOKENS_GLOBAL_NAME, Object.assign(Object.assign({}, CORE_TOKENS),\n _ngProbeTokensToMap(coreTokens || [])));\n return function () { return inspectNativeElementR2; };\n }\n function _ngProbeTokensToMap(tokens) {\n return tokens.reduce(function (prev, t) { return (prev[t.name] =\n t.token, prev); }, {});\n }\n /**\n * In Ivy, we don't support NgProbe because we have our own set of testing\n utilities\n * with more robust functionality.\n * We shouldn't bring in NgProbe because it prevents\n DebugNode and friends from\n * tree-shaking properly.\n */\n var\n ELEMENT_PROBE_PROVIDERS__POST_R3__ = [];\n /**\n * Providers which support debugging Angular\n applications (e.g. via `ng.probe`).\n */\n var ELEMENT_PROBE_PROVIDERS__PRE_R3__ = [\n {\n provide: i0.APP_INITIALIZER,\n useFactory: _createNgProbeR2,\n deps: [\n i0.NgProbeToken, new i0.Optional(),\n],\n multi: true,\n },\n];\n var\n ELEMENT_PROBE_PROVIDERS = ELEMENT_PROBE_PROVIDERS__PRE_R3__;\n /**\n *\n @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\n MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * The\n injection token for the event-manager plug-in service.\n */\n @publicApi\n var\n EVENT_MANAGER_PLUGINS = new i0.InjectionToken('EventManagerPlugins');\n /**\n * An injectable\n service that provides event management for Angular\n * through a browser plug-in.\n */\n @publicApi\n */\n var EventManager\n = /** @class */ (function () {\n /**\n * Initializes an instance of the event-manager service.\n */\n function EventManager(plUGINS, _zone) {\n var _this = this;\n this._zone = _zone;\n this._eventNameToPlugin = new Map();\n PLUGINS.forEach(function (p) { return p.manager = _this; });\n this._plugins = PLUGINS.slice().reverse();\n }\n /**\n * Registers a handler for a specific element and\n event.\n */\n @param element The HTML element to receive event notifications.\n @param\n eventName The name of the event to listen for.\n @param handler A function to call when the notification\n occurs. Receives the\n @param event object as an argument.\n @returns A callback function that can be used\n to remove the handler.\n */\n EventManager.prototype.addListener = function (element, eventName,\n handler) {\n var plugin

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= this._findPluginFor(eventName);\n return plugin.addEventListener(element, eventName, handler);\n};\n /**\n * Registers a global handler for an event in a target view.\n * @param target A\n target for global event notifications. One of \"window\", \"document\", or \"body\".\n * @param eventName\n The name of the event to listen for.\n * @param handler A function to call when the notification occurs.\n Receives the\n * event object as an argument.\n * @returns A callback function that can be used to\n remove the handler.\n */\n EventManager.prototype.addGlobalEventListener = function (target,\n eventName, handler) {\n var plugin = this._findPluginFor(eventName);\n return\n plugin.addGlobalEventListener(target, eventName, handler);\n };\n /**\n * Retrieves the compilation\n zone in which event listeners are registered.\n */\n EventManager.prototype.getZone\n = function () {\n return this._zone;\n };\n /** @internal */\n EventManager.prototype._findPluginFor = function (eventName) {\n var plugin =\n this._eventNameToPlugin.get(eventName);\n if (plugin) {\n return plugin;\n }\n var\n plugins = this._plugins;\n for (var i = 0; i < plugins.length; i++) {\n var plugin_1 = plugins[i];\n if (plugin_1.supports(eventName)) {\n this._eventNameToPlugin.set(eventName, plugin_1);\n return plugin_1;\n }\n }\n throw new Error(\"No event manager plugin found for event\n '\" + eventName);\n };\n return EventManager;\n }());\n EventManager.decorators = [\n { type:\n i0.Injectable }\n];\n EventManager.ctorParameters = function () { return [\n { type: Array, decorators: [{\n type: i0.Inject, args: [EVENT_MANAGER_PLUGINS,\n] }],\n { type: i0.NgZone }\n] }; }\n var EventManagerPlugin = /** @class */ (function () {\n function\n EventManagerPlugin(_doc) {\n this._doc = _doc;\n }\n EventManagerPlugin.prototype.addGlobalEventListener = function (element, eventName, handler) {\n var\n target = common.getDOM().getGlobalEventTarget(this._doc, element);\n if (!target) {\n throw new\n Error(\"Unsupported event target \" + target + \" for event \" + eventName);\n }\n return\n this.addEventListener(target, eventName, handler);\n };\n return EventManagerPlugin;\n }());\n var\n SharedStylesHost = /** @class */ (function () {\n function SharedStylesHost() {\n /** @internal */\n this._stylesSet = new Set();\n }\n SharedStylesHost.prototype.addStyles = function (styles) {\n var\n _this = this;\n var additions = new Set();\n styles.forEach(function (style) {\n if (!_this._stylesSet.has(style)) {\n _this._stylesSet.add(style);\n additions.add(style);\n }\n });\n this.onStylesAdded(additions);\n };\n SharedStylesHost.prototype.onStylesAdded = function (additions) {\n };\n SharedStylesHost.prototype.getAllStyles = function () {\n return Array.from(this._stylesSet);\n };\n return SharedStylesHost;\n }());\n SharedStylesHost.decorators = [\n { type: i0.Injectable }\n];\n var DomSharedStylesHost = /** @class */ (function (_super) {\n __extends(DomSharedStylesHost, _super);\n function DomSharedStylesHost(_doc) {\n var _this = _super.call(this) || this;\n _this._doc = _doc;\n _this._hostNodes = new Set();\n _this._styleNodes = new Set();\n _this._hostNodes.add(_doc.head);\n return\n _this;\n }\n DomSharedStylesHost.prototype._addStylesToHost = function (styles, host) {\n var\n _this = this;\n styles.forEach(function (style) {\n var styleEl = _this._doc.createElement('style');\n styleEl.textContent = style;\n _this._styleNodes.add(host.appendChild(styleEl));\n });\n }\n DomSharedStylesHost.prototype.addHost = function (hostNode) {\n this._addStylesToHost(this._stylesSet, hostNode);\n this._hostNodes.add(hostNode);\n };\n DomSharedStylesHost.prototype.removeHost = function (hostNode) {\n this._hostNodes.delete(hostNode);\n };\n DomSharedStylesHost.prototype.onStylesAdded = function (additions) {\n var _this = this;\n this._hostNodes.forEach(function (hostNode) { return _this._addStylesToHost(additions, hostNode); });\n };\n DomSharedStylesHost.prototype.ngOnDestroy\n = function () {\n this._styleNodes.forEach(function (styleNode) { return\n common.getDOM().remove(styleNode); });\n };\n return DomSharedStylesHost;\n })(SharedStylesHost);\n DomSharedStylesHost.decorators = [\n { type: i0.Injectable }\n];\n
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DomSharedStylesHost.ctorParameters = function () { return [{ type: undefined, decorators: [{ type: i0.Inject,
args: [common.DOCUMENT,] }]}];\n\n var NAMESPACE_URI = {\n 'svg':
'http://www.w3.org/2000/svg',\n 'xhtml': 'http://www.w3.org/1999/xhtml',\n 'xlink':
'http://www.w3.org/1999/xlink',\n 'xml': 'http://www.w3.org/XML/1998/namespace',\n 'xmlns':
'http://www.w3.org/2000/xmlns/',\n };\n var COMPONENT_REGEX = /%COMP%/g;\n var
NG_DEV_MODE = typeof ngDevMode === 'undefined' || !ngDevMode;\n var COMPONENT_VARIABLE =
'%COMP%';\n var HOST_ATTR = \"_ngghost-\" + COMPONENT_VARIABLE;\n var CONTENT_ATTR =
\"_ngcontent-\" + COMPONENT_VARIABLE;\n\n function shimContentAttribute(componentShortId) {\n return
CONTENT_ATTR.replace(COMPONENT_REGEX, componentShortId);\n }\n function
shimHostAttribute(componentShortId) {\n return HOST_ATTR.replace(COMPONENT_REGEX,
componentShortId);\n }\n function flattenStyles(compId, styles, target) {\n for (var i = 0; i < styles.length;
i++) {\n var style = styles[i];\n if (Array.isArray(style)) {\n flattenStyles(compId, style,
target);\n }\n else {\n style = style.replace(COMPONENT_REGEX, compId);\n target.push(style);\n }\n }\n return target;\n }\n function decoratePreventDefault(eventHandler)
{\n // `DebugNode.triggerEventHandler` needs to know if the listener was created with\n //
decoratePreventDefault or is a listener added outside the Angular context so it can handle the\n // two
differently. In the first case,\n the special '__ngUnwrap__' token is passed to the unwrap\n // the listener (see below).\n return function
(event) {\n // Ivy uses '__ngUnwrap__' as a special token that allows us to unwrap the function\n // so
that it can be invoked programmatically by `DebugNode.triggerEventHandler`. The debug_node\n // can
inspect the listener toString contents for the existence of this special token. Because\n // the token is a string
literal, it is ensured to not be modified by compiled code.\n if (event === '__ngUnwrap__') {\n return eventHandler;\n }\n var allowDefaultBehavior = eventHandler(event);\n if
(allowDefaultBehavior === false) {\n // TODO(tbosch): move preventDefault into event plugins...\n event.preventDefault();\n event.returnValue = false;\n }\n return undefined;\n };\n }\n var hasLoggedNativeEncapsulationWarning
= false;\n var DomRendererFactory2 = /** @class */ (function () {\n function
DomRendererFactory2(eventManager, sharedStylesHost, appId) {\n this.eventManager = eventManager;\n this.sharedStylesHost = sharedStylesHost;\n this.appId = appId;\n this.rendererByCompId = new
Map();\n this.defaultRenderer = new DefaultDomRenderer2(eventManager);\n }\n DomRendererFactory2.prototype.createRenderer = function (element, type) {\n if (!element || !type) {\n return this.defaultRenderer;\n }\n switch (type.encapsulation) {\n case
i0.ViewEncapsulation.Emulated: {\n var renderer = this.rendererByCompId.get(type.id);\n if
(!renderer) {\n renderer = new EmulatedEncapsulationDomRenderer2(this.eventManager,
this.sharedStylesHost, type, this.appId);\n this.rendererByCompId.set(type.id,
renderer);\n }\n renderer.applyToHost(element);\n return renderer;\n }\n case 1: {\n case i0.ViewEncapsulation.ShadowDom: {\n // TODO(FW-2290): remove
the `case 1:` fallback logic and the warning in v12.\n if ((typeof ngDevMode === 'undefined' ||
ngDevMode) && !hasLoggedNativeEncapsulationWarning && type.encapsulation === 1) {\n hasLoggedNativeEncapsulationWarning = true;\n console.warn('ViewEncapsulation.Native is
no longer supported. Falling back to ViewEncapsulation.ShadowDom. The fallback will be removed in v12.);\n }\n return new ShadowDomRenderer(this.eventManager, this.sharedStylesHost, element, type);\n }\n default: {\n if (!this.rendererByCompId.has(type.id)) {\n var styles = flattenStyles(type.id, type.styles, []);\n this.sharedStylesHost.addStyles(styles);\n this.rendererByCompId.set(type.id, this.defaultRenderer);\n }\n return
this.defaultRenderer;\n }\n }\n }\n DomRendererFactory2.prototype.begin = function () {\n };\n DomRendererFactory2.prototype.end = function () {\n };
 });\n return DomRendererFactory2;\n})();

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DomRendererFactory2.decorators = [\n { type: i0.Injectable }\n];\n DomRendererFactory2.ctorParameters
= function () { return [\n { type: EventManager },\n { type: DomSharedStylesHost },\n { type: String,
decorators: [{ type: i0.Inject, args: [i0.APP_ID,] }] }\n];\n var DefaultDomRenderer2 = /** @class */
(function () {\n function DefaultDomRenderer2(eventManager) {\n this.eventManager =
eventManager;\n this.data = Object.create(null);\n
 }\n DefaultDomRenderer2.prototype.destroy = function () { };\n
DefaultDomRenderer2.prototype.createElement = function (name, namespace) {\n if (namespace) {\n
// In cases where Ivy (not ViewEngine) is giving us the actual namespace, the look up by key\n // will
result in undefined, so we just return the namespace here.\n return
document.createElementNS(NAMESPACE_URIS[namespace] || namespace, name);\n }\n return
document.createElement(name);\n };\n DefaultDomRenderer2.prototype.createComment = function (value)
{\n return document.createComment(value);\n };\n DefaultDomRenderer2.prototype.createText =
function (value) {\n return document.createTextNode(value);\n };\n
DefaultDomRenderer2.prototype.appendChild = function (parent, newChild) {\n
parent.appendChild(newChild);\n };\n DefaultDomRenderer2.prototype.insertBefore
= function (parent, newChild, refChild) {\n if (parent) {\n parent.insertBefore(newChild,
refChild);\n }\n };\n DefaultDomRenderer2.prototype.removeChild = function (parent, oldChild) {\n
if (parent) {\n parent.removeChild(oldChild);\n }\n };\n
DefaultDomRenderer2.prototype.selectRootElement = function (selectorOrNode, preserveContent) {\n var el
= typeof selectorOrNode === 'string' ? document.querySelector(selectorOrNode) : selectorOrNode;\n
if (!el) {\n throw new Error("\The selector '" + selectorOrNode + "'" did not match any
elements");\n }\n if (!preserveContent) {\n el.textContent = "";\n }\n return el;\n
};\n DefaultDomRenderer2.prototype.parentNode = function (node) {\n return node.parentNode;\n
};\n DefaultDomRenderer2.prototype.nextSibling = function (node) {\n return node.nextSibling;\n
};\n DefaultDomRenderer2.prototype.setAttribute = function (el, name, value, namespace) {\n if
(namespace) {\n name = namespace + ':' + name;\n // TODO(FW-811): Ivy may cause issues here
because it's passing around\n // full URIs for namespaces, therefore this lookup will fail.\n var
namespaceUri = NAMESPACE_URIS[namespace];\n if (namespaceUri) {\n
el.setAttributeNS(namespaceUri, name, value);\n }\n else {\n el.setAttribute(name,
value);\n }\n }\n else {\n el.setAttribute(name, value);\n }\n };\n
DefaultDomRenderer2.prototype.removeAttribute = function (el, name, namespace) {\n if (namespace) {\n
//
// TODO(FW-811): Ivy may cause issues here because it's passing around\n // full URIs for namespaces,
therefore this lookup will fail.\n var namespaceUri = NAMESPACE_URIS[namespace];\n if
(namespaceUri) {\n el.removeAttributeNS(namespaceUri, name);\n }\n else {\n
// TODO(FW-811): Since ivy is passing around full URIs for namespaces\n // this could result in
properties like `http://www.w3.org/2000/svg:cx="123"\n // which is wrong.\n el.removeAttribute(namespace + ':' + name);\n }\n }\n else {\n
el.removeAttribute(name);\n }\n };\n DefaultDomRenderer2.prototype.addClass = function (el,
name) {\n el.classList.add(name);\n };\n DefaultDomRenderer2.prototype.removeClass = function
(el, name) {\n el.classList.remove(name);\n
 };\n DefaultDomRenderer2.prototype.setStyle = function (el, style, value, flags) {\n if (flags &
(i0.RendererStyleFlags2.DashCase | i0.RendererStyleFlags2.Important)) {\n el.style.setProperty(style,
value, flags & i0.RendererStyleFlags2.Important ? 'important' : "");\n }\n else {\n
el.style[style] = value;\n }\n };\n DefaultDomRenderer2.prototype.removeStyle = function (el, style,
flags) {\n if (flags & i0.RendererStyleFlags2.DashCase) {\n el.style.removeProperty(style);\n
 }\n else {\n // IE requires " instead of null\n // see
https://github.com/angular/angular/issues/7916\n el.style[style] = "";\n }\n };\n

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DefaultDomRenderer2.prototype.setProperty = function (el, name, value) {\n NG_DEV_MODE &&
checkNoSyntheticProp(name, 'property');\n
 el[name] = value;\n };\n DefaultDomRenderer2.prototype.setValue = function (node, value) {\n
node.nodeValue = value;\n };\n DefaultDomRenderer2.prototype.listen = function (target, event, callback)
{\n NG_DEV_MODE && checkNoSyntheticProp(event, 'listener');\n if (typeof target === 'string') {\n
return this.eventManager.addGlobalEventListener(target, event, decoratePreventDefault(callback));\n
}\n return this.eventManager.addEventListener(target, event, decoratePreventDefault(callback));\n };\n
return DefaultDomRenderer2;\n }());\n var 0$2 = function () { return '@'.charCodeAt(0); };\n var
AT_CHARCODE = (0$2());\n function checkNoSyntheticProp(name, nameKind) {\n if (name.charCodeAt(0)
=== AT_CHARCODE) {\n throw new Error("Found the synthetic \" + nameKind + \" \" + name + \". Please
include either \"\"\"BrowserAnimationsModule\"\"\" or \"\"\"NoopAnimationsModule\"\"\"
in your application.\");\n }\n }\n var EmulatedEncapsulationDomRenderer2 = /** @class */ (function
(_super) {\n __extends(EmulatedEncapsulationDomRenderer2, _super);\n function
EmulatedEncapsulationDomRenderer2(eventManager, sharedStylesHost, component, appId) {\n var _this =
_super.call(this, eventManager) || this;\n _this.component = component;\n var styles =
flattenStyles(appId + '-' + component.id, component.styles, []);\n sharedStylesHost.addStyles(styles);\n
_this.contentAttr = shimContentAttribute(appId + '-' + component.id);\n _this.hostAttr =
shimHostAttribute(appId + '-' + component.id);\n return _this;\n }\n EmulatedEncapsulationDomRenderer2.prototype.applyToHost = function (element) {\n
_super.prototype.setAttribute.call(this, element, this.hostAttr, "");\n }\n EmulatedEncapsulationDomRenderer2.prototype.createElement
= function (parent, name) {\n var el = _super.prototype.createElement.call(this, parent, name);\n
_super.prototype.setAttribute.call(this, el, this.contentAttr, "");\n return el;\n }\n return
EmulatedEncapsulationDomRenderer2;\n })(DefaultDomRenderer2);\n var ShadowDomRenderer = /** @class
*/ (function (_super) {\n __extends(ShadowDomRenderer, _super);\n function
ShadowDomRenderer(eventManager, sharedStylesHost, hostEl, component) {\n var _this = _super.call(this,
eventManager) || this;\n _this.sharedStylesHost = sharedStylesHost;\n _this.hostEl = hostEl;\n
_this.shadowRoot = hostEl.attachShadow({ mode: 'open' });\n
_this.sharedStylesHost.addHost(_this.shadowRoot);\n var styles = flattenStyles(component.id,
component.styles, []);\n for (var i = 0; i < styles.length; i++) {\n var styleEl =
document.createElement('style');\n
 styleEl.textContent = styles[i];\n _this.shadowRoot.appendChild(styleEl);\n }\n
return _this;\n }\n ShadowDomRenderer.prototype.nodeOrShadowRoot = function (node) {\n return
node === this.hostEl ? this.shadowRoot : node;\n }\n ShadowDomRenderer.prototype.destroy = function
() {\n this.sharedStylesHost.removeHost(this.shadowRoot);\n }\n ShadowDomRenderer.prototype.appendChild = function (parent, newChild) {\n return
_super.prototype.appendChild.call(this, this.nodeOrShadowRoot(parent), newChild);\n }\n ShadowDomRenderer.prototype.insertBefore = function (parent, newChild, refChild) {\n return
_super.prototype.insertBefore.call(this, this.nodeOrShadowRoot(parent), newChild, refChild);\n }\n ShadowDomRenderer.prototype.removeChild = function (parent, oldChild) {\n return
_super.prototype.removeChild.call(this,
this.nodeOrShadowRoot(parent), oldChild);\n }\n ShadowDomRenderer.prototype.parentNode = function
(node) {\n return this.nodeOrShadowRoot(_super.prototype.parentNode.call(this,
this.nodeOrShadowRoot(node)));\n }\n return ShadowDomRenderer;\n })(DefaultDomRenderer2);\n var DomEventsPlugin = /** @class */ (function (_super) {\n __extends(DomEventsPlugin, _super);\n function DomEventsPlugin(doc) {\n return _super.call(this, doc) || this;\n }\n // This plugin should
come last in the list of plugins, because it accepts all\n // events.\n DomEventsPlugin.prototype.supports =
function (eventName) {\n return true;\n }\n DomEventsPlugin.prototype.addEventListener =

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function (element, eventName, handler) {\n var _this = this;\n element.addEventListener(eventName,\n handler, false);\n return function () { return _this.removeEventListener(element,\n eventName, handler); };\n DomEventsPlugin.prototype.removeEventListener = function (target,\n eventName, callback) {\n return target.removeEventListener(eventName, callback);\n };\n return\n DomEventsPlugin;\n }(EventManagerPlugin);\n DomEventsPlugin.decorators = [\n { type: i0.Injectable\n }\n];\n DomEventsPlugin.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type:\ni0.Inject, args: [common.DOCUMENT,] }]\n }];\n };\n /**\n * Supported HammerJS recognizer event\n names.\n */\n var EVENT_NAMES = {\n // pan\n 'pan': true,\n 'panstart': true,\n 'panmove':\n true,\n 'panend': true,\n 'pancancel': true,\n 'panleft': true,\n 'panright': true,\n 'panup': true,\n 'pandown': true,\n // pinch\n 'pinch': true,\n 'pinchstart': true,\n 'pinchmove': true,\n 'pinchend':\n true,\n 'pinchcancel': true,\n 'pinchin': true,\n 'pinchout': true,\n // press\n 'press': true,\n 'pressup':\n true,\n // rotate\n 'rotate': true,\n 'rotatestart': true,\n 'rotatemove': true,\n 'rotateend': true,\n 'rotatecancel': true,\n // swipe\n 'swipe': true,\n 'swipeleft': true,\n 'swiperight': true,\n 'swipeup': true,\n 'swipedown': true,\n // tap\n 'tap': true,\n };\n /**\n * DI token for providing\n [HammerJS](http://hammerjs.github.io/) support to Angular.\n * @see `HammerGestureConfig`\n */\n @NgModule(HammerModule)\n * @publicApi\n /\n var HAMMER_GESTURE_CONFIG = new\n i0.InjectionToken('HammerGestureConfig');\n /**\n * Injection token used to provide a { @link\n HammerLoader} to Angular.\n */\n @publicApi\n /\n var HAMMER_LOADER = new\n i0.InjectionToken('HammerLoader');\n /**\n * An injectable\n [HammerJS Manager](http://hammerjs.github.io/api/#hammer.manager)\n * for gesture recognition. Configures\n specific event recognition.\n */\n @publicApi\n /\n var HammerGestureConfig = /** @class */ (function () {\n function HammerGestureConfig() {\n /**\n * A set of supported event names for gestures to be\n used in Angular.\n */\n * Angular supports all built-in recognizers, as listed in\n * [HammerJS\n documentation](http://hammerjs.github.io/).\n */\n this.events = [];\n /**\n * Maps\n gesture event names to a set of configuration options\n * that specify overrides to the default values for\n specific properties.\n */\n * The key is a supported event name to be configured,\n * and the\n options object contains a set of properties, with override values\n * to be applied to the named recognizer\n event.\n */\n * For example,\n to disable recognition of the rotate event, specify\n * `{\"rotate\": {\"enable\": false}}`.\n */\n * Properties that are not present take the HammerJS default values.\n * For information about which\n properties are supported for which events,\n * and their allowed and default values, see\n *\n [HammerJS documentation](http://hammerjs.github.io/).\n */\n this.overrides = {};\n }\n /**\n * Creates a [HammerJS Manager](http://hammerjs.github.io/api/#hammer.manager)\n * and\n attaches it to a given HTML element.\n * @param element The element that will recognize gestures.\n */\n @returns A HammerJS event-manager object.\n /\n HammerGestureConfig.prototype.buildHammer =\n function (element) {\n var mc = new Hammer(element, this.options);\n mc.get('pinch').set({ enable:\n true });\n mc.get('rotate').set({\n enable: true });\n for (var eventName in this.overrides) {\n mc.get(eventName).set(this.overrides[eventName]);\n }\n return mc;\n };\n return\n HammerGestureConfig;\n }());\n HammerGestureConfig.decorators = [\n { type: i0.Injectable\n }\n];\n /**\n * Event plugin that adds Hammer support to an application.\n */\n @NgModule(HammerModule)\n /\n var HammerGesturePlugin = /** @class */ (function (_super) {\n __extends(HammerGesturePlugin,\n _super);\n function HammerGesturePlugin(doc, _config, console, loader) {\n var _this =\n _super.call(this, doc) || this;\n _this._config = _config;\n _this.console = console;\n _this.loader\n = loader;\n return _this;\n }\n HammerGesturePlugin.prototype.supports = function (eventName)\n {\n if (!EVENT_NAMES.hasOwnProperty(eventName.toLowerCase()) &&\n !this.isCustomEvent(eventName))\n
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 {\n return false;\n }\n if (!window.Hammer && !this.loader) {\n
this.console.warn(\"The \" + eventName + \" event cannot be bound because HammerJS is not \" +\n
 \"loaded and no custom loader has been specified.\");\n return false;\n }\n return true;\n
};\n HammerGesturesPlugin.prototype.addEventListener = function (element, eventName, handler) {\n
var _this = this;\n var zone = this.manager.getZone();\n eventName = eventName.toLowerCase();\n
 // If Hammer is not present but a loader is specified, we defer adding the event listener\n // until Hammer
is loaded.\n if (!window.Hammer && this.loader) {\n // This `addEventListener` method returns a
function to remove the added listener.\n // Until Hammer is loaded, the returned function needs to *cancel*
the registration rather\n // than remove anything.\n var cancelRegistration_1 = false;\n
var deregister_1 = function () {\n cancelRegistration_1 = true;\n };\n this.loader().\n .then(function () {\n // If Hammer isn't actually loaded when the custom loader resolves, give
up.\n if (!window.Hammer) {\n _this.console.warn(\"The custom HAMMER_LOADER
completed, but HammerJS is not present.\");\n deregister_1 = function () { };\n
return;\n }\n if (!cancelRegistration_1) {\n // Now that Hammer is loaded and
the listener is being loaded for real,\n // the deregistration function changes from canceling
registration to removal.\n deregister_1 = _this.addEventListener(element,
eventName, handler);\n }\n }).catch(function () {\n
_this.console.warn(\"The \" + eventName + \" event cannot be bound because the custom \" +\n
\"HammerJS loader failed.\");\n deregister_1 = function () { };\n });\n // Return a
function that *executes* `deregister` (and not `deregister` itself) so that we\n // can change the behavior of
`deregister` once the listener is added. Using a closure in\n // this way allows us to avoid any additional
data structures to track listener removal.\n return function () {\n deregister_1();\n };\n
 }\n return zone.runOutsideAngular(function () {\n // Creating the manager bind events, must
be done outside of angular\n var mc = _this._config.buildHammer(element);\n
 var callback = function (eventObj) {\n zone.runGuarded(function () {\n
handler(eventObj);\n });\n });\n mc.on(eventName, callback);\n return
function () {\n mc.off(eventName, callback);\n // destroy mc to prevent memory leak\n
 if (typeof mc.destroy === 'function') {\n mc.destroy();\n }\n };\n
 });\n HammerGesturesPlugin.prototype.isCustomEvent = function (eventName) {\n return
this._config.events.indexOf(eventName) > -1;\n };\n return HammerGesturesPlugin;\n
 }(EventManagerPlugin));\n HammerGesturesPlugin.decorators = [\n { type: i0.Injectable }\n];\n
 HammerGesturesPlugin.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type:
i0.Inject, args: [common.DOCUMENT,]\n },\n { type: HammerGestureConfig, decorators: [{ type: i0.Inject, args: [HAMMER_GESTURE_CONFIG,]\n },\n { type: i0.Console },\n { type: undefined, decorators: [{ type: i0.Optional }, { type: i0.Inject, args:
[HAMMER_LOADER,] }] }\n];\n };\n /**\n * In Ivy, support for Hammer gestures is optional, so applications
must\n * import the `HammerModule` at root to turn on support. This means that\n * Hammer-specific code
can be tree-shaken away if not needed.\n */\n var HAMMER_PROVIDERS__POST_R3__ = [];\n /**\n *
In View Engine, support for Hammer gestures is built-in by default.\n */\n var
HAMMER_PROVIDERS__PRE_R3__ = [\n {\n provide: EVENT_MANAGER_PLUGINS,\n
 useClass: HammerGesturesPlugin,\n multi: true,\n deps: [common.DOCUMENT,
HAMMER_GESTURE_CONFIG, i0.Console, [new i0.Optional(), HAMMER_LOADER]]\n },\n {\n
 provide: HAMMER_GESTURE_CONFIG, useClass:
HammerGestureConfig, deps: [] },\n];\n var HAMMER_PROVIDERS =
HAMMER_PROVIDERS__PRE_R3__;\n /**\n * Adds support for HammerJS.\n */\n /**\n * Import this
module at the root of your application so that Angular can work with\n * HammerJS to detect gesture events.\n
 */\n /**\n * Note that applications still need to include the HammerJS script itself. This module\n * simply sets up the
coordination layer between HammerJS and Angular's EventManager.\n */\n /**\n */\n @publicApi\n */\n var

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HammerModule = /** @class */ (function () {
 function HammerModule() {}
 return HammerModule;
})();
HammerModule.decorators = [
 { type: i0 NgModule, args: [{ providers: HAMMER_PROVIDERS__PRE_R3__ },] }
];
/**
 * Defines supported modifiers for key events.
 */
var MODIFIER_KEYS = ['alt', 'control', 'meta', 'shift'];
var DOM_KEY_LOCATION_NUMPAD = 3;
// Map to convert some key or keyIdentifier values
to what will be returned by getEventKey
var _keyMap = {
 // The following values are here for cross-browser compatibility and to match the W3C standard
 // cf http://www.w3.org/TR/DOM-Level-3-Events-key
 '\b': 'Backspace',
 '\t': 'Tab',
 '\x7F': 'Delete',
 '\x1B': 'Escape',
 'Del': 'Delete',
 'Esc': 'Escape',
 'Left': 'ArrowLeft',
 'Right': 'ArrowRight',
 'Up': 'ArrowUp',
 'Down': 'ArrowDown',
 'Menu': 'ContextMenu',
 'Scroll': 'ScrollLock',
 'Win': 'OS'
};
// There is a bug in Chrome for numeric keypad keys:
// https://code.google.com/p/chromium/issues/detail?id=155654
// 1, 2, 3 ... are reported as A, B, C ...
var _chromeNumKeyPadMap = {
 'A': '1',
 'B': '2',
 'C': '3',
 'D': '4',
 'E': '5',
 'F': '6',
 'G': '7',
 'H': '8',
 'I': '9',
 'J': '*',
 'K': '+',
 'M': '-',
 'N': '.',
 'O': '/',
 '\x60': '0',
 '\x90': 'NumLock'
};
var 0$3 = function (event) { return event.altKey; }, 1 = function (event) { return event.ctrlKey; }, 2 = function (event) { return event.metaKey; }, 3 = function (event) { return event.shiftKey; };
/**
 * Retrieves modifiers from key-event objects.
 */
var MODIFIER_KEY_GETTERS = {
 'alt': 0$3,
 'control': 1,
 'meta': 2,
 'shift': 3
};
/**
 * @publicApi
 * A browser plug-in that provides support for handling of key events in Angular.
 */
var KeyEventsPlugin = /** @class */ (function (_super) {
 __extends(KeyEventsPlugin, _super);
 /**
 * Initializes an instance of the browser plug-in.
 * @param doc The document in which key events will be detected.
 */
 function KeyEventsPlugin(doc) {
 return _super.call(this, doc) || this;
 }
 /**
 * Reports whether a named key event is supported.
 * @param eventName The event name to query.
 * @return True if the named key event is supported.
 */
 KeyEventsPlugin.prototype.supports = function (eventName) {
 return KeyEventsPlugin.parseEventName(eventName) != null;
 };
 /**
 * Registers a handler for a specific element and key event.
 * @param element The HTML element to receive event notifications.
 * @param eventName The name of the key event to listen for.
 * @param handler A function to call when the notification occurs.
 * @param event object as an argument.
 * @returns The key event that was registered.
 */
 KeyEventsPlugin.prototype.addListener = function (element, eventName, handler) {
 var parsedEvent = KeyEventsPlugin.parseEventName(eventName);
 var outsideHandler = KeyEventsPlugin.eventCallback(parsedEvent['fullKey'], handler, this.manager.getZone());
 return this.manager.getZone().runOutsideAngular(function () {
 return common.getDOM().onAndCancel(element, parsedEvent['domEventName'], outsideHandler);
 });
 };
 KeyEventsPlugin.parseEventName = function (eventName) {
 var parts = eventName.toLowerCase().split('.');
 var domEventName = parts.shift();
 if ((parts.length === 0) || !(domEventName === 'keydown' || domEventName === 'keyup')) {
 return null;
 }
 var key = KeyEventsPlugin._normalizeKey(parts.pop());
 var fullKey = '';
 MODIFIER_KEYS.forEach(function (modifierName) {
 var index = parts.indexOf(modifierName);
 if (index > -1) {
 parts.splice(index, 1);
 fullKey += modifierName + '.';
 }
 });
 fullKey += key;
 if (parts.length != 0 || key.length === 0) {
 // returning null instead of throwing to let another plugin process the event
 return null;
 }
 // NOTE: Please don't rewrite this as so, as it will break JSCompiler property renaming.
 // The code must remain in the `result['domEventName']` form.
 // return { domEventName, fullKey };
 var result = {};
 result['domEventName'] = domEventName;
 result['fullKey'] = fullKey;
 return result;
 };
 KeyEventsPlugin.getEventFullKey = function (event) {
 var fullKey = '';
 var key = getEventKey(event);
 key = key.toLowerCase();
 if (key === ' ') {
 key = 'space';
 }
 // for readability
 else if (key === '.') {
 key = 'dot';
 }
 // because '.' is
 };

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used as a separator in event names\n }\n MODIFIER_KEYS.forEach(function (modifierName) {\n
 if (modifierName !== key) {\n var modifierGetter =\nMODIFIER_KEY_GETTERS[modifierName];\n if (modifierGetter(event)) {\n fullKey\n+= modifierName + '.';\n }\n });\n fullKey += key;\n return fullKey;\n });\n /**\n * Configures a handler callback for a key event.\n * @param fullKey The event name\nthat combines all simultaneous keystrokes.\n * @param handler The function that responds to the key event.\n * @param zone The zone in which the event occurred.\n * @returns A callback function.\n */\n KeyEventsPlugin.eventCallback = function (fullKey, handler, zone) {\n return function (event /** TODO\n#9100 */) {\n if (KeyEventsPlugin.getEventFullKey(event)\n === fullKey) {\n zone.runGuarded(function () { return handler(event); });\n }\n };\n /** @internal */\n KeyEventsPlugin._normalizeKey = function (keyName) {\n // TODO: switch\nto a Map if the mapping grows too much\n switch (keyName) {\n case 'esc':\n return\n'escape';\n default:\n return keyName;\n }\n }; \n return KeyEventsPlugin;\n}(EventManagerPlugin));\n KeyEventsPlugin.decorators = [\n { type: i0.Injectable }\n];\n KeyEventsPlugin.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type: i0.Inject, args:\n[common.DOCUMENT,] }] }\n]; }; \n function getEventKey(event) {\n var key = event.key;\n if (key\n == null) {\n key = event.keyIdentifier;\n // keyIdentifier is defined in the old draft of DOM Level\n3 Events implemented by Chrome and\n // Safari cf\n // http://www.w3.org/TR/2007/WD-DOM-\nLevel-3-Events-20071221/events.html#Events-KeyboardEvents-Interfaces\n if (key == null) {\n return 'Unidentified';\n }\n if (key.startsWith('U+')) {\n key =\nString.fromCharCode(parseInt(key.substring(2), 16));\n }\n if (event.location ===\nDOM_KEY_LOCATION_NUMPAD && _chromeNumKeyPadMap.hasOwnProperty(key)) {\n //\n There is a bug in Chrome for numeric keypad keys:\n //\n https://code.google.com/p/chromium/issues/detail?id=155654\n // 1, 2, 3 ... are reported as A, B, C ... \n key = _chromeNumKeyPadMap[key];\n }\n }\n return _keyMap[key] || key;\n }\n /**\n * DomSanitizer helps preventing Cross Site Scripting Security bugs (XSS) by sanitizing\n * values to be safe to use in the\ndifferent DOM contexts.\n * \n * For example, when binding a URL in an `<a [href]="someValue">\nhyperlink, `someValue` will be\n * sanitized so that an attacker cannot inject e.g. a `javascript:` URL that would\nexecute code on\n * the website.\n * \n * In specific situations, it might be necessary to disable sanitization,\nfor example if the\n * application genuinely needs to produce a `javascript:` style link with a dynamic value in\nit.\n * Users can bypass security by constructing a value with one of the `bypassSecurityTrust...`\n * methods,\nand then binding to that value from the template.\n * \n * These situations should be very rare, and\nextraordinary care must be taken to avoid creating a\n * Cross Site Scripting (XSS) security bug!\n * \n * \nWhen using `bypassSecurityTrust...`, make sure to call the method as early as possible and as\n * close as\npossible to the source of the value, to make it easy to verify no security bug\nis\n * created by its use.\n * \n * It is not required (and not recommended) to bypass security if the value is\nsafe, e.g. a URL that\n * does not start with a suspicious protocol, or an HTML snippet that does not contain\ndangerous\n * code. The sanitizer leaves safe values intact.\n * \n * @security Calling any of the\n`bypassSecurityTrust...` APIs disables Angular's built-in\n * sanitization for the value passed in. Carefully check\nand audit all values and code paths going\n * into this call. Make sure any user data is appropriately escaped for\nthis security context.\n * For more detail, see the [Security Guide](http://g.co/ng/security).\n * \n * \n@publicApi\n * \n var DomSanitizer = /** @class */ (function () {\n function DomSanitizer() {\n }\n return DomSanitizer;\n }());\n DomSanitizer.prototype = i0.defineInjectable({\n factory: function\nDomSanitizer_Factory() {\n return i0.inject(DomSanitizerImpl);\n }, token:\nDomSanitizer,\n providedIn: 'root'\n });\n DomSanitizer.decorators = [\n { type: i0.Injectable, args: [{\nprovidedIn: 'root',\nuseExisting: i0.forwardRef(function () {\n return DomSanitizerImpl;\n })\n}],\n },\n];\n function\ndomSanitizerImplFactory(injector) {\n return new DomSanitizerImpl(injector.get(common.DOCUMENT));\n }\n
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}\n var DomSanitizerImpl = /** @class */ (function (_super) {\n __extends(DomSanitizerImpl, _super);\n function DomSanitizerImpl(_doc) {\n var _this = _super.call(this) || this;\n _this._doc = _doc;\n return _this;\n }\n DomSanitizerImpl.prototype.sanitize = function (ctx, value) {\n if (value ==\n null)\n return null;\n switch (ctx) {\n case i0.SecurityContext.NONE:\n return\n value;\n case i0.SecurityContext.HTML:\n if (i0.allowSanitizationBypassAndThrow(value,\n \"HTML\" /* Html */)) {\n return i0.unwrapSafeValue(value);\n }\n return i0._sanitizeHtml(this._doc,\n String(value));\n case i0.SecurityContext.STYLE:\n if\n (i0.allowSanitizationBypassAndThrow(value, \"Style\" /* Style */)) {\n return\n i0.unwrapSafeValue(value);\n }\n return value;\n case\n i0.SecurityContext.SCRIPT:\n if (i0.allowSanitizationBypassAndThrow(value, \"Script\" /* Script */))\n {\n return i0.unwrapSafeValue(value);\n }\n throw new Error('unsafe value\n used in a script context');\n case i0.SecurityContext.URL:\n var type =\n i0.getSanitizationBypassType(value);\n if (i0.allowSanitizationBypassAndThrow(value, \"URL\" /* Url\n */)) {\n return i0.unwrapSafeValue(value);\n }\n return i0._sanitizeUrl(String(value));\n case\n i0.SecurityContext.RESOURCE_URL:\n if (i0.allowSanitizationBypassAndThrow(value,\n \"ResourceURL\" /* ResourceUrl */)) {\n return i0.unwrapSafeValue(value);\n }\n throw new Error('unsafe value used in a resource URL context (see\n http://g.co/ng/security#xss)');\n default:\n throw new Error(\"Unexpected SecurityContext \" + ctx + \" (see\n http://g.co/ng/security#xss)\");\n }\n }\n DomSanitizerImpl.prototype.bypassSecurityTrustHtml =\n function (value) {\n return i0.bypassSanitizationTrustHtml(value);\n }\n DomSanitizerImpl.prototype.bypassSecurityTrustStyle = function (value) {\n return\n i0.bypassSanitizationTrustStyle(value);\n }\n DomSanitizerImpl.prototype.bypassSecurityTrustScript =\n function (value) {\n return i0.bypassSanitizationTrustScript(value);\n }\n DomSanitizerImpl.prototype.bypassSecurityTrustUrl = function (value) {\n return\n i0.bypassSanitizationTrustUrl(value);\n }\n DomSanitizerImpl.prototype.bypassSecurityTrustResourceUrl\n = function (value) {\n return i0.bypassSanitizationTrustResourceUrl(value);\n }\n return\n DomSanitizerImpl;\n })(DomSanitizer);\n DomSanitizerImpl.prototype = i0.defineInjectable({ factory: function\n DomSanitizerImpl_Factory() { return domSanitizerImplFactory(i0.inject(i0.INJECTOR)); }, token:\n DomSanitizerImpl, providedIn: \"root\" });\n DomSanitizerImpl.decorators = [\n { type: i0.Injectable, args: [{\n providedIn: 'root', useFactory: domSanitizerImplFactory, deps: [i0.Injector] },]\n];\n DomSanitizerImpl.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type: i0.Inject,\n args: [common.DOCUMENT,] }] }\n];\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed\n by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function\n initDomAdapter() {\n BrowserDomAdapter.makeCurrent();\n BrowserGetTestability.init();\n }\n function errorHandler() {\n return new i0.ErrorHandler();\n }\n function _document() {\n // Tell ivy\n about the global document\n i0.setDocument(document);\n return document;\n }\n var O$4 =\n common.PLATFORM_BROWSER_ID;\n var INTERNAL_BROWSER_PLATFORM_PROVIDERS = [\n {\n provide: i0.PLATFORM_ID, useValue: O$4 },\n {\n provide: i0.PLATFORM_INITIALIZER, useValue:\n initDomAdapter, multi: true },\n {\n provide: common.DOCUMENT, useFactory: _document, deps: [] },\n];\n var BROWSER_SANITIZATION_PROVIDERS__PRE_R3__ = [\n {\n provide: i0.Sanitizer, useExisting:\n DomSanitizer\n },\n {\n provide: DomSanitizer, useClass: DomSanitizerImpl, deps: [common.DOCUMENT] },\n];\n var\n BROWSER_SANITIZATION_PROVIDERS__POST_R3__ = [];\n /**\n * @security Replacing built-in\n sanitization providers exposes the application to XSS risks.\n * Attacker-controlled data introduced by an

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unsanitized provider could expose your application to XSS risks. For more detail, see the [Security
Guide](http://g.co/ng/security).
 * @publicApi
 */
var BROWSER_SANITIZATION_PROVIDERS =
BROWSER_SANITIZATION_PROVIDERS__PRE_R3__;
 /**
 * A factory function that returns a
 `PlatformRef` instance associated with browser service
 * providers.
 * @publicApi
 */
var platformBrowser = i0.createPlatformFactory(i0.platformCore, 'browser',
INTERNAL_BROWSER_PLATFORM_PROVIDERS);
var BROWSER_MODULE_PROVIDERS = [
BROWSER_SANITIZATION_PROVIDERS,
 { provide: i0.INJECTOR_SCOPE, useValue: 'root' },
 {
provide:
i0.ErrorHandler, useFactory: errorHandler, deps: [] },
 {
provide:
EVENT_MANAGER_PLUGINS,
 useClass: DomEventsPlugin,
 multi: true,
 deps:
[common.DOCUMENT, i0.NgZone, i0.PLATFORM_ID]
 },
 { provide:
EVENT_MANAGER_PLUGINS, useClass: KeyEventsPlugin, multi: true, deps: [common.DOCUMENT] },
 HAMMER_PROVIDERS,
 {
provide: DomRendererFactory2,
 useClass:
DomRendererFactory2,
 deps: [EventManager, DomSharedStylesHost, i0.APP_ID]
 },
 {
provide: i0.RendererFactory2, useExisting: DomRendererFactory2 },
 { provide: SharedStylesHost,
useExisting: DomSharedStylesHost },
 { provide: DomSharedStylesHost, useClass: DomSharedStylesHost,
deps: [common.DOCUMENT] },
 { provide: i0.Testability, useClass: i0.Testability, deps: [i0.NgZone] },
 { provide: EventManager, useClass: EventManager, deps: [EVENT_MANAGER_PLUGINS, i0.NgZone]
 },
 ELEMENT_PROBE_PROVIDERS,
];
 /**
 * Exports required infrastructure for all Angular
 apps.
 * Included by default in all Angular apps created with the CLI
 * `new` command.
 * Re-exports
 `CommonModule` and `ApplicationModule`, making their
 * exports and providers available to all apps.
 *
 * @publicApi
 */
var BrowserModule = /** @class */ (function () {
function
BrowserModule(parentModule) {
if (parentModule) {
throw new Error(`"BrowserModule has
already been loaded. If you need access to common directives such as NgIf and NgFor from a lazy loaded module,
import CommonModule instead.`);
}
}
 /**
 * Configures a browser-based app to
 transition from a server-rendered app, if
 * one is present on the page.
 * @param params An
 object containing an identifier for the app to transition.
 * The ID must match
 between the client and server versions of the app.
 * @returns The reconfigured `BrowserModule` to import
 into the app's root `AppModule`.
 */
BrowserModule.prototype.withServerTransition = function (params) {
return {
ngModule: BrowserModule,
 providers: [
 { provide: i0.APP_ID,
useValue: params.appId },
 { provide: TRANSITION_ID, useExisting: i0.APP_ID },
 SERVER_TRANSITION_PROVIDERS,
],
 };
return BrowserModule;
}());
BrowserModule.decorators = [
 { type: i0.NgModule, args: [{ providers:
BROWSER_MODULE_PROVIDERS, exports: [common.CommonModule, i0.ApplicationModule] },] }
];
BrowserModule.ctorParameters = function () { return [
 { type: BrowserModule, decorators: [{ type:
i0.Optional }, { type: i0.SkipSelf }, { type: i0.Inject, args: [BrowserModule,] }] },
]; };
 /**
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 by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
 /**
 * Factory to create a `Meta` service instance for the current DOM document.
 */
function createMeta() {
return new Meta(i0.inject(common.DOCUMENT));
}
 /**
 * A service for managing HTML `<meta>`
 tags.
 * Properties of the `MetaDefinition` object match the attributes of the
 * HTML `<meta>` tag.
 These tags define document metadata that is important for
 * things like configuring a Content Security Policy,
 defining browser compatibility
 * and security settings, setting HTTP Headers, defining rich content for social
 sharing,
 * and Search Engine Optimization (SEO).
 * To identify specific `<meta>` tags in a
 document, use an attribute selection
 * string in the format
 `tag_attribute=value string`.
 * For example, an `attrSelector` value of `name=description` matches a
 tag
 * whose `name` attribute has the value `description`.
 * Selectors are used with the `querySelector()`
 Document method,
 * in the format `meta[{attrSelector}]`.
 * @see [HTML meta

```

```

tag](https://developer.mozilla.org/docs/Web/HTML/Element/meta)\n * @see
[Document.querySelector()](https://developer.mozilla.org/docs/Web/API/Document/querySelector)\n *\n *\n * @publicApi\n */\n var Meta = /** @class */ (function () {\n function Meta(_doc) {\n this._doc = _doc;\n this._dom = common.getDOM();\n }\n /**\n * Retrieves or creates a specific `<meta>` tag element in the current HTML document.\n * In searching for an existing tag, Angular attempts to match the `name` or `property` attribute\n * values in the provided tag definition, and verifies that all other attribute values are equal.\n * If an existing element is found, it is returned and is not modified in any way.\n * @param tag The definition of a `<meta>` element to match or create.\n * @param forceCreation True to create a new element without checking whether one already exists.\n * @returns The existing element with the same attributes and values if found, the new element if no match is found, or `null` if the tag parameter is not defined.\n */\n Meta.prototype.addTag = function (tag, forceCreation) {\n if (forceCreation === void 0) { forceCreation = false; }\n if (!tag)\n return null;\n return this._getOrCreateElement(tag, forceCreation);\n };\n /**\n * Retrieves or creates a set of `<meta>` tag elements in the current HTML document.\n * In searching for an existing tag, Angular attempts to match the `name` or `property` attribute\n * values in the provided tag definition, and verifies that all other attribute values are equal.\n * @param tags An array of tag definitions to match or create.\n * @param forceCreation True to create new elements without checking whether they already exist.\n * @returns The matching elements if found, or the new elements.\n */\n Meta.prototype.addTags = function (tags, forceCreation) {\n var _this = this;\n if (forceCreation === void 0) { forceCreation = false; }\n if (!tags)\n return [];\n return tags.reduce(function (result, tag) {\n if (tag) {\n result.push(_this._getOrCreateElement(tag, forceCreation));\n }\n return result;\n }, []);\n };\n /**\n * Retrieves a `<meta>` tag element in the current HTML document.\n * @param attrSelector The tag attribute and value to match against, in the format\n * `\"tag_attribute='value string'\"`.\n * @returns The matching element, if any.\n */\n Meta.prototype.getTag = function (attrSelector) {\n if (!attrSelector)\n return null;\n return this._doc.querySelector("meta[" + attrSelector + "]" || null);\n };\n /**\n * Retrieves a set of `<meta>` tag elements in the current HTML document.\n * @param attrSelector The tag attribute and value to match against, in the format\n * `\"tag_attribute='value string'\"`.\n * @returns The matching elements, if any.\n */\n Meta.prototype.getTags = function (attrSelector) {\n if (!attrSelector)\n return [];\n var list /*NodeList*/ = this._doc.querySelectorAll("meta[" + attrSelector + "]" || null);\n return list ? list.slice.call(list) : [];\n };\n /**\n * Modifies an existing `<meta>` tag element in the current HTML document.\n * @param tag The tag description with which to replace the existing tag content.\n * @param selector A tag attribute and value to match against, to identify\n * an existing tag. A string in the format `\"tag_attribute='value string'\"`.\n * If not supplied, matches a tag with the same `name` or `property` attribute value as the\n * replacement tag.\n * @return The modified element.\n */\n Meta.prototype.updateTag = function (tag, selector) {\n if (!tag)\n return null;\n selector = selector || this._parseSelector(tag);\n var meta = this.getTag(selector);\n if (meta) {\n return this._setMetaElementAttributes(tag, meta);\n }\n return this._getOrCreateElement(tag, true);\n };\n /**\n * Removes an existing `<meta>` tag element from the current HTML document.\n * @param attrSelector A tag attribute and value to match against, to identify\n * an existing tag. A string in the format `\"tag_attribute='value string'\"`.\n */\n Meta.prototype.removeTag = function (attrSelector) {\n this.removeTagElement(this.getTag(attrSelector));\n };\n /**\n * Removes an existing `<meta>` tag element from the current HTML document.\n * @param meta The tag definition to match against to identify an existing tag.\n */\n Meta.prototype.removeTagElement = function (meta) {\n if (meta) {\n this._dom.remove(meta);\n }\n };\n Meta.prototype._getOrCreateElement = function (meta, forceCreation) {\n if (forceCreation === void 0) { forceCreation = false; }\n if (!forceCreation) {\n
```

```

 var selector = this._parseSelector(meta);\n var elem = this.getTag(selector);\n // It's allowed
to have multiple
elements with the same name so it's not enough to\n // just check that element with the same name already
present on the page. We also need to\n // check if element has tag attributes\n if (elem &&
this._containsAttributes(meta, elem))\n return elem;\n }\n var element =
this._dom.createElement('meta');\n this._setMetaElementAttributes(meta, element);\n var head =
this._doc.getElementsByTagName('head')[0];\n head.appendChild(element);\n return element;\n
};\n Meta.prototype._setMetaElementAttributes = function (tag, el) {\n
Object.keys(tag).forEach(function (prop) { return el.setAttribute(prop, tag[prop]); });\n return el;\n });\n
 Meta.prototype._parseSelector = function (tag) {\n var attr = tag.name ? 'name' : 'property';\n return
attr + \"=\" + \"\" + tag[attr] + \"\";\n };\n
 Meta.prototype._containsAttributes = function (tag, elem) {\n return Object.keys(tag).every(function
(key) { return elem.getAttribute(key) === tag[key]; });\n });\n return Meta;\n }());\n Meta.prov =
i0.defineInjectable({ factory: createMeta, token: Meta, providedIn: \"root\" });\n Meta.decorators = [\n { type:
i0.Injectable, args: [{ providedIn: 'root', useFactory: createMeta, deps: [] },] }\n];\n Meta.ctorParameters =
function () { return [\n { type: undefined, decorators: [{ type: i0.Inject, args: [common.DOCUMENT,] }] }\n
];\n];\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n /**\n * Factory to create Title service.\n */\n function createTitle() {\n return new
Title(i0.inject(common.DOCUMENT));\n }\n
 /**\n * A service that can be used to get and set the title of a current HTML document.\n * Since an
Angular application can't be bootstrapped on the entire HTML document (<html> tag)\n * it is not possible to
bind to the `text` property of the `HTMLTitleElement` elements\n * (representing the <title> tag). Instead, this
service can be used to set and get the current\n * title value.\n * @publicApi\n */\n var Title = /**
@class */ (function () {\n function Title(_doc) {\n this._doc = _doc;\n }\n /**\n * Get the
title of the current HTML document.\n */\n Title.prototype.getTitle = function () {\n return
this._doc.title;\n };\n /**\n * Set the title of the current HTML document.\n * @param newTitle\n
*/\n Title.prototype.setTitle = function (newTitle) {\n this._doc.title = newTitle || \"\";\n };\n
 return
Title;\n }());\n Title.prov = i0.defineInjectable({ factory: createTitle, token: Title, providedIn: \"root\" });\n
Title.decorators = [\n { type: i0.Injectable, args: [{ providedIn: 'root', useFactory: createTitle, deps: [] },] }\n
];\n Title.ctorParameters = function () { return [\n { type: undefined, decorators: [{ type: i0.Inject, args:
[common.DOCUMENT,] }] }\n];\n];\n /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n var win = typeof window !== 'undefined' && window || {};\n
 /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
 var ChangeDetectionPerfRecord = /** @class */
(function () {\n function ChangeDetectionPerfRecord(msPerTick, numTicks) {\n this.msPerTick =
msPerTick;\n this.numTicks = numTicks;\n }\n return ChangeDetectionPerfRecord;\n }());\n
 /**\n * Entry point for all Angular profiling-related debug tools. This object\n * corresponds to the `ng.profiler`
in the dev console.\n */\n var AngularProfiler = /** @class */ (function () {\n function AngularProfiler(ref)
{\n this.appRef = ref.injector.get(i0.ApplicationRef);\n }\n // tslint:disable:no-console\n /**\n * Exercises change detection in a loop and then prints the average amount of\n * time in milliseconds how
long a single round of change detection takes for\n * the current state of the UI. It runs a minimum of 5 rounds
for a minimum\n * of 500 milliseconds.\n */\n * Optionally, a user may pass a `config` parameter
containing a map of\n

```

```

 * options. Supported options are:\n
 * \n
 * `record` (boolean) - causes the profiler to record a CPU profile
while\n
 * it exercises the change detector. Example:\n
 * \n
 * ```\n
 * \n
ng.profiler.timeChangeDetection({record: true})\n
 * ```\n
 * \n
AngularProfiler.prototype.timeChangeDetection = function (config) {\n
 var record = config &&
config['record'];\n
 var profileName = 'Change Detection';\n
 // Profiler is not available in Android
browsers without dev tools opened\n
 var isProfilerAvailable = win.console.profile != null;\n
 if (record
&& isProfilerAvailable) {\n
 win.console.profile(profileName);\n
 }\n
 var start =
common.getDOM().performanceNow();\n
 var numTicks = 0;\n
 while (numTicks < 5 ||
(common.getDOM().performanceNow() - start) < 500) {\n
 this.appRef.tick();\n
 numTicks++;\n
 }\n
 var end = common.getDOM().performanceNow();\n
 if (record && isProfilerAvailable) {\n
 win.console.profileEnd(profileName);\n
 }\n
 var msPerTick = (end - start) / numTicks;\n
win.console.log("\ran \" + numTicks + \" change detection cycles\"");\n
 win.console.log(msPerTick.toFixed(2)
+ \" ms per check\"");\n
 return new ChangeDetectionPerfRecord(msPerTick, numTicks);\n
 };\n
 return
AngularProfiler;\n
 }());\n
 /**\n
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 * found in the LICENSE file at
https://angular.io/license\n
 * \n
 var PROFILER_GLOBAL_NAME = 'profiler';\n
 /**\n
 * Enabled Angular
debug tools that are accessible via your browser's\n
 * developer console.\n
 * \n
 * Usage:\n
 * \n
 * 1. Open
developer console (e.g. in
Chrome Ctrl + Shift + j)\n
 * 1. Type `ng.` (usually the console will show auto-complete suggestion)\n
 * 1. Try
the change detection profiler `ng.profiler.timeChangeDetection()`\n
 * then hit Enter.\n
 * \n
 * @publicApi\n
 * \n
 function enableDebugTools(ref) {\n
 exportNgVar(PROFILER_GLOBAL_NAME, new
AngularProfiler(ref));\n
 return ref;\n
 }\n
 /**\n
 * Disables Angular tools.\n
 * \n
 * @publicApi\n
 * \n
 function disableDebugTools() {\n
 exportNgVar(PROFILER_GLOBAL_NAME, null);\n
 }\n
 /**\n
 * @license\n
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an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 * \n
 function
escapeHtml(text) {\n
 var escapedText = {\n
 '&': '&a;',\n
 '\\': '\\&q;',\n
 '\\\"': '\\&s;',\n
 '<':
'&l;',\n
 '>': '&g;',\n
 };\n
 return text.replace(/[/&'"<>]/g, function (s) { return escapedText[s]; });\n
 }\n
 function unescapeHtml(text) {\n
 var unescapedText = {\n
 '&a;': '&',\n
 '&q;': '\\',\n
 '&s;': '\\\"',\n
 '&l;': '<',\n
 '&g;':
'>',\n
 };\n
 return text.replace(/[/&^;]+/g, function (s) { return unescapedText[s]; });\n
 }\n
 /**\n
 *
Create a `StateKey<T>` that can be used to store value of type T with `TransferState`.\n
 * \n
 * Example:\n
 * \n
 * ```\n
 * const COUNTER_KEY = makeStateKey<number>('counter');\n
 * let value = 10;\n
 * \n
 *
transferState.set(COUNTER_KEY, value);\n
 * ```\n
 * \n
 * @publicApi\n
 * \n
 function
makeStateKey(key) {\n
 return key;\n
 }\n
 /**\n
 * A key value store that is transferred from the application
on the server side to the application\n
 * on the client side.\n
 * \n
 * `TransferState` will be available as an
injectable token. To
use it import\n
 * `ServerTransferStateModule` on the server and `BrowserTransferStateModule` on the client.\n
 * \n
 * The values in the store are serialized/deserialized using JSON.stringify/JSON.parse. So only\n
 * boolean,
number, string, null and non-class objects will be serialized and deserialzied in a\n
 * non-lossy manner.\n
 * \n
 * @publicApi\n
 * \n
 var TransferState = /** @class */ (function () {\n
 function TransferState() {\n
this.store = {};\n
 this.onSerializeCallbacks = {};\n
 }\n
 /** @internal\n
 * \n
 TransferState.init =
function (initState) {\n
 var transferState = new TransferState();\n
 transferState.store = initState;\n
 return transferState;\n
 };\n
 /**\n
 * Get the value corresponding to a key. Return `defaultValue` if key
is not found.\n
 * \n
 * TransferState.prototype.get = function (key, defaultValue) {\n
 return
this.store[key]
 !== undefined ? this.store[key] : defaultValue;\n
 };\n
 /**\n
 * Set the value corresponding to a key.\n
 * \n
 * TransferState.prototype.set = function (key, value) {\n
 this.store[key] = value;\n
 };\n
 /**\n
 * Remove a key from the store.\n
 * \n
 * TransferState.prototype.remove = function (key) {\n

```

```

delete this.store[key];\n };\n /**\n * Test whether a key exists in the store.\n */\n TransferState.prototype.hasKey = function (key) {\n return this.store.hasOwnProperty(key);\n };\n /**\n * Register a callback to provide the value for a key when `toJson` is called.\n */\n TransferState.prototype.onSerialize = function (key, callback) {\n this.onSerializeCallbacks[key] =\n callback;\n };\n /**\n * Serialize the current state of the store to JSON.\n */\n TransferState.prototype.toJson\n = function () {\n // Call the onSerialize callbacks and put those values into the store.\n for (var key in\n this.onSerializeCallbacks) {\n if (this.onSerializeCallbacks.hasOwnProperty(key)) {\n try {\n this.store[key] = this.onSerializeCallbacks[key]();\n } catch (e) {\n console.warn('Exception in onSerialize callback: ', e);\n }\n }\n }\n return TransferState.toJson(this.store);\n };\n TransferState.decorators = [\n {\n type: i0.Injectable\n }]\n function initTransferState(doc, appId) {\n // Locate the script tag with the JSON\n data transferred from the server.\n // The id of the script tag is set to the Angular appId + 'state'.\n var script\n = doc.getElementById(appId + '-state');\n var\n initialState = {};\n if (script && script.textContent) {\n try {\n initialState =\n JSON.parse(unescapeHtml(script.textContent));\n } catch (e) {\n console.warn('Exception\n while restoring TransferState for app ' + appId, e);\n }\n }\n return TransferState.init(initialState);\n }\n /**\n * NgModule to install on the client side while using the `TransferState` to transfer state from\n * server to client.\n */\n @publicApi\n var BrowserTransferStateModule = /** @class */ (function ()\n {\n function BrowserTransferStateModule() {\n }\n return BrowserTransferStateModule;\n }());\n BrowserTransferStateModule.decorators = [\n {\n type: i0 NgModule, args: [\n providers: [\n provide: TransferState, useFactory: initTransferState, deps: [common.DOCUMENT, i0.APP_ID]],\n],\n]\n];\n /**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\n * MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Predicates for use with { @link DebugElement }'s query functions.\n */\n @publicApi\n var By = /**\n * @class */ (function () {\n function By() {\n }\n /**\n * Match all nodes.\n */\n @usageNotes\n * ### Example\n * { @example platform-browser/dom/debug/ts/by/by.ts\n region='by_all'}\n By.all = function () {\n return function () { return true; };\n };\n /**\n * Match elements by the given CSS selector.\n */\n @usageNotes\n * ### Example\n * { @example platform-browser/dom/debug/ts/by/by.ts region='by_css'}\n By.css = function\n (selector) {\n return\n function (debugElement) {\n return debugElement.nativeElement != null ?\n elementMatches(debugElement.nativeElement, selector) :\n false;\n };\n };\n /**\n * Match nodes that have the given directive present.\n */\n @usageNotes\n * ### Example\n * { @example platform-browser/dom/debug/ts/by/by.ts region='by_directive'}\n By.directive =\n function (type) {\n return function (debugNode) {\n return debugNode.providerTokens.indexOf(type) !== -1;\n };\n };\n return By;\n }());\n function elementMatches(n, selector) {\n if\n (common.getDOM().isElementNode(n)) {\n return n.matches && n.matches(selector) ||\n n.msMatchesSelector && n.msMatchesSelector(selector) ||\n n.webkitMatchesSelector &&\n n.webkitMatchesSelector(selector);\n }\n return false;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n * governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code\n * is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n @publicApi\n var VERSION = new i0.Version('11.0.2');\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n * license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * @license\n */

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license that can be\n * found in the LICENSE file at https://angular.io/license\n
 *\n // This file only reexports content of the `src` folder. Keep it that way.\n\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n /**\n * Generated
bundle index. Do not edit.\n *\n\n Object.defineProperty(exports, 'getDOM', {\n enumerable: true,\n get: function () {\n return common.getDOM;\n }\n });\n exports.BrowserModule =
BrowserModule;\n exports.BrowserTransferStateModule = BrowserTransferStateModule;\n exports.By = By;\n exports.DomSanitizer = DomSanitizer;\n exports.EVENT_MANAGER_PLUGINS =
EVENT_MANAGER_PLUGINS;\n exports.EventManager = EventManager;\n exports.HAMMER_GESTURE_CONFIG = HAMMER_GESTURE_CONFIG;\n exports.HAMMER_LOADER
= HAMMER_LOADER;\n exports.HammerGestureConfig =
HammerGestureConfig;\n exports.HammerModule = HammerModule;\n exports.Meta = Meta;\n exports.Title
= Title;\n exports.TransferState = TransferState;\n exports.VERSION = VERSION;\n exports.disableDebugTools = disableDebugTools;\n exports.enableDebugTools = enableDebugTools;\n
exports.makeStateKey = makeStateKey;\n exports.platformBrowser = platformBrowser;\n exports.BROWSER_SANITIZATION_PROVIDERS = BROWSER_SANITIZATION_PROVIDERS;\n
exports.BROWSER_SANITIZATION_PROVIDERS__POST_R3__ =
BROWSER_SANITIZATION_PROVIDERS__POST_R3__;\n exports.BrowserDomAdapter =
BrowserDomAdapter;\n exports.BrowserGetTestability = BrowserGetTestability;\n exports.DomEventsPlugin =
DomEventsPlugin;\n exports.DomRendererFactory2 = DomRendererFactory2;\n exports.DomSanitizerImpl =
DomSanitizerImpl;\n exports.DomSharedStylesHost = DomSharedStylesHost;\n exports.ELEMENT_PROBE_PROVIDERS = ELEMENT_PROBE_PROVIDERS;\n
exports.ELEMENT_PROBE_PROVIDERS__POST_R3__
= ELEMENT_PROBE_PROVIDERS__POST_R3__;\n exports.HAMMER_PROVIDERS__POST_R3__ =
HAMMER_PROVIDERS__POST_R3__;\n exports.HammerGesturesPlugin = HammerGesturesPlugin;\n
exports.INTERNAL_BROWSER_PLATFORM_PROVIDERS =
INTERNAL_BROWSER_PLATFORM_PROVIDERS;\n exports.KeyEventsPlugin = KeyEventsPlugin;\n
exports.NAMESPACE_URI = NAMESPACE_URI;\n exports.SharedStylesHost = SharedStylesHost;\n
exports.TRANSITION_ID = TRANSITION_ID;\n
exports.angular_packages_platform_browser_platform_browser_a = errorHandler;\n
exports.angular_packages_platform_browser_platform_browser_b = _document;\n
exports.angular_packages_platform_browser_platform_browser_c = BROWSER_MODULE_PROVIDERS;\n
exports.angular_packages_platform_browser_platform_browser_d = createMeta;\n
exports.angular_packages_platform_browser_platform_browser_e = createTitle;\n
exports.angular_packages_platform_browser_platform_browser_f = initTransferState;\n
exports.angular_packages_platform_browser_platform_browser_g
= EventManagerPlugin;\n exports.angular_packages_platform_browser_platform_browser_h =
HAMMER_PROVIDERS__PRE_R3__;\n exports.angular_packages_platform_browser_platform_browser_i =
HAMMER_PROVIDERS;\n exports.angular_packages_platform_browser_platform_browser_j =
domSanitizerImplFactory;\n exports.angular_packages_platform_browser_platform_browser_k =
appInitializerFactory;\n exports.angular_packages_platform_browser_platform_browser_l =
SERVER_TRANSITION_PROVIDERS;\n exports.angular_packages_platform_browser_platform_browser_m =
_createNgProbe2;\n exports.angular_packages_platform_browser_platform_browser_n =
ELEMENT_PROBE_PROVIDERS__PRE_R3__;\n
exports.angular_packages_platform_browser_platform_browser_o = GenericBrowserDomAdapter;\n
exports.escapeHtml = escapeHtml;\n exports.flattenStyles = flattenStyles;\n exports.initDomAdapter =
initDomAdapter;\n exports.shimContentAttribute = shimContentAttribute;\n

```







```
'@angular/common';\nimport { global as global } from '@angular/core';\n\nimport { GenericBrowserDomAdapter }
from './generic_browser_adapter';\n\nconst nodeContains: (this: Node, other: Node) => boolean = (() => {\n if
(global['Node']) {\n return global['Node'].prototype.contains || function(this: Node, node: any) {\n return
!!(this.compareDocumentPosition(node) & 16);\n }; \n }\n\n return undefined as any;\n})();\n\n/**\n * A
`DomAdapter` powered by full browser DOM APIs.\n * \n * @security Tread carefully! Interacting with the DOM
directly is dangerous and\n * can introduce XSS risks.\n */\n\n/* tslint:disable:requireParameterType no-console
*/\n\nexport class BrowserDomAdapter extends GenericBrowserDomAdapter {\n static makeCurrent() {\n setRootDomAdapter(new BrowserDomAdapter());\n }\n\n getProperty(el: Node, name: string): any {\n return (<any>el)[name];\n }\n\n log(error: string): void {\n if
(window.console) {\n window.console.log && window.console.log(error);\n }\n }\n\n logGroup(error:
string): void {\n if (window.console) {\n window.console.group && window.console.group(error);\n }\n }\n\n logGroupEnd(): void {\n if (window.console) {\n window.console.groupEnd &&
window.console.groupEnd();\n }\n }\n\n onCancel(el: Node, evt: any, listener: any): Function {\n el.addEventListener(evt, listener, false);\n // Needed to follow Dart's subscription semantic, until fix of\n //
https://code.google.com/p/dart/issues/detail?id=17406\n return () => {\n el.removeEventListener(evt, listener,
false);\n }; \n }\n\n dispatchEvent(el: Node, evt: any) {\n el.dispatchEvent(evt);\n }\n\n remove(node: Node):
Node {\n if (node.parentNode) {\n node.parentNode.removeChild(node);\n }\n\n return node;\n }\n\n getValue(el: any): string {\n return el.value;\n }\n\n createElement(tagName: string, doc?:
Document): HTMLElement {\n doc = doc || this.getDefaultDocument();\n return doc.createElement(tagName);\n }\n\n createHtmlDocument(): HTMLDocument {\n return
document.implementation.createHTMLDocument('fakeTitle');\n }\n\n getDefaultDocument(): Document {\n return
document;\n }\n\n isElementNode(node: Node): boolean {\n return node.nodeType ===
Node.ELEMENT_NODE;\n }\n\n isShadowRoot(node: any): boolean {\n return node instanceof
DocumentFragment;\n }\n\n getGlobalEventTarget(doc: Document, target: string): EventTarget | null {\n if (target
=== 'window') {\n return window;\n }\n if (target === 'document') {\n return doc;\n }\n if (target ===
'body') {\n return doc.body;\n }\n return null;\n }\n\n getHistory(): History {\n return window.history;\n }\n\n getLocation(): Location {\n return window.location;\n }\n\n getBaseHref(doc: Document): string | null {\n const href = getBaseElementHref();\n return href == null ?
null : relativePath(href);\n }\n\n resetBaseElement(): void {\n baseElement = null;\n }\n\n getUserAgent(): string
{\n return window.navigator.userAgent;\n }\n\n performanceNow(): number {\n // performance.now() is not
available in all browsers, see\n // http://caniuse.com/#search=performance.now\n return window.performance
&& window.performance.now ? window.performance.now() : \n\n new
Date().getTime();\n }\n\n supportsCookies(): boolean {\n return true;\n }\n\n getCookie(name: string):
string | null {\n return parseCookieValue(document.cookie, name);\n }\n\n let baseElement: HTMLElement | null
= null;\n\n function getBaseElementHref(): string | null {\n if (!baseElement) {\n baseElement =
document.querySelector('base');\n }\n if (!baseElement) {\n return null;\n }\n return
baseElement.getAttribute('href');\n }\n\n //
based on urlUtils.js in AngularJS\n let urlParsingNode: any;\n\n function relativePath(url: any): string {\n if
(!urlParsingNode) {\n urlParsingNode = document.createElement('a');\n }\n urlParsingNode.setAttribute('href',
url);\n return (urlParsingNode.pathname.charAt(0) === '/') ? urlParsingNode.pathname : \n\n '/' + urlParsingNode.pathname;\n }\n\n //\n /**\n * \n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n import { DOCUMENT, getDOM as getDOM } from '@angular/common';\n import
{ APP_INITIALIZER, ApplicationInitStatus, Inject, InjectionToken, Injector, StaticProvider } from
'@angular/core';\n\n /**\n * \n * An id that identifies a particular application being bootstrapped, that should\n * match
across the client/server boundary.\n */\n export const TRANSITION_ID
= new InjectionToken('TRANSITION_ID');\n\n export function appInitializerFactory(transitionId: string, document:
any, injector: Injector) {\n return () => {\n // Wait for all application initializers to be completed before removing
```

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the styles set by\n // the server.\n injector.get(ApplicationInitStatus).donePromise.then(() => {\n const dom =
getDOM();\n const styles: any[] =\n Array.prototype.slice.apply(document.querySelectorAll(`style[ng-
transition]`));\n styles.filter(el => el.getAttribute('ng-transition') === transitionId)\n .forEach(el =>
dom.remove(el));\n });\n });\n\n\nexport const SERVER_TRANSITION_PROVIDERS: StaticProvider[] = [\n
{\n provide: APP_INITIALIZER,\n useFactory: appInitializerFactory,\n deps: [TRANSITION_ID,
DOCUMENT, Injector],\n multi: true\n },\n];\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n *
found in the LICENSE file at https://angular.io/license\n */\n\nimport {getDOM as getDOM} from
'@angular/common';\nimport {GetTestability, setTestabilityGetter, Testability, TestabilityRegistry, global as
global} from '@angular/core';\n\nexport class BrowserGetTestability implements GetTestability {\n static init() {\n
setTestabilityGetter(new BrowserGetTestability());\n }\n\n addToWindow(registry: TestabilityRegistry): void {\n
global['getAngularTestability'] = (elem: any, findInAncestors: boolean = true) => {\n const testability =
registry.findTestabilityInTree(elem, findInAncestors);\n if (testability == null) {\n throw new Error('Could
not find testability for element.');

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given native element does not have an Angular view associated\n * with it.\n */\nexport function
inspectNativeElementR2(element: any): DebugNode|null {\n return getDebugNodeR2(element);\n}\n\nexport
function _createNgProbeR2(coreTokens: NgProbeToken[]): any {\n exportNgVar(INSPECT_GLOBAL_NAME,
inspectNativeElementR2);\n exportNgVar(CORE_TOKENS_GLOBAL_NAME, {...CORE_TOKENS,
..._ngProbeTokensToMap(coreTokens || [])});\n return () => inspectNativeElementR2;\n}\n\nfunction
_ngProbeTokensToMap(tokens: NgProbeToken[]): {[name: string]: any} {\n return tokens.reduce((prev:
any, t: any) => (prev[t.name] = t.token, prev), {});\n}\n\n/**\n * In Ivy, we don't support NgProbe because we have
our own set of testing utilities\n * with more robust functionality.\n *\n * We shouldn't bring in NgProbe because it
prevents DebugNode and friends from\n * tree-shaking properly.\n */\nexport const
ELEMENT_PROBE_PROVIDERS__POST_R3__ = [];\n\n/**\n * Providers which support debugging Angular
applications (e.g. via `ng.probe`).\n */\nexport const ELEMENT_PROBE_PROVIDERS__PRE_R3__: Provider[] =
[\n {\n provide: APP_INITIALIZER,\n useFactory: _createNgProbeR2,\n deps: [\n [NgProbeToken, new
Optional()],\n],\n multi: true,\n },\n];\n\nexport const ELEMENT_PROBE_PROVIDERS =
ELEMENT_PROBE_PROVIDERS__PRE_R3__;\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {getDOM as getDOM} from
'@angular/common';\nimport {Inject, Injectable, InjectionToken, NgZone} from '@angular/core';\n\n/**\n * The
injection token for the event-manager plug-in service.\n *\n * @publicApi\n */\nexport const
EVENT_MANAGER_PLUGINS =\n new
InjectionToken<EventManagerPlugin[]>('EventManagerPlugins');\n\n/**\n * An injectable service that provides
event management for Angular\n * through a browser plug-in.\n *\n * @publicApi\n */\n@Injectable()\nexport class
EventManager {\n private _plugins: EventManagerPlugin[];\n private _eventNameToPlugin = new Map<string,
EventManagerPlugin>();\n\n /**\n * Initializes an instance of the event-manager service.\n */\n constructor(@Inject(EVENT_MANAGER_PLUGINS) plugins: EventManagerPlugin[], private _zone: NgZone) {\n plugins.forEach(p => p.manager = this);\n this._plugins = plugins.slice().reverse();\n }\n\n /**\n * Registers a
handler for a specific element and event.\n *\n * @param element The HTML element to receive event
notifications.\n\n * @param eventName The name of the event to listen for.\n * @param handler A function to call when the
notification occurs. Receives the\n * event object as an argument.\n * @returns A callback function that can be
used to remove the handler.\n */\n addEventListener(element: HTMLElement, eventName: string, handler:
Function): Function {\n const plugin = this._findPluginFor(eventName);\n return
plugin.addEventListener(element, eventName, handler);\n }\n\n /**\n * Registers a global handler for an event in
a target view.\n *\n * @param target A target for global event notifications. One of `\"window\"`, `\"document\"`, or
`\"body\"`.\n * @param eventName The name of the event to listen for.\n * @param handler A function to call
when the notification occurs. Receives the\n * event object as an argument.\n * @returns A callback function that
can be used to remove the handler.\n */\n addGlobalEventListener(target: string, eventName: string, handler:
Function): Function {\n const plugin = this._findPluginFor(eventName);\n return
plugin.addGlobalEventListener(target, eventName, handler);\n }\n\n /**\n * Retrieves the compilation zone in
which event listeners are registered.\n */\n getZone(): NgZone {\n return this._zone;\n }\n\n /** @internal */\n _findPluginFor(eventName: string): EventManagerPlugin {\n const plugin =
this._eventNameToPlugin.get(eventName);\n if (plugin) {\n return plugin;\n }\n\n const plugins =
this._plugins;\n for (let i = 0; i < plugins.length; i++) {\n const plugin = plugins[i];\n if
(plugin.supports(eventName)) {\n this._eventNameToPlugin.set(eventName, plugin);\n return plugin;\n }\n }\n\n throw new Error(`No event manager plugin found for event ${eventName}`);\n }\n\n export abstract
class EventManagerPlugin {\n constructor(private _doc: any) {}\n\n // TODO(issue/24571): remove '!'.\n manager!: EventManager;\n\n abstract supports(eventName:
string): boolean;\n\n abstract addEventListener(element: HTMLElement, eventName: string, handler: Function):
Function;\n\n addGlobalEventListener(element: string, eventName: string, handler: Function): Function {\n const

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target: HTMLElement = getDOM().getGlobalEventTarget(this._doc, element);\n if (!target) {\n throw new
Error('Unsupported event target ${target} for event ${eventName}');\n }\n return this.addEventListener(target,
eventName, handler);\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {DOCUMENT, getDOM as getDOM} from '@angular/common';\nimport
{Inject, Injectable, OnDestroy} from '@angular/core';\n\n@Injectable()\nexport class SharedStylesHost {\n /**
@internal *\n protected _stylesSet = new Set<string>();\n\n addStyles(styles: string[]): void {\n const additions
= new Set<string>();\n styles.forEach(style => {\n if (!this._stylesSet.has(style)) {\n
this._stylesSet.add(style);\n additions.add(style);\n });\n this.onStylesAdded(additions);\n }\n\n onStylesAdded(additions: Set<string>): void {\n\n getAllStyles(): string[] {\n return
Array.from(this._stylesSet);\n }\n }\n\n @Injectable()\n export class DomSharedStylesHost extends
SharedStylesHost implements OnDestroy {\n private _hostNodes = new Set<Node>();\n private _styleNodes =
new Set<Node>();\n constructor(@Inject(DOCUMENT) private _doc: any) {\n super();\n
this._hostNodes.add(_doc.head);\n }\n\n private _addStylesToHost(styles: Set<string>, host: Node): void {\n
styles.forEach((style: string) => {\n const styleEl = this._doc.createElement('style');\n styleEl.textContent =
style;\n this._styleNodes.add(host.appendChild(styleEl));\n });\n }\n\n addHost(hostNode: Node): void {\n
this._addStylesToHost(this._stylesSet,
hostNode);\n this._hostNodes.add(hostNode);\n }\n\n removeHost(hostNode: Node): void {\n
this._hostNodes.delete(hostNode);\n }\n\n onStylesAdded(additions: Set<string>): void {\n
this._hostNodes.forEach(hostNode => this._addStylesToHost(additions, hostNode));\n }\n\n ngOnDestroy(): void {\n
this._styleNodes.forEach(styleNode => getDOM().remove(styleNode));\n }\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {APP_ID, Inject, Injectable,
Renderer2, RendererFactory2, RendererStyleFlags2, RendererType2, ViewEncapsulation} from
'@angular/core';\n\nimport {EventManager} from './events/event_manager';\nimport {DomSharedStylesHost} from
'./shared_styles_host';\n\nexport const NAMESPACE_URI: {[ns: string]: string} = {\n 'svg':
'http://www.w3.org/2000/svg',\n 'xhtml': 'http://www.w3.org/1999/xhtml',\n
 'xlink': 'http://www.w3.org/1999/xlink',\n 'xml': 'http://www.w3.org/XML/1998/namespace',\n 'xmlns':
'http://www.w3.org/2000/xmlns/',\n};\n\nconst COMPONENT_REGEX = /%COMP%/g;\nconst NG_DEV_MODE
= typeof ngDevMode === 'undefined' || !ngDevMode;\n\nexport const COMPONENT_VARIABLE =
'%COMP%';\nexport const HOST_ATTR = `_ngghost-${COMPONENT_VARIABLE}`;\nexport const
CONTENT_ATTR = `_ngcontent-${COMPONENT_VARIABLE}`;\n\nexport function
shimContentAttribute(componentShortId: string): string {\n return
CONTENT_ATTR.replace(COMPONENT_REGEX, componentShortId);\n}\n\nexport function
shimHostAttribute(componentShortId: string): string {\n return HOST_ATTR.replace(COMPONENT_REGEX,
componentShortId);\n}\n\nexport function flattenStyles(\n compId: string, styles: Array<any>[], target:
string[]): string[] {\n for (let i = 0; i < styles.length; i++) {\n let style = styles[i];\n\n if (Array.isArray(style)) {\n
flattenStyles(compId, style, target);\n } else {\n
style = style.replace(COMPONENT_REGEX, compId);\n target.push(style);\n }\n}\n return
target;\n}\n\nfunction decoratePreventDefault(eventHandler: Function): Function {\n //
`DebugNode.triggerEventHandler` needs to know if the listener was created with\n // `decoratePreventDefault` or is a
listener added outside the Angular context so it can handle the\n // two differently. In the first case, the special
`__ngUnwrap__` token is passed to the unwrap\n // the listener (see below).\n return (event: any) => {\n // Ivy
uses `__ngUnwrap__` as a special token that allows us to unwrap the function\n // so that it can be invoked
programmatically by `DebugNode.triggerEventHandler`. The debug_node\n // can inspect the listener toString
contents for the existence of this special token. Because\n // the token is a string literal, it is ensured to not be
modified by compiled code.\n if (event === `__ngUnwrap__`) {\n return eventHandler;\n }\n\n const
allowDefaultBehavior

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= eventHandler(event);\n if (allowDefaultBehavior === false) {\n // TODO(tbosch): move preventDefault into
event plugins...\n event.preventDefault();\n event.returnValue = false;\n }\n\n return undefined;\n
};\n}\n\nlet hasLoggedNativeEncapsulationWarning = false;\n\n@Inject()\nexport class DomRendererFactory2
implements RendererFactory2 {\n private rendererByCompId = new Map<string, Renderer2>();\n private
defaultRenderer: Renderer2;\n\n constructor(\n private eventManager: EventManager, private sharedStylesHost:
DomSharedStylesHost,\n @Inject(APP_ID) private appId: string) {\n this.defaultRenderer = new
DefaultDomRenderer2(eventManager);\n }\n\n createRenderer(element: any, type: RendererType2|null):
Renderer2 {\n if (!element || !type) {\n return this.defaultRenderer;\n }\n switch (type.encapsulation) {\n
case ViewEncapsulation.Emulated: {\n let renderer = this.rendererByCompId.get(type.id);\n
 if (!renderer) {\n renderer = new EmulatedEncapsulationDomRenderer2(\n this.eventManager,
this.sharedStylesHost, type, this.appId);\n this.rendererByCompId.set(type.id, renderer);\n }\n
(<EmulatedEncapsulationDomRenderer2>renderer).applyToHost(element);\n return renderer;\n }\n case
1:\n case ViewEncapsulation.ShadowDom: {\n // TODO(FW-2290): remove the `case 1:` fallback logic and
the warning in v12.\n if ((typeof ngDevMode === 'undefined' || ngDevMode) &&\n
!hasLoggedNativeEncapsulationWarning && type.encapsulation === 1) {\n
hasLoggedNativeEncapsulationWarning = true;\n console.warn(\n 'ViewEncapsulation.Native is no
longer supported. Falling back to ViewEncapsulation.ShadowDom. The fallback will be removed in v12.);\n
 }\n\n return new ShadowDomRenderer(this.eventManager, this.sharedStylesHost, element, type);\n } default:
{\n if (!this.rendererByCompId.has(type.id))\n
{\n const styles = flattenStyles(type.id, type.styles, []);\n this.sharedStylesHost.addStyles(styles);\n
this.rendererByCompId.set(type.id, this.defaultRenderer);\n }\n return this.defaultRenderer;\n }\n }\n
}\n\n begin() {\n end() {\n}\n}\n\nnclass DefaultDomRenderer2 implements Renderer2 {\n data: {[key: string]: any}
= Object.create(null);\n\n constructor(private eventManager: EventManager) {\n}\n\n destroy(): void {\n}\n\n
destroyNode: null;\n\n createElement(name: string, namespace?: string): any {\n if (namespace) {\n // In cases
where Ivy (not ViewEngine) is giving us the actual namespace, the look up by key\n // will result in undefined,
so we just return the namespace here.\n return document.createElementNS(NAMESPACE_URIS[namespace] ||
namespace, name);\n }\n\n return document.createElement(name);\n }\n\n createComment(value: string): any
{\n return document.createComment(value);\n }\n\n createText(value: string): any {\n return document.createTextNode(value);\n }\n\n appendChild(parent:
any, newChild: any): void {\n parent.appendChild(newChild);\n }\n\n insertBefore(parent: any, newChild: any,
refChild: any): void {\n if (parent) {\n parent.insertBefore(newChild, refChild);\n }\n }\n\n removeChild(parent: any, oldChild: any): void {\n if (parent) {\n parent.removeChild(oldChild);\n }\n }\n\n
selectRootElement(selectorOrNode: string|any, preserveContent?: boolean): any {\n let el: any = typeof
selectorOrNode === 'string' ? document.querySelector(selectorOrNode) : \n
selectorOrNode;\n if (!el) {\n throw new Error(`The selector "${selectorOrNode}" did not match any
elements`);\n }\n if (!preserveContent) {\n el.textContent = '';\n }\n return el;\n }\n\n parentNode(node:
any): any {\n return node.parentNode;\n }\n\n nextSibling(node:
any): any {\n return node.nextSibling;\n }\n\n setAttribute(el: any, name: string, value: string, namespace?:
string): void {\n if (namespace) {\n name = namespace + ':' + name;\n // TODO(FW-811): Ivy may cause
issues here because it's passing around\n // full URIs for namespaces, therefore this lookup will fail.\n const
namespaceUri = NAMESPACE_URIS[namespace];\n if (namespaceUri) {\n
el.setAttributeNS(namespaceUri, name, value);\n }\n } else {\n el.setAttribute(name, value);\n }\n }\n
}\n\n removeAttribute(el: any, name: string, namespace?: string): void
{\n if (namespace) {\n // TODO(FW-811): Ivy may cause issues here because it's passing around\n // full
URIs for namespaces, therefore this lookup will fail.\n const namespaceUri =
NAMESPACE_URIS[namespace];\n if (namespaceUri) {\n el.removeAttributeNS(namespaceUri, name);\n
 }\n } else\n }

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{\n // TODO(FW-811): Since ivy is passing around full URIs for namespaces\n // this could result in
properties like `http://www.w3.org/2000/svg:cx=\"123\"`,\n // which is wrong.\n
el.removeAttribute(`${namespace}:${name}`);\n }\n } else {\n el.removeAttribute(name);\n }\n }\n\n
addClass(el: any, name: string): void {\n el.classList.add(name);\n }\n\n
removeClass(el: any, name: string): void {\n el.classList.remove(name);\n }\n\n
setStyle(el: any, style: string, value: any, flags: RendererStyleFlags2):
void {\n if (flags & (RendererStyleFlags2.DashCase | RendererStyleFlags2.Important)) {\n
el.style.setProperty(style, value, flags & RendererStyleFlags2.Important ? 'important' : '');\n } else {\n
el.style[style] = value;\n }\n }\n\n
removeStyle(el: any, style: string, flags: RendererStyleFlags2): void {\n if
(flags & RendererStyleFlags2.DashCase) {\n el.style.removeProperty(style);\n } else {\n
// IE requires \" instead of null\n // see https://github.com/angular/angular/issues/7916\n el.style[style] = \";\n
}\n }\n\n
setProperty(el: any, name: string, value: any): void {\n NG_DEV_MODE &&
checkNoSyntheticProp(name, 'property');\n el[name] = value;\n }\n\n
setValue(node: any, value: string): void {\n
node.nodeValue = value;\n }\n\n
listen(target: 'window'|'document'|'body'|any, event: string, callback: (event: any)
=> boolean):\n () => void {\n NG_DEV_MODE && checkNoSyntheticProp(event, 'listener');\n if (typeof
target === 'string') {\n return <() => void>this.eventManager.addGlobalEventListener(\n target, event,
decoratePreventDefault(callback));\n }\n return <() => void>this.eventManager.addEventListener(\n
target, event, decoratePreventDefault(callback)) as () => void;\n }\n }\n\n
const AT_CHARCODE = ((=>
'@'.charCodeAt(0)));\n
function checkNoSyntheticProp(name: string, nameKind: string) {\n if
(name.charCodeAt(0)
=== AT_CHARCODE) {\n throw new Error(`Found the synthetic ${nameKind} ${\n name}. Please include
either \"BrowserAnimationsModule\" or \"NoopAnimationsModule\" in your application.`);\n }\n }\n\n
class
EmulatedEncapsulationDomRenderer2 extends DefaultDomRenderer2 {\n private contentAttr: string;\n private
hostAttr: string;\n\n constructor(\n eventManager: EventManager, sharedStylesHost: DomSharedStylesHost,\n
private component: RendererType2, appId: string) {\n super(eventManager);\n const styles = flattenStyles(appId
+ '-' + component.id, component.styles, []);\n sharedStylesHost.addStyles(styles);\n\n this.contentAttr =
shimContentAttribute(appId + '-' + component.id);\n this.hostAttr = shimHostAttribute(appId + '-' +
component.id);\n }\n\n applyToHost(element: any) {\n super.setAttribute(element, this.hostAttr, \");\n }\n\n
createElement(parent: any, name: string): Element {\n const el = super.createElement(parent, name);\n
super.setAttribute(el, this.contentAttr, \");\n return el;\n }\n }\n\n
class ShadowDomRenderer extends
DefaultDomRenderer2 {\n private shadowRoot: any;\n\n constructor(\n eventManager: EventManager, private
sharedStylesHost: DomSharedStylesHost,\n private hostEl: any, component: RendererType2) {\n
super(eventManager);\n this.shadowRoot = (hostEl as any).attachShadow({mode: 'open'});\n
this.sharedStylesHost.addHost(this.shadowRoot);\n const styles = flattenStyles(component.id, component.styles,
[]);\n for (let i = 0; i < styles.length; i++) {\n const styleEl = document.createElement('style');\n
styleEl.textContent = styles[i];\n this.shadowRoot.appendChild(styleEl);\n }\n }\n\n private
nodeOrShadowRoot(node: any): any {\n return node === this.hostEl ? this.shadowRoot : node;\n }\n\n destroy()
{\n this.sharedStylesHost.removeHost(this.shadowRoot);\n }\n\n appendChild(parent: any, newChild: any): void
{\n return super.appendChild(this.nodeOrShadowRoot(parent),
newChild);\n }\n\n insertBefore(parent: any, newChild: any, refChild: any): void {\n return
super.insertBefore(this.nodeOrShadowRoot(parent), newChild, refChild);\n }\n\n removeChild(parent: any,
oldChild: any): void {\n return super.removeChild(this.nodeOrShadowRoot(parent), oldChild);\n }\n\n
parentNode(node: any): any {\n return
this.nodeOrShadowRoot(super.parentNode(this.nodeOrShadowRoot(node)));\n }\n }\n\n
\"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *
Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n
import {DOCUMENT} from
'@angular/common';\n
import {Inject, Injectable} from '@angular/core';\n
import {EventManagerPlugin} from
'./event_manager';\n\n
@Injectable()\n
export class DomEventsPlugin extends EventManagerPlugin {\n
constructor(@Inject(DOCUMENT) doc: any) {\n super(doc);\n }\n\n // This plugin should come

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last in the list of plugins, because it accepts all\n // events.\n supports(eventName: string): boolean {\n return
true;\n }\n\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function {\n
element.addEventListener(eventName, handler as EventListener, false);\n return () =>
this.removeEventListener(element, eventName, handler as EventListener);\n }\n\n removeEventListener(target:
any, eventName: string, callback: Function): void {\n return target.removeEventListener(eventName, callback as
EventListener);\n }\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {DOCUMENT} from '@angular/common';\nimport {Inject, Injectable,
InjectionToken, NgModule, Optional, Provider, Console as Console} from '@angular/core';\n\nimport
{EVENT_MANAGER_PLUGINS, EventManagerPlugin} from
'./event_manager';\n\n/**\n * Supported HammerJS recognizer event names.\n */\nconst EVENT_NAMES =
{\n // pan\n 'pan': true,\n 'panstart': true,\n 'panmove': true,\n 'panend': true,\n 'pancancel': true,\n 'panleft': true,\n
 'panright': true,\n 'panup': true,\n 'pandown': true,\n // pinch\n 'pinch': true,\n 'pinchstart': true,\n 'pinchmove':
true,\n 'pinchend': true,\n 'pinchcancel': true,\n 'pinchin': true,\n 'pinchout': true,\n // press\n 'press': true,\n
 'pressup': true,\n // rotate\n 'rotate': true,\n 'rotatestart': true,\n 'rotatemove': true,\n 'rotateend': true,\n
 'rotatecancel': true,\n // swipe\n 'swipe': true,\n 'swipeleft': true,\n 'swiperight': true,\n 'swipeup': true,\n
 'swipedown': true,\n // tap\n 'tap': true,\n};\n\n/**\n * DI token for providing
[HammerJS](http://hammerjs.github.io/) support to Angular.\n * @see `HammerGestureConfig`\n *\n *
@ngModule HammerModule\n * @publicApi\n */\nexport const HAMMER_GESTURE_CONFIG = new
InjectionToken<HammerGestureConfig>('HammerGestureConfig');\n\n/**\n
* Function that loads HammerJS, returning a promise that is resolved once HammerJs is loaded.\n *\n *
@publicApi\n */\nexport type HammerLoader = () => Promise<void>;\n\n/**\n * Injection token used to provide a
{@link HammerLoader} to Angular.\n *\n * @publicApi\n */\nexport const HAMMER_LOADER = new
InjectionToken<HammerLoader>('HammerLoader');\n\nexport interface HammerInstance {\n on(eventName:
string, callback?: Function): void;\n off(eventName: string, callback?: Function): void;\n destroy?():
void;\n}\n\n/**\n * An injectable [HammerJS Manager](http://hammerjs.github.io/api/#hammer.manager)\n * for
gesture recognition. Configures specific event recognition.\n * @publicApi\n */\n@Injectable()\nexport class
HammerGestureConfig {\n /**\n * A set of supported event names for gestures to be used in Angular.\n *
Angular supports all built-in recognizers, as listed in\n * [HammerJS documentation](http://hammerjs.github.io/).\n
 *\n */\n events: string[] = [];\n\n /**\n * Maps gesture event names to a set of configuration options\n * that
specify overrides to the default values for specific properties.\n *\n * The key is a supported event name to be
configured,\n * and the options object contains a set of properties, with override values\n * to be applied to the
named recognizer event.\n * For example, to disable recognition of the rotate event, specify\n * `{"rotate":
{"enable": false}}`\n *\n * Properties that are not present take the HammerJS default values.\n * For
information about which properties are supported for which events,\n * and their allowed and default values, see\n
 * [HammerJS documentation](http://hammerjs.github.io/).\n *\n */\n overrides: {[key: string]: Object} = {};\n\n
 /**\n * Properties whose default values can be overridden for a given event.\n * Different sets of properties apply
to different events.\n * For information about
which properties are supported for which events,\n * and their allowed and default values, see\n * [HammerJS
documentation](http://hammerjs.github.io/).\n */\n options?: {\n cssProps?: any;\n domEvents?: boolean;\n
 enable?: boolean | ((manager: any) => boolean);\n preset?: any[];\n touchAction?: string;\n recognizers?:
any[];\n inputClass?: any;\n inputTarget?: EventTarget;\n };\n}\n\n/**\n * Creates a [HammerJS
Manager](http://hammerjs.github.io/api/#hammer.manager)\n * and attaches it to a given HTML element.\n *
@param element The element that will recognize gestures.\n * @returns A HammerJS event-manager object.\n
*/\nbuildHammer(element: HTMLElement): HammerInstance {\n const mc = new Hammer!(element,
this.options);\n\n mc.get('pinch').set({enable: true});\n mc.get('rotate').set({enable: true});\n\n for (const
eventName in this.overrides) {\n mc.get(eventName).set(this.overrides[eventName]);\n }\n\n return mc;\n
}\n}\n\n/**\n

```

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* Event plugin that adds Hammer support to an application.\n *\n * @ngModule HammerModule\n
*/\n\n@Injectable()\nexport class HammerGesturesPlugin extends EventManagerPlugin {\n constructor(\n @Inject(DOCUMENT) doc: any,\n @Inject(HAMMER_GESTURE_CONFIG) private _config:\n HammerGestureConfig, private console: Console,\n @Optional() @Inject(HAMMER_LOADER) private\n loader?: HammerLoader|null) {\n super(doc);\n }\n\n supports(eventName: string): boolean {\n if\n (!EVENT_NAMES.hasOwnProperty(eventName.toLowerCase()) && !this.isCustomEvent(eventName)) {\n return false;\n }\n if (!(window as any).Hammer && !this.loader) {\n this.console.warn(\n `The\n \"${eventName}\" event cannot be bound because Hammer.JS is not\n loaded and no custom loader has\n been specified.`);\n return false;\n }\n return true;\n }\n\n addEventListener(element: HTMLElement,\n eventName: string, handler: Function): Function {\n const zone\n = this.manager.getZone();\n eventName = eventName.toLowerCase();\n // If Hammer is not present but a\n loader is specified, we defer adding the event listener\n // until Hammer is loaded.\n if (!(window as\n any).Hammer && this.loader) {\n // This `addEventListener` method returns a function to remove the added\n listener.\n // Until Hammer is loaded, the returned function needs to `cancel` the registration rather\n // than\n remove anything.\n let cancelRegistration = false;\n let deregister: Function = () => {\n cancelRegistration = true;\n };\n this.loader().\n .then(() => {\n // If Hammer isn't actually\n loaded when the custom loader resolves, give up.\n if (!(window as any).Hammer) {\n this.console.warn(\n `The custom HAMMER_LOADER completed, but Hammer.JS is not present.`);\n deregister = () => {};\n return;\n }\n if (!cancelRegistration)\n {\n // Now that Hammer is loaded and the listener is being loaded for real,\n // the deregistration\n function changes from canceling registration to removal.\n deregister = this.addEventListener(element,\n eventName, handler);\n }\n }).catch(() => {\n this.console.warn(\n `The\n \"${eventName}\" event cannot be bound because the custom\n Hammer.JS loader failed.`);\n deregister = () => {};\n });\n // Return a function that `executes` `deregister` (and not `deregister` itself)\n so that we\n // can change the behavior of `deregister` once the listener is added. Using a closure in\n // this\n way allows us to avoid any additional data structures to track listener removal.\n return () => {\n deregister();\n };\n }\n\n return zone.runOutsideAngular(() => {\n // Creating the manager bind events,\n must be\n done outside of angular\n const mc = this._config.buildHammer(element);\n const callback =\n function(eventObj: HammerInput) {\n zone.runGuarded(function() {\n handler(eventObj);\n });\n };\n mc.on(eventName, callback);\n return () => {\n mc.off(eventName, callback);\n // destroy mc to\n prevent memory leak\n if (typeof mc.destroy === 'function') {\n mc.destroy();\n }\n };\n }\n\n isCustomEvent(eventName: string): boolean {\n return this._config.events.indexOf(eventName) > -1;\n }\n}\n\n/**\n * In Ivy, support for Hammer gestures is optional, so applications must\n * import the\n * `HammerModule` at root to turn on support. This means that\n * Hammer-specific code can be tree-shaken away if\n not needed.\n */\nexport const HAMMER_PROVIDERS__POST_R3__ = [];\n\n/**\n * In View Engine, support\n for Hammer gestures is built-in by default.\n */\nexport const HAMMER_PROVIDERS__PRE_R3__: Provider[]\n = [\n {\n provide: EVENT_MANAGER_PLUGINS,\n useClass: HammerGesturesPlugin,\n multi: true,\n deps: [DOCUMENT, HAMMER_GESTURE_CONFIG, Console, [new Optional(), HAMMER_LOADER]]\n },\n {\n provide: HAMMER_GESTURE_CONFIG,\n useClass: HammerGestureConfig,\n deps: []\n },\n];\n\nexport const\n HAMMER_PROVIDERS = HAMMER_PROVIDERS__PRE_R3__;\n\n/**\n * Adds support for HammerJS.\n */\n\n * Import this module at the root of your application so that Angular can work with\n * HammerJS to detect gesture\n events.\n *\n * Note that applications still need to include the HammerJS script itself. This module\n * simply sets\n up the coordination layer between HammerJS and Angular's EventManager.\n *\n * @publicApi\n */\n\n@NgModule({providers: HAMMER_PROVIDERS__PRE_R3__})\nexport class HammerModule\n{\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n governed by an MIT-style license that can be\n found in the LICENSE file at https://angular.io/license\n
```

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*/\n\nimport {DOCUMENT, getDOM as getDOM} from '@angular/common';\nimport {Inject, Injectable, NgZone} from '@angular/core';\nimport {EventManagerPlugin} from './event_manager';\n\n/**\n * Defines supported modifiers for key events.\n */\nconst MODIFIER_KEYS = ['alt', 'control', 'meta', 'shift'];\n\nconst DOM_KEY_LOCATION_NUMPAD = 3;\n\n// Map to convert some key or keyIdentifier values to what will be returned by getEventKey\nconst _keyMap: {[k: string]: string} = {\n // The following values are here for cross-browser compatibility and to match the W3C standard\n // cf http://www.w3.org/TR/DOM-Level-3-Events-key/\n '\b': 'Backspace',\n '\t': 'Tab',\n '\x7F': 'Delete',\n '\x1B': 'Escape',\n 'Del': 'Delete',\n 'Esc': 'Escape',\n 'Left': 'ArrowLeft',\n 'Right': 'ArrowRight',\n 'Up': 'ArrowUp',\n 'Down': 'ArrowDown',\n 'Menu': 'ContextMenu',\n 'Scroll': 'ScrollLock',\n 'Win': 'OS',\n};\n\n// There is a bug in Chrome for numeric keypad keys:\n// https://code.google.com/p/chromium/issues/detail?id=155654\n// 1, 2, 3 ... are reported as A, B, C ...\nconst _chromeNumKeyPadMap = {\n 'A': '1',\n 'B': '2',\n 'C': '3',\n 'D': '4',\n 'E': '5',\n 'F': '6',\n 'G': '7',\n 'H': '8',\n 'I': '9',\n 'J': '*',\n 'K': '+',\n 'M': '-',\n 'N': '.',\n 'O': '/',\n '\x60': '0',\n '\x90': 'NumLock',\n};\n\n/**\n * Retrieves modifiers from key-event objects.\n */\nconst MODIFIER_KEY_GETTERS: {[key: string]: (event: KeyboardEvent) => boolean} = {\n 'alt': (event: KeyboardEvent) => event.altKey,\n 'control': (event: KeyboardEvent) => event.ctrlKey,\n 'meta': (event: KeyboardEvent) => event.metaKey,\n 'shift': (event: KeyboardEvent) => event.shiftKey\n};\n\n/**\n * @publicApi\n * A browser plug-in that provides support for handling of key events in Angular.\n */\n@Injectable()\nexport class KeyEventsPlugin extends EventManagerPlugin {\n /**\n * Initializes an instance of the browser plug-in.\n * @param doc The document in which key events will be detected.\n */\n constructor(@Inject(DOCUMENT) doc: any) {\n super(doc);\n }\n\n /**\n * Reports whether a named key event is supported.\n * @param eventName The event name to query.\n * @return True if the named key event is supported.\n */\n supports(eventName: string): boolean {\n return KeyEventsPlugin.parseEventName(eventName) != null;\n }\n\n /**\n * Registers a handler for a specific element and key event.\n * @param element The HTML element to receive event notifications.\n * @param eventName The name of the key event to listen for.\n * @param handler A function to call when the notification occurs. Receives the\n * event object as an argument.\n * @returns The key event that was registered.\n */\n addEventListener(element: HTMLElement, eventName: string, handler: Function): Function {\n const parsedEvent = KeyEventsPlugin.parseEventName(eventName);\n const outsideHandler =\n KeyEventsPlugin.eventCallback(parsedEvent['fullKey'],\n handler, this.manager.getZone());\n return this.manager.getZone().runOutsideAngular(() => {\n return getDOM().onAndCancel(element, parsedEvent['domEventName'], outsideHandler);\n });\n }\n\n static\n parseEventName(eventName: string): {fullKey: string, domEventName: string}|null {\n const parts: string[] = eventName.toLowerCase().split('.');\n const domEventName = parts.shift();\n if ((parts.length === 0) ||\n !(domEventName === 'keydown' || domEventName === 'keyup')) {\n return null;\n }\n const key = KeyEventsPlugin._normalizeKey(parts.pop());\n let fullKey = '';\n MODIFIER_KEYS.forEach(modifierName => {\n const index: number = parts.indexOf(modifierName);\n if (index > -1) {\n parts.splice(index, 1);\n fullKey += modifierName + '.';\n }\n });\n fullKey += key;\n if (parts.length != 0 || key.length === 0) {\n // returning null instead of throwing to let another plugin process the event\n return null;\n }\n // NOTE: Please don't rewrite this as so, as it will break JSCompiler property renaming.\n // The code must remain in the `result['domEventName']` form.\n // return {domEventName, fullKey};\n const result: {fullKey: string, domEventName: string} = {} as any;\n result['domEventName'] = domEventName;\n result['fullKey'] = fullKey;\n return result;\n }\n\n static getEventFullKey(event: KeyboardEvent): string {\n let fullKey = '';\n let key = getEventKey(event);\n key = key.toLowerCase();\n if (key === ' ') {\n key = 'space'; // for readability\n } else if (key === '.') {\n key = 'dot'; // because '.' is used as a separator in event names\n }\n MODIFIER_KEYS.forEach(modifierName => {\n if (modifierName != key) {\n const modifierGetter = MODIFIER_KEY_GETTERS[modifierName];\n if (modifierGetter(event)) {\n fullKey += modifierName + '.';\n }\n }\n });\n fullKey +=

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key;\n return fullKey;\n }\n\n/**\n * Configures a handler callback for a key event.\n * @param fullKey The
event name that combines all simultaneous keystrokes.\n * @param handler The function that responds to the key
event.\n * @param zone The zone in which the event occurred.\n * @returns A callback function.\n */\n static
eventCallback(fullKey: any, handler: Function, zone: NgZone): Function {\n return (event: any /** TODO #9100
*/) => {\n if (KeyEventsPlugin.getEventFullKey(event) === fullKey) {\n zone.runGuarded(() =>
handler(event));\n }\n };\n }\n\n/** @internal */\n static _normalizeKey(keyName: string): string {\n //
TODO: switch to a Map if the mapping grows too much\n switch (keyName) {\n case 'esc':\n return
'escape';\n default:\n return keyName;\n }\n }\n\nfunction getEventKey(event: any): string {\n let key
= event.key;\n if (key == null) {\n key = event.keyIdentifier;\n // keyIdentifier
is defined in the old draft of DOM Level 3 Events implemented by Chrome and\n // Safari cf\n //
http://www.w3.org/TR/2007/WD-DOM-Level-3-Events-20071221/events.html#Events-KeyboardEvents-
Interfaces\n if (key == null) {\n return 'Unidentified';\n }\n if (key.startsWith('U+')) {\n key =
String.fromCharCode(parseInt(key.substring(2), 16));\n if (event.location ===
DOM_KEY_LOCATION_NUMPAD && _chromeNumKeyPadMap.hasOwnProperty(key)) {\n // There is a
bug in Chrome for numeric keypad keys:\n // https://code.google.com/p/chromium/issues/detail?id=155654\n
// 1, 2, 3 ... are reported as A, B, C ...\n key = (_chromeNumKeyPadMap as any)[key];\n }\n }\n }\n return _keyMap[key] || key;\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {DOCUMENT} from
'@angular/common';\n\nimport {forwardRef, Inject, Injectable, Injector, Sanitizer, SecurityContext, _sanitizeHtml as
_sanitizeHtml, _sanitizeUrl as _sanitizeUrl, allowSanitizationBypassAndThrow as
allowSanitizationBypassOrThrow, bypassSanitizationTrustHtml as bypassSanitizationTrustHtml,
bypassSanitizationTrustResourceUrl as bypassSanitizationTrustResourceUrl, bypassSanitizationTrustScript as
bypassSanitizationTrustScript, bypassSanitizationTrustStyle as bypassSanitizationTrustStyle,
bypassSanitizationTrustUrl as bypassSanitizationTrustUrl, BypassType as BypassType, getSanitizationBypassType
as getSanitizationBypassType, unwrapSafeValue as unwrapSafeValue} from '@angular/core';\n\nexport
{SecurityContext};\n\n\n/**\n * Marker interface for a value that's safe to use in a particular context.\n */\n *
@publicApi\n */\nexport interface SafeValue {} \n\n/**\n * Marker interface for a value that's safe to use as
HTML.\n */\n * @publicApi\n */\nexport interface SafeHtml extends SafeValue
{\n}\n\n/**\n * Marker interface for a value that's safe to use as style (CSS).\n */\n * @publicApi\n */\nexport
interface SafeStyle extends SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as JavaScript.\n
*/\n * @publicApi\n */\nexport interface SafeScript extends SafeValue {\n}\n\n/**\n * Marker interface for a value
that's safe to use as a URL linking to a document.\n */\n * @publicApi\n */\nexport interface SafeUrl extends
SafeValue {\n}\n\n/**\n * Marker interface for a value that's safe to use as a URL to load executable code from.\n
*/\n * @publicApi\n */\nexport interface SafeResourceUrl extends SafeValue {\n}\n\n/**\n * DomSanitizer helps
preventing Cross Site Scripting Security bugs (XSS) by sanitizing\n * values to be safe to use in the different DOM
contexts.\n * For example, when binding a URL in an `<a [href]="someValue">` hyperlink, `someValue` will
be\n * sanitized so that an attacker cannot inject e.g. a `javascript:` URL that would execute code
on\n * the website.\n * In specific situations, it might be necessary to disable sanitization, for example if the\n *
application genuinely needs to produce a `javascript:` style link with a dynamic value in it.\n * Users can bypass
security by constructing a value with one of the `bypassSecurityTrust...` methods, and then binding to that value
from the template.\n * These situations should be very rare, and extraordinary care must be taken to avoid
creating a\n * Cross Site Scripting (XSS) security bug!\n * When using `bypassSecurityTrust...`, make sure to
call the method as early as possible and as\n * close as possible to the source of the value, to make it easy to verify
no security bug is\n * created by its use.\n * It is not required (and not recommended) to bypass security if the
value is safe, e.g. a URL that\n * does not start with a suspicious protocol, or an HTML snippet that does not contain
dangerous\n * code. The sanitizer leaves safe values intact.\n

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\*\n \* @security Calling any of the `bypassSecurityTrust...` APIs disables Angular's built-in\n \* sanitization for the value passed in. Carefully check and audit all values and code paths going\n \* into this call. Make sure any user data is appropriately escaped for this security context.\n \* For more detail, see the [Security Guide](http://g.co/ng/security).\n \*\n \* @publicApi\n \*\n @Injectable({providedIn: 'root', useExisting: forwardRef(() => DomSanitizerImpl)})\n\nexport abstract class DomSanitizer implements Sanitizer {\n /\*\n \* Sanitizes a value for use in the given SecurityContext.\n \*\n \* If value is trusted for the context, this method will unwrap the contained safe value and use\n \* it directly. Otherwise, value will be sanitized to be safe in the given context, for example\n \* by replacing URLs that have an unsafe protocol part (such as `javascript:`). The implementation\n \* is responsible to make sure that the value can definitely be safely used in the given context.\n \*\n abstract sanitize(context: SecurityContext, value: SafeValue|string|null): string|null;\n\n /\*\n \* Bypass security and trust the given value to be safe HTML. Only use this when the bound HTML\n \* is unsafe (e.g. contains `

```

SafeResourceUrl {\n return bypassSanitizationTrustResourceUrl(value);\n }\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { CommonModule,
DOCUMENT, PLATFORM_BROWSER_ID as PLATFORM_BROWSER_ID } from '@angular/common';\nimport
{ APP_ID, ApplicationModule, createPlatformFactory, ErrorHandler, Inject, ModuleWithProviders, NgModule,
NgZone, Optional, PLATFORM_ID, PLATFORM_INITIALIZER, platformCore, PlatformRef, RendererFactory2,
Sanitizer, SkipSelf, StaticProvider, Testability, Console as Console, INJECTOR_SCOPE as INJECTOR_SCOPE,
setDocument } from '@angular/core';\n\nimport { BrowserDomAdapter }
from './browser/browser_adapter';\nimport { SERVER_TRANSITION_PROVIDERS, TRANSITION_ID } from
'./browser/server-transition';\nimport { BrowserGetTestability } from './browser/testability';\nimport
{ ELEMENT_PROBE_PROVIDERS } from './dom/debug/ng_probe';\nimport { DomRendererFactory2 } from
'./dom/dom_renderer';\nimport { DomEventsPlugin } from './dom/events/dom_events';\nimport
{ EVENT_MANAGER_PLUGINS, EventManager } from './dom/events/event_manager';\nimport
{ HAMMER_PROVIDERS } from './dom/events/hammer_gestures';\nimport { KeyEventsPlugin } from
'./dom/events/key_events';\nimport { DomSharedStylesHost, SharedStylesHost } from
'./dom/shared_styles_host';\nimport { DomSanitizer, DomSanitizerImpl } from
'./security/dom_sanitization_service';\n\nexport function initDomAdapter() {\n
BrowserDomAdapter.makeCurrent();\n BrowserGetTestability.init();\n}\n\nexport function errorHandler():
ErrorHandler {\n return new ErrorHandler();\n}\n\nexport function _document(): any {\n // Tell ivy about
the global document\n setDocument(document);\n return document;\n}\n\nexport const
INTERNAL_BROWSER_PLATFORM_PROVIDERS: StaticProvider[] = [\n { provide: PLATFORM_ID,
useValue: PLATFORM_BROWSER_ID },\n { provide: PLATFORM_INITIALIZER, useValue: initDomAdapter,
multi: true },\n { provide: DOCUMENT, useFactory: _document, deps: [] },\n];\n\nconst
BROWSER_SANITIZATION_PROVIDERS__PRE_R3__: StaticProvider[] = [\n { provide: Sanitizer, useExisting:
DomSanitizer },\n { provide: DomSanitizer, useClass: DomSanitizerImpl, deps: [DOCUMENT] },\n];\n\nexport
const BROWSER_SANITIZATION_PROVIDERS__POST_R3__ = [];\n\n/**\n * @security Replacing built-in
sanitization providers exposes the application to XSS risks.\n * Attacker-controlled data introduced by an
unsanitized provider could expose your\n * application to XSS risks. For more detail, see the [Security
Guide](http://g.co/ng/security).\n * @publicApi\n */\nexport const BROWSER_SANITIZATION_PROVIDERS =
BROWSER_SANITIZATION_PROVIDERS__PRE_R3__;\n\n/**\n * A factory function that returns a `PlatformRef` instance associated with browser service\n * providers.\n */\n *
@publicApi\n */\nexport const platformBrowser: (extraProviders?: StaticProvider[]) => PlatformRef =\n
createPlatformFactory(platformCore, 'browser', INTERNAL_BROWSER_PLATFORM_PROVIDERS);\n\nexport
const BROWSER_MODULE_PROVIDERS: StaticProvider[] = [\n
BROWSER_SANITIZATION_PROVIDERS,\n { provide: INJECTOR_SCOPE, useValue: 'root' },\n { provide:
ErrorHandler, useFactory: errorHandler, deps: [] },\n { provide: EVENT_MANAGER_PLUGINS,\n useClass:
DomEventsPlugin,\n multi: true,\n deps: [DOCUMENT, NgZone, PLATFORM_ID] },\n { provide:
EVENT_MANAGER_PLUGINS, useClass: KeyEventsPlugin, multi: true, deps: [DOCUMENT] },\n
HAMMER_PROVIDERS,\n { provide: DomRendererFactory2,\n useClass: DomRendererFactory2,\n deps:
[EventManager, DomSharedStylesHost, APP_ID] },\n { provide: RendererFactory2, useExisting:
DomRendererFactory2 },\n { provide: SharedStylesHost,
useExisting: DomSharedStylesHost },\n { provide: DomSharedStylesHost, useClass: DomSharedStylesHost, deps:
[DOCUMENT] },\n { provide: Testability, useClass: Testability, deps: [NgZone] },\n { provide: EventManager,
useClass: EventManager, deps: [EVENT_MANAGER_PLUGINS, NgZone] },\n
ELEMENT_PROBE_PROVIDERS,\n];\n\n/**\n * Exports required infrastructure for all Angular apps.\n *
Included by default in all Angular apps created with the CLI\n * `new` command.\n * Re-exports `CommonModule`
and `ApplicationModule`, making their\n * exports and providers available to all apps.\n */\n * @publicApi\n
*/\n@NgModule({ providers: BROWSER_MODULE_PROVIDERS, exports: [CommonModule,

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ApplicationModule]})\nexport class BrowserModule {\n constructor(@Optional() @SkipSelf()
@Inject(BrowserModule) parentModule: BrowserModule|null) {\n if (parentModule) {\n throw new Error(\n
 `BrowserModule has already been loaded. If you need access to common directives such as NgIf and NgFor from
a lazy loaded module, import CommonModule instead.`);\n }\n }\n\n /**\n * Configures a browser-based app
to transition from a server-rendered app, if\n * one is present on the page.\n * @param params An object
containing an identifier for the app to transition.\n * The ID must match between the client and server versions of
the app.\n * @returns The reconfigured `BrowserModule` to import into the app's root `AppModule`.\n */\n static
withServerTransition(params: {appId: string}): ModuleWithProviders<BrowserModule> {\n return {\n
ngModule: BrowserModule,\n providers: [\n {provide: APP_ID, useValue: params.appId},\n {provide:
TRANSITION_ID, useExisting: APP_ID},\n ...SERVER_TRANSITION_PROVIDERS,\n],\n };\n
}\n\n "/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n import
{DOCUMENT, DomAdapter as DomAdapter, getDOM as getDOM} from '@angular/common';\n import {Inject,
Injectable, inject} from '@angular/core';\n\n /**\n * Represents the attributes of an HTML `<meta>` element. The
element itself is\n * represented by the internal `HTMLMetaElement`.\n * @see [HTML meta
tag](https://developer.mozilla.org/docs/Web/HTML/Element/meta)\n * @see `Meta`\n * @publicApi\n
*/\n export type MetaDefinition = {\n charset?: string;\n content?: string;\n httpEquiv?: string;\n id?: string;\n
itemprop?: string;\n name?: string;\n property?: string;\n scheme?: string;\n url?: string;\n } & {\n //
TODO(IgorMinar): this type looks wrong\n [prop: string]: string;\n };\n\n /**\n * Factory to create a `Meta` service
instance for the current DOM document.\n */\n export function createMeta() {\n return new
Meta(inject(DOCUMENT));\n }\n\n /**\n * A service for managing HTML `<meta>` tags.\n * Properties of the
`MetaDefinition` object match the attributes of
the\n * HTML `<meta>` tag. These tags define document metadata that is important for\n * things like configuring
a Content Security Policy, defining browser compatibility\n * and security settings, setting HTTP Headers, defining
rich content for social sharing,\n * and Search Engine Optimization (SEO).\n * To identify specific `<meta>`
tags in a document, use an attribute selection\n * string in the format `\"tag_attribute='value string'\"`.\n * For
example, an `attrSelector` value of `\"name='description'\"` matches a tag\n * whose `name` attribute has the value
`\"description\"`.\n * Selectors are used with the `querySelector()` Document method,\n * in the format
`meta[{attrSelector}]`.\n * @see [HTML meta
tag](https://developer.mozilla.org/docs/Web/HTML/Element/meta)\n * @see
[Document.querySelector()](https://developer.mozilla.org/docs/Web/API/Document/querySelector)\n * @publicApi\n
*/\n @Injectable({providedIn: 'root', useFactory: createMeta, deps: []})\n export class
Meta {\n private _dom: DomAdapter;\n constructor(@Inject(DOCUMENT) private _doc: any) {\n this._dom =
getDOM();\n }\n\n /**\n * Retrieves or creates a specific `<meta>` tag element in the current HTML document.\n
 * In searching for an existing tag, Angular attempts to match the `name` or `property` attribute\n * values in the
provided tag definition, and verifies that all other attribute values are equal.\n * If an existing element is found, it is
returned and is not modified in any way.\n * @param tag The definition of a `<meta>` element to match or
create.\n * @param forceCreation True to create a new element without checking whether one already exists.\n *
@returns The existing element with the same attributes and values if found,\n * the new element if no match is
found, or `null` if the tag parameter is not defined.\n */\n addTag(tag: MetaDefinition, forceCreation: boolean =
false): HTMLMetaElement|null {\n if (!tag) return null;\n return this._getOrCreateElement(tag,
forceCreation);\n }\n\n /**\n * Retrieves or creates a set of `<meta>` tag elements in the current HTML
document.\n * In searching for an existing tag, Angular attempts to match the `name` or `property` attribute\n *
values in the provided tag definition, and verifies that all other attribute values are equal.\n * @param tags An
array of tag definitions to match or create.\n * @param forceCreation True to create new elements without
checking whether they already exist.\n * @returns The matching elements if found, or the new elements.\n */\n addTags(tags: MetaDefinition[], forceCreation: boolean = false): HTMLMetaElement[] {\n if (!tags) return [];\n

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return tags.reduce((result: HTMLMetaElement[], tag: MetaDefinition) => {\n if (tag) {\n
result.push(this._getOrCreateElement(tag, forceCreation));\n }\n return result;\n }, []);\n }\n\n /**\n *
Retrieves a `<meta>` tag element in the current HTML document.\n * @param
attrSelector The tag attribute and value to match against, in the format\n * `"tag_attribute='value string'".\n *
@returns The matching element, if any.\n * /\n getTag(attrSelector: string): HTMLMetaElement|null {\n if
(!attrSelector) return null;\n return this._doc.querySelector(`meta[${attrSelector}]`) || null;\n }\n\n /**\n *
Retrieves a set of `<meta>` tag elements in the current HTML document.\n * @param attrSelector The tag attribute
and value to match against, in the format\n * `"tag_attribute='value string'".\n * @returns The matching
elements, if any.\n * /\n getTags(attrSelector: string): HTMLMetaElement[] {\n if (!attrSelector) return [];\n
const list /*NodeList*/ = this._doc.querySelectorAll(`meta[${attrSelector}]`);\n return list ? [].slice.call(list) : [];\n
}\n\n /**\n *
Modifies an existing `<meta>` tag element in the current HTML document.\n * @param tag The tag
description with which to replace the existing tag content.\n
* @param selector A tag attribute and value to match against, to identify\n * an existing tag. A string in the
format `"tag_attribute='value string'".\n * If not supplied, matches a tag with the same `name` or `property`
attribute value as the\n * replacement tag.\n * @return The modified element.\n * /\n updateTag(tag:
MetaDefinition, selector?: string): HTMLMetaElement|null {\n if (!tag) return null;\n selector = selector ||
this._parseSelector(tag);\n const meta: HTMLMetaElement = this.getTag(selector);\n if (meta) {\n return
this._setMetaElementAttributes(tag, meta);\n }\n return this._getOrCreateElement(tag, true);\n }\n\n /**\n *
Removes an existing `<meta>` tag element from the current HTML document.\n * @param attrSelector A tag
attribute and value to match against, to identify\n * an existing tag. A string in the format `"tag_attribute='value
string'".\n * /\n removeTag(attrSelector: string): void {\n this.removeTagElement(this.getTag(attrSelector));\n
}\n\n /**\n *
Removes an existing `<meta>` tag element from the current HTML document.\n * @param meta
The tag definition to match against to identify an existing tag.\n * /\n removeTagElement(meta:
HTMLMetaElement): void {\n if (meta) {\n this._dom.remove(meta);\n }\n }\n\n private
_getOrCreateElement(meta: MetaDefinition, forceCreation: boolean = false):\n HTMLMetaElement {\n if
(!forceCreation) {\n const selector: string = this._parseSelector(meta);\n const elem: HTMLMetaElement =
this.getTag(selector);\n // It's allowed to have multiple elements with the same name so it's not enough to\n //
just check that element with the same name already present on the page. We also need to\n // check if element has
tag attributes\n if (elem && this._containsAttributes(meta, elem)) return elem;\n }\n const element:
HTMLMetaElement = this._dom.createElement('meta') as HTMLMetaElement;\n this._setMetaElementAttributes(meta,
element);\n const head = this._doc.getElementsByTagName('head')[0];\n head.appendChild(element);\n return
element;\n }\n\n private _setMetaElementAttributes(tag: MetaDefinition, el: HTMLMetaElement):
HTMLMetaElement {\n Object.keys(tag).forEach((prop: string) => el.setAttribute(prop, tag[prop]));\n return
el;\n }\n\n private _parseSelector(tag: MetaDefinition): string {\n const attr: string = tag.name ? 'name' :
'property';\n return `${attr}="${tag[attr]}"`;\n }\n\n private _containsAttributes(tag: MetaDefinition, elem:
HTMLMetaElement): boolean {\n return Object.keys(tag).every((key: string) => elem.getAttribute(key) ===
tag[key]);\n }\n }\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {DOCUMENT, getDOM as getDOM} from '@angular/common';\nimport {Inject,
Injectable, inject} from '@angular/core';\n\n/**\n * Factory to create Title service.\n */\nexport function
createTitle() {\n return new Title(inject(DOCUMENT));\n }\n\n /**\n * A service that can be used to get and set the
title of a current HTML document.\n * \n * Since an Angular application can't be bootstrapped on the entire HTML
document (<html> tag)\n * it is not possible to bind to the `text` property of the `HTMLTitleElement` elements\n *
(representing the <title> tag). Instead, this service can be used to set and get the current\n * title value.\n * \n *
@publicApi\n */\n@Injectable({providedIn: 'root', useFactory: createTitle, deps: []})\nexport class Title {\n
constructor(@Inject(DOCUMENT) private _doc: any) {\n /**\n * Get the title of the current HTML document.\n
*/\n get title(): string {\n return this._doc.title;\n }\n\n /**\n * Set the title of the current HTML document.\n
*/\n set title(title: string) {\n this._doc.title = title;\n }\n }\n }

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* @param newTitle\n * /\n setTitle(newTitle: string) {\n this._doc.title
= newTitle || ";\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\nconst win = typeof window !== 'undefined' && window || <any>{ };\nexport { win
as window};\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {getDOM as getDOM} from '@angular/common';\nimport {ApplicationRef, ComponentRef} from
'@angular/core';\nimport {window} from './browser';\n\nexport class ChangeDetectionPerfRecord {\n
constructor(public msPerTick: number, public numTicks: number) { }\n}\n\n/*\n * Entry point for all Angular
profiling-related debug tools. This object\n * corresponds to the `ng.profiler` in the dev console.\n *\nexport class
AngularProfiler {\n appRef:
ApplicationRef;\n\n constructor(ref: ComponentRef<any>) {\n this.appRef = ref.injector.get(ApplicationRef);\n
}\n\n // tslint:disable:no-console\n /**\n * Exercises change detection in a loop and then prints the average
amount of\n * time in milliseconds how long a single round of change detection takes for\n * the current state of
the UI. It runs a minimum of 5 rounds for a minimum\n * of 500 milliseconds.\n *\n * Optionally, a user may
pass a `config` parameter containing a map of\n * options. Supported options are:\n *\n * `record` (boolean) -
causes the profiler to record a CPU profile while\n * it exercises the change detector. Example:\n *\n * ```\n *
ng.profiler.timeChangeDetection({record: true})\n * ```\n *\n timeChangeDetection(config: any):
ChangeDetectionPerfRecord {\n const record = config && config['record'];\n const profileName = 'Change
Detection';\n // Profiler is not available in Android browsers without dev tools opened\n
const isProfilerAvailable = window.console.profile !== null;\n if (record && isProfilerAvailable) {\n
window.console.profile(profileName);\n }\n const start = getDOM().performanceNow();\n let numTicks = 0;\n
while (numTicks < 5 || (getDOM().performanceNow() - start) < 500) {\n this.appRef.tick();\n numTicks++;\n
}\n const end = getDOM().performanceNow();\n if (record && isProfilerAvailable) {\n
window.console.profileEnd(profileName);\n }\n const msPerTick = (end - start) / numTicks;\n
window.console.log(`ran ${numTicks} change detection cycles`);\n
window.console.log(`${msPerTick.toFixed(2)} ms per check`);\n\n return new
ChangeDetectionPerfRecord(msPerTick, numTicks);\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {ComponentRef} from '@angular/core';\nimport
{exportNgVar} from '../dom/util';\nimport {AngularProfiler} from './common_tools';\n\nconst
PROFILER_GLOBAL_NAME = 'profiler';\n\n/*\n * Enabled Angular debug tools that are accessible via your
browser's\n * developer console.\n *\n * Usage:\n *\n * 1. Open developer console (e.g. in Chrome Ctrl + Shift +
j)\n * 1. Type `ng.` (usually the console will show auto-complete suggestion)\n * 1. Try the change detection profiler
`ng.profiler.timeChangeDetection()`\n * then hit Enter.\n *\n * @publicApi\n *\nexport function
enableDebugTools<T>(ref: ComponentRef<T>): ComponentRef<T> {\n
exportNgVar(PROFILER_GLOBAL_NAME, new AngularProfiler(ref));\n return ref;\n}\n\n/*\n * Disables
Angular tools.\n *\n * @publicApi\n *\nexport function disableDebugTools(): void {\n
exportNgVar(PROFILER_GLOBAL_NAME, null);\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n *\n\nimport {DOCUMENT} from '@angular/common';\nimport
{APP_ID, Injectable, NgModule} from '@angular/core';\n\nexport function escapeHtml(text: string): string {\n
const escapedText: {[k: string]: string} = {\n '&': '&',\n '"': '&q;',\n '\\': '&s;',\n '<': '&l;',\n '>': '&g;',\n
};\n return text.replace(/&["<>]/g, s => escapedText[s]);\n}\n\nexport function unescapeHtml(text: string): string
{\n const unescapedText: {[k: string]: string} = {\n '&': '&',\n '&q;': '"',\n '&s;': '\\',\n '&l;': '<',\n '&g;':
'>',\n }; \n return text.replace(/&[^\s;]+;/g, s => unescapedText[s]);\n}\n\n/*\n * A type-safe key to use with
`TransferState`\n *\n * Example:\n *\n * ```\n * const COUNTER_KEY = makeStateKey<number>('counter');\n *
let value = 10;\n * transferState.set(COUNTER_KEY, value);\n * ```\n *\n * @publicApi\n *\nexport type

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StateKey<T> = string&{__not_a_string: never};\n\n/**\n * Create a `StateKey<T>`
that can be used to store value of type T with `TransferState`.\n *\n * Example:\n *\n * ``\n * const
COUNTER_KEY = makeStateKey<number>('counter');\n * let value = 10;\n *\n *
transferState.set(COUNTER_KEY, value);\n * ``\n *\n * @publicApi\n */\nexport function makeStateKey<T> =
void>(key: string): StateKey<T> {\n return key as StateKey<T>;\n}\n\n/**\n * A key value store that is transferred
from the application on the server side to the application\n * on the client side.\n *\n * `TransferState` will be
available as an injectable token. To use it import\n * `ServerTransferStateModule` on the server and
`BrowserTransferStateModule` on the client.\n *\n * The values in the store are serialized/deserialized using
JSON.stringify/JSON.parse. So only\n * boolean, number, string, null and non-class objects will be serialized and
deserialzied in a\n * non-lossy manner.\n *\n * @publicApi\n */\n@Injectable()\nexport class TransferState {\n
 private store: {[k: string]: { }|undefined}
= { };\n private onSerializeCallbacks: {[k: string]: () => { } | undefined} = { };\n\n /** @internal */\n static
init(initState: { }) {\n const transferState = new TransferState();\n transferState.store = initState;\n return
transferState;\n }\n\n /**\n * Get the value corresponding to a key. Return `defaultValue` if key is not found.\n
 */\n get<T>(key: StateKey<T>, defaultValue: T): T {\n return this.store[key] !== undefined ? this.store[key] as T
: defaultValue;\n }\n\n /**\n * Set the value corresponding to a key.\n */\n set<T>(key: StateKey<T>, value: T):
void {\n this.store[key] = value;\n }\n\n /**\n * Remove a key from the store.\n */\n remove<T>(key:
StateKey<T>): void {\n delete this.store[key];\n }\n\n /**\n * Test whether a key exists in the store.\n */\n
 hasKey<T>(key: StateKey<T>) {\n return this.store.hasOwnProperty(key);\n }\n\n /**\n * Register a callback
to provide the value for a key when `toJson` is called.\n
 */\n onSerialize<T>(key: StateKey<T>, callback: () => T): void {\n this.onSerializeCallbacks[key] =
callback;\n }\n\n /**\n * Serialize the current state of the store to JSON.\n */\n toJson(): string {\n // Call the
onSerialize callbacks and put those values into the store.\n for (const key in this.onSerializeCallbacks) {\n if
(this.onSerializeCallbacks.hasOwnProperty(key)) {\n try {\n this.store[key] =
this.onSerializeCallbacks[key]();\n } catch (e) {\n console.warn('Exception in onSerialize callback: ', e);\n
 }\n }\n }\n return JSON.stringify(this.store);\n }\n}\n\nexport function initTransferState(doc: Document,
appId: string) {\n // Locate the script tag with the JSON data transferred from the server.\n // The id of the script tag
is set to the Angular appId + 'state'.\n const script = doc.getElementById(appId + '-state');\n let initialState = { };\n
 if (script && script.textContent) {\n try {\n
 initialState = JSON.parse(unescapeHtml(script.textContent));\n } catch (e) {\n console.warn('Exception while
restoring TransferState for app ' + appId, e);\n }\n }\n return TransferState.init(initialState);\n}\n\n/**\n *
NgModule to install on the client side while using the `TransferState` to transfer state from\n * server to client.\n *\n
* @publicApi\n */\n@NgModule({\n providers: [{provide: TransferState, useFactory: initTransferState, deps:
[DOCUMENT, APP_ID]}],\n})\nexport class BrowserTransferStateModule {\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {getDOM as getDOM} from
'@angular/common';\nimport {DebugElement, DebugNode, Predicate, Type} from '@angular/core';\n\n\n/**\n *
Predicates for use with { @link DebugElement}'s query functions.\n *\n * @publicApi\n */\nexport class By {\n
 /**\n * Match all nodes.\n */\n * @usageNotes\n * ### Example\n *\n * { @example platform-
browser/dom/debug/ts/by/by.ts region='by_all'}\n */\n static all(): Predicate<DebugNode> {\n return () =>
true;\n }\n\n /**\n * Match elements by the given CSS selector.\n */\n * @usageNotes\n * ### Example\n *\n
 * { @example platform-browser/dom/debug/ts/by/by.ts region='by_css'}\n */\n static css(selector: string):
Predicate<DebugElement> {\n return (debugElement) => {\n return debugElement.nativeElement !== null ?\n
 elementMatches(debugElement.nativeElement, selector) : false;\n };\n }\n\n /**\n * Match nodes that
have the given directive present.\n */\n * @usageNotes\n * ### Example\n *\n * { @example platform-
browser/dom/debug/ts/by/by.ts region='by_directive'}\n */\n static directive(type: Type<any>):
Predicate<DebugNode> {\n return (debugNode) => debugNode.providerTokens!.indexOf(type) !== -1;\n
 }\n}\n\nfunction

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elementMatches(n: any, selector: string): boolean {\n if (getDOM().isElementNode(n)) {\n return n.matches &&
n.matches(selector) ||\n n.msMatchesSelector && n.msMatchesSelector(selector) ||\n
n.webkitMatchesSelector && n.webkitMatchesSelector(selector);\n } \n\n return false;\n}\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nexport { getDOM } from
'@angular/common';\nexport { BROWSER_SANITIZATION_PROVIDERS as
BROWSER_SANITIZATION_PROVIDERS, BROWSER_SANITIZATION_PROVIDERS__POST_R3__ as
BROWSER_SANITIZATION_PROVIDERS__POST_R3__, initDomAdapter as initDomAdapter,
INTERNAL_BROWSER_PLATFORM_PROVIDERS as INTERNAL_BROWSER_PLATFORM_PROVIDERS }
from './browser';\nexport { BrowserDomAdapter as BrowserDomAdapter } from './browser/browser_adapter';\nexport
{ TRANSITION_ID as TRANSITION_ID } from './browser/server-transition';\nexport
{ BrowserGetTestability as BrowserGetTestability } from './browser/testability';\nexport { escapeHtml as
escapeHtml } from './browser/transfer_state';\nexport { ELEMENT_PROBE_PROVIDERS as
ELEMENT_PROBE_PROVIDERS } from './dom/debug/ng_probe';\nexport { DomRendererFactory2 as
DomRendererFactory2, flattenStyles as flattenStyles, NAMESPACE_URIS as NAMESPACE_URIS,
shimContentAttribute as shimContentAttribute, shimHostAttribute as shimHostAttribute } from
'./dom/dom_renderer';\nexport { DomEventsPlugin as DomEventsPlugin } from './dom/events/dom_events';\nexport
{ HammerGesturesPlugin as HammerGesturesPlugin } from './dom/events/hammer_gestures';\nexport
{ KeyEventsPlugin as KeyEventsPlugin } from './dom/events/key_events';\nexport { DomSharedStylesHost as
DomSharedStylesHost, SharedStylesHost as SharedStylesHost } from './dom/shared_styles_host';\nexport
{ DomSanitizerImpl as DomSanitizerImpl } from './security/dom_sanitization_service';\n"/**\n * @license\n *
Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n * \n\n/**\n * @module\n * @description\n * Entry point
for all public APIs of the common package.\n * \n\nimport { Version } from '@angular/core';\n"/**\n *
@publicApi\n * \n\nexport const VERSION = new Version('11.0.2');\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n * \n\nexport { BrowserModule, platformBrowser } from
'./browser';\nexport { Meta, MetaDefinition } from './browser/meta';\nexport { Title } from './browser/title';\nexport
{ disableDebugTools, enableDebugTools } from './browser/tools/tools';\nexport { BrowserTransferStateModule,
makeStateKey, StateKey, TransferState } from './browser/transfer_state';\nexport { By } from
'./dom/debug/by';\nexport { EVENT_MANAGER_PLUGINS,
EventManager } from './dom/events/event_manager';\nexport { HAMMER_GESTURE_CONFIG,
HAMMER_LOADER, HAMMER_PROVIDERS__POST_R3__ as HAMMER_PROVIDERS__POST_R3__,
HammerGestureConfig, HammerLoader, HammerModule } from './dom/events/hammer_gestures';\nexport
{ DomSanitizer, SafeHtml, SafeResourceUrl, SafeScript, SafeStyle, SafeUrl, SafeValue } from
'./security/dom_sanitization_service';\n\nexport * from './private_export';\nexport { VERSION } from './version';\n//
This must be exported so it doesn't get tree-shaken away prematurely\nexport
{ ELEMENT_PROBE_PROVIDERS__POST_R3__ as ELEMENT_PROBE_PROVIDERS__POST_R3__ } from
'./dom/debug/ng_probe';\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\n/**\n * @module\n * @description\n * Entry point for all public APIs of this
package.\n * \n\nexport * from './src/platform-browser';\n//
This file only reexports content of the `src` folder. Keep it that way.\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n * \n\n// This file is not used to build this module. It is only used
during editing\n// by the TypeScript language service and during build for verification. `ngc`\n// replaces this file
with production index.ts when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n"/**\n *

```

Generated bundle index. Do not edit.\n \*\n\nexport \* from './index';\n\nexport {BROWSER\_MODULE\_PROVIDERS as angular\_packages\_platform\_browser\_platform\_browser\_c,\_document as angular\_packages\_platform\_browser\_platform\_browser\_b,errorHandler as angular\_packages\_platform\_browser\_platform\_browser\_a} from './src/browser';\n\nexport {GenericBrowserDomAdapter as angular\_packages\_platform\_browser\_platform\_browser\_o} from './src/browser/generic\_browser\_adapter';\n\nexport {createMeta as angular\_packages\_platform\_browser\_platform\_browser\_d} from './src/browser/meta';\n\nexport {SERVER\_TRANSITION\_PROVIDERS as angular\_packages\_platform\_browser\_platform\_browser\_l,appInitializerFactory as angular\_packages\_platform\_browser\_platform\_browser\_k} from './src/browser/server-transition';\n\nexport {createTitle as angular\_packages\_platform\_browser\_platform\_browser\_e} from './src/browser/title';\n\nexport {initTransferState as angular\_packages\_platform\_browser\_platform\_browser\_f} from './src/browser/transfer\_state';\n\nexport {ELEMENT\_PROBE\_PROVIDERS\_\_PRE\_R3\_\_ as angular\_packages\_platform\_browser\_platform\_browser\_n,\_createNgProbeR2 as angular\_packages\_platform\_browser\_platform\_browser\_m} from './src/dom/debug/ng\_probe';\n\nexport {EventManagerPlugin as angular\_packages\_platform\_browser\_platform\_browser\_g} from './src/dom/events/event\_manager';\n\nexport {HAMMER\_PROVIDERS as angular\_packages\_platform\_browser\_platform\_browser\_i,HAMMER\_PROVIDERS\_\_PRE\_R3\_\_ as angular\_packages\_platform\_browser\_platform\_browser\_h} from './src/dom/events/hammer\_gestures';\n\nexport {domSanitizerImplFactory as angular\_packages\_platform\_browser\_platform\_browser\_j} from './src/security/dom\_sanitization\_service';\n\n;","names":["DomAdapter","global","setRootDomAdapter","parseCookieValue","InjectionToken","ApplicationInitStatus","getDOM","APP\_INITIALIZER","DOCUMENT","Injector","setTestabilityGetter","ApplicationRef","NgZone","getDebugNodeR2","NgProbeToken","Optional","Injectable","Inject","ViewEncapsulation","APP\_ID","RendererStyleFlags2","Console","NgModule","forwardRef","SecurityContext","allowSanitizationBypassOrThrow","unwrapSafeValue","\_sanitizeHtml","getSanitizationBypassType","\_sanitizeUrl","bypassSanitizationTrustHtml","bypassSanitizationTrustStyle","bypassSanitizationTrustScript","bypassSanitizationTrustUrl","bypassSanitizationTrustResourceUrl","ErrorHandler","setDocument","PLATFORM\_BROWSER\_ID","PLATFORM\_ID","PLATFORM\_INITIALIZER","Sanitizer","createPlatformFactory","platformCore","INJECTOR\_SCOPE","RendererFactory2","Testability","CommonModule","ApplicationModule","SkipSelf","inject","window","Version"],"mappings":";;;;;;;;;IAAA;;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aAchC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EAAE,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC1B,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,WAAW,GAAG,CAAC,CAAC,EAAE;QACvC,CAAC,CAAC,SAAS,GAAG,CAAC,KAAK,IAAI,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE,EAAE,CAAC,CAAC;IACzF,CAAC;IAEM,IAAI,QAAQ,GAAG;QACiB,QAAQ,GAAG,MAAM,CAAC,MAAM,IAAI,SAAS,QAAQ,CAAC,CAAC;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;aAchF;YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,KAAK,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CAAC,EAAE,CAAC;QACvB,IAAI,CAAC,GAAG,EAAE,CAAC;QACX,KAAK,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,CAAC;gBAC/E,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;QACkB,IAAI,CAA

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GAAG,GAAG,SAAS,CAAC,EAAE,CAAC,CAAC;;SAC/D;QAED,uDAAW,GAAX,UAA,Y,OAAY;YACtB,iBAAM, YAAY, YAAC, OAAO, EAAE, IAAI, CAAC, QAAQ, EAAE, EAAE, CAAC, CAAC;SACbD;QAED,yDAAa,GAAb, UAAc,MAAW,EAAE,IAAY;YACrC,IAAM,EAAE,GAAG,iBAAM,aAAa,YAAC,MAAM,EAAE,IAAI,CAAC,CAAC;YAC7C,iBAAM,YAAY,YAAC,EAAE,EAAE,IAAI,CAAC,WAAW,EAAE,EAAE,CAAC,CAAC;YAC7C,OA AO,EAAE,CAAC;SACX;gDACF;KAxBD,CAAgD,mBAAmB,GAwBIE;IAED;QAAgC,qCAAmB;QAGjD,2BACI ,YAA0B,EAAU,gBAAqC,EACjE,MAAW,EAAE,SAAwB;YAFjD,YAGE,kBAAM,YAAY,CAAC,SAASpB;YAXu C,sBAAgB,GAAhB,gBAAgB,CAAqB;YACjE,YAAM,GAAN,MAAM,CAAK;YAErB,KAAI,CAAC,UAAU,GAA I,MAAc,CAAC,YAAY,CAAC,EAAC,IAAI,EAAE,MAAM,EAAC,CAAC,CAAC;YAC/D,KAAI,CAAC,gBAAgB, CAAC,OAAO,CAAC,KAAI,CAAC,UAAU,CAAC,CAAC;YAC/C,IAAM,MAAM,GAAG,aAAa,CAAC,SAAS,C AAC,EAAE,EAAE,SAAS,CAAC,MAAM,EAAE,EAAE,CAAC,CAAC;YACjE,KAAK,IAAI,CAAC,GAAG,CAA C,EAAE,CAAC,GAAG,MAAM,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;gBACtC,IAAM,OAAO,GAAG,QA AQ,CAAC,aAAa,CAAC,OAAO,CAAC,CAAC;gBACHd,OAAO,CAAC,WAAW,GAAG,MAAM,CAAC,CAAC,C AAC,CAAC;gBACHc,KAAI,CAAC,UAAU,CAAC,WAAW,CAAC,OAAO,CAAC,CAAC;aACtC;;SACF;QAE0, 4CAAgB,GAAhB,UAAiB,IAAS;YACbC,OAAO,IAAI,KAAK,IAAI,CAAC,MAAM,GAAG,IAAI,CAAC,UAAU, GAAG,IAAI,CAAC;SACtD;QAED,mCAAO,GAAP;YACE,IAAI,CAAC,gBAAgB,CAAC,UAAU,CAAC,IAAI,C AAC,UAAU,CAAC,CAAC;SACnD;QAED,uCAAW,GAAX,UAA,Y,MAAW,EAAE,QAAa;YACpC,OAAO,iBAAM,WAAW,YAAC,IAAI,CAAC,gBAAgB,CAAC,MAAM,CAAC,EAAE,QAAQ,CAAC,CAAC;SACnE;QACD,wC AAY,GAAZ,UAAa,MAAW,EAAE,QAAa,EAAE,QAAa;YACpD,OAAO,iBAAM,YAAY,YAAC,IAAI,CAAC,gB AAgB,CAAC,MAAM,CAAC,EAAE,QAAQ,EAAE,QAAQ,CAAC,CAAC;SAC9E;QACD,uCAAW,GAAX,UAA Y,MAAW,EAAE,QAAa;YACpC,OAAO,iBAAM,WAAW,YAAC,IAAI,CAAC,gBAAgB,CAAC,MAAM,CAAC,E AAE,QAAQ,CAAC,CAAC;SACnE;QACD,sCAAU,GAAY,UAAW,IAAS;YACIB,OAAO,IAAI,CAAC,gBAAgB, CAAC,iBAAM,UAAU,YAAC,IAAI,CAAC,gBAAgB,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC;SAC7E;gCACF; KArCD,CAAgC,mBAAmB;;;QCtSd,mCAAKb;QACrD,yBAA8B,GAAQ;mBACpC,kBAAM,GAAG,CAAC;SAC X;;;QAID,kCAAQ,GAAR,UAAS,SAAiB;YACxB,OAAO,IAAI,CAAC;SACb;QAED,0CAAgB,GAAhB,UAAiB,O AAoB,EAAE,SAAiB,EAAE,OAAiB;YAA3E,iBAGC;YAFc,OAAO,CAAC,gBAAgB,CAAC,SAAS,EAAE,OAA wB,EAAE,KAAK,CAAC,CAAC;YACrE,OAAO,cAAM,OAAA,KAAI,CAAC,mBAAmB,CAAC,OAAO,EAAE,S AAS,EAAE,OAAwB,CAAC,GAAA,CAAC;SACrF;QAED,6CAAmB,GAAnB,UAAoB,MAAW,EAAE,SAAiB,EA AE,QAAkB;YACpE,OAAO,MAAM,CAAC,mBAAmB,CAAC,SAAS,EAAE,QAAyB,CAAC,CAAC;SACzE;;KAI BH,CAAqC,kBAAkB;;gBADtDJ,aAAU;;;gDAEIC,SAAM,SAACT,eAAQ;;;ICA9B;;;IAGA,IAAM,WAAW,GAA G;;QAEIB,KAAK,EAAE,IAAI;QACX,UAAU,EAAE,IAAI;QACb,SAAS,EAAE,IAAI;QACf,QAAQ,EAAE,IAAI;QACd,WAAW,EAAE,IAAI;QACjB,SAAS,EAAE,IAAI;QACf,UAAU,EAAE,IAAI;QACb,OAAO,EAAE,IAAI ;QACb,SAAS,EAAE,IAAI;;QAEf,OAAO,EAAE,IAAI;QACb,YAAY,EAAE,IAAI;QACIB,WAAW,EAAE,IAAI; QACjB,UAAU,EAAE,IAAI;QACb,aAAa,EAAE,IAAI;QACnB,SAAS,EAAE,IAAI;QACf,UAAU,EAAE,IAAI;; QAEhB,OAAO,EAAE,IAAI;QACb,SAAS,EAAE,IAAI;;QAEf,QAAQ,EAAE,IAAI;QACd,aAAa,EAAE,IAAI;QA CnB,YAAY,EAAE,IAAI;QACIB,WAAW,EAAE,IAAI;QACjB,cAAc,EAAE,IAAI;;QAEpB,OAAO,EAAE,IAAI; QACb,WAAW,EAAE,IAAI;QACjB,YAAY,EAAE,IAAI;QACIB,SAAS,EAAE,IAAI;QACf,WAAW,EAAE,IAAI;; QAEjB,KAAK,EAAE,IAAI;KACZ,CAAC;IAEF;;;;;;QAOa,qBAAqB,GAAG,IAAIJ,iBAAc,CAASB,qBAAqB,EA AE;IAUpG;;;;;QAKa,aAAa,GAAG,IAAIa,iBAAc,CAAe,cAAc,EAAE;IAQ9E;;;;;QAKA;;;;;YAOE,WAAM,GA Aa,EAAE,CAAC;;;;;;YAkBtB,cAAS,GAA4B,EAAE,CAAC;SAsCzC;;;;;QAZC,yCAAW,GAAX,UAA,Y, OAAoB;YAC9B,IAAM,EAAE,GAAG,IAAI,MAAO,CAAC,OAAO,EAAE,IAAI,CAAC,OAAO,CAAC,CAAC;Y AE9C,EAAE,CAAC,GAAG,CAAC,OAAO,CAAC,CAAC,GAAG,CAAC,EAAC,MAAM,EAAE,IAAI,EAAC,CA AC,CAAC;YACpC,EAAE,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC,GAAG,CAAC,EAAC,MAAM,EAAE,IA AI,EAAC,CAAC,CAAC;YAErC,KAAK,IAAM,SAAS,IAAI,IAAI,CAAC,SAAS,EAAE;gBACtC,EAAE,CAAC,G AAG,CAAC,SAAS,CAAC,CAAC,GAAG,CAAC,IAAI,CAAC,SAAS,CAAC,SAAS,CAAC,CAAC,CAAC;aACID; YAED,OAAO,EAAE,CAAC;SACX;;;gBA9DFY,aAAU;;IAiEX;;;;;QAM0C,wCAAKb;QACID,8BACsB,GAAQ, EACa,OAA4B,EAAU,OAAgB,EACID,MAA0B;YAHZe,YAIE,kBAAM,GAAG,CAAC,SACX;YAH0C,aAAO,GA AP,OAAO,CAAqB;YAAU,aAAO,GAAP,OAAO,CAAS;YACID,YAAM,GAAN,MAAM,CAAoB;;SAExE;QAED, uCAAQ,GAAR,UAAS,SAAiB;YACxB,IAAI,CAAC,WAAW,CAAC,cAAc,CAAC,SAAS,CAAC,WAAW,EAAE,





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GAAG,CAAC,CAAC,CAAC;QAC5D,OAAO,GAAG,CAAC;IACb,CAAC;IAED;;;;;aAKgB,iBAAiB;QAC/B,WA  
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CX,GAAG,EAAE,KAAK;YACV,GAAG,EAAE,KAAK;SACX,CAAC;QACF,OAAO,IAAI,CAAC,OAAO,CAAC,UAUU,EAAE,UAAA,CAAC,IAAI,OAAA,WAAW,CAAC,CAAC,CAAC,GAAA,CAAC,CAAC;IACvD,CAAC;aAEe,YAAY,CAAC,IAAY;QACvC,IAAM,aAAa,GAA0B;YAC3C,KAAK,EAAE,GAAG;YACV,KAAK,EAAE,GAAG;YACV,KAAK,EAAE,IAAI;YACX,KAAK,EAAE,GAAG;YACV,KAAK,EAAE,GAAG;SACX,CAAC;QACF,OAAO,IAAI,CAAC,OAAO,CAAC,UAUU,EAAE,UAAA,CAAC,IAAI,OAAA,aAAa,CAAC,CAAC,CAAC,GAAA,CAAC,CAAC;IACzD,CAAC;IAkBD;;;;;;;;;;aAcgB,YAAY,CAAW,GAAG;QACbD,OAAO,GAakB,CAAC;IAC5B,CAAC;IAED;;;;;;;;;;QAaA;YAEU,UAAC,GAAG,CAAC;YACxC,yBAAoB,GAAG,CAAC;YAC4D,SA4DxE;;QAZDQ,kBAAL,GAAX,UAAY,SAAa;YACvB,IAAM,aAAa,GAAG,IAAI,aAAa,EAAE,CAAC;YAC1C,aAAa,CAAC,KAAK,GAAG,SAAS,CAAC;YACbC,OAAO,aAAa,CAAC;SACtB;;;QAKD,2BAAG,GAAG,UAAG,GAAG,EAAE,YAAe;YACtC,OAAO,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,KAAK,SAAS,GAAG,IAAI,CAAC,KAAK,CAAC,GAAG,CAAM,GAAG,YAAY,CAAC;SAC5E;;;QAKD,2BAAG,GAAG,UAAG,GAAG,EAAE,KAAQ;YAC/B,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,GAAG,KAAK,CAAC;SACzB;;;QAKD,8BAAM,GAAG,UAAG,GAAG;YACxB,OAAO,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,CAAC;SACxB;;;QAKD,8BAAM,GAAG,UAAG,GAAG;YACxB,OAAO,IAAI,CAAC,KAAK,CAAC,cAAc,CAAC,GAAG,CAAC,CAAC;SACvC;;;QAKD,mCAAW,GAAX,UAAe,GAAG,EAAE,QAAiB;YACbD,IAAI,CAAC,oBAAoB,CAAC,GAAG,CAAC,GAAG,QAAQ,CAAC;SAC3C;;;QAKD,8BAAM,GAAG;YAAE,KAAK,IAAM,GAAG,IAAI,IAAI,CAAC,oBAAoB,EAAE;gBAC3C,IAAI,IAAI,CAAC,oBAAoB,CAAC,cAAc,CAAC,GAAG,CAAC,EAAE;oBACjD,IAAI;wBACF,IAAI,CAAC,KAAK,CAAC,GAAG,CAAC,GAAG,IAAI,CAAC,oBAAoB,CAAC,GAAG,CAAC,EAAE,CAAC;qBACpD;oBAAC,OAAO,CAAC,EAAE;wBACV,OAAO,CAAC,IAAI,CAAC,qCAAqC,EAAE,CAAC,CAAC,CAAC;qBACxD;iBACF;aACF;YACD,OAAO,IAAI,CAAC,SAAS,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC;SACnC;;;gBA9DFIC,aAAU;;aAiEK,iBAAiB,CAAC,GAAa,EAAE,KAAa;;QAG5D,IAAM,MAAM,GAAG,GAAG,CAAC,cAAc,CAAC,KAAK,GAAG,QAAQ,CAAC,CAAC;QACpD,IAAI,YAAY,GAAG,EAAE,CAAC;QACtB,IAAI,MAAM,IAAI,MAAM,CAAC,WAAW,EAAE;YACbC,IAAI;gBACF,YAAY,GAAG,IAAI,CAAC,KAAK,CAAC,YAAY,CAAC,MAAM,CAAC,WAAW,CAAC,CAAC,CAAC;aAC7D;YAAC,OAAO,CAAC,EAAE;gBACV,OAAO,CAAC,IAAI,CAAC,kDAakD,GAAG,KAAK,EAAE,CAAC,CAAC,CAAC;aAC7E;SACF;QACD,OAAO,aAAa,CAAC,IAAI,CAAC,YAAY,CAAC,CAAC;IAC1C,CAAC;IAED;;;;;;;;QASA;;;gBAHCM,WAAQ,SAAC;oBACR,SAAS,EAAE,CAAC,EAAC,OAAO,EAAE,aAAa,EAAE,UAUU,EAAE,iBAAiB,EAAE,IAAI,EAAE,CAACd,eAAQ,EAAEW,SAAM,CAAC,EAAC,CAAC;iBAC/F;;;ICxKD;;;;;;;;IAaA;;;QAKA;SAwCC;;;;;;;;QA/BQ,MAAG,GAAG;YACE,OAAO,cAAM,OAAA,IAAI,GAAA,CAAC;SACnB;;;;;;;;QAUM,MAAG,GAAG,UAAG,QAAGB;YACzB,OAAO,UAAC,YAAY;gBACIB,OAAO,YAAY,CAAC,aAAa,IAAI,IAAI;oBACrC,cAAc,CAAC,YAAY,CAAC,aAAa,EAAE,QAAQ,CAAC;oBACpD,KAAK,CAAC;aACX,CAAC;SACH;;;;;;;;QAUM,YAAS,GAAG,UAAG,iBAiB,IAAe;YAC9B,OAAO,UAAC,SAAS,IAAK,OAAA,SAAS,CAAC,cAAc,CAAC,OAAO,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,GAAA,CAAC;SACtE;iBACF;KAAA,IAAA;IAED,SAAS,cAAc,CAAC,CAAM,EAAE,QAAgB;QAC9C,IAAIb,cAAM,EAAE,CAAC,aAAa,CAAC,CAAC,CAAC,EAAE;YAC7B,OAAO,CAAC,CAAC,OAAO,IAAI,CAAC,CAAC,OAAO,CAAC,QAAQ,CAAC;gBACnC,CAAC,CAAC,iBAiB,IAAI,CAAC,CAAC,iBAiB,CAAC,QAAQ,CAAC;gBACpD,CAAC,CAAC,qBAAqB,IAAI,CAAC,CAAC,qBAAqB,CAAC,QAAQ,CAAC,CAAC;SACIE;QAED,OAAO,KAAK,CAAC;IACf;ICpEA;;;;;;;;ICAA;;;;;;;;IAGBA;;QAGa,OAAO,GAAG,IAAI6C,UAAO,CAAC,mBAAmB;;ICnBtD;;;;;;;;ICAA;;;;;;;;IACA;;ICdA;;;;;;;;ICAA;;;;;;;;;;;;;;";}

Found

in path(s):

\* /platform-browser-11-0-2-tgz/package/bundles/platform-browser.umd.js.map

No license file was found, but licenses were detected in source scan.

{"version":3,"file":"platform-browser-

testing.umd.js","sources":["../../external/npm/node\_modules/tslib/tslib.es6.js","../../packages/platform-browser/testing/src/browser\_util.ts","../../packages/platform-



```
(executing.\");\r\n while (_) try {\r\n if (f = 1, y && (t = op[0] & 2 ? y[\"return\"] : op[0] ? y[\"throw\"] ||
((t = y[\"return\"])) && t.call(y), 0) : y.next) && !(t = t.call(y, op[1])).done) return t;\r\n if (y = 0, t) op =
[op[0] & 2, t.value];\r\n switch (op[0]) {\r\n case 0: case 1: t = op; break;\r\n case 4:
_label++; return { value: op[1], done: false }; \r\n case 5: _label++; y = op[1]; op = [0]; continue;\r\n case 7: op = _ops.pop(); _trys.pop(); continue;\r\n default:\r\n if (!(t = _trys, t = t.length >
0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; } \r\n if (op[0] === 3 && (!t ||
(op[1] > t[0] && op[1] < t[3]))) { _label = op[1]; break; } \r\n if (op[0] === 6 && _label < t[1]) {
_label = t[1]; t = op; break; } \r\n if (t && _label < t[2]) { _label
= t[2]; _ops.push(op); break; } \r\n if (t[2]) _ops.pop(); \r\n _trys.pop(); continue;\r\n }\r\n op = body.call(thisArg, _);\r\n } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; } \r\n if (op[0]
& 5) throw op[1]; return { value: op[0] ? op[1] : void 0, done: true }; \r\n } \r\n} \r\n\r\nexport var __createBinding
= Object.create ? (function(o, m, k, k2) {\r\n if (k2 === undefined) k2 = k; \r\n Object.defineProperty(o, k2, {
enumerable: true, get: function() { return m[k]; }});\r\n}) : (function(o, m, k, k2) {\r\n if (k2 === undefined) k2 =
k; \r\n o[k2] = m[k]; \r\n}); \r\n\r\nexport function __exportStar(m, exports) {\r\n for (var p in m) if (p !==
\"default\" && !exports.hasOwnProperty(p)) __createBinding(exports, m, p); \r\n} \r\n\r\nexport function __values(o)
{ \r\n var s = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0; \r\n if (m) return
m.call(o); \r\n if (o
&& typeof o.length === \"number\") return {\r\n next: function () {\r\n if (o && i >= o.length) o = void
0; \r\n return { value: o && o[i++], done: !o }; \r\n } \r\n }; \r\n throw new TypeError(s ? \"Object is not
iterable.\" : \"Symbol.iterator is not defined.\"); \r\n} \r\n\r\nexport function __read(o, n) {\r\n var m = typeof
Symbol === \"function\" && o[Symbol.iterator]; \r\n if (!m) return o; \r\n var i = m.call(o), r, ar = [], e; \r\n try
{ \r\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done) ar.push(r.value); \r\n } \r\n catch (error) { e = {
error: error }; } \r\n finally { \r\n try { \r\n if (r && !r.done && (m = i[\"return\"])) m.call(i); \r\n } \r\n finally { if (e) throw e.error; } \r\n } \r\n return ar; \r\n} \r\n\r\nexport function __spread() {\r\n for (var ar =
[], i = 0; i < arguments.length; i++) \r\n ar = ar.concat(__read(arguments[i])); \r\n return ar; \r\n} \r\n\r\nexport
function __spreadArrays() {\r\n for (var s = 0, i = 0, il = arguments.length; i < il; i++) s +=
arguments[i].length; \r\n for (var r = Array(s), k = 0, i = 0; i < il; i++) \r\n for (var a = arguments[i], j = 0, jl =
a.length; j < jl; j++, k++) \r\n r[k] = a[j]; \r\n return r; \r\n} \r\n\r\nexport function __await(v) {\r\n return
this instanceof __await ? (this.v = v, this) : new __await(v); \r\n} \r\n\r\nexport function __asyncGenerator(thisArg,
_arguments, generator) {\r\n if (!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not
defined.\"); \r\n var g = generator.apply(thisArg, _arguments || []), i, q = []; \r\n return i = {}, verb(\"next\"),
verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i; \r\n function verb(n) { if
(g[n]) i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; } \r\n function resume(n, v) { try { step(g[n](v));
} catch (e) { settle(q[0][3], e); } } \r\n function step(r) { r.value instanceof __await ?
Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); } \r\n function fulfill(value) { resume(\"next\",
value); } \r\n function reject(value) { resume(\"throw\", value); } \r\n function settle(f, v) { if (f(v), q.shift(),
q.length) resume(q[0][0], q[0][1]); } \r\n} \r\n\r\nexport function __asyncDelegator(o) {\r\n var i, p; \r\n return i =
{}, verb(\"next\"), verb(\"throw\"), function (e) { throw e; }, verb(\"return\"), i[Symbol.iterator] = function () {
return this; }, i; \r\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done: n === \"return\" } : f ? f(v) : v; } : f; } \r\n} \r\n\r\nexport function __asyncValues(o) {\r\n if
(!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not defined.\"); \r\n var m =
o[Symbol.asyncIterator], i; \r\n return m ? m.call(o) : (o = typeof __values === \"function\"
? __values(o) : o[Symbol.iterator]() , i = {}, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator]
= function () { return this; }, i); \r\n function verb(n) { i[n] = o[n] && function (v) { return new Promise(function
(resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; } \r\n function settle(resolve, reject, d,
v) { Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject); } \r\n} \r\n\r\nexport function
__makeTemplateObject(cooked, raw) {\r\n if (Object.defineProperty) { Object.defineProperty(cooked, \"raw\", {
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value: raw }); } else { cooked.raw = raw; } \r\n return cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create
? (function(o, v) {\r\n Object.defineProperty(o, \"default\", { enumerable: true, value: v });\r\n}) : function(o, v)
{\r\n o[\"default\"] = v;\r\n};\r\n\r\nexport function __importStar(mod) {\r\n if (mod && mod.__esModule)
return mod;\r\n var result = {};\r\n
 if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n
 __setModuleDefault(result, mod);\r\n return result;\r\n}\r\n\r\nexport function __importDefault(mod) {\r\n
return (mod && mod.__esModule) ? mod : { default: mod };\r\n}\r\n\r\nexport function
__classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver)) {\r\n throw new
TypeError(\"attempted to get private field on non-instance\");\r\n }\r\n return
privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver)) {\r\n throw new TypeError(\"attempted to set private field on non-instance\");\r\n
 }\r\n privateMap.set(receiver, value);\r\n return value;\r\n}\r\n\"\", \"/**\r\n * @license\r\n * Copyright Google LLC
All Rights Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found in
the LICENSE file at
https://angular.io/license\r\n */\r\nimport { getDOM as getDOM } from '@angular/common';\r\nimport { NgZone,
global as global } from '@angular/core';\r\n\r\nexport class BrowserDetection {\r\n private _overrideUa: string|null;\r\n
 private get _ua(): string {\r\n if (typeof this._overrideUa === 'string') {\r\n return this._overrideUa;\r\n }\r\n
 return getDOM() ? getDOM().getUserAgent() : \";\r\n }\r\n\r\n static setup() {\r\n return new BrowserDetection(null);\r\n
 }\r\n\r\n constructor(ua: string|null) {\r\n this._overrideUa = ua;\r\n }\r\n\r\n get isFirefox(): boolean {\r\n return
this._ua.indexOf('Firefox') > -1;\r\n }\r\n\r\n get isAndroid(): boolean {\r\n return this._ua.indexOf('Mozilla/5.0') > -1
&& this._ua.indexOf('Android') > -1 && this._ua.indexOf('AppleWebKit') > -1 &&
this._ua.indexOf('Chrome') == -1 && this._ua.indexOf('IEMobile') == -1;\r\n }\r\n\r\n get isEdge(): boolean {\r\n
return this._ua.indexOf('Edge') > -1;\r\n }\r\n\r\n get isIE(): boolean {\r\n return this._ua.indexOf('Trident')
> -1;\r\n }\r\n\r\n get isWebkit(): boolean {\r\n return this._ua.indexOf('AppleWebKit') > -1 &&
this._ua.indexOf('Edge') == -1 && this._ua.indexOf('IEMobile') == -1;\r\n }\r\n\r\n get isIOS7(): boolean {\r\n
return (this._ua.indexOf('iPhone OS 7') > -1 || this._ua.indexOf('iPad OS 7') > -1) &&
this._ua.indexOf('IEMobile') == -1;\r\n }\r\n\r\n get isSlow(): boolean {\r\n return this.isAndroid || this.isIE ||
this.isIOS7;\r\n }\r\n\r\n // The Intl API is only natively supported in Chrome, Firefox, IE11 and Edge.\r\n // This
detector is needed in tests to make the difference between:\r\n // 1) IE11/Edge: they have a native Intl API, but with
some discrepancies\r\n // 2) IE9/IE10: they use the polyfill, and so no discrepancies\r\n get supportsNativeIntlApi():
boolean {\r\n return !!(<any>global).Intl && (<any>global).Intl !== (<any>global).IntlPolyfill;\r\n }\r\n\r\n get
isChromeDesktop(): boolean {\r\n return this._ua.indexOf('Chrome') > -1 && this._ua.indexOf('Mobile Safari')
== -1 && this._ua.indexOf('Edge') == -1;\r\n }\r\n\r\n // \"Old Chrome\" means Chrome 3X, where there are
some discrepancies in the Intl API.\r\n // Android 4.4 and 5.X have such browsers by default (respectively 30 and
39).\r\n get isOldChrome(): boolean {\r\n return this._ua.indexOf('Chrome') > -1 && this._ua.indexOf('Chrome/3') >
-1 && this._ua.indexOf('Edge') == -1;\r\n }\r\n\r\n get supportsCustomElements() {\r\n return (typeof
(<any>global).customElements !== 'undefined');\r\n }\r\n\r\n get supportsDeprecatedCustomCustomElementsV0() {\r\n
return (typeof (document as any).registerElement !== 'undefined');\r\n }\r\n\r\n get supportsRegExUnicodeFlag():
boolean {\r\n return RegExp.prototype.hasOwnProperty('unicode');\r\n }\r\n\r\n get supportsShadowDom() {\r\n const
testEl = document.createElement('div');\r\n return (typeof testEl.attachShadow !== 'undefined');\r\n }\r\n\r\n get
supportsDeprecatedShadowDomV0() {\r\n const testEl = document.createElement('div') as any;\r\n return (typeof
testEl.createShadowRoot !== 'undefined');\r\n }\r\n}\r\n\r\nexport const browserDetection: BrowserDetection =
BrowserDetection.setup();\r\n\r\nexport function dispatchEvent(element: any, eventType: any): void {\r\n const evt:
Event = getDOM().getDefaultDocument().createEvent('Event');\r\n evt.initEvent(eventType, true, true);\r\n
getDOM().dispatchEvent(element, evt);\r\n}\r\n\r\nexport function createMouseEvent(eventType: string): MouseEvent
{\r\n const evt: MouseEvent = getDOM().getDefaultDocument().createEvent('MouseEvent');\r\n
 evt.initEvent(eventType, true, true);\r\n return evt;\r\n}\r\n\r\nexport function el(html: string): HTMLElement {\r\n
return <HTMLElement>getContent(createTemplate(html)).firstChild;\r\n}\r\n\r\nexport function normalizeCSS(css: string):

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string {\n return css.replace(/\s+/g, ' ')\n .replace(/:/g, ':')\n .replace(/"/g, '"')\n .replace(/'/g, '')\n
.replace(/url\(\s*(\/|\\\\"|\\\\s)(.+)(\\\\\\"|\\\\s)\\\\s*\)/g, (...match: string[]) => `url("${match[2]}")`)\n
.replace(/\[([.+=\^"\\]|+)|\]/g,
(...match: string[]) => `[${match[1]}=${"${match[2]}"}`);\n\nfunction getAttributeMap(element: any):
Map<string, string> {\n const res = new Map<string, string>();\n const elAttrs = element.attributes;\n for (let i = 0;
i < elAttrs.length; i++) {\n const attrib = elAttrs.item(i);\n res.set(attrib.name, attrib.value);\n }\n return
res;\n}\n\nconst _selfClosingTags = ['br', 'hr', 'input'];\nexport function stringifyElement(el: any /** TODO #9100
*/): string {\n let result = ";\n if (getDOM().isElementNode(el)) {\n const tagName =
el.tagName.toLowerCase();\n // Opening tag\n result += `<${tagName}`;\n // Attributes in an ordered
way\n const attributeMap = getAttributeMap(el);\n const sortedKeys = Array.from(attributeMap.keys()).sort();\n
for (const key of sortedKeys) {\n const lowerCaseKey = key.toLowerCase();\n let attValue =
attributeMap.get(key);\n if (typeof attValue !== 'string') {\n result
+= ` ${lowerCaseKey}`;\n } else {\n // Browsers order style rules differently. Order them alphabetically for
consistency.\n if (lowerCaseKey === 'style') {\n attValue = attValue.split(/;/).filter(s => !!s).sort().map(s
=> `${s};`);}\n result += ` ${lowerCaseKey}="${attValue}"`;\n }\n result +=
'>';\n // Children\n const childrenRoot = templateAwareRoot(el);\n const children = childrenRoot ?
childrenRoot.childNodes : [];\n for (let j = 0; j < children.length; j++) {\n result +=
stringifyElement(children[j]);\n }\n // Closing tag\n if (_selfClosingTags.indexOf(tagName) === -1) {\n
result += `</${tagName}>`;\n }\n } else if (isCommentNode(el)) {\n result += `<!--${el.nodeValue}-->`;\n }
else {\n result += el.textContent;\n }\n return result;\n}\n\nexport function createNgZone(): NgZone {\n return
new NgZone({enableLongStackTrace: true, shouldCoalesceEventChangeDetection:
false});\n}\n\nexport function isCommentNode(node: Node): boolean {\n return node.nodeType ===
Node.COMMENT_NODE;\n}\n\nexport function isTextNode(node: Node): boolean {\n return node.nodeType ===
Node.TEXT_NODE;\n}\n\nexport function getContent(node: Node): Node {\n if ('content' in node) {\n return
(<any>node).content;\n } else {\n return node;\n }\n}\n\nexport function templateAwareRoot(el: Node): any {\n
return getDOM().isElementNode(el) && el.nodeName === 'TEMPLATE' ? getContent(el) : el;\n}\n\nexport
function setCookie(name: string, value: string) {\n // document.cookie is magical, assigning into it assigns/overrides
one cookie value, but does\n // not clear other cookies.\n document.cookie = encodeURIComponent(name) + '=' +
encodeURIComponent(value);\n}\n\nexport function supportsWebAnimation(): boolean {\n return typeof
(<any>Element).prototype['animate'] === 'function';\n}\n\nexport function hasStyle(element: any, styleName:
string, styleValue?: string|null):
boolean {\n const value = element.style[styleName] || ";\n return styleValue ? value === styleValue : value.length >
0;\n}\n\nexport function hasClass(element: any, className: string): boolean {\n return
element.classList.contains(className);\n}\n\nexport function sortedClassList(element: any): any[] {\n return
Array.prototype.slice.call(element.classList, 0).sort();\n}\n\nexport function createTemplate(html: any):
HTMLElement {\n const t = getDOM().getDefaultDocument().createElement('template');\n t.innerHTML = html;\n
return t;\n}\n\nexport function childNodesAsList(el: Node): any[] {\n const childNodes = el.childNodes;\n const
res = [];\n for (let i = 0; i < childNodes.length; i++) {\n res[i] = childNodes[i];\n }\n return res;\n}\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport { APP_ID,
createPlatformFactory,
NgModule, NgZone, PLATFORM_INITIALIZER, platformCore, PlatformRef, StaticProvider} from
'@angular/core';\nimport {BrowserModule, BrowserDomAdapter as BrowserDomAdapter,
ELEMENT_PROBE_PROVIDERS as ELEMENT_PROBE_PROVIDERS} from '@angular/platform-
browser';\nimport {BrowserDetection, createNgZone} from './browser_util';\n\nfunction initBrowserTests() {\n
BrowserDomAdapter.makeCurrent();\n BrowserDetection.setup();\n}\n\nconst
_TEST_BROWSER_PLATFORM_PROVIDERS: StaticProvider[] =\n [{provide: PLATFORM_INITIALIZER,
useValue: initBrowserTests, multi: true}];\n\n/**\n * Platform for testing\n */\n * @publicApi\n */\nexport const

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platformBrowserTesting =\n createPlatformFactory(platformCore, 'browserTesting',
_TEST_BROWSER_PLATFORM_PROVIDERS);\n\n/**\n * NgModule for testing.\n * \n * @publicApi\n *\n@NgModule({\n exports: [BrowserModule],\n providers: [\n {provide: APP_ID, useValue: 'a'},\n ELEMENT_PROBE_PROVIDERS,\n {provide: NgZone, useFactory: createNgZone},\n]\n})\nexport class BrowserTestingModule {\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n@module\n * @description\n * Entry point for all public APIs of the platform-browser/testing package.\n *\n\nexport * from './browser';\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n<reference types="jasmine" />\n\n/**\n * @module\n * @description\n * Entry point for all public APIs of this package.\n *\n\nexport * from './src/testing';\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n// This file is not used to build this module. It is only used during editing\n// by the TypeScript language service and during build for verification. `ngc` replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n\n"/**\n * Generated bundle index. Do not edit.\n *\n\nexport * from './index';\n\nexport {createNgZone as angular_packages_platform_browser_testing_testing_a} from './src/browser_util';\n\n],\n "names": ["getDOM", "global", "NgZone", "BrowserDomAdapter", "PLATFORM_INITIALIZE_R", "createPlatformFactory", "platformCore", "NgModule", "BrowserModule", "APP_ID", "ELEMENT_PROBE_PROVIDERS"],\n "mappings": ";;;;;;;;;IAAA;;;;;;;;;IACa;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aChc,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EA AE,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBA AE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa ,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC 1B,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,WAAW,GAAG, CAAC,CAAC,EAAE;QACvC,CAAC,CAAC,SAAS,GAAG,CAAC,KAAK,IAAI,GAAG,MAAM,CAAC,MAAM, CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE,EAAE,CAAC, CAAC;IACzF,CAAC;IAEM,IAAI,QAAQ,GAAG;QACIB,QAAQ,GAAG,MAAM,CAAC,MAAM,IAAI,SAAS,QA AQ,CAAC,CAAC;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC ,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC, CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAA C,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC, CAAC,CAAC;aAchF;YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,KAAK,CAAC,I AAI,EAAE,SAAS,CAAC,CAAC;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CAAC,EAAE,CAAC;QACvB,IAAI ,CAAC,GAAG,EAAE,CAAC;QACX,KAAK,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,MAAM,CAAC,SAAS,CAA C,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAA G,CAAC;gBAC/E,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;QACbB,IAAI,CAA C,IAAI,IAAI,OAAO,MAAM,CAAC,qBAAqB,KAAK,UAAU;YAC/D,KAAK,IAAI,CAAC,GAAG,CAAC,E AAE,CAAC,GAAG,MAAM,CAAC,qBAAqB,CAAC,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,CAAC,MAAM, EAAE,CAAC,EAAE,EAAE;gBACpE,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,G AAG,CAAC,IAAI,MAAM,CAAC,SAAS,CAAC,oBAAoB,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,CAA C,CAAC,CAAC;oBACIE,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAA C,CAAC,CAAC,CAAC,CAAC;aACzB;QACL,OAAO,CAAC,CAAC;IACb,CAAC;aAEe,UAAU,CAAC,UAAU,E AAE,MAAM,EAAE,GAAG,EAAE,IAAI;QACpD,IAAI,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAA G,CAAC,GAAG,CAAC,GAAG,MAAM,GAAG,IAAI,KAAK,IAAI,GAAG,IAAI,GAAG,MAAM,CAAC,wBAAw B,CAAC,MAAM,EAAE,GAAG,CAAC,GAAG,IAAI,EAAE,CAAC,CAAC;QAC7H,IAAI,OAAO,OAAO,KAAK, QAAQ,IAAI,OAAO,OAAO,CAAC,QAAQ,KAAK,UAAU;YAAE,CAAC,GAAG,OAAO,CAAC,QAAQ,CAAC,U

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No license file was found, but licenses were detected in source scan.

/\*\*

\* @license Angular v11.0.2

\* (c) 2010-2020 Google LLC. <https://angular.io/>

\* License: MIT

\*/

Found in path(s):

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No license file was found, but licenses were detected in source scan.

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,WACtC7F,KAACKqG,OAAOR,QAAQ7F,KAACKwH,YAAaxH,KAACKoG,UAC3CpG,KAACKoG,SAASP,WAEIBwB,EAAsBxG,UAAUoI,cAAgB,SAAUpB,EAAMqB,GAC5D,OAAOIJ,KAACKoG,SAAS6C,cAAcpB,EAAMqB,IAE7C7B,EAAsBxG,UAAUoI,cAAgB,SAAUtH,GACtD,OAAO7B,KAACKoG,SAAS+C,cAActH,IAEvCwF,EAAsBxG,UAAUuI,WAAa,SAAUvH,GACnD,OAAO7B,KAACKoG,SAASgD,WAAWvH,IAEpCwF,EAAsBxG,UAAUwI,YAAc,SAAUC,EAAQC,GAC5DvJ,KAACKoG,SAASiD,YAAYC,EAAQC,GACICvJ,KAACKqG,OAAOmD,SAASxJ,KAACKwH,YAAa+B,EAAUD,GAAQ,IAE7DjC,EAAsBxG,UAAU4I,aAAe,SAAUH,EAAQC,EAAUG,EAAUC,QACIE,IAAXA,IAAqBA,GAAS,GACIC3J,KAACKoG,SAASqD,aAAaH,EAAQC,EAAUG,GAE7C1J,KAACKqG,OAAOmD,SAASxJ,KAACKwH,YAAa+B,EAAUD,EAAQK,IAE7DtC,EAAsBxG,UAAUqG,YAAc,SAAUoC,EAAQM,EAAUC,GACtE7J,KAACKqG,OAAOyD,SAAS9J,KAACKwH,YAAaoC,EAAU5J,KAACKoG,SAAUyD,IAEpExC,EAAsBxG,UAAUkJ,kBAAoB,SAAUC,EAAgBC,GACIE,OAAOjK,KAACKoG,SAAS2D,kBAaKBC,EAAGBC,IAE3D5C,EAAsBxG,UAAUoG,WAAa,SAAUd,GACnD,OAAOI,KKAACKoG,SAASa,WAAWiD,IAEpC7C,EAAsBxG,UAAUsJ,YAAc,SAAUD,GACpD,OAAOI,KKAACKoG,SAAS+D,YAAYD,IAErC7C,EAAsBxG,UAAUuJ,aAAe,SAAUC,EAAIxC,EAAMhG,EAAOqH,GACtEIJ,KAACKoG,SAASgE,aAAaC,EAAIxC,EAAMhG,EAAOqH,IAEH7D7B,EAAsBxG,UAAUyJ,gBAaKb,SAAUD,EAAIxC,EAAMqB,GACIEIJ,KAACKoG,SAASkE,gBAAGBD,EAAIxC,EAAMqB,IAE5C7B,EAAsBxG,UAAU0J,SAAW,SAAUF,EAAIxC,GACrD7H,KAACKoG,SAASmE,SAASF,EAAlxC,IAE/BR,EAAsBxG,UAAU2J,YAAc,SAAUH,EAAIxC,GACxD7H,KAACKoG,SAASoE,YAAYH,EAAIxC,IAElCR,EAAsBxG,UAAU4J,SAAW,SAAUJ,EAAIK,EAAO7I,EAAO8I,GACnE3K,KAACKoG,SAASqE,SAASJ,EAAlK,EAAO7I,EAAO8I,IAE7CtD,EAAsBxG,UAAU+J,YAAc,SAAUP,EAAIK,EAAOC,GAC/D3K,KAACKoG,SAASwE,YAAYP,EAAIK,EAAOC,IAEzCtD,EAAsBxG,UAAUqF,YAAc,SAAUmE,EAAIxC,EAAMhG,GAtL/C,KAuLXgG,EAAKgd,OAAO,IAtLM,cAsLoBhD,EACtC7H,KAACK8K,kBAaKBT,IAAMxI,GAG7B7B,KAACKoG,SAASF,YAAYmE,EAAIxC,EAAMhG,IAG5CwF,EAAsBxG,UAAUkK,SAAW,SAAUb,EAAMrI,GACvD7B,KAACKoG,SAAS2E,SAASb,EAAMrI,IAEjCwF,EAAsBxG,UAAUmE,OAAS,SAAUgG,EAAQIG,EAAWC,GACIE,OA AO/E,KAACKoG,SAASpB,OAAOgG,EAAQIG,EAAWC,IAEnDsC,EAAsBxG,UAAUiK,kBAAoB,SAAUzG,EAA SxC,GACnE7B,KAACKqG,OAAOyE,kBAaKbZG,EAASxC,IAEpCwF,EApF+B,GAsFtCS,EAAmC,SAAU1F,GA E7C,SAAS0F,EAaKb3I,EAASqI,EAAapB,EAAUC,GACvD,IAAI9D,EAAQH,EAAOZ,KAACKxB,KAAMwH,EAA apB,EAAUC,IAAWrG,KAGhE,OAFaUc,EAAMPD,QAAUA,EACHBoD,EAAMiF,YAAcA,EACbjF,EAmCX,OA xCA7B,EAAUoH,EAAmB1F,GAO7B0F,EAaKbJH,UAAUqF,YAAc,SAAUmE,EAAIxC,EAAMhG,GAjN3C,KA kNXgG,EAAKgd,OAAO,GACU,KAAIBhD,EAAKgd,OAAO,IAINE,cAkNWhD,EAEB7H,KAACK8K,kBAaKBT,EADvBxI,OAaKbMc,IAAVnC,KAA+BA,GAIVC7B,KAACKqG,OAAO4E,QAAQjL,KAACKwH,YAAa6C,EAAI xC,EAAKqD,OAAO,GAAIrJ,GAi9D7B,KAACKoG,SAASF,YAAYmE,EAAIxC,EAAMhG,IAG5CiG,EAaKbJH,U AAUmE,OAAS,SAAUgG,EAAQIG,EAAWC,GAC9D,IAAIuD,EACA/F,EAAQvC,KACZ,GAIOe,KaKOX8E,EA AU+F,OAAO,GAawB,CACzC,IAAIxG,EaiBhB,SAAS8G,EAAYBH,GAC9B,OAAQA,GACJ,IAAK,OACD,OA AOI,SAASzI,KACpB,IAAK,WACD,OAAOyI,SACX,IAAK,SACD,OAAOC,OACX,QACI,OAAOL,GA1BOG,CA AyBH,GACnChD,EAAO/C,EAAUoG,OAAO,GACxBI,EAAQ,GAMZ,MA3OW,KAwOPzD,EAAKgd,OAAO,KA CoChD,GAaHDS,EAAKvH,EAuBrB,SAASwK,EAAYBC,GAC9B,IAAIC,EAAWD,EAAYE,QAAQ,KAGnC,MA AO,CAFOF,EAAYG,UAAU,EAAGF,GAC3BD,EAAYN,OAAOO,EAAW,IA1BIBF,CAAYB1D,GAAO,IAAc,GA AIyD,EAAQHd,EAAG,IAEtEtI,KAACKqG,OAAOrB,OAAOhF,KAACKwH,YAAanD,EAASwD,EAAMyD,GAAO, SAAUM,GAExErJ,EAAMPD,QAAQ+I,yBADA0D,EAAa,QAAM,EACe7G,EAAU6G,MAGIE,OAAO5L,KAACKo G,SAASpB,OAAOgG,EAAQIG,EAAWC,IAE5C+C,EAzC2B,CA0CpCT,GAoBEwE,EAA2C,SAAUzJ,GAERD,SA ASyJ,EAA0BvJ,EAAKwJ,EAAQC,GAC5C,OAAO3J,EAAOZ,KAACKxB,KAAMsC,EAAIK,KAAMmJ,EAAQC,I AAe/L,KAE9D,OAJAU,EAAUmL,EAA2BzJ,GAi9ByJ,EALmC,CAM5C/L,EAAQ6I,kBASV,SAASqD,IACL,OA AOIM,EAAQmM,yBAA2B,IAAIInM,EAAQoM,qBAAYB,IAAIpM,EAAQqM,oBAE/F,SAASC,IACL,OAAO,IAA ItM,EAAQuM,8BAEvB,SAASC,EAA2BrG,EAAUL,EAAQkG,GACID,OAAO,IAAIpG,EAAYBF,EAAUI,EAAQk G,GAf1DV,EAA0BII,WAAa,CACnC,CAAEC,KAAM/D,EAAKGE,aAEjBgI,EAA0B/H,eAAiB,WAAc,MAAO,CA C5D,CAAEF,UAAIMI,EAAWL,WAAy,CAAC,CAAEC,KAAM/D,EAAKoE,OAAQC,KAAM,CAACnE,EAAOoE ,aACnE,CAAEP,KAAM9D,EAAQ0M,iBACHb,CAAEE5I,KAAM9D,EAAQ2M,6BAcpB,IAuCiC,EAeAC,EAIDAC ,EAAwB,IAAI/M,EAAKGN,eAAe,uBACHDC,EAA6B,CAC7B,CAAEC,QAASnN,EAAW8D,iBAaKbSj,SAAU7K ,GACID,CAAEE4K,QAASjN,EAAQ2M,0BAA2BQ,WAAyB,GACID,CAAEW,QAASjN,EAAQ6I,iBAaKbQE,SA

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2N,SAAUj,KAAM,CAAC,CACIB9E,QAAS,CAACO,EAAgB8N,eAC1BC,UAAWJ;;;;;;;;;;;;;AAwC3B
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6DhH,EAERejH,OAAO0I,eAAe1J,EAAS,aAAc,CAAEyC,OAAO","sourcesContent":["/**\n

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* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n\n(function
(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,
require('@angular/core'), require('@angular/platform-browser'), require('@angular/animations'),
require('@angular/animations/browser'), require('@angular/common')) :\n typeof define === 'function' &&
define.amd ? define('@angular/platform-browser/animations', ['exports', '@angular/core', '@angular/platform-
browser', '@angular/animations', '@angular/common'], factory) :\n (global = global || self, factory((global.ng =
global.ng || {}, global.ng.platformBrowser = global.ng.platformBrowser || {}, global.ng.platformBrowser.animations
= {}), global.ng.core, global.ng.platformBrowser, global.ng.animations, global.ng.animations.browser,
global.ng.common));\n})(this, (function (exports, core, platformBrowser, animations, browser, common) {\n use
strict);\n\n /*! *****\n

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AUTHOR DISCLAIMS ALL WARRANTIES WITH\n REGARD TO THIS SOFTWARE INCLUDING ALL
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AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,\n INDIRECT, OR CONSEQUENTIAL DAMAGES
OR ANY DAMAGES WHATSOEVER RESULTING FROM\n LOSS OF USE, DATA OR PROFITS,
WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR\n OTHER TORTIOUS ACTION, ARISING
OUT OF OR IN CONNECTION WITH THE USE OR\n PERFORMANCE OF THIS SOFTWARE.\n

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*****\n\n /* global
Reflect, Promise *\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\n function (d, b) {\n for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n }\n return extendStatics(d, b);\n };\n function __extends(d, b) {\n extendStatics(d, b);\n function __() {\n this.constructor = d;\n }\n d.prototype = b === null ? Object.create(b) : (b.__proto__ = b.prototype, new __());\n var __assign = function () {\n __assign = Object.assign\n || function __assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n return __assign.apply(this, arguments);\n }; \n function __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getOwnPropertySymbols === 'function')\n for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\n if (e.indexOf(p[i]) < 0 &&
Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n }\n return t;\n }\n function __decorate(decorators, target, key, desc) {\n var c = arguments.length,
 r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof
Reflect === 'object' && typeof Reflect.decorate === 'function')\n r = Reflect.decorate(decorators, target,

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key, desc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n return c > 3 && r &&\nObject.defineProperty(target, key, r, r);\n }\n function __param(paramIndex, decorator) {\n return function\n(target, key) { decorator(target, key, paramIndex); }\n }\n function __metadata(metadataKey, metadataValue)\n{\n if (typeof Reflect === \"object\" && typeof Reflect.metadata === \"function\")\n return\nReflect.metadata(metadataKey, metadataValue);\n}\n function __awaiter(thisArg, _arguments, P, generator) {\n function adopt(value) { return value instanceof\nP ? value : new P(function (resolve) { resolve(value); }); }\n return new (P || (P = Promise))(function (resolve,\nreject) {\n function fulfilled(value) { try {\n step(generator.next(value));\n } catch\n(e) {\n reject(e);\n } }\n function rejected(value) { try {\n step(generator[\"throw\"](value));\n } catch (e) {\n reject(e);\n } }\n function\nstep(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\n step((generator = generator.apply(thisArg, _arguments || [])).next());\n });\n }\n function\n__generator(thisArg, body) {\n var _ = { label: 0, sent: function () { if (t[0] & 1)\n throw t[1]; return\n t[1]; }, trys: [], ops: [] }, f, y, t, g;\n return g = { next: verb(0), \"throw\": verb(1), \"return\": verb(2) }, typeof\nSymbol === \"function\" && (g[Symbol.iterator] = function () { return this; }), g;\n function verb(n) { return\n function (v) { return step([n, v]); }; }\n function step(op) {\n if (f)\n throw new\n TypeError(\"Generator is already executing.\");\n while (_)\n try {\n if (f = 1, y && (t =\n op[0] & 2 ? y[\"return\"] : op[0] ? y[\"throw\"] || ((t = y[\"return\"])\n && t.call(y), 0) : y.next) && !(t = t.call(y,\n op[1])).done)\n return t;\n if (y = 0, t)\n op = [op[0] & 2, t.value];\n switch (op[0]) {\n case 0:\n t = op;\n break;\n case 4:\n _label++;\n return { value: op[1], done: false };\n case 5:\n _label++;\n y = op[1];\n op = [0];\n continue;\n case 7:\n op = _ops.pop();\n _trys.pop();\n continue;\n default:\n if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2))\n _ = 0;\n continue;\n if (op[0] === 3\n && (!t || (op[1] > t[0] && op[1] < t[3])))\n _label = op[1];\n break;\n if (op[0] === 6 && _label < t[1])\n _label = t[1];\n t = op;\n break;\n if (t && _label < t[2])\n _label = t[2];\n _ops.push(op);\n break;\n if (t[2])\n continue;\n op =\n body.call(thisArg, _);\n catch (e) {\n op = [6, e];\n y = 0;\n }\n finally {\n f = t = 0;\n if (op[0] & 5)\n throw op[1];\n }\n return { value: op[0] ? op[1] : void 0, done: true };\n }\n }\n var __createBinding = Object.create ? (function\n(o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n Object.defineProperty(o, k2, { enumerable: true,\n get:\n function () { return m[k]; } });\n }) : (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, exports) {\n for (var p in m)\n if (p !== \"default\" &&\n !exports.hasOwnProperty(p))\n __createBinding(exports, m, p);\n }\n function __values(o) {\n var\ns = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0;\n if (m)\n return\n m.call(o);\n if (o && typeof o.length === \"number\")\n return {\n next: function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o && o[i++], done: !o };\n }\n };\n throw new TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is not defined.\");\n }\n function __read(o, n) {\n var m = typeof Symbol === \"function\" && o[Symbol.iterator];\n if (!m)\n return o;\n var i = m.call(o), r, ar = [], e;\n try {\n while ((n === void 0 || n-- >\n 0) && !(r = i.next()).done)\n ar.push(r.value);\n } catch (error) {\n e = { error: error };\n
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 }\n finally {\n try {\n if (r && !r.done && (m = i["return"]))\n m.call(i);\n }\n finally {\n if (e)\n throw e.error;\n }\n }\n return ar;\n }\n\nfunction __spread() {\n for (var ar = [], i = 0; i < arguments.length; i++)\n ar =\n ar.concat(__read(arguments[i]));\n return ar;\n }\n\nfunction __spreadArrays() {\n for (var s = 0, i = 0, il\n = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0; i < il;\n i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl;\n j++, k++)\n r[k] = a[j];\n return r;\n }\n\n; function __await(v) {\n return this instanceof\n __await ? (this.v = v, this) : new __await(v);\n }\n\nfunction __asyncGenerator(thisArg, _arguments, generator)\n{\n if (!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator is not defined.");\n var g = generator.apply(thisArg, _arguments || []), i, q = [];\n return i = {}, verb("next"), verb("throw"),\n verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i;\n function verb(n) { if (g[n])\n i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\n function resume(n, v) { try {\n step(g[n](v));\n }\n catch (e) {\n settle(q[0][3], e);\n }\n }\n function step(r) {\n r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2],\n r);\n }\n function fulfill(value) { resume("next", value); }\n function reject(value) { resume("throw",\n value); }\n function settle(f, v) { if (f(v), q.shift(), q.length)\n resume(q[0][0], q[0][1]); }\n }\n\n function __asyncDelegator(o) {\n var i, p;\n return i = {}, verb("next"), verb("throw"), function (e) {\n throw e; }, verb("return"), i[Symbol.iterator] = function () { return this; }, i;\n function verb(n, f) { i[n] = o[n] ? function (v) {\n return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\n }\n\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator\n is not defined.");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values ===\n "function" ? __values(o) : o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"),\n i[Symbol.asyncIterator] =\n function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) {\n return new Promise(function\n (resolve, reject) {\n v = o[n](v), settle(resolve, reject, v.done, v.value);\n }); }\n }\n function settle(resolve, reject, d,\n v) {\n Promise.resolve(v).then(function (v) {\n resolve({ value: v, done: d });\n }, reject);\n }\n }\n\n function __makeTemplateObject(cooked, raw) {\n if (Object.defineProperty)\n Object.defineProperty(cooked,\n "raw", { value: raw });\n else\n cooked.raw = raw;\n return cooked;\n }\n\n ;\n\n var __setModuleDefault = Object.create ? (function (o, v) {\n Object.defineProperty(o, "default", {\n enumerable: true, value: v });\n }) : function (o, v) {\n o["default"] = v;\n }\n\n function\n __importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var result = {};\n if (mod\n != null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n\n function __importDefault(mod) {\n return (mod\n && mod.__esModule) ? mod : { default: mod }\n }\n\n function __classPrivateFieldGet(receiver, privateMap)\n {\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to get private field on non-\n instance");\n return privateMap.get(receiver);\n }\n\n function __classPrivateFieldSet(receiver,\n privateMap, value)\n {\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to set private\n field on non-instance");\n privateMap.set(receiver, value);\n return value;\n }\n\n var\n BrowserAnimationBuilder = /** @class */ (function (_super) {\n __extends(BrowserAnimationBuilder,\n _super);\n function BrowserAnimationBuilder(rootRenderer,\n doc) {\n var _this = _super.call(this) || this;\n _this._nextAnimationId = 0;\n var typeData = {\n id: '0', encapsulation: core.ViewEncapsulation.None, styles: [], data: {\n animation: [] } };\n _this._renderer =\n rootRenderer.createRenderer(doc.body, typeData);\n return _this;\n }\n BrowserAnimationBuilder.prototype.build = function (animation) {\n var id =\n this._nextAnimationId.toString();\n this._nextAnimationId++;\n var entry = Array.isArray(animation)\n ? animations.sequence(animation) : animation;\n issueAnimationCommand(this._renderer, null, id, 'register',\n [entry]);\n return new BrowserAnimationFactory(id, this._renderer);\n }\n });\n return\n
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BrowserAnimationBuilder;\n }(animations.AnimationBuilder));\n BrowserAnimationBuilder.decorators = [\n
 { type: core.Injectable }\n];\n BrowserAnimationBuilder.ctorParameters = function () { return
 [\n { type: core.RendererFactory2 },\n { type: undefined, decorators: [{ type: core.Inject, args:
 [common.DOCUMENT,] }] }\n];\n }; \n var BrowserAnimationFactory = /** @class */ (function (_super) {\n
 __extends(BrowserAnimationFactory, _super);\n function BrowserAnimationFactory(_id, _renderer) {\n
 var _this = _super.call(this) || this;\n _this._id = _id;\n _this._renderer = _renderer;\n return
 _this;\n }\n BrowserAnimationFactory.prototype.create = function (element, options) {\n return new
 RendererAnimationPlayer(this._id, element, options || {}, this._renderer);\n }; \n return
 BrowserAnimationFactory;\n }(animations.AnimationFactory));\n var RendererAnimationPlayer = /** @class */
 (function () {\n function RendererAnimationPlayer(id, element, options, _renderer) {\n this.id = id;\n
 this.element = element;\n this._renderer
 = _renderer;\n this.parentPlayer = null;\n this._started = false;\n this.totalTime = 0;\n
 this._command('create', options);\n }\n RendererAnimationPlayer.prototype._listen = function (eventName,
 callback) {\n return this._renderer.listen(this.element, "@" + this.id + ":" + eventName, callback);\n
 }; \n RendererAnimationPlayer.prototype._command = function (command) {\n var args = [];\n for
 (var _i = 1; _i < arguments.length; _i++) {\n args[_i - 1] = arguments[_i];\n }\n return
 issueAnimationCommand(this._renderer, this.element, this.id, command, args);\n }; \n RendererAnimationPlayer.prototype.onDone = function (fn) {\n this._listen('done', fn);\n }; \n
 RendererAnimationPlayer.prototype.onStart = function (fn) {\n this._listen('start', fn);\n }; \n
 RendererAnimationPlayer.prototype.onDestroy
 = function (fn) {\n this._listen('destroy', fn);\n }; \n RendererAnimationPlayer.prototype.init =
 function () {\n this._command('init');\n }; \n RendererAnimationPlayer.prototype.hasStarted =
 function () {\n return this._started;\n }; \n RendererAnimationPlayer.prototype.play = function () {\n
 this._command('play');\n this._started = true;\n }; \n RendererAnimationPlayer.prototype.pause
 = function () {\n this._command('pause');\n }; \n RendererAnimationPlayer.prototype.restart =
 function () {\n this._command('restart');\n }; \n RendererAnimationPlayer.prototype.finish = function
 () {\n this._command('finish');\n }; \n RendererAnimationPlayer.prototype.destroy = function () {\n
 this._command('destroy');\n }; \n RendererAnimationPlayer.prototype.reset = function () {\n
 this._command('reset');\n }; \n RendererAnimationPlayer.prototype.setPosition = function (p) {\n
 this._command('setPosition', p);\n }; \n RendererAnimationPlayer.prototype.getPosition = function () {\n
 return 0;\n }; \n return RendererAnimationPlayer;\n }());\n function
 issueAnimationCommand(renderer, element, id, command, args) {\n return renderer.setProperty(element,
 "@" + id + ":" + command, args);\n }\n \n var ANIMATION_PREFIX = '@';\n var
 DISABLE_ANIMATIONS_FLAG = '@.disabled';\n var AnimationRendererFactory = /** @class */ (function ()
 {\n function AnimationRendererFactory(delegate, engine, _zone) {\n this.delegate = delegate;\n
 this.engine = engine;\n this._zone = _zone;\n this._currentId = 0;\n this._microtaskId = 1;\n
 this._animationCallbacksBuffer = [];\n this._rendererCache = new Map();\n this._cdRecurDepth
 = 0;\n this.promise = Promise.resolve(0);\n engine.onRemovalComplete = function (element,
 delegate) {\n // Note: if an component element has a leave animation, and the component\n // a
 host leave animation, the view engine will call `removeChild` for the parent\n // component renderer as
 well as for the child component renderer.\n // Therefore, we need to check if we already removed the
 element.\n if (delegate && delegate.parentNode(element)) {\n \n
 delegate.removeChild(element.parentNode, element);\n }\n }; \n }\n \n \n
 AnimationRendererFactory.prototype.createRenderer = function (hostElement, type) {\n var _this = this;\n
 var EMPTY_NAMESPACE_ID = ";\n // cache the delegates to find out which cached delegate can\n
 // be used by which cached renderer\n var delegate = this.delegate.createRenderer(hostElement,
 type);\n if (!hostElement || !type || !type.data || !type.data['animation']) {\n var renderer =
 this._rendererCache.get(delegate);\n if (!renderer) {\n renderer = new

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BaseAnimationRenderer(EMPTY_NAMESPACE_ID, delegate, this.engine);\n // only cache this result
when the base renderer is used\n this._rendererCache.set(delegate, renderer);\n }\n
return renderer;\n }\n var componentId = type.id;\n var namespaceId = type.id + '-' +
this._currentId;\n this._currentId++;\n this.engine.register(namespaceId, hostElement);\n var
registerTrigger = function (trigger) {\n if (Array.isArray(trigger)) {\n
trigger.forEach(registerTrigger);\n }\n else {\n
_this.engine.registerTrigger(componentId,
namespaceId, hostElement, trigger.name, trigger);\n }\n }\n var animationTriggers =
type.data['animation'];\n animationTriggers.forEach(registerTrigger);\n return new
AnimationRenderer(this, namespaceId, delegate, this.engine);\n }\n
AnimationRendererFactory.prototype.begin = function () {\n this._cdRecurDepth++;\n if
(this.delegate.begin) {\n this.delegate.begin();\n }\n };\n
AnimationRendererFactory.prototype._scheduleCountTask = function () {\n var _this = this;\n //
always use promise to schedule microtask instead of use Zone\n this.promise.then(function () {\n
_this._microtaskId++;\n });\n });\n /** @internal */\n
AnimationRendererFactory.prototype.scheduleListenerCallback = function (count, fn, data) {\n var _this =
this;\n if (count >= 0 &&
count < this._microtaskId) {\n this._zone.run(function () { return fn(data); });\n return;\n
}\n if (this._animationCallbacksBuffer.length == 0) {\n Promise.resolve(null).then(function () {\n
_this._zone.run(function () {\n _this._animationCallbacksBuffer.forEach(function (tuple) {\n
var _a = __read(tuple, 2), fn = _a[0], data = _a[1];\n fn(data);\n });\n
_this._animationCallbacksBuffer = [];\n });\n });\n });\n
this._animationCallbacksBuffer.push([fn, data]);\n });\n AnimationRendererFactory.prototype.end =
function () {\n var _this = this;\n this._cdRecurDepth--;\n // this is to prevent animations from
running twice when an inner\n // component does CD when a parent component
instead has inserted it\n if (this._cdRecurDepth == 0) {\n this._zone.runOutsideAngular(function () {\n
_this._scheduleCountTask();\n _this.engine.flush(_this._microtaskId);\n });\n
}\n if (this.delegate.end) {\n this.delegate.end();\n }\n }\n
AnimationRendererFactory.prototype.whenRenderingDone = function () {\n return
this.engine.whenRenderingDone();\n }\n return AnimationRendererFactory;\n }());\n
AnimationRendererFactory.decorators = [\n { type: core.Injectable }\n];\n
AnimationRendererFactory.ctorParameters = function () { return [\n { type: core.RendererFactory2 },\n {
type: browser.AnimationEngine },\n { type: core.NgZone }\n];\n }\n var BaseAnimationRenderer = /**
@class */ (function () {\n function BaseAnimationRenderer(namespaceId, delegate, engine)
{\n this.namespaceId = namespaceId;\n this.delegate = delegate;\n this.engine = engine;\n
this.destroyNode = this.delegate.destroyNode ? function (n) { return delegate.destroyNode(n); } : null;\n }\n
Object.defineProperty(BaseAnimationRenderer.prototype, \"data\", {\n get: function () {\n return
this.delegate.data;\n },\n enumerable: false,\n configurable: true\n });\n
BaseAnimationRenderer.prototype.destroy = function () {\n this.engine.destroy(this.namespaceId,
this.delegate);\n this.delegate.destroy();\n }\n BaseAnimationRenderer.prototype.createElement =
function (name, namespace) {\n return this.delegate.createElement(name, namespace);\n }\n
BaseAnimationRenderer.prototype.createComment = function (value) {\n return
this.delegate.createComment(value);\n }\n BaseAnimationRenderer.prototype.createText
= function (value) {\n return this.delegate.createText(value);\n }\n
BaseAnimationRenderer.prototype.appendChild = function (parent, newChild) {\n
this.delegate.appendChild(parent, newChild);\n this.engine.onInsert(this.namespaceId, newChild, parent,
false);\n }\n BaseAnimationRenderer.prototype.insertBefore = function (parent, newChild, refChild,
isMove) {\n if (isMove === void 0) { isMove = true; }\n this.delegate.insertBefore(parent, newChild,

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refChild);\n // If `isMove` true than we should animate this insert.\n
this.engine.onInsert(this.namespaceId, newChild, parent, isMove);\n };\n
BaseAnimationRenderer.prototype.removeChild = function (parent, oldChild, isHostElement) {\n
this.engine.onRemove(this.namespaceId, oldChild, this.delegate, isHostElement);\n };\n
BaseAnimationRenderer.prototype.selectRootElement
= function (selectorOrNode, preserveContent) {\n return this.delegate.selectRootElement(selectorOrNode,
preserveContent);\n };\n BaseAnimationRenderer.prototype.parentNode = function (node) {\n return
this.delegate.parentNode(node);\n };\n BaseAnimationRenderer.prototype.nextSibling = function (node) {\n
return this.delegate.nextSibling(node);\n };\n BaseAnimationRenderer.prototype.setAttribute =
function (el, name, value, namespace) {\n this.delegate.setAttribute(el, name, value, namespace);\n };\n
 BaseAnimationRenderer.prototype.removeAttribute = function (el, name, namespace) {\n
this.delegate.removeAttribute(el, name, namespace);\n };\n BaseAnimationRenderer.prototype.addClass =
function (el, name) {\n this.delegate.addClass(el, name);\n };\n
 BaseAnimationRenderer.prototype.removeClass = function (el, name) {\n this.delegate.removeClass(el,
name);\n };\n BaseAnimationRenderer.prototype.setStyle = function (el, style, value, flags) {\n
this.delegate.setStyle(el, style, value, flags);\n };\n BaseAnimationRenderer.prototype.removeStyle =
function (el, style, flags) {\n this.delegate.removeStyle(el, style, flags);\n };\n
 BaseAnimationRenderer.prototype.setProperty = function (el, name, value) {\n if (name.charAt(0) ==
ANIMATION_PREFIX && name == DISABLE_ANIMATIONS_FLAG) {\n this.disableAnimations(el,
!!value);\n } else {\n this.delegate.setProperty(el, name, value);\n };\n };\n
 BaseAnimationRenderer.prototype.setValue = function (node, value) {\n this.delegate.setValue(node,
value);\n };\n BaseAnimationRenderer.prototype.listen = function (target, eventName, callback) {\n
return this.delegate.listen(target, eventName,
callback);\n };\n BaseAnimationRenderer.prototype.disableAnimations = function (element, value) {\n
this.engine.disableAnimations(element, value);\n };\n return BaseAnimationRenderer;\n }();\n var
AnimationRenderer = /** @class */ (function (_super) {\n __extends(AnimationRenderer, _super);\n
function AnimationRenderer(factory, namespaceId, delegate, engine) {\n var _this = _super.call(this,
namespaceId, delegate, engine) || this;\n _this.factory = factory;\n _this.namespaceId = namespaceId;\n
return _this;\n }\n AnimationRenderer.prototype.setProperty = function (el, name, value) {\n if
(name.charAt(0) == ANIMATION_PREFIX) {\n if (name.charAt(1) == '.' && name ==
DISABLE_ANIMATIONS_FLAG) {\n value = value === undefined ? true : !!value;\n
this.disableAnimations(el, value);\n } else {\n this.engine.process(this.namespaceId, el, name.substr(1), value);\n }\n } else {\n this.delegate.setProperty(el, name, value);\n };\n }\n
 AnimationRenderer.prototype.listen = function (target, eventName, callback) {\n var _a;\n var _this =
this;\n if (eventName.charAt(0) == ANIMATION_PREFIX) {\n var element =
resolveElementFromTarget(target);\n var name = eventName.substr(1);\n var phase = '';\n
// @listener.phase is for trigger animation callbacks\n // @@listener is for animation builder callbacks\n
if (name.charAt(0) != ANIMATION_PREFIX) {\n _a =
__read(parseTriggerCallbackName(name), 2), name = _a[0], phase = _a[1];\n }\n return
this.engine.listen(this.namespaceId, element, name, phase, function (event)
{\n var countId = event['_data'] || -1;\n _this.factory.scheduleListenerCallback(countId,
callback, event);\n });\n }\n return this.delegate.listen(target, eventName, callback);\n
};\n return AnimationRenderer;\n }(BaseAnimationRenderer));\n function
resolveElementFromTarget(target) {\n switch (target) {\n case 'body':\n return
document.body;\n case 'document':\n return document;\n case 'window':\n return
window;\n default:\n return target;\n }\n }\n function
parseTriggerCallbackName(triggerName) {\n var dotIndex = triggerName.indexOf('.');\n var trigger =

```







Found in path(s):

- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/util/src/ts\_source\_map\_bug\_29300.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/transform/src/utils.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/bundle\_program.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/file\_system/testing/src/mock\_file\_system\_posix.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/rendering/commonjs\_rendering\_formatter.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/file\_system/index.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/ngcc\_options.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/entry\_point.js
- \* /compiler-cli-11-0-2-tgz/package/src/typescript\_support.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/typecheck/src/type\_parameter\_emitter.js
- \*
- /compiler-cli-11-0-2-tgz/package/src/ngtsc/translator/src/typescript\_ast\_factory.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/logging/index.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/shims/src/factory\_generator.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/patch\_ts\_expando\_initializer.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/sourcemaps/src/source\_file\_loader.js
- \* /compiler-cli-11-0-2-tgz/package/index.js
- \* /compiler-cli-11-0-2-tgz/package/src/metadata/bundler.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/source\_file\_cache.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/host/ngcc\_host.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/ngcc\_compiler\_host.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/sourcemaps/src/source\_file.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/writing/new\_entry\_point\_file\_writer.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/dependencies/esm\_dependency\_host.js
- \*
- /compiler-cli-11-0-2-tgz/package/ngcc/src/utils.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/execution/tasks/completion.js
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- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/translator/src/translator.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/typecheck/src/type\_check\_file.js
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- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/writing/cleaning/cleaning\_strategies.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/analysis/decoration\_analyzer.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/imports/src/emitter.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/rendering/umd\_rendering\_formatter.js
- \*
- /compiler-cli-11-0-2-tgz/package/src/ngtsc/file\_system/src/node\_js\_file\_system.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/src/rendering/dts\_renderer.js
- \* /compiler-cli-11-0-2-tgz/package/ngcc/main-ngcc.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/file\_system/testing/src/test\_helper.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/indexer/src/template.js
- \* /compiler-cli-11-0-2-tgz/package/src/ngtsc/typecheck/src/type\_emitter.js

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* /compiler-cli-11-0-2-tgz/package/ngcc/src/locking/lock_file_with_child_process/unlocker.js
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* /compiler-cli-11-0-2-tgz/package/ngcc/src/rendering/renderer.js
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* /compiler-cli-11-0-2-tgz/package/src/ngtsc/file_system/testing/src/mock_file_system_native.js
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/ compiler-cli-11-0-2-tgz/package/ngcc/src/host/utils.js
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* /compiler-cli-11-0-2-tgz/package/ngcc/index.js
* /compiler-cli-11-0-2-tgz/package/ngcc/src/packages/transformer.js
*
/ compiler-cli-11-0-2-tgz/package/src/ngtsc/util/src/path.js
* /compiler-cli-11-0-2-tgz/package/src/ngtsc/logging/src/console_logger.js
* /compiler-cli-11-0-2-tgz/package/ngcc/src/execution/create_compile_function.js
MIT

```

## 1.444 ipaddr.js 1.7.0

### 1.444.1 Available under license :

MIT

## 1.445 angular-router 11.0.2

### 1.445.1 Available under license :

No license file was found, but licenses were detected in source scan.

```

{"version":3,"sources":["packages/router/router-
upgrade.umd.js"],"names":["global","factory","exports","module","require","define","amd","self","ng","router","up
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```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\n require('@angular/common'), require('@angular/core'), require('@angular/router'),\n require('@angular/upgrade/static')) :\n typeof define === 'function' && define.amd ?\n define('@angular/router/upgrade', ['exports', '@angular/common', '@angular/core', '@angular/router',\n '@angular/upgrade/static'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.router\n = global.ng.router || {}, global.ng.router.upgrade = {}), global.ng.common, global.ng.core, global.ng.router,\n global.ng.upgrade.static));\n})(this,\n\n(function (exports, common, core, router, _static) { 'use strict';\n\n /**\n * @license\n * Copyright Google\n * LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * \n * var 0 = locationSyncBootstrapListener;\n * \n * Creates an initializer that sets up `ngRoute` integration\n * along with setting up the Angular router.\n * \n * @usageNotes\n * \n * <code-example language=typescript>\n * @NgModule({\n * imports: [\n * RouterModule.forRoot(SOME_ROUTES),\n * UpgradeModule\n *],\n * providers: [\n * RouterUpgradeInitializer\n *]\n * })\n * export class AppModule {\n * ngDoBootstrap() {\n * }\n * }\n * </code-example>\n * \n * @publicApi\n * \n * var RouterUpgradeInitializer = {\n * provide:\n * core.APP_BOOTSTRAP_LISTENER,\n * multi:\n * true,\n * useFactory: 0,\n * deps: [_static.UpgradeModule]\n * }; \n * \n * @internal\n * \n * function\n * locationSyncBootstrapListener(ngUpgrade) {\n * return function () {\n * setUpLocationSync(ngUpgrade);\n * };\n * } \n * \n * Sets up a location change listener to trigger `history.pushState`. \n * Works around the\n * problem that `onPopState` does not trigger `history.pushState`. \n * Must be called *after* calling\n * `UpgradeModule.bootstrap`. \n * \n * @param ngUpgrade The upgrade NgModule. \n * \n * @param urlType The\n * location strategy. \n * \n * @see `HashLocationStrategy` \n * \n * @see `PathLocationStrategy` \n * \n * \n * @publicApi\n * \n * function setUpLocationSync(ngUpgrade, urlType) {\n * if (urlType === void 0) {\n * urlType = 'path';\n * }\n * if (!ngUpgrade.$injector) {\n * throw new Error(`\n * RouterUpgradeInitializer\n * can be used only after UpgradeModule.bootstrap has been called.\n * \n * Remove\n * RouterUpgradeInitializer and call setUpLocationSync after UpgradeModule.bootstrap.\n * \n * `);\n * }\n * var\n * router$1 = ngUpgrade.injector.get(router.Router);\n * var location =\n * ngUpgrade.injector.get(common.Location);\n * ngUpgrade.$injector.get('$rootScope')\n * .$on('$locationChangeStart', function (_, next, __) {\n * var url;\n * if (urlType === 'path') {\n
```



```

* /router-11-0-2-tgz/package/esm2015/testing/src/testing.js
* /router-11-0-2-tgz/package/esm2015/src/operators/apply_redirects.js
* /router-11-0-2-tgz/package/esm2015/src/router_preloader.js
* /router-11-0-2-tgz/package/esm2015/src/route_reuse_strategy.js
* /router-11-0-2-tgz/package/esm2015/src/router_state.js
* /router-11-0-2-tgz/package/esm2015/src/url_tree.js
* /router-11-0-2-tgz/package/esm2015/src/create_router_state.js
*
/router-11-0-2-tgz/package/esm2015/src/operators/check_guards.js
* /router-11-0-2-tgz/package/esm2015/src/url_handling_strategy.js
* /router-11-0-2-tgz/package/esm2015/src/events.js
* /router-11-0-2-tgz/package/esm2015/src/directives/router_link_active.js
* /router-11-0-2-tgz/package/esm2015/src/operators/switch_tap.js
* /router-11-0-2-tgz/package/esm2015/index.js
* /router-11-0-2-tgz/package/esm2015/src/operators/prioritized_guard_value.js
* /router-11-0-2-tgz/package/esm2015/src/private_export.js
* /router-11-0-2-tgz/package/esm2015/src/router_scroller.js
* /router-11-0-2-tgz/package/esm2015/src/components/empty_outlet.js
* /router-11-0-2-tgz/package/esm2015/public_api.js
* /router-11-0-2-tgz/package/esm2015/src/version.js
* /router-11-0-2-tgz/package/esm2015/src/recognize.js
* /router-11-0-2-tgz/package/esm2015/src/router_module.js
* /router-11-0-2-tgz/package/esm2015/src/index.js
* /router-11-0-2-tgz/package/esm2015/src/utils/config.js
* /router-11-0-2-tgz/package/esm2015/upgrade/src/upgrade.js
*
/router-11-0-2-tgz/package/esm2015/src/directives/router_link.js
* /router-11-0-2-tgz/package/esm2015/src/router_config_loader.js
* /router-11-0-2-tgz/package/esm2015/upgrade/public_api.js
* /router-11-0-2-tgz/package/esm2015/src/operators/recognize.js
* /router-11-0-2-tgz/package/esm2015/src/router_outlet_context.js
* /router-11-0-2-tgz/package/esm2015/testing/index.js
* /router-11-0-2-tgz/package/esm2015/src/shared.js
* /router-11-0-2-tgz/package/esm2015/src/create_url_tree.js
* /router-11-0-2-tgz/package/esm2015/src/config.js
* /router-11-0-2-tgz/package/esm2015/testing/public_api.js
* /router-11-0-2-tgz/package/esm2015/upgrade/index.js
* /router-11-0-2-tgz/package/esm2015/src/utils/tree.js
* /router-11-0-2-tgz/package/esm2015/src/apply_redirects.js
* /router-11-0-2-tgz/package/esm2015/src/operators/resolve_data.js
* /router-11-0-2-tgz/package/esm2015/src/utils/preactivation.js
* /router-11-0-2-tgz/package/esm2015/src/directives/router_outlet.js
*
/router-11-0-2-tgz/package/esm2015/src/operators/activate_routes.js
No license file was found, but licenses were detected in source scan.

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{"version":3,"file":"router.umd.js","sources":["../../external/npm/node_modules/tslib/tslib.es6.js","../../packages/router/src/events.ts","../../packages/router/src/shared.ts","../../packages/router/src/utils/collection.t

```







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value); } \r\n function reject(value) { resume("\throw\"", value); } \r\n function settle(f, v) { if (f(v), q.shift(),
q.length) resume(q[0][0], q[0][1]); } \r\n} \r\n\r\nexport function __asyncDelegator(o) {\r\n var i, p; \r\n return i =
{ }, verb("\next\""), verb("\throw\", function (e) { throw e; }), verb("\return\"); i[Symbol.iterator] = function () {
return this; }, i;\r\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done: n === \"return\" } : f ? f(v) : v; } : f; } \r\n}\r\n\r\nexport function __asyncValues(o) {\r\n if
(!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not defined.\"); \r\n var m =
o[Symbol.asyncIterator], i;\r\n return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) :
o[Symbol.iterator]() , i = { }, verb("\next\");, verb("\throw\");, verb("\return\");, i[Symbol.asyncIterator] = function () {
return this; }, i);\r\n function verb(n) { i[n] = o[n] &&
function (v) { return new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); };
}; \r\n function settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); },
reject); } \r\n}\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n if (Object.defineProperty) {
Object.defineProperty(cooked, \"raw\", { value: raw }); } else { cooked.raw = raw; } \r\n return
cooked;\r\n}; \r\n\r\nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n Object.defineProperty(o,
\"default\", { enumerable: true, value: v }); }) : (function(o, v) {\r\n o["default"] = v; }); \r\n\r\nexport
function __importStar(mod) {\r\n if (mod && mod.__esModule) return mod; \r\n var result = {};\r\n if (mod !=
null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k); \r\n__setModuleDefault(result, mod); \r\n return result;\r\n}\r\n\r\nexport function __importDefault(mod)
{ \r\n return (mod && mod.__esModule) ? mod : { default: mod }; }\r\n}\r\n\r\nexport function
__classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver)) {\r\n throw new
TypeError(\"attempted to get private field on non-instance\"); }\r\n return
privateMap.get(receiver); }\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver)) {\r\n throw new TypeError(\"attempted to set private field on non-instance\"); }\r\n\r\n privateMap.set(receiver, value); }\r\n return value;\r\n}\r\n}\n","/* * @license\n * Copyright Google LLC
All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport {Route} from './config';\nimport
{ActivatedRouteSnapshot, RouterStateSnapshot} from './router_state';\n\n/**\n * Identifies the call or event that
triggered a navigation.\n *\n * `imperative`: Triggered by `router.navigateByUrl()` or `router.navigate()`. \n * `popstate` : Triggered by a
`popstate` event.\n * `hashchange`-: Triggered by a `hashchange` event.\n *\n * @publicApi\n */\nexport type
NavigationTrigger = 'imperative'|'popstate'|'hashchange';\n\n/**\n * Base for events the router goes through, as
opposed to events tied to a specific\n * route. Fired one time for any given navigation.\n *\n * The following code shows how a class subscribes to router events.\n *\n * ```\n * class MyService {\n * constructor(public router:
Router, logger: Logger) {\n * router.events.pipe(\n * filter((e: Event): e is RouterEvent => e instanceof
RouterEvent)\n *).subscribe((e: RouterEvent) => {\n * logger.log(e.id, e.url);\n * });\n * }\n * }\n * ```\n *\n * @see `Event`\n * @see [Router events summary](guide/router#router-events)\n *\n * @publicApi\n */\nexport
class RouterEvent {\n /** A unique ID that the
router assigns to every router navigation. */\n public id: number;\n /** The URL that is the destination for
this navigation. */\n public url: string;\n}\n\n/**\n * An event triggered when a navigation starts.\n *\n * @publicApi\n */\nexport class NavigationStart extends RouterEvent {\n /**\n * Identifies the call or event that
triggered the navigation.\n *\n * An `imperative` trigger is a call to `router.navigateByUrl()` or `router.navigate()`. \n *\n * @see `NavigationEnd`\n * @see `NavigationCancel`\n * @see `NavigationError`\n */\n navigationTrigger?: 'imperative'|'popstate'|'hashchange';\n /**\n * The navigation state that was previously
supplied to the `pushState` call,\n * when the navigation is triggered by a `popstate` event. Otherwise null.\n *\n * The state object is defined by `NavigationExtras`, and contains any\n * developer-defined state value, as well as a
unique ID that\n * the router assigns to every router transition/navigation.\n *\n * From the perspective of the router, the router never "goes back". \n * When the user clicks on the back
button in the browser,\n * a new navigation ID is created.\n *\n * Use the ID in this previous-state object to
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differentiate between a newly created\n * state and one returned to by a `popstate` event, so that you can restore
some\n * remembered state, such as scroll position.\n * \n *\n restoredState?: {[k: string]: any, navigationId:
number}|null;\n\n constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n
url: string,\n /** @docsNotRequired */\n navigationTrigger: 'imperative'|'popstate'|'hashchange' =
'imperative',\n /** @docsNotRequired */\n restoredState: {[k: string]: any, navigationId: number}|null = null)
{\n super(id, url);\n this.navigationTrigger = navigationTrigger;\n this.restoredState = restoredState;\n }\n\n
/** @docsNotRequired */\n toString(): string {\n
return `NavigationStart(id: ${this.id}, url: '${this.url}')`; \n } \n\n\n/**\n * An event triggered when a navigation
ends successfully.\n *\n * @see `NavigationStart`\n *\n * @see `NavigationCancel`\n *\n * @see `NavigationError`\n *\n *
@publicApi\n */\nexport class NavigationEnd extends RouterEvent {\n constructor(\n /** @docsNotRequired
*/\n id: number,\n /** @docsNotRequired */\n url: string,\n /** @docsNotRequired */\n public
urlAfterRedirects: string) {\n super(id, url);\n } \n\n /** @docsNotRequired */\n toString(): string {\n return
`NavigationEnd(id: ${this.id}, url: '${this.url}', urlAfterRedirects: '${\n this.urlAfterRedirects}')`; \n
} \n\n\n/**\n * An event triggered when a navigation is canceled, directly or indirectly.\n * This can happen when a
route guard\n * returns `false` or initiates a redirect by returning a `UrlTree`.\n *\n * @see `NavigationStart`\n *
@see `NavigationEnd`\n * @see `NavigationError`\n *\n * @publicApi\n */\nexport class NavigationCancel extends RouterEvent {\n constructor(\n /** @docsNotRequired */\n id:
number,\n /** @docsNotRequired */\n url: string,\n /** @docsNotRequired */\n public reason: string)
{\n super(id, url);\n } \n\n /** @docsNotRequired */\n toString(): string {\n return `NavigationCancel(id:
${this.id}, url: '${this.url}')`; \n } \n\n\n/**\n * An event triggered when a navigation fails due to an unexpected
error.\n *\n * @see `NavigationStart`\n *\n * @see `NavigationEnd`\n *\n * @see `NavigationCancel`\n *\n *
@publicApi\n */\nexport class NavigationError extends RouterEvent {\n constructor(\n /** @docsNotRequired
*/\n id: number,\n /** @docsNotRequired */\n url: string,\n /** @docsNotRequired */\n public
error: any) {\n super(id, url);\n } \n\n /** @docsNotRequired */\n toString(): string {\n return
`NavigationError(id: ${this.id}, url: '${this.url}', error: ${this.error}')`; \n } \n\n\n/**\n * An
event triggered when routes are recognized.\n *\n * @publicApi\n */\nexport class RoutesRecognized extends
RouterEvent {\n constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n
url: string,\n /** @docsNotRequired */\n public urlAfterRedirects: string,\n /** @docsNotRequired */\n
public state: RouterStateSnapshot) {\n super(id, url);\n } \n\n /** @docsNotRequired */\n toString(): string {\n
return `RoutesRecognized(id: ${this.id}, url: '${this.url}', urlAfterRedirects: '${\n this.urlAfterRedirects}', state:
${this.state}')`; \n } \n\n\n/**\n * An event triggered at the start of the Guard phase of routing.\n *\n * @see
`GuardsCheckEnd`\n *\n * @publicApi\n */\nexport class GuardsCheckStart extends RouterEvent {\n
constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n url: string,\n
/** @docsNotRequired */\n public urlAfterRedirects: string,\n /**
@docsNotRequired */\n public state: RouterStateSnapshot) {\n super(id, url);\n } \n\n toString(): string {\n
return `GuardsCheckStart(id: ${this.id}, url: '${this.url}', urlAfterRedirects: '${\n this.urlAfterRedirects}', state:
${this.state}')`; \n } \n\n\n/**\n * An event triggered at the end of the Guard phase of routing.\n *\n * @see
`GuardsCheckStart`\n *\n * @publicApi\n */\nexport class GuardsCheckEnd extends RouterEvent {\n
constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n url: string,\n
/** @docsNotRequired */\n public urlAfterRedirects: string,\n /** @docsNotRequired */\n public state:
RouterStateSnapshot,\n /** @docsNotRequired */\n public shouldActivate: boolean) {\n super(id, url);\n
} \n\n toString(): string {\n return `GuardsCheckEnd(id: ${this.id}, url: '${this.url}', urlAfterRedirects: '${\n
this.urlAfterRedirects}', state: ${this.state}, shouldActivate: ${this.shouldActivate}')`; \n
} \n\n\n\n/**\n * An event triggered at the the start of the Resolve phase of routing.\n *\n * Runs in the `\"resolve\"`
phase whether or not there is anything to resolve.\n * In future, may change to only run when there are things to be
resolved.\n *\n * @see `ResolveEnd`\n *\n * @publicApi\n */\nexport class ResolveStart extends RouterEvent {\n
constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n url: string,\n
/** @docsNotRequired */\n public urlAfterRedirects: string,\n /** @docsNotRequired */\n public state:

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RouterStateSnapshot {\n super(id, url);\n }\n\n toString(): string {\n return `ResolveStart(id: ${this.id}, url:
'${this.url}', urlAfterRedirects: '${this.urlAfterRedirects}', state: ${this.state})`;
\n }\n}\n\n/**\n * An event
triggered at the end of the Resolve phase of routing.\n * @see `ResolveStart`\n *\n * @publicApi\n */\nexport class
ResolveEnd extends RouterEvent
{\n constructor(\n /** @docsNotRequired */\n id: number,\n /** @docsNotRequired */\n url: string,\n
 /** @docsNotRequired */\n public urlAfterRedirects: string,\n /** @docsNotRequired */\n public state:
RouterStateSnapshot) {\n super(id, url);\n }\n\n toString(): string {\n return `ResolveEnd(id: ${this.id}, url:
'${this.url}', urlAfterRedirects: '${this.urlAfterRedirects}', state: ${this.state})`;
\n }\n}\n\n/**\n * An event
triggered before lazy loading a route configuration.\n *\n * @see `RouteConfigLoadEnd`\n *\n * @publicApi\n */\nexport class RouteConfigLoadStart {\n constructor(\n /** @docsNotRequired */\n public route: Route)
{\n }\n\n toString(): string {\n return `RouteConfigLoadStart(path: ${this.route.path})`;
\n }\n}\n\n/**\n * An event
triggered when a route has been lazy loaded.\n *\n * @see `RouteConfigLoadStart`\n *\n * @publicApi\n */\nexport
class RouteConfigLoadEnd {\n constructor(\n /**
@docsNotRequired */\n public route: Route) {\n }\n\n toString(): string {\n return `RouteConfigLoadEnd(path:
${this.route.path})`;
\n }\n}\n\n/**\n * An event triggered at the start of the child-activation\n * part of the Resolve
phase of routing.\n * @see `ChildActivationEnd`\n *\n * @see `ResolveStart`\n *\n * @publicApi\n */\nexport class
ChildActivationStart {\n constructor(\n /** @docsNotRequired */\n public snapshot:
ActivatedRouteSnapshot) {\n }\n\n toString(): string {\n const path = this.snapshot.routeConfig &&
this.snapshot.routeConfig.path || '';\n return `ChildActivationStart(path: '${path}')`;
\n }\n}\n\n/**\n * An event
triggered at the end of the child-activation part\n * of the Resolve phase of routing.\n * @see
`ChildActivationStart`\n *\n * @see `ResolveStart`\n *\n * @publicApi\n */\nexport class ChildActivationEnd {\n
constructor(\n /** @docsNotRequired */\n public snapshot: ActivatedRouteSnapshot) {\n }\n\n toString(): string
{\n const path = this.snapshot.routeConfig
&& this.snapshot.routeConfig.path || '';\n return `ChildActivationEnd(path: '${path}')`;
\n }\n}\n\n/**\n * An
event triggered at the start of the activation part\n * of the Resolve phase of routing.\n * @see `ActivationEnd`\n *
@see `ResolveStart`\n *\n * @publicApi\n */\nexport class ActivationStart {\n constructor(\n /**
@docsNotRequired */\n public snapshot: ActivatedRouteSnapshot) {\n }\n\n toString(): string {\n const path =
this.snapshot.routeConfig && this.snapshot.routeConfig.path || '';\n return `ActivationStart(path: '${path}')`;
\n }\n}\n\n/**\n * An event triggered at the end of the activation part\n * of the Resolve phase of routing.\n * @see
`ActivationStart`\n *\n * @see `ResolveStart`\n *\n * @publicApi\n */\nexport class ActivationEnd {\n constructor(\n
 /** @docsNotRequired */\n public snapshot: ActivatedRouteSnapshot) {\n }\n\n toString(): string {\n const path =
this.snapshot.routeConfig && this.snapshot.routeConfig.path ||
'';\n return `ActivationEnd(path: '${path}')`;
\n }\n}\n\n/**\n * An event triggered by scrolling.\n *\n *
@publicApi\n */\nexport class Scroll {\n constructor(\n /** @docsNotRequired */\n readonly routerEvent:
NavigationEnd,\n /** @docsNotRequired */\n readonly position: [number, number]|null,\n /**
@docsNotRequired */\n readonly anchor: string|null) {\n }\n\n toString(): string {\n const pos = this.position ?
`${this.position[0]}, ${this.position[1]}` : null;\n return `Scroll(anchor: '${this.anchor}', position: '${pos}')`;
\n }\n}\n\n/**\n * Router events that allow you to track the lifecycle of the router.\n *\n * The events occur in the
following sequence:\n *\n * * [NavigationStart](api/router/NavigationStart): Navigation starts.\n * *
[RouteConfigLoadStart](api/router/RouteConfigLoadStart): Before\n * the router [lazy loads](/guide/router#lazy-loading)
a route configuration.\n * * [RouteConfigLoadEnd](api/router/RouteConfigLoadEnd): After
a route has been lazy loaded.\n * * [RoutesRecognized](api/router/RoutesRecognized): When the router parses the
URL\n * and the routes are recognized.\n * * [GuardsCheckStart](api/router/GuardsCheckStart): When the router
begins the *guards*\n * phase of routing.\n * * [ChildActivationStart](api/router/ChildActivationStart): When the
router\n * begins activating a route's children.\n * * [ActivationStart](api/router/ActivationStart): When the router
begins activating a route.\n * * [GuardsCheckEnd](api/router/GuardsCheckEnd): When the router finishes the
guards\n * phase of routing successfully.\n * * [ResolveStart](api/router/ResolveStart): When the router begins
the *resolve*\n * phase of routing.\n * * [ResolveEnd](api/router/ResolveEnd): When the router finishes the

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resolve\n * phase of routing successfully.\n * * [ChildActivationEnd](api/router/ChildActivationEnd): When the
router finishes\n * activating a route's children.\n * * [ActivationEnd](api/router/ActivationEnd): When
the router finishes activating a route.\n * * [NavigationEnd](api/router/NavigationEnd): When navigation ends
successfully.\n * * [NavigationCancel](api/router/NavigationCancel): When navigation is canceled.\n * *
[NavigationError](api/router/NavigationError): When navigation fails\n * due to an unexpected error.\n * *
[Scroll](api/router/Scroll): When the user scrolls.\n *\n * @publicApi\n *\nexport type Event =
RouterEvent|RouteConfigLoadStart|RouteConfigLoadEnd|ChildActivationStart|\n
ChildActivationEnd|ActivationStart|ActivationEnd|Scroll;\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\nimport {Route, UrlMatchResult} from './config';\nimport
{UrlSegment, UrlSegmentGroup} from './url_tree';\n\n\n/**\n * The primary routing outlet.\n *\n * @publicApi\n *\nexport const PRIMARY_OUTLET = 'primary';\n\n\n/**\n * A collection
of matrix and query URL parameters.\n * @see `convertToParamMap()`\n * @see `ParamMap`\n *\n *\n *
@publicApi\n *\nexport type Params = {\n [key: string]: any;\n};\n\n\n/**\n * A map that provides access to the
required and optional parameters\n * specific to a route.\n * The map supports retrieving a single value with `get()`\n
* or multiple values with `getAll()`.\n *\n * @see [URLSearchParams](https://developer.mozilla.org/en-
US/docs/Web/API/URLSearchParams)\n *\n * @publicApi\n *\nexport interface ParamMap {\n /\n *\n * Reports
whether the map contains a given parameter.\n * @param name The parameter name.\n * @returns True if the
map contains the given parameter, false otherwise.\n * /\n * has(name: string): boolean;\n /\n *\n * Retrieves a single
value for a parameter.\n * @param name The parameter name.\n * @return The parameter's single value,\n * or
the first value if the parameter has multiple values,\n * or `null` when there is no such parameter.\n * /\n
* get(name: string): string|null;\n /\n *\n * Retrieves multiple values for a parameter.\n * @param name The
parameter name.\n * @return An array containing one or more values,\n * or an empty array if there is no such
parameter.\n *\n *\n * /\n * getAll(name: string): string[];\n /\n *\n * Names of the parameters in the map. *\n /\n
* readonly
keys: string[];\n};\n\n\nclass ParamsAsMap implements ParamMap {\n private params: Params;\n\n
constructor(params: Params) {\n this.params = params || {};\n }\n\n has(name: string): boolean {\n return
Object.prototype.hasOwnProperty.call(this.params, name);\n }\n\n get(name: string): string|null {\n if
(this.has(name)) {\n const v = this.params[name];\n return Array.isArray(v) ? v[0] : v;\n }\n\n return
null;\n }\n\n getAll(name: string): string[] {\n if (this.has(name)) {\n const v = this.params[name];\n return
Array.isArray(v) ? v : [v];\n }\n\n return [];\n }\n\n get keys(): string[] {\n return
Object.keys(this.params);\n }\n}\n\n\n/**\n * Converts a `Params` instance to a `ParamMap`.\n *\n * @param params
The instance to convert.\n * @returns The new map instance.\n *\n *\n * @publicApi\n *\nexport function
convertToParamMap(params: Params): ParamMap {\n return new ParamsAsMap(params);\n}\n\n\nconst
NAVIGATION_CANCELING_ERROR = 'ngNavigationCancelingError';\n\nexport function
navigationCancelingError(message: string) {\n const error = Error('NavigationCancelingError: ' + message);\n
(error as any)[NAVIGATION_CANCELING_ERROR] = true;\n return error;\n}\n\nexport function
isNavigationCancelingError(error: Error) {\n return error && (error as
any)[NAVIGATION_CANCELING_ERROR];\n}\n\n\n// Matches the route configuration (`route`) against the actual
URL (`segments`).\nexport function defaultUrlMatcher(\n segments: UrlSegment[], segmentGroup:
UrlSegmentGroup, route: Route): UrlMatchResult|null {\n const parts = route.path!.split('/');\n\n if (parts.length >
segments.length) {\n
// The actual URL is shorter than the config, no match\n return null;\n }\n\n if (route.pathMatch === 'full' &&\n
(segmentGroup.hasChildren() || parts.length < segments.length)) {\n // The config is longer than the actual URL
but we are looking for a full match, return null\n return null;\n }\n\n const posParams: {[key: string]:
UrlSegment} = {};\n\n // Check each config part against the actual URL\n for (let index = 0; index < parts.length;
index++) {\n const part = parts[index];\n const segment = segments[index];\n const isParameter =
part.startsWith(':');\n if (isParameter) {\n posParams[part.substring(1)] = segment;\n } else if (part !==
segment.path) {\n // The actual URL part does not match the config, no match\n return null;\n }\n }\n\n

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return {consumed: segments.slice(0, parts.length), posParams};\n\n", "/*\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {isObservable as
isObservable, isPromise as isPromise} from '@angular/core';\n\nimport {from, Observable, of} from 'rxjs';\n\nimport
{concatAll, last as lastValue, map} from 'rxjs/operators';\n\n\nimport {Params, PRIMARY_OUTLET} from
'./shared';\n\n\nexport function shallowEqualArrays(a: any[], b: any[]): boolean {\n if (a.length !== b.length) return
false;\n for (let i = 0; i < a.length; ++i) {\n if (!shallowEqual(a[i], b[i])) return false;\n }\n return
true;\n}\n\n\nexport function shallowEqual(a: Params, b: Params): boolean {\n // Casting Object.keys return values to
include `undefined` as there are some cases\n // in IE 11 where this can happen. Cannot provide a test because the
behavior only\n // exists in certain circumstances in IE 11, therefore doing this cast ensures the\n // logic is correct
for when this edge case is hit.\n const k1 = Object.keys(a) as string[] | undefined;\n
 const k2 = Object.keys(b) as string[] | undefined;\n if (!k1 || !k2 || k1.length !== k2.length) {\n return false;\n }\n
 let key: string;\n for (let i = 0; i < k1.length; i++) {\n key = k1[i];\n if (!equalArraysOrString(a[key], b[key]))
{\n return false;\n }\n }\n return true;\n}\n\n\n/*\n * Test equality for arrays of strings or a string.\n */\n\nexport
function equalArraysOrString(a: string|string[], b: string|string[]) {\n if (Array.isArray(a) && Array.isArray(b)) {\n
 if (a.length !== b.length) return false;\n const aSorted = [...a].sort();\n const bSorted = [...b].sort();\n return
aSorted.every((val, index) => bSorted[index] === val);\n } else {\n return a === b;\n }\n}\n\n\n/*\n * Flattens
single-level nested arrays.\n */\n\nexport function flatten<T>(arr: T[][]): T[] {\n return
Array.prototype.concat.apply([], arr);\n}\n\n\n/*\n * Return the last element of an array.\n */\n\nexport function
last<T>(a: T[]): T|null {\n return a.length > 0 ? a[a.length
- 1] : null;\n}\n\n\n/*\n * Verifys all booleans in an array are `true`.\n */\n\nexport function and(booleans: boolean[]):
boolean {\n return !booleans.some(v => !v);\n}\n\n\nexport function forEach<K, V>(map: {[key: string]: V}, callback:
(v: V, k: string) => void): void {\n for (const prop in map) {\n if (map.hasOwnProperty(prop)) {\n
 callback(map[prop], prop);\n }\n }\n}\n\n\nexport function waitForMap<A, B>(\n obj: {[k: string]: A}, fn: (k:
string, a: A) => Observable): Observable<{[k: string]: B}> {\n if (Object.keys(obj).length === 0) {\n return
of({});\n }\n const waitHead: Observable[] = [];\n const waitTail: Observable[] = [];\n const res: {[k:
string]: B} = {};\n forEach(obj, (a: A, k: string) => {\n const mapped = fn(k, a).pipe(map((r: B) => res[k] =
r));\n if (k === PRIMARY_OUTLET) {\n waitHead.push(mapped);\n } else {\n waitTail.push(mapped);\n
 }\n });\n // Closure compiler has problem with using spread operator here.\n
 So we use `Array.concat`.\n // Note that we also need to cast the new promise because TypeScript cannot infer
the type\n // when calling the `of` function through `Function.apply`\n return (of.apply(null,
waitHead.concat(waitTail)) as Observable<Observable>)\n .pipe(concatAll(), lastValue(), map(() =>
res));\n}\n\n\nexport function wrapIntoObservable<T>(value: T|Promise<T>|Observable<T>): Observable<T> {\n if
(isObservable(value)) {\n return value;\n }\n if (isPromise(value)) {\n // Use `Promise.resolve()` to wrap
promise-like instances.\n // Required ie when a Resolver returns a AngularJS `$q` promise to correctly trigger
the\n // change detection.\n return from(Promise.resolve(value));\n }\n return of(value);\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\nimport
{convertToParamMap,
ParamMap, Params, PRIMARY_OUTLET} from './shared';\n\n\nimport {equalArraysOrString, forEach,
shallowEqual} from './utils/collection';\n\n\nexport function createEmptyUrlTree() {\n return new UrlTree(new
UrlSegmentGroup([], {}), {}, null);\n}\n\n\nexport function containsTree(container: UrlTree, containee: UrlTree,
exact: boolean): boolean {\n if (exact) {\n return equalQueryParams(container.queryParams,
containee.queryParams) &&\n equalSegmentGroups(container.root, containee.root);\n }\n return
containsQueryParams(container.queryParams, containee.queryParams) &&\n containsSegmentGroup(container.root, containee.root);\n}\n\n\nfunction equalQueryParams(container: Params,
containee: Params): boolean {\n // TODO: This does not handle array params correctly.\n return
shallowEqual(container, containee);\n}\n\n\nfunction equalSegmentGroups(container: UrlSegmentGroup, containee:

```

```

UrlSegmentGroup): boolean {\n if (!equalPath(container.segments, containee.segments)) return false;\n
 if (container.numberOfChildren !== containee.numberOfChildren) return false;\n for (const c in
containee.children) {\n if (!container.children[c]) return false;\n if (!equalSegmentGroups(container.children[c],
containee.children[c])) return false;\n } return true;\n}\n\nfunction containsQueryParams(container: Params,
containee: Params): boolean {\n return Object.keys(containee).length <= Object.keys(container).length &&\n
Object.keys(containee).every(key => equalArraysOrString(container[key], containee[key]));\n}\n\nfunction
containsSegmentGroup(container: UrlSegmentGroup, containee: UrlSegmentGroup): boolean {\n return
containsSegmentGroupHelper(container, containee, containee.segments);\n}\n\nfunction
containsSegmentGroupHelper(\n container: UrlSegmentGroup, containee: UrlSegmentGroup, containeePaths:
UrlSegment[]): boolean {\n if (container.segments.length > containeePaths.length) {\n const current =
container.segments.slice(0, containeePaths.length);\n
 if (!equalPath(current, containeePaths)) return false;\n if (containee.hasChildren()) return false;\n return
true;\n\n } else if (container.segments.length === containeePaths.length) {\n if (!equalPath(container.segments,
containeePaths)) return false;\n for (const c in containee.children) {\n if (!container.children[c]) return false;\n
 if (!containsSegmentGroup(container.children[c], containee.children[c])) return false;\n } return true;\n\n }
else {\n const current = containeePaths.slice(0, container.segments.length);\n const next =
containeePaths.slice(container.segments.length);\n if (!equalPath(container.segments, current)) return false;\n if
(!container.children[PRIMARY_OUTLET]) return false;\n return
containsSegmentGroupHelper(container.children[PRIMARY_OUTLET], containee, next);\n }\n}\n\n/**\n *
@description\n *\n * Represents the parsed URL.\n *\n * Since a router state is a tree, and the URL is nothing but a
serialized state,
the URL is a\n *\n * serialized tree.\n *\n * UrlTree is a data structure that provides a lot of affordances in dealing with
URLs\n *\n * @usageNotes\n * ### Example\n *\n * ```\n * @Component({ templateUrl: 'template.html' })\n * class
MyComponent {\n * constructor(router: Router) {\n * const tree: UrlTree =\n *
router.parseUrl('/team/33/(user/victor//support:help)?debug=true#fragment');\n * const f = tree.fragment; // return
'fragment'\n * const q = tree.queryParams; // returns {debug: 'true'}\n * const g: UrlSegmentGroup =
tree.root.children[PRIMARY_OUTLET];\n * const s: UrlSegment[] = g.segments; // returns 2 segments 'team'
and '33'\n * g.children[PRIMARY_OUTLET].segments; // returns 2 segments 'user' and 'victor'\n *
g.children['support'].segments; // return 1 segment 'help'\n * }\n * }\n * ```\n *\n * @publicApi\n */\n\nexport class
UrlTree {\n /** @internal */\n // TODO(issue/24571): remove '!'.\n _queryParamMap!: ParamMap;\n\n /**
@internal */\n
 constructor(\n /** The root segment group of the URL tree */\n public root: UrlSegmentGroup,\n /** The
query params of the URL */\n public queryParams: Params,\n /** The fragment of the URL */\n public
fragment: string|null) {\n\n get queryParamMap(): ParamMap {\n if (!this._queryParamMap) {\n
this._queryParamMap = convertToParamMap(this.queryParams);\n }\n return this._queryParamMap;\n }\n\n\n /** @docsNotRequired */\n toString(): string {\n return DEFAULT_SERIALIZER.serialize(this);\n
}\n}\n\n/**\n *\n * @description\n *\n * Represents the parsed URL segment group.\n *\n * See `UrlTree` for more
information.\n *\n * @publicApi\n */\n\nexport class UrlSegmentGroup {\n /** @internal */\n //
TODO(issue/24571): remove '!'.\n _sourceSegment!: UrlSegmentGroup;\n /** @internal */\n //
TODO(issue/24571): remove '!'.\n _segmentIndexShift!: number;\n /** The parent node in the url tree */\n parent:
UrlSegmentGroup|null = null;\n\n constructor(\n
 /** The URL segments of this group. See `UrlSegment` for more information */\n public segments:
UrlSegment[],\n /** The list of children of this group */\n public children: {[key: string]: UrlSegmentGroup})
{\n forEach(children, (v: any, k: any) => v.parent = this);\n }\n\n /** Whether the segment has child segments
*/\n hasChildren(): boolean {\n return this.numberOfChildren > 0;\n }\n\n /** Number of child segments */\n
get numberOfChildren(): number {\n return Object.keys(this.children).length;\n }\n\n /** @docsNotRequired
*/\n toString(): string {\n return serializePaths(this);\n }\n}\n\n/**\n *\n * @description\n *\n * Represents a single
URL segment.\n *\n * A UrlSegment is a part of a URL between the two slashes. It contains a path and the matrix\n

```

```

* parameters associated with the segment.\n * @usageNotes\n * ### Example\n * ```\n *
@Component({templateUrl:'template.html'})\n * class MyComponent {\n * constructor(router:
Router) {\n * const tree: UrlTree = router.parseUrl('/team?id=33');\n * const g: UrlSegmentGroup =
tree.root.children[PRIMARY_OUTLET];\n * const s: UrlSegment[] = g.segments;\n * s[0].path; // returns
'team'\n * s[0].parameters; // returns {id: 33}\n * }\n * }\n * ```\n * @publicApi\n * \nexport class
UrlSegment {\n * /** @internal */\n * // TODO(issue/24571): remove '!'.\n * _parameterMap!: ParamMap;\n * \n
constructor(\n * /** The path part of a URL segment */\n * public path: string,\n * /** The matrix parameters
associated with a segment */\n * public parameters: {[name: string]: string}) {\n * }\n * get parameterMap() {\n * if
(!this._parameterMap) {\n * this._parameterMap = convertToParamMap(this.parameters);\n * }\n * return
this._parameterMap;\n * }\n * /** @docsNotRequired */\n * toString(): string {\n * return serializePath(this);\n * }\n * }\n * \nexport function equalSegments(as: UrlSegment[], bs: UrlSegment[]): boolean {\n * return equalPath(as,
bs) && as.every((a, i) => shallowEqual(a.parameters, bs[i].parameters));\n * }\n * \nexport function equalPath(as:
UrlSegment[], bs: UrlSegment[]): boolean {\n * if (as.length !== bs.length) return false;\n * return as.every((a, i) =>
a.path === bs[i].path);\n * }\n * \nexport function mapChildrenIntoArray<T>(\n * segment: UrlSegmentGroup, fn: (v:
UrlSegmentGroup, k: string) => T[]): T[] {\n * let res: T[] = [];\n * forEach(segment.children, (child:
UrlSegmentGroup, childOutlet: string) => {\n * if (childOutlet === PRIMARY_OUTLET) {\n * res =
res.concat(fn(child, childOutlet));\n * }\n * forEach(segment.children, (child: UrlSegmentGroup, childOutlet:
string) => {\n * if (childOutlet !== PRIMARY_OUTLET) {\n * res = res.concat(fn(child, childOutlet));\n * }\n * });\n * }\n * return res;\n * }\n * \n\n/**\n * @description\n * \n * Serializes and deserializes a URL string into a URL tree.\n * \n *
* The url serialization strategy is customizable. You can\n * \n * make all URLs case insensitive by providing
a custom UrlSerializer.\n * \n * See `DefaultUrlSerializer` for an example of a URL serializer.\n * \n * @publicApi\n * \n\nexport abstract class UrlSerializer {\n * /** Parse a url into a `UrlTree` */\n * abstract parse(url: string):
UrlTree;\n * \n * /** Converts a `UrlTree` into a url */\n * abstract serialize(tree: UrlTree): string;\n * }\n * \n\n/**\n * @description\n * \n * A default implementation of the `UrlSerializer`.\n * \n * \n * Example URLs:\n * \n * ```\n * /inbox/33(popup:compose)\n * /inbox/33;open=true/messages/44\n * ```\n * \n * DefaultUrlSerializer uses
parentheses to serialize secondary segments (e.g., popup:compose), the\n * \n * colon syntax to specify the outlet, and
the 'parameter=value' syntax (e.g., open=true) to\n * \n * specify route specific parameters.\n * \n * @publicApi\n * \n\nexport class DefaultUrlSerializer implements UrlSerializer {\n * /** Parses a url into a `UrlTree` */\n * parse(url:
string): UrlTree {\n * const p = new UrlParser(url);\n * return new UrlTree(p.parseRootSegment(),
p.parseQueryParams(),
p.parseFragment());\n * }\n * \n * /** Converts a `UrlTree` into a url */\n * serialize(tree: UrlTree): string {\n * const
segment = `/${serializeSegment(tree.root, true)}`;\n * const query = serializeQueryParams(tree.queryParams);\n * const fragment = \n * typeof tree.fragment === `string` ? `#${encodeURIComponent(tree.fragment!)}` : '';\n * return `${segment}${query}${fragment}`;\n * }\n * }\n * \n\nconst DEFAULT_SERIALIZER = new
DefaultUrlSerializer();\n * \n\nexport function serializePaths(segment: UrlSegmentGroup): string {\n * return
segment.segments.map(p => serializePath(p)).join('/');\n * }\n * \n\nfunction serializeSegment(segment: UrlSegmentGroup,
root: boolean): string {\n * if (!segment.hasChildren()) {\n * return serializePaths(segment);\n * }\n * \n * if (root) {\n * const primary = segment.children[PRIMARY_OUTLET] ?\n * serializeSegment(segment.children[PRIMARY_OUTLET], false) : '';\n * const children: string[] = [];\n * forEach(segment.children, (v: UrlSegmentGroup,
k: string) => {\n * if (k !== PRIMARY_OUTLET) {\n * children.push(`${k}:${serializeSegment(v, false)}`);\n * }\n * });\n * return children.length > 0 ? `${primary}${children.join('/')}` : primary;\n * }\n * \n * else {\n * const
children = mapChildrenIntoArray(segment, (v: UrlSegmentGroup, k: string) => {\n * if (k ===
PRIMARY_OUTLET) {\n * return [serializeSegment(segment.children[PRIMARY_OUTLET], false)];\n * }\n * \n * return [`${k}:${serializeSegment(v, false)}`];\n * });\n * \n * // use no parenthesis if the only child is a
primary outlet route\n * if (Object.keys(segment.children).length === 1 &&
segment.children[PRIMARY_OUTLET] != null) {\n * return `${serializePaths(segment)}/${children[0]}`;\n * }\n * \n * return `${serializePaths(segment)}/${children.join('/')}`;\n * }\n * }\n * \n\n/**\n * \n * Encodes a URI string with the

```



default encoding. This function will only ever be called from `encodeURIComponent` or `encodeURIComponent` as it's the base set of

encodings to be used. We need a custom encoding because `encodeURIComponent` is too aggressive and encodes stuff that doesn't have to be encoded per <https://url.spec.whatwg.org>.

```
function encodeURIComponent(s: string): string {
 return encodeURIComponent(s)
 .replace(/%40/g, '@')
 .replace(/%3A/g, ':')
 .replace(/%24/g, '$')
 .replace(/%2C/g, ',');
}

// This function should be used to encode both keys and
// values in a query string key/value. In the following URL, you need to call encodeURIComponent on "k" and "v":
// http://www.site.org/html;mk=mv?k=v#f

// This function should be used to encode a URL fragment. In
// the following URL, you need to call encodeURIComponent on "f":
// http://www.site.org/html;mk=mv?k=v#f

// This function should be run on any URI segment as well as the key and value in a key/value pair for matrix
// params. In the following URL, you need to call encodeURIComponent on "html", "mk", and "mv":
// http://www.site.org/html;mk=mv?k=v#f

// This function should be used to encode a URL fragment. In
// the following URL, you need to call encodeURIComponent on "f":
// http://www.site.org/html;mk=mv?k=v#f
```

`encodeURIComponent` should be run on any URI segment as well as the key and value in a key/value pair for matrix params. In the following URL, you need to call `encodeURIComponent` on `"html"`, `"mk"`, and `"mv"`:

```
function encodeURIComponent(s: string): string {
 return encodeURIComponent(s)
 .replace(/%40/g, '@')
 .replace(/%3A/g, ':')
 .replace(/%24/g, '$')
 .replace(/%2C/g, ',');
}

// This function should be used to encode a URL fragment. In
// the following URL, you need to call encodeURIComponent on "f":
// http://www.site.org/html;mk=mv?k=v#f
```

```
function decodeURIComponent(s: string): string {
 return decodeURIComponent(s)
 .replace(/%40/g, '@')
 .replace(/%3A/g, ':')
 .replace(/%24/g, '$')
 .replace(/%2C/g, ',');
}

// This function should be used to decode a URL fragment. In
// the following URL, you need to call decodeURIComponent on "f":
// http://www.site.org/html;mk=mv?k=v#f
```

`decodeURIComponent` should be run on any URI segment as well as the key and value in a key/value pair for matrix params. In the following URL, you need to call `decodeURIComponent` on `"html"`, `"mk"`, and `"mv"`:

```
function decodeURIComponent(s: string): string {
 return decodeURIComponent(s)
 .replace(/%40/g, '@')
 .replace(/%3A/g, ':')
 .replace(/%24/g, '$')
 .replace(/%2C/g, ',');
}

// This function should be used to decode a URL fragment. In
// the following URL, you need to call decodeURIComponent on "f":
// http://www.site.org/html;mk=mv?k=v#f
```

```

UrlSegmentGroup} = {};\n if (this.peekStartsWith('/')) {\n this.capture('/);\n children =
this.parseParens(true);\n }\n\n let res: {[outlet: string]: UrlSegmentGroup} = {};\n if (this.peekStartsWith('('))
{\n res = this.parseParens(false);\n }\n\n if (segments.length > 0 || Object.keys(children).length > 0) {\n
res[PRIMARY_OUTLET] = new UrlSegmentGroup(segments, children);\n }\n\n return
res;\n }\n\n // parse a segment with its matrix parameters\n // ie `name;k1=v1;k2`\n private parseSegment():
UrlSegment {\n const path = matchSegments(this.remaining);\n if (path === "" && this.peekStartsWith(';')) {\n
throw new Error('Empty path url segment cannot have parameters: `${this.remaining}`);\n }\n\n
this.capture(path);\n return new UrlSegment(decode(path), this.parseMatrixParams());\n }\n\n private
parseMatrixParams(): {[key: string]: any} {\n const params: {[key: string]: any} = {};\n while
(this.consumeOptional(';')) {\n this.parseParam(params);\n }\n return params;\n }\n\n private
parseParam(params: {[key: string]: any}): void {\n const key = matchSegments(this.remaining);\n if (!key) {\n
return;\n }\n this.capture(key);\n let value: any = ";\n if (this.consumeOptional('=')) {\n const valueMatch
= matchSegments(this.remaining);\n if (valueMatch) {\n value = valueMatch;\n this.capture(value);\n
 }\n }\n\n params[decode(key)] = decode(value);\n }\n\n // Parse a single query parameter `name[=value]`\n
private parseQueryParam(params: Params): void {\n const key = matchQueryParams(this.remaining);\n if (!key)
{\n return;\n }\n this.capture(key);\n let value: any = ";\n if (this.consumeOptional('=')) {\n const
valueMatch = matchUrlQueryParamValue(this.remaining);\n if (valueMatch) {\n value = valueMatch;\n
this.capture(value);\n }\n }\n\n const decodedKey = decodeQuery(key);\n const decodedVal =
decodeQuery(value);\n if (params.hasOwnProperty(decodedKey)) {\n // Append to existing values\n let
currentVal = params[decodedKey];\n if (!Array.isArray(currentVal)) {\n currentVal = [currentVal];\n
 }\n params[decodedKey] = currentVal;\n }\n currentVal.push(decodedVal);\n } else {\n // Create a new
value\n params[decodedKey] = decodedVal;\n }\n}\n}\n\n // parse `(a/b/outlet_name:c/d)`\n private parseParens(allowPrimary: boolean): {[outlet: string]:
UrlSegmentGroup} {\n const segments: {[key: string]: UrlSegmentGroup} = {};\n this.capture('(');\n\n while
(!this.consumeOptional('(')) && this.remaining.length > 0) {\n const path = matchSegments(this.remaining);\n\n
const next = this.remaining[path.length];\n\n // if it is not one of these characters, then the segment was
unescaped\n // or the group was not closed\n if (next !== '/' && next !== ')' && next !== ';') {\n throw
new Error('Cannot parse url `${this.url}`);\n }\n\n let outletName: string = undefined!;\n if
(path.indexOf('.') > -1) {\n outletName = path.substr(0, path.indexOf('.'));\n this.capture(outletName);\n
this.capture('.');\n } else if (allowPrimary) {\n outletName = PRIMARY_OUTLET;\n }\n\n const
children = this.parseChildren();\n segments[outletName] =
Object.keys(children).length === 1 ? children[PRIMARY_OUTLET] :\n new UrlSegmentGroup([], children);\n this.consumeOptional('/');\n }\n\n return segments;\n }\n\n private
peekStartsWith(str: string): boolean {\n return this.remaining.startsWith(str);\n }\n\n // Consumes the prefix
when it is present and returns whether it has been consumed\n private consumeOptional(str: string): boolean {\n if
(this.peekStartsWith(str)) {\n this.remaining = this.remaining.substring(str.length);\n return true;\n }\n
return false;\n }\n\n private capture(str: string): void {\n if (!this.consumeOptional(str)) {\n throw new
Error('Expected `${str}`);\n }\n }\n}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport class Tree<T>\n{\n /** @internal */\n _root: TreeNode<T>;\n\n constructor(root: TreeNode<T>) {\n this._root = root;\n }\n\n get root(): T {\n return this._root.value;\n }\n\n /**\n * @internal\n */\n parent(t: T): T|null {\n const p =
this.pathFromRoot(t);\n return p.length > 1 ? p[p.length - 2] : null;\n }\n\n /**\n * @internal\n */\n children(t:
T): T[] {\n const n = findNode(t, this._root);\n return n ? n.children.map(c => c.value) : [];\n }\n\n /**\n *
@internal\n */\n firstChild(t: T): T|null {\n const n = findNode(t, this._root);\n return n && n.children.length >
0 ? n.children[0].value : null;\n }\n\n /**\n * @internal\n */\n siblings(t: T): T[] {\n const p = findPath(t,
this._root);\n if (p.length < 2) return [];\n\n const c = p[p.length - 2].children.map(c => c.value);\n return
c.filter(cc => cc !== t);\n }\n\n /**\n * @internal\n */\n pathFromRoot(t: T): T[] {\n return findPath(t,

```

```

this._root).map(s => s.value);\n
 }\n}\n\n// DFS for the node matching the value\nfunction findNode<T>(value: T, node: TreeNode<T>):
TreeNode<T>|null {\n if (value === node.value) return node;\n for (const child of node.children) {\n const
node = findNode(value, child);\n if (node) return node;\n }\n return null;\n}\n\n// Return the path to the node
with the given value using DFS\nfunction findPath<T>(value: T, node: TreeNode<T>): TreeNode<T>[] {\n if
(value === node.value) return [node];\n for (const child of node.children) {\n const path = findPath(value,
child);\n if (path.length) {\n path.unshift(node);\n return path;\n }\n }\n return [];\n}\n\nexport class
TreeNode<T> {\n constructor(public value: T, public children: TreeNode<T>[]) {}\n toString(): string {\n
return `TreeNode(${this.value})`;\n }\n}\n\n// Return the list of T indexed by outlet name\nexport function
nodeChildrenAsMap<T> extends {outlet: string}>(node: TreeNode<T>|null) {\n const map: {[outlet:
string]: TreeNode<T>} = {};\n if (node) {\n node.children.forEach(child => map[child.value.outlet] = child);\n
 }\n return map;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Type} from '@angular/core';\nimport {BehaviorSubject, Observable} from
'rxjs';\nimport {map} from 'rxjs/operators';\nimport {Data, ResolveData, Route} from './config';\nimport
{convertToParamMap, ParamMap, Params, PRIMARY_OUTLET} from './shared';\nimport {equalSegments,
UrlSegment, UrlSegmentGroup, UrlTree} from './url_tree';\nimport {shallowEqual, shallowEqualArrays} from
'./utils/collection';\nimport {Tree, TreeNode} from './utils/tree';\n\n/**\n * Represents the state of the router as a
tree of activated routes.\n * @usageNotes\n * Every node in the route tree is an `ActivatedRoute` instance\n
* that knows about
the `consumed` URL segments, the extracted parameters,\n * and the resolved data.\n * Use the `ActivatedRoute`
properties to traverse the tree from any node.\n * The following fragment shows how a component gets the root
node\n * of the current state to establish its own route tree:\n */\n\n@Component({templateUrl:'template.html'})\n * class MyComponent {\n * constructor(router: Router) {\n *
const state: RouterState = router.routerState;\n * const root: ActivatedRoute = state.root;\n * const child =
root.firstChild;\n * const id: Observable<string> = child.params.map(p => p.id);\n * //...\n * }\n * }\n\n * @see `ActivatedRoute`\n * @see [Getting route information](guide/router#getting-route-information)\n\n * @publicApi\n */\nexport class RouterState extends Tree<ActivatedRoute> {\n /** @internal\n * constructor(\n
root: TreeNode<ActivatedRoute>,\n /** The current snapshot of the router state\n * public snapshot:
RouterStateSnapshot) {\n super(root);\n setRouterState(<RouterState>this, root);\n }\n\n toString(): string {\n
return this.snapshot.toString();\n }\n}\n\nexport function createState(urlTree: UrlTree, rootComponent:
Type<any>|null): RouterState {\n const snapshot = createStateSnapshot(urlTree, rootComponent);\n const
emptyUrl = new BehaviorSubject([new UrlSegment("", {})]);\n const emptyParams = new BehaviorSubject({});\n
const emptyData = new BehaviorSubject({});\n const emptyQueryParams = new BehaviorSubject({});\n const
fragment = new BehaviorSubject("");\n const activated = new ActivatedRoute(\n emptyUrl, emptyParams,\n
emptyQueryParams, fragment, emptyData, PRIMARY_OUTLET, rootComponent,\n snapshot.root);\n activated.snapshot = snapshot.root;\n return new RouterState(new TreeNode<ActivatedRoute>(activated, []),
snapshot);\n}\n\nexport function createStateSnapshot(\n urlTree: UrlTree, rootComponent:
Type<any>|null): RouterStateSnapshot\n {\n const emptyParams = {};\n const emptyData = {};\n const emptyQueryParams = {};\n const fragment = "";\n
const activated = new ActivatedRouteSnapshot(\n [], emptyParams, emptyQueryParams, fragment, emptyData,\n
PRIMARY_OUTLET, rootComponent, null,\n urlTree.root, -1, {});\n return new RouterStateSnapshot("", new
TreeNode<ActivatedRouteSnapshot>(activated, []));\n}\n\n/**\n * Provides access to information about a route
associated with a component\n * that is loaded in an outlet.\n * Use to traverse the `RouterState` tree and extract
information from nodes.\n * The following example shows how to construct a component using information
from a\n * currently activated route.\n */\n * { @example router/activated-route/module.ts region="activated-
route"\n * header="activated-route.component.ts"\n * }\n\n * @see [Getting route
information](guide/router#getting-route-information)\n\n * @publicApi\n */\nexport class ActivatedRoute {\n /**

```



moment in time. `ActivatedRouteSnapshot` can also be used to traverse the router state tree. The following example initializes a component with route information extracted from the snapshot of the root node at the time of creation.

```

@Component({templateUrl: './my-component.html'})
class MyComponent {
 constructor(route: ActivatedRoute) {
 const id: string = route.snapshot.params.id;
 const url: string = route.snapshot.url.join('/');
 const user = route.snapshot.data.user;
 }
}

@publicApi
export class ActivatedRouteSnapshot {
 /** The configuration used to match this route */
 public readonly routeConfig: Route | null;
 /** @internal */
 _urlSegment: UrlSegmentGroup;
 /** @internal */
 _lastPathIndex: number;
 /** @internal */
 _resolve: ResolveData;
 /** @internal */
 // TODO(issue/24571): remove '!'.
 _resolvedData!: Data;
 /** @internal */
 // TODO(issue/24571): remove '!'.
 _routerState!: RouterStateSnapshot;
 /** @internal */
 // TODO(issue/24571): remove '!'.
 _paramMap!: ParamMap;
 /** @internal */
 // TODO(issue/24571): remove '!'.
 _queryParamMap!: ParamMap;

 /**
 * The URL segments matched by this route
 */
 public url: UrlSegment[];

 /**
 * The matrix parameters scoped to this route
 */
 public params: Params;

 /**
 * The query parameters shared by all the routes
 */
 public queryParams: Params;

 /**
 * The URL fragment shared by all the routes
 */
 public fragment: string;

 /**
 * The static and resolved data of this route
 */
 public data: Data;

 /**
 * The outlet name of the route
 */
 public outlet: string;

 /**
 * The component of the route
 */
 public component: Type<any> | string | null;
 routeConfig: Route | null;
 urlSegment: UrlSegmentGroup;
 lastPathIndex: number;
 resolve: ResolveData;
}

this.routeConfig = routeConfig;
this._urlSegment = urlSegment;
this._lastPathIndex = lastPathIndex;
this._resolve = resolve;
}

// The root of the router state
get root(): ActivatedRouteSnapshot {
 return this._routerState.root;
}

// The parent of this route in the router state tree
get parent(): ActivatedRouteSnapshot | null {
 return this._routerState.parent(this);
}

// The first child of this route in the router state tree
get firstChild(): ActivatedRouteSnapshot | null {
 return this._routerState.firstChild(this);
}

// The children of this route in the router state tree
get children(): ActivatedRouteSnapshot[] {
 return this._routerState.children(this);
}

// The path from the root of the router state tree to this route
get pathFromRoot(): ActivatedRouteSnapshot[] {
 return this._routerState.pathFromRoot(this);
}

get paramMap(): ParamMap {
 if (!this._paramMap) {
 this._paramMap = convertToParamMap(this.params);
 }
 return this._paramMap;
}

get queryParamMap(): ParamMap {
 if (!this._queryParamMap) {
 this._queryParamMap = convertToParamMap(this.queryParams);
 }
 return this._queryParamMap;
}

toString(): string {
 const url = this.url.map(segment => segment.toString()).join('/');
 const matched = this.routeConfig ? this.routeConfig.path : '';
 return `Route(url: '${url}', path: '${matched}')`;
}
}

/**
 * Represents the state of the router at a moment in time. This is a tree of activated route snapshots. Every node in this tree knows about the "consumed" URL segments, the extracted parameters, and the resolved data.
 * The following example shows how a component is initialized with information from the snapshot of the root node's state at the time of creation.
 */
@Component({templateUrl: 'template.html'})
class MyComponent {
 constructor(router: Router) {
 const state: RouterState = router.routerState;
 const snapshot: RouterStateSnapshot = state.snapshot;
 const root: ActivatedRouteSnapshot = snapshot.root;
 const child = root.firstChild;
 const id: Observable<string> = child.params.map(p => p.id);
 // ...
 }
}

@publicApi
export class RouterStateSnapshot extends Tree<ActivatedRouteSnapshot> {
 /** @internal */
 constructor(
 /**
 * The url from which this snapshot was created
 */
 public url: string,
 root: TreeNode<ActivatedRouteSnapshot>
) {
 super(root);
 setRouterState(<RouterStateSnapshot>this, root);
 }

 toString(): string {
 return serializeNode(this._root);
 }

 function setRouterState<U, T extends { _routerState: U }>(state: U, node: TreeNode<T>): void {
 node.value._routerState = state;
 node.children.forEach(c => setRouterState(state, c));
 }

 function serializeNode(node: TreeNode<ActivatedRouteSnapshot>): string {
 const c = node.children.length > 0 ? ` ${node.children.map(serializeNode).join(', ')}` : '';
 return `${node.value}${c}`;
 }
}

/**
 * The expectation is that the activate route is created with the right set of parameters. So we push new values into the observables only when they are not the initial values. And we
 */

```

```

detect that by checking if the snapshot field is set.\n */\nexport function advanceActivatedRoute(route:
ActivatedRoute): void {\n if (route.snapshot) {\n const currentSnapshot = route.snapshot;\n const nextSnapshot
= route._futureSnapshot;\n route.snapshot = nextSnapshot;\n if (!shallowEqual(currentSnapshot.queryParams,
nextSnapshot.queryParams)) {\n (<any>route.queryParams).next(nextSnapshot.queryParams);\n }\n if
(currentSnapshot.fragment !== nextSnapshot.fragment) {\n
(<any>route.fragment).next(nextSnapshot.fragment);\n }\n if (!shallowEqual(currentSnapshot.params,
nextSnapshot.params)) {\n (<any>route.params).next(nextSnapshot.params);\n
 }\n if (!shallowEqualArrays(currentSnapshot.url, nextSnapshot.url)) {\n
(<any>route.url).next(nextSnapshot.url);\n }\n if (!shallowEqual(currentSnapshot.data, nextSnapshot.data)) {\n
(<any>route.data).next(nextSnapshot.data);\n }\n } else {\n route.snapshot = route._futureSnapshot;\n //
this is for resolved data\n (<any>route.data).next(route._futureSnapshot.data);\n }\n}\n\nexport function
equalParamsAndUrlSegments(\n a: ActivatedRouteSnapshot, b: ActivatedRouteSnapshot): boolean {\n const
equalUrlParams = shallowEqual(a.params, b.params) && equalSegments(a.url, b.url);\n const parentsMismatch =
!a.parent !== !b.parent;\n return equalUrlParams && !parentsMismatch && (!a.parent ||
equalParamsAndUrlSegments(a.parent, b.parent!));\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at
https://angular.io/license\n */\n\nimport {BehaviorSubject} from 'rxjs';\nimport {DetachedRouteHandleInternal,
RouteReuseStrategy} from './route_reuse_strategy';\nimport {ActivatedRoute, ActivatedRouteSnapshot,
RouterState, RouterStateSnapshot} from './router_state';\nimport {TreeNode} from './utils/tree';\n\nexport function
createRouterState(\n routeReuseStrategy: RouteReuseStrategy, curr: RouterStateSnapshot, prevState:
RouterState): RouterState {\n const root = createNode(routeReuseStrategy, curr._root, prevState ? prevState._root :
undefined);\n return new RouterState(root, curr);\n}\n\nfunction createNode(\n routeReuseStrategy:
RouteReuseStrategy, curr: TreeNode<ActivatedRouteSnapshot>, prevState?: TreeNode<ActivatedRoute>):
TreeNode<ActivatedRoute> {\n // reuse an activated route that is currently displayed on the screen\n if (prevState
&& routeReuseStrategy.shouldReuseRoute(curr.value, prevState.value.snapshot)) {\n const value =
prevState.value;\n value._futureSnapshot
= curr.value;\n const children = createOrReuseChildren(routeReuseStrategy, curr, prevState);\n return new
TreeNode<ActivatedRoute>(value, children);\n }\n // retrieve an activated route that is used to be displayed, but is
not currently displayed\n } else {\n const detachedRouteHandle =\n
<DetachedRouteHandleInternal>routeReuseStrategy.retrieve(curr.value);\n if (detachedRouteHandle) {\n const
tree: TreeNode<ActivatedRoute> = detachedRouteHandle.route;\n setFutureSnapshotsOfActivatedRoutes(curr,
tree);\n return tree;\n }\n const value = createActivatedRoute(curr.value);\n const children =
curr.children.map(c => createNode(routeReuseStrategy, c));\n return new TreeNode<ActivatedRoute>(value,
children);\n }\n}\n\nfunction setFutureSnapshotsOfActivatedRoutes(\n curr:
TreeNode<ActivatedRouteSnapshot>, result: TreeNode<ActivatedRoute>): void {\n if (curr.value.routeConfig !==
result.value.routeConfig)\n {\n throw new Error('Cannot reattach ActivatedRouteSnapshot created from a different route');\n }\n if
(curr.children.length !== result.children.length) {\n throw new Error('Cannot reattach ActivatedRouteSnapshot
with a different number of children');\n }\n result.value._futureSnapshot = curr.value;\n for (let i = 0; i <
curr.children.length; ++i) {\n setFutureSnapshotsOfActivatedRoutes(curr.children[i], result.children[i]);\n
 }\n}\n\nfunction createOrReuseChildren(\n routeReuseStrategy: RouteReuseStrategy, curr:
TreeNode<ActivatedRouteSnapshot>, prevState: TreeNode<ActivatedRoute>) {\n return
curr.children.map(child => {\n for (const p of prevState.children) {\n if
(routeReuseStrategy.shouldReuseRoute(child.value, p.value.snapshot)) {\n return
createNode(routeReuseStrategy, child, p);\n }\n }\n return createNode(routeReuseStrategy, child);\n
 });\n}\n\nfunction createActivatedRoute(c: ActivatedRouteSnapshot) {\n return new ActivatedRoute(\n

```

```

 new BehaviorSubject(c.url), new BehaviorSubject(c.params), new BehaviorSubject(c.queryParams),\n new
BehaviorSubject(c.fragment), new BehaviorSubject(c.data), c.outlet, c.component, c);\n}\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { ActivatedRoute } from
'./router_state';\nimport { Params, PRIMARY_OUTLET } from './shared';\nimport { UrlSegment, UrlSegmentGroup,
UrlTree } from './url_tree';\nimport { forEach, last, shallowEqual } from './utils/collection';\n\nexport function
createUrlTree(\n route: ActivatedRoute, urlTree: UrlTree, commands: any[], queryParams: Params,\n fragment:
string): UrlTree {\n if (commands.length === 0) {\n return tree(urlTree.root, urlTree.root, urlTree, queryParams,
fragment);\n }\n const nav = computeNavigation(commands);\n if (nav.toRoot()) {\n return
tree(urlTree.root, new UrlSegmentGroup([], {}), urlTree, queryParams, fragment);\n }\n const startingPosition =
findStartingPosition(nav, urlTree, route);\n const segmentGroup = startingPosition.processChildren ?\n updateSegmentGroupChildren(\n startingPosition.segmentGroup, startingPosition.index, nav.commands) :\n updateSegmentGroup(startingPosition.segmentGroup, startingPosition.index, nav.commands);\n return
tree(startingPosition.segmentGroup, segmentGroup, urlTree, queryParams, fragment);\n}\n\nfunction
isMatrixParams(command: any): boolean {\n return typeof command === 'object' && command !== null &&
!command.outlets && !command.segmentPath;\n}\n\n/**\n * Determines if a given command has an `outlets` map.
When we encounter a command\n * with an outlets k/v map, we need to apply each outlet individually to the
existing segment.\n */\nfunction isCommandWithOutlets(command: any): command is { outlets: {[key: string]:
any} } {\n return typeof command ===
'object' && command !== null && command.outlets;\n}\n\nfunction tree(\n oldSegmentGroup: UrlSegmentGroup,
newSegmentGroup: UrlSegmentGroup, urlTree: UrlTree,\n queryParams: Params, fragment: string): UrlTree {\n
let qp: any = {};\n if (queryParams) {\n forEach(queryParams, (value: any, name: any) => {\n qp[name] =
Array.isArray(value) ? value.map((v: any) => `${v}`) : `${value}`;\n });\n }\n if (urlTree.root ===
oldSegmentGroup) {\n return new UrlTree(newSegmentGroup, qp, fragment);\n }\n return new
UrlTree(replaceSegment(urlTree.root, oldSegmentGroup, newSegmentGroup), qp, fragment);\n}\n\nfunction
replaceSegment(\n current: UrlSegmentGroup, oldSegment: UrlSegmentGroup,\n newSegment:
UrlSegmentGroup): UrlSegmentGroup {\n const children: {[key: string]: UrlSegmentGroup} = {};\n forEach(current.children, (c: UrlSegmentGroup, outletName: string) => {\n if (c === oldSegment) {\n
children[outletName] = newSegment;\n } else {\n children[outletName]
= replaceSegment(c, oldSegment, newSegment);\n }\n });\n return new UrlSegmentGroup(current.segments,
children);\n}\n\nclass Navigation {\n constructor(\n public isAbsolute: boolean, public numberOfDoubleDots:
number, public commands: any[]) {\n if (isAbsolute && commands.length > 0 &&
isMatrixParams(commands[0])) {\n throw new Error('Root segment cannot have matrix parameters');\n }\n const cmdWithOutlet = commands.find(isCommandWithOutlets);\n if (cmdWithOutlet && cmdWithOutlet !==
last(commands)) {\n throw new Error('`outlets:{}` has to be the last command');\n }\n public toRoot():
boolean {\n return this.isAbsolute && this.commands.length === 1 && this.commands[0] === '/';\n }\n }\n\n /**
Transforms commands to a normalized `Navigation` *\n function computeNavigation(commands: any[]):
Navigation {\n if ((typeof commands[0] === 'string') && commands.length === 1 && commands[0] === '/') {\n
return new Navigation(true, 0,
commands);\n }\n let numberOfDoubleDots = 0;\n let isAbsolute = false;\n const res: any[] =
commands.reduce((res, cmd, cmdIdx) => {\n if (typeof cmd === 'object' && cmd !== null) {\n if (cmd.outlets) {\n
const outlets: {[k: string]: any} = {};\n forEach(cmd.outlets, (commands: any, name: string) => {\n
outlets[name] = typeof commands === 'string' ? commands.split('/') : commands;\n });\n return [...res,
{ outlets }];\n }\n if (cmd.segmentPath) {\n return [...res, cmd.segmentPath];\n }\n if
(! (typeof cmd === 'string')) {\n return [...res, cmd];\n }\n if (cmdIdx === 0) {\n
cmd.split('/').forEach((urlPart, partIndex) => {\n if (partIndex === 0 && urlPart === '.') {\n // skip './'\n
} else if (partIndex === 0 && urlPart === '') {\n // './'\n isAbsolute = true;\n } else if (urlPart === '..') {\n
//
'./'\n numberOfDoubleDots++;\n }\n }\n });\n }\n}

```

```

else if (urlPart !== "") {\n res.push(urlPart);\n }\n });\n\n return res;\n}\n\nreturn [...res, cmd];\n}, []);\n\nreturn new Navigation(isAbsolute, numberOfDoubleDots, res);\n}\n\n\nclass Position {\n constructor(\n public segmentGroup: UrlSegmentGroup, public processChildren: boolean, public index: number) {\n\n }\n\n \nfunction findStartingPosition(nav: Navigation, tree: UrlTree, route: ActivatedRoute): Position {\n if\n (nav.isAbsolute) {\n return new Position(tree.root, true, 0);\n }\n\n if (route.snapshot._lastPathIndex === -1) {\n const segmentGroup = route.snapshot._urlSegment;\n // Pathless ActivatedRoute has _lastPathIndex === -1 but\n should not process children\n // see issue #26224, #13011, #35687\n // However, if the ActivatedRoute is the\n root we should process children like above.\n const processChildren = segmentGroup === tree.root;\n return\n new Position(segmentGroup, processChildren, 0);\n }\n\n const modifier\n = isMatrixParams(nav.commands[0]) ? 0 : 1;\n const index = route.snapshot._lastPathIndex + modifier;\n return\n createPositionApplyingDoubleDots(\n route.snapshot._urlSegment, index,\n nav.numberOfDoubleDots);\n }\n\n \nfunction createPositionApplyingDoubleDots(\n group: UrlSegmentGroup,\n index: number, numberOfDoubleDots: number): Position {\n let g = group;\n let ci = index;\n let dd =\n numberOfDoubleDots;\n while (dd > ci) {\n dd -= ci;\n g = g.parent!;\n if (!g) {\n throw new Error("Invalid\n number of '\\.\\.\\.')\n }\n ci = g.segments.length;\n }\n return new Position(g, false, ci - dd);\n }\n\n \nfunction\n getOutlets(commands: any[]): {[k: string]: any[]} {\n if (isCommandWithOutlets(commands[0])) {\n return\n commands[0].outlets;\n }\n\n return {[PRIMARY_OUTLET]: commands};\n }\n\n \nfunction\n updateSegmentGroup(\n segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]):\n UrlSegmentGroup {\n if (!segmentGroup) {\n segmentGroup = new UrlSegmentGroup([],\n {});\n }\n\n if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return\n updateSegmentGroupChildren(segmentGroup, startIndex, commands);\n }\n\n const m =\n prefixedWith(segmentGroup, startIndex, commands);\n const slicedCommands =\n commands.slice(m.commandIndex);\n if (m.match && m.pathIndex < segmentGroup.segments.length) {\n const\n g = new UrlSegmentGroup(segmentGroup.segments.slice(0, m.pathIndex), {});\n g.children[PRIMARY_OUTLET] =\n new UrlSegmentGroup(segmentGroup.segments.slice(m.pathIndex),\n segmentGroup.children);\n return updateSegmentGroupChildren(g, 0, slicedCommands);\n } else if (m.match &&\n slicedCommands.length === 0) {\n return new UrlSegmentGroup(segmentGroup.segments, {});\n } else if\n (m.match && !segmentGroup.hasChildren()) {\n return createNewSegmentGroup(segmentGroup, startIndex,\n commands);\n } else if (m.match) {\n return updateSegmentGroupChildren(segmentGroup, 0,\n slicedCommands);\n } else {\n return\n createNewSegmentGroup(segmentGroup, startIndex, commands);\n }\n }\n\n \nfunction\n updateSegmentGroupChildren(\n segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]):\n UrlSegmentGroup {\n if (commands.length === 0) {\n return new UrlSegmentGroup(segmentGroup.segments,\n {});\n } else {\n const outlets = getOutlets(commands);\n const children: {[key: string]: UrlSegmentGroup} =\n {};\n\n forEach(outlets, (commands: any, outlet: string) => {\n if (commands !== null) {\n children[outlet]\n = updateSegmentGroup(segmentGroup.children[outlet], startIndex, commands);\n }\n });\n\n forEach(segmentGroup.children, (child: UrlSegmentGroup, childOutlet: string) => {\n if (outlets[childOutlet]\n === undefined) {\n children[childOutlet] = child;\n }\n });\n return new\n UrlSegmentGroup(segmentGroup.segments, children);\n }\n }\n\n \nfunction prefixedWith(segmentGroup:\n UrlSegmentGroup, startIndex: number, commands: any[]) {\n let currentCommandIndex\n = 0;\n let currentPathIndex = startIndex;\n\n const noMatch = {match: false, pathIndex: 0, commandIndex: 0};\n while (currentPathIndex < segmentGroup.segments.length) {\n if (currentCommandIndex >= commands.length)\n return noMatch;\n const path = segmentGroup.segments[currentPathIndex];\n const command =\n commands[currentCommandIndex];\n // Do not try to consume command as part of the prefixing if it has outlets\n because it can\n // contain outlets other than the one being processed. Consuming the outlets command would\n // result in other outlets being ignored.\n if (isCommandWithOutlets(command)) {\n break;\n }\n const curr\n = `${command}`;\n const next =\n currentCommandIndex < commands.length - 1 ?\n commands[currentCommandIndex + 1] : null;\n if (currentPathIndex > 0 && curr === undefined) break;\n if

```



```

(curr && next && (typeof next === 'object') && next.outlets === undefined) {\n if (!compare(curr, next, path))
return noMatch;\n currentCommandIndex += 2;\n } else {\n if (!compare(curr, {}, path)) return noMatch;\n currentCommandIndex++;\n } \n currentPathIndex++;\n }\n\n return {match: true, pathIndex:
currentPathIndex, commandIndex: currentCommandIndex};\n}\n\nfunction createNewSegmentGroup(\n
segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]): UrlSegmentGroup {\n const paths =
segmentGroup.segments.slice(0, startIndex);\n let i = 0;\n while (i < commands.length) {\n const command =
commands[i];\n if (isCommandWithOutlets(command)) {\n const children =
createNewSegmentChildren(command.outlets);\n return new UrlSegmentGroup(paths, children);\n }\n // if
we start with an object literal, we need to reuse the path part from the segment\n if (i === 0 &&
isMatrixParams(commands[0])) {\n const p = segmentGroup.segments[startIndex];\n paths.push(new
UrlSegment(p.path, commands[0]));\n i++;\n continue;\n }\n const curr = isCommandWithOutlets(command) ? command.outlets[PRIMARY_OUTLET] :
`${command}`;\n const next = (i < commands.length - 1) ? commands[i + 1] : null;\n if (curr && next &&
isMatrixParams(next)) {\n paths.push(new UrlSegment(curr, stringify(next)));\n i += 2;\n } else {\n paths.push(new UrlSegment(curr, {}));\n i++;\n }\n }\n return new UrlSegmentGroup(paths,
{});\n}\n\nfunction createNewSegmentChildren(outlets: {[name: string]: any}): any {\n const children: {[key:
string]: UrlSegmentGroup} = {};\n forEach(outlets, (commands: any, outlet: string) => {\n if (commands !==
null) {\n children[outlet] = createNewSegmentGroup(new UrlSegmentGroup([], {}), 0, commands);\n }\n });\n return children;\n}\n\nfunction stringify(params: {[key: string]: any}): {[key: string]: string} {\n const res: {[key:
string]: string} = {};\n forEach(params, (v: any, k: string) => res[k] = `${v}`);\n return res;\n}\n\nfunction
compare(path:
string, params: {[key: string]: any}, segment: UrlSegment): boolean {\n return path === segment.path &&
shallowEqual(params, segment.parameters);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {MonoTypeOperatorFunction} from 'rxjs';\nimport {map}
from 'rxjs/operators';\nimport {LoadedRouterConfig} from './config';\nimport {ActivationEnd,
ChildActivationEnd, Event} from './events';\nimport {DetachedRouteHandleInternal, RouteReuseStrategy} from
'./route_reuse_strategy';\nimport {NavigationTransition} from './router';\nimport {ChildrenOutletContexts} from
'./router_outlet_context';\nimport {ActivatedRoute, ActivatedRouteSnapshot, advanceActivatedRoute, RouterState}
from './router_state';\nimport {forEach} from './utils/collection';\nimport {nodeChildrenAsMap, TreeNode} from
'./utils/tree';\n\nexport const
activateRoutes = (\n rootContexts: ChildrenOutletContexts, routeReuseStrategy: RouteReuseStrategy,\n forwardEvent: (evt: Event) => void): MonoTypeOperatorFunction<NavigationTransition> =>\n map(t => {\n new ActivateRoutes(\n routeReuseStrategy, t.targetRouterState!, t.currentRouterState, forwardEvent)\n .activate(rootContexts);\n return t;\n });\n\nexport class ActivateRoutes {\n constructor(\n private
routeReuseStrategy: RouteReuseStrategy, private futureState: RouterState,\n private currState: RouterState,\n private forwardEvent: (evt: Event) => void) {\n }\n\n activate(parentContexts: ChildrenOutletContexts): void {\n const futureRoot = this.futureState._root;\n const currRoot = this.currState ? this.currState._root : null;\n this.deactivateChildRoutes(futureRoot, currRoot, parentContexts);\n advanceActivatedRoute(this.futureState.root);\n this.activateChildRoutes(futureRoot, currRoot, parentContexts);\n }\n\n // De-activate the child route that are not re-used for the future state\n private deactivateChildRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode: TreeNode<ActivatedRoute>|null,\n contexts:
ChildrenOutletContexts): void {\n const children: {[outletName: string]: TreeNode<ActivatedRoute>} =
nodeChildrenAsMap(currNode);\n // Recurse on the routes active in the future state to de-activate deeper
children\n futureNode.children.forEach(futureChild => {\n const childOutletName =
futureChild.value.outlet;\n this.deactivateRoutes(futureChild, children[childOutletName], contexts);\n delete
children[childOutletName];\n });\n // De-activate the routes that will not be re-used\n forEach(children, (v:
TreeNode<ActivatedRoute>, childName: string) => {\n this.deactivateRouteAndItsChildren(v, contexts);\n });\n }\n}

```

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});\n }\n\n private deactivateRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode:
TreeNode<ActivatedRoute>,\n
 parentContext: ChildrenOutletContexts): void {\n const future = futureNode.value;\n const curr = currNode ?
currNode.value : null;\n\n if (future === curr) {\n // Reusing the node, check to see if the children need to be
de-activated\n if (future.component) {\n // If we have a normal route, we need to go through an outlet.\n
const context = parentContext.getContext(future.outlet);\n if (context) {\n
this.deactivateChildRoutes(futureNode, currNode, context.children);\n }\n } else {\n // if we have a
componentless route, we recurse but keep the same outlet map.\n this.deactivateChildRoutes(futureNode,
currNode, parentContext);\n }\n } else {\n if (curr) {\n // Deactivate the current route which will not be
re-used\n this.deactivateRouteAndItsChildren(currNode, parentContext);\n }\n }\n}\n\n private
deactivateRouteAndItsChildren(\n route: TreeNode<ActivatedRoute>,\n
 parentContexts: ChildrenOutletContexts): void {\n if
(this.routeReuseStrategy.shouldDetach(route.value.snapshot)) {\n this.detachAndStoreRouteSubtree(route,
parentContexts);\n } else {\n this.deactivateRouteAndOutlet(route, parentContexts);\n }\n}\n\n private
detachAndStoreRouteSubtree(\n route: TreeNode<ActivatedRoute>, parentContexts: ChildrenOutletContexts):
void {\n const context = parentContexts.getContext(route.value.outlet);\n if (context && context.outlet) {\n
const componentRef = context.outlet.detach();\n const contexts = context.children.onOutletDeactivated();\n
this.routeReuseStrategy.store(route.value.snapshot, {componentRef, route, contexts});\n }\n}\n\n private
deactivateRouteAndOutlet(\n route: TreeNode<ActivatedRoute>, parentContexts: ChildrenOutletContexts): void
{\n const context = parentContexts.getContext(route.value.outlet);\n\n if (context) {\n const children:
{[outletName: string]: any}
= nodeChildrenAsMap(route);\n const contexts = route.value.component ? context.children : parentContexts;\n\n
 forEach(children, (v: any, k: string) => this.deactivateRouteAndItsChildren(v, contexts));\n\n if
(context.outlet) {\n // Destroy the component\n context.outlet.deactivate();\n // Destroy the contexts for
all the outlets that were in the component\n context.children.onOutletDeactivated();\n }\n }\n}\n\n
private activateChildRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode:
TreeNode<ActivatedRoute>|null,\n contexts: ChildrenOutletContexts): void {\n const children: {[outlet:
string]: any} = nodeChildrenAsMap(currNode);\n futureNode.children.forEach(c => {\n this.activateRoutes(c,
children[c.value.outlet], contexts);\n this.forwardEvent(new ActivationEnd(c.value.snapshot));\n });\n if
(futureNode.children.length) {\n this.forwardEvent(new ChildActivationEnd(futureNode.value.snapshot));\n }\n}\n\n private activateRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode:
TreeNode<ActivatedRoute>,\n parentContexts: ChildrenOutletContexts): void {\n const future =
futureNode.value;\n const curr = currNode ? currNode.value : null;\n\n advanceActivatedRoute(future);\n\n //
reusing the node\n if (future === curr) {\n if (future.component) {\n // If we have a normal route, we need
to go through an outlet.\n const context = parentContexts.getOrCreateContext(future.outlet);\n
this.activateChildRoutes(futureNode, currNode, context.children);\n } else {\n // if we have a componentless
route, we recurse but keep the same outlet map.\n this.activateChildRoutes(futureNode, currNode,
parentContexts);\n }\n } else {\n if (future.component) {\n // if we have a normal route, we need to
place the component into the outlet and recurse.\n const context =
parentContexts.getOrCreateContext(future.outlet);\n\n if (this.routeReuseStrategy.shouldAttach(future.snapshot)) {\n const stored =\n
(<DetachedRouteHandleInternal>this.routeReuseStrategy.retrieve(future.snapshot));\n this.routeReuseStrategy.store(future.snapshot, null);\n
context.children.onOutletReAttached(stored.contexts);\n context.attachRef = stored.componentRef;\n
context.route = stored.route.value;\n if (context.outlet) {\n // Attach right away when the outlet has
already been instantiated\n // Otherwise attach from `RouterOutlet.ngOnInit` when it is instantiated\n
context.outlet.attach(stored.componentRef, stored.route.value);\n }\n advanceActivatedRouteNodeAndItsChildren(stored.route);\n } else {\n const config =

```

```

parentLoadedConfig(future.snapshot);\n const cmpFactoryResolver = config ?
config.module.componentFactoryResolver : null;\n context.attachRef
= null;\n context.route = future;\n context.resolver = cmpFactoryResolver;\n if (context.outlet) {\n
 // Activate the outlet when it has already been instantiated\n // Otherwise it will get activated from its
`ngOnInit` when instantiated\n context.outlet.activateWith(future, cmpFactoryResolver);\n }\n\n
this.activateChildRoutes(futureNode, null, context.children);\n }\n } else {\n // if we have a
componentless route, we recurse but keep the same outlet map.\n this.activateChildRoutes(futureNode, null,
parentContexts);\n }\n }\n }\n }\n\nfunction advanceActivatedRouteNodeAndItsChildren(node:
TreeNode<ActivatedRoute>): void {\n advanceActivatedRoute(node.value);\n}
node.children.forEach(advanceActivatedRouteNodeAndItsChildren);\n}\n\nfunction parentLoadedConfig(snapshot:
ActivatedRouteSnapshot): LoadedRouterConfig|null {\n for (let s = snapshot.parent; s; s = s.parent) {\n
 const route = s.routeConfig;\n if (route && route._loadedConfig) return route._loadedConfig;\n if (route &&
route.component) return null;\n }\n }\n return null;\n }\n }, "/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { NgModuleFactory, NgModuleRef, Type } from
'@angular/core';\nimport { Observable } from 'rxjs';\nimport { ActivatedRouteSnapshot } from
'./router_state';\nimport { UrlSegment, UrlSegmentGroup } from './url_tree';\n\n/**\n * Represents a route
configuration for the Router service.\n * An array of `Route` objects, used in `Router.config` and for nested route
configurations\n * in `Route.children`.\n *\n * @see `Route`\n * @see `Router`\n * @see [Router configuration
guide](guide/router#configuration)\n * @publicApi\n */\nexport type Routes = Route[];\n\n/**\n * Represents the
result of matching URLs
with a custom matching function.\n *\n * `consumed` is an array of the consumed URL segments.\n *\n *
`posParams` is a map of positional parameters.\n *\n * @see `UrlMatcher`\n * @publicApi\n */\nexport type
UrlMatchResult = {\n consumed: UrlSegment[];\n posParams?: {[name: string]: UrlSegment};\n};\n\n/**\n * A
function for matching a route against URLs. Implement a custom URL matcher\n * for `Route.matcher` when a
combination of `path` and `pathMatch`\n * is not expressive enough. Cannot be used together with `path` and
`pathMatch`.\n *\n * The function takes the following arguments and returns a `UrlMatchResult` object.\n *\n *
`segments` : An array of URL segments.\n * `group` : A segment group.\n * `route` : The route to match
against.\n *\n * The following example implementation matches HTML files.\n *\n * ```\n * export function
htmlFiles(url: UrlSegment[]) {\n * return url.length === 1 && url[0].path.endsWith('.html') ? ({consumed: url}) :
null;\n * }\n *\n * export const
routes = [{ matcher: htmlFiles, component: AnyComponent }];\n * ```\n *\n * @publicApi\n */\nexport type
UrlMatcher = (segments: UrlSegment[], group: UrlSegmentGroup, route: Route) =>\n
UrlMatchResult|null;\n\n/**\n * Represents static data associated with a particular route.\n *\n * @see
`Route#data`\n *\n * @publicApi\n */\nexport type Data = {\n [name: string]: any;\n};\n\n/**\n * Represents the
resolved data associated with a particular route.\n *\n * @see `Route#resolve`.\n *\n * @publicApi\n */\nexport
type ResolveData = {\n [name: string]: any;\n};\n\n/**\n * A function that is called to resolve a collection of
lazy-loaded routes.\n * Must be an arrow function of the following form:\n *\n * `() => import('...').then(mod =>
mod.MODULE)`\n *\n * For example:\n *\n * ```\n * [{\n * path: 'lazy',\n * loadChildren: () => import('./lazy-
route/lazy.module').then(mod => mod.LazyModule),\n * }];\n * ```\n *\n * @see
[Route.loadChildren](api/router/Route#loadChildren)\n *\n * @publicApi\n */\nexport type LoadChildrenCallback = () =>
Type<any>|NgModuleFactory<any>|Observable<Type<any>>|
Promise<NgModuleFactory<any>|Type<any>|any>;\n\n/**\n * A function that returns a set of routes to load.\n *\n *
The string form of `LoadChildren` is deprecated (see `DeprecatedLoadChildren`). The function\n * form
(`LoadChildrenCallback`) should be used instead.\n *\n * @see `loadChildrenCallback`\n * @publicApi\n */\n
export type LoadChildren = LoadChildrenCallback|DeprecatedLoadChildren;\n\n/**\n * A string of the form
`path/to/file#exportName` that acts as a URL for a set of routes to load.\n *\n * @see `loadChildrenCallback`\n *

```

@publicApi\n \* @deprecated The `string` form of `loadChildren` is deprecated in favor of the\n \*  
`LoadChildrenCallback` function which uses the ES dynamic `import()` expression.\n \* This offers a more natural  
and standards-based mechanism to dynamically\n \* load an ES module at runtime.\n \*/\nexport type  
DeprecatedLoadChildren = string;\n\n/\*\*\n \* How to handle query parameters in a router link.\n \* One of:\n \* - `merge` : Merge new with current  
parameters.\n \* - `preserve` : Preserve current parameters.\n \*/\n \* @see  
`UrlCreationOptions#queryParamsHandling`\n \* @see `RouterLink`\n \* @publicApi\n \*/\nexport type  
QueryParamsHandling = 'merge'|'preserve';\n\n/\*\*\n \* A policy for when to run guards and resolvers on a  
route.\n \* @see [Route.runGuardsAndResolvers](api/router/Route#runGuardsAndResolvers)\n \* @publicApi\n \*/\nexport type RunGuardsAndResolvers =\n\n'pathParamsChange'|'pathParamsOrQueryParamsChange'|'paramsChange'|'paramsOrQueryParamsChange';\n\n'always'|((from: ActivatedRouteSnapshot, to: ActivatedRouteSnapshot) => boolean);\n\n/\*\*\n \* A configuration  
object that defines a single route.\n \* A set of routes are collected in a `Routes` array to define a `Router`  
configuration.\n \* The router attempts to match segments of a given URL against each route,\n \* using the  
configuration options defined  
in this object.\n \* Supports static, parameterized, redirect, and wildcard routes, as well as\n \* custom route data  
and resolve methods.\n \* For detailed usage information, see the [Routing Guide](guide/router).\n \*/\n \*  
@usageNotes\n \* ### Simple Configuration\n \* The following route specifies that when navigating to, for  
example,\n \* `/team/11/user/bob`, the router creates the 'Team' component\n \* with the 'User' child component in  
it.\n \* ```\n \* {\n \* path: 'team/:id',\n \* component: Team,\n \* children: [\n \* {\n \* path: 'user/:name',\n \* component: User\n \* }\n \* ]\n \* }\n \* ```\n \* ### Multiple Outlets\n \* The following route creates sibling  
components with multiple outlets.\n \* When navigating to `/team/11(aux:chat/jim)`, the router creates the 'Team'  
component next to\n \* the 'Chat' component. The 'Chat' component is placed into the 'aux' outlet.\n \* ```\n \* {\n \* path: 'team/:id',\n \* component: Team\n \* }, {\n \* path: 'chat:user',\n \* component: Chat\n \* outlet: 'aux'\n \* }\n \* ```\n \* ### Wild Cards\n \* The following route uses wild-  
card notation to specify a component\n \* that is always instantiated regardless of where you navigate to.\n \* ```\n \* {\n \* path: '\*\*',\n \* component: WildcardComponent\n \* }\n \* ```\n \* ### Redirects\n \* The following  
route uses the `redirectTo` property to ignore a segment of\n \* a given URL when looking for a child path.\n \* When navigating to `/team/11/legacy/user/jim`, the router changes the URL segment\n \* `/team/11/legacy/user/jim` to  
`/team/11/user/jim`, and then instantiates\n \* the Team component with the User child component in it.\n \* ```\n \* {\n \* path: 'team/:id',\n \* component: Team,\n \* children: [\n \* {\n \* path: 'legacy/user/:name',\n \* redirectTo:  
'user/:name'\n \* }, {\n \* path: 'user:name',\n \* component: User\n \* }\n \* ]\n \* }\n \* ```\n \* The redirect path  
can be relative, as shown in this example,  
or absolute.\n \* If we change the `redirectTo` value in the example to the absolute URL segment `/user/:name`,\n \* the result URL is also absolute, `/user/jim`.\n \* ### Empty Path\n \* Empty-path route configurations can be  
used to instantiate components that do not 'consume'\n \* any URL segments.\n \* In the following configuration,  
when navigating to\n \* `/team/11`, the router instantiates the 'AllUsers' component.\n \* ```\n \* {\n \* path:  
'team/:id',\n \* component: Team,\n \* children: [\n \* {\n \* path: '',\n \* component: AllUsers\n \* }, {\n \* path:  
'user/:name',\n \* component: User\n \* }\n \* ]\n \* }\n \* ```\n \* Empty-path routes can have children. In the  
following example, when navigating\n \* to `/team/11/user/jim`, the router instantiates the wrapper component  
with\n \* the user component in it.\n \* Note that an empty path route inherits its parent's parameters and data.\n \* ```\n \* {\n \* path: 'team/:id',\n \* component: Team,\n \* children: [\n \* {\n \* path: '',\n \* component: WrapperCmp,\n \* children: [\n \* {\n \* path: 'user/:name',\n \* component: User\n \* }\n \* ]\n \* }\n \* ]\n \* }\n \* ```\n \* ### Matching Strategy\n \* The default path-match  
strategy is 'prefix', which means that the router\n \* checks URL elements from the left to see if the URL matches a  
specified path.\n \* For example, `/team/11/user` matches `team/:id`.\n \* ```\n \* {\n \* path: '',\n \* pathMatch:  
'prefix', //default\n \* redirectTo: 'main'\n \* }, {\n \* path: 'main',\n \* component: Main\n \* }\n \* ```\n \* You  
can specify the path-match strategy 'full' to make sure that the path\n \* covers the whole unconsumed URL. It is

important to do this when redirecting empty-path routes. Otherwise, because an empty path is a prefix of any URL, the router would apply the redirect even when navigating to the redirect destination, creating an endless loop.

In the following example, supplying the 'full' 'pathMatch' strategy ensures that the router applies the redirect if and only if navigating to '/'.  

```
{
 path: '',
 pathMatch: 'full',
 redirectTo: 'main'
}, {
 path: 'main',
 component: Main
}]
```

### Componentless Routes  
You can share parameters between sibling components. For example, suppose that two sibling components should go next to each other, and both of them require an ID parameter. You can accomplish this using a route that does not specify a component at the top level.

In the following example, 'MainChild' and 'AuxChild' are siblings. When navigating to 'parent/10/(a/aux:b)', the route instantiates the main child and aux child components next to each other. For this to work, the application component must have the primary and aux outlets defined.  

```
{
 path: 'parent/:id',
 children: [
 {
 path: 'a',
 component: MainChild
 },
 {
 path: 'b',
 component: AuxChild,
 outlet: 'aux'
 }
]
}
```

The router merges the parameters, data, and resolve of the componentless parent into the parameters, data, and resolve of the children. This is especially useful when child components are defined with an empty path string, as in the following example.

With this configuration, navigating to '/parent/10' creates the main child and aux components.  

```
{
 path: 'parent/:id',
 children: [
 {
 path: '',
 component: MainChild
 },
 {
 path: '',
 component: AuxChild,
 outlet: 'aux'
 }
]
}
```

### Lazy Loading  
Lazy loading speeds up application load time by splitting the application into multiple bundles and loading them on demand. To use lazy loading, provide the 'loadChildren' property in the 'Route' object, instead of the 'children' property.

Given the following example route, the router will lazy load the associated module on demand using the browser native import system.  

```
{
 path: 'lazy',
 loadChildren: () => import('./lazy-route/lazy.module').then(mod => mod.LazyModule)
}
```

@publicApi  
export interface Route {  
 /\*\*  
 \* The path to match against. Cannot be used together with a custom 'matcher' function.  
 \* A URL string that uses router matching notation.  
 \* Can be a wild card ('\*\*') that matches any URL (see Usage Notes below).  
 \* Default is '/' (the root path).  
 \* path?: string;  
 \* The path-matching strategy, one of 'prefix' or 'full'.  
 \* Default is 'prefix'.  
 \* By default, the router checks URL elements from the left to see if the URL matches a given path, and stops when there is a match.  
 \* For example, '/team/11/user' matches 'team/:id'.  
 \* The path-match strategy 'full' matches against the entire URL.  
 \* It is important to do this when redirecting empty-path routes.  
 \* Otherwise, because an empty path is a prefix of any URL, the router would apply the redirect even when navigating to the redirect destination, creating an endless loop.  
 \* pathMatch?: string;  
 \* A custom URL-matching function. Cannot be used together with 'path'.  
 \* matcher?: UrlMatcher;  
 \* The component to instantiate when the path matches.  
 \* Can be empty if child routes specify components.  
 \* component?: Type<any>;  
 \* A URL to redirect to when the path matches.  
 \* Absolute if the URL begins with a slash (/), otherwise relative to the path URL.  
 \* When not present, router does not redirect.  
 \* redirectTo?: string;  
 \* Name of a 'RouterOutlet' object where the component can be placed when the path matches.  
 \* outlet?: string;  
 \* An array of dependency-injection tokens used to look up 'CanActivate()' handlers, in order to determine if the current user is allowed to activate the component. By default, any user can activate.  
 \* canActivate?: any[];  
 \* An array of DI tokens used to look up 'CanActivateChild()' handlers, in order to determine if the current user is allowed to activate a child of the component. By default, any user can activate a child.  
 \* canActivateChild?: any[];  
 \* An array of DI tokens used to look up 'CanDeactivate()' handlers, in order to determine if the current user is allowed to deactivate the component. By default, any user can deactivate.  
 \* canDeactivate?: any[];  
 \* An array of DI tokens used to look up 'CanLoad()' handlers, in order to determine if the current user is allowed to load the component. By default, any user can load.  
 \* canLoad?: any[];  
 \* Additional developer-defined data provided to the component via 'ActivatedRoute'. By default, no additional data is passed.  
 \* data: any;

```

data?: Data;\n /**\n * A map of DI tokens used to look up data resolvers. See `Resolve`.\n */\n resolve?:
ResolveData;\n /**\n * An array of child `Route` objects that specifies a nested route\n * configuration.\n */\n
children?: Routes;\n /**\n * An object specifying lazy-loaded child routes.\n */\n loadChildren?:
LoadChildren;\n /**\n * Defines when guards and resolvers will be run. One of\n * -
`paramsOrQueryParamsChange` : Run when query parameters change.\n * - `always` : Run on every execution.\n
* By default, guards and resolvers run only when the matrix\n * parameters of the route change.\n */\n
runGuardsAndResolvers?: RunGuardsAndResolvers;\n /**\n * Filled for routes with `loadChildren` once the
module has been loaded\n * @internal\n */\n _loadedConfig?: LoadedRouterConfig;\n }\n\nexport class
LoadedRouterConfig {\n constructor(public routes: Route[], public module: NgModuleRef<any>) {} }\n\n"/**\n *
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All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport { CanActivate, CanActivateChild, CanDeactivate,
CanLoad } from './interfaces';\nimport { UrlTree } from './url_tree';\n\n/**\n * Simple function check, but generic so
type inference will flow. Example:\n */\n * function product(a: number, b: number) {\n * return a * b;\n * }\n */\n
if (isFunction<product>(fn)) {\n * return fn(1, 2);\n * } else {\n * throw `Must provide the `product`
function`;\n * }\n */\n\nexport function isFunction<T>(v: any): v is T {\n return typeof v ===
'function';\n }\n\nexport function isBoolean(v: any): v is boolean {\n return typeof v === 'boolean';\n }\n\nexport
function isUrlTree(v: any): v is UrlTree {\n return v instanceof UrlTree;\n }\n\nexport function isCanLoad(guard:
any): guard is CanLoad {\n return guard && isFunction<CanLoad>(guard.canLoad);\n }\n\nexport function
isCanActivate(guard:
any): guard is CanActivate {\n return guard && isFunction<CanActivate>(guard.canActivate);\n }\n\nexport
function isCanActivateChild(guard: any): guard is CanActivateChild {\n return guard &&
isFunction<CanActivateChild>(guard.canActivateChild);\n }\n\nexport function isCanDeactivate<T>(guard: any):
guard is CanDeactivate<T> {\n return guard &&
isFunction<CanDeactivate<T>>(guard.canDeactivate);\n }\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { combineLatest, Observable, OperatorFunction } from
'rxjs';\nimport { filter, map, scan, startWith, switchMap, take } from 'rxjs/operators';\n\nimport { UrlTree } from
'./url_tree';\nimport { isUrlTree } from './utils/type_guards';\n\nconst INITIAL_VALUE =
Symbol('INITIAL_VALUE');\ndeclare type INTERIM_VALUES = typeof INITIAL_VALUE | boolean |
UrlTree;\n\nexport function
prioritizedGuardValue():\n OperatorFunction<Observable<boolean|UrlTree>[], boolean|UrlTree> {\n return
switchMap(obs => {\n return combineLatest(\n ...obs.map(o => o.pipe(take(1),
startWith(INITIAL_VALUE as INTERIM_VALUES))))\n .pipe(\n scan(\n (acc:
INTERIM_VALUES, list: INTERIM_VALUES[]) => {\n let isPending = false;\n
return list.reduce((innerAcc, val, i: number) => {\n if (innerAcc !== INITIAL_VALUE) return
innerAcc;\n\n // Toggle pending flag if any values haven't been set yet\n if (val ===
INITIAL_VALUE) isPending = true;\n\n // Any other return values are only valid if we haven't yet
hit a pending\n // call. This guarantees that in the case of a guard at the bottom of the\n
// tree that returns a
redirect, we will wait for the higher priority\n // guard at the top to finish before performing the
redirect.\n if (!isPending) {\n // Early return when we hit a `false` value as that
should always\n // cancel navigation\n if (val === false) return val;\n\n
if (i === list.length - 1 || isUrlTree(val)) {\n return val;\n }\n
}\n\n return innerAcc;\n }, acc);\n },\n\n INITIAL_VALUE),\n filter(item => item !== INITIAL_VALUE),\n map(item =>
isUrlTree(item) ? item : item === true), /\n take(1)) as Observable<boolean|UrlTree>;\n
});\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n

```

```

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https://angular.io/license
import { Component } from '@angular/core';
This component is used internally within the router to be a placeholder when an empty router-outlet is needed. For example, with a config such as:
{path: 'parent', outlet: 'nav', children: [...]}
In order to render, there needs to be a component on this config, which will default to this EmptyOutletComponent.
@Component({template: <router-outlet></router-outlet>})
export class EmptyOutletComponent {
 export {EmptyOutletComponent as EmptyOutletComponent};
}
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https://angular.io/license
import { EmptyOutletComponent } from '../components/empty_outlet';
import { Route, Routes }
from './config';
import { PRIMARY_OUTLET } from './shared';
export function validateConfig(config: Routes, parentPath: string = ""): void {
 // forEach doesn't iterate undefined values
 for (let i = 0; i < config.length; i++) {
 const route: Route = config[i];
 const fullPath: string = getFullPath(parentPath, route);
 validateNode(route, fullPath);
 }
}
function validateNode(route: Route, fullPath: string): void {
 if (typeof ngDevMode === 'undefined' || ngDevMode) {
 if (!route) {
 throw new Error(`Invalid configuration of route '${fullPath}': Encountered undefined route. The reason might be an extra comma. Example:
const routes: Routes = [
 { path: "", redirectTo: '/dashboard', pathMatch: 'full' },
 { path: 'dashboard', component: DashboardComponent },
 << two commas
 { path: 'detail/:id', component: HeroDetailComponent }
];
`);
 }
 if (Array.isArray(route)) {
 throw new Error(`Invalid configuration of route '${fullPath}': Array cannot be specified`);
 }
 if (!route.component && !route.children && !route.loadChildren && (route.outlet && route.outlet !== PRIMARY_OUTLET)) {
 throw new Error(`Invalid configuration of route '${fullPath}': a componentless route without children or loadChildren cannot have a named outlet set`);
 }
 if (route.redirectTo && route.children) {
 throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and children cannot be used together`);
 }
 if (route.redirectTo && route.loadChildren) {
 throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and loadChildren cannot be used together`);
 }
 if (route.children && route.loadChildren) {
 throw new Error(`Invalid configuration of route '${fullPath}': children and loadChildren cannot be used together`);
 }
 if (route.redirectTo && route.component) {
 throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and component cannot be used together`);
 }
 if (route.path && route.matcher) {
 throw new Error(`Invalid configuration of route '${fullPath}': path and matcher cannot be used together`);
 }
 if (route.redirectTo === void 0 && !route.component && !route.children && !route.loadChildren) {
 throw new Error(`Invalid configuration of route '${fullPath}': One of the following must be provided: component, redirectTo, children or loadChildren`);
 }
 if (route.path === void 0 && route.matcher === void 0) {
 throw new Error(`Invalid configuration of route '${fullPath}': routes must have either a path or a matcher specified`);
 }
 if (typeof route.path === 'string' && route.path.charAt(0) === '/') {
 throw new Error(`Invalid configuration of route '${fullPath}': path cannot start with a slash`);
 }
 if (route.path === "" && route.redirectTo !== void 0 && route.pathMatch === void 0) {
 const exp = `The default value of 'pathMatch' is 'prefix', but often the intent is to use 'full'`;
 throw new Error(`Invalid configuration of route '{path: "${fullPath}", redirectTo: "${route.redirectTo}"': please provide 'pathMatch'. ${exp}`);
 }
 if (route.pathMatch !== void 0 && route.pathMatch !== 'full' && route.pathMatch !== 'prefix') {
 throw new Error(`Invalid configuration of route '${fullPath}': pathMatch can only be set to 'prefix' or 'full'`);
 }
 if (route.children) {
 validateConfig(route.children, fullPath);
 }
 }
}
function getFullPath(parentPath: string, currentRoute: Route): string {
 if (!currentRoute) {
 return parentPath;
 }
 if (!parentPath && !currentRoute.path) {
 return "";
 }
 else if (parentPath && !currentRoute.path) {
 return `${parentPath}/`;
 }
 else if (!parentPath && currentRoute.path) {
 return currentRoute.path;
 }
 else {
 return `${parentPath}/${currentRoute.path}`;
 }
}
** Makes a copy of the config and adds any default required

```

```

properties.\n */\nexport function standardizeConfig(r: Route): Route {\n const children = r.children &&
r.children.map(standardizeConfig);\n const c = children ? {...r, children} : {...r};\n if (!c.component && (children ||
c.loadChildren) && (c.outlet && c.outlet !== PRIMARY_OUTLET)) {\n c.component =
EmptyOutletComponent;\n }\n return c;\n}\n\n/** Returns of `Map` of outlet names to the `Route`s for that outlet.
*/\nexport function groupRoutesByOutlet(routes: Route[]): Map<string, Route[]> {\n return routes.reduce((map,
route) => {\n const routeOutlet = getOutlet(route);\n if (map.has(routeOutlet)) {\n
map.get(routeOutlet)!.push(route);\n } else {\n map.set(routeOutlet, [route]);\n }\n return map;\n }, new
Map<string, Route[]>());\n}\n\n/**
Returns the `route.outlet` or PRIMARY_OUTLET if none exists. */\nexport function getOutlet(route: Route):
string {\n return route.outlet || PRIMARY_OUTLET;\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {Injector, NgModuleRef} from '@angular/core';\nimport
{EmptyError, from, Observable, Observer, of} from 'rxjs';\nimport {catchError, combineAll, concatMap, first, map,
mergeMap, tap} from 'rxjs/operators';\nimport {LoadedRouterConfig, Route, Routes} from './config';\nimport
{CanLoadFn} from './interfaces';\nimport {prioritizedGuardValue} from
'./operators/prioritized_guard_value';\nimport {RouterConfigLoader} from './router_config_loader';\nimport
{defaultUrlMatcher, navigationCancelingError, Params, PRIMARY_OUTLET} from './shared';\nimport
{UrlSegment, UrlSegmentGroup, UrlSerializer, UrlTree}
from './url_tree';\nimport {forEach, waitForMap, wrapIntoObservable} from './utils/collection';\nimport {getOutlet,
groupRoutesByOutlet} from './utils/config';\nimport {isCanLoad, isFunction, isUrlTree} from
'./utils/type_guards';\n\nclass NoMatch {\n public segmentGroup: UrlSegmentGroup|null;\n\n
constructor(segmentGroup?: UrlSegmentGroup) {\n this.segmentGroup = segmentGroup || null;\n }\n}\n\nclass
AbsoluteRedirect {\n constructor(public urlTree: UrlTree) {} }\n\nfunction noMatch(segmentGroup:
UrlSegmentGroup): Observable<UrlSegmentGroup> {\n return new Observable<UrlSegmentGroup>(\n (obs:
Observer<UrlSegmentGroup>) => obs.error(new NoMatch(segmentGroup));\n);\n}\n\nfunction
absoluteRedirect(newTree: UrlTree): Observable<any> {\n return new Observable<UrlSegmentGroup>(\n (obs:
Observer<UrlSegmentGroup>) => obs.error(new AbsoluteRedirect(newTree));\n);\n}\n\nfunction
namedOutletsRedirect(redirectTo: string): Observable<any> {\n return new Observable<UrlSegmentGroup>(\n
 (obs: Observer<UrlSegmentGroup>) => obs.error(new Error(\n `Only absolute redirects can have named
outlets. redirectTo: '${redirectTo}'`));\n);\n}\n\nfunction canLoadFails(route: Route):
Observable<LoadedRouterConfig> {\n return new Observable<LoadedRouterConfig>(\n (obs:
Observer<LoadedRouterConfig>) => obs.error(\n navigationCancelingError(`Cannot load children because the
guard of the route \"path: '${route.path}'\" returned false`));\n);\n}\n\n/**\n * Returns the `UrlTree` with the
redirection applied.\n * Lazy modules are loaded along the way.\n */\nexport function applyRedirects(\n
moduleInjector: Injector, configLoader: RouterConfigLoader, urlSerializer: UrlSerializer,\n urlTree: UrlTree,
config: Routes): Observable<UrlTree> {\n return new ApplyRedirects(moduleInjector, configLoader, urlSerializer,
urlTree, config).apply();\n}\n\nclass ApplyRedirects {\n private allowRedirects: boolean = true;\n private
ngModule: NgModuleRef<any>;\n\n constructor(\n moduleInjector: Injector, private configLoader: RouterConfigLoader,\n private urlSerializer:
UrlSerializer, private urlTree: UrlTree, private config: Routes) {\n this.ngModule =
moduleInjector.get(NgModuleRef);\n }\n\n apply(): Observable<UrlTree> {\n const expanded$ =\nthis.expandSegmentGroup(this.ngModule, this.config, this.urlTree.root, PRIMARY_OUTLET);\n const urlTrees$
= expanded$.pipe(\n map((rootSegmentGroup: UrlSegmentGroup) => this.createUrlTree(\n
rootSegmentGroup, this.urlTree.queryParams, this.urlTree.fragment!));\n return urlTrees$.pipe(catchError((e:
any) => {\n if (e instanceof AbsoluteRedirect) {\n // after an absolute redirect we do not apply any more
redirects!\n this.allowRedirects = false;\n // we need to run matching, so we can fetch all lazy-loaded
modules\n return this.match(e.urlTree);\n }\n if (e instanceof NoMatch) {\n throw

```



```

this.noMatchError(e);\n }\n\n throw e;\n });\n}\n\nprivate match(tree: UrlTree): Observable<UrlTree> {\n const expanded$ =\n this.expandSegmentGroup(this.ngModule, this.config, tree.root, PRIMARY_OUTLET);\n const mapped$ = expanded$.pipe(\n map((rootSegmentGroup: UrlSegmentGroup) =>\n this.createUrlTree(rootSegmentGroup, tree.queryParams, tree.fragment!));\n);\n return mapped$.pipe(\n catchError((e: any): Observable<UrlTree> => {\n if (e instanceof NoMatch) {\n throw this.noMatchError(e);\n }\n throw e;\n });\n);\n}\n\nprivate noMatchError(e: NoMatch): any {\n return new Error(`Cannot match any routes. URL Segment: '${e.segmentGroup}'`);\n}\n\nprivate createUrlTree(rootCandidate: UrlSegmentGroup, queryParams: Params, fragment: string):\n UrlTree {\n const root = rootCandidate.segments.length > 0 ?\n new UrlSegmentGroup([], [{PRIMARY_OUTLET}: rootCandidate]) :\n rootCandidate;\n\n return new UrlTree(root, queryParams, fragment);\n}\n\nprivate expandSegmentGroup(\n ngModule: NgModuleRef<any>, routes: Route[], segmentGroup: UrlSegmentGroup,\n outlet: string): Observable<UrlSegmentGroup> {\n if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return this.expandChildren(ngModule, routes, segmentGroup)\n .pipe(\n map((children: any) => new UrlSegmentGroup([], children));\n);\n }\n\n return this.expandSegment(ngModule, segmentGroup, routes, segmentGroup.segments,\n outlet, true);\n}\n\n// Recursively expand segment groups for all the child outlets\nprivate expandChildren(\n ngModule: NgModuleRef<any>, routes: Route[],\n segmentGroup: UrlSegmentGroup): Observable<{[name: string]: UrlSegmentGroup}> {\n return waitForMap(\n segmentGroup.children,\n (childOutlet, child) => this.expandSegmentGroup(ngModule, routes, child,\n childOutlet));\n}\n\nprivate expandSegment(\n ngModule: NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[],\n segments: UrlSegment[], outlet: string,\n allowRedirects: boolean): Observable<UrlSegmentGroup> {\n // We need to expand each outlet group independently to ensure that we not only load modules\n // for routes matching the given `outlet`, but also those which will be activated because\n // their path is empty string. This can result in multiple outlets being activated at once.\n const routesByOutlet: Map<string, Route[]> = groupRoutesByOutlet(routes);\n if (!routesByOutlet.has(outlet)) {\n routesByOutlet.set(outlet, []);\n }\n\n const expandRoutes = (routes: Route[]) => {\n return from(routes).pipe(\n concatMap((r: Route) => {\n const expanded$ = this.expandSegmentAgainstRoute(\n ngModule, segmentGroup, routes, r, segments, outlet, allowRedirects);\n return expanded$.pipe(\n catchError(e => {\n if (e instanceof NoMatch) {\n return of(null);\n }\n throw e;\n });\n);\n first((s: UrlSegmentGroup|null): s is UrlSegmentGroup => s !== null),\n catchError(e => {\n if (e instanceof EmptyError || e.name === 'EmptyError') {\n if (this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n return of(new UrlSegmentGroup([], {}));\n }\n throw new NoMatch(segmentGroup);\n }\n throw e;\n });\n });\n);\n }\n\n const expansions = Array.from(routesByOutlet.entries()).map(\n ([routeOutlet, routes]) => {\n const expanded = expandRoutes(routes);\n // Map all results from outlets we aren't activating to `null` so they can be ignored later\n return routeOutlet === outlet ? expanded :\n expanded.pipe(\n map(() => null),\n catchError(() => of(null)));\n });\n }\n\n return from(expansions)\n .pipe(\n combineAll(),\n first(),\n // Return only the expansion for the route outlet we are trying to activate.\n map(results => results.find(result => result !== null)!),\n);\n}\n\nprivate noLeftoversInUrl(segmentGroup: UrlSegmentGroup, segments: UrlSegment[], outlet: string):\n boolean {\n return segments.length === 0 && !segmentGroup.children[outlet];\n}\n\nprivate expandSegmentAgainstRoute(\n ngModule: NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[], route: Route,\n paths: UrlSegment[], outlet: string, allowRedirects: boolean): Observable<UrlSegmentGroup> {\n // Empty string segments are special because multiple outlets can match a single path, i.e.\n // `[{path: "", component: B}], {path: "", loadChildren: () => {}}`\n // outlet: `\"about\"}`\n if (getOutlet(route) !== outlet && route.path !== "") {\n return noMatch(segmentGroup);\n }\n\n if (route.redirectTo === undefined) {\n

```

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return this.matchSegmentAgainstRoute(ngModule, segmentGroup, route, paths);\n }\n\n if (allowRedirects &&
this.allowRedirects) {\n return this.expandSegmentAgainstRouteUsingRedirect(\n ngModule,
segmentGroup, routes, route, paths, outlet);\n }\n\n return noMatch(segmentGroup);\n}\n\nprivate
expandSegmentAgainstRouteUsingRedirect(\n ngModule: NgModuleRef<any>, segmentGroup:
UrlSegmentGroup, routes: Route[], route: Route,\n segments: UrlSegment[], outlet: string):
Observable<UrlSegmentGroup> {\n if (route.path === '**') {\n return
this.expandWildcardWithParamsAgainstRouteUsingRedirect(\n ngModule, routes, route, outlet);\n }\n\n return this.expandRegularSegmentAgainstRouteUsingRedirect(\n ngModule, segmentGroup, routes, route,
segments, outlet);\n}\n\nprivate expandWildcardWithParamsAgainstRouteUsingRedirect(\n ngModule:
NgModuleRef<any>, routes: Route[], route: Route,\n outlet: string): Observable<UrlSegmentGroup>
{\n const newTree = this.applyRedirectCommands([], route.redirectTo!, {});\n if
(route.redirectTo!.startsWith('/')) {\n return absoluteRedirect(newTree);\n }\n\n return
this.linalizeSegments(route, newTree).pipe(mergeMap((newSegments: UrlSegment[]) => {\n const group =
new UrlSegmentGroup(newSegments, {});\n return this.expandSegment(ngModule, group, routes, newSegments,
outlet, false);\n }));\n}\n\nprivate expandRegularSegmentAgainstRouteUsingRedirect(\n ngModule:
NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[], route: Route,\n segments:
UrlSegment[], outlet: string): Observable<UrlSegmentGroup> {\n const {matched, consumedSegments, lastChild,
positionalParamSegments} =\n match(segmentGroup, route, segments);\n if (!matched) return
noMatch(segmentGroup);\n\n const newTree = this.applyRedirectCommands(\n consumedSegments,
route.redirectTo!, <any>positionalParamSegments);\n if (route.redirectTo!.startsWith('/'))
{\n return absoluteRedirect(newTree);\n }\n\n return this.linalizeSegments(route,
newTree).pipe(mergeMap((newSegments: UrlSegment[]) => {\n return this.expandSegment(\n ngModule,
segmentGroup, routes, newSegments.concat(segments.slice(lastChild)), outlet,\n false);\n }));\n}\n\nprivate matchSegmentAgainstRoute(\n ngModule: NgModuleRef<any>, rawSegmentGroup: UrlSegmentGroup,
route: Route,\n segments: UrlSegment[]): Observable<UrlSegmentGroup> {\n if (route.path === '**') {\n if
(route.loadChildren) {\n return this.configLoader.load(ngModule.injector, route)\n .pipe(map((cfg:
LoadedRouterConfig) => {\n route._loadedConfig = cfg;\n return new UrlSegmentGroup(segments,
{});\n }));\n }\n\n return of(new UrlSegmentGroup(segments, {}));\n }\n\n const {matched,
consumedSegments, lastChild} = match(rawSegmentGroup, route, segments);\n if
(!matched) return noMatch(rawSegmentGroup);\n\n const rawSlicedSegments = segments.slice(lastChild);\n const childConfig$ = this.getChildConfig(ngModule, route, segments);\n\n return
childConfig$.pipe(mergeMap((routerConfig: LoadedRouterConfig) => {\n const childModule =
routerConfig.module;\n const childConfig = routerConfig.routes;\n\n const {segmentGroup, slicedSegments}
=\n split(rawSegmentGroup, consumedSegments, rawSlicedSegments, childConfig);\n\n if
(slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n const expanded$ =
this.expandChildren(childModule, childConfig, segmentGroup);\n return expanded$.pipe(\n
map((children: any) => new UrlSegmentGroup(consumedSegments, children));\n)\n\n if (childConfig.length
=== 0 && slicedSegments.length === 0) {\n return of(new UrlSegmentGroup(consumedSegments, {}));\n }\n\n const expanded$ = this.expandSegment(\n childModule, segmentGroup,
childConfig, slicedSegments, PRIMARY_OUTLET, true);\n return expanded$.pipe(\n map((cs:
UrlSegmentGroup) =>\n new UrlSegmentGroup(consumedSegments.concat(cs.segments),
cs.children));\n)\n }));\n}\n\nprivate getChildConfig(ngModule: NgModuleRef<any>, route: Route, segments:
UrlSegment[]):\n Observable<LoadedRouterConfig> {\n if (route.children) {\n // The children belong to the
same module\n return of(new LoadedRouterConfig(route.children, ngModule));\n }\n\n if
(route.loadChildren) {\n // lazy children belong to the loaded module\n if (route._loadedConfig !==
undefined) {\n return of(route._loadedConfig);\n }\n\n return this.runCanLoadGuards(ngModule.injector,
route, segments)\n .pipe(mergeMap((shouldLoadResult: boolean) => {\n if (shouldLoadResult) {\n
return this.configLoader.load(ngModule.injector, route)\n .pipe(map((cfg: LoadedRouterConfig)

```

```

=> {\n
 route._loadedConfig = cfg;\n
 return cfg;\n
});\n
}\n
return
canLoadFails(route);\n
});\n
}\n\n
return of(new LoadedRouterConfig([], ngModule));\n
}\n\n
private
runCanLoadGuards(moduleInjector: Injector, route: Route, segments: UrlSegment[]):\n
 Observable<boolean>
{\n
 const canLoad = route.canLoad;\n
 if (!canLoad || canLoad.length === 0) return of(true);\n\n
 const
canLoadObservables = canLoad.map((injectionToken: any) => {\n
 const guard =
moduleInjector.get(injectionToken);\n
 let guardVal;\n
 if (isCanLoad(guard)) {\n
 guardVal =
guard.canLoad(route, segments);\n
 } else if (isFunction<CanLoadFn>(guard)) {\n
 guardVal = guard(route,
segments);\n
 } else {\n
 throw new Error('Invalid CanLoad guard');\n
 }\n
 return
wrapIntoObservable(guardVal);\n
});\n\n
return of(canLoadObservables)\n
.pipe(\n
prioritizedGuardValue(),\n
tap((result: UrlTree|boolean) => {\n
 if (!isUrlTree(result)) return;\n\n
 const error:
Error&{url?: UrlTree} = navigationCancelingError(\n
 `Redirecting to
"${this.urlSerializer.serialize(result)}"\n
 error.url = result;\n
 throw error;\n
));\n
map(result => result === true);\n
});\n
}\n\n
private linearizeSegments(route: Route, urlTree: UrlTree):
Observable<UrlSegment[]> {\n
 let res: UrlSegment[] = [];\n
 let c = urlTree.root;\n
 while (true) {\n
 res =
res.concat(c.segments);\n
 if (c.numberOfChildren === 0) {\n
 return of(res);\n
 }\n\n
 if
(c.numberOfChildren > 1 || !c.children[PRIMARY_OUTLET]) {\n
 return
namedOutletsRedirect(route.redirectTo);\n
 }\n\n
 c = c.children[PRIMARY_OUTLET];\n
 }\n
}\n\n
private
applyRedirectCommands(\n
 segments: UrlSegment[], redirectTo: string, posParams: {[k: string]:
UrlSegment}): UrlTree {\n
 return this.applyRedirectCreateUrlTree(\n
 redirectTo,
this.urlSerializer.parse(redirectTo), segments, posParams);\n
}\n\n
private applyRedirectCreateUrlTree(\n
redirectTo: string, urlTree: UrlTree, segments: UrlSegment[],\n
posParams: {[k: string]: UrlSegment}): UrlTree
{\n
 const newRoot = this.createSegmentGroup(redirectTo, urlTree.root, segments, posParams);\n
 return new
UrlTree(\n
 newRoot, this.createQueryParams(urlTree.queryParams, this.urlTree.queryParams),\n
urlTree.fragment);\n
}\n\n
private createQueryParams(redirectToParams: Params, actualParams: Params): Params
{\n
 const res: Params = {};\n
 forEach(redirectToParams, (v: any, k: string) => {\n
 const copySourceValue =
typeof v === 'string' && v.startsWith(':');\n
 if (copySourceValue) {\n
 const sourceName = v.substring(1);\n
 res[k] = actualParams[sourceName];\n
 } else {\n
 res[k] = v;\n
 }\n
 });\n
 return
res;\n
}\n\n
private createSegmentGroup(\n
redirectTo: string, group: UrlSegmentGroup, segments:
UrlSegment[],\n
posParams: {[k: string]: UrlSegment}): UrlSegmentGroup {\n
 const updatedSegments =
this.createSegments(redirectTo, group.segments, segments, posParams);\n\n
 let children: {[n: string]:
UrlSegmentGroup} = {};\n
 forEach(group.children, (child: UrlSegmentGroup, name: string) => {\n
 children[name] = this.createSegmentGroup(redirectTo, child, segments, posParams);\n
 });\n\n
 return new
UrlSegmentGroup(updatedSegments, children);\n
}\n\n
private createSegments(\n
redirectTo: string,
redirectToSegments: UrlSegment[], actualSegments: UrlSegment[],\n
posParams: {[k: string]: UrlSegment}):
UrlSegment[] {\n
 return redirectToSegments.map(\n
 s => s.path.startsWith(':') ?
this.findPosParam(redirectTo, s, posParams) :\n
this.findOrReturn(s, actualSegments));\n
}\n\n
private findPosParam(\n
redirectTo:
string, redirectToUrlSegment: UrlSegment,\n
posParams: {[k: string]: UrlSegment}): UrlSegment {\n
 const
pos = posParams[redirectToUrlSegment.path.substring(1)];\n
 if (!pos)\n
 throw new Error(\n
 `Cannot
redirect to '${redirectTo}'. Cannot find '${redirectToUrlSegment.path}'.`);\n
 return pos;\n
}\n\n
private
findOrReturn(redirectToUrlSegment: UrlSegment, actualSegments: UrlSegment[]): UrlSegment {\n
 let idx = 0;\n
 for (const s of actualSegments) {\n
 if (s.path === redirectToUrlSegment.path) {\n
 actualSegments.splice(idx);\n
 return s;\n
 }\n
 idx++;\n
 }\n
 return redirectToUrlSegment;\n
}\n\n
function match(segmentGroup: UrlSegmentGroup, route: Route, segments: UrlSegment[]): {\n
 matched:
boolean,\n
 consumedSegments: UrlSegment[],\n
 lastChild: number,\n
 positionalParamSegments: {[k: string]:
UrlSegment}\n
}\n
{\n
 if (route.path === "") {\n
 if ((route.pathMatch === 'full') && (segmentGroup.hasChildren() ||

```

```

segments.length > 0)) {\n return {matched: false, consumedSegments: [], lastChild: 0,
positionalParamSegments: {}};\n }\n\n return {matched: true, consumedSegments: [], lastChild: 0,
positionalParamSegments: {}};\n }\n\n const matcher = route.matcher || defaultUrlMatcher;\n const res =
matcher(segments, segmentGroup, route);\n if (!res) {\n return {\n matched: false,\n consumedSegments:
<any[]>[],\n lastChild: 0,\n positionalParamSegments: {},\n };\n }\n\n return {\n matched: true,\n
consumedSegments: res.consumed!,\n lastChild: res.consumed.length!,\n positionalParamSegments:
res.posParams!,\n };\n }\n\n\nfunction split(\n segmentGroup: UrlSegmentGroup, consumedSegments:
UrlSegment[], slicedSegments: UrlSegment[],\n config: Route[]) {\n if (slicedSegments.length > 0 &&\n
containsEmptyPathRedirectsWithNamedOutlets(segmentGroup, slicedSegments, config)) {\n const s = new
UrlSegmentGroup(\n consumedSegments,\n
 createChildrenForEmptySegments(\n config, new UrlSegmentGroup(slicedSegments,
segmentGroup.children));\n return {segmentGroup: mergeTrivialChildren(s), slicedSegments: []};\n }\n\n if
(slicedSegments.length === 0 &&\n containsEmptyPathRedirects(segmentGroup, slicedSegments, config)) {\n
const s = new UrlSegmentGroup(\n segmentGroup.segments,\n addEmptySegmentsToChildrenIfNeeded(\n
segmentGroup, slicedSegments, config, segmentGroup.children));\n return {segmentGroup:
mergeTrivialChildren(s), slicedSegments};\n }\n\n return {segmentGroup, slicedSegments};\n }\n\n\nfunction
mergeTrivialChildren(s: UrlSegmentGroup): UrlSegmentGroup {\n if (s.numberOfChildren === 1 &&
s.children[PRIMARY_OUTLET]) {\n const c = s.children[PRIMARY_OUTLET];\n return new
UrlSegmentGroup(s.segments.concat(c.segments), c.children);\n }\n\n return s;\n }\n\n\nfunction
addEmptySegmentsToChildrenIfNeeded(\n segmentGroup: UrlSegmentGroup, slicedSegments:
UrlSegment[], routes: Route[],\n children: {[name: string]: UrlSegmentGroup}): {[name: string]:
UrlSegmentGroup} {\n const res: {[name: string]: UrlSegmentGroup} = {};\n for (const r of routes) {\n if
(isEmptyPathRedirect(segmentGroup, slicedSegments, r) && !children[getOutlet(r)]) {\n res[getOutlet(r)] = new
UrlSegmentGroup([], {});\n }\n }\n return {...children, ...res};\n }\n\n\nfunction
createChildrenForEmptySegments(\n routes: Route[], primarySegmentGroup: UrlSegmentGroup): {[name:
string]: UrlSegmentGroup} {\n const res: {[name: string]: UrlSegmentGroup} = {};\n res[PRIMARY_OUTLET] =
primarySegmentGroup;\n for (const r of routes) {\n if (r.path === " && getOutlet(r) !== PRIMARY_OUTLET)
{\n res[getOutlet(r)] = new UrlSegmentGroup([], {});\n }\n }\n return res;\n }\n\n\nfunction
containsEmptyPathRedirectsWithNamedOutlets(\n segmentGroup: UrlSegmentGroup, segments: UrlSegment[],
routes: Route[]): boolean {\n return routes.some(\n r => isEmptyPathRedirect(segmentGroup,
segments, r) && getOutlet(r) !== PRIMARY_OUTLET);\n }\n\n\nfunction containsEmptyPathRedirects(\n
segmentGroup: UrlSegmentGroup, segments: UrlSegment[], routes: Route[]): boolean {\n return routes.some(r =>
isEmptyPathRedirect(segmentGroup, segments, r));\n }\n\n\nfunction isEmptyPathRedirect(\n segmentGroup:
UrlSegmentGroup, segments: UrlSegment[], r: Route): boolean {\n if ((segmentGroup.hasChildren() ||
segments.length > 0) && r.pathMatch === 'full') {\n return false;\n }\n\n return r.path === " && r.redirectTo !==
undefined;\n }\n\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Injector} from '@angular/core';\nimport {MonoTypeOperatorFunction, Observable} from
'rxjs';\nimport {map, switchMap} from 'rxjs/operators';\nimport {applyRedirects as applyRedirectsFn} from
'./apply_redirects';\nimport
{Routes} from './config';\nimport {NavigationTransition} from './router';\nimport {RouterConfigLoader} from
'./router_config_loader';\nimport {UrlSerializer} from './url_tree';\n\nexport function applyRedirects(\n
moduleInjector: Injector, configLoader: RouterConfigLoader, urlSerializer: UrlSerializer,\n config: Routes):
MonoTypeOperatorFunction<NavigationTransition> {\n return function(source:
Observable<NavigationTransition>) {\n return source.pipe(switchMap(\n t =>
applyRedirectsFn(moduleInjector, configLoader, urlSerializer, t.extractedUrl, config)\n
.pipe(map(urlAfterRedirects => ({...t, urlAfterRedirects})))));\n };\n }\n\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found

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in the LICENSE file at https://angular.io/license\n *\n\nimport { Injector } from '@angular/core';\n\nimport { LoadedRouterConfig, RunGuardsAndResolvers } from './config';\nimport { ChildrenOutletContexts, OutletContext } from './router_outlet_context';\nimport { ActivatedRouteSnapshot, equalParamsAndUrlSegments, RouterStateSnapshot } from './router_state';\nimport { equalPath } from './url_tree';\nimport { forEach, shallowEqual } from './utils/collection';\nimport { nodeChildrenAsMap, TreeNode } from './utils/tree';\n\n\nexport class CanActivate {\n readonly route: ActivatedRouteSnapshot;\n constructor(public path: ActivatedRouteSnapshot[]) {\n this.route = this.path[this.path.length - 1];\n }\n}\n\nexport class CanDeactivate {\n constructor(public component: Object|null, public route: ActivatedRouteSnapshot) {} \n}\n\nexport declare type Checks = {\n canDeactivateChecks: CanDeactivate[],\n canActivateChecks: CanActivate[],\n};\n\nexport function getAllRouteGuards(\n future: RouterStateSnapshot, curr: RouterStateSnapshot,\n parentContexts: ChildrenOutletContexts) {\n const futureRoot = future._root;\n const currRoot = curr ? curr._root : null;\n\n return getChildRouteGuards(futureRoot, currRoot, parentContexts, [futureRoot.value]);\n}\n\nexport function getCanActivateChild(p: ActivatedRouteSnapshot):\n { node: ActivatedRouteSnapshot, guards: any[] } | null {\n const canActivateChild = p.routeConfig ? p.routeConfig.canActivateChild : null;\n if (!canActivateChild || canActivateChild.length === 0) return null;\n return { node: p, guards: canActivateChild };\n}\n\nexport function getToken(\n token: any, snapshot: ActivatedRouteSnapshot, moduleInjector: Injector): any {\n const config = getClosestLoadedConfig(snapshot);\n const injector = config ? config.module.injector : moduleInjector;\n return injector.get(token);\n}\n\nfunction getClosestLoadedConfig(snapshot: ActivatedRouteSnapshot): LoadedRouterConfig | null {\n if (!snapshot) return null;\n for (let s = snapshot.parent; s; s = s.parent) {\n const route = s.routeConfig;\n if (route && route._loadedConfig) return route._loadedConfig;\n }\n return null;\n}\n\nfunction getChildRouteGuards(\n futureNode: TreeNode<ActivatedRouteSnapshot>, currNode: TreeNode<ActivatedRouteSnapshot> | null,\n contexts: ChildrenOutletContexts | null, futurePath: ActivatedRouteSnapshot[], checks: Checks = {\n canDeactivateChecks: [],\n canActivateChecks: []\n }): Checks {\n const prevChildren = nodeChildrenAsMap(currNode);\n // Process the children of the future route\n futureNode.children.forEach(c => {\n getRouteGuards(c, prevChildren[c.value.outlet], contexts, futurePath.concat([c.value]), checks);\n delete prevChildren[c.value.outlet];\n });\n // Process any children left from the current route (not active for the future route)\n forEach(\n prevChildren,\n (v: TreeNode<ActivatedRouteSnapshot>, k: string) => deactivateRouteAndItsChildren(v, contexts!.getContext(k), checks));\n return checks;\n}\n\nfunction getRouteGuards(\n futureNode: TreeNode<ActivatedRouteSnapshot>, currNode: TreeNode<ActivatedRouteSnapshot>,\n parentContexts: ChildrenOutletContexts | null, futurePath: ActivatedRouteSnapshot[], checks: Checks = {\n canDeactivateChecks: [],\n canActivateChecks: []\n }): Checks {\n const future = futureNode.value;\n const curr = currNode ? currNode.value : null;\n const context = parentContexts ? parentContexts.getContext(futureNode.value.outlet) : null;\n // reusing the node\n if (curr && future.routeConfig === curr.routeConfig) {\n const shouldRun = shouldRunGuardsAndResolvers(curr, future, future.routeConfig!.runGuardsAndResolvers);\n if (shouldRun) {\n checks.canActivateChecks.push(new CanActivate(futurePath));\n } else {\n // we need to set the data\n future.data = curr.data;\n future._resolvedData = curr._resolvedData;\n }\n // If we have a component, we need to go through an outlet.\n if (future.component) {\n getChildRouteGuards(\n futureNode, currNode, context ? context.children : null, futurePath, checks);\n // if we have a componentless route, we recurse but keep the same outlet map.\n } else {\n getRouteGuards(futureNode, currNode, parentContexts, futurePath, checks);\n }\n if (shouldRun && context && context.outlet && context.outlet.isActive) {\n checks.canDeactivateChecks.push(new CanDeactivate(context.outlet.component, curr));\n } else {\n if (curr) {\n deactivateRouteAndItsChildren(currNode, context, checks);\n }\n checks.canActivateChecks.push(new CanActivate(futurePath));\n // If we have a component, we need to go

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through an outlet.\n if (future.component) {\n getChildRouteGuards(futureNode, null, context ?
context.children : null, futurePath, checks);\n\n // if we have a componentless route, we recurse but keep the same
outlet map.\n } else {\n getChildRouteGuards(futureNode, null, parentContexts, futurePath, checks);\n }\n
}\n\n return checks;\n}\n\nfunction
shouldRunGuardsAndResolvers(\n curr: ActivatedRouteSnapshot, future: ActivatedRouteSnapshot,\n mode:
RunGuardsAndResolvers|undefined): boolean {\n if (typeof mode === 'function') {\n return mode(curr, future);\n
}\n\n switch (mode) {\n case 'pathParamsChange':\n return !equalPath(curr.url, future.url);\n\n case
'pathParamsOrQueryParamsChange':\n return !equalPath(curr.url, future.url) ||\n
!shallowEqual(curr.queryParams, future.queryParams);\n\n case 'always':\n return true;\n\n case
'paramsOrQueryParamsChange':\n return !equalParamsAndUrlSegments(curr, future) ||\n
!shallowEqual(curr.queryParams, future.queryParams);\n\n case 'paramsChange':\n default:\n return
!equalParamsAndUrlSegments(curr, future);\n }\n}\n\nfunction deactivateRouteAndItsChildren(\n route:
TreeNode<ActivatedRouteSnapshot>, context: OutletContext|null, checks: Checks): void {\n const children =
nodeChildrenAsMap(route);\n const
r = route.value;\n\n forEach(children, (node: TreeNode<ActivatedRouteSnapshot>, childName: string) => {\n if
(!r.component) {\n deactivateRouteAndItsChildren(node, context, checks);\n } else if (context) {\n
deactivateRouteAndItsChildren(node, context.children.getContext(childName), checks);\n } else {\n
deactivateRouteAndItsChildren(node, null, checks);\n }\n });\n\n if (!r.component) {\n
checks.canDeactivateChecks.push(new CanDeactivate(null, r));\n } else if (context && context.outlet &&
context.outlet.isActive) {\n checks.canDeactivateChecks.push(new CanDeactivate(context.outlet.component,
r));\n } else {\n checks.canDeactivateChecks.push(new CanDeactivate(null, r));\n }\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from
'@angular/core';\nimport {defer,
from, MonoTypeOperatorFunction, Observable, of} from 'rxjs';\nimport {concatAll, concatMap, first, map,
mergeMap} from 'rxjs/operators';\nimport {ActivationStart, ChildActivationStart, Event} from '../events';\nimport
{CanActivateChildFn, CanActivateFn, CanDeactivateFn} from '../interfaces';\nimport {NavigationTransition} from
'../router';\nimport {ActivatedRouteSnapshot, RouterStateSnapshot} from '../router_state';\nimport {UrlTree} from
'../url_tree';\nimport {wrapIntoObservable} from '../utils/collection';\nimport {CanActivate, CanDeactivate,
getCanActivateChild, getToken} from '../utils/preactivation';\nimport {isBoolean, isCanActivate,
isCanActivateChild, isCanDeactivate, isFunction} from '../utils/type_guards';\n\nimport {prioritizedGuardValue}
from './prioritized_guard_value';\n\nexport function checkGuards(moduleInjector: Injector, forwardEvent?: (evt:
Event) => void):\n MonoTypeOperatorFunction<NavigationTransition> {\n return function(source:
Observable<NavigationTransition>)\n {\n return source.pipe(mergeMap(t => {\n const {targetSnapshot, currentSnapshot, guards:
{canActivateChecks, canDeactivateChecks}} = t;\n if (canDeactivateChecks.length === 0 &&
canActivateChecks.length === 0) {\n return of({...t, guardsResult: true});\n }\n\n return
runCanDeactivateChecks(\n canDeactivateChecks, targetSnapshot!, currentSnapshot, moduleInjector)\n
 .pipe(\n mergeMap(canDeactivate => {\n return canDeactivate && isBoolean(canDeactivate)
?\n runCanActivateChecks(\n targetSnapshot!, canActivateChecks, moduleInjector,
forwardEvent) : \n of(canDeactivate);\n }),\n map(guardsResult => ({...t,
guardsResult}));\n }));\n });\n });\n\nfunction runCanDeactivateChecks(\n checks: CanDeactivate[], futureRSS:
RouterStateSnapshot, currRSS: RouterStateSnapshot,\n moduleInjector: Injector) {\n return from(checks).pipe(\n
mergeMap(\n check =>\n runCanDeactivate(check.component, check.route, currRSS, futureRSS,
moduleInjector)),\n first(result => {\n return result !== true;\n }, true as boolean |
UrlTree));\n}\n\nfunction runCanActivateChecks(\n futureSnapshot: RouterStateSnapshot, checks: CanActivate[],
moduleInjector: Injector,\n forwardEvent?: (evt: Event) => void) {\n return from(checks).pipe(\n
concatMap((check: CanActivate) => {\n return from([\n fireChildActivationStart(check.route.parent,

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forwardEvent()),\n fireActivationStart(check.route, forwardEvent()),\n runCanActivateChild(futureSnapshot, check.path, moduleInjector),\n runCanActivate(futureSnapshot, check.route, moduleInjector))\n]\n).pipe(concatAll(), first(result => {\n return result !==
true;\n }, true as boolean | UrlTree));\n },\n first(result => {\n return result !== true;\n }, true as boolean | UrlTree));\n }\n\n /**\n * This should fire off `ActivationStart` events for each route being activated at this\n * level.\n * In other words, if you're activating `a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will fire `ActivationStart` for both. Always\n * return\n * `true` so checks continue to run.\n */\n function fireActivationStart(\n snapshot: ActivatedRouteSnapshot|null,\n forwardEvent?: (evt: Event) => void): Observable<boolean> {\n if (snapshot !== null && forwardEvent) {\n forwardEvent(new ActivationStart(snapshot));\n }\n return of(true);\n }\n\n /**\n * This should fire off `ChildActivationStart` events for each route being activated at this\n * level.\n * In other words, if you're activating `a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will fire `ChildActivationStart` for both. Always\n * return\n * `true` so checks continue to run.\n */\n function fireChildActivationStart(\n snapshot: ActivatedRouteSnapshot|null,\n forwardEvent?: (evt: Event) => void): Observable<boolean> {\n if (snapshot !== null && forwardEvent) {\n forwardEvent(new ChildActivationStart(snapshot));\n }\n return of(true);\n }\n\n function runCanActivate(\n futureRSS: RouterStateSnapshot, futureARS: ActivatedRouteSnapshot,\n moduleInjector: Injector): Observable<boolean|UrlTree> {\n const canActivate = futureARS.routeConfig ? futureARS.routeConfig.canActivate : null;\n if (!canActivate || canActivate.length === 0) return of(true);\n const canActivateObservables = canActivate.map((c: any) => {\n return defer(() => {\n const guard = getToken(c, futureARS, moduleInjector);\n let observable;\n if (isCanActivate(guard)) {\n observable = wrapIntoObservable(guard.canActivate(futureARS, futureRSS));\n } else if (isFunction<CanActivateFn>(guard)) {\n observable = wrapIntoObservable(guard(futureARS, futureRSS));\n } else {\n throw new Error('Invalid CanActivate guard');\n }\n return observable.pipe(first());\n });\n });\n return of(canActivateObservables).pipe(prioritizedGuardValue());\n }\n\n function runCanActivateChild(\n futureRSS: RouterStateSnapshot, path: ActivatedRouteSnapshot[],\n moduleInjector: Injector): Observable<boolean|UrlTree> {\n const futureARS = path[path.length - 1];\n const canActivateChildGuards = path.slice(0, path.length - 1)\n .reverse()\n .map(p => getCanActivateChild(p))\n .filter(_ => _ !== null);\n const canActivateChildGuardsMapped = canActivateChildGuards.map((d: any) => {\n return defer(() => {\n const guardsMapped = d.guards.map((c: any) => {\n const guard = getToken(c, d.node, moduleInjector);\n let observable;\n if (isCanActivateChild(guard)) {\n observable = wrapIntoObservable(guard.canActivateChild(futureARS, futureRSS));\n } else if (isFunction<CanActivateChildFn>(guard)) {\n observable = wrapIntoObservable(guard(futureARS, futureRSS));\n } else {\n throw new Error('Invalid CanActivateChild guard');\n }\n return observable.pipe(first());\n });\n return of(guardsMapped).pipe(prioritizedGuardValue());\n });\n });\n return of(canActivateChildGuardsMapped).pipe(prioritizedGuardValue());\n }\n\n function runCanDeactivate(\n component: Object|null, currARS: ActivatedRouteSnapshot, currRSS: RouterStateSnapshot,\n futureRSS: RouterStateSnapshot, moduleInjector: Injector): Observable<boolean|UrlTree> {\n const canDeactivate = currARS && currARS.routeConfig ? currARS.routeConfig.canDeactivate : null;\n if (!canDeactivate || canDeactivate.length === 0) return of(true);\n const canDeactivateObservables = canDeactivate.map((c: any) => {\n const guard = getToken(c, currARS, moduleInjector);\n let observable;\n if (isCanDeactivate(guard)) {\n observable = wrapIntoObservable(guard.canDeactivate(component!, currARS, currRSS, futureRSS));\n } else if (isFunction<CanDeactivateFn<any>>(guard)) {\n observable = wrapIntoObservable(guard(component, currARS, currRSS, futureRSS));\n } else {\n throw new Error('Invalid CanDeactivate guard');\n }\n return observable.pipe(first());\n });\n return of(canDeactivateObservables).pipe(prioritizedGuardValue());\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n import {Type} from

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'@angular/core';\nimport {Observable, Observer, of} from 'rxjs';\n\nimport {Data, ResolveData, Route, Routes}
from './config';\nimport {ActivatedRouteSnapshot, inheritedParamsDataResolve, ParamsInheritanceStrategy,
RouterStateSnapshot}
from './router_state';\nimport {defaultUrlMatcher, PRIMARY_OUTLET} from './shared';\nimport
{mapChildrenIntoArray, UrlSegment, UrlSegmentGroup, UrlTree} from './url_tree';\nimport {forEach, last} from
'./utils/collection';\nimport {TreeNode} from './utils/tree';\n\n\nclass NoMatch { }\n\n\nexport function recognize(\n
rootComponentType: Type<any>|null, config: Routes, urlTree: UrlTree, url: string,\n
paramsInheritanceStrategy: ParamsInheritanceStrategy = 'emptyOnly',\n
relativeLinkResolution: 'legacy'|'corrected' = 'legacy'):\n
Observable<RouterStateSnapshot> {\n
return new Recognizer(\n
rootComponentType, config, urlTree, url,\n
paramsInheritanceStrategy,\n
relativeLinkResolution)\n
.recognize();\n
}\n\n\nclass Recognizer {\n
constructor(\n
private rootComponentType: Type<any>|null, private config: Routes, private urlTree: UrlTree,\n
private url: string, private paramsInheritanceStrategy: ParamsInheritanceStrategy,\n
private
relativeLinkResolution:
'legacy'|'corrected') {\n
recognize(): Observable<RouterStateSnapshot> {\n
try {\n
const
rootSegmentGroup =\n
split(this.urlTree.root, [], [], this.config,\n
this.relativeLinkResolution).segmentGroup;\n\n
const children = this.processSegmentGroup(this.config,\n
rootSegmentGroup, PRIMARY_OUTLET);\n\n
const root = new ActivatedRouteSnapshot(\n
[],\n
Object.freeze({}), Object.freeze({...this.urlTree.queryParams}),\n
this.urlTree.fragment!, {},\n
PRIMARY_OUTLET, this.rootComponentType, null,\n
this.urlTree.root, -1, {});\n\n
const rootNode =
new TreeNode<ActivatedRouteSnapshot>(root, children);\n
const routeState = new RouterStateSnapshot(this.url,\n
rootNode);\n
this.inheritParamsAndData(routeState._root);\n
return of(routeState);\n
} catch (e) {\n
return new Observable<RouterStateSnapshot>(\n
(obs: Observer<RouterStateSnapshot>) => obs.error(e));\n
}\n
}\n
}\n
inheritParamsAndData(routeNode):\n
TreeNode<ActivatedRouteSnapshot>(): void {\n
const route = routeNode.value;\n\n
const i =
inheritedParamsDataResolve(route, this.paramsInheritanceStrategy);\n
route.params = Object.freeze(i.params);\n
route.data = Object.freeze(i.data);\n\n
routeNode.children.forEach(n => this.inheritParamsAndData(n));\n
}\n\n
processSegmentGroup(config: Route[], segmentGroup: UrlSegmentGroup, outlet: string):\n
TreeNode<ActivatedRouteSnapshot>[] {\n
if (segmentGroup.segments.length === 0 &&
segmentGroup.hasChildren()) {\n
return this.processChildren(config, segmentGroup);\n
}\n\n
return
this.processSegment(config, segmentGroup, segmentGroup.segments, outlet);\n
}\n\n
processChildren(config:
Route[], segmentGroup: UrlSegmentGroup):\n
TreeNode<ActivatedRouteSnapshot>[] {\n
const children =
mapChildrenIntoArray(\n
segmentGroup, (child, childOutlet) => this.processSegmentGroup(config, child,\n
childOutlet));\n
checkOutletNameUniqueness(children);\n
sortActivatedRouteSnapshots(children);\n
return children;\n
}\n\n
processSegment(\n
config: Route[],\n
segmentGroup: UrlSegmentGroup, segments: UrlSegment[],\n
outlet: string):\n
TreeNode<ActivatedRouteSnapshot>[] {\n
for (const r of config) {\n
try {\n
return
this.processSegmentAgainstRoute(r, segmentGroup, segments, outlet);\n
} catch (e) {\n
if (!(e instanceof
NoMatch)) throw e;\n
}\n
}\n
if (this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n
return [];\n
}\n\n
throw new NoMatch();\n
}\n\n
private noLeftoversInUrl(segmentGroup: UrlSegmentGroup, segments:
UrlSegment[], outlet: string):\n
boolean {\n
return segments.length === 0 &&
!segmentGroup.children[outlet];\n
}\n\n
processSegmentAgainstRoute(\n
route: Route, rawSegment:
UrlSegmentGroup, segments: UrlSegment[],\n
outlet: string): TreeNode<ActivatedRouteSnapshot>[] {\n
if
(route.redirectTo) throw new NoMatch();\n\n
if ((route.outlet
|| PRIMARY_OUTLET) !== outlet) throw new NoMatch();\n\n
let snapshot: ActivatedRouteSnapshot;\n
let
consumedSegments: UrlSegment[] = [];\n
let rawSlicedSegments: UrlSegment[] = [];\n\n
if (route.path === '**')\n
{\n
const params = segments.length > 0 ? last(segments)!.parameters : { };\n
snapshot = new
ActivatedRouteSnapshot(\n
segments, params, Object.freeze({...this.urlTree.queryParams}),\n
this.urlTree.fragment!,\n
getData(route), outlet, route.component!, route,

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getSourceSegmentGroup(rawSegment),\n getPathIndexShift(rawSegment) + segments.length,\n getResolve(route));\n } else {\n const result: MatchResult = match(rawSegment, route, segments);\n consumedSegments = result.consumedSegments;\n rawSlicedSegments = segments.slice(result.lastChild);\n snapshot = new ActivatedRouteSnapshot(\n consumedSegments, result.parameters,\n Object.freeze({...this.urlTree.queryParams}),\n this.urlTree.fragment!,\n getData(route), outlet, route.component!, route,\n getSourceSegmentGroup(rawSegment),\n getPathIndexShift(rawSegment) + consumedSegments.length, getResolve(route));\n }\n\n const childConfig: Route[] = getChildConfig(route);\n const {segmentGroup, slicedSegments} = split(\n rawSegment, consumedSegments, rawSlicedSegments, childConfig, this.relativeLinkResolution);\n if (slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n const children = this.processChildren(childConfig, segmentGroup);\n return [new TreeNode<ActivatedRouteSnapshot>(snapshot, children)];\n }\n\n if (childConfig.length === 0 && slicedSegments.length === 0) {\n return [new\n TreeNode<ActivatedRouteSnapshot>(snapshot, [])];\n }\n\n const children = this.processSegment(childConfig, segmentGroup, slicedSegments, PRIMARY_OUTLET);\n return [new\n TreeNode<ActivatedRouteSnapshot>(snapshot, children)];\n }\n\n function sortActivatedRouteSnapshots(nodes: TreeNode<ActivatedRouteSnapshot>[]): void {\n nodes.sort((a, b) => {\n if (a.value.outlet === PRIMARY_OUTLET) return -1;\n if (b.value.outlet === PRIMARY_OUTLET) return 1;\n return a.value.outlet.localeCompare(b.value.outlet);\n });\n }\n\n function getChildConfig(route: Route): Route[] {\n if (route.children) {\n return route.children;\n }\n if (route.loadChildren) {\n return route._loadedConfig!.routes;\n }\n return [];\n }\n\n interface MatchResult {\n consumedSegments: UrlSegment[];\n lastChild: number;\n parameters: any;\n }\n\n function match(segmentGroup: UrlSegmentGroup, route: Route, segments: UrlSegment[]): MatchResult {\n if (route.path === '') {\n if (route.pathMatch === 'full' && (segmentGroup.hasChildren() || segments.length > 0)) {\n throw new NoMatch();\n }\n return {\n consumedSegments: [], lastChild: 0, parameters: {}\n }\n }\n\n const matcher = route.matcher || defaultUrlMatcher;\n const res = matcher(segments, segmentGroup, route);\n if (!res) throw new NoMatch();\n\n const posParams: {[n: string]: string} = {};\n forEach(res.posParams!, (v: UrlSegment, k: string) => {\n posParams[k] = v.path;\n });\n const parameters = res.consumed.length > 0 ? {\n ...posParams, ...res.consumed[res.consumed.length - 1].parameters\n } : posParams;\n\n return {\n consumedSegments: res.consumed, lastChild: res.consumed.length, parameters\n }\n }\n\n function checkOutletNameUniqueness(nodes: TreeNode<ActivatedRouteSnapshot>[]): void {\n const names: {[k: string]: ActivatedRouteSnapshot} = {};\n nodes.forEach(n => {\n const routeWithSameOutletName = names[n.value.outlet];\n if (routeWithSameOutletName) {\n const p = routeWithSameOutletName.url.map(s => s.toString()).join('/');\n const c = n.value.url.map(s => s.toString()).join('/');\n throw new Error(`Two segments cannot have the same outlet name: '${p}' and '${c}'`);\n }\n names[n.value.outlet] = n.value;\n });\n }\n\n function getSourceSegmentGroup(segmentGroup: UrlSegmentGroup): UrlSegmentGroup {\n let s = segmentGroup;\n while (s._sourceSegment) {\n s = s._sourceSegment;\n }\n return s;\n }\n\n function getPathIndexShift(segmentGroup: UrlSegmentGroup): number {\n let s = segmentGroup;\n let res = (s._segmentIndexShift ? s._segmentIndexShift : 0);\n while (s._sourceSegment) {\n s = s._sourceSegment;\n res += (s._segmentIndexShift ? s._segmentIndexShift : 0);\n }\n return res - 1;\n }\n\n function split(\n segmentGroup: UrlSegmentGroup, consumedSegments: UrlSegment[], slicedSegments: UrlSegment[],\n config: Route[], relativeLinkResolution: 'legacy'|'corrected') {\n if (slicedSegments.length > 0 && containsEmptyPathMatchesWithNamedOutlets(segmentGroup, slicedSegments, config)) {\n const s = new UrlSegmentGroup(\n consumedSegments, createChildrenForEmptyPaths(\n segmentGroup, consumedSegments, config, new UrlSegmentGroup(slicedSegments, segmentGroup.children)));\n s._sourceSegment = segmentGroup;\n s._segmentIndexShift = consumedSegments.length;\n return {\n segmentGroup: s, slicedSegments: []\n }\n }\n if (slicedSegments.length === 0 && containsEmptyPathMatches(segmentGroup, slicedSegments, config)) {\n const s = new UrlSegmentGroup(\n

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segmentGroup.segments,\n addEmptyPathsToChildrenIfNeeded(\n segmentGroup, consumedSegments,
slicedSegments, config, segmentGroup.children,\n relativeLinkResolution));\n s._sourceSegment =
segmentGroup;\n s._segmentIndexShift = consumedSegments.length;\n return {segmentGroup: s,
slicedSegments};\n }\n\n const s = new UrlSegmentGroup(segmentGroup.segments, segmentGroup.children);\n s._sourceSegment = segmentGroup;\n s._segmentIndexShift = consumedSegments.length;\n return
{segmentGroup: s, slicedSegments};\n}\n\nfunction addEmptyPathsToChildrenIfNeeded(\n segmentGroup:
UrlSegmentGroup, consumedSegments: UrlSegment[], slicedSegments:
UrlSegment[],\n routes: Route[], children: {[name: string]: UrlSegmentGroup},\n relativeLinkResolution:
'legacy'|'corrected'): {[name: string]: UrlSegmentGroup} {\n const res: {[name: string]: UrlSegmentGroup} = {};\n for (const r of routes) {\n if (emptyPathMatch(segmentGroup, slicedSegments, r) && !children[getOutlet(r)]) {\n const s = new UrlSegmentGroup([], {});\n s._sourceSegment = segmentGroup;\n if (relativeLinkResolution === 'legacy') {\n s._segmentIndexShift = segmentGroup.segments.length;\n } else {\n s._segmentIndexShift = consumedSegments.length;\n }\n res[getOutlet(r)] = s;\n }\n }\n return {...children, ...res};\n}\n\nfunction createChildrenForEmptyPaths(\n segmentGroup: UrlSegmentGroup, consumedSegments:
UrlSegment[], routes: Route[],\n primarySegment: UrlSegmentGroup): {[name: string]: UrlSegmentGroup} {\n const res: {[name: string]: UrlSegmentGroup} = {};\n res[PRIMARY_OUTLET] = primarySegment;\n primarySegment._sourceSegment = segmentGroup;\n primarySegment._segmentIndexShift =
consumedSegments.length;\n for (const r of routes) {\n if (r.path === " && getOutlet(r) !==
PRIMARY_OUTLET) {\n const s = new UrlSegmentGroup([], {});\n s._sourceSegment = segmentGroup;\n s._segmentIndexShift = consumedSegments.length;\n res[getOutlet(r)] = s;\n }\n }\n return
res;\n}\n\nfunction containsEmptyPathMatchesWithNamedOutlets(\n segmentGroup: UrlSegmentGroup,
slicedSegments: UrlSegment[], routes: Route[]): boolean {\n return routes.some(\n r =>
emptyPathMatch(segmentGroup, slicedSegments, r) && getOutlet(r) !== PRIMARY_OUTLET);\n}\n\nfunction
containsEmptyPathMatches(\n segmentGroup: UrlSegmentGroup, slicedSegments: UrlSegment[], routes:
Route[]): boolean {\n return routes.some(r => emptyPathMatch(segmentGroup, slicedSegments, r));\n}\n\nfunction
emptyPathMatch(\n segmentGroup: UrlSegmentGroup, slicedSegments: UrlSegment[], r: Route): boolean
{\n if ((segmentGroup.hasChildren() || slicedSegments.length > 0) && r.pathMatch === 'full') {\n return false;\n }\n return r.path === " && r.redirectTo === undefined;\n}\n\nfunction getOutlet(route: Route): string {\n return
route.outlet || PRIMARY_OUTLET;\n}\n\nfunction getData(route: Route): Data {\n return route.data ||
{};\n}\n\nfunction getResolve(route: Route): ResolveData {\n return route.resolve || {};\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from
'@angular/core';\nimport {MonoTypeOperatorFunction, Observable} from 'rxjs';\nimport {map, mergeMap} from
'rxjs/operators';\nimport {Route} from './config';\nimport {recognize as recognizeFn} from './recognize';\nimport
{NavigationTransition} from './router';\nimport {UrlTree} from './url_tree';\n\nexport function recognize(\n
 rootComponentType: Type<any>|null, config: Route[], serializer: (url: UrlTree) => string,\n
paramsInheritanceStrategy: 'emptyOnly'|'always',\n relativeLinkResolution: 'legacy'|'corrected'):\n MonoTypeOperatorFunction<NavigationTransition> {\n return function(source:
Observable<NavigationTransition>) {\n return source.pipe(mergeMap(\n t => recognizeFn(\n
rootComponentType, config, t.urlAfterRedirects, serializer(t.urlAfterRedirects),\n
paramsInheritanceStrategy, relativeLinkResolution)\n).pipe(map(targetSnapshot => ({...t,
targetSnapshot})))));\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Injector} from '@angular/core';\nimport {EMPTY, from,
MonoTypeOperatorFunction, Observable, of} from 'rxjs';\nimport {concatMap, map, mergeMap, takeLast,
tap} from 'rxjs/operators';\nimport {ResolveData} from './config';\nimport {NavigationTransition} from
'./router';\nimport {ActivatedRouteSnapshot, inheritedParamsDataResolve, RouterStateSnapshot} from
'./router_state';\nimport {wrapIntoObservable} from './utils/collection';\nimport {getToken} from

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'./utils/preactivation';\n\nexport function resolveData(\n paramsInheritanceStrategy: 'emptyOnly'|'always',\n moduleInjector: Injector): MonoTypeOperatorFunction<NavigationTransition> {\n return function(source: Observable<NavigationTransition>) {\n return source.pipe(mergeMap(t => {\n const {targetSnapshot, guards: {canActivateChecks}} = t;\n if (!canActivateChecks.length) {\n return of(t);\n }\n let canActivateChecksResolved = 0;\n return from(canActivateChecks)\n .pipe(\n concatMap(\n check => runResolve(\n check.route, targetSnapshot!, paramsInheritanceStrategy,\n moduleInjector)),\n \n tap(() => canActivateChecksResolved++),\n takeLast(1),\n mergeMap(_ => canActivateChecksResolved === canActivateChecks.length ? of(t) : EMPTY)),\n \n);\n });\n }\n\nfunction runResolve(\n futureARS: ActivatedRouteSnapshot, futureRSS: RouterStateSnapshot,\n paramsInheritanceStrategy: 'emptyOnly'|'always', moduleInjector: Injector) {\n const resolve = futureARS._resolve;\n return resolveNode(resolve, futureARS, futureRSS, moduleInjector)\n .pipe(map((resolvedData: any) => {\n futureARS._resolvedData = resolvedData;\n futureARS.data = {\n ...futureARS.data,\n ...inheritedParamsDataResolve(futureARS, paramsInheritanceStrategy).resolve\n };\n return null;\n }));\n\nfunction resolveNode(\n resolve: ResolveData, futureARS: ActivatedRouteSnapshot, futureRSS: RouterStateSnapshot,\n moduleInjector: Injector): Observable<any> {\n const keys = Object.keys(resolve);\n if (keys.length === 0) {\n return of({});\n }\n const data: {[k: string]: any} = {};\n return from(keys).pipe(\n mergeMap(\n (key: string) => getResolver(resolve[key], futureARS, futureRSS, moduleInjector)\n .pipe(tap((value: any) => {\n data[key] = value;\n }))),\n takeLast(1),\n mergeMap(() => {\n // Ensure all resolvers returned values, otherwise don't emit any `next` and just complete\n // the chain which will cancel navigation\n if (Object.keys(data).length === keys.length) {\n return of(data);\n }\n return EMPTY;\n }),\n);\n\nfunction getResolver(\n injectionToken: any, futureARS: ActivatedRouteSnapshot, futureRSS: RouterStateSnapshot,\n moduleInjector: Injector): Observable<any> {\n const resolver = getToken(injectionToken, futureARS, moduleInjector);\n return resolver.resolve ? wrapIntoObservable(resolver.resolve(futureARS, futureRSS)) :\n wrapIntoObservable(resolver(futureARS, futureRSS));\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {from, MonoTypeOperatorFunction, ObservableInput} from 'rxjs';\nimport {map, switchMap} from 'rxjs/operators';\n\n/**\n * Perform a side effect through a switchMap for every emission on the source Observable,\n * but return an Observable that is identical to the source. It's essentially the same as\n * the `tap` operator, but if the side effectful `next` function returns an ObservableInput,\n * it will wait before continuing with the original value.\n */\nexport function switchTap<T>(next: (x: T) => void|ObservableInput<any>):\n MonoTypeOperatorFunction<T> {\n return function(source) {\n return source.pipe(switchMap(v => {\n const nextResult = next(v);\n if (nextResult) {\n return from(nextResult).pipe(map(() => v));\n }\n return from([v]);\n }));\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {ComponentRef} from '@angular/core';\nimport {OutletContext} from './router_outlet_context';\nimport {ActivatedRoute, ActivatedRouteSnapshot} from './router_state';\nimport {TreeNode} from './utils/tree';\n\n/**\n * @description\n * Represents the detached route tree.\n * This is an opaque value the router will give to a custom route reuse strategy\n * to store and retrieve later on.\n */\n@publicApi\nexport type DetachedRouteHandle = {};\n\n/**\n * @internal\n * export type DetachedRouteHandleInternal = {\n contexts: Map<string, OutletContext>,\n componentRef: ComponentRef<any>,\n route: TreeNode<ActivatedRoute>,\n};\n\n/**\n * @description\n * Provides a way to customize when activated routes get reused.\n */\n@publicApi\nexport abstract class RouteReuseStrategy {\n /**\n * Determines if this route (and its subtree) should be detached to be reused later\n */\n abstract shouldDetach(route: ActivatedRouteSnapshot): boolean;\n\n /**\n * Stores the

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detached route.\n *\n * Storing a `null` value should erase the previously stored value.\n */\n abstract
store(route: ActivatedRouteSnapshot, handle: DetachedRouteHandle|null): void;\n\n /** Determines if this route
(and its subtree) should be reattached */\n abstract shouldAttach(route: ActivatedRouteSnapshot): boolean;\n\n /**
Retrieves the previously stored route */\n abstract retrieve(route: ActivatedRouteSnapshot):
DetachedRouteHandle|null;\n\n /** Determines if a route should be reused */\n abstract shouldReuseRoute(future:
ActivatedRouteSnapshot, curr: ActivatedRouteSnapshot): boolean;\n}\n\n/**\n * @description\n
*\n * This base route reuse strategy only reuses routes when the matched router configs are\n * identical. This
prevents components from being destroyed and recreated\n * when just the fragment or query parameters change\n *
(that is, the existing component is _reused_).\n *\n * This strategy does not store any routes for later reuse.\n *\n *
Angular uses this strategy by default.\n *\n *\n * It can be used as a base class for custom route reuse strategies, i.e.
you can create your own\n * class that extends the BaseRouteReuseStrategy one.\n * @publicApi\n */\nexport
abstract class BaseRouteReuseStrategy implements RouteReuseStrategy {\n /**\n * Whether the given route
should detach for later reuse.\n * Always returns false for BaseRouteReuseStrategy.\n * */\n
shouldDetach(route: ActivatedRouteSnapshot): boolean {\n return false;\n }\n\n /**\n * A no-op; the route is
never stored since this strategy never detaches routes for later re-use.\n */\n store(route:
ActivatedRouteSnapshot, detachedTree: DetachedRouteHandle): void {} \n\n /** Returns false, meaning the route
(and its subtree) is never reattached */\n shouldAttach(route: ActivatedRouteSnapshot): boolean {\n return
false;\n }\n\n /** Returns null because this strategy does not store routes for later re-use. */\n
retrieve(route: ActivatedRouteSnapshot): DetachedRouteHandle|null {\n return null;\n }\n\n /**\n * Determines if a route
should be reused.\n * This strategy returns true when the future route config and current route config are\n *
identical.\n */\n shouldReuseRoute(future: ActivatedRouteSnapshot, curr: ActivatedRouteSnapshot): boolean {\n
return future.routeConfig === curr.routeConfig;\n }\n}\n\nexport class DefaultRouteReuseStrategy extends
BaseRouteReuseStrategy {\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file
at https://angular.io/license\n */\n\nimport {Compiler, InjectionToken, Injector, NgModuleFactory,
NgModuleFactoryLoader} from '@angular/core';\nimport {from, Observable, of} from 'rxjs';\nimport {map,
mergeMap} from 'rxjs/operators';\nimport {LoadChildren, LoadedRouterConfig, Route} from './config';\nimport
{flatten, wrapIntoObservable} from './utils/collection';\nimport {standardizeConfig} from './utils/config';\n\n/**\n *
The [DI token](guide/glossary/#di-token) for a router configuration.\n * @see `ROUTES`\n * @publicApi\n
*/\nexport const ROUTES = new InjectionToken<Route[]>('ROUTES');\n\nexport class RouterConfigLoader {\n
constructor(\n private loader: NgModuleFactoryLoader, private compiler: Compiler,\n private
onLoadStartListener?: (r: Route) => void,\n private onLoadEndListener?: (r: Route) => void) {} \n\n
load(parentInjector: Injector, route: Route): Observable<LoadedRouterConfig> {\n if (this.onLoadStartListener)
{\n this.onLoadStartListener(route);\n }\n\n const moduleFactory$ = this.loadModuleFactory(route.loadChildren!);\n\n return
moduleFactory$.pipe(map((factory: NgModuleFactory<any>) => {\n if (this.onLoadEndListener) {\n
this.onLoadEndListener(route);\n }\n\n const module = factory.create(parentInjector);\n\n return new
LoadedRouterConfig(\n flatten(module.injector.get(ROUTES)).map(standardizeConfig), module);\n }));\n }\n\n
private loadModuleFactory(loadChildren: LoadChildren): Observable<NgModuleFactory<any>> {\n if
(typeof loadChildren === 'string') {\n return from(this.loader.load(loadChildren));\n } else {\n return
wrapIntoObservable(loadChildren()).pipe(mergeMap((t: any) => {\n if (t instanceof NgModuleFactory) {\n
return of(t);\n } else {\n return from(this.compiler.compileModuleAsync(t));\n }\n }));\n }\n }\n}\n\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {ComponentFactoryResolver, ComponentRef} from '@angular/core';\nimport {RouterOutlet} from
'./directives/router_outlet';\nimport {ActivatedRoute} from './router_state';\n\n/**\n * Store contextual information
about a RouterOutlet\n *\n * @publicApi\n */\nexport class OutletContext {\n outlet: RouterOutlet|null = null;\n
route: ActivatedRoute|null = null;\n resolver: ComponentFactoryResolver|null = null;\n children = new
```

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ChildrenOutletContexts();\n attachRef: ComponentRef<any>|null = null;\n}\n\n/**\n * Store contextual
information about the children (= nested) `RouterOutlet`\n *\n * @publicApi\n */\n\nexport class
ChildrenOutletContexts {\n // contexts for child outlets, by name.\n private contexts = new Map<string,
OutletContext>();\n\n /** Called when a `RouterOutlet` directive is instantiated */\n
onChildOutletCreated(childName: string, outlet:
RouterOutlet): void {\n const context = this.getOrCreateContext(childName);\n context.outlet = outlet;\n
this.contexts.set(childName, context);\n }\n\n /**\n * Called when a `RouterOutlet` directive is destroyed.\n *
We need to keep the context as the outlet could be destroyed inside a NgIf and might be\n * re-created later.\n
*/\n\n onChildOutletDestroyed(childName: string): void {\n const context = this.getContext(childName);\n if
(context) {\n context.outlet = null;\n }\n }\n\n /**\n * Called when the corresponding route is deactivated
during navigation.\n * Because the component get destroyed, all children outlet are destroyed.\n */\n
onOutletDeactivated(): Map<string, OutletContext> {\n const contexts = this.contexts;\n this.contexts = new
Map();\n return contexts;\n }\n\n onOutletReAttached(contexts: Map<string, OutletContext>) {\n this.contexts
= contexts;\n }\n\n getOrCreateContext(childName: string): OutletContext
{\n let context = this.getContext(childName);\n if (!context) {\n context = new OutletContext();\n
this.contexts.set(childName, context);\n }\n\n return context;\n }\n\n getContext(childName: string):
OutletContext|null {\n return this.contexts.get(childName) || null;\n }\n}\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport { UrlTree } from './url_tree';\n\n/**\n *
@description\n *\n * Provides a way to migrate AngularJS applications to Angular.\n *\n * @publicApi\n
*/\n\nexport abstract class UrlHandlingStrategy {\n /**\n * Tells the router if this URL should be processed.\n *
When it returns true, the router will execute the regular navigation.\n * When it returns false, the router will set
the router state to an empty state.\n * As a result, all the active components will
be destroyed.\n *\n */\n\n abstract shouldProcessUrl(url: UrlTree): boolean;\n\n /**\n * Extracts the part of the
URL that should be handled by the router.\n * The rest of the URL will remain untouched.\n */\n\n abstract
extract(url: UrlTree): UrlTree;\n\n /**\n * Merges the URL fragment with the rest of the URL.\n */\n\n abstract
merge(newUrlPart: UrlTree, rawUrl: UrlTree): UrlTree;\n}\n\n\n/**\n * @publicApi\n */\n\nexport class
DefaultUrlHandlingStrategy implements UrlHandlingStrategy {\n shouldProcessUrl(url: UrlTree): boolean {\n
return true;\n }\n\n extract(url: UrlTree): UrlTree {\n return url;\n }\n\n merge(newUrlPart: UrlTree, wholeUrl:
UrlTree): UrlTree {\n return newUrlPart;\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { Location, PopStateEvent } from
'@angular/common';\nimport
{ Compiler, Injectable, Injector, NgModuleFactoryLoader, NgModuleRef, NgZone, Type, Console as Console }
from '@angular/core';\nimport { BehaviorSubject, EMPTY, Observable, of, Subject, SubscriptionLike } from
'rxjs';\nimport { catchError, filter, finalize, map, switchMap, tap } from 'rxjs/operators';\n\nimport
{ QueryParamsHandling, Route, Routes } from './config';\nimport { createRouterState } from
'./create_router_state';\nimport { createUrlTree } from './create_url_tree';\nimport { Event, GuardsCheckEnd,
GuardsCheckStart, NavigationCancel, NavigationEnd, NavigationError, NavigationStart, NavigationTrigger,
ResolveEnd, ResolveStart, RouteConfigLoadEnd, RouteConfigLoadStart, RoutesRecognized } from
'./events';\nimport { activateRoutes } from './operators/activate_routes';\nimport { applyRedirects } from
'./operators/apply_redirects';\nimport { checkGuards } from './operators/check_guards';\nimport { recognize } from
'./operators/recognize';\nimport { resolveData } from './operators/resolve_data';\nimport
{ switchTap } from './operators/switch_tap';\nimport { DefaultRouteReuseStrategy, RouteReuseStrategy } from
'./route_reuse_strategy';\nimport { RouterConfigLoader } from './router_config_loader';\nimport
{ ChildrenOutletContexts } from './router_outlet_context';\nimport { ActivatedRoute, createEmptyState, RouterState,
RouterStateSnapshot } from './router_state';\nimport { isNavigationCancelingError, navigationCancelingError,
Params } from './shared';\nimport { DefaultUrlHandlingStrategy, UrlHandlingStrategy } from

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'/url_handling_strategy';\nimport {containsTree, createEmptyUrlTree, UrlSerializer, UrlTree} from
'/url_tree';\nimport {standardizeConfig, validateConfig} from './utils/config';\nimport {Checks, getAllRouteGuards}
from './utils/preactivation';\nimport {isUrlTree} from './utils/type_guards';\n\n\n/**\n * @description\n *\n * Options that modify the `Router` URL.\n * Supply an object containing any of these properties to a `Router`
navigation function to\n * control how the target URL should
be constructed.\n *\n * @see [Router.navigate() method](api/router/Router#navigate)\n * @see
[Router.createUrlTree() method](api/router/Router#createurltree)\n * @see [Routing and Navigation
guide](guide/router)\n *\n * @publicApi\n */\nexport interface UrlCreationOptions {\n /**\n * Specifies a root
URI to use for relative navigation.\n *\n * For example, consider the following route configuration where the
parent route\n * has two children.\n *\n * ```\n * [{\n * path: 'parent',\n * component: ParentComponent,\n
* children: [{\n * path: 'list',\n * component: ListComponent\n * }, {\n * path: 'child',\n *
component: ChildComponent\n * }]\n * }]\n * ```\n *\n * The following `go()` function navigates to the `list`
route by\n * interpreting the destination URI as relative to the activated `child` route\n *\n * ```\n *
@Component({...})\n * class ChildComponent {\n * constructor(private router: Router,\n
private route: ActivatedRoute) {}\n *\n * go() {\n * this.router.navigate(['../list'], { relativeTo: this.route
});\n *\n * }\n *\n * ```\n */\n * relativeTo?: ActivatedRoute|null;\n /**\n * Sets query parameters to the
URL.\n *\n * ```\n * // Navigate to /results?page=1\n * this.router.navigate(['/results'], { queryParams: { page: 1
} });\n *\n * ```\n */\n * queryParams?: Params|null;\n /**\n * Sets the hash fragment for the URL.\n *\n * ```\n
* // Navigate to /results#top\n * this.router.navigate(['/results'], { fragment: 'top' });\n *\n * ```\n */\n *
fragment?: string;\n /**\n * How to handle query parameters in the router link for the next navigation.\n * One of:\n *
* `preserve` : Preserve current parameters.\n * * `merge` : Merge new with current parameters.\n *\n * The
`"preserve"` option discards any new query params:\n *\n * ```\n * // from /view1?page=1 to /view2?page=1\n *
this.router.navigate(['/view2'], {\n
 queryParams: { page: 2 },\n
 queryParamsHandling: "preserve"\n *\n * });\n *\n * ```\n *\n * The `"merge"` option appends
new query params to the params from the current URL:\n *\n * ```\n * // from /view1?page=1
to /view2?page=1&otherKey=2\n * this.router.navigate(['/view2'], {\n
 queryParams: { otherKey: 2 },\n
 queryParamsHandling: "merge"\n *\n * });\n *\n * ```\n *\n * In case of a key collision between current parameters and
those in the `queryParams` object,\n * the new value is used.\n *\n * ```\n */\n * queryParamsHandling?:
QueryParamsHandling|null;\n /**\n * When true, preserves the URL fragment for the next navigation\n *\n *
* ```\n * // Preserve fragment from /results#top to /view#top\n * this.router.navigate(['/view'], {\n
 preserveFragment: true\n *\n * });\n *\n * ```\n */\n * preserveFragment?: boolean;\n }\n\n\n/**\n * @description\n *\n * Options that modify the
`Router` navigation strategy.\n * Supply an object containing any of these properties to a `Router` navigation
function to\n
* control how the navigation should be handled.\n *\n * @see [Router.navigate()
method](api/router/Router#navigate)\n * @see [Router.navigateByUrl() method](api/router/Router#navigatebyurl)\n
* @see [Routing and Navigation guide](guide/router)\n *\n * @publicApi\n */\nexport interface
NavigationBehaviorOptions {\n /**\n * When true, navigates without pushing a new state into history.\n *\n *
* ```\n * // Navigate silently to /view\n * this.router.navigate(['/view'], {\n
 skipLocationChange: true\n *\n * });\n *\n * ```\n */\n * skipLocationChange?: boolean;\n /**\n * When true, navigates while replacing the current state in
history.\n *\n * ```\n * // Navigate to /view\n * this.router.navigate(['/view'], {\n
 replaceUrl: true\n *\n * });\n *\n * ```\n */\n * replaceUrl?: boolean;\n /**\n * Developer-defined state that can be passed to any navigation.\n * Access
this value through the `Navigation.extras` object\n * returned from the [Router.getCurrentNavigation()]\n *
method](api/router/Router#getcurrentnavigation)\n
while a navigation is executing.\n *\n * After a navigation completes, the router writes an object containing this\n
* value together with a `navigationId` to `history.state`.\n *\n * The value is written when `location.go()` or
`location.replaceState()`\n * is called before activating this route.\n *\n * Note that `history.state` does not pass
an object equality test because\n * the router adds the `navigationId` on each navigation.\n *\n * ```\n */\n * state?: {[k:
string]: any};\n }\n\n\n/**\n * @description\n *\n * Options that modify the `Router` navigation strategy.\n * Supply

```

an object containing any of these properties to a `Router` navigation function to control how the target URL should be constructed or interpreted.

`@see [Router.navigate() method](api/router/Router#navigate)`

`@see [Router.navigateByUrl() method](api/router/Router#navigatebyurl)`

`@see [Router.createUrlTree() method](api/router/Router#createurltree)`

`@see [Routing and Navigation guide](guide/router)`

`@see UrlCreationOptions`

`@see NavigationBehaviorOptions`

`@publicApi`

`^`next export interface NavigationExtras extends UrlCreationOptions, NavigationBehaviorOptions

`{`

`error?: any` Error handler that is invoked when a navigation error occurs.

`if the handler returns a value, the navigation Promise is resolved with this value.`

`if the handler throws an exception, the navigation Promise is rejected with the exception.`

`@publicApi`

`^`next export type ErrorHandler = (error: any) => any;

`function defaultErrorHandler(error: any): any {`

`throw error;`

`}`

`function defaultMalformedUriErrorHandler(`

`error: URIError, urlSerializer: UrlSerializer, url: string): UrlTree {`

`return urlSerializer.parse('/');`

`}`

`^`next export type RestoredState = {

`[k: string]: any;`

`navigationId: number;`

`}`

`^`next Information about a navigation operation.

`Retrieve the most recent navigation object with the`

`[Router.getCurrentNavigation() method](api/router/Router#getcurrentnavigation)`

`id: number` The unique identifier of the current navigation.

`initialUrl: string` The target URL passed into the `Router#navigateByUrl` call before navigation. This is the value before the router has parsed or applied redirects to it.

`extractedUrl: string` The initial target URL after being parsed with `UrlSerializer.extract`.

`finalUrl: string` The extracted URL after redirects have been applied. This URL may not be available immediately, therefore this property can be `undefined`.

`It is guaranteed to be set after the `RoutesRecognized` event fires.`

`trigger: string` Identifies how this navigation was triggered.

`--imperative--` Triggered by `router.navigateByUrl` or `router.navigate`.

`--popstate--` Triggered by a popstate event.

`--hashchange--` Triggered by a hashchange event.

`extras: NavigationExtras` A `NavigationExtras` options object that controlled the strategy used for this navigation.

`previousNavigation: Navigation` The previously successful `Navigation` object. Only one previous navigation is available, therefore this previous `Navigation` object has a `null` value for its own `previousNavigation`.

`@publicApi`

`^`next export type Navigation = {

`id: number` The unique identifier of the current navigation.

`initialUrl: string | UrlTree` The target URL passed into the `Router#navigateByUrl` call before navigation. This is the value before the router has parsed or applied redirects to it.

`extractedUrl: string | UrlTree` The initial target URL after being parsed with `UrlSerializer.extract`.

`finalUrl: string | UrlTree` The extracted URL after redirects have been applied. This URL may not be available immediately, therefore this property can be `undefined`.

`It is guaranteed to be set after the `RoutesRecognized` event fires.`

`trigger: string` Identifies how this navigation was triggered.

`--imperative--` Triggered by `router.navigateByUrl` or `router.navigate`.

`--popstate--` Triggered by a popstate event.

`--hashchange--` Triggered by a hashchange event.

`trigger: string` Identifies how this navigation was triggered.

`--imperative--` Triggered by `router.navigateByUrl` or `router.navigate`.

`--popstate--` Triggered by a popstate event.

`--hashchange--` Triggered by a hashchange event.

`extras: NavigationExtras` Options that controlled the strategy used for this navigation.

`previousNavigation: Navigation` The previously successful `Navigation` object. Only one previous navigation is available, therefore this previous `Navigation` object has a `null` value for its own `previousNavigation`.

`^`next export type NavigationTransition = {

`id: number`

`currentUrlTree: UrlTree`

`currentRawUrl: UrlTree`

`extractedUrl: UrlTree`

`urlAfterRedirects: UrlTree`

`rawUrl: UrlTree`

`extras: NavigationExtras`

`resolve: any`

`reject: any`

`promise: Promise<boolean>`

`source: NavigationTrigger`

`restoredState: RestoredState | null`

`currentSnapshot: RouterStateSnapshot`

`targetSnapshot: RouterStateSnapshot | null`

`currentRouterState: RouterState`

`targetRouterState: RouterState | null`

`guards: Checks`

`guardsResult: boolean | UrlTree | null`

`@internal`

`^`next export type RouterHook = (snapshot: RouterStateSnapshot, runExtras: {

`appliedUrlTree: UrlTree`

`rawUrlTree: UrlTree`

`skipLocationChange: boolean`

`replaceUrl: boolean`

`navigationId: number`

`) => Observable<void>`

`@internal`

`^`next function defaultRouterHook(snapshot: RouterStateSnapshot, runExtras: {

`appliedUrlTree: UrlTree`

`rawUrlTree: UrlTree`

`skipLocationChange: boolean`

`replaceUrl: boolean`

`navigationId: number`

`) {`

```

Observable<void> {\n return of(null) as any;\n}\n\n/**\n * Information related to a location change, necessary for
scheduling follow-up Router navigations.\n */\ntype LocationChangeInfo = {\n source: 'popstate'|'hashchange',\n urlTree: UrlTree,\n state:
 RestoredState|null,\n transitionId: number\n};\n\n/**\n * @description\n * A service that provides navigation
among views and URL manipulation capabilities.\n */\n * @see `Route`.\n * @see [Routing and Navigation
Guide](guide/router).\n */\n * @ngModule RouterModule\n */\n * @publicApi\n */\n\n@Injectable()\nexport class
Router {\n private currentUrlTree: UrlTree;\n private rawUrlTree: UrlTree;\n private browserUrlTree: UrlTree;\n private readonly transitions: BehaviorSubject<NavigationTransition>;\n private navigations:
Observable<NavigationTransition>;\n private lastSuccessfulNavigation: Navigation|null = null;\n private
currentNavigation: Navigation|null = null;\n private locationSubscription?: SubscriptionLike;\n /**\n * Tracks
the previously seen location change from the location subscription so we can compare\n * the two latest to see if
they are duplicates. See setUpLocationChangeListener.\n */\n private lastLocationChangeInfo:
LocationChangeInfo|null = null;\n\n private navigationId: number = 0;\n private configLoader: RouterConfigLoader;\n private ngModule:
NgModuleRef<any>;\n private console: Console;\n private isNgZoneEnabled: boolean = false;\n\n /**\n * An
event stream for routing events in this NgModule.\n */\n public readonly events: Observable<Event> = new
Subject<Event>();\n /**\n * The current state of routing in this NgModule.\n */\n public readonly routerState:
RouterState;\n /**\n * A handler for navigation errors in this NgModule.\n */\n errorHandler: ErrorHandler =
defaultErrorHandler;\n /**\n * A handler for errors thrown by `Router.parseUrl(url)`\n * when `url` contains an
invalid character.\n * The most common case is a `%` sign\n * that's not encoded and is not part of a percent
encoded sequence.\n */\n malformedUriErrorHandler: (error: URIError, urlSerializer: UrlSerializer,\n url:
string) => UrlTree = defaultMalformedUriErrorHandler;\n /**\n * True if at least
one navigation event has occurred,\n * false otherwise.\n */\n navigated: boolean = false;\n private
lastSuccessfulId: number = -1;\n\n /**\n * Hooks that enable you to pause navigation,\n * either before or after
the preactivation phase.\n * Used by `RouterModule`.\n */\n * @internal\n */\n hooks: {\n
beforePreactivation: RouterHook,\n afterPreactivation: RouterHook\n } = {beforePreactivation:
defaultRouterHook, afterPreactivation: defaultRouterHook};\n\n /**\n * A strategy for extracting and merging
URLs.\n * Used for AngularJS to Angular migrations.\n */\n urlHandlingStrategy: UrlHandlingStrategy = new
DefaultUrlHandlingStrategy();\n\n /**\n * A strategy for re-using routes.\n */\n routeReuseStrategy:
RouteReuseStrategy = new DefaultRouteReuseStrategy();\n\n /**\n * How to handle a navigation request to the
current URL. One of:\n * - `ignore` : The router ignores the request.\n * - `reload` : The router reloads the URL.
Use to implement
a `refresh` feature.\n */\n onSameUrlNavigation: 'reload'|'ignore' = 'ignore';\n\n /**\n * How to merge
parameters, data, and resolved data from parent to child\n * routes. One of:\n * - `emptyOnly` : Inherit
parent parameters, data, and resolved data\n * for path-less or component-less routes.\n * - `always` : Inherit
parent parameters, data, and resolved data\n * for all child routes.\n */\n paramsInheritanceStrategy:
'emptyOnly'|'always' = 'emptyOnly';\n\n /**\n * Determines when the router updates the browser URL.\n * By
default (`deferred`), updates the browser URL after navigation has finished.\n * Set to `eager` to update the
browser URL at the beginning of navigation.\n * You can choose to update early so that, if navigation fails,\n *
you can show an error message with the URL that failed.\n */\n urlUpdateStrategy: 'deferred'|'eager' =
'deferred';\n\n /**\n * Enables a bug fix that corrects relative link resolution in
components with empty paths.\n */\n * @see `RouterModule`\n */\n relativeLinkResolution: 'legacy'|'corrected' =
'corrected';\n\n /**\n * Creates the router service.\n */\n // TODO: vsavkin make internal after the final is out.\n\n constructor(\n private rootComponentType: Type<any>|null, private urlSerializer: UrlSerializer,\n private
rootContexts: ChildrenOutletContexts, private location: Location, injector: Injector,\n loader:
NgModuleFactoryLoader, compiler: Compiler, public config: Routes) {\n const onLoadStart = (r: Route) =>
this.triggerEvent(new RouteConfigLoadStart(r));\n const onLoadEnd = (r: Route) => this.triggerEvent(new
RouteConfigLoadEnd(r));\n\n this.ngModule = injector.get(NgModuleRef);\n this.console =

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injector.get(Console);\n const ngZone = injector.get(NgZone);\n this.isNgZoneEnabled = ngZone instanceof
NgZone;\n\n this.resetConfig(config);\n this.currentUrlTree = createEmptyUrlTree();\n this.rawUrlTree =
this.currentUrlTree;\n
 this.browserUrlTree = this.currentUrlTree;\n\n this.configLoader = new RouterConfigLoader(loader, compiler,
onLoadStart, onLoadEnd);\n this.routerState = createEmptyState(this.currentUrlTree,
this.rootComponentType);\n\n this.transitions = new BehaviorSubject<NavigationTransition>({\n id: 0,\n currentUrlTree: this.currentUrlTree,\n currentRawUrl: this.currentUrlTree,\n extractedUrl:
this.urlHandlingStrategy.extract(this.currentUrlTree),\n urlAfterRedirects:
this.urlHandlingStrategy.extract(this.currentUrlTree),\n rawUrl: this.currentUrlTree,\n extras: {},\n resolve: null,\n reject: null,\n promise: Promise.resolve(true),\n source: 'imperative',\n restoredState:
null,\n currentSnapshot: this.routerState.snapshot,\n targetSnapshot: null,\n currentRouterState:
this.routerState,\n targetRouterState: null,\n guards: { canActivateChecks: [], canActivateChecks: [] },\n guardsResult:
null,\n });\n this.navigations = this.setupNavigations(this.transitions);\n\n this.processNavigations();\n }\n\n private setupNavigations(transitions: Observable<NavigationTransition>):\n Observable<NavigationTransition>\n {\n const eventsSubject = (this.events as Subject<Event>);\n return transitions.pipe(\n filter(t => t.id
!== 0),\n // Extract URL\n map(t =>\n ({...t, extractedUrl:
this.urlHandlingStrategy.extract(t.rawUrl)} as\n NavigationTransition)),\n // Using
switchMap so we cancel executing navigations when a new one comes in\n switchMap(t => {\n let completed = false;\n let errored = false;\n return of(t).pipe(\n // Store the
Navigation object\n tap(t => {\n this.currentNavigation = {\n id: t.id,\n initialUrl: t.currentRawUrl,\n extractedUrl: t.extractedUrl,\n trigger:
t.source,\n extras: t.extras,\n previousNavigation: this.lastSuccessfulNavigation ?\n {...this.lastSuccessfulNavigation, previousNavigation: null} :\n null\n },\n switchMap(t => {\n const urlTransition = !this.navigated ||\n t.extractedUrl.toString() !== this.browserUrlTree.toString();\n const processCurrentUrl =\n (this.onSameUrlNavigation === 'reload' ? true : urlTransition) &&\n this.urlHandlingStrategy.shouldProcessUrl(t.rawUrl);\n if (processCurrentUrl) {\n return of(t).pipe(\n // Fire
NavigationStart event\n switchMap(t => {\n const transition =
this.transitions.getValue();\n eventsSubject.next(new NavigationStart(\n t.id,\n this.serializeUrl(t.extractedUrl), t.source,\n t.restoredState));\n if (transition
!== this.transitions.getValue()) {\n return EMPTY;\n }\n return [t];\n }),\n // This delay is required to match old behavior that forced
navigation\n // to always be async\n switchMap(t => Promise.resolve(t)),\n // ApplyRedirects\n applyRedirects(\n this.ngModule.injector,
this.configLoader,\n this.urlSerializer,\n this.config),\n // Update the currentNavigation\n tap(t => {\n this.currentNavigation = {\n ...this.currentNavigation!,\n finalUrl: t.urlAfterRedirects,\n },\n // Recognize\n recognize(\n this.rootComponentType, this.config,\n (url) => this.serializeUrl(url), this.paramsInheritanceStrategy,\n this.relativeLinkResolution),\n // Update URL if in `eager` update mode\n tap(t
=> {\n if (this.urlUpdateStrategy === 'eager') {\n if
(!t.extras.skipLocationChange)\n this.setBrowserUrl(\n t.urlAfterRedirects, !!t.extras.replaceUrl,\n t.id,\n t.extras.state);\n this.browserUrlTree =
t.urlAfterRedirects;\n }\n }),\n // Fire RoutesRecognized\n
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 tap(t => {\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 this.serializeUrl(t.urlAfterRedirects),\n
 t.targetSnapshot!);\n
 eventsSubject.next(routesRecognized);\n
 });\n
 } else {\n
 const processPreviousUrl = urlTransition && this.rawUrlTree &&\n
 this.urlHandlingStrategy.shouldProcessUrl(this.rawUrlTree);\n
 /* When the current URL shouldn't be processed, but the previous one was,\n
 handle this \"error condition\" by navigating to the previously\n
 URL intact.*\n
 if (processPreviousUrl) {\n
 const {id, extractedUrl, source,\n
 restoredState, extras} = t;\n
 const navStart = new NavigationStart(\n
 id,\n
 this.serializeUrl(extractedUrl), source, restoredState);\n
 eventsSubject.next(navStart);\n
 const targetSnapshot =\n
 createState(extractedUrl,\n
 this.rootComponentType).snapshot;\n
 return of({\n
 ...t,\n
 targetSnapshot,\n
 urlAfterRedirects:\n
 extractedUrl,\n
 extras: {...extras, skipLocationChange: false, replaceUrl: false},\n
 });\n
 } else {\n
 /* When neither the current or previous URL can be processed, do\n
 nothing\n
 * other than update router's internal reference to the current \"settled\"\n
 * URL. This way the next navigation will be coming from the current URL\n
 * in the browser.\n
 *\n
 this.rawUrlTree = t.rawUrl;\n
 this.browserUrlTree =\n
 t.urlAfterRedirects;\n
 t.resolve(null);\n
 return EMPTY;\n
 } }\n
 })),\n
 // Before Preactivation\n
 switchTap(t => {\n
const {\n
 targetSnapshot,\n
 id: navigationId,\n
 extractedUrl: appliedUrlTree,\n
 rawUrl: rawUrlTree,\n
 extras: {skipLocationChange, replaceUrl} = t;\n
 return this.hooks.beforePreactivation(targetSnapshot!, {\n
 navigationId,\n
 appliedUrlTree,\n
 rawUrlTree,\n
 skipLocationChange: !!skipLocationChange,\n
 replaceUrl: !!replaceUrl,\n
 });\n
 // --- GUARDS ---\n
 tap(t => {\n
 const guardsStart = new GuardsCheckStart(\n
 t.id,\n
 this.serializeUrl(t.extractedUrl),\n
 this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!);\n
 this.triggerEvent(guardsStart);\n
 }),\n
 map(t => ({\n
 ...t,\n
 guards: getAllRouteGuards(\n
 t.targetSnapshot!, t.currentSnapshot, this.rootContexts)\n
 })),\n
 checkGuards(this.ngModule.injector, (evt: Event) => this.triggerEvent(evt)),\n
 tap(t => {\n
 if (isUrlTree(t.guardsResult)) {\n
 const error: Error & {url?: UrlTree} = navigationCancelingError(\n
 `Redirecting to \"${this.serializeUrl(t.guardsResult)}\"`);\n
 error.url =\n
 t.guardsResult;\n
 throw error;\n
 } }\n
 tap(t => {\n
 const guardsEnd = new GuardsCheckEnd(\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 this.serializeUrl(t.urlAfterRedirects),\n
 t.targetSnapshot!,\n
 !!t.guardsResult);\n
 this.triggerEvent(guardsEnd);\n
 })),\n
 filter(t => {\n
 if (!t.guardsResult) {\n
 this.resetUrlToCurrentUrlTree();\n
 const navCancel =\n
 new NavigationCancel(t.id,\n
 this.serializeUrl(t.extractedUrl), \"\");\n
 eventsSubject.next(navCancel);\n
 t.resolve(false);\n
 return false;\n
 } }\n
 return true;\n
 })),\n
 // --- RESOLVE ---\n
 switchTap(t => {\n
 if (t.guards.canActivateChecks.length)\n
 {\n
 return of(t).pipe(\n
 tap(t => {\n
 const resolveStart = new\n
 ResolveStart(\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 this.serializeUrl(t.urlAfterRedirects),\n
 t.targetSnapshot!);\n
 this.triggerEvent(resolveStart);\n
 })),\n
 switchMap(t => {\n
 let dataResolved = false;\n
 return of(t).pipe(\n

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 resolveData(\n
 this.paramsInheritanceStrategy, this.ngModule.injector),\n
 tap({\n
 next: () => dataResolved = true,\n
 complete: () => {\n
 if (!dataResolved) {\n
 const navCancel = new NavigationCancel(\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 `At least one route resolver didn't emit any value.`);\n
 eventsSubject.next(navCancel);\n
 t.resolve(false);\n
 }\n
 }},\n
);\n
 },\n
);\n
 },\n
 tap(t => {\n
 const resolveEnd
 = new ResolveEnd(\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!);\n
 this.triggerEvent(resolveEnd);\n
 }));\n
 }\n
 return undefined;\n
 }},\n
 // --- AFTER
 PREACTIVATION ---\n
 switchTap((t: NavigationTransition) => {\n
 const
 {\n
 targetSnapshot,\n
 id: navigationId,\n
 extractedUrl:
 appliedUrlTree,\n
 rawUrl: rawUrlTree,\n
 extras: {skipLocationChange, replaceUrl}}\n
 } = t;\n
 return this.hooks.afterPreactivation(targetSnapshot!, {\n
 navigationId,\n
 appliedUrlTree,\n
 rawUrlTree,\n
 skipLocationChange:
 !!skipLocationChange,\n
 replaceUrl: !!replaceUrl,\n
 });\n
 },\n
 },\n
 map((t: NavigationTransition) => {\n
 const targetRouterState = createRouterState(\n
 this.routeReuseStrategy, t.targetSnapshot!, t.currentRouterState);\n
 return ({...t, targetRouterState});\n
 })),\n
 /* Once
 here, we are about to activate synchronously. The assumption is this\n
 will succeed, and user code may
 read from the Router service. Therefore\n
 before activation, we need to update router properties
 storing the current\n
 URL and the RouterState, as well as updated the browser URL. All this should\n
 happen *before* activating. */\n
 tap((t: NavigationTransition) => {\n
 this.currentUrlTree = t.urlAfterRedirects;\n
 this.rawUrlTree =\n
 this.urlHandlingStrategy.merge(this.currentUrlTree, t.rawUrl);\n
 (this as {routerState:
 RouterState}).routerState = t.targetRouterState!;\n
 if (this.urlUpdateStrategy === 'deferred') {\n
 if (!t.extras.skipLocationChange) {\n
 this.setBrowserUrl(\n
 this.rawUrlTree,\n
 !!t.extras.replaceUrl, t.id, t.extras.state);\n
 }\n
 this.browserUrlTree =
 t.urlAfterRedirects;\n
 },\n
 },\n
 activateRoutes(\n
 this.rootContexts, this.routeReuseStrategy,\n
 (evt: Event) => this.triggerEvent(evt)),\n
 },\n
 tap({\n
 next() {\n
 completed = true;\n
 },\n
 complete() {\n
 completed = true;\n
 },\n
 },\n
 },\n
 finalize(() => {\n
 /*
 When the navigation stream finishes either through error or success, we\n
 * set the `completed` or
 `errored` flag. However, there are some situations\n
 * where we could get here without either of those
 being set. For instance, a\n
 * redirect during NavigationStart. Therefore, this is a catch-all to make\n
 * sure the
 NavigationCancel\n
 * event is fired when a navigation gets cancelled but not caught by other\n
 * means. */\n
 if (!completed && !errored) {\n
 // Must reset to current URL tree
 here to ensure history.state is set. On a\n
 // fresh page load, if a new navigation comes in before a
 successful\n
 // navigation completes, there will be nothing in\n
 //
 history.state.navigationId. This can cause sync problems with AngularJS\n
 // sync code which looks
 for a value here in order to determine whether or\n
 // not to handle a given popstate event or to leave
 it to the Angular\n
 // router.\n
 this.resetUrlToCurrentUrlTree();\n
 const navCancel = new NavigationCancel(\n
 t.id, this.serializeUrl(t.extractedUrl),\n
 `Navigation ID ${t.id} is not equal to the current navigation id ${\n
 this.navigationId}`);\n
 eventsSubject.next(navCancel);\n
 t.resolve(false);\n
 }\n
 // currentNavigation should always be reset to null here. If navigation was\n
 //

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successful, lastSuccessfulTransition will have already been set. Therefore\n // we can safely set
currentNavigation to null here.\n this.currentNavigation = null;\n })),\n
catchError((e) => {\n errored = true;\n /* This error type is issued during Redirect, and is
handled as a\n * cancellation rather than
an error. *\n if (isNavigationCancelingError(e)) {\n const redirecting =
isUrlTree(e.url);\n if (!redirecting) {\n // Set property only if we're not redirecting. If
we landed on a page and\n // redirect to `^` route, the new navigation is going to see the `^`\n
 // isn't a change from the default currentUrlTree and won't navigate.\n // This is only
applicable with initial navigation, so setting\n // `navigated` only when not redirecting resolves this
scenario.\n this.navigated = true;\n this.resetStateAndUrl(t.currentRouterState,
t.currentUrlTree, t.rawUrl);\n }\n const navCancel = new NavigationCancel(\n
 t.id, this.serializeUrl(t.extractedUrl), e.message);\n
 eventsSubject.next(navCancel);\n // When redirecting, we need to delay resolving
the navigation\n // promise and push it to the redirect navigation\n if (!redirecting) {\n
 t.resolve(false);\n } else {\n // setTimeout is required so this
navigation finishes with\n // the return EMPTY below. If it isn't allowed to finish\n
 // processing, there can be multiple navigations to the same\n // URL.\n
 setTimeout(() => {\n const mergedTree =\n
this.urlHandlingStrategy.merge(e.url, this.rawUrlTree);\n const extras = {\n
skipLocationChange: t.extras.skipLocationChange,\n replaceUrl:\n
this.urlUpdateStrategy === 'eager'\n });\n return this.scheduleNavigation(\n
 mergedTree, 'imperative', null, extras,\n {resolve: t.resolve, reject: t.reject,\n
promise: t.promise});\n }, 0);\n }\n /* All other errors should reset to
the router's internal URL reference to\n * the pre-error state. *\n } else {\n
this.resetStateAndUrl(t.currentRouterState, t.currentUrlTree, t.rawUrl);\n const navError =\n
 new NavigationError(t.id, this.serializeUrl(t.extractedUrl), e);\n
 eventsSubject.next(navError);\n try {\n t.resolve(this.errorHandler(e));\n
 } catch (ee) {\n
 t.reject(ee);\n }\n }\n return EMPTY;\n }));\n
 // TODO(jasonaden): remove cast once g3 is on updated TypeScript\n))) as any as
Observable<NavigationTransition>;\n }\n /**\n * @internal\n * TODO: this should be removed once the
constructor of the router made internal\n */\n resetRootComponentType(rootComponentType: Type<any>): void
{\n this.rootComponentType = rootComponentType;\n // TODO: vsavkin router 4.0 should make the root
component set to null\n // this will simplify the lifecycle of the router.\n this.routerState.root.component =
this.rootComponentType;\n }\n private getTransition(): NavigationTransition {\n const transition =
this.transitions.value;\n // This value needs to be set. Other values such as extractedUrl are set on initial
navigation\n // but the urlAfterRedirects may not get set if we aren't processing
the new URL *and* not\n // processing the previous URL.\n transition.urlAfterRedirects =
this.browserUrlTree;\n return transition;\n }\n private setTransition(t: Partial<NavigationTransition>): void {\n
 this.transitions.next({...this.getTransition(), ...t});\n }\n /**\n * Sets up the location change listener and
performs the initial navigation.\n */\n initialNavigation(): void {\n this.setUpLocationChangeListener();\n if
(this.navigationId === 0) {\n this.navigateByUrl(this.location.path(true), {replaceUrl: true});\n }\n }\n /**\n * Sets up the location change listener. This listener detects navigations triggered from outside\n * the Router (the
browser back/forward buttons, for example) and schedules a corresponding Router\n * navigation so that the
correct events, guards, etc. are triggered.\n */\n setUpLocationChangeListener(): void {\n // Don't need to use
Zone.wrap any more, because zone.js\n // already patch onPopState, so
location change callback will\n // run into ngZone\n if (!this.locationSubscription) {\n
this.locationSubscription = this.location.subscribe(event => {\n const currentChange =

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this.extractLocationChangeInfoFromEvent(event);\n if
(this.shouldScheduleNavigation(this.lastLocationChangeInfo, currentChange)) {\n // The `setTimeout` was
added in #12160 and is likely to support Angular/AngularJS\n // hybrid apps.\n setTimeout(() => {\n const { source, state, urlTree } = currentChange;\n const extras: NavigationExtras = { replaceUrl: true };
 if (state) {\n const stateCopy = { ...state } as Partial<RestoredState>;\n delete
stateCopy.navigationId;\n if (Object.keys(stateCopy).length !== 0) {\n extras.state = stateCopy;\n }\n }\n this.scheduleNavigation(urlTree, source, state, extras);\n }, 0);\n }\n this.lastLocationChangeInfo
= currentChange;\n });\n }\n }\n /** Extracts router-related information from a `PopStateEvent`. */
private extractLocationChangeInfoFromEvent(change: PopStateEvent): LocationChangeInfo {\n return {\n source: change['type'] === 'popstate' ? 'popstate' : 'hashchange',\n urlTree: this.parseUrl(change['url']!),\n // Navigations coming from Angular router have a navigationId state\n // property. When this exists, restore the
state.\n state: change.state?.navigationId ? change.state : null,\n transitionId: this.getTransition().id\n } as
const;\n }\n }\n /**\n * Determines whether two events triggered by the Location subscription are due to the same\n * navigation. The location subscription can fire two events (popstate and hashchange) for a\n * single navigation. The second one should be ignored, that is, we should not schedule another\n * navigation in the Router.\n */
private shouldScheduleNavigation(previous:
LocationChangeInfo|null, current: LocationChangeInfo):\n boolean {\n if (!previous) return true;\n const
sameDestination = current.urlTree.toString() === previous.urlTree.toString();\n const
eventsOccurredAtSameTime = current.transitionId === previous.transitionId;\n if (!eventsOccurredAtSameTime ||
!sameDestination) {\n return true;\n }\n if ((current.source === 'hashchange' && previous.source ===
'popstate') ||\n (current.source === 'popstate' && previous.source === 'hashchange')) {\n return false;\n }\n return true;\n }\n /** The current URL. */
get url(): string {\n return
this.serializeUrl(this.currentUrlTree);\n }\n /** The current Navigation object if one exists */
getCurrentNavigation(): Navigation|null {\n return this.currentNavigation;\n }\n /** @internal */
triggerEvent(event: Event): void {\n (this.events as Subject<Event>).next(event);\n }\n /**\n * Resets the
route configuration
used for navigation and generating links.\n */
@param config The route array for the new configuration.\n
 * @usageNotes\n * ```\n * router.resetConfig([\n * { path: 'team/:id', component: TeamCmp, children:
[\n * { path: 'simple', component: SimpleCmp },\n * { path: 'user/:name', component: UserCmp }\n *]\n *]);\n * ```\n */
resetConfig(config: Routes): void {\n validateConfig(config);\n this.config =
config.map(standardizeConfig);\n this.navigated = false;\n this.lastSuccessfulId = -1;\n }\n /** @nodoc */
ngOnDestroy(): void {\n this.dispose();\n }\n /** Disposes of the router. */
dispose(): void {\n if
(this.locationSubscription) {\n this.locationSubscription.unsubscribe();\n this.locationSubscription =
undefined;\n }\n }\n /**\n * Appends URL segments to the current URL tree to create a new URL tree.\n */
@param commands An array of URL fragments with which to construct
the new URL tree.\n * If the path is static, can be the literal URL string. For a dynamic path, pass an array of
path\n * segments, followed by the parameters for each segment.\n * The fragments are applied to the current
URL tree or the one provided in the `relativeTo`\n * property of the options object, if supplied.\n */
@param navigationExtras Options that control the navigation strategy.\n * @returns The new URL tree.\n */
@usageNotes\n * ```\n * // create /team/33/user/11\n * router.createUrlTree(['/team', 33, 'user', 11]);\n *\n * // create /team/33;expand=true/user/11\n * router.createUrlTree(['/team', 33, { expand: true }, 'user', 11]);\n *\n * // you can collapse static segments like this (this works only with the first passed-in value);\n *\n * router.createUrlTree(['/team/33/user', userId]);\n *\n * // If the first segment can contain slashes, and you do not
want the router to split it,\n * // you can do the following;\n * router.createUrlTree([segmentPath:
'/one/two']);\n *\n * // create /team/33/(user/11/right:chat)\n * router.createUrlTree(['/team', 33, { outlets:
{ primary: 'user/11', right: 'chat' } }]);\n *\n * // remove the right secondary node\n * router.createUrlTree(['/team',
33, { outlets: { primary: 'user/11', right: null } }]);\n *\n * // assuming the current url is `/team/33/user/11` and the

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route points to `user/11`\n * \n * // navigate to /team/33/user/11/details\n * router.createUrlTree(['details'],
{relativeTo: route});\n * \n * // navigate to /team/33/user/22\n * router.createUrlTree(['../22'], {relativeTo:
route});\n * \n * // navigate to /team/44/user/22\n * router.createUrlTree(['../team/44/user/22'], {relativeTo:
route});\n * ``\n * /\n createUrlTree(commands: any[], navigationExtras: UrlCreationOptions = {}): UrlTree {\n
const {relativeTo, queryParams, fragment, queryParamsHandling, preserveFragment} =\n navigationExtras;\n
const a = relativeTo
|| this.routerState.root;\n const f = preserveFragment ? this.currentUrlTree.fragment : fragment;\n let q:
Params|null = null;\n switch (queryParamsHandling) {\n case 'merge':\n q =
{...this.currentUrlTree.queryParams, ...queryParams};\n break;\n case 'preserve':\n q =
this.currentUrlTree.queryParams;\n break;\n default:\n q = queryParams || null;\n }\n if (q !== null)
{\n q = this.removeEmptyProps(q);\n }\n return createUrlTree(a, this.currentUrlTree, commands, q!, f!);\n
}\n\n /**\n * Navigates to a view using an absolute route path.\n * \n * @param url An absolute path for a
defined route. The function does not apply any delta to the\n * current URL.\n * @param extras An object
containing properties that modify the navigation strategy.\n * \n * @returns A Promise that resolves to `true` when
navigation succeeds,\n * to `false` when navigation fails, or is rejected on error.\n * \n
* @usageNotes\n * \n * The following calls request navigation to an absolute path.\n * \n * ``\n *
router.navigateByUrl(`"/team/33/user/11`);\n * \n * // Navigate without updating the URL\n *
router.navigateByUrl(`"/team/33/user/11", { skipLocationChange: true });\n * ``\n * \n * @see [Routing and
Navigation guide](guide/router)\n * \n * /\n navigateByUrl(url: string|UrlTree, extras: NavigationBehaviorOptions
= {\n skipLocationChange: false\n }): Promise<boolean> {\n if (typeof ngDevMode === 'undefined' ||\n
ngDevMode && this.isNgZoneEnabled && !NgZone.isInAngularZone()) {\n this.console.warn(\n
`Navigation triggered outside Angular zone, did you forget to call `ngZone.run()`?`);\n }\n\n const urlTree =
isUrlTree(url) ? url : this.parseUrl(url);\n const mergedTree = this.urlHandlingStrategy.merge(urlTree,
this.rawUrlTree);\n\n return this.scheduleNavigation(mergedTree, 'imperative', null, extras);\n }\n\n /**\n *
Navigate
based on the provided array of commands and a starting point.\n * If no starting route is provided, the navigation is
absolute.\n * \n * @param commands An array of URL fragments with which to construct the target URL.\n * If
the path is static, can be the literal URL string. For a dynamic path, pass an array of path\n * segments, followed by
the parameters for each segment.\n * The fragments are applied to the current URL or the one provided in the
`relativeTo` property\n * of the options object, if supplied.\n * @param extras An options object that determines
how the URL should be constructed or\n * interpreted.\n * \n * @returns A Promise that resolves to `true`
when navigation succeeds, to `false` when navigation\n * fails,\n * or is rejected on error.\n * \n
* @usageNotes\n * \n * The following calls request navigation to a dynamic route path relative to the current
URL.\n * \n * ``\n * router.navigate(['team', 33, 'user', 11], {relativeTo:
route});\n * \n * // Navigate without updating the URL, overriding the default behavior\n *
router.navigate(['team', 33, 'user', 11], {relativeTo: route, skipLocationChange: true});\n * ``\n * \n * @see
[Routing and Navigation guide](guide/router)\n * \n * /\n navigate(commands: any[], extras: NavigationExtras =
{skipLocationChange: false});\n Promise<boolean> {\n validateCommands(commands);\n return
this.navigateByUrl(this.createUrlTree(commands, extras), extras);\n }\n\n /** Serializes a `UrlTree` into a string
*\n * /\n serializeUrl(url: UrlTree): string {\n return this.urlSerializer.serialize(url);\n }\n\n /** Parses a string into a
`UrlTree` *\n * /\n parseUrl(url: string): UrlTree {\n let urlTree: UrlTree;\n try {\n urlTree =
this.urlSerializer.parse(url);\n } catch (e) {\n urlTree = this.malformedUriErrorHandler(e, this.urlSerializer,
url);\n }\n return urlTree;\n }\n\n /** Returns whether the url is activated *\n * /\n isActive(url:
string|UrlTree, exact: boolean): boolean {\n if (isUrlTree(url)) {\n return containsTree(this.currentUrlTree, url,
exact);\n }\n\n const urlTree = this.parseUrl(url);\n return containsTree(this.currentUrlTree, urlTree, exact);\n
}\n\n private removeEmptyProps(params: Params): Params {\n return Object.keys(params).reduce((result:
Params, key: string) => {\n const value: any = params[key];\n if (value !== null && value !== undefined) {\n
result[key] = value;\n }\n return result;\n }, {});\n }\n\n private processNavigations(): void {\n

```

```

this.navigations.subscribe((\n t => {\n this.navigated = true;\n this.lastSuccessfulId = t.id;\n (this.events as Subject<Event>).\n .next(new NavigationEnd(\n t.id,\n this.serializeUrl(t.extractedUrl), this.serializeUrl(this.currentUrlTree));\n this.lastSuccessfulNavigation =\n this.currentNavigation;\n this.currentNavigation\n = null;\n t.resolve(true);\n },\n e => {\n this.console.warn(`Unhandled Navigation Error: `);\n });\n }\n\n private scheduleNavigation(\n rawUrl: UrlTree, source: NavigationTrigger, restoredState:\n RestoredState|null,\n extras: NavigationExtras,\n priorPromise?: {resolve: any, reject: any, promise:\n Promise<boolean>}): Promise<boolean> {\n // * Imperative navigations (router.navigate) might trigger additional\n navigations to the same\n // URL via a popstate event and the locationChangeListener. We should skip these\n duplicate\n // navs. Duplicates may also be triggered by attempts to sync AngularJS and Angular router\n // states.\n // * Imperative navigations can be cancelled by router guards, meaning the URL won't change. If\n // the user follows that with a navigation using the back/forward button or manual URL change,\n // the destination\n may be the same as the previous imperative attempt.\n\n We should not skip\n // these navigations because it's a separate case from the one above -- it's not a duplicate\n // navigation.\n const lastNavigation = this.getTransition();\n // We don't want to skip duplicate successful navs\n if they're imperative because\n // onSameUrlNavigation could be 'reload' (so the duplicate is intended).\n const\n browserNavPrecededByRouterNav =\n source !== 'imperative' && lastNavigation?.source === 'imperative';\n const lastNavigationSucceeded = this.lastSuccessfulId === lastNavigation.id;\n // If the last navigation succeeded\n or is in flight, we can use the rawUrl as the comparison.\n // However, if it failed, we should compare to the final\n result (urlAfterRedirects).\n const lastNavigationUrl = (lastNavigationSucceeded || this.currentNavigation) ?\n lastNavigation.rawUrl :\n lastNavigation.urlAfterRedirects;\n const duplicateNav =\n lastNavigationUrl.toString() === rawUrl.toString();\n if (browserNavPrecededByRouterNav\n && duplicateNav) {\n return Promise.resolve(true); // return value is not used\n }\n\n let resolve: any;\n let reject: any;\n let promise: Promise<boolean>;\n if (priorPromise) {\n resolve = priorPromise.resolve;\n reject = priorPromise.reject;\n promise = priorPromise.promise;\n } else {\n promise = new\n Promise<boolean>((res, rej) => {\n resolve = res;\n reject = rej;\n });\n }\n\n const id =\n ++this.navigationId;\n this.setTransition({\n id,\n source,\n restoredState,\n currentUrlTree:\n this.currentUrlTree,\n currentRawUrl: this.rawUrlTree,\n rawUrl,\n extras,\n resolve,\n reject,\n promise,\n currentSnapshot: this.routerState.snapshot,\n currentRouterState: this.routerState\n });\n\n // Make sure that the error is propagated even though `processNavigations` catch\n // handler does not rethrow\n return promise.catch((e):\n any) => {\n return Promise.reject(e);\n });\n }\n\n private setBrowserUrl(\n url: UrlTree, replaceUrl:\n boolean, id: number, state?: {[key: string]: any}) {\n const path = this.urlSerializer.serialize(url);\n state = state ||\n {};\n if (this.location.isCurrentPathEqualTo(path) || replaceUrl) {\n // TODO(jasonaden): Remove first\n `navigationId` and rely on `ng` namespace.\n this.location.replaceState(path, "", {...state, navigationId: id});\n }\n else {\n this.location.go(path, "", {...state, navigationId: id});\n }\n }\n\n private resetStateAndUrl(storedState:\n RouterState, storedUrl: UrlTree, rawUrl: UrlTree): void {\n (this as {routerState: RouterState}).routerState =\n storedState;\n this.currentUrlTree = storedUrl;\n this.rawUrlTree =\n this.urlHandlingStrategy.merge(this.currentUrlTree, rawUrl);\n this.resetUrlToCurrentUrlTree();\n }\n\n private\n resetUrlToCurrentUrlTree(): void {\n this.location.replaceState(\n this.urlSerializer.serialize(this.rawUrlTree),\n "", {navigationId: this.lastSuccessfulId});\n }\n\n function validateCommands(commands: string[]): void {\n for\n (let i = 0; i < commands.length; i++) {\n const cmd = commands[i];\n if (cmd == null) {\n throw new\n Error(`The requested path contains ${cmd} segment at index ${i}`);\n }\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n import {LocationStrategy} from\n '@angular/common';\n import {Attribute, Directive, ElementRef, HostBinding, HostListener, Input, OnChanges,\n OnDestroy, Renderer2, SimpleChanges} from '@angular/core';\n import {Subject, Subscription} from\n 'rxjs';\n import {QueryParamsHandling} from '../config';\n import {Event, NavigationEnd} from '../events';\n import

```

```
{Router} from './router';\nimport {ActivatedRoute} from './router_state';\nimport {Params}
from './shared';\nimport {UrlTree} from './url_tree';\n\n/n/**\n * @description\n * \n * When applied to an element
in a template, makes that element a link\n * that initiates navigation to a route. Navigation opens one or more routed
components\n * in one or more <router-outlet> locations on the page.\n * \n * Given a route configuration `[{ path:
'user/:name', component: UserCmp }]`,\n * the following creates a static link to the route:\n * link to user component\n * \n * You can use dynamic values to generate the link.\n *
For a dynamic link, pass an array of path segments,\n * followed by the params for each segment.\n * For example,
`['/team', teamId, 'user', userName, {details: true}]`\n * generates a link to `/team/11/user/bob;details=true`.\n * \n *
Multiple static segments can be merged into one term and combined with dynamic segments.\n * For example,
`['/team/11/user', userName, {details: true}]`\n * \n * The input that you provide to
the link is treated as a delta to the current URL.\n * For instance, suppose the current URL is
`/user/(box//aux:team)`.\n * The link <a [routerLink]=\"['/user/jim']\">Jim creates the URL\n *
`/user/(jim//aux:team)`.\n * See { @link Router#createUrlTree createUrlTree } for more information.\n * \n *
@usageNotes\n * \n * You can use absolute or relative paths in a link, set query parameters,\n * control how
parameters are handled, and keep a history of navigation states.\n * \n * ### Relative link paths\n * \n * The first
segment name can be prepended with `^`, `./`, or `../`.\n * \n * If the first segment begins with `^`, the router looks up
the route from the root of the\n * app.\n * \n * If the first segment begins with `./`, or doesn't begin with a slash, the
router\n * looks in the children of the current activated route.\n * \n * If the first segment begins with `../`, the router
goes up one level in the route tree.\n * \n * ### Setting and handling query params and fragments\n * \n *
The following link adds a query parameter and a fragment to the generated URL:\n * \n * <a
[routerLink]=\"['/user/bob']\" [queryParams]=\"{debug: true}\" fragment=\"education\">\n * link to user
component\n * \n * \n * By default, the directive constructs the new URL using the given query parameters.\n *
* The example generates the link: `/user/bob?debug=true#education`.\n * \n * You can instruct the directive to
handle query parameters differently\n * by specifying the `queryParamsHandling` option in the link.\n * Allowed
values are:\n * \n * - `merge`: Merge the given `queryParams` into the current query params.\n * \n * - `preserve`:
Preserve the current query params.\n * \n * For example:\n * \n * <a [routerLink]=\"['/user/bob']\"
[queryParams]=\"{debug: true}\" queryParamsHandling=\"merge\">\n * link to user component\n * \n * \n *
* See { @link UrlCreationOptions.queryParamsHandling UrlCreationOptions#queryParamsHandling }.\n * \n *
Preserving navigation
history\n * \n * You can provide a `state` value to be persisted to the browser's\n * [History.state`
property](https://developer.mozilla.org/en-US/docs/Web/API/History#Properties).\n * For example:\n * \n * <a
[routerLink]=\"['/user/bob']\" [state]=\"{tracingId: 123}\">\n * link to user component\n * \n * \n *
Use { @link Router.getCurrentNavigation() Router#getCurrentNavigation } to retrieve a saved\n * navigation-state
value. For example, to capture the `tracingId` during the `NavigationStart`\n * event:\n * \n * // Get
NavigationStart events\n * router.events.pipe(filter(e => e instanceof NavigationStart)).subscribe(e => {\n * const
navigation = router.getCurrentNavigation();\n * tracingService.trace({id: navigation.extras.state.tracingId});\n *
});\n * \n * @ngModule RouterModule\n * \n * @publicApi\n * \n * @Directive({ selector:
'not(a):not(area)[routerLink]'})\n * \n * export class RouterLink implements OnChanges {\n * /**\n * Passed to { @link
Router#createUrlTree
Router#createUrlTree } as part of the\n * `UrlCreationOptions`.\n * \n * @see { @link
UrlCreationOptions#queryParams UrlCreationOptions#queryParams }\n * \n * @see { @link Router#createUrlTree
Router#createUrlTree }\n * \n * @Input() queryParams?: Params|null;\n * /**\n * Passed to { @link
Router#createUrlTree Router#createUrlTree } as part of the\n * `UrlCreationOptions`.\n * \n * @see { @link
UrlCreationOptions#fragment UrlCreationOptions#fragment }\n * \n * @see { @link Router#createUrlTree
Router#createUrlTree }\n * \n * @Input() fragment?: string;\n * /**\n * Passed to { @link Router#createUrlTree
Router#createUrlTree } as part of the\n * `UrlCreationOptions`.\n * \n * @see { @link
UrlCreationOptions#queryParamsHandling UrlCreationOptions#queryParamsHandling }\n * \n * @see { @link
Router#createUrlTree Router#createUrlTree }\n * \n * @Input() queryParamsHandling?:
```



```

QueryParamsHandling|null;\n /**\n * Passed to { @link Router#createUrlTree Router#createUrlTree } as part of
the\n * `UrlCreationOptions`.\n
* @see { @link UrlCreationOptions#preserveFragment UrlCreationOptions#preserveFragment }\n * @see
{ @link Router#createUrlTree Router#createUrlTree }\n * \n // TODO(issue/24571): remove '!.\n @Input()
preserveFragment!: boolean;\n /**\n * Passed to { @link Router#navigateByUrl Router#navigateByUrl } as part of
the\n * `NavigationBehaviorOptions`.\n * @see { @link NavigationBehaviorOptions#skipLocationChange
NavigationBehaviorOptions#skipLocationChange }\n * @see { @link Router#navigateByUrl
Router#navigateByUrl }\n * \n // TODO(issue/24571): remove '!.\n @Input() skipLocationChange!: boolean;\n
/**\n * Passed to { @link Router#navigateByUrl Router#navigateByUrl } as part of the\n *
`NavigationBehaviorOptions`.\n * @see { @link NavigationBehaviorOptions#replaceUrl
NavigationBehaviorOptions#replaceUrl }\n * @see { @link Router#navigateByUrl Router#navigateByUrl }\n * \n
// TODO(issue/24571): remove '!.\n @Input() replaceUrl!: boolean;\n /**\n *
Passed to { @link Router#navigateByUrl Router#navigateByUrl } as part of the\n *
`NavigationBehaviorOptions`.\n * @see { @link NavigationBehaviorOptions#state
NavigationBehaviorOptions#state }\n * @see { @link Router#navigateByUrl Router#navigateByUrl }\n * \n
@Input() state?: {[k: string]: any};\n private commands: any[] = [];\n private preserve!: boolean;\n\n /** @internal
*\n onChanges = new Subject<RouterLink>();\n\n constructor(\n private router: Router, private route:
ActivatedRoute,\n @Attribute('tabindex') tabIndex: string, renderer: Renderer2, el: ElementRef) {\n if
(tabIndex == null) {\n renderer.setAttribute(el.nativeElement, 'tabindex', '0');\n }\n }\n\n /** @nodoc *\n
ngOnChanges(changes: SimpleChanges) {\n // This is subscribed to by `RouterLinkActive` so that it knows to
update when there are changes\n // to the RouterLinks it's tracking.\n this.onChanges.next(this);\n }\n\n /**\n
* Commands to pass to { @link Router#createUrlTree
Router#createUrlTree }.\n * - **array**: commands to pass to { @link Router#createUrlTree
Router#createUrlTree }.\n * - **string**: shorthand for array of commands with just the string, i.e. `['/route']`\n *
- **null|undefined**: shorthand for an empty array of commands, i.e. `[]`\n * @see { @link Router#createUrlTree
Router#createUrlTree }\n * \n @Input()\n set routerLink(commands: any[]|string|null|undefined) {\n if
(commands != null) {\n this.commands = Array.isArray(commands) ? commands : [commands];\n } else {\n
this.commands = [];\n }\n }\n\n /** @nodoc *\n @HostListener('click')\n onClick(): boolean {\n const extras
= {\n skipLocationChange: attrBoolValue(this.skipLocationChange),\n replaceUrl:
attrBoolValue(this.replaceUrl),\n state: this.state,\n };\n this.router.navigateByUrl(this.urlTree, extras);\n
return true;\n }\n\n get urlTree(): UrlTree {\n return this.router.createUrlTree(this.commands, {\n
 relativeTo: this.route,\n queryParams: this.queryParams,\n fragment: this.fragment,\n
queryParamsHandling: this.queryParamsHandling,\n preserveFragment: attrBoolValue(this.preserveFragment),\n
 });\n }\n }\n\n /**\n * @description\n * Lets you link to specific routes in your app.\n * See `RouterLink`
for more information.\n * \n * @ngModule RouterModule\n * \n * @publicApi\n * \n @Directive({ selector:
'a[routerLink],area[routerLink]'})\n\n export class RouterLinkWithHref implements OnChanges, OnDestroy {\n //
TODO(issue/24571): remove '!.\n @HostBinding('attr.target') @Input() target!: string;\n /**\n * Passed to
{ @link Router#createUrlTree Router#createUrlTree } as part of the\n * `UrlCreationOptions`.\n * @see { @link
UrlCreationOptions#queryParams UrlCreationOptions#queryParams }\n * @see { @link Router#createUrlTree
Router#createUrlTree }\n * \n @Input() queryParams?: Params|null;\n /**\n * Passed to { @link
Router#createUrlTree Router#createUrlTree }
as part of the\n * `UrlCreationOptions`.\n * @see { @link UrlCreationOptions#fragment
UrlCreationOptions#fragment }\n * @see { @link Router#createUrlTree Router#createUrlTree }\n * \n @Input()
fragment?: string;\n /**\n * Passed to { @link Router#createUrlTree Router#createUrlTree } as part of the\n *
`UrlCreationOptions`.\n * @see { @link UrlCreationOptions#queryParamsHandling
UrlCreationOptions#queryParamsHandling }\n * @see { @link Router#createUrlTree Router#createUrlTree }\n
*\n @Input() queryParamsHandling?: QueryParamsHandling|null;\n /**\n * Passed to { @link
Router#createUrlTree Router#createUrlTree } as part of the\n * `UrlCreationOptions`.\n * @see { @link

```

```

UrlCreationOptions#preserveFragment UrlCreationOptions#preserveFragment})\n * @see {@link
Router#createUrlTree Router#createUrlTree})\n */\n // TODO(issue/24571): remove '!.\n @Input()
preserveFragment!: boolean;\n /**\n * Passed to {@link Router#navigateByUrl Router#navigateByUrl} as part of
the\n * `NavigationBehaviorOptions`.\n * @see {@link NavigationBehaviorOptions#skipLocationChange
NavigationBehaviorOptions#skipLocationChange})\n * @see {@link Router#navigateByUrl
Router#navigateByUrl})\n */\n // TODO(issue/24571): remove '!.\n @Input() skipLocationChange!: boolean;\n
/**\n * Passed to {@link Router#navigateByUrl Router#navigateByUrl} as part of the\n *
`NavigationBehaviorOptions`.\n * @see {@link NavigationBehaviorOptions#replaceUrl
NavigationBehaviorOptions#replaceUrl})\n * @see {@link Router#navigateByUrl Router#navigateByUrl})\n */\n
// TODO(issue/24571): remove '!.\n @Input() replaceUrl!: boolean;\n /**\n * Passed to {@link
Router#navigateByUrl Router#navigateByUrl} as part of the\n * `NavigationBehaviorOptions`.\n * @see {@link
NavigationBehaviorOptions#state NavigationBehaviorOptions#state})\n * @see {@link Router#navigateByUrl
Router#navigateByUrl})\n */\n @Input() state?: {[k: string]: any};\n private commands: any[] = [];\n
private subscription: Subscription;\n // TODO(issue/24571): remove '!.\n private preserve!: boolean;\n\n // the url
displayed on the anchor element.\n // TODO(issue/24571): remove '!.\n @HostBinding() href!: string;\n\n /**
@internal */\n ngOnChanges = new Subject<RouterLinkWithHref>();\n\n constructor(\n private router: Router,\n
private route: ActivatedRoute,\n private locationStrategy: LocationStrategy) {\n this.subscription =
router.events.subscribe((s: Event) => {\n if (s instanceof NavigationEnd) {\n
this.updateTargetUrlAndHref();\n }\n });\n }\n\n /**\n * Commands to pass to {@link Router#createUrlTree
Router#createUrlTree}.\n * - **array**: commands to pass to {@link Router#createUrlTree
Router#createUrlTree}.\n * - **string**: shorthand for array of commands with just the string, i.e. `['/route']`\n *
- **null|undefined**: shorthand for an empty array of commands, i.e. `[]`\n * @see {@link Router#createUrlTree
Router#createUrlTree})\n
*/\n @Input()\n set routerLink(commands: any[]|string|null|undefined) {\n if (commands != null) {\n
this.commands = Array.isArray(commands) ? commands : [commands];\n } else {\n this.commands = [];\n
}\n }\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): any {\n this.updateTargetUrlAndHref();\n
this.onChanges.next(this);\n }\n\n /** @nodoc */\n ngOnDestroy(): any {\n this.subscription.unsubscribe();\n
}\n\n /** @nodoc */\n @HostListener(\n 'click',\n ['$event.button', '$event.ctrlKey', '$event.shiftKey',
'$event.altKey', '$event.metaKey'])\n onClick(button: number, ctrlKey: boolean, shiftKey: boolean, altKey:
boolean, metaKey: boolean):\n boolean {\n if (button !== 0 || ctrlKey || shiftKey || altKey || metaKey) {\n
return true;\n }\n\n if (typeof this.target === 'string' && this.target !== '_self') {\n return true;\n
}\n\n const\n extras = {\n skipLocationChange: attrBoolValue(this.skipLocationChange),\n
replaceUrl: attrBoolValue(this.replaceUrl),\n state: this.state\n };\n this.router.navigateByUrl(this.urlTree,\n
extras);\n return false;\n }\n\n private updateTargetUrlAndHref(): void {\n this.href =
this.locationStrategy.prepareExternalUrl(this.router.serializeUrl(this.urlTree));\n }\n\n get urlTree(): UrlTree {\n
return this.router.createUrlTree(this.commands, {\n relativeTo: this.route,\n queryParams: this.queryParams,\n
fragment: this.fragment,\n queryParamsHandling: this.queryParamsHandling,\n preserveFragment:
attrBoolValue(this.preserveFragment),\n });\n }\n\n\nfunction attrBoolValue(s: any): boolean {\n return s === ''
|| !!s;\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { AfterContentInit, ChangeDetectorRef, ContentChildren,\n Directive, ElementRef, Input, OnChanges, OnDestroy, Optional, QueryList, Renderer2, SimpleChanges } from
'@angular/core';\nimport { from, of, Subscription } from 'rxjs';\nimport { mergeAll } from 'rxjs/operators';\n\nimport
{ Event, NavigationEnd } from '../events';\nimport { Router } from '../router';\nimport { RouterLink,\n RouterLinkWithHref } from '../router_link';\n\n\n/**\n * @description\n * Tracks whether the linked route of
an element is currently active, and allows you\n * to specify one or more CSS classes to add to the element when the
linked route\n * is active.\n * Use this directive to create a visual distinction for elements associated with an
active route.\n * For example, the following code highlights the word "Bob" when the the router\n * activates the

```

associated route:

```

Bob

```

Whenever the URL is either '/user' or '/user/bob', the 'active-link' class is added to the anchor tag. If the URL changes, the class is removed.

You can set more than one class using a space-separated string or an array.

For example:

```

Bob
Bob

```

To add the classes only when the URL matches the link exactly, add the option 'exact: true':

```

Bob

```

To directly check the 'isActive' status of the link, assign the 'RouterLinkActive' instance to a template variable.

For example, the following checks the status without assigning any CSS classes:

```

Bob {{
 rla.isActive ? '(already open)' : ''
}}

```

You can apply the 'RouterLinkActive' directive to an ancestor of linked elements.

For example, the following sets the active-link class on the 'div' parent tag when the URL is either '/user/jim' or '/user/bob'.

```

<div routerLinkActive="active-link" [routerLinkActiveOptions]="{exact: true}">
 Jim
 Bob
</div>

```

```

@ngModule RouterModule
@publicApi
export class RouterLinkActive implements OnChanges, OnDestroy, AfterContentInit {
 @ContentChildren(RouterLink, {descendants: true}) links!: QueryList<RouterLink>;
 @ContentChildren(RouterLinkWithHref, {descendants: true}) linksWithHrefs!: QueryList<RouterLinkWithHref>;
 private classes: string[] = [];
 private routerEventsSubscription: Subscription;
 private linkInputChangesSubscription?: Subscription;
 public readonly isActive: boolean = false;

 @Input()
 routerLinkActiveOptions: {exact: boolean} = {exact: false};

 constructor(
 private router: Router,
 private element: ElementRef,
 private renderer: Renderer2,
 private cdr: ChangeDetectorRef,
 @Optional() private link?: RouterLink,
 @Optional() private linkWithHref?: RouterLinkWithHref
) {
 this.routerEventsSubscription = router.events.subscribe((s: Event) => {
 if (s instanceof NavigationEnd) {
 this.update();
 }
 });
 /** @nodoc */
 @ngAfterContentInit(): void {
 // of(null) is used to force subscribe body to execute once immediately (like `startWith`)
 from([this.links.changes, this.linksWithHrefs.changes, of(null)])
 .pipe(mergeAll())
 .subscribe(_ => {
 this.update();
 this.subscribeToEachLinkOnChanges();
 });
 private subscribeToEachLinkOnChanges() {
 this.linkInputChangesSubscription?.unsubscribe();
 const allLinkChanges = [...this.links.toArray(), ...this.linksWithHrefs.toArray(), this.link, this.linkWithHref]
 .filter((link): link is RouterLink | RouterLinkWithHref => !!link)
 .map(link => link.onChanges);
 this.linkInputChangesSubscription = from(allLinkChanges).pipe(mergeAll()).subscribe(link => {
 if (this.isActive !== this.isActive(this.router)(link)) {
 this.update();
 }
 });
 }
 @Input()
 routerLinkActive(data: string[] | string) {
 const classes = Array.isArray(data) ? data : data.split(' ');
 this.classes = classes.filter(c => !!c);
 }
 /** @nodoc */
 ngOnChanges(changes: SimpleChanges): void {
 this.update();
 }
 /** @nodoc */
 ngOnDestroy(): void {
 this.routerEventsSubscription.unsubscribe();
 this.linkInputChangesSubscription?.unsubscribe();
 }
 private update(): void {
 if (!this.links || !this.linksWithHrefs || !this.router.navigated) return;
 Promise.resolve().then(() => {
 const hasActiveLinks = this.hasActiveLinks();
 if (this.isActive !== hasActiveLinks) {
 (this as any).isActive = hasActiveLinks;
 this.cdr.markForCheck();
 this.classes.forEach((c) => {
 if (hasActiveLinks) {
 this.renderer.addClass(this.element.nativeElement, c);
 } else {
 this.renderer.removeClass(this.element.nativeElement, c);
 }
 });
 }
 });
 }
 private isLinkActive(router: Router): (link: (RouterLink | RouterLinkWithHref)) => boolean {
 return (link: RouterLink | RouterLinkWithHref) => router.isActive(link.urlTree, this.routerLinkActiveOptions.exact);
 }
 private hasActiveLinks(): boolean {
 const isActiveCheckFn = this.isLinkActive(this.router);
 return this.link && isActiveCheckFn(this.link) || this.linkWithHref && isActiveCheckFn(this.linkWithHref) || this.links.some(isActiveCheckFn) || this.linksWithHrefs.some(isActiveCheckFn);
 }
 }
 }

```

```

 }
 }
 "/**
 * @license
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 * governed by an MIT-style license that can be found in the LICENSE file at
 * https://angular.io/license
 */
 import { Attribute, ChangeDetectorRef, ComponentFactoryResolver, ComponentRef, Directive, EventEmitter,
 Injector, OnDestroy, OnInit, Output, ViewContainerRef } from '@angular/core';
 import { Data } from './config';
 import { ChildrenOutletContexts } from './router_outlet_context';
 import { ActivatedRoute } from './router_state';
 import { PRIMARY_OUTLET } from './shared';

 /**
 * @description
 * Acts as a placeholder that Angular dynamically fills based on the current router state.
 * Each outlet can have a unique name, determined by the optional `name` attribute.
 * The name cannot be set or changed dynamically. If not set, default value is "primary".
 * <router-outlet>
 * <router-outlet name='left'>
 * <router-outlet name='right'>
 *
 * Named outlets can be the targets of secondary routes.
 * The `Route` object for a secondary route has an `outlet` property to identify the target outlet:
 * {path: <base-path>, component: <component>, outlet: <target_outlet_name>}
 * Using named outlets and secondary routes, you can target multiple outlets in the same `RouterLink` directive.
 * The router keeps track of separate branches in a navigation tree for each named outlet and generates a representation of that tree in the URL.
 * The URL for a secondary route uses the following syntax to specify both the primary and secondary routes at the same time:
 * http://base-path/primary-route-path(outlet-name:route-path)
 * A router outlet emits an activate event when a new component is instantiated and a deactivate event when a component is destroyed.
 * <router-outlet (activate)='onActivate($event)' (deactivate)='onDeactivate($event)'>
 *
 * @see [Routing tutorial](guide/router-tutorial-toh#named-outlets)
 * Example of a named outlet and secondary route configuration:
 * @see `RouterLink`
 * @see `Route`
 * @ngModule RouterModule
 * @publicApi
 */
 @Directive({ selector: 'router-outlet', exportAs: 'outlet' })
 export class RouterOutlet implements OnDestroy, OnInit {
 private activated: ComponentRef<any> | null = null;
 private _activatedRoute: ActivatedRoute | null = null;
 private name: string;
 @Output('activate') activateEvents = new EventEmitter<any>();
 @Output('deactivate') deactivateEvents = new EventEmitter<any>();

 constructor(
 private parentContexts: ChildrenOutletContexts,
 private location: ViewContainerRef,
 private resolver: ComponentFactoryResolver,
 @Attribute('name') name: string,
 private changeDetector: ChangeDetectorRef
) {
 this.name = name || PRIMARY_OUTLET;
 parentContexts.onChildOutletCreated(this.name, this);
 }

 /** @nodoc */
 ngOnDestroy(): void {
 this.parentContexts.onChildOutletDestroyed(this.name);
 }

 /** @nodoc */
 ngOnInit(): void {
 if (!this.activated) {
 // If the outlet was not instantiated at the time the route got activated we need to populate the outlet when it is initialized (ie inside a NgIf)
 const context = this.parentContexts.getContext(this.name);
 if (context && context.route) {
 if (context.attachRef) {
 // `attachRef` is populated when there is an existing component to mount
 this.attach(context.attachRef, context.route);
 } else {
 // otherwise the component defined in the configuration is created
 this.activateWith(context.route, context.resolver || null);
 }
 }
 }
 }

 get isActive(): boolean {
 return !!this.activated;
 }

 get component(): Object {
 if (!this.activated) throw new Error('Outlet is not activated');
 return this.activated.instance;
 }

 get activatedRoute(): ActivatedRoute {
 if (!this.activated) throw new Error('Outlet is not activated');
 return this._activatedRoute as ActivatedRoute;
 }

 get activatedRouteData(): Data {
 if (this._activatedRoute) return this._activatedRoute.snapshot.data;
 return {};
 }

 /**
 * Called when the `RouteReuseStrategy` instructs to detach the subtree
 */
 detach(): ComponentRef<any> {
 if (!this.activated) throw new Error('Outlet is not activated');
 this.location.detach();
 const cmp = this.activated;
 this.activated = null;
 this._activatedRoute = null;
 return cmp;
 }

 /**
 * Called when the `RouteReuseStrategy` instructs to re-attach a previously detached subtree
 */
 attach(ref: ComponentRef<any>, activatedRoute: ActivatedRoute) {
 this.activated = ref;
 this._activatedRoute = activatedRoute;
 this.location.insert(ref.hostView);
 }
 }

```

```

 }
 deactivate(): void {
 if (this.activated) {
 const c = this.component;
 this.activated.destroy();
 this.activated = null;
 this._activatedRoute = null;
 this.deactivateEvents.emit(c);
 }
 }

 activateWith(activatedRoute: ActivatedRoute, resolver: ComponentFactoryResolver | null) {
 if (this.isActivated) {
 throw new Error('Cannot activate an already activated outlet');
 }
 this._activatedRoute = activatedRoute;
 const snapshot = activatedRoute._futureSnapshot;
 const component = <any>snapshot.routeConfig!.component;
 resolver = resolver || this.resolver;
 const factory = resolver.resolveComponentFactory(component);
 const childContexts = this.parentContexts.getOrCreateContext(this.name).children;
 const injector = new OutletInjector(activatedRoute, childContexts, this.location.injector);
 this.activated = this.location.createComponent(factory, this.location.length, injector);

 // Calling `markForCheck` to make sure we will run the change detection when the `RouterOutlet` is inside a `ChangeDetectionStrategy.OnPush` component.
 this.changeDetector.markForCheck();
 this.activateEvents.emit(this.activated.instance);
 }
 }

 class OutletInjector implements Injector {
 constructor(
 private route: ActivatedRoute,
 private childContexts: ChildrenOutletContexts,
 private parent: Injector
) {}

 get(token: any, notFoundValue?: any): any {
 if (token === ActivatedRoute) {
 return this.route;
 }
 if (token === ChildrenOutletContexts) {
 return this.childContexts;
 }
 return this.parent.get(token, notFoundValue);
 }
 }

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 */
 import { Compiler, Injectable, Injector, NgModuleFactoryLoader, NgModuleRef, OnDestroy } from '@angular/core';
 import { from, Observable, of, Subscription } from 'rxjs';
 import { catchError, concatMap, filter, map, mergeAll, mergeMap } from 'rxjs/operators';
 import { LoadedRouterConfig, Route, Routes } from './config';
 import { Event, NavigationEnd, RouteConfigLoadEnd, RouteConfigLoadStart } from './events';
 import { Router } from './router';
 import { RouterConfigLoader } from './router_config_loader';

 /**
 * @description
 * Provides a preloading strategy.
 */
 @publicApi
 export abstract class PreloadingStrategy {
 abstract preload(route: Route, fn: () => Observable<any>): Observable<any>;
 }

 /**
 * @description
 * Provides a preloading strategy that preloads all modules as quickly as possible.
 */
 RouterModule.forRoot(ROUTES, { preloadingStrategy: PreloadAllModules })

 /**
 * @publicApi
 */
 export class PreloadAllModules implements PreloadingStrategy {
 preload(route: Route, fn: () => Observable<any>): Observable<any> {
 return fn().pipe(catchError(() => of(null)));
 }
 }

 /**
 * @description
 * Provides a preloading strategy that does not preload any modules. This strategy is enabled by default.
 */
 @publicApi
 export class NoPreloading implements PreloadingStrategy {
 preload(route: Route, fn: () => Observable<any>): Observable<any> {
 return of(null);
 }
 }

 /**
 * The preloader optimistically loads all router configurations to make navigations into lazily-loaded sections of the application faster.
 * The preloader runs in the background. When the router bootstraps, the preloader starts listening to all navigation events. After every such event, the preloader will check if any configurations can be loaded lazily.
 * If a route is protected by `canLoad` guards, the preloader will not load it.
 */
 @publicApi
 @Injectable()
 export class RouterPreloader implements OnDestroy {
 private loader: RouterConfigLoader;
 private subscription?: Subscription;

 constructor(
 private router: Router,
 moduleLoader: NgModuleFactoryLoader,
 compiler: Compiler,
 private injector: Injector,
 private preloadingStrategy: PreloadingStrategy
) {
 const onStartLoad = (r: Route) => router.triggerEvent(new RouteConfigLoadStart(r));
 const onEndLoad = (r: Route) => router.triggerEvent(new RouteConfigLoadEnd(r));
 this.loader = new RouterConfigLoader(moduleLoader, compiler, onStartLoad, onEndLoad);
 }

 setUpPreloading(): void {
 this.subscription = this.router.events
 .pipe(filter((e: Event) => e instanceof NavigationEnd), concatMap(() => this.preload()))
 .subscribe(() => {});
 }

 preload(): Observable<any> {
 const ngModule = this.injector.get(NgModuleRef);
 return this.processRoutes(ngModule, this.router.config);
 }

 /** @nodoc */
 ngOnDestroy(): void {
 if (this.subscription) {
 this.subscription.unsubscribe();
 }
 }
 }

```

```

 }\n }\n\n private processRoutes(ngModule: NgModuleRef<any>, routes: Routes): Observable<void> {\n const
res: Observable<any>[] = [];\n for (const route of routes) {\n // we already have the config loaded, just
recurse\n if (route.loadChildren && !route.canLoad && route._loadedConfig) {\n const childConfig =
route._loadedConfig;\n res.push(this.processRoutes(childConfig.module, childConfig.routes));\n\n // no
config loaded, fetch the config\n } else if (route.loadChildren && !route.canLoad) {\n
res.push(this.preloadConfig(ngModule, route));\n\n // recurse into children\n } else if (route.children) {\n
res.push(this.processRoutes(ngModule, route.children));\n }\n }\n return from(res).pipe(mergeAll(), map((_)
=> void 0));\n }\n\n private preloadConfig(ngModule: NgModuleRef<any>, route: Route): Observable<void> {\n
return this.preloadingStrategy.preload(route, () => {\n const loaded$ = this.loader.load(ngModule.injector,
route);\n return loaded$.pipe(mergeMap((config: LoadedRouterConfig) => {\n route._loadedConfig =
config;\n return this.processRoutes(config.module, config.routes);\n }));\n });\n }\n }\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{ViewportScroller} from '@angular/common';\nimport {Injectable, OnDestroy} from '@angular/core';\nimport
{Unsubscribable} from 'rxjs';\nimport {NavigationEnd, NavigationStart, Scroll} from './events';\nimport {Router}
from './router';\n\n@Injectable()\nexport class RouterScroller implements OnDestroy {\n // TODO(issue/24571):
remove '!\n private routerEventsSubscription!: Unsubscribable;\n // TODO(issue/24571): remove '!\n private
scrollEventsSubscription!: Unsubscribable;\n\n private lastId = 0;\n private lastSource:
'imperative'|'popstate'|'hashchange'|undefined = 'imperative';\n private restoredId = 0;\n private store: {[key:
string]: [number, number]} = {};\n\n constructor(\n private router: Router,\n /** @docsNotRequired */ public
readonly viewportScroller: ViewportScroller, private options: {\n scrollPositionRestoration?:
'disabled'|'enabled'|'top',\n anchorScrolling?: 'disabled'|'enabled'\n } = {}) {\n // Default both options to
'disabled'\n options.scrollPositionRestoration = options.scrollPositionRestoration || 'disabled';\n
options.anchorScrolling = options.anchorScrolling || 'disabled';\n }\n\n init(): void {\n // we want to disable the
automatic scrolling because having two places\n // responsible for scrolling results race conditions, especially
given\n // that browser don't implement this behavior consistently\n if (this.options.scrollPositionRestoration !==
'disabled') {\n this.viewportScroller.setHistoryScrollRestoration('manual');\n }\n\n this.routerEventsSubscription = this.createScrollEvents();\n this.scrollEventsSubscription =
this.consumeScrollEvents();\n }\n\n private createScrollEvents() {\n return this.router.events.subscribe(e => {\n
if (e instanceof NavigationStart) {\n // store the scroll position of the current stable navigations.\n
this.store[this.lastId] = this.viewportScroller.getScrollPosition();\n this.lastSource = e.navigationTrigger;\n
this.restoredId = e.restoredState ? e.restoredState.navigationId : 0;\n } else if (e instanceof NavigationEnd) {\n
this.lastId = e.id;\n this.scheduleScrollEvent(e, this.router.parseUrl(e.urlAfterRedirects).fragment);\n }\n
});\n }\n\n private consumeScrollEvents() {\n return this.router.events.subscribe(e => {\n if (!(e instanceof
Scroll)) return;\n // a popstate event. The pop state event will always ignore anchor scrolling.\n if (e.position)
{\n if (this.options.scrollPositionRestoration
=== 'top') {\n this.viewportScroller.scrollToPosition([0, 0]);\n } else if
(this.options.scrollPositionRestoration === 'enabled') {\n this.viewportScroller.scrollToPosition(e.position);\n
}\n // imperative navigation\n if (e.anchor && this.options.anchorScrolling ===
'enabled') {\n this.viewportScroller.scrollToAnchor(e.anchor);\n } else if
(this.options.scrollPositionRestoration !== 'disabled') {\n this.viewportScroller.scrollToPosition([0, 0]);\n
}\n }\n });\n }\n\n private scheduleScrollEvent(routerEvent: NavigationEnd, anchor: string|null): void {\n
this.router.triggerEvent(new Scroll(\n routerEvent, this.lastSource === 'popstate' ? this.store[this.restoredId] :
null, anchor));\n }\n\n /** @nodoc */\n ngOnDestroy() {\n if (this.routerEventsSubscription) {\n
this.routerEventsSubscription.unsubscribe();\n }\n\n if (this.scrollEventsSubscription) {\n
this.scrollEventsSubscription.unsubscribe();\n }\n }\n\n"/**\n *
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style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport

```

```

{ APP_BASE_HREF, HashLocationStrategy, Location, LOCATION_INITIALIZED, LocationStrategy,
PathLocationStrategy, PlatformLocation, ViewportScroller, getDOM as getDOM } from
'@angular/common';\nimport { ANALYZE_FOR_ENTRY_COMPONENTS, APP_BOOTSTRAP_LISTENER,
APP_INITIALIZER, ApplicationRef, Compiler, ComponentRef, Inject, Injectable, InjectionToken, Injector,
ModuleWithProviders, NgModule, NgModuleFactoryLoader, NgProbeToken, Optional, Provider, SkipSelf,
SystemJsNgModuleLoader } from '@angular/core';\nimport { of, Subject } from 'rxjs';\n\nimport
{ EmptyOutletComponent } from './components/empty_outlet';\nimport { Route, Routes } from './config';\nimport
{ RouterLink, RouterLinkWithHref }
from './directives/router_link';\nimport { RouterLinkActive } from './directives/router_link_active';\nimport
{ RouterOutlet } from './directives/router_outlet';\nimport { Event } from './events';\nimport { RouteReuseStrategy }
from './route_reuse_strategy';\nimport { ErrorHandler, Router } from './router';\nimport { ROUTES } from
'./router_config_loader';\nimport { ChildrenOutletContexts } from './router_outlet_context';\nimport { NoPreloading,
PreloadAllModules, PreloadingStrategy, RouterPreloader } from './router_preloader';\nimport { RouterScroller } from
'./router_scroller';\nimport { ActivatedRoute } from './router_state';\nimport { UrlHandlingStrategy } from
'./url_handling_strategy';\nimport { DefaultUrlSerializer, UrlSerializer, UrlTree } from './url_tree';\nimport { flatten }
from './utils/collection';\n\n/**\n * The directives defined in the `RouterModule`.\n */\nconst
ROUTER_DIRECTIVES = [\n RouterOutlet, RouterLink, RouterLinkWithHref, RouterLinkActive,
EmptyOutletComponent];\n\n/**\n * A [DI token](guide/glossary/#di-token) for the router service.\n */\n * @publicApi\n */\nexport const
ROUTER_CONFIGURATION = new InjectionToken<ExtraOptions>('ROUTER_CONFIGURATION');\n\n/**\n * @docsNotRequired\n */\nexport const ROUTER_FORROOT_GUARD = new
InjectionToken<void>('ROUTER_FORROOT_GUARD');\n\nexport const ROUTER_PROVIDERS: Provider[] =
[\n Location,\n { provide: UrlSerializer, useClass: DefaultUrlSerializer },\n {\n provide: Router,\n useFactory:
setupRouter,\n deps: [\n UrlSerializer, ChildrenOutletContexts, Location, Injector, NgModuleFactoryLoader,\n Compiler,\n ROUTES, ROUTER_CONFIGURATION, [UrlHandlingStrategy, new Optional()],\n [RouteReuseStrategy, new Optional()],\n]\n },\n ChildrenOutletContexts,\n { provide: ActivatedRoute,
useFactory: rootRoute, deps: [Router] },\n { provide: NgModuleFactoryLoader, useClass:
SystemJsNgModuleLoader },\n RouterPreloader,\n NoPreloading,\n PreloadAllModules,\n { provide:
ROUTER_CONFIGURATION, useValue:
 { enableTracing: false } },\n];\n\nexport function routerNgProbeToken() {\n return new NgProbeToken('Router',
Router);\n}\n\n/**\n * @description\n */\n * Adds directives and providers for in-app navigation among views
defined in an application.\n * Use the Angular `Router` service to declaratively specify application states and
manage state\n * transitions.\n */\n * You can import this NgModule multiple times, once for each lazy-loaded
bundle.\n * However, only one `Router` service can be active.\n * To ensure this, there are two ways to register
routes when importing this module:\n */\n * * The `forRoot()` method creates an `NgModule` that contains all the
directives, the given\n * routes, and the `Router` service itself.\n * * The `forChild()` method creates an `NgModule`
that contains all the directives and the given\n * routes, but does not include the `Router` service.\n */\n * @see
[Routing and Navigation guide](guide/router) for an\n * overview of how the `Router` service should be
used.\n */\n * @publicApi\n */\n * @NgModule({\n declarations: ROUTER_DIRECTIVES,\n exports:
ROUTER_DIRECTIVES,\n entryComponents: [EmptyOutletComponent]\n})\n\nexport class RouterModule {\n //
Note: We are injecting the Router so it gets created eagerly...\n constructor(@Optional()
@Inject(ROUTER_FORROOT_GUARD) guard: any, @Optional() router: Router) {\n\n /**\n * Creates and
configures a module with all the router providers and directives.\n * Optionally sets up an application listener to
perform an initial navigation.\n */\n * When registering the NgModule at the root, import as follows:\n */\n *
```\n     * @NgModule({\n     *   imports: [RouterModule.forRoot(ROUTES)]\n     * })\n     * class MyNgModule {\n     */\n     *
```\n     */\n     * @param routes An array of `Route` objects that define the navigation paths for the application.\n     *
@param config An `ExtraOptions` configuration object that controls how navigation is performed.\n * @return
The new `NgModule`.\n */\n */\n static

```

```

forRoot(routes: Routes, config?: ExtraOptions): ModuleWithProviders<RouterModule> {\n return {\n
ngModule: RouterModule,\n providers: [\n ROUTER_PROVIDERS,\n provideRoutes(routes),\n {\n
 provide: ROUTER_FORROOT_GUARD,\n useFactory: provideForRootGuard,\n deps: [[Router,\n
new Optional(), new SkipSelf()]]\n },\n {\n provide: ROUTER_CONFIGURATION, useValue: config ?
config : {},\n {\n provide: LocationStrategy,\n useFactory: provideLocationStrategy,\n
deps:\n [PlatformLocation, [new Inject(APP_BASE_HREF), new Optional()],\n
ROUTER_CONFIGURATION]\n },\n {\n provide: RouterScroller,\n useFactory:
createRouterScroller,\n deps: [Router, ViewportScroller, ROUTER_CONFIGURATION]\n },\n {\n
 provide: PreloadingStrategy,\n useExisting: config && config.preloadingStrategy ?
config.preloadingStrategy :\n
 NoPreloading\n },\n {\n provide: NgProbeToken, multi: true, useFactory:
routerNgProbeToken,\n provideRouterInitializer(),\n],\n };\n }\n }\n\n /**\n * Creates a module with all
the router directives and a provider registering routes,\n * without creating a new Router service.\n * When
registering for submodules and lazy-loaded submodules, create the NgModule as follows:\n *\n * ```\n *
@NgModule({\n * imports: [RouterModule.forChild(ROUTES)]\n * })\n * class MyNgModule {\n * ```\n *
*\n * @param routes An array of `Route` objects that define the navigation paths for the submodule.\n * @return
The new NgModule.\n *\n */\n static forChild(routes: Routes): ModuleWithProviders<RouterModule> {\n
return {\n ngModule: RouterModule, providers: [provideRoutes(routes)];\n }\n}\n\n \nexport function
createRouterScroller(\n router: Router, viewportScroller: ViewportScroller, config: ExtraOptions):
RouterScroller {\n if (config.scrollOffset) {\n viewportScroller.setOffset(config.scrollOffset);\n }\n return new
RouterScroller(router, viewportScroller, config);\n }\n\n \nexport function provideLocationStrategy(\n
platformLocationStrategy: PlatformLocation, baseHref: string, options: ExtraOptions = {}) {\n return
options.useHash ? new HashLocationStrategy(platformLocationStrategy, baseHref) :\n new
PathLocationStrategy(platformLocationStrategy, baseHref);\n }\n\n \nexport function provideForRootGuard(router:
Router): any {\n if ((typeof ngDevMode === 'undefined' || ngDevMode) && router) {\n throw new Error(\n
`RouterModule.forChild() called twice. Lazy loaded modules should use RouterModule.forChild() instead.`);\n }\n
return 'guarded';\n }\n\n /**\n * Registers a [DI provider](guide/glossary#provider) for a set of routes.\n * @param
routes The route configuration to provide.\n *\n * @usageNotes\n *\n * ```\n * @NgModule({\n * imports:
[RouterModule.forChild(ROUTES)],\n * providers: [provideRoutes(EXTRA_ROUTES)]\n * })\n * class
MyNgModule {\n * ```\n * \n * @publicApi\n * \nexport function provideRoutes(routes: Routes): any {\n return
[\n {\n provide: ANALYZE_FOR_ENTRY_COMPONENTS, multi: true, useValue: routes,\n },\n {\n provide:
ROUTES, multi: true, useValue: routes,\n };\n]\n }\n\n /**\n * Allowed values in an `ExtraOptions` object that
configure\n * when the router performs the initial navigation operation.\n *\n * * 'enabledNonBlocking' - (default)
The initial navigation starts after the\n * root component has been created. The bootstrap is not blocked on the
completion of the initial\n * navigation.\n * * 'enabledBlocking' - The initial navigation starts before the root
component is created.\n * The bootstrap is blocked until the initial navigation is complete. This value is required\n
 * for [server-side rendering](guide/universal) to work.\n * * 'disabled' - The initial navigation is not performed. The
location
listener is set up before\n * the root component gets created. Use if there is a reason to have\n * more control over
when the router starts its initial navigation due to some complex\n * initialization logic.\n *\n * The following
values have been [deprecated](guide/releases#deprecation-practices) since v11,\n * and should not be used for new
applications.\n *\n * * 'enabled' - This option is 1:1 replaceable with `enabledNonBlocking`.\n *\n * @see
`forRoot()`\n *\n * @publicApi\n * \nexport type InitialNavigation =
'disabled'|'enabled'|'enabledBlocking'|'enabledNonBlocking';\n\n /**\n * A set of configuration options for a router
module, provided in the\n * `forRoot()` method.\n *\n * @see `forRoot()`\n *\n * @publicApi\n * \nexport
interface ExtraOptions {\n /**\n * When true, log all internal navigation events to the console.\n * Use for
debugging.\n * \n enableTracing?: boolean;\n\n /**\n * When true, enable the location strategy that uses the
URL fragment\n * instead

```



of the history API.

- `useHash?: boolean`
  - One of `'enabled'`, `'enabledBlocking'`, `'enabledNonBlocking'` or `'disabled'`.
  - When set to `'enabled'` or `'enabledBlocking'`, the initial navigation starts before the root component is created. The bootstrap is blocked until the initial navigation is complete. This value is required for [server-side rendering](guide/universal) to work. When set to `'enabledNonBlocking'`, the initial navigation starts after the root component has been created.
  - The bootstrap is not blocked on the completion of the initial navigation. When set to `'disabled'`, the initial navigation is not performed. The location listener is set up before the root component gets created. Use if there is a reason to have more control over when the router starts its initial navigation due to some complex initialization logic.
- `initialNavigation?: InitialNavigation`
  - A custom error handler for failed navigations.
  - If the handler returns a value, the navigation Promise is resolved with this value.
  - If the handler throws an exception, the navigation Promise is rejected with the exception.
- `errorHandler?: ErrorHandler`
  - Configures a preloading strategy.
  - One of `'PreloadAllModules'` or `'NoPreloading'` (the default).
- `preloadingStrategy?: any`
  - Define what the router should do if it receives a navigation request to the current URL.
  - Default is `'ignore'`, which causes the router ignores the navigation. This can disable features such as a "refresh" button.
  - Use this option to configure the behavior when navigating to the current URL. Default is `'ignore'`.
- `onSameUrlNavigation?: 'reload'|'ignore'`
  - Configures if the scroll position needs to be restored when navigating back.
  - `'disabled'` - (Default) Does nothing. Scroll position is maintained on navigation.
  - `'top'` - Sets the scroll position to `x = 0, y = 0` on all navigation.
  - `'enabled'` - Restores the previous scroll position on backward navigation, else sets the position to the anchor if one is provided, or sets the scroll position to `[0, 0]` (forward navigation). This option will be the default in the future.
  - You can implement custom scroll restoration behavior by adapting the enabled behavior as in the following example.

```

typescript
class AppModule {
 constructor(router: Router, viewportScroller: ViewportScroller) {
 router.events.pipe(
 filter((e: Event): e is Scroll => e instanceof Scroll)
).subscribe(e => {
 if (e.position) {
 // backward navigation
 viewportScroller.scrollToPosition(e.position);
 }
 else if (e.anchor) {
 // anchor navigation
 viewportScroller.scrollToAnchor(e.anchor);
 }
 else {
 // forward
 viewportScroller.scrollToPosition([0, 0]);
 }
 });
 }
}

scrollPositionRestoration?: 'disabled'|'enabled'|'top'
When set to 'enabled', scrolls to the anchor element when the URL has a fragment. Anchor scrolling is disabled by default. Anchor scrolling does not happen on 'popstate'. Instead, we restore the position that we stored or scroll to the top.

anchorScrolling?: 'disabled'|'enabled'
Configures the scroll offset the router will use when scrolling to an element. When given a tuple with x and y position value, the router uses that offset each time it scrolls. When given a function, the router invokes the function every time it restores scroll position.

scrollOffset?: [number, number] | ((() => [number, number]))
Defines how the router merges parameters, data, and resolved data from parent to child routes. By default ('emptyOnly'), inherits parent parameters only for path-less or component-less routes. Set to 'always' to enable unconditional inheritance of parent parameters.

paramsInheritanceStrategy?: 'emptyOnly'|'always'
A custom handler for malformed URI errors. The handler is invoked when `encodedURI` contains invalid character sequences. The default implementation is to redirect to the root URL, dropping any path or parameter information. The function takes three parameters:
- `URIError` - Error thrown when parsing a bad URL.
- `UrlSerializer` - UrlSerializer that's configured with the router.
- `url` - The malformed URL that caused the URIError.

malformedUriErrorHandler?: (error: URIError, urlSerializer: UrlSerializer, url: string) => UrlTree
Defines when the router updates the browser URL. By default ('deferred'), update after successful navigation. Set to 'eager' if prefer to update the URL at the beginning of navigation. Updating the URL early allows you to handle a failure of navigation by showing an error message with the URL that failed.

urlUpdateStrategy?: 'deferred'|'eager'
Enables a bug fix that corrects relative link resolution in

```

```
components with empty paths.\n * Example:\n *\n * const routes = [\n * {\n * path: '\n * component: ContainerComponent,\n * children: [\n * {\n * path: 'a', component: AComponent },\n * {\n * path: 'b', component: BComponent },\n *]\n * }\n *];\n *\n * From the `ContainerComponent`, this will not work:\n *\n * <a [routerLink]='["./a"]">Link to A\n *\n * However, this will work:\n *\n * <a [routerLink]='["../a"]">Link to A\n *\n * In other words, you're required to use `..` rather than `.`.\n *\n * The default in v11 is `corrected`\n\n */\n relativeLinkResolution?: 'legacy'|'corrected';\n };\n\n nexport function setupRouter(\n urlSerializer: UrlSerializer, contexts: ChildrenOutletContexts, location: Location,\n injector: Injector, loader: NgModuleFactoryLoader, compiler: Compiler, config: Route[][],\n opts: ExtraOptions = {}, urlHandlingStrategy?: UrlHandlingStrategy,\n routeReuseStrategy?: RouteReuseStrategy) {\n const router = new Router(\n null, urlSerializer, contexts, location, injector, loader, compiler, flatten(config));\n\n if (urlHandlingStrategy) {\n router.urlHandlingStrategy = urlHandlingStrategy;\n }\n\n if (routeReuseStrategy) {\n router.routeReuseStrategy = routeReuseStrategy;\n }\n\n assignExtraOptionsToRouter(opts, router);\n\n if (opts.enableTracing) {\n const dom = getDOM();\n router.events.subscribe((e: Event) => {\n dom.logGroup('Router Event: ${(<any>e.constructor).name}');\n dom.log(e.toString());\n dom.log(e);\n dom.logGroupEnd();\n });\n }\n\n return router;\n }\n\n nexport function assignExtraOptionsToRouter(opts: ExtraOptions, router: Router): void {\n if (opts.errorHandler) {\n router.errorHandler = opts.errorHandler;\n }\n\n if (opts.malformedUriErrorHandler) {\n router.malformedUriErrorHandler = opts.malformedUriErrorHandler;\n }\n\n if (opts.onSameUrlNavigation) {\n router.onSameUrlNavigation = opts.onSameUrlNavigation;\n }\n\n if (opts.paramsInheritanceStrategy) {\n router.paramsInheritanceStrategy = opts.paramsInheritanceStrategy;\n }\n\n if (opts.relativeLinkResolution) {\n router.relativeLinkResolution = opts.relativeLinkResolution;\n }\n\n if (opts.urlUpdateStrategy) {\n router.urlUpdateStrategy = opts.urlUpdateStrategy;\n }\n }\n\n nexport function rootRoute(router: Router): ActivatedRoute {\n return router.routerState.root;\n }\n\n /**\n * Router initialization requires two steps:\n *\n * First, we start the navigation in a `APP_INITIALIZER` to block the bootstrap if\n *\n * a resolver or a guard executes asynchronously.\n *\n * Next, we actually run activation in a `BOOTSTRAP_LISTENER`, using the\n * `afterPreactivation` hook provided by the router.\n *\n * The router navigation starts, reaches the point when preactivation is done, and then\n * pauses. It waits for the hook to be resolved. We then resolve it only in a bootstrap listener.\n */\n\n @Injectable()\n nexport class RouterInitializer {\n private initNavigation: boolean = false;\n private resultOfPreactivationDone = new Subject<void>();\n\n constructor(private injector: Injector) {} \n\n appInitializer(): Promise<any> {\n const p: Promise<any> = this.injector.get(LOCATION_INITIALIZED, Promise.resolve(null));\n return p.then(() => {\n let resolve: Function = null!;\n const res = new Promise(r => resolve = r);\n const router = this.injector.get(Router);\n const opts = this.injector.get(ROUTER_CONFIGURATION);\n\n if (opts.initialNavigation === 'disabled') {\n router.setUpLocationChangeListener();\n\n resolve(true);\n } else if (\n // TODO: enabled is deprecated as of v11, can be removed in v13\n opts.initialNavigation === 'enabled' || opts.initialNavigation === 'enabledBlocking') {\n router.hooks.afterPreactivation = () => {\n // only the initial navigation should be delayed\n if (!this.initNavigation) {\n this.initNavigation = true;\n resolve(true);\n return this.resultOfPreactivationDone;\n }\n // subsequent navigations should not be delayed\n } else {\n return of(null) as any;\n }\n }; \n router.initialNavigation();\n }) else {\n resolve(true);\n }\n }\n\n return res;\n });\n}\n\nbootstrapListener(bootstrappedComponentRef: ComponentRef<any>): void {\n const opts = this.injector.get(ROUTER_CONFIGURATION);\n const preloader = this.injector.get(RouterPreloader);\n const routerScroller = this.injector.get(RouterScroller);\n const router = this.injector.get(Router);\n const ref = this.injector.get<ApplicationRef>(ApplicationRef);\n\n if (bootstrappedComponentRef !== ref.components[0]) {\n return;\n }\n\n // Default case\n if (opts.initialNavigation === 'enabledNonBlocking' ||\n opts.initialNavigation === undefined) {\n router.initialNavigation();\n }\n\n preloader.setUpPreloading();\n}
```

```
routerSrcoller.init();\n router.resetRootComponentType(ref.componentTypes[0]);\nthis.resultOfPreactivationDone.next(null!);\n this.resultOfPreactivationDone.complete();\n }\n}\n\nexport\nfunction getAppInitializer(r: RouterInitializer) {\n return r.appInitializer.bind(r);\n}\n\nexport function\ngetBootstrapListener(r: RouterInitializer) {\n return r.bootstrapListener.bind(r);\n}\n\n/**\n * A [DI\n token](guide/glossary/#di-token) for the router initializer that\n * is called after the app is bootstrapped.\n *\n * @publicApi\n */\nexport\nconst ROUTER_INITIALIZER =\n new InjectionToken<(compRef: ComponentRef<any>) => void>('Router\nInitializer');\n\nexport function provideRouterInitializer() {\n return [\n RouterInitializer,\n {\n provide:\nAPP_INITIALIZER,\n multi: true,\n useFactory: getAppInitializer,\n deps: [RouterInitializer]\n },\n {\n provide: ROUTER_INITIALIZER, useFactory: getBootstrapListener, deps: [RouterInitializer],\n },\n {\n provide: APP_BOOTSTRAP_LISTENER, multi: true, useExisting: ROUTER_INITIALIZER,\n },\n];\n}\n\n"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-\n style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/**\n *\n * @module\n *\n * @description\n * Entry point for all public APIs of the common package.\n */\n\nimport { Version } from\n '@angular/core';\n\n/**\n *\n * @publicApi\n */\nexport const VERSION = new Version('11.0.2');\n\n"/**\n *\n * @license\n * Copyright Google LLC\n\nAll Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in\n the LICENSE file at https://angular.io/license\n */\n\nexport { EmptyOutletComponent } from\n './components/empty_outlet';\nexport { assignExtraOptionsToRouter as assignExtraOptionsToRouter,\nROUTER_PROVIDERS as ROUTER_PROVIDERS } from './router_module';\nexport { flatten as flatten } from\n './utils/collection';\n\n"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source\n code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport { Data, DeprecatedLoadChildren, LoadChildren, LoadChildrenCallback, QueryParamsHandling,\nResolveData, Route, Routes, RunGuardsAndResolvers, UrlMatcher, UrlMatchResult } from './config';\nexport\n{ RouterLink, RouterLinkWithHref } from './directives/router_link';\nexport { RouterLinkActive } from\n './directives/router_link_active';\nexport { RouterOutlet } from\n './directives/router_outlet';\nexport { ActivationEnd, ActivationStart, ChildActivationEnd, ChildActivationStart,\nEvent, GuardsCheckEnd, GuardsCheckStart, NavigationCancel, NavigationEnd, NavigationError, NavigationStart,\nResolveEnd, ResolveStart, RouteConfigLoadEnd, RouteConfigLoadStart, RouterEvent, RoutesRecognized, Scroll }\nfrom './events';\nexport { CanActivate, CanActivateChild, CanDeactivate, CanLoad, Resolve } from\n './interfaces';\nexport { BaseRouteReuseStrategy, DetachedRouteHandle, RouteReuseStrategy } from\n './route_reuse_strategy';\nexport { Navigation, NavigationBehaviorOptions, NavigationExtras, Router,\nUrlCreationOptions } from './router';\nexport { ROUTES } from './router_config_loader';\nexport { ExtraOptions,\nInitialNavigation, provideRoutes, ROUTER_CONFIGURATION, ROUTER_INITIALIZER, RouterModule } from\n './router_module';\nexport { ChildrenOutletContexts, OutletContext } from './router_outlet_context';\nexport\n{ NoPreloading, PreloadAllModules, PreloadingStrategy, RouterPreloader }\nfrom './router_preloader';\nexport { ActivatedRoute, ActivatedRouteSnapshot, RouterState, RouterStateSnapshot }\nfrom './router_state';\nexport { convertToParamMap, ParamMap, Params, PRIMARY_OUTLET } from\n './shared';\nexport { UrlHandlingStrategy } from './url_handling_strategy';\nexport { DefaultUrlSerializer,\nUrlSegment, UrlSegmentGroup, UrlSerializer, UrlTree } from './url_tree';\nexport { VERSION } from\n './version';\n\nexport * from './private_export';\n\n"/**\n *\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\n/**\n *\n * @module\n *\n * @description\n * Entry point for all public\n APIs of this package.\n */\n\nexport * from './src/index';\n\n\n// This file only reexports content of the `src` folder. Keep\n it that way.\n\n"/**\n *\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is\n governed by an MIT-style license\n\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this\n module. It is only used during editing\n// by the TypeScript language service and during build for verification.
```

```
`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n", "/**\n * Generated bundle index. Do not edit.\n */\n\nexport * from './index';\n\nexport
{EmptyOutletComponent as angular_packages_router_router_1} from './src/components/empty_outlet';\nexport
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angular_packages_router_router_h,createRouterScroller as angular_packages_router_router_c,getAppInitializer as
angular_packages_router_router_i,getBootstrapListener as angular_packages_router_router_j,provideForRootGuard
as angular_packages_router_router_e,provideLocationStrategy as
angular_packages_router_router_d,provideRouterInitializer as angular_packages_router_router_k,rootRoute
as angular_packages_router_router_g,routerNgProbeToken as angular_packages_router_router_b,setupRouter as
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No license file was found, but licenses were detected in source scan.

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GA AiP,GA AU5U,GACV,OAAOwF,EA AaII,KAAK0oB,eAAgBhmB,EA AK2F,GA EID,IAAIIH,EA AUtP,KAAK  
6uB,SAASnsB,GAC5B,OAAOwF,EA AaII,KAAK0oB,eAAgBpZ,EAASjH,IAEtD4e,EA AOpmB,UAAU8uB,iBAA  
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QiD,EA AOgC,GAInB,OAHIjF,MAAAA,IACAsa,EA AOv,GAAOjF,GAEXsa,IACR,KAEPkL,EA AOpmB,UAA  
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K,EA AEpL,GA AI,EAAM0nB,aAAa1c,EA AEqb,cAAermB,EAAM0nB,aAAa1nB,EAAM6IB,kBAC/F7IB,EAAM  
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soB,EAAYvoB,EA AIY,GAC5D,IAAIQ,EA AO7D,KAAK6Z,cAAcQ,UAAU7G,GACxCW,EA AQa,GAAS,GACb  
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 AmBA,EAC3B7D,EAAQ2D,cAAgBA,EACxB3D,EAAQ+D,gBAakBA,EAC1B/D,EAAQmD,gBAakBA,EAC1B  
 nD,EAAQs4B,aAAeA,GACvBt4B,EAAQ8mB,cAAgBA,GACxB9mB,EAAQm+B,eAr9Ka,UAs9KrBn+B,EAAQo  
 4B,kBAAoBA,GAC5Bp4B,EAAQm4B,mBAAqBA,GAC7Bn4B,EAAQg6B,qBAAuBA,GAC/Bh6B,EAAQ89B,m  
 BAAqBA,GAC7B99B,EAAQmmB,OAASA,GACjBnmB,EAAQsE,WAAaA,EACrBtE,EAAQqE,aAAeA,EACvBr  
 E,EAAQ0E,mBAAqBA,EAC7B1E,EAAQuE,qBAAuBA,EAC/BvE,EAAQ8IB,mBAAqBA,GAC7B9IB,EAAQ6nB  
 ,OAASA,GACjB7nB,EAAQkD,YAAcA,EACtBID,EAAQ2yB,WAAaA,GACrB3yB,EAAQ80B,iBAAmBA,GAC3  
 B90B,EAAQg0B,mBAAqBA,GAC7Bh0B,EAAQ86B,aAAeA,GACvB96B,EAAQ42B,aAAeA,GACvB52B,EAAQ  
 u4B,gBAakBA,GAC1Bv4B,EAAQ+P,YAAcA,GACtB/P,EAAQuQ,oBAAsBA,GAC9BvQ,EAAQgE,iBAAmBA,  
 EAC3BhE,EAAQiF,OAASA,EACjBjF,EAAQknB,oBAAsBA,GAC9BlnB,EAAQwK,WAAaA,EACrBxK,EAAQo  
 K,gBAakBA,EAC1BpK,EAAQmL,cAAgBA,EACxBnL,EAAQ+J,QAAUA,EACIB/J,EAAQi+B,QAAUA,GACIBj  
 +B,EAAQiG,kBAAoBA,EAC5BjG,EAAQi7B,cAAgBA,GACxBj7B,EAAQmY,sBAAwBA,GACHnY,EAAQo+B  
 ,kBAAoBIE,GAC5B16B,EAAQq+B,kCAAoCpE,GAC5Cj6B,EAAQs+B,kCAAoC1D,GAC5C56B,EAAQu+B,kCA  
 AoC/C,GAC5Cx7B,EAAQw+B,kCAAoCpD,GAC5Cp7B,EAAQy+B,kCAAoCvD,GAC5C17B,EAAQ0+B,kCAAo  
 CpE,GAC5Ct6B,EAAQ2+B,kCAAoCnE,GAC5Cx6B,EAAQ4+B,kCAAoC7B,GAC5C/8B,EAAQ6+B,kCAAoCIB,  
 GAC5C39B,EAAQ8+B,kCAAoCjB,GAC5C79B,EAAQ++B,kCAAoCpD,GAC5C37B,EAAQg/B,kCAAoC7mB,G  
 AC5CnY,EAAQi/B,kCAAoC1wB,GAC5CvO,EAAQk/B,kCAAoCtvB,GAC5C5P,EAAQm/B,kCAAoCtG,GAC5C

74B,EAAQo/B,4BAA8B9C,GACtCt8B,EAAQq/B,SAAWt3B,EAEnB/G,OAAO6E,eAAe7F,EAAS,aAAc,CAAeqC,OAAO","sourcesContent":["/\*\*\n

```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\n require('@angular/common'), require('@angular/core'), require('rxjs'), require('rxjs/operators')) :\n typeof define === 'function' && define.amd ? define('@angular/router', ['exports', '@angular/common', '@angular/core', 'rxjs',\n 'rxjs/operators'], factory) :\n (global = global || self, factory((global.ng = global.ng || {}), global.ng.router = {}),\n global.ng.common, global.ng.core, global.rxs, global.rxs.operators));\n}(this, (function (exports, common, core,\n rxjs, operators) { 'use strict';\n /*!
```

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\*\*\*\*\*\n /\* global

```
Reflect, Promise\n\nvar extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ __proto__: [] } instanceof Array && function (d, b) {\n d.__proto__ = b;\n }) ||\n function (d, b) {\n for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n });\n return extendStatics(d, b);\n}\n\nfunction __extends(d, b) {\n extendStatics(d, b);\n function __() { this.constructor = d; }\n d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\n}\n\nvar __assign = function () {\n __assign = Object.assign || function __assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n return __assign.apply(this, arguments);\n}\n\nfunction __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getPrototypeOf === \"function\")\n for (var i = 0, p = Object.getPrototypeOf(s); i < p.length; i++)\n if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n return t;\n}\n\nfunction __decorate(decorators, target, key, desc) {\n var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof Reflect === \"object\" && typeof Reflect.decorate === \"function\")\n r = Reflect.decorate(decorators, target, key, desc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n return c > 3 && r && Object.defineProperty(target, key, r, r);\n}\n\nfunction __param(paramIndex, decorator) {\n return function (target, key) { decorator(target, key, paramIndex); }\n}\n\nfunction __metadata(metadataKey, metadataValue) {\n if (typeof Reflect === \"object\" && typeof Reflect.metadata === \"function\")\n return Reflect.metadata(metadataKey, metadataValue);\n}\n\nfunction __awaiter(thisArg, _arguments, P, generator) {\n function adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\n return new (P || (P = Promise))(function (resolve, reject) {\n function fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }\n function rejected(value) { try { step(generator[\"throw\"](value)); } catch (e) { reject(e); } }\n function step(result) { result.done ? resolve(result.value)\n
```



```

function verb(n) { if (g[n])\n i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a,
b]) > 1 || resume(n, v); }); }; }\n function resume(n, v) { try {\n step(g[n](v));\n }\n catch (e) {\n settle(q[0][3], e);\n }\n }\n function step(r) { r.value instanceof __await ?
Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\n function fulfill(value) { resume("\next",
value); }\n function reject(value) { resume("\throw", value); }\n function settle(f, v) { if (f(v), q.shift(),
q.length)\n resume(q[0][0], q[0][1]); }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i
= {}, verb("\next"), verb("\throw"), function (e) { throw e; }, verb("\return"), i[Symbol.iterator] = function () {
return this; }, i;\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done: n ===
"\return" } : f ? f(v) : v; } : f; }\n }\n function __asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError("\Symbol.asyncIterator is not defined.");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values === "\function" ? __values(o) : o[Symbol.iterator](), i = {},
verb("\next"), verb("\throw"), verb("\return"), i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),
settle(resolve, reject, v.done, v.value); }); }; }\n function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }\n }\n function
__makeTemplateObject(cooked, raw) {\n if (Object.defineProperty) {\n Object.defineProperty(cooked,
"\raw", { value: raw });\n }\n else {\n cooked.raw = raw;\n }\n return cooked;\n }\n }\n var __setModuleDefault = Object.create ? (function (o, v) {\n
Object.defineProperty(o, "\default", { enumerable: true, value: v });\n }) : function (o, v) {\n o["default"] =
v;\n }\n function __importStar(mod) {\n if (mod && mod.__esModule)\n return mod;\n var
result = {};\n if (mod != null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod && mod.__esModule) ? mod : { default: mod };\n }\n function __classPrivateFieldGet(receiver, privateMap) {\n if (!privateMap.has(receiver)) {\n throw new
TypeError("\attempted to get private field on non-instance");\n }\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver,
privateMap, value) {\n if (!privateMap.has(receiver)) {\n throw new TypeError("\attempted to set
private field on non-instance");\n }\n privateMap.set(receiver, value);\n return value;\n }\n }\n /**\n
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* Copyright Google LLC All Rights Reserved.\n
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an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n
*/\n
Base for events the router goes through, as opposed to events tied to a specific\n
* route. Fired one time for any
given navigation.\n
* The following code shows how a class subscribes to router events.\n
* ``ts\n
* class MyService {\n
* constructor(public router: Router, logger: Logger) {\n
* router.events.pipe(\n
* filter((e: Event): e is RouterEvent => e instanceof RouterEvent)\n
*).subscribe((e: RouterEvent) => {\n
* logger.log(e.id, e.url);\n
* });\n
* }\n
* }\n
* ``\n
* @see `Event`\n
* @see [Router
events summary](guide/router#router-events)\n
* @publicApi\n
*/\n
var RouterEvent = /** @class */
(function () {\n
 function RouterEvent(\n /** A unique ID that the router assigns to every router navigation.
*/\n id, \n /** The URL that is the destination for this navigation. */\n url) {\n this.id = id;\n
this.url = url;\n
 }\n
 return RouterEvent;\n
})();\n
/**\n
* An event triggered when a navigation
starts.\n
* @publicApi\n
*/\n
var NavigationStart = /** @class */ (function (_super) {\n
__extends(NavigationStart, _super);\n
 function NavigationStart(\n /** @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n navigationTrigger, \n /**
@docsNotRequired
*/\n restoredState) {\n if (navigationTrigger === void 0) { navigationTrigger = 'imperative'; }\n if
(restoredState === void 0) { restoredState = null; }\n var _this = _super.call(this, id, url) || this;\n
_this.navigationTrigger = navigationTrigger;\n
_this.restoredState = restoredState;\n
 return _this;\n
 }\n
 /** @docsNotRequired */\n
 NavigationStart.prototype.toString = function () {\n return

```

```

"NavigationStart(id: \" + this.id + \", url: \" + this.url + \")\";\n }\n return NavigationStart;\n }(RouterEvent));\n /**\n * An event triggered when a navigation ends successfully.\n *\n * @see\n `NavigationStart`\n * @see `NavigationCancel`\n * @see `NavigationError`\n *\n * @publicApi\n */\n var NavigationEnd = /** @class */ (function (_super) {\n __extends(NavigationEnd, _super);\n function\n NavigationEnd(\n /**\n @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects) {\n var _this = _super.call(this, id, url) || this;\n _this.urlAfterRedirects =\n urlAfterRedirects;\n return _this;\n }\n /** @docsNotRequired */\n NavigationEnd.prototype.toString = function () {\n return \"NavigationEnd(id: \" + this.id + \", url: \" +\n this.url + \", urlAfterRedirects: \" + this.urlAfterRedirects + \")\";\n }\n return NavigationEnd;\n }(RouterEvent));\n /**\n * An event triggered when a navigation is canceled, directly or indirectly.\n * This\n can happen when a route guard\n * returns `false` or initiates a redirect by returning a `UrlTree`.\n *\n * @see `NavigationStart`\n * @see `NavigationEnd`\n * @see `NavigationError`\n *\n * @publicApi\n */\n var NavigationCancel = /** @class */ (function (_super)\n {\n __extends(NavigationCancel, _super);\n function NavigationCancel(\n /** @docsNotRequired\n */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n reason) {\n var _this = _super.call(this, id, url) || this;\n _this.reason = reason;\n return _this;\n }\n /**\n @docsNotRequired */\n NavigationCancel.prototype.toString = function () {\n return\n \"NavigationCancel(id: \" + this.id + \", url: \" + this.url + \", \";\n }\n return NavigationCancel;\n }(RouterEvent));\n /**\n * An event triggered when a navigation fails due to an unexpected error.\n *\n * @see `NavigationStart`\n * @see `NavigationEnd`\n * @see `NavigationCancel`\n *\n * @publicApi\n */\n var NavigationError = /** @class */ (function (_super) {\n __extends(NavigationError, _super);\n function\n NavigationError(\n /** @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired\n */\n error) {\n var _this = _super.call(this, id, url) || this;\n _this.error = error;\n return\n _this;\n }\n /** @docsNotRequired */\n NavigationError.prototype.toString = function () {\n return \"NavigationError(id: \" + this.id + \", url: \" + this.url + \", error: \" + this.error + \")\";\n }\n return\n NavigationError;\n }(RouterEvent));\n /**\n * An event triggered when routes are recognized.\n *\n * @publicApi\n */\n var RoutesRecognized = /** @class */ (function (_super) {\n __extends(RoutesRecognized, _super);\n function RoutesRecognized(\n /** @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects, \n /**\n @docsNotRequired */\n state)\n {\n var _this = _super.call(this, id, url) || this;\n _this.urlAfterRedirects = urlAfterRedirects;\n _this.state = state;\n return _this;\n }\n /** @docsNotRequired */\n RoutesRecognized.prototype.toString = function () {\n return \"RoutesRecognized(id: \" + this.id + \", url: \" +\n this.url + \", urlAfterRedirects: \" + this.urlAfterRedirects + \", state: \" + this.state + \")\";\n }\n return\n RoutesRecognized;\n }(RouterEvent));\n /**\n * An event triggered at the start of the Guard phase of\n routing.\n *\n * @see `GuardsCheckEnd`\n *\n * @publicApi\n */\n var GuardsCheckStart = /**\n @class */ (function (_super) {\n __extends(GuardsCheckStart, _super);\n function\n GuardsCheckStart(\n /** @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects, \n /**\n @docsNotRequired */\n state) {\n var _this = _super.call(this, id, url) || this;\n _this.urlAfterRedirects = urlAfterRedirects;\n _this.state = state;\n return _this;\n }\n GuardsCheckStart.prototype.toString = function () {\n return \"GuardsCheckStart(id: \" + this.id + \", url: \" +\n this.url + \", urlAfterRedirects: \" + this.urlAfterRedirects + \", state: \" + this.state + \")\";\n }\n return\n GuardsCheckStart;\n }(RouterEvent));\n /**\n * An event triggered at the end of the Guard phase of routing.\n *\n * @see `GuardsCheckStart`\n *\n * @publicApi\n */\n var GuardsCheckEnd = /** @class */\n (function (_super) {\n __extends(GuardsCheckEnd, _super);\n function\n GuardsCheckEnd(\n /**

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@docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects, \n /**
 @docsNotRequired */\n state, \n /** @docsNotRequired */\n shouldActivate) {\n var _this =
 _super.call(this, id, url) || this;\n _this.urlAfterRedirects = urlAfterRedirects;\n _this.state = state;\n _this.shouldActivate = shouldActivate;\n return _this;\n }\n GuardsCheckEnd.prototype.toString =
function () {\n return "GuardsCheckEnd(id: \" + this.id + \", url: \" + this.url + \", urlAfterRedirects: \" +
this.urlAfterRedirects + \", state: \" + this.state + \", shouldActivate: \" + this.shouldActivate + \")\";\n };
return GuardsCheckEnd;\n }(RouterEvent));\n /**\n * An event triggered at the the start of the Resolve phase
of routing.\n * \n * Runs in the \"resolve\" phase whether or not there is anything to resolve.\n * In future,
may change to only run when there are things to be resolved.\n * \n * @see `ResolveEnd`\n * \n *
 @publicApi\n
 */\n var ResolveStart = /** @class */ (function (_super) {\n __extends(ResolveStart, _super);\n function ResolveStart(\n /** @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects, \n /** @docsNotRequired */\n state) {\n var
 _this = _super.call(this, id, url) || this;\n _this.urlAfterRedirects = urlAfterRedirects;\n _this.state =
state;\n return _this;\n }\n ResolveStart.prototype.toString = function () {\n return
 \"ResolveStart(id: \" + this.id + \", url: \" + this.url + \", urlAfterRedirects: \" + this.urlAfterRedirects + \", state: \"
 + this.state + \")\";\n };
 return ResolveStart;\n }(RouterEvent));\n /**\n * An event triggered at the
end of the Resolve phase of routing.\n * \n * @see `ResolveStart`\n * \n * @publicApi\n * \n * var
 ResolveEnd
 = /** @class */ (function (_super) {\n __extends(ResolveEnd, _super);\n function ResolveEnd(\n /**
 @docsNotRequired */\n id, \n /** @docsNotRequired */\n url, \n /** @docsNotRequired */\n urlAfterRedirects, \n /** @docsNotRequired */\n state) {\n var _this = _super.call(this, id, url) ||
this;\n _this.urlAfterRedirects = urlAfterRedirects;\n _this.state = state;\n return _this;\n }\n ResolveEnd.prototype.toString = function () {\n return \"ResolveEnd(id: \" + this.id + \", url: \" + this.url
 + \", urlAfterRedirects: \" + this.urlAfterRedirects + \", state: \" + this.state + \")\";\n };
 return
 ResolveEnd;\n }(RouterEvent));\n /**\n * An event triggered before lazy loading a route configuration.\n * \n * @see `RouteConfigLoadEnd`\n * \n * @publicApi\n * \n * var RouteConfigLoadStart = /** @class
 */
 (function () {\n function RouteConfigLoadStart(\n /** @docsNotRequired */\n route) {\n this.route = route;\n }\n RouteConfigLoadStart.prototype.toString = function () {\n return
 \"RouteConfigLoadStart(path: \" + this.route.path + \")\";\n };
 return RouteConfigLoadStart;\n }());\n /**\n * An event triggered when a route has been lazy loaded.\n * \n * @see `RouteConfigLoadStart`\n * \n * @publicApi\n * \n * var RouteConfigLoadEnd = /** @class
 */
 (function () {\n function RouteConfigLoadEnd(\n /** @docsNotRequired */\n route) {\n this.route = route;\n }\n RouteConfigLoadEnd.prototype.toString = function () {\n return \"RouteConfigLoadEnd(path: \" +
this.route.path + \")\";\n };
 return RouteConfigLoadEnd;\n }());\n /**\n * An event triggered at the
start of the child-activation\n * part of the Resolve phase
of routing.\n * \n * @see `ChildActivationEnd`\n * \n * @see `ResolveStart`\n * \n * @publicApi\n * \n * var
 ChildActivationStart = /** @class */ (function () {\n function ChildActivationStart(\n /**
 @docsNotRequired */\n snapshot) {\n this.snapshot = snapshot;\n }\n ChildActivationStart.prototype.toString = function () {\n var path = this.snapshot.routeConfig &&
this.snapshot.routeConfig.path || \"\";\n return \"ChildActivationStart(path: \" + path + \")\";\n };
 return ChildActivationStart;\n }());\n /**\n * An event triggered at the end of the child-activation part\n * of
the Resolve phase of routing.\n * \n * @see `ChildActivationStart`\n * \n * @see `ResolveStart`\n * \n * @publicApi\n * \n * var ChildActivationEnd = /** @class
 */
 (function () {\n function ChildActivationEnd(\n /**
 @docsNotRequired */\n snapshot) {\n this.snapshot = snapshot;\n }\n }

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 }\n ChildActivationEnd.prototype.toString = function () {\n var path = this.snapshot.routeConfig
 && this.snapshot.routeConfig.path || "";
 return \"ChildActivationEnd(path: \" + path + \")\";\n };\n
 return ChildActivationEnd;\n }());\n /**\n * An event triggered at the start of the activation part\n * of the Resolve phase of routing.\n * @see `ActivationEnd`\n * @see `ResolveStart`\n * @publicApi\n */\n var ActivationStart = /** @class */ (function () {\n function ActivationStart(\n /** @docsNotRequired */\n snapshot) {\n this.snapshot = snapshot;\n }\n ActivationStart.prototype.toString = function\n () {\n var path = this.snapshot.routeConfig && this.snapshot.routeConfig.path || \"\";\n return\n \"ActivationStart(path: \" + path + \")\";\n };\n return ActivationStart;\n }());\n /**\n * An event\n triggered\n at the end of the activation part\n * of the Resolve phase of routing.\n * @see `ActivationStart`\n * @see\n `ResolveStart`\n * @publicApi\n */\n var ActivationEnd = /** @class */ (function () {\n function\n ActivationEnd(\n /** @docsNotRequired */\n snapshot) {\n this.snapshot = snapshot;\n }\n ActivationEnd.prototype.toString = function () {\n var path = this.snapshot.routeConfig &&\n this.snapshot.routeConfig.path || \"\";\n return \"ActivationEnd(path: \" + path + \")\";\n };\n return\n ActivationEnd;\n }());\n /**\n * An event triggered by scrolling.\n * @publicApi\n */\n var\n Scroll = /** @class */ (function () {\n function Scroll(\n /** @docsNotRequired */\n routerEvent,\n /** @docsNotRequired */\n position,\n /** @docsNotRequired */\n anchor) {\n this.routerEvent = routerEvent;\n this.position = position;\n this.anchor = anchor;\n }\n Scroll.prototype.toString = function ()\n {\n var pos = this.position ? this.position[0] + \", \" + this.position[1] : null;\n return \"Scroll(anchor:\n \" + this.anchor + \", position: \" + pos + \")\";\n };\n return Scroll;\n }());\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * The primary\n routing outlet.\n * @publicApi\n */\n var PRIMARY_OUTLET = 'primary';\n var ParamsAsMap =\n /** @class */ (function () {\n function ParamsAsMap(params) {\n this.params = params || {};\n }\n ParamsAsMap.prototype.has = function (name) {\n return\n Object.prototype.hasOwnProperty.call(this.params, name);\n }\n ParamsAsMap.prototype.get = function (name) {\n if (this.has(name)) {\n var v =\n this.params[name];\n return Array.isArray(v) ? v[0] : v;\n }\n return null;\n }\n ParamsAsMap.prototype.getAll = function (name) {\n if (this.has(name)) {\n var v =\n this.params[name];\n return Array.isArray(v) ? v : [v];\n }\n return [];\n }\n Object.defineProperty(ParamsAsMap.prototype, 'keys', {\n get: function () {\n return\n Object.keys(this.params);\n },\n enumerable: false,\n configurable: true\n });\n return\n ParamsAsMap;\n }());\n /**\n * Converts a `Params` instance to a `ParamMap`.\n * @param params The\n instance to convert.\n * @returns The new map instance.\n * @publicApi\n */\n function\n convertToParamMap(params) {\n return new ParamsAsMap(params);\n }\n var NAVIGATION_CANCELING_ERROR =\n 'ngNavigationCancelingError';\n function navigationCancelingError(message) {\n var error =\n Error('NavigationCancelingError: ' + message);\n error[NAVIGATION_CANCELING_ERROR] = true;\n return error;\n }\n function isNavigationCancelingError(error) {\n return error &&\n error[NAVIGATION_CANCELING_ERROR];\n }\n // Matches the route configuration (`route`) against the\n actual URL (`segments`).\n function defaultUrlMatcher(segments, segmentGroup, route) {\n var parts =\n route.path.split('/');\n if (parts.length > segments.length) {\n // The actual URL is shorter than the config,\n no match\n return null;\n }\n if (route.pathMatch === 'full' &&\n (segmentGroup.hasChildren() || parts.length < segments.length)) {\n // The config is longer than the actual\n URL but we are looking for a full match, return\n null\n return null;\n }\n var posParams = {};\n // Check each config part against the actual\n URL\n for (var index = 0; index < parts.length; index++) {\n var part = parts[index];\n var

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segment = segments[index];\n var isParameter = part.startsWith(':');\n if (isParameter) {\n posParams[part.substring(1)] = segment;\n }\n else if (part !== segment.path) {\n // The actual URL part does not match the config, no match\n return null;\n }\n }\n return {\n consumed: segments.slice(0, parts.length), posParams: posParams\n };\n }\n\n function shallowEqualArrays(a, b) {\n if (a.length !== b.length)\n return false;\n for (var i = 0; i < a.length; ++i) {\n if (!shallowEqual(a[i], b[i]))\n return false;\n }\n return true;\n }\n\n function shallowEqual(a, b) {\n // Casting Object.keys return values to include `undefined` as there are some cases\n // in IE 11 where this can happen. Cannot provide a test because the behavior only\n // exists in certain circumstances in IE 11, therefore doing this cast ensures the\n // logic is correct for when this edge case is hit.\n var k1 = Object.keys(a);\n var k2 = Object.keys(b);\n if (!k1 || !k2 || k1.length !== k2.length) {\n return false;\n }\n var key;\n for (var i = 0; i < k1.length; ++i) {\n key = k1[i];\n if (!equalArraysOrString(a[key], b[key])) {\n return false;\n }\n }\n return true;\n }\n\n /**\n * Test equality for arrays of strings or a string.\n */\n function equalArraysOrString(a, b) {\n if (Array.isArray(a) && Array.isArray(b)) {\n if (a.length !== b.length)\n return false;\n var aSorted = __spread(a.sort());\n var bSorted_1 = __spread(b.sort());\n return aSorted.every(function (val, index) {\n return bSorted_1[index] === val;\n });\n }\n else {\n return a === b;\n }\n }\n\n /**\n * Flattens single-level nested arrays.\n */\n function flatten(arr) {\n return Array.prototype.concat.apply([], arr);\n }\n\n /**\n * Return the last element of an array.\n */\n function last(a) {\n return a.length > 0 ? a[a.length - 1] : null;\n }\n\n /**\n * Verifys all booleans in an array are `true`.\n */\n function and(bools) {\n return !bools.some(function (v) {\n return !v;\n });\n }\n\n function forEach(map, callback) {\n for (var prop in map) {\n if (map.hasOwnProperty(prop)) {\n callback(map[prop], prop);\n }\n }\n }\n\n function waitForMap(obj, fn) {\n if (Object.keys(obj).length === 0) {\n return rxjs.of({});\n }\n var waitHead = [];\n var waitTail = [];\n var res = {};\n forEach(obj, function (a, k) {\n var mapped = fn(k, a).pipe(operators.map(function (r) {\n return res[k] = r;\n }));\n if (k === PRIMARY_OUTLET) {\n waitHead.push(mapped);\n }\n else {\n waitTail.push(mapped);\n }\n });\n // Closure compiler has problem with using spread operator here. So we use `\"Array.concat\"`.\n // Note that we also need to cast the new promise because TypeScript cannot infer the type\n // when calling the `of` function through `Function.apply`\n return rxjs.of(null, waitHead.concat(waitTail)).pipe(operators.concatAll(), operators.last(), operators.map(function () {\n return res;\n }));\n }\n\n function wrapIntoObservable(value) {\n if (core.isObservable(value)) {\n return value;\n }\n if (core.isPromise(value)) {\n // Use `Promise.resolve` to wrap promise-like instances.\n // Required ie when a Resolver returns a AngularJS `$q` promise to correctly trigger the\n // change detection.\n return rxjs.from(Promise.resolve(value));\n }\n return rxjs.of(value);\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n function createEmptyUrlTree() {\n return new UrlTree(new UrlSegmentGroup([], {}), {}, null);\n }\n\n function containsTree(container, containee, exact) {\n if (exact) {\n return equalQueryParams(container.queryParams, containee.queryParams) &&\n equalSegmentGroups(container.root, containee.root);\n }\n return containsQueryParams(container.queryParams, containee.queryParams) &&\n containsSegmentGroup(container.root, containee.root);\n }\n\n function equalQueryParams(container, containee) {\n // TODO: This does not handle array params correctly.\n return shallowEqual(container, containee);\n }\n\n function equalSegmentGroups(container, containee) {\n if (!equalPath(container.segments, containee.segments))\n return false;\n if (container.numberOfChildren !== containee.numberOfChildren)\n return false;\n for (var c in containee.children) {\n if (!container.children[c])\n return false;\n if (!equalSegmentGroups(container.children[c],

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 containee.children[c]))\n return false;\n }\n return true;\n }\n function
containsQueryParams(container, containee) {\n return Object.keys(containee).length <=
Object.keys(container).length &&\n Object.keys(containee).every(function (key) { return
equalArraysOrString(container[key], containee[key]); });\n }\n function containsSegmentGroup(container,
containee) {\n return containsSegmentGroupHelper(container, containee, containee.segments);\n }\n
function containsSegmentGroupHelper(container, containee, containeePaths) {\n if (container.segments.length
> containeePaths.length) {\n var current = container.segments.slice(0, containeePaths.length);\n if
(!equalPath(current, containeePaths))\n return false;\n if (containee.hasChildren())\n return
false;\n return true;\n }\n else if (container.segments.length === containeePaths.length) {\n if
(!equalPath(container.segments, containeePaths))\n return false;\n for (var c in containee.children)
{\n if (!container.children[c])\n return false;\n if
(!containsSegmentGroup(container.children[c],
containee.children[c]))\n return false;\n }\n return true;\n }\n else {\n var
current = containeePaths.slice(0, container.segments.length);\n var next =
containeePaths.slice(container.segments.length);\n if (!equalPath(container.segments, current))\n
return false;\n if (!container.children[PRIMARY_OUTLET])\n return false;\n return
containsSegmentGroupHelper(container.children[PRIMARY_OUTLET], containee, next);\n }\n }\n /**\n
* @description\n * \n * Represents the parsed URL.\n * \n * Since a router state is a tree, and the URL is
nothing but a serialized state, the URL is a\n * serialized tree.\n * \n * UrlTree is a data structure that provides a lot
of affordances in dealing with URLs\n * \n * @usageNotes\n * ### Example\n * \n * ```\n *
@Component({ templateUrl: 'template.html' })\n * class MyComponent {\n * constructor(router: Router) {\n * const tree: UrlTree =\n *
router.parseUrl('/team/33/(user/victor//support:help)?debug=true#fragment');\n * const f = tree.fragment; //
return 'fragment'\n * const q = tree.queryParams; // returns {debug: 'true'}\n * const g: UrlSegmentGroup
= tree.root.children[PRIMARY_OUTLET];\n * const s: UrlSegment[] = g.segments; // returns 2 segments
'team' and '33'\n * g.children[PRIMARY_OUTLET].segments; // returns 2 segments 'user' and 'victor'\n *
g.children['support'].segments; // return 1 segment 'help'\n * }\n * }\n * ```\n * \n * @publicApi\n
*\n * \n * @class */ (function () {\n * /** @internal */\n * function UrlTree(\n * /** The root
segment group of the URL tree */\n * root, \n * /** The query params of the URL */\n * queryParams, \n
 * /** The fragment of the URL */\n * fragment)\n * {\n * this.root = root;\n * this.queryParams = queryParams;\n * this.fragment = fragment;\n * }\n
 * Object.defineProperty(UrlTree.prototype, \"queryParamMap\", {\n * get: function () {\n * if
(!this._queryParamMap) {\n * this._queryParamMap = convertToParamMap(this.queryParams);\n * }\n
 * return this._queryParamMap;\n * },\n * enumerable: false,\n * configurable: true\n * });\n * /** @docsNotRequired */\n * UrlTree.prototype.toString = function () {\n * return
DEFAULT_SERIALIZER.serialize(this);\n * }; \n * return UrlTree;\n * }());\n * \n * @description\n
*\n * \n * Represents the parsed URL segment group.\n * \n * See `UrlTree` for more information.\n * \n *
*\n * @publicApi\n * \n * @class */ (function () {\n * function UrlSegmentGroup(\n * /** The URL segments
of this group. See `UrlSegment` for more information */\n * segments, \n * /** The list of children of this
group */\n * children) {\n * var _this = this;\n * this.segments = segments;\n * this.children =
children;\n * /** The parent node in the url tree */\n * this.parent = null;\n * forEach(children,
function (v, k) { return v.parent = _this; });\n * }\n * /** Whether the segment has child segments */\n
 * UrlSegmentGroup.prototype.hasChildren = function () {\n * return this.numberOfChildren > 0;\n * };\n
 * Object.defineProperty(UrlSegmentGroup.prototype, \"numberOfChildren\", {\n * /** Number of child
segments */\n * get: function () {\n * return Object.keys(this.children).length;\n * },\n
 * enumerable: false,\n * configurable: true\n * });\n * /** @docsNotRequired */\n
 * UrlSegmentGroup.prototype.toString =

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function () {\n return serializePaths(this);\n };\n return UrlSegmentGroup;\n }());\n /**\n * @description\n * Represents a single URL segment.\n * A UrlSegment is a part of a URL between\n the two slashes. It contains a path and the matrix\n * parameters associated with the segment.\n * @usageNotes\n * ### Example\n * ```\n * @Component({templateUrl:'template.html'})\n * class\n MyComponent {\n * constructor(router: Router) {\n * const tree: UrlTree =\n router.parseUrl('/team?id=33');\n * const g: UrlSegmentGroup = tree.root.children[PRIMARY_OUTLET];\n * const s: UrlSegment[] = g.segments;\n * s[0].path; // returns 'team'\n * s[0].parameters; // returns {id:\n 33}\n * }\n * ```\n * @publicApi\n */\n var UrlSegment = /** @class */ (function () {\n function UrlSegment(\n /** The path part of a URL segment\n *\n path, \n /** The matrix parameters associated with a segment *\n parameters) {\n this.path\n = path;\n this.parameters = parameters;\n }\n Object.defineProperty(UrlSegment.prototype,\n \"parameterMap\", {\n get: function () {\n if (!this._parameterMap) {\n this._parameterMap = convertToParamMap(this.parameters);\n }\n return this._parameterMap;\n },\n enumerable: false,\n configurable: true\n });\n /** @docsNotRequired *\n UrlSegment.prototype.toString = function () {\n return serializePath(this);\n };\n return\n UrlSegment;\n }());\n function equalSegments(as, bs) {\n return equalPath(as, bs) && as.every(function (a,\n i) { return shallowEqual(a.parameters, bs[i].parameters); });\n }\n function equalPath(as, bs) {\n if (as.length\n !== bs.length)\n return false;\n return as.every(function (a, i) { return a.path === bs[i].path; });\n }\n function\n mapChildrenIntoArray(segment, fn) {\n var res = [];\n forEach(segment.children, function (child,\n childOutlet) {\n if (childOutlet === PRIMARY_OUTLET) {\n res = res.concat(fn(child,\n childOutlet));\n }\n });\n forEach(segment.children, function (child, childOutlet) {\n if\n (childOutlet !== PRIMARY_OUTLET) {\n res = res.concat(fn(child, childOutlet));\n }\n });\n return res;\n }\n /**\n * @description\n * Serializes and deserializes a URL string into a URL\n tree.\n * The url serialization strategy is customizable. You can\n * make all URLs case insensitive by\n providing a custom UrlSerializer.\n * See `DefaultUrlSerializer` for an example of a URL serializer.\n */\n * @publicApi\n */\n var UrlSerializer\n = /** @class */ (function () {\n function UrlSerializer() {\n }\n return UrlSerializer;\n }());\n /**\n * @description\n * A default implementation of the `UrlSerializer`.\n * Example URLs:\n * ```\n * /inbox/33(popup:compose)\n * /inbox/33;open=true/messages/44\n * ```\n * DefaultUrlSerializer uses parentheses to serialize secondary segments (e.g., popup:compose), the\n * colon syntax\n to specify the outlet, and the `;parameter=value` syntax (e.g., open=true) to\n * specify route specific parameters.\n */\n * @publicApi\n */\n var DefaultUrlSerializer = /** @class */ (function () {\n function\n DefaultUrlSerializer() {\n }\n /** Parses a url into a `UrlTree` *\n DefaultUrlSerializer.prototype.parse\n = function (url) {\n var p = new UrlParser(url);\n return new UrlTree(p.parseRootSegment(),\n p.parseQueryParams(), p.parseFragment());\n };\n /** Converts a `UrlTree` into a url *\n DefaultUrlSerializer.prototype.serialize = function (tree)\n {\n var segment = \"^\" + serializeSegment(tree.root, true);\n var query =\n serializeQueryParams(tree.queryParams);\n var fragment = typeof tree.fragment === \"string\" ? \"#\" +\n encodeURIComponent(tree.fragment) : \"\";\n return \"\" + segment + query + fragment;\n };\n return\n DefaultUrlSerializer;\n }());\n var DEFAULT_SERIALIZER = new DefaultUrlSerializer();\n function\n serializePaths(segment) {\n return segment.segments.map(function (p) { return serializePath(p); }).join('/');\n }\n function serializeSegment(segment, root) {\n if (!segment.hasChildren()) {\n return\n serializePaths(segment);\n }\n if (root) {\n var primary = segment.children[PRIMARY_OUTLET]\n ?\n serializeSegment(segment.children[PRIMARY_OUTLET], false)\n :\n \"\";\n var children_1 = [];\n forEach(segment.children, function (v, k) {\n if (k\n !== PRIMARY_OUTLET) {\n children_1.push(k + \"|\" + serializeSegment(v, false));\n }\n });\n return children_1.length > 0 ? primary + \"(\" + children_1.join('/') + \")\" : primary;\n }\n }

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else {\n var children = mapChildrenIntoArray(segment, function (v, k) {\n if (k ===\nPRIMARY_OUTLET) {\n return [serializeSegment(segment.children[PRIMARY_OUTLET], false)];\n }\n return [k + \":\" + serializeSegment(v, false)];\n });\n // use no parenthesis if the\nonly child is a primary outlet route\n if ((Object.keys(segment.children).length === 1 &&\nsegment.children[PRIMARY_OUTLET] != null) {\n return serializePaths(segment) + \"^\" + children[0];\n }\n return serializePaths(segment) + \"/(\" + children.join(\"/\") + \")\";\n })\n } /**\n * Encodes a URI\nstring with the default encoding. This function will only ever be called from\n * `encodeUriQuery` or\n`encodeUriSegment` as it's the base set of encodings to be used. We need\n * a custom encoding because\nencodeURIComponent is too aggressive and encodes stuff that doesn't\n * have to be encoded per\nhttps://url.spec.whatwg.org.\n */\nfunction encodeUriString(s) {\n return encodeURIComponent(s)\n.replace(/%40/g, '@')\n.replace(/%3A/g, ':')\n.replace(/%24/g, '$')\n.replace(/%2C/g, ',');\n} /**\n * This function should be used to encode both keys and values in a query string key/value. In\n * the following URL, you need to call encodeUriQuery on \"k\" and \"v\":\n * http://www.site.org/html;mk=mv?k=v#f\n */\nfunction encodeUriQuery(s) {\n return\nencodeURIComponent(s).replace(/%3B/g,\n';');\n} /**\n * This function should be used to encode a URL fragment. In the following URL, you need to\ncall\n * encodeUriFragment on \"f\":\n * http://www.site.org/html;mk=mv?k=v#f\n */\nfunction\nencodeUriFragment(s) {\n return encodeURI(s);\n} /**\n * This function should be run on any URI\nsegment as well as the key and value in a key/value\n * pair for matrix params. In the following URL, you need to\ncall encodeUriSegment on \"html\", \"mk\", and \"mv\":\n * http://www.site.org/html;mk=mv?k=v#f\n */\nfunction encodeUriSegment(s) {\n return\nencodeURIComponent(s).replace(/\\/g, '%28').replace(/\\/g, '%29').replace(/%/gi, '&');\n} function decode(s) {\n return decodeURIComponent(s);\n} // Query keys/values should have the \"%+\" replaced first, as \"%+\" in a\nquery string is \"%\".\n// decodeURIComponent function will not decode\n\"+\" as a space.\nfunction decodeQuery(s) {\n return decode(s.replace(/\\+/g, '%20'));\n} function\nserializePath(path) {\n return \"\" + encodeUriSegment(path.path) + serializeMatrixParams(path.parameters);\n}\nfunction serializeMatrixParams(params) {\n return Object.keys(params)\n.map(function (key) {\nreturn \";\" + encodeUriSegment(key) + \"=\" + encodeUriSegment(params[key]);\n}).join('');\n}\nfunction serializeQueryParams(params) {\n var strParams = Object.keys(params).map(function (name) {\nvar value = params[name];\nreturn Array.isArray(value) ?\nvalue.map(function (v) {\nreturn\nencodeUriQuery(name) + \"=\" + encodeUriQuery(v);\n}).join('&') :\nencodeUriQuery(name) + \"=\" +\nencodeUriQuery(value);\n});\nreturn strParams.length ? \"?\" + strParams.join('&') : \"\";\n} var\nSEGMENT_RE = /^([\\w()?:=#+;/])*/;\nfunction matchSegments(str)\n{\n var match = str.match(SEGMENT_RE);\n return match ? match[0] : \"\";\n} var\nQUERY_PARAM_RE = /^[^=&#]+/*;/\n// Return the name of the query param at the start of the string or an\nempty string\nfunction matchQueryParams(str) {\n var match = str.match(QUERY_PARAM_RE);\nreturn match ? match[0] : \"\";\n} var QUERY_PARAM_VALUE_RE = /^[^=&#]+/*;/\n// Return the value of\nthe query param at the start of the string or an empty string\nfunction matchUrlQueryParamValue(str) {\n var\nmatch = str.match(QUERY_PARAM_VALUE_RE);\nreturn match ? match[0] : \"\";\n} var UrlParser =\n/** @class */ (function () {\n function UrlParser(url) {\n this.url = url;\n this.remaining = url;\n }\n UrlParser.prototype.parseRootSegment = function () {\n this.consumeOptional('/');\n if\n(this.remaining === \"\" || this.peekStartsWith('?') || this.peekStartsWith('#'))\n{\n return new UrlSegmentGroup([], {});\n }\n // The root segment group never has\nsegments\n return new UrlSegmentGroup([], this.parseChildren());\n }\n UrlParser.prototype.parseQueryParams = function () {\n var params = {};\n if\n(this.consumeOptional('?')) {\n do {\n this.parseQueryParam(params);\n } while\n(this.consumeOptional('&'));\n }\n return params;\n }\n UrlParser.prototype.parseFragment =
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function () {\n return this.consumeOptional('#') ? decodeURIComponent(this.remaining) : null;\n };\n UrlParser.prototype.parseChildren = function () {\n if (this.remaining === "") {\n return {};\n }\n this.consumeOptional('/');\n var segments = [];\n if (!this.peekStartsWith('(')) {\n segments.push(this.parseSegment());\n }\n while (this.peekStartsWith('/') && !this.peekStartsWith('//') && !this.peekStartsWith('/(')) {\n this.capture('/');\n segments.push(this.parseSegment());\n }\n var children = {};\n if (this.peekStartsWith('/(')) {\n this.capture('/');\n children = this.parseParens(true);\n }\n var res = {};\n if (this.peekStartsWith('(')) {\n res = this.parseParens(false);\n }\n if (segments.length > 0 || Object.keys(children).length > 0) {\n res[PRIMARY_OUTLET] = new\n UrlSegmentGroup(segments, children);\n }\n return res;\n }; // parse a segment with its\n // ie `name;k1=v1;k2`\n UrlParser.prototype.parseSegment = function () {\n var\n path = matchSegments(this.remaining);\n if (path === "" && this.peekStartsWith(';'))\n {\n throw new Error("Empty path url segment cannot have parameters: " + this.remaining + "'.'");\n }\n this.capture(path);\n return new UrlSegment(decode(path), this.parseMatrixParams());\n };\n UrlParser.prototype.parseMatrixParams = function () {\n var params = {};\n while\n (this.consumeOptional(';')) {\n this.parseParam(params);\n }\n return params;\n };\n UrlParser.prototype.parseParam = function (params) {\n var key = matchSegments(this.remaining);\n if (!key) {\n return;\n }\n this.capture(key);\n var value = "";\n if\n (this.consumeOptional('=')) {\n var valueMatch = matchSegments(this.remaining);\n if\n (valueMatch) {\n value = valueMatch;\n this.capture(value);\n }\n params[decode(key)] = decode(value);\n }; // Parse a single query parameter\n `name[=value]`\n UrlParser.prototype.parseQueryParam = function (params) {\n var key =\n matchQueryParams(this.remaining);\n if (!key) {\n return;\n }\n this.capture(key);\n var value = "";\n if (this.consumeOptional('=')) {\n var valueMatch =\n matchUrlQueryParamValue(this.remaining);\n if (valueMatch) {\n value = valueMatch;\n this.capture(value);\n }\n var decodedKey = decodeQuery(key);\n var\n decodedVal = decodeQuery(value);\n if (params.hasOwnProperty(decodedKey)) {\n // Append to\n existing values\n var currentVal = params[decodedKey];\n if (!Array.isArray(currentVal)) {\n currentVal = [currentVal];\n }\n params[decodedKey] = currentVal;\n }\n currentVal.push(decodedVal);\n }\n else {\n // Create a new value\n params[decodedKey] = decodedVal;\n }\n };\n // parse `(a/b/outlet_name:c/d)`\n UrlParser.prototype.parseParens = function (allowPrimary) {\n var\n segments = {};\n this.capture('(');\n while (!this.consumeOptional(')') && this.remaining.length > 0)\n {\n var path = matchSegments(this.remaining);\n var next = this.remaining[path.length];\n // if is is not one of these characters, then the segment was unescaped\n // or the group was not closed\n if (next !== '\\' && next !== ')' && next !== ';') {\n throw new Error("Cannot parse url \"" + this.url\n + "\"");\n }\n var outletName = undefined;\n if (path.indexOf(':') > -1) {\n outletName = path.substr(0, path.indexOf(':'));\n this.capture(outletName);\n this.capture(':');\n }\n else if (allowPrimary) {\n outletName = PRIMARY_OUTLET;\n }\n var children = this.parseChildren();\n segments[outletName] = Object.keys(children).length === 1 ? children[PRIMARY_OUTLET] : new\n UrlSegmentGroup([], children);\n this.consumeOptional('/');\n }\n return segments;\n };\n UrlParser.prototype.peekStartsWith = function (str) {\n return this.remaining.startsWith(str);\n };\n // Consumes the prefix when it is present and returns whether it has been consumed\n UrlParser.prototype.consumeOptional = function (str) {\n if (this.peekStartsWith(str)) {\n this.remaining\n = this.remaining.substr(str.length);\n return true;\n }\n return false;\n };\n UrlParser.prototype.capture = function (str) {\n if (!this.consumeOptional(str)) {\n throw new

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Error("Expected \\\" + str + \"\\\".");\n }\n }\n return UrlParser;\n }));\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\n * MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var Tree = /**\n * @class */ (function () {\n function Tree(root) {\n this._root = root;\n }\n Object.defineProperty(Tree.prototype, \"root\", {\n get: function () {\n return this._root.value;\n },\n enumerable: false,\n configurable: true\n });\n /**\n * @internal\n */\n Tree.prototype.parent = function (t) {\n var p = this.pathFromRoot(t);\n return p.length > 1 ?\n p[p.length - 2] : null;\n }; \n /**\n * @internal\n */\n Tree.prototype.children = function (t) {\n var n = findNode(t, this._root);\n return n ? n.children.map(function (t) { return t.value; }) : [];\n }; \n /**\n * @internal\n */\n Tree.prototype.firstChild = function (t) {\n var n =\n findNode(t, this._root);\n return n && n.children.length > 0 ? n.children[0].value : null;\n }; \n /**\n * @internal\n */\n Tree.prototype.siblings = function (t) {\n var p = findPath(t, this._root);\n if (p.length < 2)\n return [];\n var c = p[p.length - 2].children.map(function (c) { return c.value;\n });\n return c.filter(function (cc) { return cc !== t; });\n }; \n /**\n * @internal\n */\n Tree.prototype.pathFromRoot = function (t) {\n return findPath(t,\n this._root).map(function (s) { return s.value; });\n }; \n return Tree;\n }());\n\n // DFS for the node\n matching the value\n function findNode(value, node) {\n var e_1, _a;\n if (value === node.value)\n return node;\n try {\n for (var _b = __values(node.children), _c = _b.next(); !_c.done; _c = _b.next()) {\n var child = _c.value;\n var node_1 = findNode(value, child);\n if (node_1)\n return node_1;\n }\n } catch (e_1_1) { e_1 = { error: e_1_1 }; }\n finally {\n try {\n if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n }\n } finally {\n if (e_1) throw e_1.error;\n }\n return null;\n } \n // Return the path to the node with the given\n value using DFS\n function findPath(value, node) {\n var e_2, _a;\n if (value === node.value)\n return [node];\n try {\n for (var _b = __values(node.children), _c = _b.next(); !_c.done; _c = _b.next()) {\n var child = _c.value;\n var path = findPath(value, child);\n if (path.length) {\n path.unshift(node);\n return path;\n }\n }\n } catch (e_2_1) { e_2 = { error: e_2_1 }; }\n finally {\n try {\n if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n }\n } finally {\n if (e_2) throw e_2.error;\n }\n return [];\n } \n var TreeNode = /** @class */ (\n function () {\n function TreeNode(value, children) {\n this.value = value;\n this.children =\n children;\n }\n TreeNode.prototype.toString = function () {\n return \"TreeNode(\" + this.value + \")\";\n }; \n return TreeNode;\n }());\n\n // Return the list of T\n indexed by outlet name\n function nodeChildrenAsMap(node) {\n var map = {};\n if (node) {\n node.children.forEach(function (child) { return map[child.value.outlet] = child; });\n }\n return map;\n } \n /**\n * Represents the state of the router as a tree of activated routes.\n */\n * @usageNotes\n * \n * Every node in the route tree is an `ActivatedRoute` instance\n * that knows about the `consumed` URL\n segments, the extracted parameters,\n * and the resolved data.\n * Use the `ActivatedRoute` properties to\n traverse the tree from any node.\n * \n * The following fragment shows how a component gets the root node\n * of the current state to establish its own route tree:\n * \n * ```\n * \n * @Component({ templateUrl: 'template.html' })\n * class MyComponent {\n * constructor(router: Router) {\n * const state: RouterState = router.routerState;\n * const root:\n ActivatedRoute = state.root;\n * const child = root.firstChild;\n * const id: Observable<string> =\n child.params.map(p => p.id);\n * //...\n * }\n * }\n * ```\n * \n * @see `ActivatedRoute`\n * \n * @see [Getting route information](guide/router#getting-route-information)\n * \n * @publicApi\n */\n var\n RouterState = /** @class */ (function (_super) {\n __extends(RouterState, _super);\n /** @internal\n */\n function RouterState(root, snapshot) {\n /** The current snapshot of the router state\n */\n var _this =\n _super.call(this, root) || this;\n _this.snapshot = snapshot;\n setRouterState(_this, root);\n return _this;\n }\n RouterState.prototype.toString = function () {\n return this.snapshot.toString();\n }\n });\n
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 return RouterState;\n }(Tree));\n function createEmptyState(urlTree, rootComponent) {\n var snapshot
= createEmptyStateSnapshot(urlTree, rootComponent);\n var emptyUrl = new rxjs.BehaviorSubject([new
UrlSegment("", {}));\n var emptyParams = new rxjs.BehaviorSubject({});\n var emptyData = new
rxjs.BehaviorSubject({});\n var emptyQueryParams = new rxjs.BehaviorSubject({});\n var fragment = new
rxjs.BehaviorSubject("");\n var activated = new ActivatedRoute(emptyUrl, emptyParams, emptyQueryParams,
fragment, emptyData, PRIMARY_OUTLET, rootComponent, snapshot.root);\n activated.snapshot =
snapshot.root;\n return new RouterState(new TreeNode(activated, []), snapshot);\n }\n function
createEmptyStateSnapshot(urlTree, rootComponent) {\n var emptyParams = {};\n var emptyData = {};\n
 var emptyQueryParams = {};\n var fragment = "";\n var activated = new ActivatedRouteSnapshot([],
emptyParams, emptyQueryParams, fragment, emptyData, PRIMARY_OUTLET, rootComponent, null,
urlTree.root, -1, {});\n return new RouterStateSnapshot("", new TreeNode(activated, []));\n }\n /**\n *
Provides access to information about a route associated with a component\n * that is loaded in an outlet.\n *
Use to traverse the `RouterState` tree and extract information from nodes.\n * The following example
shows how to construct a component using information from a\n * currently activated route.\n *\n *
{@example router/activated-route/module.ts region=\"activated-route\"\n * header=\"activated-
route.component.ts\"}\n *\n * @see [Getting route information](guide/router#getting-route-information)\n
*\n * @publicApi\n */\n var ActivatedRoute = /** @class */ (function () {\n /** @internal */\n
function ActivatedRoute(\n /** An observable of the URL segments matched by this route. */\n url, \n /** An observable of the matrix parameters scoped to this route. */\n params, \n /** An
observable of the query parameters shared by all the routes. */\n queryParams, \n /** An observable of the
URL fragment shared by all the routes. */\n fragment, \n /** An observable of the static and resolved data
of this route. */\n data, \n /** The outlet name of the route, a constant. */\n outlet, \n /** The
component of the route, a constant. */\n // TODO(vsavkin): remove |string|\n component, futureSnapshot)
{\n this.url = url;\n this.params = params;\n this.queryParams = queryParams;\n
 this.fragment = fragment;\n this.data = data;\n this.outlet = outlet;\n this.component =
component;\n this._futureSnapshot = futureSnapshot;\n }\n Object.defineProperty(ActivatedRoute.prototype, \"routeConfig\", {\n
 /** The configuration used to match this route. */\n get: function () {\n return
this._futureSnapshot.routeConfig;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRoute.prototype, \"root\", {\n /** The root of the router state. */\n get:
function () {\n return this._routerState.root;\n },\n enumerable: false,\n configurable:
true\n });\n Object.defineProperty(ActivatedRoute.prototype, \"parent\", {\n /** The parent of this
route in the router state tree. */\n get: function () {\n return this._routerState.parent(this);\n
 },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRoute.prototype, \"firstChild\", {\n /** The first child of this route in the
router state
tree. */\n get: function () {\n return this._routerState.firstChild(this);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRoute.prototype,
\"children\", {\n /** The children of this route in the router state tree. */\n get: function () {\n
return this._routerState.children(this);\n },\n enumerable: false,\n configurable: true\n });\n
 Object.defineProperty(ActivatedRoute.prototype, \"pathFromRoot\", {\n /** The path from the root of the
router state tree to this route. */\n get: function () {\n return this._routerState.pathFromRoot(this);\n
 },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRoute.prototype, \"paramMap\", {\n /**\n * An Observable that
contains\n * a map of the required and optional parameters\n * specific to the route.\n * The map supports
retrieving single and multiple values from the same parameter.\n */\n get: function () {\n if
(!this._paramMap) {\n this._paramMap = this.params.pipe(operators.map(function (p) { return

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convertToParamMap(p); }));\n }\n return this._paramMap;\n },\n enumerable:
false,\n configurable: true\n });\n Object.defineProperty(ActivatedRoute.prototype,
\"queryParamMap\", {\n /**\n * An Observable that contains a map of the query parameters available
to all routes.\n * The map supports retrieving single and multiple values from the query parameter.\n */\n get: function () {\n if (!this._queryParamMap) {\n this._queryParamMap =\n
this.queryParams.pipe(operators.map(function (p) { return convertToParamMap(p); }));\n }\n return this._queryParamMap;\n },\n enumerable: false,\n configurable: true\n });\n ActivatedRoute.prototype.toString = function () {\n return this.snapshot ? this.snapshot.toString() :
\"Future(\" + this._futureSnapshot + \")\";\n }; \n return ActivatedRoute;\n }());\n /**\n * Returns the
inherited params, data, and resolve for a given route.\n * By default, this only inherits values up to the nearest
path-less or component-less route.\n * @internal\n */\n function inheritedParamsDataResolve(route,
paramsInheritanceStrategy) {\n if (paramsInheritanceStrategy === void 0) { paramsInheritanceStrategy =
'emptyOnly'; }\n var pathFromRoot = route.pathFromRoot;\n var inheritingStartingFrom = 0;\n if
(paramsInheritanceStrategy !== 'always') {\n inheritingStartingFrom = pathFromRoot.length - 1;\n while (inheritingStartingFrom >= 1) {\n var
current = pathFromRoot[inheritingStartingFrom];\n var parent = pathFromRoot[inheritingStartingFrom -
1];\n // current route is an empty path => inherits its parent's params and data\n if
(current.routeConfig && current.routeConfig.path === \"\") {\n inheritingStartingFrom--;\n //
parent is componentless => current route should inherit its params and data\n }\n else if
(!parent.component) {\n inheritingStartingFrom--;\n }\n else {\n break;\n }\n }\n return flattenInherited(pathFromRoot.slice(inheritingStartingFrom));\n }\n /**\n @internal\n */\n function flattenInherited(pathFromRoot) {\n return pathFromRoot.reduce(function (res, curr)
{\n var params = Object.assign(Object.assign({}, res.params), curr.params);\n var data =
Object.assign(Object.assign({}, res.data), curr.data);\n var resolve = Object.assign(Object.assign({},
res.resolve), curr._resolvedData);\n return { params: params, data: data, resolve: resolve };\n }, { params:
{}, data: {}, resolve: {} });\n }\n /**\n * @description\n */\n * Contains the information about a route
associated with a component loaded in an\n * outlet at a particular moment in time. ActivatedRouteSnapshot can
also be used to\n * traverse the router state tree.\n * \n * The following example initializes a component with
route information extracted\n * from the snapshot of the root node at the time of creation.\n * \n * ```\n * @Component({ templateUrl: './my-component.html' })\n * class MyComponent {\n * constructor(route:
ActivatedRoute) {\n * const id: string = route.snapshot.params.id;\n * const url: string = route.snapshot.url.join(\" \");\n * const user = route.snapshot.data.user;\n * }\n * ```\n * \n * @publicApi\n */\n var ActivatedRouteSnapshot = /** @class */ (function () {\n /**\n @internal\n */\n function ActivatedRouteSnapshot(\n /** The URL segments matched by this route */\n url, \n /** The matrix parameters scoped to this route */\n params, \n /** The query parameters shared
by all the routes */\n queryParams, \n /** The URL fragment shared by all the routes */\n fragment, \n /** The static and resolved data of this route */\n data, \n /** The outlet name of the route */\n outlet, \n /** The component of the route */\n component, routeConfig, urlSegment, lastPathIndex, resolve) {\n this.url = url;\n this.params = params;\n this.queryParams = queryParams;\n this.fragment = fragment;\n this.data = data;\n this.outlet = outlet;\n this.component =
component;\n this.routeConfig = routeConfig;\n this._urlSegment = urlSegment;\n this._lastPathIndex = lastPathIndex;\n this._resolve = resolve;\n }\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"root\", {\n /** The root of the router state */\n get: function () {\n return this._routerState.root;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"parent\", {\n /** The parent of this route in the router state tree */\n get: function () {\n return
this._routerState.parent(this);\n },\n enumerable: false,\n configurable: true\n });\n }());\n }

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Object.defineProperty(ActivatedRouteSnapshot.prototype,
 \"firstChild\", {\n /** The first child of this route in the router state tree */\n get: function () {\n return this._routerState.firstChild(this);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"children\", {\n /** The children of this route in the router state tree */\n get: function () {\n return this._routerState.children(this);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"pathFromRoot\", {\n /** The path from the root of the router state tree to this route */\n get: function () {\n return this._routerState.pathFromRoot(this);\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"paramMap\", {\n get: function () {\n if (!this._paramMap) {\n this._paramMap = convertToParamMap(this.params);\n }\n return this._paramMap;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(ActivatedRouteSnapshot.prototype, \"queryParamMap\", {\n get: function () {\n if (!this._queryParamMap) {\n this._queryParamMap = convertToParamMap(this.queryParams);\n }\n return this._queryParamMap;\n },\n enumerable: false,\n configurable: true\n });\n ActivatedRouteSnapshot.prototype.toString = function () {\n var url = this.url.map(function (segment) {\n return segment.toString();\n }).join('/');\n var matched = this.routeConfig ? this.routeConfig.path : \"\";\n return \"Route(url: '\" + url + \"', path: '\" + matched + \"')\";\n };\n return\n ActivatedRouteSnapshot;\n})();\n\n/**\n * @description\n * Represents the state of the router at a moment in time.\n * This is a tree of activated route snapshots. Every node in this tree knows about the \"consumed\" URL segments, the extracted parameters, and the resolved data.\n * The following example shows how a component is initialized with information from the snapshot of the root node's state at the time of creation.\n * ```\n * @Component({ templateUrl: 'template.html' })\n * class MyComponent {\n * constructor(router: Router) {\n * const state: RouterState = router.routerState;\n * const snapshot: RouterStateSnapshot = state.snapshot;\n * const root: ActivatedRouteSnapshot = snapshot.root;\n * const child = root.firstChild;\n * const id: Observable<string> = child.params.map(p => p.id);\n * //...\n * }\n * }\n * ```\n * @publicApi\n * \n * var RouterStateSnapshot = /** @class */ (function (_super) {\n * __extends(RouterStateSnapshot, _super);\n * /** @internal */\n * function RouterStateSnapshot(url, root) {\n * var _this = _super.call(this, root) || this;\n * _this.url = url;\n * setRouterState(_this, root);\n * return _this;\n * }\n * RouterStateSnapshot.prototype.toString = function () {\n * return serializeNode(this._root);\n * };\n * return RouterStateSnapshot;\n * })(Tree);\n * function setRouterState(state, node) {\n * node.value._routerState = state;\n * node.children.forEach(function (c) {\n * return setRouterState(state, c);\n * });\n * }\n * function serializeNode(node) {\n * var c = node.children.length > 0 ?\n * \" { \" + node.children.map(serializeNode).join(', ') + \" } \" : \"\";\n * return \"\" + node.value + c;\n * }\n * /**\n * The expectation is that the activate route is created with the right set of parameters.\n * So we push new values into the observables only when they are not the initial values.\n * And we detect that by checking if the snapshot field is set.\n * \n * function advanceActivatedRoute(route) {\n * if (route.snapshot) {\n * var currentSnapshot = route.snapshot;\n * var nextSnapshot = route._futureSnapshot;\n * route.snapshot = nextSnapshot;\n * if (!shallowEqual(currentSnapshot.queryParams, nextSnapshot.queryParams)) {\n * route.queryParams.next(nextSnapshot.queryParams);\n * }\n * if (currentSnapshot.fragment !== nextSnapshot.fragment) {\n * route.fragment.next(nextSnapshot.fragment);\n * }\n * if (!shallowEqual(currentSnapshot.params, nextSnapshot.params)) {\n * route.params.next(nextSnapshot.params);\n * }\n * if (!shallowEqualArrays(currentSnapshot.url, nextSnapshot.url)) {\n * route.url.next(nextSnapshot.url);\n * }\n * if (!shallowEqual(currentSnapshot.data, nextSnapshot.data)) {\n * route.data.next(nextSnapshot.data);\n * }\n * } else {\n * route.snapshot =

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route._futureSnapshot;\n // this is for resolved data\n route.data.next(route._futureSnapshot.data);\n }\n }\n function equalParamsAndUrlSegments(a, b) {\n var equalUrlParams = shallowEqual(a.params,\n b.params) && equalSegments(a.url, b.url);\n var parentsMismatch = !a.parent !== !b.parent;\n return\n equalUrlParams && !parentsMismatch &&\n (!a.parent || equalParamsAndUrlSegments(a.parent,\n b.parent));\n }\n function createRouterState(routeReuseStrategy, curr, prevState) {\n var root\n = createNode(routeReuseStrategy, curr._root, prevState ? prevState._root : undefined);\n return new\n RouterState(root, curr);\n }\n function createNode(routeReuseStrategy, curr, prevState) {\n // reuse an\n activated route that is currently displayed on the screen\n if (prevState &&\n routeReuseStrategy.shouldReuseRoute(curr.value, prevState.value.snapshot)) {\n var value =\n prevState.value;\n value._futureSnapshot = curr.value;\n var children =\n createOrReuseChildren(routeReuseStrategy, curr, prevState);\n return new TreeNode(value, children);\n }\n // retrieve an activated route that is used to be displayed, but is not currently displayed\n }\n else {\n var detachedRouteHandle = routeReuseStrategy.retrieve(curr.value);\n if (detachedRouteHandle) {\n var tree = detachedRouteHandle.route;\n setFutureSnapshotsOfActivatedRoutes(curr, tree);\n return tree;\n }\n else {\n var value = createActivatedRoute(curr.value);\n var\n children = curr.children.map(function (c) { return createNode(routeReuseStrategy, c); });\n return new\n TreeNode(value, children);\n }\n }\n }\n function setFutureSnapshotsOfActivatedRoutes(curr, result)\n {\n if (curr.value.routeConfig !== result.value.routeConfig) {\n throw new Error('Cannot reattach\n ActivatedRouteSnapshot created from a different route');\n }\n if (curr.children.length !==\n result.children.length) {\n throw new Error('Cannot reattach ActivatedRouteSnapshot with a different number\n of children');\n }\n result.value._futureSnapshot = curr.value;\n for (var i = 0; i < curr.children.length;\n ++i) {\n setFutureSnapshotsOfActivatedRoutes(curr.children[i], result.children[i]);\n }\n }\n function\n createOrReuseChildren(routeReuseStrategy,\n curr, prevState) {\n return curr.children.map(function (child) {\n var e_1, _a;\n try {\n for (var _b = __values(prevState.children), _c = _b.next(); !_c.done; _c = _b.next()) {\n var p =\n _c.value;\n if (routeReuseStrategy.shouldReuseRoute(child.value, p.value.snapshot)) {\n return createNode(routeReuseStrategy, child, p);\n }\n }\n catch (e_1_1) {\n e_1 = { error: e_1_1 }; }\n finally {\n try {\n if (_c && !_c.done && (_a = _b.return))\n _a.call(_b);\n }\n finally {\n if (e_1) throw e_1.error; }\n }\n }\n return\n createNode(routeReuseStrategy, child);\n }\n });\n }\n function createActivatedRoute(c) {\n return new\n ActivatedRoute(new rxjs.BehaviorSubject(c.url), new rxjs.BehaviorSubject(c.params), new\n rxjs.BehaviorSubject(c.queryParams),\n new rxjs.BehaviorSubject(c.fragment), new rxjs.BehaviorSubject(c.data), c.outlet, c.component, c);\n }\n function createUrlTree(route, urlTree, commands, queryParams, fragment) {\n if (commands.length === 0) {\n return tree(urlTree.root, urlTree.root, urlTree, queryParams, fragment);\n }\n var nav =\n computeNavigation(commands);\n if (nav.toRoot()) {\n return tree(urlTree.root, new\n UrlSegmentGroup([], {}), urlTree, queryParams, fragment);\n }\n var startingPosition =\n findStartingPosition(nav, urlTree, route);\n var segmentGroup = startingPosition.processChildren ?\n updateSegmentGroupChildren(startingPosition.segmentGroup, startingPosition.index, nav.commands) :\n updateSegmentGroup(startingPosition.segmentGroup, startingPosition.index, nav.commands);\n return\n tree(startingPosition.segmentGroup, segmentGroup, urlTree, queryParams, fragment);\n }\n }\n function isMatrixParams(command) {\n return typeof command === 'object' && command !== null &&\n !command.outlets && !command.segmentPath;\n }\n /**\n * Determines if a given command has an `outlets`\n map. When we encounter a command\n * with an outlets k/v map, we need to apply each outlet individually to the\n existing segment.\n */\n function isCommandWithOutlets(command) {\n return typeof command ===\n 'object' && command !== null && command.outlets;\n }\n function tree(oldSegmentGroup, newSegmentGroup,\n urlTree, queryParams, fragment) {\n var qp = {};\n if (queryParams) {\n for (var key in queryParams)\n function (value, name) {\n qp[name] = Array.isArray(value) ? value.map(function (v) { return \"\" + v; }) :\n
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\" + value;\n });\n }\n if (urlTree.root === oldSegmentGroup) {\n return new
UrlTree(newSegmentGroup, qp, fragment);\n }\n return new UrlTree(replaceSegment(urlTree.root,
oldSegmentGroup, newSegmentGroup), qp, fragment);\n }\n function replaceSegment(current, oldSegment,
newSegment) {\n var children = {};\n forEach(current.children, function (c, outletName) {\n if (c
=== oldSegment) {\n children[outletName] = newSegment;\n }\n else {\n
children[outletName] = replaceSegment(c, oldSegment, newSegment);\n }\n });\n return new
UrlSegmentGroup(current.segments, children);\n }\n var Navigation = /** @class */ (function () {\n
function Navigation(isAbsolute, numberOfDoubleDots, commands) {\n this.isAbsolute = isAbsolute;\n
this.numberOfDoubleDots = numberOfDoubleDots;\n this.commands = commands;\n if (isAbsolute
&& commands.length > 0 && isMatrixParams(commands[0])) {\n throw new Error('Root segment cannot
have matrix parameters');\n }\n var cmdWithOutlet
= commands.find(isCommandWithOutlets);\n if (cmdWithOutlet && cmdWithOutlet !== last(commands))
{\n throw new Error('{outlets: {}} has to be the last command');\n }\n }\n
Navigation.prototype.toRoot = function () {\n return this.isAbsolute && this.commands.length === 1 &&
this.commands[0] == '/';\n };\n return Navigation;\n})();\n /** Transforms commands to a normalized
`Navigation` */\n function computeNavigation(commands) {\n if ((typeof commands[0] === 'string') &&
commands.length === 1 && commands[0] === '/') {\n return new Navigation(true, 0, commands);\n }\n
var numberOfDoubleDots = 0;\n var isAbsolute = false;\n var res = commands.reduce(function (res,
cmd, cmdIdx) {\n if (typeof cmd === 'object' && cmd != null) {\n if (cmd.outlets) {\n
var outlets_1 = {};\n forEach(cmd.outlets,
function (commands, name) {\n outlets_1[name] = typeof commands === 'string' ?
commands.split('/') : commands;\n });\n return __spread(res, [{ outlets: outlets_1 }]);\n
 }\n if (cmd.segmentPath) {\n return __spread(res, [cmd.segmentPath]);\n }\n
 }\n if (!(typeof cmd === 'string')) {\n return __spread(res, [cmd]);\n }\n if (cmdIdx
=== 0) {\n cmd.split('/').forEach(function (urlPart, partIndex) {\n if (partIndex == 0 && urlPart
=== '/') {\n // skip './a'\n }\n else if (partIndex == 0 && urlPart === '') {\n
// skip './a'\n isAbsolute = true;\n }\n else if (urlPart === '..') {\n // './a'\n
 numberOfDoubleDots++;\n }\n else if (urlPart != '') {\n res.push(urlPart);\n }\n });\n return
res;\n }\n return __spread(res, [cmd]);\n }, []);\n return new Navigation(isAbsolute,
numberOfDoubleDots, res);\n }\n var Position = /** @class */ (function () {\n function
Position(segmentGroup, processChildren, index) {\n this.segmentGroup = segmentGroup;\n
this.processChildren = processChildren;\n this.index = index;\n }\n return Position;\n })();\n
function findStartingPosition(nav, tree, route) {\n if (nav.isAbsolute) {\n return new Position(tree.root,
true, 0);\n }\n if (route.snapshot._lastPathIndex === -1) {\n var segmentGroup =
route.snapshot._urlSegment;\n // Pathless ActivatedRoute has _lastPathIndex === -1 but should not process
children\n // see issue #26224,\n #13011, #35687\n // However, if the ActivatedRoute is the root we should process children like above.\n
 var processChildren = segmentGroup === tree.root;\n return new Position(segmentGroup, processChildren,
0);\n }\n var modifier = isMatrixParams(nav.commands[0]) ? 0 : 1;\n var index =
route.snapshot._lastPathIndex + modifier;\n return
createPositionApplyingDoubleDots(route.snapshot._urlSegment, index, nav.numberOfDoubleDots);\n }\n
function createPositionApplyingDoubleDots(group, index, numberOfDoubleDots) {\n var g = group;\n var
ci = index;\n var dd = numberOfDoubleDots;\n while (dd > ci) {\n dd -= ci;\n g = g.parent;\n
 if (!g) {\n throw new Error('Invalid number of \\'./..\\');\n }\n ci = g.segments.length;\n
 }\n return new Position(g, false, ci - dd);\n }\n function getOutlets(commands) {\n
var _a;\n if (isCommandWithOutlets(commands[0])) {\n return commands[0].outlets;\n }\n
return _a = {}, _a[PRIMARY_OUTLET] = commands, _a;\n }\n function updateSegmentGroup(segmentGroup,

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startIndex, commands) {\n if (!segmentGroup) {\n segmentGroup = new UrlSegmentGroup([], {});\n }\n if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return\n updateSegmentGroupChildren(segmentGroup, startIndex, commands);\n }\n var m =\n prefixedWith(segmentGroup, startIndex, commands);\n var slicedCommands =\n commands.slice(m.commandIndex);\n if (m.match && m.pathIndex < segmentGroup.segments.length) {\n var g = new UrlSegmentGroup(segmentGroup.segments.slice(0, m.pathIndex), {});\n g.children[PRIMARY_OUTLET] =\n new UrlSegmentGroup(segmentGroup.segments.slice(m.pathIndex),\n segmentGroup.children);\n return updateSegmentGroupChildren(g,\n 0, slicedCommands);\n }\n else if (m.match && slicedCommands.length === 0) {\n return new\n UrlSegmentGroup(segmentGroup.segments, {});\n }\n else if (m.match && !segmentGroup.hasChildren())\n {\n return createNewSegmentGroup(segmentGroup, startIndex, commands);\n }\n else if (m.match)\n {\n return updateSegmentGroupChildren(segmentGroup, 0, slicedCommands);\n }\n else {\n return createNewSegmentGroup(segmentGroup, startIndex, commands);\n }\n}\n\nfunction\nupdateSegmentGroupChildren(segmentGroup, startIndex, commands) {\n if (commands.length === 0) {\n return new UrlSegmentGroup(segmentGroup.segments, {});\n }\n else {\n var outlets_2 =\n getOutlets(commands);\n var children_1 = {};\n forEach(outlets_2, function (commands, outlet) {\n if (commands !== null) {\n children_1[outlet]\n = updateSegmentGroup(segmentGroup.children[outlet], startIndex, commands);\n }\n });\n forEach(segmentGroup.children, function (child, childOutlet) {\n if (outlets_2[childOutlet] === undefined)\n {\n children_1[childOutlet] = child;\n }\n });\n return new\n UrlSegmentGroup(segmentGroup.segments, children_1);\n }\n}\n\nfunction prefixedWith(segmentGroup,\nstartIndex, commands) {\n var currentCommandIndex = 0;\n var currentPathIndex = startIndex;\n var\n noMatch = { match: false, pathIndex: 0, commandIndex: 0 };\n while (currentPathIndex <\n segmentGroup.segments.length) {\n if (currentCommandIndex >= commands.length)\n return\n noMatch;\n var path = segmentGroup.segments[currentPathIndex];\n var command =\n commands[currentCommandIndex];\n // Do not try to consume command as part of the prefixing\n if it has outlets because it can\n // contain outlets other than the one being processed. Consuming the outlets\n command would\n // result in other outlets being ignored.\n if (isCommandWithOutlets(command))\n {\n break;\n }\n var curr = "\"" + command;\n var next = currentCommandIndex <\n commands.length - 1 ? commands[currentCommandIndex + 1] : null;\n if (currentPathIndex > 0 && curr\n === undefined)\n break;\n if (curr && next && (typeof next === 'object') && next.outlets ===\n undefined) {\n if (!compare(curr, next, path))\n return noMatch;\n currentCommandIndex += 2;\n }\n else {\n if (!compare(curr, {}, path))\n return\n noMatch;\n currentCommandIndex++;\n }\n currentPathIndex++;\n }\n return {\n match: true, pathIndex:\n currentPathIndex, commandIndex: currentCommandIndex };\n}\n\nfunction\ncreateNewSegmentGroup(segmentGroup, startIndex, commands) {\n var paths =\n segmentGroup.segments.slice(0, startIndex);\n var i = 0;\n while (i < commands.length) {\n var\n command = commands[i];\n if (isCommandWithOutlets(command)) {\n var children =\n createNewSegmentChildren(command.outlets);\n return new UrlSegmentGroup(paths, children);\n }\n // if we start with an object literal, we need to reuse the path part from the segment\n if (i === 0\n && isMatrixParams(commands[0])) {\n var p = segmentGroup.segments[startIndex];\n paths.push(new UrlSegment(p.path, commands[0]));\n i++;\n continue;\n }\n var\n curr = isCommandWithOutlets(command) ? command.outlets[PRIMARY_OUTLET] : "\"" + command;\n var next = (i < commands.length\n - 1) ? commands[i + 1] : null;\n if (curr && next && isMatrixParams(next)) {\n paths.push(new\n UrlSegment(curr, stringify(next));\n i += 2;\n }\n else {\n paths.push(new\n UrlSegment(curr, {});\n i++;\n }\n }\n return new UrlSegmentGroup(paths, {});\n}\n
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function createNewSegmentChildren(outlets) {\n var children = {};\n forEach(outlets, function (commands, outlet) {\n if (commands !== null) {\n children[outlet] = createNewSegmentGroup(new\n UrlSegmentGroup([], {}), 0, commands);\n }\n });\n return children;\n}\n\nfunction\nstringify(params) {\n var res = {};\n forEach(params, function (v, k) { return res[k] = "\"" + v; });\n return res;\n}\n\nfunction compare(path, params, segment) {\n return path == segment.path &&\n shallowEqual(params, segment.parameters);\n}\n\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source\n code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nvar activateRoutes = function (rootContexts, routeReuseStrategy, forwardEvent) {\n return\n operators.map(function (t) {\n new ActivateRoutes(routeReuseStrategy, t.targetRouterState,\n t.currentRouterState, forwardEvent)\n .activate(rootContexts);\n return t;\n });\n}\n\nvar\nActivateRoutes = /** @class */ (function () {\n function ActivateRoutes(routeReuseStrategy, futureState,\n currState, forwardEvent) {\n this.routeReuseStrategy = routeReuseStrategy;\n this.futureState =\n futureState;\n this.currState = currState;\n this.forwardEvent = forwardEvent;\n }\n\n ActivateRoutes.prototype.activate = function (parentContexts) {\n var futureRoot = this.futureState._root;\n var currRoot = this.currState ? this.currState._root : null;\n this.deactivateChildRoutes(futureRoot,\n currRoot, parentContexts);\n advanceActivatedRoute(this.futureState.root);\n this.activateChildRoutes(futureRoot, currRoot, parentContexts);\n }\n\n // De-activate the child route that are\n not re-used for the future state\n ActivateRoutes.prototype.deactivateChildRoutes = function (futureNode,\n currNode, contexts) {\n var _this = this;\n var children = nodeChildrenAsMap(currNode);\n //\n Recurse on the routes active in the future state to de-activate deeper children\n futureNode.children.forEach(function (futureChild) {\n var childOutletName = futureChild.value.outlet;\n _this.deactivateRoutes(futureChild, children[childOutletName], contexts);\n delete\n children[childOutletName];\n });\n // De-activate\n the routes that will not be re-used\n forEach(children, function (v, childName) {\n _this.deactivateRouteAndItsChildren(v, contexts);\n });\n }\n\n ActivateRoutes.prototype.deactivateRoutes = function (futureNode, currNode, parentContext) {\n var future\n = futureNode.value;\n var curr = currNode ? currNode.value : null;\n if (future === curr) {\n // Reusing the node, check to see if the children need to be de-activated\n if (future.component) {\n // If we have a normal route, we need to go through an outlet.\n var context =\n parentContext.getContext(future.outlet);\n if (context) {\n this.deactivateChildRoutes(futureNode, currNode, context.children);\n }\n } else {\n // if we have a componentless route, we recurse but keep\n the same outlet map.\n this.deactivateChildRoutes(futureNode, currNode, parentContext);\n }\n } else {\n if (curr) {\n // Deactivate the current route which will not be re-\n used\n this.deactivateRouteAndItsChildren(currNode, parentContext);\n }\n }\n }\n\n ActivateRoutes.prototype.deactivateRouteAndItsChildren = function (route, parentContexts) {\n if\n (this.routeReuseStrategy.shouldDetach(route.value.snapshot)) {\n this.detachAndStoreRouteSubtree(route,\n parentContexts);\n } else {\n this.deactivateRouteAndOutlet(route, parentContexts);\n }\n }\n\n ActivateRoutes.prototype.detachAndStoreRouteSubtree = function (route, parentContexts) {\n var context = parentContexts.getContext(route.value.outlet);\n if (context && context.outlet)\n {\n var componentRef = context.outlet.detach();\n var contexts =\n context.children.onOutletDeactivated();\n this.routeReuseStrategy.store(route.value.snapshot, {\n componentRef: componentRef, route: route, contexts: contexts });\n }\n }\n\n ActivateRoutes.prototype.deactivateRouteAndOutlet = function (route, parentContexts) {\n var _this = this;\n var context = parentContexts.getContext(route.value.outlet);\n if (context) {\n var children =\n nodeChildrenAsMap(route);\n var contexts_1 = route.value.component ? context.children :\n parentContexts;\n forEach(children, function (v, k) { return _this.deactivateRouteAndItsChildren(v,\n
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contexts_1); });\n if (context.outlet) {\n // Destroy the component\ncontext.outlet.deactivate();\n // Destroy the contexts for all the outlets that were\nin the component\n context.children.onOutletDeactivated();\n }\n }\n ActivateRoutes.prototype.activateChildRoutes = function (futureNode, currNode, contexts) {\n var _this = this;\n var children = nodeChildrenAsMap(currNode);\n futureNode.children.forEach(function (c) {\n _this.activateRoutes(c, children[c.value.outlet], contexts);\n _this.forwardEvent(new\nActivationEnd(c.value.snapshot));\n });\n if (futureNode.children.length) {\n this.forwardEvent(new ChildActivationEnd(futureNode.value.snapshot));\n }\n }\n ActivateRoutes.prototype.activateRoutes = function (futureNode, currNode, parentContexts) {\n var future = futureNode.value;\n var curr = currNode ? currNode.value : null;\n advanceActivatedRoute(future);\n // reusing the node\n if (future\n === curr) {\n if (future.component) {\n // If we have a normal route, we need to go through an\noutlet.\n var context = parentContexts.getOrCreateContext(future.outlet);\n this.activateChildRoutes(futureNode, currNode, context.children);\n } else {\n // if\nwe have a componentless route, we recurse but keep the same outlet map.\n this.activateChildRoutes(futureNode, currNode, parentContexts);\n }\n } else {\n if (future.component) {\n // if we have a normal route, we need to place the component into the outlet\nand recurse.\n var context = parentContexts.getOrCreateContext(future.outlet);\n if\n(this.routeReuseStrategy.shouldAttach(future.snapshot)) {\n var stored =\nthis.routeReuseStrategy.retrieve(future.snapshot);\n this.routeReuseStrategy.store(future.snapshot, null);\n context.children.onOutletReAttached(stored.contexts);\n context.attachRef = stored.componentRef;\n context.route = stored.route.value;\n if (context.outlet) {\n // Attach\nright away when the outlet has already been instantiated\n // Otherwise attach from\n `RouterOutlet.ngOnInit` when it is instantiated\n context.outlet.attach(stored.componentRef,\n stored.route.value);\n }\n advanceActivatedRouteNodeAndItsChildren(stored.route);\n }\n else {\n var config = parentLoadedConfig(future.snapshot);\n var cmpFactoryResolver = config ? config.module.componentFactoryResolver : null;\n context.attachRef\n = null;\n context.route = future;\n context.resolver = cmpFactoryResolver;\n if (context.outlet) {\n // Activate the outlet when it has already been instantiated\n // Otherwise it will get activated from its `ngOnInit` when instantiated\n context.outlet.activateWith(future, cmpFactoryResolver);\n }\n this.activateChildRoutes(futureNode, null, context.children);\n }\n else {\n // if we have a componentless route, we recurse but keep the same outlet map.\n this.activateChildRoutes(futureNode, null, parentContexts);\n }\n }\n }\n return\n ActivateRoutes;\n }\n function advanceActivatedRouteNodeAndItsChildren(node) {\n advanceActivatedRoute(node.value);\n node.children.forEach(advanceActivatedRouteNodeAndItsChildren);\n }\n function\n parentLoadedConfig(snapshot) {\n for (var s = snapshot.parent; s; s = s.parent) {\n var route =\ns.routeConfig;\n if (route && route._loadedConfig)\n return route._loadedConfig;\n if (route\n&& route.component)\n return null;\n }\n return null;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n * license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var LoadedRouterConfig\n = /** @class */ (function () {\n function LoadedRouterConfig(routes, module) {\n this.routes = routes;\n this.module = module;\n }\n return LoadedRouterConfig;\n })();\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
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* Use of this source code is governed by an MIT-style license that can be found in the LICENSE file
at https://angular.io/license
*/
/**
 * Simple function check, but generic so type inference will flow.
Example:
 * function product(a: number, b: number) { return a * b; }
 * if (isFunction<product>(fn)) { return fn(1, 2); } else { throw "Must provide the `product` function"; }
 * function isFunction(v) { return typeof v === 'function'; }
 * function isBoolean(v) { return typeof v === 'boolean'; }
 * function isUrlTree(v) { return v instanceof UrlTree; }
 * function isCanLoad(guard) { return guard && isFunction(guard.canLoad); }
 * function isCanActivate(guard) { return guard && isFunction(guard.canActivate); }
 * function isCanActivateChild(guard) { return guard && isFunction(guard.canActivateChild); }
 * function isCanDeactivate(guard) { return guard && isFunction(guard.canDeactivate); }
var INITIAL_VALUE = Symbol('INITIAL_VALUE');
function prioritizedGuardValue() { return operators.switchMap(function (obs) { return rxjs.combineLatest.apply(void 0, __spread(obs.map(function (o) { return o.pipe(operators.take(1), operators.startWith(INITIAL_VALUE)); }))).pipe(operators.scan(function (acc, list) { var isPending = false; return list.reduce(function (innerAcc, val, i) { if (innerAcc !== INITIAL_VALUE) return innerAcc; // Toggle pending flag if any values haven't been set yet if (val === INITIAL_VALUE) isPending = true; // Any other return values are only valid if we haven't yet hit a pending // call. This guarantees that in the case of a guard at the bottom of the // tree that returns a redirect, we will wait for the higher priority // guard at the top to finish before performing the redirect. if (!isPending) { // Early return when we hit a `false` value as that should always // cancel navigation if (val === false) return val; if (i === list.length - 1 || isUrlTree(val)) { return val; } } return innerAcc; }, acc); }, INITIAL_VALUE), operators.filter(function (item) { return item !== INITIAL_VALUE; })), operators.map(function (item) { return isUrlTree(item) ? item : item === true; })), // operators.take(1)); }));
}
*/
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license
 * This component is used internally within the router to be a placeholder when an empty router-outlet is needed. For example, with a config such as:
 * {path: 'parent', outlet: 'nav', children: [...]}
 * In order to render, there needs to be a component on this config, which will default to this `EmptyOutletComponent`.
 */
var EmptyOutletComponent = /** @class */ (function () {
function EmptyOutletComponent() {}
return EmptyOutletComponent;
}());
EmptyOutletComponent.decorators = [{ type: core.Component, args: [{ template: "<router-outlet></router-outlet>" }, { path: " ", redirectTo: "/dashboard", pathMatch: "full" }, { path: "dashboard", component: DashboardComponent }, { path: "detail/:id", component: HeroDetailComponent }, { path: " " }];
if (Array.isArray(route)) throw new Error("Invalid configuration of route " + fullPath + ": Array cannot be specified");
if (!route.component && !route.children && !route.loadChildren && (route.outlet && route.outlet !== PRIMARY_OUTLET)) throw new Error("Invalid configuration of route " + fullPath + ": a componentless route without children or loadChildren cannot have a

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named outlet set("");\n }\n if (route.redirectTo && route.children) {\n throw new
Error("Invalid configuration of route \"" + fullPath + "\": redirectTo and children cannot be used together");\n
}\n if (route.redirectTo && route.loadChildren) {\n throw new Error("Invalid configuration of
route \"" + fullPath + "\": redirectTo and loadChildren
cannot be used together");\n }\n if (route.children && route.loadChildren) {\n throw new
Error("Invalid configuration of route \"" + fullPath + "\": children and loadChildren cannot be used together");\n
}\n if (route.redirectTo && route.component) {\n throw new Error("Invalid configuration of
route \"" + fullPath + "\": redirectTo and component cannot be used together");\n }\n if (route.path &&
route.matcher) {\n throw new Error("Invalid configuration of route \"" + fullPath + "\": path and matcher
cannot be used together");\n }\n if (route.redirectTo === void 0 && !route.component &&
!route.children && !route.loadChildren) {\n throw new Error("Invalid configuration of route \"" + fullPath
+ "\". One of the following must be provided: component, redirectTo, children or loadChildren");\n }\n
if (route.path
=== void 0 && route.matcher === void 0) {\n throw new Error("Invalid configuration of route \"" +
fullPath + "\": routes must have either a path or a matcher specified");\n }\n if (typeof route.path ===
'string' && route.path.charAt(0) === '/') {\n throw new Error("Invalid configuration of route \"" + fullPath
+ "\": path cannot start with a slash");\n }\n if (route.path === "" && route.redirectTo !== void 0 &&
route.pathMatch === void 0) {\n var exp = "The default value of 'pathMatch' is 'prefix', but often the
intent is to use 'full.'";\n throw new Error("Invalid configuration of route '{path: \"" + fullPath + "\"',
redirectTo: \"" + route.redirectTo + "\"}': please provide 'pathMatch'. " + exp);\n }\n if
(route.pathMatch !== void 0 && route.pathMatch !== 'full' && route.pathMatch !== 'prefix') {\n throw
new Error("Invalid
configuration of route \"" + fullPath + "\": pathMatch can only be set to 'prefix' or 'full'");\n }\n }\n
if (route.children) {\n validateConfig(route.children, fullPath);\n }\n }\n
function
getFullPath(parentPath, currentRoute) {\n if (!currentRoute) {\n return parentPath;\n }\n if
(!parentPath && !currentRoute.path) {\n return ";\n }\n else if (parentPath && !currentRoute.path)
{\n return parentPath + "\\^";\n }\n else if (!parentPath && currentRoute.path) {\n return
currentRoute.path;\n }\n else {\n return parentPath + "\\^" + currentRoute.path;\n }\n }\n
/**\n * Makes a copy of the config and adds any default required properties.\n */\n function
standardizeConfig(r) {\n var children = r.children && r.children.map(standardizeConfig);\n var c =
children ? Object.assign(Object.assign({},
r), { children: children }) : Object.assign({}, r);\n if (!c.component && (children || c.loadChildren) &&
(c.outlet && c.outlet !== PRIMARY_OUTLET)) {\n c.component = EmptyOutletComponent;\n }\n
return c;\n }\n /** Returns of `Map` of outlet names to the `Route`s for that outlet. */\n function
groupRoutesByOutlet(routes) {\n return routes.reduce(function (map, route) {\n var routeOutlet =
getOutlet(route);\n if (map.has(routeOutlet)) {\n map.get(routeOutlet).push(route);\n }\n
else {\n map.set(routeOutlet, [route]);\n }\n return map;\n }, new Map());\n }\n /**
Returns the `route.outlet` or PRIMARY_OUTLET if none exists. */\n function getOutlet(route) {\n return
route.outlet || PRIMARY_OUTLET;\n }\n var NoMatch = /** @class */ (function () {\n function
NoMatch(segmentGroup) {\n this.segmentGroup
= segmentGroup || null;\n }\n return NoMatch;\n }());\n var AbsoluteRedirect = /** @class */ (function
() {\n function AbsoluteRedirect(urlTree) {\n this.urlTree = urlTree;\n }\n return
AbsoluteRedirect;\n }());\n function noMatch(segmentGroup) {\n return new rxjs.Observable(function (obs)
{\n return obs.error(new NoMatch(segmentGroup));\n });\n }\n function absoluteRedirect(newTree) {\n return
new rxjs.Observable(function (obs) {\n return obs.error(new AbsoluteRedirect(newTree));\n });\n }\n function
namedOutletsRedirect(redirectTo) {\n return new rxjs.Observable(function (obs) {\n return obs.error(new
Error("Only absolute redirects can have named outlets. redirectTo: \"" + redirectTo + "\"")); \n });\n }\n function
canLoadFails(route) {\n return new rxjs.Observable(function (obs) {\n return

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obs.error(navigationCancelingError("\Cannot load children because the guard of the route \\"path:
\" + route.path + \"\" returned false\"); });\n } \n /**\n * Returns the `UrlTree` with the redirection
applied.\n * \n * Lazy modules are loaded along the way.\n */\n function applyRedirects(moduleInjector,
configLoader, urlSerializer, urlTree, config) {\n return new ApplyRedirects(moduleInjector, configLoader,
urlSerializer, urlTree, config).apply();\n } \n var ApplyRedirects = /** @class */ (function () {\n function
ApplyRedirects(moduleInjector, configLoader, urlSerializer, urlTree, config) {\n this.configLoader =
configLoader;\n this.urlSerializer = urlSerializer;\n this.urlTree = urlTree;\n this.config =
config;\n this.allowRedirects = true;\n this.ngModule = moduleInjector.get(core.NgModuleRef);\n } \n
ApplyRedirects.prototype.apply = function () {\n var _this = this;\n var expanded$ =
this.expandSegmentGroup(this.ngModule, this.config,
this.urlTree.root, PRIMARY_OUTLET);\n var urlTrees$ = expanded$.pipe(operators.map(function
(rootSegmentGroup) { return _this.createUrlTree(rootSegmentGroup, _this.urlTree.queryParams,
_this.urlTree.fragment); }));\n return urlTrees$.pipe(operators.catchError(function (e) {\n if (e
instanceof AbsoluteRedirect) {\n // after an absolute redirect we do not apply any more redirects!\n
_this.allowRedirects = false;\n // we need to run matching, so we can fetch all lazy-loaded
modules\n return _this.match(e.urlTree);\n } \n if (e instanceof NoMatch) {\n
throw _this.noMatchError(e);\n } \n throw e;\n }));\n });\n
ApplyRedirects.prototype.match = function (tree) {\n var _this = this;\n var expanded$ =
this.expandSegmentGroup(this.ngModule, this.config,
tree.root, PRIMARY_OUTLET);\n var mapped$ = expanded$.pipe(operators.map(function
(rootSegmentGroup) { return _this.createUrlTree(rootSegmentGroup, tree.queryParams, tree.fragment); }));\n
return mapped$.pipe(operators.catchError(function (e) {\n if (e instanceof NoMatch) {\n throw
_this.noMatchError(e);\n } \n throw e;\n }));\n });\n
ApplyRedirects.prototype.noMatchError = function (e) {\n return new Error("\Cannot match any routes. URL
Segment: \" + e.segmentGroup + \"\");\n }; \n
ApplyRedirects.prototype.createUrlTree = function
(rootCandidate, queryParams, fragment) {\n var _a;\n var root = rootCandidate.segments.length > 0
?\n new UrlSegmentGroup([], (_a = {}, _a[PRIMARY_OUTLET] = rootCandidate, _a)) :\n
rootCandidate;\n return new UrlTree(root, queryParams, fragment);\n }; \n
ApplyRedirects.prototype.expandSegmentGroup = function (ngModule, routes, segmentGroup, outlet) {\n
if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return
this.expandChildren(ngModule, routes, segmentGroup)\n .pipe(operators.map(function (children) {
return new UrlSegmentGroup([], children); }));\n } \n return this.expandSegment(ngModule,
segmentGroup, routes, segmentGroup.segments, outlet, true);\n }; \n // Recursively expand segment groups
for all the child outlets\n
ApplyRedirects.prototype.expandChildren = function (ngModule, routes,
segmentGroup) {\n var _this = this;\n return waitForMap(segmentGroup.children, function
(childOutlet, child) { return _this.expandSegmentGroup(ngModule, routes, child, childOutlet); });\n }; \n
ApplyRedirects.prototype.expandSegment = function (ngModule, segmentGroup, routes, segments, outlet,
allowRedirects)
{\n var _this = this;\n // We need to expand each outlet group independently to ensure that we not only
load modules\n // for routes matching the given `outlet`, but also those which will be activated because\n
// their path is empty string. This can result in multiple outlets being activated at once.\n var routesByOutlet
= groupRoutesByOutlet(routes);\n if (!routesByOutlet.has(outlet)) {\n routesByOutlet.set(outlet,
[]);\n } \n var expandRoutes = function (routes) {\n return
rxjs.from(routes).pipe(operators.concatMap(function (r) {\n var expanded$ =
_this.expandSegmentAgainstRoute(ngModule, segmentGroup, routes, r, segments, outlet, allowRedirects);\n
return expanded$.pipe(operators.catchError(function (e) {\n if (e instanceof NoMatch) {\n
return rxjs.of(null);\n } \n

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 }\n throw e;\n });\n }), operators.first(function (s) { return s !== null; })),
operators.catchError(function (e) {\n if (e instanceof rxjs.EmptyError || e.name === 'EmptyError') {\n
 if (_this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n return rxjs.of(new
UrlSegmentGroup([], {}));\n }\n throw new NoMatch(segmentGroup);\n
}\n throw e;\n });\n };\n var expansions =
Array.from(routesByOutlet.entries()).map(function (_a) {\n var _b = __read(_a, 2), routeOutlet = _b[0],
routes = _b[1];\n var expanded = expandRoutes(routes);\n // Map all results from outlets we aren't
activating to `null` so they can be ignored later\n return routeOutlet === outlet ? expanded :\n
 expanded.pipe(operators.map(function () { return null; })), operators.catchError(function () { return
rxjs.of(null); }));\n });\n return rxjs.from(expansions)\n .pipe(operators.combineAll(),
operators.first(), \n // Return only the expansion for the route outlet we are trying to activate.\n
operators.map(function (results) { return results.find(function (result) { return result !== null; }));\n });\n
ApplyRedirects.prototype.noLeftoversInUrl = function (segmentGroup, segments, outlet) {\n return
segments.length === 0 && !segmentGroup.children[outlet];\n };\n
ApplyRedirects.prototype.expandSegmentAgainstRoute = function (ngModule, segmentGroup, routes, route, paths,
outlet, allowRedirects) {\n // Empty string segments are special because multiple outlets can match a single
path, i.e.\n // [{path: "", component: B}, {path: "", loadChildren: () => {}}, outlet:
\"about\"]\n if (getOutlet(route) !== outlet && route.path !== "") {\n return
noMatch(segmentGroup);\n }\n if (route.redirectTo === undefined) {\n return
this.matchSegmentAgainstRoute(ngModule, segmentGroup, route, paths);\n }\n if (allowRedirects &&
this.allowRedirects) {\n return this.expandSegmentAgainstRouteUsingRedirect(ngModule, segmentGroup,
routes, route, paths, outlet);\n }\n return noMatch(segmentGroup);\n };\n
ApplyRedirects.prototype.expandSegmentAgainstRouteUsingRedirect = function (ngModule, segmentGroup,
routes, route, segments, outlet) {\n if (route.path === '**') {\n return
this.expandWildcardWithParamsAgainstRouteUsingRedirect(ngModule, routes, route, outlet);\n }\n
return this.expandRegularSegmentAgainstRouteUsingRedirect(ngModule, segmentGroup, routes, route, segments,
outlet);\n
}\n
ApplyRedirects.prototype.expandWildcardWithParamsAgainstRouteUsingRedirect = function
(ngModule, routes, route, outlet) {\n var _this = this;\n var newTree = this.applyRedirectCommands([],
route.redirectTo, {});\n if (route.redirectTo.startsWith('/')) {\n return absoluteRedirect(newTree);\n
}\n return this.linalizeSegments(route, newTree).pipe(operators.mergeMap(function (newSegments)
{\n var group = new UrlSegmentGroup(newSegments, {});\n return
_this.expandSegment(ngModule, group, routes, newSegments, outlet, false);\n }));\n };\n
ApplyRedirects.prototype.expandRegularSegmentAgainstRouteUsingRedirect = function (ngModule,
segmentGroup, routes, route, segments, outlet) {\n var _this = this;\n var _a = match(segmentGroup,
route, segments), matched = _a.matched, consumedSegments = _a.consumedSegments, lastChild = _a.lastChild,
positionalParamSegments = _a.positionalParamSegments;\n if (!matched)\n return
noMatch(segmentGroup);\n var newTree = this.applyRedirectCommands(consumedSegments,
route.redirectTo, positionalParamSegments);\n if (route.redirectTo.startsWith('/')) {\n return
absoluteRedirect(newTree);\n }\n return this.linalizeSegments(route,
newTree).pipe(operators.mergeMap(function (newSegments) {\n return _this.expandSegment(ngModule,
segmentGroup, routes, newSegments.concat(segments.slice(lastChild)), outlet, false);\n }));\n };\n
ApplyRedirects.prototype.matchSegmentAgainstRoute = function (ngModule, rawSegmentGroup, route, segments)
{\n var _this = this;\n if (route.path === '**') {\n if (route.loadChildren) {\n
return this.configLoader.load(ngModule.injector, route)\n .pipe(operators.map(function
(cfg) {\n route._loadedConfig = cfg;\n return new UrlSegmentGroup(segments, {});\n
}));\n }\n }\n return rxjs.of(new UrlSegmentGroup(segments, {}));\n }\n var
_a = match(rawSegmentGroup, route, segments), matched = _a.matched, consumedSegments =

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_a.consumedSegments, lastChild = _a.lastChild;\n if (!matched)\n return\n noMatch(rawSegmentGroup);\n var rawSlicedSegments = segments.slice(lastChild);\n var\n childConfig$ = this.getChildConfig(ngModule, route, segments);\n return\n childConfig$.pipe(operators.mergeMap(function (routerConfig) {\n var childModule =\n routerConfig.module;\n var childConfig = routerConfig.routes;\n var _a =\n split(rawSegmentGroup, consumedSegments, rawSlicedSegments, childConfig), segmentGroup =\n _a.segmentGroup, slicedSegments = _a.slicedSegments;\n\n if (slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n var expanded$_1 =\n _this.expandChildren(childModule, childConfig, segmentGroup);\n return\n expanded$_1.pipe(operators.map(function (children) { return new UrlSegmentGroup(consumedSegments, children);\n }));\n }\n if (childConfig.length === 0 && slicedSegments.length === 0) {\n return\n rxjs.of(new UrlSegmentGroup(consumedSegments, {}));\n }\n var expanded$ =\n _this.expandSegment(childModule, segmentGroup, childConfig, slicedSegments, PRIMARY_OUTLET, true);\n return expanded$.pipe(operators.map(function (cs) { return new\n UrlSegmentGroup(consumedSegments.concat(cs.segments), cs.children); }));\n }));\n }\n ApplyRedirects.prototype.getChildConfig = function (ngModule, route, segments) {\n var _this = this;\n if (route.children) {\n // The children belong to the same module\n return rxjs.of(new\n LoadedRouterConfig(route.children, ngModule));\n }\n if (route.loadChildren) {\n // lazy\n children belong to the loaded module\n if (route._loadedConfig !== undefined) {\n return\n rxjs.of(route._loadedConfig);\n }\n return this.runCanLoadGuards(ngModule.injector, route,\n segments)\n .pipe(operators.mergeMap(function (shouldLoadResult) {\n if\n (shouldLoadResult) {\n return _this.configLoader.load(ngModule.injector, route)\n }\n .pipe(operators.map(function (cfg) {\n route._loadedConfig = cfg;\n return cfg;\n }));\n }));\n return canLoadFails(route);\n }\n return\n rxjs.of(new\n LoadedRouterConfig([], ngModule));\n };\n ApplyRedirects.prototype.runCanLoadGuards = function\n (moduleInjector, route, segments) {\n var _this = this;\n var canLoad = route.canLoad;\n if\n (!canLoad || canLoad.length === 0)\n return rxjs.of(true);\n var canLoadObservables =\n canLoad.map(function (injectionToken) {\n var guard = moduleInjector.get(injectionToken);\n var guardVal;\n if (isCanLoad(guard)) {\n guardVal = guard.canLoad(route, segments);\n }\n else if (isFunction(guard)) {\n guardVal = guard(route, segments);\n }\n else {\n throw new Error('Invalid CanLoad guard');\n }\n return\n wrapIntoObservable(guardVal);\n });\n return rxjs.of(canLoadObservables)\n .pipe(prioritizedGuardValue(),\n operators.tap(function (result) {\n if (!isUrlTree(result))\n return;\n var error =\n navigationCancelingError(\"Redirecting to \" + _this.urlSerializer.serialize(result) + \"\");\n error.url\n = result;\n throw error;\n })), operators.map(function (result) { return result === true; }));\n }\n ApplyRedirects.prototype.linalizeSegments = function (route, urlTree) {\n var res = [];\n var c =\n urlTree.root;\n while (true) {\n res = res.concat(c.segments);\n if (c.numberOfChildren\n === 0) {\n return rxjs.of(res);\n }\n if (c.numberOfChildren > 1 ||\n !c.children[PRIMARY_OUTLET]) {\n return namedOutletsRedirect(route.redirectTo);\n }\n c = c.children[PRIMARY_OUTLET];\n }\n }\n ApplyRedirects.prototype.applyRedirectCommands\n = function (segments, redirectTo, posParams) {\n return this.applyRedirectCreateUrlTree(redirectTo,\n this.urlSerializer.parse(redirectTo), segments, posParams);\n }\n ApplyRedirects.prototype.applyRedirectCreateUrlTree = function (redirectTo, urlTree, segments, posParams) {\n var newRoot = this.createSegmentGroup(redirectTo, urlTree.root, segments, posParams);\n return new

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UrlTree(newRoot, this.createQueryParams(urlTree.queryParams, this.urlTree.queryParams), urlTree.fragment);\n
});\n
ApplyRedirects.prototype.createQueryParams = function (redirectToParams, actualParams) {\n
 var\n
 res = {};\n
 forEach(redirectToParams, function (v, k) {\n
 var copySourceValue = typeof v ===\n
 'string' && v.startsWith(':');\n
 if (copySourceValue) {\n
 var sourceName = v.substring(1);\n
 res[k] = actualParams[sourceName];\n
 }\n
 else {\n
 res[k] = v;\n
 }\n
 });\n
 return res;\n
};\n
ApplyRedirects.prototype.createSegmentGroup = function (redirectTo, group, segments, posParams) {\n
 var\n
 _this = this;\n
 var updatedSegments = this.createSegments(redirectTo, group.segments, segments,\n
 posParams);\n
 var children = {};\n
 forEach(group.children, function (child, name) {\n
 children[name] = _this.createSegmentGroup(redirectTo, child, segments, posParams);\n
 });\n
 return\n
 new UrlSegmentGroup(updatedSegments, children);\n
};\n
ApplyRedirects.prototype.createSegments =\n
function (redirectTo, redirectToSegments, actualSegments, posParams) {\n
 var _this = this;\n
 return\n
 redirectToSegments.map(function (s) { return s.path.startsWith(':') ? _this.findPosParam(redirectTo, s, posParams)\n
 : _this.findOrReturn(s,\n
 actualSegments); });\n
};\n
ApplyRedirects.prototype.findPosParam = function (redirectTo,\n
 redirectToUrlSegment, posParams) {\n
 var pos = posParams[redirectToUrlSegment.path.substring(1)];\n
 if (!pos)\n
 throw new Error("\Cannot redirect to \"" + redirectTo + "\". Cannot find \"" +\n
 redirectToUrlSegment.path + "\".");\n
 return pos;\n
};\n
ApplyRedirects.prototype.findOrReturn =\n
function (redirectToUrlSegment, actualSegments) {\n
 var e_1, _a;\n
 var idx = 0;\n
 try {\n
 for (var actualSegments_1 = __values(actualSegments), actualSegments_1_1 = actualSegments_1.next();\n
 !actualSegments_1_1.done; actualSegments_1_1 = actualSegments_1.next()) {\n
 var s =\n
 actualSegments_1_1.value;\n
 if (s.path === redirectToUrlSegment.path) {\n
 actualSegments.splice(idx);\n
 return s;\n
 }\n
 idx++;\n
 }\n
 catch (e_1_1) { e_1 = { error: e_1_1 }; }\n
 finally {\n
 try {\n
 if (actualSegments_1_1 && !actualSegments_1_1.done && (_a =\n
 actualSegments_1.return)) _a.call(actualSegments_1);\n
 }\n
 return redirectToUrlSegment;\n
 }\n
 }\n
 return ApplyRedirects;\n
}();\n
function\n
match(segmentGroup, route, segments) {\n
 if (route.path === "") {\n
 if ((route.pathMatch === 'full') &&\n
 (segmentGroup.hasChildren() || segments.length > 0)) {\n
 return { matched: false, consumedSegments: [],\n
 lastChild: 0, positionalParamSegments: {} };\n
 }\n
 return { matched: true, consumedSegments: [],\n
 lastChild: 0, positionalParamSegments: {} };\n
 }\n
 var matcher = route.matcher || defaultUrlMatcher;\n
 var res = matcher(segments,\n
 segmentGroup, route);\n
 if (!res) {\n
 return {\n
 matched: false,\n
 consumedSegments:\n
 [],\n
 lastChild: 0,\n
 positionalParamSegments: {};\n
 }\n
 }\n
 return {\n
 matched: true,\n
 consumedSegments: res.consumed,\n
 lastChild: res.consumed.length,\n
 positionalParamSegments: res.posParams;\n
 };\n
}\n
function split(segmentGroup, consumedSegments,\n
 slicedSegments, config) {\n
 if (slicedSegments.length > 0 &&\n
 containsEmptyPathRedirectsWithNamedOutlets(segmentGroup, slicedSegments, config)) {\n
 var s = new\n
 UrlSegmentGroup(consumedSegments, createChildrenForEmptySegments(config, new\n
 UrlSegmentGroup(slicedSegments, segmentGroup.children)));\n
 return { segmentGroup:\n
 mergeTrivialChildren(s, slicedSegments: [] };\n
 }\n
 if (slicedSegments.length === 0 &&\n
 containsEmptyPathRedirects(segmentGroup,\n
 slicedSegments, config)) {\n
 var s = new UrlSegmentGroup(segmentGroup.segments,\n
 addEmptySegmentsToChildrenIfNeeded(segmentGroup, slicedSegments, config, segmentGroup.children));\n
 return { segmentGroup: mergeTrivialChildren(s), slicedSegments: slicedSegments };\n
 }\n
 return {\n
 segmentGroup: segmentGroup, slicedSegments: slicedSegments };\n
}\n
function mergeTrivialChildren(s) {\n
 if (s.numberOfChildren === 1 && s.children[PRIMARY_OUTLET]) {\n
 var c =\n
 s.children[PRIMARY_OUTLET];\n
 return new UrlSegmentGroup(s.segments.concat(c.segments),

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c.children);\n }\n return s;\n }\n function addEmptySegmentsToChildrenIfNeeded(segmentGroup,
slicedSegments, routes, children) {\n var e_2, _a;\n var res = {};\n try {\n for (var routes_1 =
__values(routes), routes_1_1 = routes_1.next(); !routes_1_1.done; routes_1_1 = routes_1.next()) {\n var r
= routes_1_1.value;\n if (isEmptyPathRedirect(segmentGroup, slicedSegments, r) &&
!children[getOutlet(r)]) {\n res[getOutlet(r)] = new UrlSegmentGroup([], {});\n }\n }\n } catch (e_2_1) {\n e_2 = { error: e_2_1 }; \n } finally {\n try {\n if (routes_1_1 &&
!routes_1_1.done && (_a = routes_1.return)) _a.call(routes_1);\n } finally {\n if (e_2) throw e_2.error;\n }\n }\n return Object.assign(Object.assign({}, children), res);\n }\n function
createChildrenForEmptySegments(routes, primarySegmentGroup) {\n var e_3, _a;\n var res = {};\n res[PRIMARY_OUTLET] = primarySegmentGroup;\n try {\n for (var routes_2 = __values(routes),
routes_2_1 = routes_2.next(); !routes_2_1.done; routes_2_1 = routes_2.next()) {\n var r =
routes_2_1.value;\n if (r.path === " && getOutlet(r) !== PRIMARY_OUTLET)
{\n res[getOutlet(r)] = new UrlSegmentGroup([], {});\n }\n }\n } catch
(e_3_1) {\n e_3 = { error: e_3_1 }; \n } finally {\n try {\n if (routes_2_1 && !routes_2_1.done
&& (_a = routes_2.return)) _a.call(routes_2);\n } finally {\n if (e_3) throw e_3.error;\n }\n }\n return res;\n }\n function containsEmptyPathRedirectsWithNamedOutlets(segmentGroup, segments, routes) {\n
 return routes.some(function (r) {\n return isEmptyPathRedirect(segmentGroup, segments, r) && getOutlet(r) !==
PRIMARY_OUTLET;\n });\n }\n function containsEmptyPathRedirects(segmentGroup, segments, routes) {\n
 return routes.some(function (r) {\n return isEmptyPathRedirect(segmentGroup, segments, r);\n });\n }\n function
isEmptyPathRedirect(segmentGroup, segments, r) {\n if ((segmentGroup.hasChildren() || segments.length > 0)
&& r.pathMatch === 'full') {\n return false;\n }\n return r.path === " && r.redirectTo !== undefined;\n }\n /**\n * @license\n
 * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n function
applyRedirects$1(moduleInjector, configLoader, urlSerializer, config) {\n return function (source) {\n return source.pipe(operators.switchMap(function (t) {\n return applyRedirects(moduleInjector, configLoader,
urlSerializer, t.extractedUrl, config);\n })).pipe(operators.map(function (urlAfterRedirects) {\n return
(Object.assign(Object.assign({}, t), { urlAfterRedirects: urlAfterRedirects }));\n }));\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file
at https://angular.io/license\n */\n var CanActivate = /** @class */ (function () {\n function
CanActivate(path) {\n this.path = path;\n this.route = this.path[this.path.length - 1];\n }\n return CanActivate;\n })();\n var CanDeactivate = /** @class */ (function () {\n function
CanDeactivate(component, route) {\n this.component = component;\n this.route = route;\n }\n return CanDeactivate;\n })();\n function getAllRouteGuards(future, curr, parentContexts) {\n var futureRoot
= future._root;\n var currRoot = curr ? curr._root : null;\n return getChildRouteGuards(futureRoot,
currRoot, parentContexts, [futureRoot.value]);\n }\n function getCanActivateChild(p) {\n var
canActivateChild = p.routeConfig ? p.routeConfig.canActivateChild : null;\n if (!canActivateChild ||
canActivateChild.length === 0)\n return null;\n return { node:
p, guards: canActivateChild };\n }\n function getToken(token, snapshot, moduleInjector) {\n var config =
getClosestLoadedConfig(snapshot);\n var injector = config ? config.module.injector : moduleInjector;\n return injector.get(token);\n }\n function getClosestLoadedConfig(snapshot) {\n if (!snapshot)\n return null;\n for (var s = snapshot.parent; s; s = s.parent) {\n var route = s.routeConfig;\n if (route
&& route._loadedConfig)\n return route._loadedConfig;\n }\n return null;\n }\n function
getChildRouteGuards(futureNode, currNode, contexts, futurePath, checks) {\n if (checks === void 0) {\n checks
= {\n canDeactivateChecks: [],\n canActivateChecks: [];\n };\n }\n var prevChildren =
nodeChildrenAsMap(currNode);\n // Process the children of the future route\n futureNode.children.forEach(function (c) {\n getRouteGuards(c,

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prevChildren[c.value.outlet], contexts, futurePath.concat([c.value]), checks);\n delete
prevChildren[c.value.outlet];\n });\n // Process any children left from the current route (not active for the
future route)\n forEach(prevChildren, function (v, k) { return deactivateRouteAndItsChildren(v,
contexts.getContext(k), checks); });\n return checks;\n }\n function getRouteGuards(futureNode, currNode,
parentContexts, futurePath, checks) {\n if (checks === void 0) { checks = {\n canDeactivateChecks: [],\n canActivateChecks: []\n }; }\n var future = futureNode.value;\n var curr = currNode ?
currNode.value : null;\n var context = parentContexts ? parentContexts.getContext(futureNode.value.outlet) :
null;\n // reusing the node\n if (curr && future.routeConfig === curr.routeConfig) {\n var shouldRun
= shouldRunGuardsAndResolvers(curr, future, future.routeConfig.runGuardsAndResolvers);\n if (shouldRun) {\n checks.canActivateChecks.push(new CanActivate(futurePath));\n }\n else {\n // we need to set the data\n future.data = curr.data;\n future._resolvedData =
curr._resolvedData;\n }\n // If we have a component, we need to go through an outlet.\n if
(future.component) {\n getChildRouteGuards(futureNode, currNode, context ? context.children : null,
futurePath, checks);\n // if we have a componentless route, we recurse but keep the same outlet map.\n }\n else {\n getChildRouteGuards(futureNode, currNode, parentContexts, futurePath, checks);\n }\n if (shouldRun && context && context.outlet && context.outlet.isActivated) {\n checks.canDeactivateChecks.push(new CanDeactivate(context.outlet.component, curr));\n }\n }\n else {\n if (curr) {\n deactivateRouteAndItsChildren(currNode, context,
checks);\n }\n checks.canActivateChecks.push(new CanActivate(futurePath));\n // If we have a
component, we need to go through an outlet.\n if (future.component) {\n getChildRouteGuards(futureNode, null, context ? context.children : null, futurePath, checks);\n // if we
have a componentless route, we recurse but keep the same outlet map.\n }\n else {\n getChildRouteGuards(futureNode, null, parentContexts, futurePath, checks);\n }\n }\n return
checks;\n }\n function shouldRunGuardsAndResolvers(curr, future, mode) {\n if (typeof mode ===
'function') {\n return mode(curr, future);\n }\n switch (mode) {\n case 'pathParamsChange':\n return !equalPath(curr.url, future.url);\n case 'pathParamsOrQueryParamsChange':\n return !equalPath(curr.url, future.url) ||\n !shallowEqual(curr.queryParams, future.queryParams);\n case 'always':\n return true;\n case
'paramsOrQueryParamsChange':\n return !equalParamsAndUrlSegments(curr, future) ||\n !shallowEqual(curr.queryParams, future.queryParams);\n case 'paramsChange':\n default:\n return !equalParamsAndUrlSegments(curr, future);\n }\n }\n function deactivateRouteAndItsChildren(route,
context, checks) {\n var children = nodeChildrenAsMap(route);\n var r = route.value;\n forEach(children, function (node, childName) {\n if (!r.component) {\n deactivateRouteAndItsChildren(node, context, checks);\n }\n else if (context) {\n deactivateRouteAndItsChildren(node, context.children.getContext(childName),
checks);\n }\n else {\n deactivateRouteAndItsChildren(node, null, checks);\n }\n });\n if (!r.component) {\n checks.canDeactivateChecks.push(new CanDeactivate(null, r));\n }\n else if (context && context.outlet && context.outlet.isActivated) {\n checks.canDeactivateChecks.push(new
CanDeactivate(context.outlet.component, r));\n }\n else {\n checks.canDeactivateChecks.push(new
CanDeactivate(null, r));\n }\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n function checkGuards(moduleInjector, forwardEvent) {\n return function (source) {\n return source.pipe(operators.mergeMap(function (t) {\n var
targetSnapshot
= t.targetSnapshot, currentSnapshot = t.currentSnapshot, _a = t.guards, canActivateChecks = _a.canActivateChecks,
canDeactivateChecks = _a.canDeactivateChecks;\n if (canDeactivateChecks.length === 0 &&
canActivateChecks.length === 0) {\n return rxjs.of(Object.assign(Object.assign({}, t), { guardsResult:
true }));\n }\n return runCanDeactivateChecks(canDeactivateChecks, targetSnapshot,

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currentSnapshot, moduleInjector)\n .pipe(operators.mergeMap(function (canDeactivate) {\n
return canDeactivate && isBoolean(canDeactivate) ?\n runCanActivateChecks(targetSnapshot,\n
canActivateChecks, moduleInjector, forwardEvent) :\n rxjs.of(canDeactivate);\n })),\n
operators.map(function (guardsResult) { return (Object.assign(Object.assign({}, t), { guardsResult: guardsResult\n
})); }));\n }));\n }\n }\n function runCanDeactivateChecks(checks,\n
futureRSS, currRSS, moduleInjector) {\n return rxjs.from(checks).pipe(operators.mergeMap(function (check) {\n
return runCanDeactivate(check.component, check.route, currRSS, futureRSS, moduleInjector);\n
operators.first(function (result) {\n return result !== true;\n }, true));\n }\n function\n
runCanActivateChecks(futureSnapshot, checks, moduleInjector, forwardEvent) {\n return\n
rxjs.from(checks).pipe(operators.concatMap(function (check) {\n return rxjs.from([\n
fireChildActivationStart(check.route.parent, forwardEvent),\n fireActivationStart(check.route,\n
forwardEvent),\n runCanActivateChild(futureSnapshot, check.path, moduleInjector),\n
runCanActivate(futureSnapshot, check.route, moduleInjector)\n])\n .pipe(operators.concatAll(),\n
operators.first(function (result) {\n return result !== true;\n }, true));\n }\n
)), operators.first(function (result) {\n return result !== true;\n }, true));\n }\n /**\n * This\n
should fire off `ActivationStart` events for each route being activated at this\n * level.\n * In other words, if\n
you're activating `a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will\n
fire `ActivationStart` for both. Always\n * return\n * `true` so checks continue to run.\n */\n function\n
fireActivationStart(snapshot, forwardEvent) {\n if (snapshot !== null && forwardEvent) {\n
forwardEvent(new ActivationStart(snapshot));\n }\n return rxjs.of(true);\n }\n /**\n * This should\n
fire off `ChildActivationStart` events for each route being activated at this\n * level.\n * In other words, if\n
you're activating `a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will\n
fire `ChildActivationStart` for both. Always\n * return\n * `true` so checks continue to run.\n */\n function fireChildActivationStart(snapshot,\n
forwardEvent) {\n if (snapshot !== null && forwardEvent) {\n
forwardEvent(new\n
ChildActivationStart(snapshot));\n }\n return rxjs.of(true);\n }\n function runCanActivate(futureRSS,\n
futureARS, moduleInjector) {\n var canActivate = futureARS.routeConfig ?\n
futureARS.routeConfig.canActivate : null;\n if (!canActivate || canActivate.length === 0)\n return\n
rxjs.of(true);\n var canActivateObservables = canActivate.map(function (c) {\n return rxjs.defer(function\n
() {\n var guard = getToken(c, futureARS, moduleInjector);\n var observable;\n if\n
(isCanActivate(guard)) {\n observable = wrapIntoObservable(guard.canActivate(futureARS,\n
futureRSS));\n }\n else if (isFunction(guard)) {\n observable =\n
wrapIntoObservable(guard(futureARS, futureRSS));\n }\n else {\n throw new\n
Error('Invalid CanActivate guard');\n }\n return observable.pipe(operators.first());\n }));\n }\n return rxjs.of(canActivateObservables).pipe(prioritizedGuardValue());\n }\n function\n
runCanActivateChild(futureRSS, path, moduleInjector) {\n var futureARS = path[path.length - 1];\n var\n
canActivateChildGuards = path.slice(0, path.length - 1)\n .reverse()\n .map(function (p) {\n return\n
getCanActivateChild(p);\n })\n .filter(function (_) {\n return _ !== null;\n });\n var\n
canActivateChildGuardsMapped = canActivateChildGuards.map(function (d) {\n return rxjs.defer(function ()\n
{\n var guardsMapped = d.guards.map(function (c) {\n var guard = getToken(c, d.node,\n
moduleInjector);\n var observable;\n\n
if (isCanActivateChild(guard)) {\n observable =\n
wrapIntoObservable(guard.canActivateChild(futureARS, futureRSS));\n }\n else if\n
(isFunction(guard)) {\n observable = wrapIntoObservable(guard(futureARS, futureRSS));\n }\n }\n else {\n throw new Error('Invalid CanActivateChild guard');\n }\n }\n return\n
observable.pipe(operators.first());\n }));\n return\n
rxjs.of(guardsMapped).pipe(prioritizedGuardValue());\n }\n }\n }\n return\n
rxjs.of(canActivateChildGuardsMapped).pipe(prioritizedGuardValue());\n }\n }\n function

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runCanDeactivate(component, currARS, currRSS, futureRSS, moduleInjector) {\n var canDeactivate =
currARS && currARS.routeConfig ? currARS.routeConfig.canDeactivate : null;\n if (!canDeactivate ||
canDeactivate.length === 0)\n
 return rxjs.of(true);\n var canDeactivateObservables = canDeactivate.map(function (c) {\n var
guard = getToken(c, currARS, moduleInjector);\n var observable;\n if (isCanDeactivate(guard)) {\n
observable = wrapIntoObservable(guard.canDeactivate(component, currARS, currRSS, futureRSS));\n
}\n else if (isFunction(guard)) {\n observable = wrapIntoObservable(guard(component, currARS,
currRSS, futureRSS));\n }\n else {\n throw new Error('Invalid CanDeactivate guard');\n
}\n return observable.pipe(operators.first());\n });\n return
rxjs.of(canDeactivateObservables).pipe(prioritizedGuardValue());\n }\n\n var NoMatch$1 = /** @class */
(function () {\n function NoMatch() {\n }\n return NoMatch;\n }());\n function
recognize(rootComponentType, config, urlTree, url, paramsInheritanceStrategy,
relativeLinkResolution) {\n if (paramsInheritanceStrategy === void 0) { paramsInheritanceStrategy =
'emptyOnly'; }\n if (relativeLinkResolution === void 0) { relativeLinkResolution = 'legacy'; }\n return new
Recognizer(rootComponentType, config, urlTree, url, paramsInheritanceStrategy, relativeLinkResolution)\n
 .recognize();\n }\n var Recognizer = /** @class */ (function () {\n function
Recognizer(rootComponentType, config, urlTree, url, paramsInheritanceStrategy, relativeLinkResolution) {\n
this.rootComponentType = rootComponentType;\n this.config = config;\n this.urlTree = urlTree;\n
 this.url = url;\n this.paramsInheritanceStrategy = paramsInheritanceStrategy;\n
 this.relativeLinkResolution = relativeLinkResolution;\n }\n Recognizer.prototype.recognize = function ()
{\n try {\n var rootSegmentGroup = split$1(this.urlTree.root, [], [], this.config,
this.relativeLinkResolution).segmentGroup;\n var children = this.processSegmentGroup(this.config,
rootSegmentGroup, PRIMARY_OUTLET);\n var root = new ActivatedRouteSnapshot([],
Object.freeze({}), Object.freeze(Object.assign({}, this.urlTree.queryParams)), this.urlTree.fragment, {},
PRIMARY_OUTLET, this.rootComponentType, null, this.urlTree.root, -1, {});\n var rootNode = new
TreeNode(root, children);\n var routeState = new RouterStateSnapshot(this.url, rootNode);\n
 this.inheritParamsAndData(routeState._root);\n return rxjs.of(routeState);\n }\n catch (e) {\n
return new rxjs.Observable(function (obs) { return obs.error(e); });\n }\n };\n
 Recognizer.prototype.inheritParamsAndData = function (routeNode) {\n var _this = this;\n var route =
routeNode.value;\n var i = inheritedParamsDataResolve(route,
this.paramsInheritanceStrategy);\n route.params = Object.freeze(i.params);\n route.data =
Object.freeze(i.data);\n routeNode.children.forEach(function (n) { return _this.inheritParamsAndData(n);
});\n };\n Recognizer.prototype.processSegmentGroup = function (config, segmentGroup, outlet) {\n
if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return
this.processChildren(config, segmentGroup);\n }\n return this.processSegment(config, segmentGroup,
segmentGroup.segments, outlet);\n };\n Recognizer.prototype.processChildren = function (config,
segmentGroup) {\n var _this = this;\n var children = mapChildrenIntoArray(segmentGroup, function
(child, childOutlet) { return _this.processSegmentGroup(config, child, childOutlet); });\n
 checkOutletNameUniqueness(children);\n sortActivatedRouteSnapshots(children);\n
 return children;\n };\n Recognizer.prototype.processSegment = function (config, segmentGroup,
segments, outlet) {\n var e_1, _a;\n try {\n for (var config_1 = __values(config), config_1_1
= config_1.next(); !config_1_1.done; config_1_1 = config_1.next()) {\n var r = config_1_1.value;\n
 try {\n return this.processSegmentAgainstRoute(r, segmentGroup, segments, outlet);\n
 }\n catch (e) {\n if (!(e instanceof NoMatch$1))\n throw e;\n
 }\n }\n catch (e_1_1) { e_1 = { error: e_1_1 }; }\n finally {\n try {\n
if (config_1_1 && !config_1_1.done && (_a = config_1.return)) _a.call(config_1);\n
 }\n finally { if (e_1) throw e_1.error; }\n }\n if

```



```

 (this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n return [];\n }\n throw new
 NoMatch$1();\n };\n Recognizer.prototype.noLeftoversInUrl = function (segmentGroup, segments, outlet)
 {\n return segments.length === 0 && !segmentGroup.children[outlet];\n };\n
 Recognizer.prototype.processSegmentAgainstRoute = function (route, rawSegment, segments, outlet) {\n if
 (route.redirectTo)\n throw new NoMatch$1();\n if ((route.outlet || PRIMARY_OUTLET) !==
 outlet)\n throw new NoMatch$1();\n var snapshot;\n var consumedSegments = [];\n
 var rawSlicedSegments = [];\n if (route.path === '*') {\n var params = segments.length > 0 ?
 last(segments).parameters : {};\n snapshot = new ActivatedRouteSnapshot(segments, params,
 Object.freeze(Object.assign({}, this.urlTree.queryParams)), this.urlTree.fragment,
 getData(route), outlet, route.component, route, getSourceSegmentGroup(rawSegment),
 getPathIndexShift(rawSegment) + segments.length, getResolve(route));\n }\n else {\n var
 result = match$1(rawSegment, route, segments);\n consumedSegments = result.consumedSegments;\n
 rawSlicedSegments = segments.slice(result.lastChild);\n snapshot = new
 ActivatedRouteSnapshot(consumedSegments, result.parameters, Object.freeze(Object.assign({},
 this.urlTree.queryParams)), this.urlTree.fragment, getData(route), outlet, route.component, route,
 getSourceSegmentGroup(rawSegment), getPathIndexShift(rawSegment) + consumedSegments.length,
 getResolve(route));\n }\n var childConfig = getChildConfig(route);\n var _a =
 split$1(rawSegment, consumedSegments, rawSlicedSegments, childConfig, this.relativeLinkResolution),
 segmentGroup = _a.segmentGroup, slicedSegments = _a.slicedSegments;\n
 if (slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n var children_1 =
 this.processChildren(childConfig, segmentGroup);\n return [new TreeNode(snapshot, children_1)];\n
 }\n if (childConfig.length === 0 && slicedSegments.length === 0) {\n return [new
 TreeNode(snapshot, [])];\n }\n var children = this.processSegment(childConfig, segmentGroup,
 slicedSegments, PRIMARY_OUTLET);\n return [new TreeNode(snapshot, children)];\n };\n return
 Recognizer;\n }());\n function sortActivatedRouteSnapshots(nodes) {\n nodes.sort(function (a, b) {\n
 if (a.value.outlet === PRIMARY_OUTLET)\n return -1;\n if (b.value.outlet ===
 PRIMARY_OUTLET)\n return 1;\n return a.value.outlet.localeCompare(b.value.outlet);\n });\n
 }\n function getChildConfig(route) {\n if (route.children) {\n
 return route.children;\n }\n if (route.loadChildren) {\n return route._loadedConfig.routes;\n
 }\n return [];\n }\n function match$1(segmentGroup, route, segments) {\n if (route.path === '') {\n
 if (route.pathMatch === 'full' && (segmentGroup.hasChildren() || segments.length > 0)) {\n
 throw new NoMatch$1();\n }\n return { consumedSegments: [], lastChild: 0, parameters: {} };\n
 }\n var matcher = route.matcher || defaultUrlMatcher;\n var res = matcher(segments, segmentGroup, route);\n
 if (!res)\n throw new NoMatch$1();\n var posParams = {};\n forEach(res.posParams, function (v, k)
 {\n posParams[k] = v.path;\n });\n var parameters = res.consumed.length > 0 ?
 Object.assign(Object.assign({}, posParams), res.consumed[res.consumed.length - 1].parameters) : \n
 posParams;\n return { consumedSegments: res.consumed,\n lastChild: res.consumed.length, parameters: parameters };\n
 }\n function checkOutletNameUniqueness(nodes) {\n var names = {};\n nodes.forEach(function (n) {\n
 var routeWithSameOutletName = names[n.value.outlet];\n if (routeWithSameOutletName) {\n
 var p = routeWithSameOutletName.url.map(function (s) { return s.toString(); }).join('/');\n
 var c = n.value.url.map(function (s) { return s.toString(); }).join('/');\n
 throw new Error(\"Two segments cannot have the same outlet name: '\" + p + '\" and '\" + c + '\".\");\n
 }\n names[n.value.outlet] = n.value;\n });\n }\n function getSourceSegmentGroup(segmentGroup) {\n
 var s = segmentGroup;\n while (s._sourceSegment) {\n s = s._sourceSegment;\n }\n
 return s;\n }\n function getPathIndexShift(segmentGroup) {\n var s = segmentGroup;\n var res = (s._segmentIndexShift
 ? s._segmentIndexShift : 0);\n while (s._sourceSegment) {\n s = s._sourceSegment;\n res +=
 (s._segmentIndexShift ? s._segmentIndexShift : 0);\n }\n return res - 1;\n }\n function

```

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split$1(segmentGroup, consumedSegments, slicedSegments, config, relativeLinkResolution) {\n if
(slicedSegments.length > 0 &&\n containsEmptyPathMatchesWithNamedOutlets(segmentGroup,
slicedSegments, config)) {\n var s_1 = new UrlSegmentGroup(consumedSegments,
createChildrenForEmptyPaths(segmentGroup, consumedSegments, config, new UrlSegmentGroup(slicedSegments,
segmentGroup.children));\n s_1._sourceSegment = segmentGroup;\n s_1._segmentIndexShift =
consumedSegments.length;\n return { segmentGroup: s_1, slicedSegments: [] };\n }\n if
(slicedSegments.length === 0 &&\n containsEmptyPathMatches(segmentGroup, slicedSegments, config))
{\n var s_2 = new UrlSegmentGroup(segmentGroup.segments,
addEmptyPathsToChildrenIfNeeded(segmentGroup, consumedSegments, slicedSegments, config,
segmentGroup.children, relativeLinkResolution));\n s_2._sourceSegment = segmentGroup;\n s_2._segmentIndexShift = consumedSegments.length;\n return { segmentGroup: s_2, slicedSegments:
slicedSegments };\n }\n var s = new UrlSegmentGroup(segmentGroup.segments,
segmentGroup.children);\n s._sourceSegment = segmentGroup;\n s._segmentIndexShift =
consumedSegments.length;\n return { segmentGroup: s, slicedSegments: slicedSegments };\n }\n function
addEmptyPathsToChildrenIfNeeded(segmentGroup, consumedSegments, slicedSegments, routes, children,
relativeLinkResolution) {\n var e_2, _a;\n var res = {};\n try {\n for (var routes_1 =
__values(routes), routes_1_1 = routes_1.next(); !routes_1_1.done; routes_1_1 = routes_1.next()) {\n var r
= routes_1_1.value;\n if (emptyPathMatch(segmentGroup, slicedSegments, r) && !children[getOutlet$1(r)]) {\n var s =
new UrlSegmentGroup([], {});\n s._sourceSegment = segmentGroup;\n if
(relativeLinkResolution === 'legacy') {\n s._segmentIndexShift = segmentGroup.segments.length;\n }\n else {\n s._segmentIndexShift = consumedSegments.length;\n }\n res[getOutlet$1(r)] = s;\n }\n }\n catch (e_2_1) { e_2 = { error: e_2_1 }; }\n }\n finally {\n try {\n if (routes_1_1 && !routes_1_1.done && (_a = routes_1.return))
_a.call(routes_1);\n }\n finally { if (e_2) throw e_2.error; }\n }\n return
Object.assign(Object.assign({}, children), res);\n }\n function createChildrenForEmptyPaths(segmentGroup,
consumedSegments, routes,
primarySegment) {\n var e_3, _a;\n var res = {};\n res[PRIMARY_OUTLET] = primarySegment;\n primarySegment._sourceSegment = segmentGroup;\n primarySegment._segmentIndexShift =
consumedSegments.length;\n try {\n for (var routes_2 = __values(routes), routes_2_1 = routes_2.next();
!routes_2_1.done; routes_2_1 = routes_2.next()) {\n var r = routes_2_1.value;\n if (r.path === "
&& getOutlet$1(r) !== PRIMARY_OUTLET) {\n var s = new UrlSegmentGroup([], {});\n s._sourceSegment = segmentGroup;\n s._segmentIndexShift = consumedSegments.length;\n res[getOutlet$1(r)] = s;\n }\n }\n catch (e_3_1) { e_3 = { error: e_3_1 }; }\n }\n finally
{\n try {\n if (routes_2_1 && !routes_2_1.done && (_a = routes_2.return)) _a.call(routes_2);\n }\n finally {\n if (e_3) throw e_3.error; }\n }\n return res;\n }\n function
containsEmptyPathMatchesWithNamedOutlets(segmentGroup, slicedSegments, routes) {\n return
routes.some(function (r) { return emptyPathMatch(segmentGroup, slicedSegments, r) && getOutlet$1(r) !==
PRIMARY_OUTLET; });\n }\n function containsEmptyPathMatches(segmentGroup, slicedSegments, routes)
{\n return routes.some(function (r) { return emptyPathMatch(segmentGroup, slicedSegments, r); });\n }\n
function emptyPathMatch(segmentGroup, slicedSegments, r) {\n if ((segmentGroup.hasChildren() ||
slicedSegments.length > 0) && r.pathMatch === 'full') {\n return false;\n }\n return r.path === " &&
r.redirectTo === undefined;\n }\n function getOutlet$1(route) {\n return route.outlet ||
PRIMARY_OUTLET;\n }\n function getData(route) {\n return route.data || {};\n }\n function
getResolve(route) {\n return route.resolve || {};\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n

```

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*function recognize$1(rootComponentType, config, serializer, paramsInheritanceStrategy,
relativeLinkResolution) {
 return function (source) {
 return source.pipe(operators.mergeMap(function (t) {
 return recognize(rootComponentType, config, t.urlAfterRedirects, serializer(t.urlAfterRedirects),
paramsInheritanceStrategy, relativeLinkResolution)
 }).pipe(operators.map(function (targetSnapshot) {
 return (Object.assign(Object.assign({}, t), { targetSnapshot: targetSnapshot }));
 }));
 });
}

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function resolveData(paramsInheritanceStrategy, moduleInjector) {
 return function (source) {
 return source.pipe(operators.mergeMap(function (t) {
 var targetSnapshot = t.targetSnapshot,
canActivateChecks = t.guards.canActivateChecks;
 if (!canActivateChecks.length) {
 return rxjs.of(t);
 }
 var canActivateChecksResolved = 0;
 return rxjs.from(canActivateChecks).pipe(operators.concatMap(function (check) {
 return runResolve(check.route, targetSnapshot, paramsInheritanceStrategy, moduleInjector);
 })), operators.tap(function () {
 return canActivateChecksResolved++;
 })), operators.takeLast(1), operators.mergeMap(function () {
 return canActivateChecksResolved === canActivateChecks.length ? rxjs.of(t) : rxjs.EMPTY;
 }));
 });
 }

 function runResolve(futureARS, futureRSS, paramsInheritanceStrategy,
moduleInjector) {
 var resolve = futureARS._resolve;
 return resolveNode(resolve, futureARS, futureRSS, moduleInjector).pipe(operators.map(function (resolvedData) {
 futureARS._resolvedData = resolvedData;
 futureARS.data = Object.assign(Object.assign({}, futureARS.data), inheritedParamsDataResolve(futureARS, paramsInheritanceStrategy).resolve);
 return null;
 }));
 }

 function resolveNode(resolve, futureARS, futureRSS, moduleInjector) {
 var keys = Object.keys(resolve);
 if (keys.length === 0) {
 return rxjs.of({});
 }
 var data = {};
 return rxjs.from(keys).pipe(operators.mergeMap(function (key) {
 return getResolver(resolve[key], futureARS, futureRSS, moduleInjector).pipe(operators.tap(function (value) {
 data[key] = value;
 })), operators.takeLast(1), operators.mergeMap(function () {
 // Ensure all resolvers returned values, otherwise don't emit any "next" and just complete
 // the chain which will cancel navigation
 if (Object.keys(data).length === keys.length) {
 return rxjs.of(data);
 }
 return rxjs.EMPTY;
 }));
 });
 }

 function getResolver(injectionToken, futureARS, futureRSS, moduleInjector) {
 var resolver = getToken(injectionToken, futureARS, moduleInjector);
 return resolver.resolve ? wrapIntoObservable(resolver.resolve(futureARS, futureRSS)) : wrapIntoObservable(resolver(futureARS, futureRSS));
 }
}

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 */

function switchTap(next) {
 return function (source) {
 return source.pipe(operators.switchMap(function (v) {
 var nextResult = next(v);
 if (nextResult) {
 return rxjs.from(nextResult).pipe(operators.map(function () {
 return v;
 }));
 }
 }));
 }
}

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 */

function switchMap(next) {
 return function (source) {
 return source.pipe(operators.switchMap(function (v) {
 var nextResult = next(v);
 if (nextResult) {
 return rxjs.from(nextResult).pipe(operators.map(function () {
 return v;
 }));
 }
 }));
 }
}

/**
 * @description
 * Provides a way to customize when activated routes get reused.
 */

function RouteReuseStrategy() {
 return RouteReuseStrategy;
}

/**
 * @description
 * This base route reuse strategy only reuses routes when the matched router configs are identical. This prevents components from being destroyed and recreated when just the fragment or query parameters change (that is, the existing component is _reused_).
 * This strategy does not store any routes for later reuse.
 */

```

```

*\n * Angular uses this strategy by default.\n *\n * It can be used as a base class for custom route reuse
strategies, i.e. you can create your own\n * class that extends the `BaseRouteReuseStrategy` one.\n *
@publicApi\n */\n var BaseRouteReuseStrategy = /** @class */ (function () {\n function
BaseRouteReuseStrategy() {\n }\n /**\n *
Whether the given route should detach for later reuse.\n * Always returns false for
`BaseRouteReuseStrategy`.\n * */\n BaseRouteReuseStrategy.prototype.shouldDetach = function (route)
{\n return false;\n };\n /**\n * A no-op; the route is never stored since this strategy never
detaches routes for later re-use.\n * */\n BaseRouteReuseStrategy.prototype.store = function (route,
detachedTree) {\n };\n /** Returns `false`, meaning the route (and its subtree) is never reattached */\n
BaseRouteReuseStrategy.prototype.shouldAttach = function (route) {\n return false;\n };\n /**
Returns `null` because this strategy does not store routes for later re-use. */\n
BaseRouteReuseStrategy.prototype.retrieve = function (route) {\n return null;\n };\n /**\n *
Determines if a route should be reused.\n * This strategy returns `true` when the future route
config and current route config are\n * identical.\n * */\n
BaseRouteReuseStrategy.prototype.shouldReuseRoute = function (future, curr) {\n return future.routeConfig
=== curr.routeConfig;\n };\n return BaseRouteReuseStrategy;\n }());\n var DefaultRouteReuseStrategy
= /** @class */ (function (_super) {\n __extends(DefaultRouteReuseStrategy, _super);\n function
DefaultRouteReuseStrategy() {\n return _super !== null && _super.apply(this, arguments) || this;\n }\n
 return DefaultRouteReuseStrategy;\n })(BaseRouteReuseStrategy);\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n * */\n * The [DI
token](guide/glossary/#di-token) for a router configuration.\n * @see `ROUTES`\n * @publicApi\n */\n
var ROUTES = new core.InjectionToken('ROUTES');\n var RouterConfigLoader = /** @class */ (function ()
{\n function RouterConfigLoader(loader, compiler, onLoadStartListener, onLoadEndListener) {\n
this.loader = loader;\n this.compiler = compiler;\n this.onLoadStartListener = onLoadStartListener;\n
this.onLoadEndListener = onLoadEndListener;\n }\n RouterConfigLoader.prototype.load = function
(parentInjector, route) {\n var _this = this;\n if (this.onLoadStartListener) {\n
this.onLoadStartListener(route);\n }\n var moduleFactory$ =
this.loadModuleFactory(route.loadChildren);\n return moduleFactory$.pipe(operators.map(function (factory)
{\n if (_this.onLoadEndListener) {\n _this.onLoadEndListener(route);\n }\n
var module = factory.create(parentInjector);\n return new
LoadedRouterConfig(flatten(module.injector.get(ROUTES)).map(standardizeConfig),
module);\n }));\n };\n RouterConfigLoader.prototype.loadModuleFactory = function (loadChildren)
{\n var _this = this;\n if (typeof loadChildren === 'string') {\n return
rxjs.from(this.loader.load(loadChildren));\n } else {\n return
wrapIntoObservable(loadChildren()).pipe(operators.mergeMap(function (t) {\n if (t instanceof
core.NgModuleFactory) {\n return rxjs.of(t);\n } else {\n
return rxjs.from(_this.compiler.compileModuleAsync(t);\n }));\n };\n };\n
return RouterConfigLoader;\n }());\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n * */\n * Store contextual information
about a `RouterOutlet`\n * */\n * @publicApi\n */\n var OutletContext = /** @class */ (function () {\n
function OutletContext() {\n this.outlet = null;\n this.route = null;\n this.resolver = null;\n
this.children = new ChildrenOutletContexts();\n this.attachRef = null;\n }\n return OutletContext;\n
})();\n /**\n * Store contextual information about the children (= nested) `RouterOutlet`\n * */\n
@publicApi\n */\n var ChildrenOutletContexts = /** @class */ (function () {\n function
ChildrenOutletContexts() {\n // contexts for child outlets, by name.\n this.contexts = new Map();\n
}\n /** Called when a `RouterOutlet` directive is instantiated */\n

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ChildrenOutletContexts.prototype.onChildOutletCreated = function
(childName, outlet) {\n var context = this.getOrCreateContext(childName);\n context.outlet =
outlet;\n this.contexts.set(childName, context);\n };\n /**\n * Called when a `RouterOutlet`
directive is destroyed.\n * We need to keep the context as the outlet could be destroyed inside a NgIf and might
be\n * re-created later.\n */\n ChildrenOutletContexts.prototype.onChildOutletDestroyed = function
(childName) {\n var context = this.getContext(childName);\n if (context) {\n context.outlet =
null;\n }\n };\n /**\n * Called when the corresponding route is deactivated during navigation.\n * Because the component get destroyed, all children outlet are destroyed.\n */\n ChildrenOutletContexts.prototype.onOutletDeactivated = function () {\n var contexts = this.contexts;\n this.contexts = new
Map();\n return contexts;\n };\n ChildrenOutletContexts.prototype.onOutletReAttached = function
(contexts) {\n this.contexts = contexts;\n };\n ChildrenOutletContexts.prototype.getOrCreateContext
= function (childName) {\n var context = this.getContext(childName);\n if (!context) {\n context = new OutletContext();\n this.contexts.set(childName, context);\n }\n return
context;\n };\n ChildrenOutletContexts.prototype.getContext = function (childName) {\n return
this.contexts.get(childName) || null;\n };\n return ChildrenOutletContexts;\n }());\n /**\n *
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MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n *
@description\n * Provides
a way to migrate AngularJS applications to Angular.\n */\n /**\n * @publicApi\n */\n var UrlHandlingStrategy
= /** @class */ (function () {\n function UrlHandlingStrategy() {\n }\n return UrlHandlingStrategy;\n })();\n /**\n * @publicApi\n */\n var DefaultUrlHandlingStrategy = /** @class */ (function () {\n function DefaultUrlHandlingStrategy() {\n }\n DefaultUrlHandlingStrategy.prototype.shouldProcessUrl =
function (url) {\n return true;\n };\n DefaultUrlHandlingStrategy.prototype.extract = function (url)
{\n return url;\n };\n DefaultUrlHandlingStrategy.prototype.merge = function (newUrlPart,
wholeUrl) {\n return newUrlPart;\n };\n return DefaultUrlHandlingStrategy;\n })();\n /**\n *
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MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n */\n function defaultErrorHandler(error) {\n throw error;\n }\n function defaultMalformedUriErrorHandler(error, urlSerializer, url) {\n return
urlSerializer.parse('/');\n }\n /**\n * @internal\n */\n function defaultRouterHook(snapshot, runExtras)
{\n return rxjs.of(null);\n }\n /**\n * @description\n * A service that provides navigation among
views and URL manipulation capabilities.\n */\n /**\n * @see `Route`.\n * @see [Routing and Navigation
Guide](guide/router).\n */\n /**\n * @ngModule RouterModule\n */\n /**\n * @publicApi\n */\n var Router = /**
@class */ (function () {\n /**\n * Creates the router service.\n */\n // TODO: vsavkin make
internal after the final is out.\n function Router(rootComponentType, urlSerializer, rootContexts, location,
injector, loader, compiler, config) {\n var _this = this;\n this.rootComponentType = rootComponentType;\n this.urlSerializer =
urlSerializer;\n this.rootContexts = rootContexts;\n this.location = location;\n this.config =
config;\n this.lastSuccessfulNavigation = null;\n this.currentNavigation = null;\n /**\n *
Tracks the previously seen location change from the location subscription so we can compare\n * the two
latest to see if they are duplicates. See setUpLocationChangeListener.\n */\n this.lastLocationChangeInfo = null;\n this.navigationId = 0;\n this.isNgZoneEnabled = false;\n /**\n * An event stream for routing events in this NgModule.\n */\n this.events = new
rxjs.Subject();\n /**\n * A handler for navigation errors in this NgModule.\n */\n this.errorHandler = defaultErrorHandler;\n /**\n * A handler for errors thrown by `Router.parseUrl(url)`\n * when `url` contains an
invalid character.\n * The most common case is a `%` sign\n * that's not encoded and is not part of a

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percent encoded sequence.\n */\n this.malformedUriErrorHandler =
defaultMalformedUriErrorHandler;\n /**\n * True if at least one navigation event has occurred,\n * false otherwise.\n */\n this.navigated = false;\n this.lastSuccessfulId = -1;\n /**\n * Hooks that enable you to pause navigation,\n * either before or after the preactivation phase.\n */\n Used by `RouterModule`.\n */\n * @internal\n */\n this.hooks = { beforePreactivation:
defaultRouterHook, afterPreactivation: defaultRouterHook }; \n /**\n * A strategy for extracting
and merging URLs.\n * Used for AngularJS to Angular migrations.\n */\n this.urlHandlingStrategy = new DefaultUrlHandlingStrategy(); \n /**\n * A strategy for re-using
routes.\n */\n this.routeReuseStrategy = new DefaultRouteReuseStrategy(); \n /**\n *
How to handle a navigation request to the current URL. One of:\n * - `ignore` : The router ignores the
request.\n * - `reload` : The router reloads the URL. Use to implement a `refresh` feature.\n */\n this.onSameUrlNavigation = 'ignore'; \n /**\n * How to merge parameters, data, and resolved data
from parent to child\n * routes. One of:\n */\n * - `emptyOnly` : Inherit parent parameters,
data, and resolved data\n * for path-less or component-less routes.\n * - `always` : Inherit parent
parameters,
data, and resolved data\n * for all child routes.\n */\n this.paramsInheritanceStrategy =
'emptyOnly'; \n /**\n * Determines when the router updates the browser URL.\n * By default
(`deferred`), updates the browser URL after navigation has finished.\n * Set to `eager` to update the
browser URL at the beginning of navigation.\n * You can choose to update early so that, if navigation
fails,\n * you can show an error message with the URL that failed.\n */\n this.urlUpdateStrategy = 'deferred'; \n /**\n * Enables a bug fix that corrects relative link resolution in
components with empty paths.\n * @see `RouterModule`\n */\n this.relativeLinkResolution =
'corrected'; \n var onLoadStart = function (r) { return _this.triggerEvent(new RouteConfigLoadStart(r)); }; \n var onLoadEnd = function
(r) { return _this.triggerEvent(new RouteConfigLoadEnd(r)); }; \n this.ngModule =
injector.get(core.NgModuleRef);\n this.console = injector.get(core.Console);\n var ngZone =
injector.get(core.NgZone);\n this.isNgZoneEnabled = ngZone instanceof core.NgZone;\n this.resetConfig(config);\n this.currentUrlTree = createEmptyUrlTree();\n this.rawUrlTree =
this.currentUrlTree;\n this.browserUrlTree = this.currentUrlTree;\n this.configLoader = new
RouterConfigLoader(loader, compiler, onLoadStart, onLoadEnd);\n this.routerState =
createEmptyState(this.currentUrlTree, this.rootComponentType);\n this.transitions = new
rxjs.BehaviorSubject({\n id: 0,\n currentUrlTree: this.currentUrlTree,\n currentRawUrl:
this.currentUrlTree,\n extractedUrl: this.urlHandlingStrategy.extract(this.currentUrlTree),\n urlAfterRedirects: this.urlHandlingStrategy.extract(this.currentUrlTree),\n rawUrl: this.currentUrlTree,\n extras: {},\n resolve: null,\n reject: null,\n promise: Promise.resolve(true),\n source: 'imperative',\n restoredState: null,\n currentSnapshot: this.routerState.snapshot,\n targetSnapshot: null,\n currentRouterState: this.routerState,\n targetRouterState: null,\n guards: { canActivateChecks: [], canDeactivateChecks: [] },\n guardsResult: null,\n });\n this.navigations = this.setupNavigations(this.transitions);\n this.processNavigations();\n }\n Router.prototype.setupNavigations = function (transitions) {\n var _this = this;\n var eventsSubject =
this.events;\n return transitions.pipe(operators.filter(function
(t) { return t.id !== 0; })),\n // Extract URL\n operators.map(function (t) { return
(Object.assign(Object.assign({}, t), { extractedUrl: _this.urlHandlingStrategy.extract(t.rawUrl) })); })),\n //
Using switchMap so we cancel executing navigations when a new one comes in\n operators.switchMap(function (t) {\n var completed = false;\n var errored = false;\n return rxjs.of(t).pipe(\n // Store the Navigation object\n operators.tap(function (t) {\n _this.currentNavigation = {\n id: t.id,\n initialUrl: t.currentRawUrl,\n extractedUrl: t.extractedUrl,\n trigger: t.source,\n extras: t.extras,\n
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previousNavigation: _this.lastSuccessfulNavigation ? Object.assign(Object.assign({ },
_this.lastSuccessfulNavigation), { previousNavigation:
null }) : \n
null \n
}); \n
)), operators.switchMap(function (t) { \n
var
urlTransition = !_this.navigated || \n
t.extractedUrl.toString() !== _this.browserUrlTree.toString(); \n
var processCurrentUrl = (_this.onSameUrlNavigation === 'reload' ? true : urlTransition) && \n
_this.urlHandlingStrategy.shouldProcessUrl(t.rawUrl); \n
if (processCurrentUrl) { \n
return
rxjs.of(t).pipe(\n
// Fire NavigationStart event \n
operators.switchMap(function (t) { \n
var transition = _this.transitions.getValue(); \n
eventsSubject.next(new
NavigationStart(t.id, _this.serializeUrl(t.extractedUrl), t.source, t.restoredState)); \n
if (transition
!== _this.transitions.getValue()) { \n
return rxjs.EMPTY; \n
} \n
return [t]; \n
}), \n
// This delay is required to match old behavior that forced navigation \n
// to always be async \n
operators.switchMap(function (t) { return Promise.resolve(t); }), \n
// ApplyRedirects \n
applyRedirects$1(_this.ngModule.injector, _this.configLoader, _this.urlSerializer, _this.config), \n
// Update the currentNavigation \n
operators.tap(function (t) { \n
_this.currentNavigation = Object.assign(Object.assign({ }, _this.currentNavigation), { finalUrl: t.urlAfterRedirects
}); \n
}), \n
// Recognize \n
recognize$1(_this.rootComponentType,
_this.config, function (url) { return _this.serializeUrl(url); }, _this.paramsInheritanceStrategy,
_this.relativeLinkResolution), \n
// Update URL if in `eager` update mode \n
operators.tap(function (t) { \n
if (_this.urlUpdateStrategy === 'eager') { \n
if
(!t.extras.skipLocationChange) { \n
_this.setBrowserUrl(t.urlAfterRedirects,
!!t.extras.replaceUrl, t.id, t.extras.state); \n
} \n
_this.browserUrlTree =
t.urlAfterRedirects; \n
}), \n
// Fire RoutesRecognized \n
operators.tap(function (t) { \n
var routesRecognized = new RoutesRecognized(t.id,
_this.serializeUrl(t.extractedUrl), _this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot); \n
eventsSubject.next(routesRecognized); \n
})); \n
} \n
else { \n
var processPreviousUrl = urlTransition && _this.rawUrlTree && \n
_this.urlHandlingStrategy.shouldProcessUrl(_this.rawUrlTree); \n
/* When the current
URL shouldn't be processed, but the previous one was, \n
* we handle this "error condition" by
navigating to the previously \n
* successful URL, but leaving the URL intact. */ \n
if
(processPreviousUrl) { \n
var id = t.id, extractedUrl = t.extractedUrl, source = t.source,
restoredState = t.restoredState, extras = t.extras; \n
var navStart = new NavigationStart(id,
_this.serializeUrl(extractedUrl), source, restoredState); \n
eventsSubject.next(navStart); \n
var targetSnapshot = createEmptyState(extractedUrl, _this.rootComponentType).snapshot; \n
return rxjs.of(Object.assign(Object.assign({ }, t), { targetSnapshot: targetSnapshot, urlAfterRedirects:
extractedUrl, extras: Object.assign(Object.assign({ }, extras), { skipLocationChange: false, replaceUrl: false })))); \n
} \n
else { \n
/* When neither the current or previous URL can be
processed, do nothing \n
* other than update router's internal reference to the current "settled" \n
* URL. This way the next navigation will be coming from the current URL \n
* in the
browser. \n
*/ \n
_this.rawUrlTree = t.rawUrl; \n
_this.browserUrlTree = t.urlAfterRedirects; \n
t.resolve(null); \n
return
rxjs.EMPTY; \n
} \n
}), \n
//
Before Preactivation \n
switchTap(function (t) { \n
var targetSnapshot = t.targetSnapshot,
navigationId = t.id, appliedUrlTree = t.extractedUrl, rawUrlTree = t.rawUrl, _b = t.extras, skipLocationChange =
_b.skipLocationChange, replaceUrl = _b.replaceUrl; \n
return
_this.hooks.beforePreactivation(targetSnapshot, { \n
navigationId: navigationId, \n
appliedUrlTree: appliedUrlTree, \n
rawUrlTree: rawUrlTree, \n
skipLocationChange:
!!skipLocationChange, \n
replaceUrl: !!replaceUrl, \n
}); \n
}), \n
// ---

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GUARDS ---\n operators.tap(function (t) {\n var guardsStart = new GuardsCheckStart(t.id,
_this.serializeUrl(t.extractedUrl), _this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot);\n
_this.triggerEvent(guardsStart);\n
 }), operators.map(function (t) { return (Object.assign(Object.assign({ }, t), { guards:
getAllRouteGuards(t.targetSnapshot, t.currentSnapshot, _this.rootContexts) })); })),
checkGuards(_this.ngModule.injector, function (evt) { return _this.triggerEvent(evt); })), operators.tap(function (t)
{\n if (isUrlTree(t.guardsResult)) {\n var error = navigationCancelingError("Redirecting
to \\\\" + _this.serializeUrl(t.guardsResult) + \\\");\n error.url = t.guardsResult;\n
throw error;\n }\n }), operators.tap(function (t) {\n var guardsEnd = new
GuardsCheckEnd(t.id, _this.serializeUrl(t.extractedUrl), _this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot,
!!t.guardsResult);\n _this.triggerEvent(guardsEnd);\n }), operators.filter(function (t) {\n
if (!t.guardsResult) {\n _this.resetUrlToCurrentUrlTree();\n
 var navCancel = new NavigationCancel(t.id, _this.serializeUrl(t.extractedUrl), ");\n
eventsSubject.next(navCancel);\n t.resolve(false);\n return false;\n }\n
return true;\n }), \n // --- RESOLVE ---\n switchTap(function (t) {\n if
(t.guards.canActivateChecks.length) {\n return rxjs.of(t).pipe(operators.tap(function (t) {\n
 var resolveStart = new ResolveStart(t.id, _this.serializeUrl(t.extractedUrl),
_this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot);\n _this.triggerEvent(resolveStart);\n
 })), operators.switchMap(function (t) {\n var dataResolved = false;\n return
rxjs.of(t).pipe(resolveData(_this.paramsInheritanceStrategy,
_this.ngModule.injector), operators.tap({\n next: function () { return dataResolved = true; },\n
 complete: function () {\n if (!dataResolved) {\n var
navCancel = new NavigationCancel(t.id, _this.serializeUrl(t.extractedUrl), "At least one route resolver didn't emit
any value.");\n eventsSubject.next(navCancel);\n t.resolve(false);\n
 }\n }\n }));\n })), operators.tap(function (t)
{\n var resolveEnd = new ResolveEnd(t.id, _this.serializeUrl(t.extractedUrl),
_this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot);\n _this.triggerEvent(resolveEnd);\n
 }));\n
 }\n return undefined;\n }), \n // --- AFTER PREACTIVATION ---\n
switchTap(function (t) {\n var targetSnapshot = t.targetSnapshot, navigationId = t.id, appliedUrlTree =
t.extractedUrl, rawUrlTree = t.rawUrl, _b = t.extras, skipLocationChange = _b.skipLocationChange, replaceUrl =
_b.replaceUrl;\n return _this.hooks.afterPreactivation(targetSnapshot, {\n navigationId:
navigationId,\n appliedUrlTree: appliedUrlTree,\n rawUrlTree: rawUrlTree,\n
skipLocationChange: !!skipLocationChange,\n replaceUrl: !!replaceUrl,\n });\n
 })), operators.map(function (t) {\n var targetRouterState = createRouterState(_this.routeReuseStrategy,
t.targetSnapshot, t.currentRouterState);\n return (Object.assign(Object.assign({ },
t), { targetRouterState: targetRouterState }));\n }), \n /* Once here, we are about to activate
synchronously. The assumption is this\n will succeed, and user code may read from the Router service.
Therefore\n before activation, we need to update router properties storing the current\n URL
and the RouterState, as well as updated the browser URL. All this should\n happen *before* activating.
*/\n operators.tap(function (t) {\n _this.currentUrlTree = t.urlAfterRedirects;\n
_this.rawUrlTree =\n _this.urlHandlingStrategy.merge(_this.currentUrlTree, t.rawUrl);\n
_this.routerState = t.targetRouterState;\n if (_this.urlUpdateStrategy === 'deferred') {\n if
(!t.extras.skipLocationChange) {\n _this.setBrowserUrl(_this.rawUrlTree,
!!t.extras.replaceUrl, t.id, t.extras.state);\n }\n _this.browserUrlTree =
t.urlAfterRedirects;\n }\n })), activateRoutes(_this.rootContexts, _this.routeReuseStrategy,
function (evt) { return _this.triggerEvent(evt); })), operators.tap({\n next: function () {\n
completed = true;\n },\n complete: function () {\n completed = true;\n

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 }\n }), operators.finalize(function () {\n /* When the navigation stream finishes either
through error or success, we\n * set the `completed` or `errored` flag. However, there are some
situations\n * where we could get here without either of those being set. For instance, a\n * redirect during NavigationStart. Therefore, this is a catch-all to make\n
 * sure the NavigationCancel\n * event is fired when a navigation gets cancelled but not caught by
other\n * means. */\n if (!completed && !errored) {\n // Must reset to current
URL tree here to ensure history.state is set. On a\n // fresh page load, if a new navigation comes in
before a successful\n // navigation completes, there will be nothing in\n //
history.state.navigationId. This can cause sync problems with AngularJS\n // sync code which looks
for a value here in order to determine whether or\n // not to handle a given popstate event or to leave it
to the Angular\n // router.\n _this.resetUrlToCurrentUrlTree();\n var
navCancel = new NavigationCancel(t.id, _this.serializeUrl(t.extractedUrl), "Navigation ID \" + t.id
+ \" is not equal to the current navigation id \" + _this.navigationId);\n
eventsSubject.next(navCancel);\n t.resolve(false);\n }\n // currentNavigation
should always be reset to null here. If navigation was\n // successful, lastSuccessfulTransition will have
already been set. Therefore\n // we can safely set currentNavigation to null here.\n
_this.currentNavigation = null;\n }), operators.catchError(function (e) {\n errored = true;\n
 /* This error type is issued during Redirect, and is handled as a\n * cancellation rather than an
error. */\n if (isNavigationCancelingError(e)) {\n var redirecting = isUrlTree(e.url);\n
 if (!redirecting) {\n // Set property only if we're not redirecting.
If we landed on a page and\n // redirect to `^` route, the new navigation is going to see the `^`\n
 // isn't a change from the default currentUrlTree and won't navigate.\n // This is only
applicable with initial navigation, so setting\n // `navigated` only when not redirecting resolves this
scenario.\n _this.navigated = true;\n _this.resetStateAndUrl(t.currentRouterState,
t.currentUrlTree, t.rawUrl);\n }\n var navCancel = new NavigationCancel(t.id,
_this.serializeUrl(t.extractedUrl), e.message);\n eventsSubject.next(navCancel);\n //
When redirecting, we need to delay resolving the navigation\n // promise and push it to the redirect
navigation\n if (!redirecting) {\n
 t.resolve(false);\n }\n else {\n // setTimeout is required so this
navigation finishes with\n // the return EMPTY below. If it isn't allowed to finish\n
 // processing, there can be multiple navigations to the same\n // URL.\n
 setTimeout(function () {\n var mergedTree = _this.urlHandlingStrategy.merge(e.url,
_this.rawUrlTree);\n var extras = {\n skipLocationChange:
t.extras.skipLocationChange,\n replaceUrl: _this.urlUpdateStrategy === 'eager'\n
 });\n return _this.scheduleNavigation(mergedTree, 'imperative', null, extras, { resolve:
t.resolve, reject: t.reject, promise: t.promise });\n },
 0);\n }\n /* All other errors should reset to the router's internal URL reference to\n
 * the pre-error state. */\n }\n else {\n
 _this.resetStateAndUrl(t.currentRouterState, t.currentUrlTree, t.rawUrl);\n var navError = new
NavigationError(t.id, _this.serializeUrl(t.extractedUrl), e);\n eventsSubject.next(navError);\n
 try {\n t.resolve(_this.errorHandler(e));\n }\n catch (ee) {\n
 t.reject(ee);\n }\n }\n return rxjs.EMPTY;\n });\n
 // TODO(jasonaden): remove cast once g3 is on updated TypeScript\n });\n }\n /**\n *
@internal\n * TODO: this should be removed once
the constructor of the router made internal\n */\n Router.prototype.resetRootComponentType = function
(rootComponentType) {\n this.rootComponentType = rootComponentType;\n // TODO: vsavkin
router 4.0 should make the root component set to null\n // this will simplify the lifecycle of the router.\n
this.routerState.root.component = this.rootComponentType;\n }\n Router.prototype.getTransition =

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function () {\n var transition = this.transitions.value;\n // This value needs to be set. Other values such
as extractedUrl are set on initial navigation\n // but the urlAfterRedirects may not get set if we aren't
processing the new URL *and* not\n // processing the previous URL.\n transition.urlAfterRedirects =
this.browserUrlTree;\n return transition;\n };\n Router.prototype.setTransition = function (t) {\n
this.transitions.next(Object.assign(Object.assign({\n
 this.getTransition(), t));\n });\n /**\n * Sets up the location change listener and performs the initial
navigation.\n */\n Router.prototype.initialNavigation = function () {\n
this.setUpLocationChangeListener();\n if (this.navigationId === 0) {\n
this.navigateByUrl(this.location.path(true), { replaceUrl: true });\n }\n };\n /**\n * Sets up the
location change listener. This listener detects navigations triggered from outside\n * the Router (the browser
back/forward buttons, for example) and schedules a corresponding Router\n * navigation so that the correct
events, guards, etc. are triggered.\n */\n Router.prototype.setUpLocationChangeListener = function () {\n
 var _this = this;\n // Don't need to use Zone.wrap any more, because zone.js\n // already patch
onPopState, so location change callback
 will\n // run into ngZone\n if (!this.locationSubscription) {\n this.locationSubscription =
this.location.subscribe(function (event) {\n var currentChange =
_this.extractLocationChangeInfoFromEvent(event);\n if
(_this.shouldScheduleNavigation(_this.lastLocationChangeInfo, currentChange)) {\n // The
`setTimeout` was added in #12160 and is likely to support Angular/AngularJS\n // hybrid apps.\n
 setTimeout(function () {\n var source = currentChange.source, state = currentChange.state,
urlTree = currentChange.urlTree;\n var extras = { replaceUrl: true }; \n if (state)
{\n var stateCopy = Object.assign({}, state);\n delete
stateCopy.navigationId;\n if (Object.keys(stateCopy).length
!== 0) {\n extras.state = stateCopy;\n }\n }\n
 _this.scheduleNavigation(urlTree, source, state, extras);\n }, 0);\n }\n
 _this.lastLocationChangeInfo = currentChange;\n });\n }\n };\n /** Extracts router-related
information from a `PopStateEvent`. */\n Router.prototype.extractLocationChangeInfoFromEvent = function
(change) {\n var _a;\n return {\n source: change['type'] === 'popstate' ? 'popstate' :
'hashchange',\n urlTree: this.parseUrl(change['url']),\n // Navigations coming from Angular router
have a navigationId state\n // property. When this exists, restore the state.\n state: ((_a =
change.state) === null || _a === void 0 ? void 0 : _a.navigationId) ?
change.state : null,\n transitionId: this.getTransition().id\n };\n };\n /**\n *
Determines whether two events triggered by the Location subscription are due to the same\n * navigation. The
location subscription can fire two events (popstate and hashchange) for a\n * single navigation. The second one
should be ignored, that is, we should not schedule another\n * navigation in the Router.\n */\n Router.prototype.shouldScheduleNavigation = function (previous, current) {\n if (!previous)\n return true;\n var sameDestination = current.urlTree.toString() === previous.urlTree.toString();\n var
eventsOccurredAtSameTime = current.transitionId === previous.transitionId;\n if
(!eventsOccurredAtSameTime || !sameDestination) {\n return true;\n }\n if ((current.source
=== 'hashchange' && previous.source === 'popstate')\n ||\n (current.source === 'popstate' && previous.source === 'hashchange')) {\n return false;\n }\n return true;\n };\n Object.defineProperty(Router.prototype, 'url', {\n /** The current
URL. */\n get: function () {\n return this.serializeUrl(this.currentUrlTree);\n },\n enumerable: false,\n configurable: true\n });\n /** The current Navigation object if one exists */\n Router.prototype.getCurrentNavigation = function () {\n return this.currentNavigation;\n };\n /**
@param\n Router.prototype.triggerEvent = function (event) {\n this.events.next(event);\n };\n /**\n * Resets the route configuration used for navigation and generating links.\n */\n * @param
config The route array for the new configuration.\n */\n * @usageNotes

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 * \n * ``\n * router.resetConfig([\n * { path: 'team/:id', component: TeamCmp, children: [\n * { path: 'simple', component: SimpleCmp },\n * { path: 'user/:name', component: UserCmp }]\n *]);\n * ``\n * \n Router.prototype.resetConfig = function (config) {\n validateConfig(config);\n this.config = config.map(standardizeConfig);\n this.navigated = false;\n this.lastSuccessfulId = -1;\n };\n /** @nodoc */\n Router.prototype.ngOnDestroy = function () {\n this.dispose();\n };\n /** Disposes of the router. */\n Router.prototype.dispose = function () {\n if (this.locationSubscription) {\n this.locationSubscription.unsubscribe();\n this.locationSubscription = undefined;\n }\n };\n /**\n * Appends URL segments to the current\n URL\n tree to create a new URL tree.\n *\n * @param commands An array of URL fragments with which to\n construct the new URL tree.\n *\n * If the path is static, can be the literal URL string. For a dynamic path, pass an\n array of path\n * segments, followed by the parameters for each segment.\n *\n * The fragments are applied to\n the current URL tree or the one provided in the `relativeTo`\n * property of the options object, if supplied.\n *\n * @param navigationExtras Options that control the navigation strategy.\n *\n * @returns The new URL tree.\n *\n * @usageNotes\n *\n * ``\n * // create /team/33/user/11\n *\n router.createUrlTree(['/team', 33, 'user', 11]);\n *\n * // create /team/33;expand=true/user/11\n *\n router.createUrlTree(['/team', 33, {expand: true}, 'user', 11]);\n *\n * // you can collapse static segments\n like this (this works only with the first\n passed-in value):\n *\n router.createUrlTree(['/team/33/user', userId]);\n *\n * // If the first segment can\n contain slashes, and you do not want the router to split it,\n *\n * // you can do the following:\n *\n router.createUrlTree([{segmentPath: 'one/two'}]);\n *\n * // create /team/33/(user/11/right:chat)\n *\n router.createUrlTree(['/team', 33, {outlets: {primary: 'user/11', right: 'chat'}}]);\n *\n * // remove the right\n secondary node\n *\n router.createUrlTree(['/team', 33, {outlets: {primary: 'user/11', right: null}}]);\n *\n * // assuming the current url is `/team/33/user/11` and the route points to `user/11`\n *\n * // navigate to\n /team/33/user/11/details\n *\n router.createUrlTree(['details'], {relativeTo: route});\n *\n * // navigate\n to /team/33/user/22\n *\n router.createUrlTree(['../22'], {relativeTo: route});\n *\n * //
navigate to /team/44/user/22\n *\n router.createUrlTree(['../team/44/user/22'], {relativeTo: route});\n *\n ``\n *\n Router.prototype.createUrlTree = function (commands, navigationExtras) {\n if
(navigationExtras === void 0) {\n navigationExtras = {};\n }\n var relativeTo = navigationExtras.relativeTo,
 queryParams = navigationExtras.queryParams,
 fragment = navigationExtras.fragment,
 queryParamsHandling =
 navigationExtras.queryParamsHandling,
 preserveFragment = navigationExtras.preserveFragment;\n var a =
 relativeTo || this.routerState.root;\n var f = preserveFragment ? this.currentUrlTree.fragment : fragment;\n var q = null;\n switch (queryParamsHandling) {\n case 'merge':\n q =
 Object.assign(Object.assign({}, this.currentUrlTree.queryParams), queryParams);\n break;\n case 'preserve':\n q = this.currentUrlTree.queryParams;\n break;\n default:\n q = queryParams || null;\n }\n if (q !== null) {\n q = this.removeEmptyProps(q);\n }\n return createUrlTree(a, this.currentUrlTree, commands, q,
 f);\n };\n /**\n * Navigates to a view using an absolute route path.\n *\n * @param url An
absolute path for a defined route. The function does not apply any delta to the\n * current URL.\n *\n * @param extras An object containing properties that modify the navigation strategy.\n *\n * @returns A
Promise that resolves to 'true' when navigation succeeds,\n * to 'false' when navigation fails, or is rejected on
error.\n *\n * @usageNotes\n *\n * The following calls request navigation to an absolute path.\n *\n * ``\n * router.navigateByUrl('/team/33/user/11');\n *\n * // Navigate without updating the URL\n *\n router.navigateByUrl('/team/33/user/11', {\n skipLocationChange: true });\n *\n * @see [Routing and Navigation guide](guide/router)\n *\n Router.prototype.navigateByUrl = function (url, extras) {\n if (extras === void 0) {\n extras
= {\n skipLocationChange: false;\n };\n }\n if (typeof ngDevMode === 'undefined' ||\n ngDevMode && this.isNgZoneEnabled && !core.NgZone.isInAngularZone()) {\n
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this.console.warn("Navigation triggered outside Angular zone, did you forget to call 'ngZone.run()'?");\n }\n var urlTree = isUrlTree(url) ? url : this.parseUrl(url);\n var mergedTree =\n this.urlHandlingStrategy.merge(urlTree, this.rawUrlTree);\n return this.scheduleNavigation(mergedTree,\n 'imperative', null, extras);\n };\n /**\n * Navigate\n * based on the provided array of commands and a starting point.\n * If no starting route is provided, the\n * navigation is absolute.\n * @param commands An array of URL fragments with which to construct the\n * target URL.\n * If the path is static, can be the literal URL string. For a dynamic path, pass an array of path\n * segments, followed by the parameters for each segment.\n * The fragments are applied to the current URL\n * or the one provided in the `relativeTo` property\n * of the options object, if supplied.\n * @param extras\n * An options object that determines how the URL should be constructed or\n * interpreted.\n * @returns A Promise that resolves to `true` when navigation succeeds, to `false` when navigation\n * fails,\n * or is rejected on error.\n * @usageNotes\n * The following calls request navigation\n * to a dynamic route\n * path relative to the current URL.\n * ``\n * router.navigate(['team', 33, 'user', 11], {relativeTo:\n * route});\n * // Navigate without updating the URL, overriding the default behavior\n * router.navigate(['team', 33, 'user', 11], {relativeTo: route, skipLocationChange: true});\n * ``\n * @see [Routing and Navigation guide](guide/router)\n * Router.prototype.navigate = function\n * (commands, extras) {\n * if (extras === void 0) { extras = { skipLocationChange: false }; }\n * validateCommands(commands);\n * return this.navigateByUrl(this.createUrlTree(commands, extras), extras);\n * }\n * /** Serializes a `UrlTree` into a string */\n * Router.prototype.serializeUrl = function (url) {\n * return this.urlSerializer.serialize(url);\n * }\n * /** Parses a string into a `UrlTree` */\n * Router.prototype.parseUrl =\n * function (url) {\n * var urlTree;\n * try {\n * urlTree = this.urlSerializer.parse(url);\n * }\n * catch (e) {\n * urlTree = this.malformedUriErrorHandler(e, this.urlSerializer, url);\n * }\n * return urlTree;\n * }\n * /** Returns whether the url is activated */\n * Router.prototype.isActive = function\n * (url, exact) {\n * if (isUrlTree(url)) {\n * return containsTree(this.currentUrlTree, url, exact);\n * }\n * var urlTree = this.parseUrl(url);\n * return containsTree(this.currentUrlTree, urlTree, exact);\n * }\n * Router.prototype.removeEmptyProps = function (params) {\n * return\n * Object.keys(params).reduce(function (result, key) {\n * var value = params[key];\n * if (value !==\n * null && value !== undefined) {\n * result[key] = value;\n * }\n * return result;\n * }, {});\n * }\n * Router.prototype.processNavigations = function () {\n * var _this = this;\n * this.navigations.subscribe(function (t) {\n * _this.navigated = true;\n * _this.lastSuccessfulId = t.id;\n * _this.events\n * .next(new NavigationEnd(t.id, _this.serializeUrl(t.extractedUrl),\n * _this.serializeUrl(_this.currentUrlTree)));\n * _this.lastSuccessfulNavigation = _this.currentNavigation;\n * _this.currentNavigation = null;\n * t.resolve(true);\n * }, function (e) {\n * _this.console.warn("Unhandled Navigation Error: ");\n * });\n * }\n * Router.prototype.scheduleNavigation = function (rawUrl, source, restoredState, extras, priorPromise) {\n * // *\n * Imperative navigations (router.navigate) might trigger additional navigations to the same\n * // URL via a\n * popstate event and the locationChangeListener.\n * We should skip these duplicate\n * // navs. Duplicates may also be triggered by attempts to sync AngularJS\n * and Angular router\n * // states.\n * // * Imperative navigations can be cancelled by router guards,\n * meaning the URL won't change. If\n * // the user follows that with a navigation using the back/forward button\n * or manual URL change,\n * // the destination may be the same as the previous imperative attempt. We should\n * not skip\n * // these navigations because it's a separate case from the one above -- it's not a duplicate\n * // navigation.\n * var lastNavigation = this.getTransition();\n * // We don't want to skip duplicate\n * successful navs if they're imperative because\n * // onSameUrlNavigation could be 'reload' (so the duplicate is\n * intended).\n * var browserNavPrecededByRouterNav = source !== 'imperative' && (lastNavigation === null ||\n * lastNavigation === void

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0 ? void 0 : lastNavigation.source) === 'imperative';\n var lastNavigationSucceeded = this.lastSuccessfulId
=== lastNavigation.id;\n // If the last navigation succeeded or is in flight, we can use the rawUrl as the
comparison.\n // However, if it failed, we should compare to the final result (urlAfterRedirects).\n var
lastNavigationUrl = (lastNavigationSucceeded || this.currentNavigation) ?\n lastNavigation.rawUrl :\n lastNavigation.urlAfterRedirects;\n var duplicateNav = lastNavigationUrl.toString() ===
rawUrl.toString();\n if (browserNavPrecededByRouterNav && duplicateNav) {\n return
Promise.resolve(true); // return value is not used\n }\n var resolve;\n var reject;\n var
promise;\n if (priorPromise) {\n resolve = priorPromise.resolve;\n reject =
priorPromise.reject;\n promise
= priorPromise.promise;\n }\n else {\n promise = new Promise(function (res, rej) {\n
 resolve = res;\n reject = rej;\n });\n }\n var id = ++this.navigationId;\n
this.setTransition({\n id: id,\n source: source,\n restoredState: restoredState,\n
currentUrlTree: this.currentUrlTree,\n currentRawUrl: this.rawUrlTree,\n rawUrl: rawUrl,\n
extras: extras,\n resolve: resolve,\n reject: reject,\n promise: promise,\n
currentSnapshot: this.routerState.snapshot,\n currentRouterState: this.routerState\n });\n //
Make sure that the error is propagated even though `processNavigations` catch\n // handler does not
rethrow\n return promise.catch(function (e)
{\n return Promise.reject(e);\n });\n });\n Router.prototype.setBrowserUrl = function (url,
replaceUrl, id, state) {\n var path = this.urlSerializer.serialize(url);\n state = state || {};\n if
(this.location.isCurrentPathEqualTo(path) || replaceUrl) {\n // TODO(jasonaden): Remove first
`navigationId` and rely on `ng` namespace.\n this.location.replaceState(path, "",
Object.assign(Object.assign({}, state), { navigationId: id }));\n }\n else {\n
this.location.go(path, "", Object.assign(Object.assign({}, state), { navigationId: id }));\n }\n });\n
Router.prototype.resetStateAndUrl = function (storedState, storedUrl, rawUrl) {\n this.routerState =
storedState;\n this.currentUrlTree = storedUrl;\n this.rawUrlTree =
this.urlHandlingStrategy.merge(this.currentUrlTree, rawUrl);\n this.resetUrlToCurrentUrlTree();\n
 });\n Router.prototype.resetUrlToCurrentUrlTree = function () {\n
this.location.replaceState(this.urlSerializer.serialize(this.rawUrlTree), "", { navigationId: this.lastSuccessfulId });\n
 });\n return Router;\n }());\n Router.decorators = [\n { type: core.Injectable }\n];\n
Router.ctorParameters = function () { return [\n { type: core.Type },\n { type: UrlSerializer },\n { type:
ChildrenOutletContexts },\n { type: common.Location },\n { type: core.Injector },\n { type:
core.NgModuleFactoryLoader },\n { type: core.Compiler },\n { type: undefined }\n];\n function
validateCommands(commands) {\n for (var i = 0; i < commands.length; i++) {\n var cmd =
commands[i];\n if (cmd == null) {\n throw new Error("The requested path contains \" + cmd + \"
segment at index \" + i);\n }\n }\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
 */\n /**\n * @description\n *\n * When applied to an element in a template, makes that element a link\n
 * that initiates navigation to a route. Navigation opens one or more routed components\n * in one or more
`<router-outlet>` locations on the page.\n *\n * Given a route configuration `[{ path: 'user/:name', component:
UserCmp }]`,\n * the following creates a static link to the route:\n * `link to user
component`\n *\n * You can use dynamic values to generate the link.\n * For a dynamic link, pass an
array of path segments,\n * followed by the params for each segment.\n * For example, `['/team', teamId, 'user',
userName, { details: true }]`\n * generates a link
to `/team/11/user/bob;details=true`.\n *\n * Multiple static segments can be merged into one term and
combined with dynamic segments.\n * For example, `['/team/11/user', userName, { details: true }]`\n *\n
 * The input that you provide to the link is treated as a delta to the current URL.\n * For instance, suppose the
current URL is `/user/(box//aux:team)`.\n * The link `<a [routerLink]=\"[/user/jim]\">Jim` creates the

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URL\n \* `/user/(jim//aux:team)`.\n \* See { @link Router#createUrlTree createUrlTree } for more information.\n

\*\n \* @usageNotes\n \*\n \* You can use absolute or relative paths in a link, set query parameters,\n \* control how parameters are handled, and keep a history of navigation states.\n \*\n \* ### Relative link paths\n \*\n \* The first segment name can be prepended with `^`, `./`, or `../`.\n \* \* If the first segment begins with `^`, the router looks up the route from the root of the\n \* app.\n \* \* If the first segment begins with `./`, or doesn't begin with a slash, the router\n \* looks in the children of the current activated route.\n \* \* If the first segment begins with `../`, the router goes up one level in the route tree.\n \* \* ### Setting and handling query params and fragments\n \*\n \* The following link adds a query parameter and a fragment to the generated URL:\n \*\n \* ```\n \* <a [routerLink]="['/user/bob']" [queryParams]="{debug: true}" fragment="education">\n \* link to user component\n \* </a>\n \* ```\n \* By default, the directive constructs the new URL using the given query parameters.\n \* The example generates the link: `/user/bob?debug=true#education`.\n \*\n \* You can instruct the directive to handle query parameters differently\n \* by specifying the `queryParamsHandling` option in the link.\n \* Allowed values are:\n \*\n \* - `merge`: Merge the given `queryParams` into the current query params.\n \* - `preserve`: Preserve the current query params.\n \*\n \* For example:\n \*\n \* ```\n \* <a [routerLink]="['/user/bob']" [queryParams]="{debug: true}" queryParamsHandling="merge">\n \* link to user component\n \* </a>\n \* ```\n \*\n \* See { @link UrlCreationOptions.queryParamsHandling UrlCreationOptions#queryParamsHandling }.\n \*\n \* ### Preserving navigation history\n \*\n \* You can provide a `state` value to be persisted to the browser's\n \* [History.state` property](https://developer.mozilla.org/en-US/docs/Web/API/History#Properties).\n \* For example:\n \*\n \* ```\n \* <a [routerLink]="['/user/bob']" [state]="{tracingId: 123}">\n \* link to user component\n \* </a>\n \* ```\n \*\n \* Use { @link Router.getCurrentNavigation() Router#getCurrentNavigation } to retrieve a saved\n \* navigation-state value. For example, to capture the `tracingId` during the `NavigationStart`\n \* event:\n \*\n \* ```\n \* // Get NavigationStart events\n \* router.events.pipe(filter(e => e instanceof NavigationStart)).subscribe(e => {\n \* const navigation = router.getCurrentNavigation();\n \* tracingService.trace({id: navigation.extras.state.tracingId});\n \* });\n \* ```\n \*\n \* @ngModule RouterModule\n \*\n \* @publicApi\n \*\n \* var RouterLink = /\*\* @class \*/ (function () {\n \* function RouterLink(router, route, tabIndex, renderer, el) {\n \* this.router = router;\n \* this.route = route;\n \* this.commands = [];\n \* /\*\* @internal \*/\n \* this.onChanges = new rxjs.Subject();\n \* if (tabIndex == null) {\n \* renderer.setAttribute(el.nativeElement, 'tabindex', '0');\n \* }\n \* }\n \* /\*\* @nodoc \*/\n \* RouterLink.prototype.ngOnChanges = function (changes) {\n \* // This is subscribed to by `RouterLinkActive` so that it knows to update when there are changes\n \* // to the RouterLinks it's tracking.\n \* this.onChanges.next(this);\n \* }; \n \* Object.defineProperty(RouterLink.prototype, 'routerLink', {\n \* /\*\*\n \* \* Commands to pass to { @link Router#createUrlTree Router#createUrlTree }.\n \* \* - \*\*array\*\*: commands to pass to { @link Router#createUrlTree Router#createUrlTree }.\n \* \* - \*\*string\*\*: shorthand for array of commands with just the string, i.e. `['/route']`\n \* \* - \*\*null|undefined\*\*: shorthand for an empty array of commands, i.e. `[]`\n \* \* @see { @link Router#createUrlTree Router#createUrlTree }\n \* \*/\n \* set: function (commands) {\n \* if (commands != null) {\n \* this.commands = Array.isArray(commands) ? commands : [commands];\n \* }\n \* else {\n \* this.commands = [];\n \* }\n \* },\n \* enumerable: false,\n \* configurable: true\n \* });\n \* /\*\* @nodoc \*/\n \* RouterLink.prototype.onClick = function () {\n \* var extras = {\n \* skipLocationChange: attrBoolValue(this.skipLocationChange),\n \* replaceUrl: attrBoolValue(this.replaceUrl),\n \* state: this.state,\n \* }; \n \* this.router.navigateByUrl(this.urlTree, extras);\n \* return true;\n \* }; \n \* Object.defineProperty(RouterLink.prototype, 'urlTree', {\n \* get: function () {\n \* return this.router.createUrlTree(this.commands, {\n \* relativeTo: this.route,\n \* queryParams:

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this.queryParams,\n fragment: this.fragment,\n queryParamsHandling:\nthis.queryParamsHandling,\n preserveFragment: attrBoolValue(this.preserveFragment),\n });\n },\n enumerable: false,\n configurable: true\n });\n return RouterLink;\n }());\n RouterLink.decorators = [\n { type:\n core.Directive, args: [{ selector: 'not(a):not(area)[routerLink]' },] }\n];\n RouterLink.ctorParameters = function\n () { return [\n { type: Router },\n { type: ActivatedRoute },\n { type: String, decorators: [{ type:\n core.Attribute, args: ['tabindex',] }] },\n { type: core.Renderer2 },\n { type: core.ElementRef }\n]; }; \n RouterLink.propDecorators = {\n queryParams: [{ type: core.Input }],\n fragment: [{ type: core.Input }],\n queryParamsHandling: [{ type: core.Input }],\n preserveFragment: [{ type: core.Input }],\n skipLocationChange: [{ type: core.Input }],\n replaceUrl: [{ type: core.Input }],\n state: [{ type: core.Input\n }],\n routerLink: [{ type: core.Input }],\n onClick: [{ type: core.HostListener, args: ['click',] }]\n }; \n /**\n * @description\n * \n * Lets you link to specific routes in your app.\n * \n * See `RouterLink` for more\n information.\n * \n * @ngModule RouterModule\n * \n * @publicApi\n * \n var RouterLinkWithHref\n = /** @class */ (function () {\n function RouterLinkWithHref(router, route, locationStrategy) {\n var\n _this = this;\n this.router = router;\n this.route = route;\n this.locationStrategy =\n locationStrategy;\n this.commands = [];\n /** @internal */\n this.onChanges = new\n rxjs.Subject();\n this.subscription = router.events.subscribe(function (s) {\n if (s instanceof\n NavigationEnd) {\n _this.updateTargetUrlAndHref();\n }\n });\n Object.defineProperty(RouterLinkWithHref.prototype, \"routerLink\", {\n /**\n * Commands to pass\n to { @link Router#createUrlTree Router#createUrlTree }.\n * - **array**: commands to pass to { @link Router#createUrlTree Router#createUrlTree }.\n * -\n **string**: shorthand for array of commands with just the string, i.e. `['/route']`\n * - **null/undefined**: shorthand for an empty array of commands, i.e. `[]`\n * @see { @link Router#createUrlTree Router#createUrlTree }\n */\n set: function (commands) {\n if (commands !== null) {\n this.commands = Array.isArray(commands) ? commands : [commands];\n } else {\n this.commands = [];\n }\n },\n enumerable: false,\n configurable: true\n });\n /** @nodoc */\n RouterLinkWithHref.prototype.ngOnChanges = function (changes) {\n this.updateTargetUrlAndHref();\n this.onChanges.next(this);\n }; \n /** @nodoc */\n RouterLinkWithHref.prototype.ngOnDestroy\n = function () {\n this.subscription.unsubscribe();\n }; \n /** @nodoc */\n RouterLinkWithHref.prototype.onClick = function (button, ctrlKey, shiftKey, altKey, metaKey) {\n if (button\n !== 0 || ctrlKey || shiftKey || altKey || metaKey) {\n return true;\n }\n if (typeof this.target ===\n 'string' && this.target !== '_self') {\n return true;\n }\n var extras = {\n skipLocationChange: attrBoolValue(this.skipLocationChange),\n replaceUrl:\n attrBoolValue(this.replaceUrl),\n state: this.state\n };\n this.router.navigateByUrl(this.urlTree, extras);\n return false;\n };\n RouterLinkWithHref.prototype.updateTargetUrlAndHref = function () {\n this.href =\n this.locationStrategy.prepareExternalUrl(this.router.serializeUrl(this.urlTree));\n };\n Object.defineProperty(RouterLinkWithHref.prototype, \"urlTree\", {\n get: function () {\n return\n this.router.createUrlTree(this.commands, {\n relativeTo: this.route,\n queryParams:\n this.queryParams,\n fragment: this.fragment,\n queryParamsHandling:\n this.queryParamsHandling,\n preserveFragment: attrBoolValue(this.preserveFragment),\n });\n },\n enumerable: false,\n configurable: true\n });\n return RouterLinkWithHref;\n }());\n RouterLinkWithHref.decorators = [\n { type: core.Directive, args: [{ selector:\n 'a[routerLink],area[routerLink]' },] }\n];\n RouterLinkWithHref.ctorParameters = function () { return [\n { type: Router },\n { type: ActivatedRoute },\n { type: common.LocationStrategy }\n]; }; \n RouterLinkWithHref.propDecorators = {\n target: [{ type:

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core.HostBinding, args: ['attr.target'],], { type: core.Input }],\n queryParams: [{ type: core.Input }],\n
fragment: [{ type: core.Input }],\n queryParamsHandling: [{ type: core.Input }],\n preserveFragment: [{
type: core.Input }],\n skipLocationChange: [{ type: core.Input }],\n replaceUrl: [{ type: core.Input }],\n
state: [{ type: core.Input }],\n href: [{ type: core.HostBinding }],\n routerLink: [{ type: core.Input }],\n
onClick: [{ type: core.HostListener, args: ['click'],\n ['$event.button', '$event.ctrlKey', '$event.shiftKey',
'$event.altKey', '$event.metaKey'],] }]\n }; \n function attrBoolValue(s) {\n return s === '' || !!s;\n }\n\n
/**\n * \n * @description\n * \n * Tracks whether the linked route of an element is currently active, and
allows you\n * to specify one or more CSS classes to add to the element when the linked route\n * is active.\n
*\n * Use this directive to create a visual distinction for elements associated with an active route.\n * For
example, the following code highlights the word 'Bob' when the the router\n * activates the associated route:\n
*\n * ```\n * Bob\n * ```\n * \n *
Whenever the URL is either '/user' or '/user/bob', the "active-link" class is\n * added to the anchor tag. If the
URL changes, the class is removed.\n * \n * You can set more than one class using a space-separated string or
an array.\n * For example:\n * \n * ```\n * <a routerLink="/user/bob" routerLinkActive="class1
class2">Bob\n * Bob\n * ```\n
*\n * To add the classes only when the URL matches the link exactly, add the option `exact: true`:\n * \n *
``` \n * <a routerLink="/user/bob" routerLinkActive="active-link"
[routerLinkActiveOptions]="{exact:\n * true}">Bob</a>\n * ```\n * \n * To directly check the `isActive`
status of the link, assign the `RouterLinkActive`\n * instance to a template variable.\n * For example, the
following checks the status without assigning any CSS classes:\n * \n * ```\n * <a routerLink="/user/bob"
routerLinkActive #rla="routerLinkActive">\n *   Bob {{ rla.isActive ? '(already open)' : '' }}\n * </a>\n *
``` \n * \n * You can apply the `RouterLinkActive` directive to an ancestor of linked elements.\n * For
example, the following sets the active-link class on the `<div>` parent tag\n * when the URL is either '/user/jim'
or '/user/bob'.\n * \n * ```\n * <div routerLinkActive="active-link" [routerLinkActiveOptions]="{exact:
true}">\n * Jim\n * Bob\n * </div>\n
* ```\n * \n * @ngModule
RouterModule\n * \n * @publicApi\n * \n * var RouterLinkActive = /** @class */ (function () {\n
function RouterLinkActive(router, element, renderer, cdr, link, linkWithHref) {\n var _this = this;\n
this.router = router;\n this.element = element;\n this.renderer = renderer;\n this.cdr = cdr;\n
this.link = link;\n this.linkWithHref = linkWithHref;\n this.classes = [];\n this.isActive =
false;\n this.routerLinkActiveOptions = { exact: false }; \n this.routerEventsSubscription =
router.events.subscribe(function (s) {\n if (s instanceof NavigationEnd) {\n _this.update();\n
 }\n });\n }\n /** @nodoc */\n RouterLinkActive.prototype.ngAfterContentInit = function
() {\n var _this = this;\n // `of(null)` is used to force subscribe body to execute once
immediately (like `startWith`).\n rxjs.from([this.links.changes, this.linksWithHrefs.changes, rxjs.of(null)])\n
 .pipe(operators.mergeAll())\n .subscribe(function (_) {\n _this.update();\n
 });\n _this.subscribeToEachLinkOnChanges();\n });\n\n RouterLinkActive.prototype.subscribeToEachLinkOnChanges = function () {\n var _this = this;\n var
_a;\n (_a = this.linkInputChangesSubscription) === null || _a === void 0 ? void 0 : _a.unsubscribe();\n
var allLinkChanges = __spread(this.links.toArray(), this.linksWithHrefs.toArray(), [this.link,\n this.linkWithHref]).filter(function (link) { return !!link; })\n .map(function (link) { return link.onChanges;\n });\n this.linkInputChangesSubscription =
rxjs.from(allLinkChanges).pipe(operators.mergeAll()).subscribe(function (link) {\n if (_this.isActive !==
_this.isActive(_this.router)(link))\n {\n _this.update();\n }\n });\n }\n\n Object.defineProperty(RouterLinkActive.prototype, 'routerLinkActive', {\n set: function (data) {\n
var classes = Array.isArray(data) ? data : data.split(' ');\n this.classes = classes.filter(function (c) { return
!!c; });\n },\n enumerable: false,\n configurable: true\n });\n /** @nodoc */\n

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RouterLinkActive.prototype.ngOnChanges = function (changes) {\n this.update();\n };\n /**\n @nodoc */\n RouterLinkActive.prototype.ngOnDestroy = function () {\n var _a;\n this.routerEventsSubscription.unsubscribe();\n (_a = this.linkInputChangesSubscription) === null || _a ===\n void 0 ? void 0 : _a.unsubscribe();\n };\n RouterLinkActive.prototype.update = function () {\n var\n _this = this;\n if (!this.links\n || !this.linksWithHrefs || !this.router.navigated)\n return;\n Promise.resolve().then(function () {\n var hasActiveLinks = _this.hasActiveLinks();\n if (_this.isActive !== hasActiveLinks) {\n _this.isActive = hasActiveLinks;\n _this.cdr.markForCheck();\n _this.classes.forEach(function (c) {\n if (hasActiveLinks) {\n _this.renderer.addClass(_this.element.nativeElement, c);\n }\n else {\n _this.renderer.removeClass(_this.element.nativeElement, c);\n }\n });\n }\n });\n RouterLinkActive.prototype.isLinkActive = function (router) {\n var _this = this;\n return function (link) {\n return router.isActive(link.urlTree, _this.routerLinkActiveOptions.exact);\n };\n };\n RouterLinkActive.prototype.hasActiveLinks = function () {\n var isActiveCheckFn =\n this.isLinkActive(this.router);\n return this.link && isActiveCheckFn(this.link) ||\n this.linkWithHref && isActiveCheckFn(this.linkWithHref) ||\n this.links.some(isActiveCheckFn) ||\n this.linksWithHrefs.some(isActiveCheckFn);\n };\n return RouterLinkActive;\n }());\n\n RouterLinkActive.decorators = [\n {\n type: core.Directive, args: [\n {\n selector: '[routerLinkActive]',\n exportAs: 'routerLinkActive',\n },\n],\n },\n];\n RouterLinkActive.ctorParameters = function () {\n return [\n {\n type: Router,\n },\n {\n type: core.ElementRef,\n },\n {\n type: core.Renderer2,\n },\n {\n type: core.ChangeDetectorRef,\n },\n {\n type: RouterLink, decorators: [\n {\n type: core.Optional,\n },\n],\n },\n {\n type: RouterLinkWithHref, decorators: [\n {\n type: core.Optional,\n },\n],\n },\n];\n };\n\n RouterLinkActive.propDecorators = {\n links: [\n {\n type: core.ContentChildren, args: [\n RouterLink, {\n descendants: true,\n },\n],\n },\n {\n type: core.ContentChildren, args: [\n RouterLinkWithHref, {\n descendants: true,\n },\n],\n },\n],\n routerLinkActiveOptions: [\n {\n type: core.Input,\n },\n],\n routerLinkActive: [\n {\n type: core.Input,\n },\n],\n };\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n * @description\n * Acts as a placeholder that Angular dynamically fills based on the current router state.\n * Each outlet can have a unique name, determined by the optional `name` attribute.\n * The name cannot be set or changed dynamically. If not set, default value is `primary`.\n *\n * <router-outlet></router-outlet>\n *\n * <router-outlet name='left'></router-outlet> <router-outlet name='right'></router-outlet>\n *\n * Named outlets can be the targets of secondary routes.\n * The `Route` object for a secondary route has an `outlet` property to identify the target outlet:\n *\n * {path: <base-path>, component: <component>, outlet: <target_outlet_name>}\n *\n * Using named outlets and secondary routes, you can target multiple outlets in\n * the same `RouterLink` directive.\n * The router keeps track of separate branches in a navigation tree for each named outlet and\n * generates a representation of that tree in the URL.\n * The URL for a secondary route uses the following syntax to specify both the primary and secondary\n * routes at the same time:\n *\n * `http://base-path/primary-route-path(outlet-name:route-path)`\n *\n * A router outlet emits an activate event when a new component is instantiated,\n *\n * and a deactivate event when a component is destroyed.\n *\n * <router-outlet\n * (activate)=onActivate($event)\n * (deactivate)=onDeactivate($event)></router-outlet>\n *\n * @see [Routing tutorial](guide/router-tutorial-toh#named-outlets "Example of a named\n * outlet and secondary route configuration").\n * @see `RouterLink`\n * @see `Route`\n * @ngModule RouterModule\n *\n * @publicApi\n *\n * var RouterOutlet = /** @class */ (function () {\n * function RouterOutlet(parentContexts, location, resolver, name, changeDetector) {\n * this.parentContexts = parentContexts;\n * this.location = location;\n * this.resolver = resolver;\n * this.changeDetector = changeDetector;\n * this.activated = null;\n * this._activatedRoute = null;\n * this.activateEvents = new core.EventEmitter();\n * }\n * }\n
```

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this.deactivateEvents
= new core.EventEmitter();\n this.name = name || PRIMARY_OUTLET;\nparentContexts.onChildOutletCreated(this.name, this);\n }\n /** @nodoc */\nRouterOutlet.prototype.ngOnDestroy = function () {\nthis.parentContexts.onChildOutletDestroyed(this.name);\n }\n /** @nodoc */\nRouterOutlet.prototype.ngOnInit = function () {\n if (!this.activated) {\n // If the outlet was not\n // instantiated at the time the route got activated we need to populate\n // the outlet when it is initialized (ie\n // inside a NgIf)\n var context = this.parentContexts.getContext(this.name);\n if (context &&\n context.route) {\n if (context.attachRef) {\n // `attachRef` is populated when there is an\n // existing component to mount\n this.attach(context.attachRef, context.route);\n }\n\n else {\n // otherwise the component defined in the configuration is created\n this.activateWith(context.route, context.resolver || null);\n }\n }\n }\n Object.defineProperty(RouterOutlet.prototype, 'isActive', {\n get: function () {\n return\n !!this.activated;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(RouterOutlet.prototype, 'component', {\n get: function () {\n if\n (!this.activated)\n throw new Error('Outlet is not activated');\n return this.activated.instance;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(RouterOutlet.prototype, 'activatedRoute', {\n get: function () {\n if\n (!this.activated)\n throw new Error('Outlet is not activated');\n return this._activatedRoute;\n },\n enumerable: false,\n configurable: true\n });\n Object.defineProperty(RouterOutlet.prototype,\n 'activatedRouteData', {\n get: function () {\n if (this._activatedRoute) {\n return\n this._activatedRoute.snapshot.data;\n }\n return {};\n },\n enumerable: false,\n configurable: true\n });\n /**\n * Called when the `RouteReuseStrategy` instructs to detach the\n * subtree\n */\n RouterOutlet.prototype.detach = function () {\n if (!this.activated)\n throw\n new Error('Outlet is not activated');\n this.location.detach();\n var cmp = this.activated;\n this.activated = null;\n this._activatedRoute = null;\n return cmp;\n };\n /**\n * Called when the `RouteReuseStrategy` instructs to re-attach a previously detached subtree\n */\n RouterOutlet.prototype.attach = function (ref, activatedRoute) {\n this.activated = ref;\n this._activatedRoute = activatedRoute;\n this.location.insert(ref.hostView);\n };\n RouterOutlet.prototype.deactivate = function () {\n if (this.activated) {\n var c = this.component;\n this.activated.destroy();\n this.activated = null;\n this._activatedRoute = null;\n this.deactivateEvents.emit(c);\n }\n };\n RouterOutlet.prototype.activateWith = function\n (activatedRoute, resolver) {\n if (this.isActive) {\n throw new Error('Cannot activate an already\n activated outlet');\n }\n this._activatedRoute = activatedRoute;\n var snapshot =\n activatedRoute._futureSnapshot;\n var component = snapshot.routeConfig.component;\n resolver = resolver || this.resolver;\n var\n factory = resolver.resolveComponentFactory(component);\n var childContexts =\n this.parentContexts.getOrCreateContext(this.name).children;\n var injector = new\n OutletInjector(activatedRoute, childContexts, this.location.injector);\n this.activated =\n this.location.createComponent(factory, this.location.length, injector);\n // Calling `markForCheck` to make\n // sure we will run the change detection when the\n // `RouterOutlet` is inside a\n // `ChangeDetectionStrategy.OnPush` component.\n this.changeDetector.markForCheck();\n this.activateEvents.emit(this.activated.instance);\n };\n return RouterOutlet;\n}());\nRouterOutlet.decorators = [\n { type: core.Directive, args: [{ selector: 'router-outlet', exportAs: 'outlet' }] }\n];\nRouterOutlet.ctorParameters

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= function () { return {\n { type: ChildrenOutletContexts },\n { type: core.ViewContainerRef },\n { type: core.ComponentFactoryResolver },\n { type: String, decorators: [{ type: core.Attribute, args: ['name',] }] },\n { type: core.ChangeDetectorRef };\n];\n RouterOutlet.propDecorators = {\n activateEvents: [{ type: core.Output, args: ['activate',] }],\n deactivateEvents: [{ type: core.Output, args: ['deactivate',] }]\n };\n var OutletInjector = /** @class */ (function () {\n function OutletInjector(route, childContexts, parent) {\n this.route = route;\n this.childContexts = childContexts;\n this.parent = parent;\n }\n OutletInjector.prototype.get = function (token, notFoundValue) {\n if (token === ActivatedRoute) {\n return this.route;\n }\n if (token === ChildrenOutletContexts) {\n return this.childContexts;\n }\n return this.parent.get(token, notFoundValue);\n };\n return OutletInjector;\n })();\n /**\n * @description\n * Provides a preloading strategy.\n *\n * @publicApi\n */\n var PreloadingStrategy = /** @class */ (function () {\n function PreloadingStrategy()\n {\n return PreloadingStrategy;\n }\n /**\n * @description\n * Provides a preloading strategy that preloads all modules as quickly as possible.\n *\n * RouterModule.forRoot(ROUTES, {preloadingStrategy: PreloadAllModules})\n *\n * @publicApi\n */\n var PreloadAllModules = /** @class */ (function () {\n function PreloadAllModules()\n {\n PreloadAllModules.prototype.preload = function (route, fn) {\n return fn().pipe(operators.catchError(function () {\n return rxjs.of(null);\n }));\n }\n return PreloadAllModules;\n })();\n /**\n * @description\n * Provides a preloading strategy that does not preload any modules.\n *\n * This strategy is enabled by default.\n *\n * @publicApi\n */\n var NoPreloading = /** @class */ (function () {\n function NoPreloading()\n {\n NoPreloading.prototype.preload = function (route, fn)\n {\n return rxjs.of(null);\n };\n return NoPreloading;\n })();\n /**\n * The preloader optimistically loads all router configurations to\n * make navigations into lazily-loaded sections of the application faster.\n *\n * The preloader runs in the background. When the router bootstraps, the preloader\n * starts listening to all navigation events. After every such event, the preloader\n * will check if any configurations can be loaded lazily.\n *\n * If a route is protected by `canLoad` guards, the preloaded will not load it.\n *\n * @publicApi\n */\n var RouterPreloader = /** @class */ (function () {\n function RouterPreloader(router, moduleLoader, compiler, injector, preloadingStrategy) {\n this.router = router;\n this.injector = injector;\n this.preloadingStrategy = preloadingStrategy;\n var onStartLoad = function (r) { return router.triggerEvent(new RouteConfigLoadStart(r)); };\n var onEndLoad = function (r) { return router.triggerEvent(new RouteConfigLoadEnd(r)); };\n this.loader = new RouterConfigLoader(moduleLoader, compiler, onStartLoad, onEndLoad);\n }\n RouterPreloader.prototype.setUpPreloading = function () {\n var _this = this;\n this.subscription =\n this.router.events\n .pipe(operators.filter(function (e) { return e instanceof NavigationEnd; }),\n operators.concatMap(function () { return _this.preload(); })))\n .subscribe(function () { });\n };\n RouterPreloader.prototype.preload = function () {\n var ngModule = this.injector.get(core.NgModuleRef);\n return this.processRoutes(ngModule, this.router.config);\n };\n /** @nodoc */\n RouterPreloader.prototype.ngOnDestroy = function () {\n if (this.subscription) {\n this.subscription.unsubscribe();\n }\n };\n RouterPreloader.prototype.processRoutes = function (ngModule, routes) {\n var e_1, _a;\n var res = [];\n try {\n for (var routes_1 = __values(routes), routes_1_1 = routes_1.next(); !routes_1_1.done; routes_1_1 = routes_1.next()) {\n var route = routes_1_1.value;\n // we already have the config loaded, just recurse\n if (route.loadChildren && !route.canLoad && route._loadedConfig) {\n var childConfig = route._loadedConfig;\n res.push(this.processRoutes(childConfig.module, childConfig.routes));\n // no config loaded, fetch the config\n } else if (route.loadChildren && !route.canLoad) {\n res.push(this.preloadConfig(ngModule, route));\n // recurse into children\n } else if (route.children) {\n res.push(this.processRoutes(ngModule, route.children));\n }\n }\n } catch (e_1_1) {\n _a = e_1_1;\n } finally {\n routes_1_1 = routes_1.next();\n }\n }\n })();\n })();\n }\n })();\n}

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 }\n }\n catch (e_1_1) { e_1 = { error: e_1_1 }; }\n finally {\n try {\n if (routes_1_1 && !routes_1_1.done && (_a = routes_1.return)) _a.call(routes_1);\n }\n finally {\n if (e_1) throw e_1.error; }\n }\n return rxjs.from(res).pipe(operators.mergeAll(),\n operators.map(function (_) { return void 0; }));\n }\n RouterPreloader.prototype.preloadConfig\n = function (ngModule, route) {\n var _this = this;\n return this.preloadingStrategy.preload(route,\n function () {\n var loaded$ = _this.loader.load(ngModule.injector, route);\n return\n loaded$.pipe(operators.mergeMap(function (config) {\n route._loadedConfig = config;\n return _this.processRoutes(config.module, config.routes);\n }));\n });\n }\n RouterPreloader;\n }());\n RouterPreloader.decorators = [\n { type: core.Injectable }\n];\n RouterPreloader.ctorParameters = function () { return [\n { type: Router },\n { type:\n core.NgModuleFactoryLoader },\n { type: core.Compiler },\n { type: core.Injector },\n { type:\n PreloadingStrategy }\n];\n];\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed\n * by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var\n RouterScroller = /** @class */ (function () {\n function RouterScroller(router, \n /** @docsNotRequired */\n viewportScroller, options) {\n if (options === void 0) { options = {}; }\n this.router = router;\n this.viewportScroller = viewportScroller;\n this.options = options;\n this.lastId = 0;\n this.lastSource = 'imperative';\n this.restoredId = 0;\n this.store = {};\n // Default both options to\n 'disabled'\n options.scrollPositionRestoration = options.scrollPositionRestoration || 'disabled';\n options.anchorScrolling = options.anchorScrolling || 'disabled';\n }\n RouterScroller.prototype.init =\n function () {\n // we want to disable the automatic scrolling because having two places\n // responsible\n for\n scrolling results race conditions, especially given\n // that browser don't implement this behavior\n consistently\n if (this.options.scrollPositionRestoration !== 'disabled') {\n this.viewportScroller.setHistoryScrollRestoration('manual');\n }\n this.routerEventsSubscription =\n this.createScrollEvents();\n this.scrollEventsSubscription = this.consumeScrollEvents();\n }\n RouterScroller.prototype.createScrollEvents = function () {\n var _this = this;\n return\n this.router.events.subscribe(function (e) {\n if (e instanceof NavigationStart) {\n // store the\n scroll position of the current stable navigations.\n _this.store[_this.lastId] =\n _this.viewportScroller.getScrollPosition();\n _this.lastSource = e.navigationTrigger;\n _this.restoredId = e.restoredState ? e.restoredState.navigationId : 0;\n }\n else if (e instanceof NavigationEnd) {\n _this.lastId = e.id;\n _this.scheduleScrollEvent(e, _this.router.parseUrl(e.urlAfterRedirects).fragment);\n }\n });\n }\n RouterScroller.prototype.consumeScrollEvents = function () {\n var _this = this;\n return\n this.router.events.subscribe(function (e) {\n if (!(e instanceof Scroll))\n return;\n // a\n popstate event. The pop state event will always ignore anchor scrolling.\n if (e.position) {\n if\n (_this.options.scrollPositionRestoration === 'top') {\n _this.viewportScroller.scrollToPosition([0,\n 0]);\n }\n else if (_this.options.scrollPositionRestoration === 'enabled') {\n _this.viewportScroller.scrollToPosition(e.position);\n }\n }\n // imperative navigation\n \"forward\"\n }\n else {\n if (e.anchor &&\n _this.options.anchorScrolling === 'enabled') {\n _this.viewportScroller.scrollToAnchor(e.anchor);\n }\n }\n else if (_this.options.scrollPositionRestoration !== 'disabled') {\n _this.viewportScroller.scrollToPosition([0, 0]);\n }\n });\n }\n RouterScroller.prototype.scheduleScrollEvent = function (routerEvent, anchor) {\n this.router.triggerEvent(new Scroll(routerEvent, this.lastSource === 'popstate' ? this.store[this.restoredId] : null,\n anchor));\n }\n /** @nodoc */\n RouterScroller.prototype.ngOnDestroy = function () {\n if\n (this.routerEventsSubscription) {\n this.routerEventsSubscription.unsubscribe();\n }\n if\n (this.scrollEventsSubscription)\n }\n }());

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 {\n this.scrollEventsSubscription.unsubscribe();\n }\n };\n return RouterScroller;\n
})();\n RouterScroller.decorators = [\n { type: core.Injectable }\n];\n RouterScroller.ctorParameters =
function () { return [\n { type: Router },\n { type: common.ViewportScroller },\n { type: undefined }\n
]; }; \n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n */\n /**\n * The directives defined in the `RouterModule`.\n */\n var ROUTER_DIRECTIVES =
[RouterOutlet, RouterLink, RouterLinkWithHref, RouterLinkActive, EmptyOutletComponent];\n /**\n * A [DI
token](guide/glossary/#di-token) for the router service.\n */\n * @publicApi\n */\n var
ROUTER_CONFIGURATION = new core.InjectionToken('ROUTER_CONFIGURATION');\n
 /**\n * @docsNotRequired\n */\n var ROUTER_FORROOT_GUARD = new
core.InjectionToken('ROUTER_FORROOT_GUARD');\n var 0 = { enableTracing: false };\n var
ROUTER_PROVIDERS = [\n common.Location,\n { provide: UrlSerializer, useClass: DefaultUrlSerializer
},\n {\n provide: Router,\n useFactory: setupRouter,\n deps: [\n UrlSerializer,
ChildrenOutletContexts, common.Location, core.Injector, core.NgModuleFactoryLoader, core.Compiler,\n
ROUTES, ROUTER_CONFIGURATION, [UrlHandlingStrategy, new core.Optional()],\n
[RouteReuseStrategy, new core.Optional()]\n],\n ChildrenOutletContexts,\n { provide:
ActivatedRoute, useFactory: rootRoute, deps: [Router] },\n { provide: core.NgModuleFactoryLoader, useClass:
core.SystemJsNgModuleLoader },\n RouterPreloader,\n NoPreloading,\n PreloadAllModules,\n
 { provide: ROUTER_CONFIGURATION, useValue: 0 },\n];\n function routerNgProbeToken() {\n
return new core.NgProbeToken('Router', Router);\n }\n /**\n * @description\n * \n * Adds directives and
providers for in-app navigation among views defined in an application.\n * Use the Angular `Router` service to
declaratively specify application states and manage state\n * transitions.\n * \n * You can import this
NgModule multiple times, once for each lazy-loaded bundle.\n * However, only one `Router` service can be
active.\n * To ensure this, there are two ways to register routes when importing this module:\n * \n * * The
`forRoot()` method creates an `NgModule` that contains all the directives, the given\n * routes, and the `Router`
service itself.\n * * The `forChild()` method creates an `NgModule` that contains all the directives and the given\n
* routes, but does not include the `Router` service.\n * \n *
@see [Routing and Navigation guide](guide/router) for an\n * overview of how the `Router` service should be
used.\n * \n * @publicApi\n */\n var RouterModule = /** @class */ (function () {\n // Note: We are
injecting the Router so it gets created eagerly...\n function RouterModule(guard, router) {\n }\n /**\n
 * Creates and configures a module with all the router providers and directives.\n * Optionally sets up an
application listener to perform an initial navigation.\n * \n * When registering the NgModule at the root,
import as follows:\n * \n * ```\n * @NgModule({\n * imports:
[RouterModule.forRoot(ROUTES)]\n * })\n * class MyNgModule { }\n * ```\n * \n *
@param routes An array of `Route` objects that define the navigation paths for the application.\n * @param
config An `ExtraOptions` configuration object that controls how navigation
is performed.\n * @return The new `NgModule`.\n * \n */\n RouterModule.forRoot = function
(routes, config) {\n return {\n ngModule: RouterModule,\n providers: [\n
ROUTER_PROVIDERS,\n provideRoutes(routes),\n {\n provide:
ROUTER_FORROOT_GUARD,\n useFactory: provideForRootGuard,\n deps:
[[Router, new core.Optional(), new core.SkipSelf()]]\n },\n { provide:
ROUTER_CONFIGURATION, useValue: config ? config : {} },\n {\n provide:
common.LocationStrategy,\n useFactory: provideLocationStrategy,\n deps:
[common.PlatformLocation, [new core.Inject(common.APP_BASE_HREF), new core.Optional()],
ROUTER_CONFIGURATION]\n },\n {\n provide: RouterScroller,\n useFactory: createRouterScroller,\n deps: [Router,
common.ViewportScroller, ROUTER_CONFIGURATION]\n },\n {\n provide: PreloadingStrategy,\n useExisting: config && config.preloadingStrategy ?

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config.preloadingStrategy : \n
 NoPreloading \n
 }, \n
 { provide:
core.NgProbeToken, multi: true, useFactory: router.NgProbeToken }, \n
 provideRouterInitializer(), \n
], \n
 }; \n
 }; \n
 /** \n
 * Creates a module with all the router directives and a provider
 registering routes, \n
 * without creating a new Router service. \n
 * When registering for submodules and
 lazy-loaded submodules, create the NgModule as follows: \n
 * \n
 * `` \n
 * @NgModule({ \n
 * imports: [RouterModule.forChild(ROUTES)] \n
 * }) \n
 * class MyNgModule { \n
 * `` \n
 * \n
 * @param routes An array of `Route` objects
 that define the navigation paths for the submodule. \n
 * @return The new NgModule. \n
 * \n
 * \n
RouterModule.forChild = function (routes) { \n
 return { ngModule: RouterModule, providers:
[provideRoutes(routes)] }; \n
 }; \n
 return RouterModule; \n
 }()); \n
 RouterModule.decorators = [\n
 {
 type: core.NgModule, args: [{ \n
 declarations: ROUTER_DIRECTIVES, \n
 exports:
ROUTER_DIRECTIVES, \n
 entryComponents: [EmptyOutletComponent] \n
 },] \n
 }; \n
 RouterModule.ctorParameters = function () { return [\n
 { type: undefined, decorators: [{ type: core.Optional }, {
 type: core.Inject, args: [ROUTER_FORROOT_GUARD,] }, \n
 { type: Router, decorators: [{ type:
 core.Optional }]} \n
]; \n
 }; \n
 function createRouterScroller(router,
 viewportScroller, config) { \n
 if (config.scrollOffset) { \n
 viewportScroller.setOffset(config.scrollOffset); \n
 } \n
 return new RouterScroller(router, viewportScroller,
 config); \n
 } \n
 function provideLocationStrategy(platformLocationStrategy, baseHref, options) { \n
 if
 (options === void 0) { options = {}; } \n
 return options.useHash ? new
 common.HashLocationStrategy(platformLocationStrategy, baseHref) : \n
 new
 common.PathLocationStrategy(platformLocationStrategy, baseHref); \n
 } \n
 function
 provideForRootGuard(router) { \n
 if ((typeof ngDevMode === 'undefined' || ngDevMode) && router) { \n
 throw new Error("RouterModule.forRoot() called twice. Lazy loaded modules should use RouterModule.forChild()
 instead."); \n
 } \n
 return 'guarded'; \n
 } \n
 /** \n
 * Registers a [DI provider](guide/glossary#provider)
 for a set of routes. \n
 * @param routes The route configuration to provide. \n
 * \n
 * @usageNotes \n
 * \n
 * `` \n
 * @NgModule({ \n
 * imports:
 [RouterModule.forChild(ROUTES)], \n
 * providers: [provideRoutes(EXTRA_ROUTES)] \n
 * }) \n
 * class
 MyNgModule { \n
 * `` \n
 * \n
 * @publicApi \n
 * \n
 * function provideRoutes(routes) { \n
 return [\n
 { provide: core.ANALYZE_FOR_ENTRY_COMPONENTS, multi: true, useValue: routes }, \n
 { provide:
 ROUTES, multi: true, useValue: routes }, \n
]; \n
 } \n
 function setupRouter(urlSerializer, contexts, location,
 injector, loader, compiler, config, opts, urlHandlingStrategy, routeReuseStrategy) { \n
 if (opts === void 0) { opts
 = {}; } \n
 var router = new Router(null, urlSerializer, contexts, location, injector, loader, compiler,
 flatten(config)); \n
 if (urlHandlingStrategy) { \n
 router.urlHandlingStrategy = urlHandlingStrategy; \n
 } \n
 if (routeReuseStrategy) { \n
 router.routeReuseStrategy = routeReuseStrategy; \n
 } \n
 assignExtraOptionsToRouter(opts, router); \n
 if (opts.enableTracing) { \n
 var dom_1 =
 common.getDOM(); \n
 router.events.subscribe(function (e) { \n
 dom_1.logGroup("Router Event: \"
 + e.constructor.name); \n
 dom_1.log(e.toString()); \n
 dom_1.log(e); \n
 dom_1.logGroupEnd(); \n
 }); \n
 } \n
 return router; \n
 } \n
 function
 assignExtraOptionsToRouter(opts, router) { \n
 if (opts.errorHandler) { \n
 router.errorHandler =
 opts.errorHandler; \n
 } \n
 if (opts.malformedUriErrorHandler) { \n
 router.malformedUriErrorHandler
 = opts.malformedUriErrorHandler; \n
 } \n
 if (opts.onSameUrlNavigation) { \n
 router.onSameUrlNavigation = opts.onSameUrlNavigation; \n
 } \n
 if (opts.paramsInheritanceStrategy) { \n
 router.paramsInheritanceStrategy = opts.paramsInheritanceStrategy; \n
 } \n
 if (opts.relativeLinkResolution) { \n
 router.relativeLinkResolution = opts.relativeLinkResolution; \n
 } \n
 if (opts.urlUpdateStrategy) { \n
 router.urlUpdateStrategy = opts.urlUpdateStrategy; \n
 } \n
 } \n
 function rootRoute(router) { \n
 return router.routerState.root; \n
 } \n
 /** \n
 * Router initialization requires
 two steps: \n
 * \n
 * First, we start the navigation in a `APP_INITIALIZER` to block the bootstrap if \n
 * a
 resolver or a guard executes asynchronously. \n
 * \n
 * Next, we actually run activation in a

```

```

`BOOTSTRAP_LISTENER`, using the\n * `afterPreactivation` hook provided by the router.\n * The router
navigation starts, reaches the point when preactivation is done, and then\n * pauses. It waits for the hook to be
resolved. We then resolve it only in a bootstrap listener.\n */\n var RouterInitializer = /** @class */ (function ()
{\n function RouterInitializer(injector) {\n
 this.injector = injector;\n this.initNavigation = false;\n this.resultOfPreactivationDone = new
rxjs.Subject();\n }\n RouterInitializer.prototype.appInitializer = function () {\n var _this = this;\n
 var p = this.injector.get(common.LOCATION_INITIALIZED, Promise.resolve(null));\n return
p.then(function () {\n var resolve = null;\n var res = new Promise(function (r) { return resolve = r;
});\n var router = _this.injector.get(Router);\n var opts =
_this.injector.get(ROUTER_CONFIGURATION);\n if (opts.initialNavigation === 'disabled') {\n
 router.setUpLocationChangeListener();\n resolve(true);\n }\n else if (\n //
TODO: enabled is deprecated as of v11, can be removed in v13\n opts.initialNavigation === 'enabled' ||
opts.initialNavigation === 'enabledBlocking')\n {\n router.hooks.afterPreactivation = function () {\n // only the initial navigation should
be delayed\n if (!this.initNavigation) {\n _this.initNavigation = true;\n
 resolve(true);\n return _this.resultOfPreactivationDone;\n } // subsequent
navigations should not be delayed\n }\n else {\n return rxjs.of(null);\n }\n }\n router.initialNavigation();\n }\n else {\n
 resolve(true);\n }\n return res;\n });\n }\n RouterInitializer.prototype.bootstrapListener = function (bootstrappedComponentRef) {\n var opts =
this.injector.get(ROUTER_CONFIGURATION);\n
 var preloader = this.injector.get(RouterPreloader);\n var routerScroller =
this.injector.get(RouterScroller);\n var router = this.injector.get(Router);\n var ref =
this.injector.get(core.ApplicationRef);\n if (bootstrappedComponentRef !== ref.components[0]) {\n
 return;\n }\n // Default case\n if (opts.initialNavigation === 'enabledNonBlocking' ||
opts.initialNavigation === undefined) {\n router.initialNavigation();\n }\n preloader.setUpPreloading();\n routerScroller.init();\n
 router.resetRootComponentType(ref.componentTypes[0]);\n this.resultOfPreactivationDone.next(null);\n
 this.resultOfPreactivationDone.complete();\n }\n return RouterInitializer;\n})();\n
RouterInitializer.decorators = [\n { type: core.Injectable }\n];\n RouterInitializer.ctorParameters = function
() { return
[\n { type: core.Injector }\n];\n};\n function getAppInitializer(r) {\n return r.appInitializer.bind(r);\n
}\n function getBootstrapListener(r) {\n return r.bootstrapListener.bind(r);\n }\n /**\n * A [DI
token](guide/glossary/#di-token) for the router initializer that\n * is called after the app is bootstrapped.\n *\n * @publicApi\n */\n var ROUTER_INITIALIZER = new core.InjectionToken('Router Initializer');\n function
provideRouterInitializer() {\n return [\n RouterInitializer,\n {\n provide:
core.APP_INITIALIZER,\n multi: true,\n useFactory: getAppInitializer,\n deps:
[RouterInitializer]\n },\n {\n provide: ROUTER_INITIALIZER, useFactory: getBootstrapListener, deps:
[RouterInitializer]\n },\n {\n provide: core.APP_BOOTSTRAP_LISTENER, multi: true, useExisting:
ROUTER_INITIALIZER\n }\n];\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n /**\n * @publicApi\n */\n var VERSION = new core.Version('11.0.2');\n\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
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Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style

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license that can be\n * found in the LICENSE file at https://angular.io/license\n
 */\n // This file only reexports content of the `src` folder. Keep it that way.\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style\n license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n /**\n * Generated\n bundle index. Do not edit.\n */\n exports.ActivatedRoute = ActivatedRoute;\n exports.ActivatedRouteSnapshot = ActivatedRouteSnapshot;\n exports.ActivationEnd = ActivationEnd;\n exports.ActivationStart = ActivationStart;\n exports.BaseRouteReuseStrategy = BaseRouteReuseStrategy;\n exports.ChildActivationEnd = ChildActivationEnd;\n exports.ChildActivationStart = ChildActivationStart;\n exports.ChildrenOutletContexts = ChildrenOutletContexts;\n exports.DefaultUrlSerializer =\n DefaultUrlSerializer;\n exports.GuardsCheckEnd = GuardsCheckEnd;\n exports.GuardsCheckStart =\n GuardsCheckStart;\n\n exports.NavigationCancel = NavigationCancel;\n exports.NavigationEnd = NavigationEnd;\n exports.NavigationError = NavigationError;\n exports.NavigationStart = NavigationStart;\n exports.NoPreloading = NoPreloading;\n exports.OutletContext = OutletContext;\n exports.PRIMARY_OUTLET = PRIMARY_OUTLET;\n exports.PreloadAllModules = PreloadAllModules;\n exports.PreloadingStrategy = PreloadingStrategy;\n exports.ROUTER_CONFIGURATION =\n ROUTER_CONFIGURATION;\n exports.ROUTER_INITIALIZER = ROUTER_INITIALIZER;\n exports.ROUTES = ROUTES;\n exports.ResolveEnd = ResolveEnd;\n exports.ResolveStart = ResolveStart;\n exports.RouteConfigLoadEnd = RouteConfigLoadEnd;\n exports.RouteConfigLoadStart =\n RouteConfigLoadStart;\n exports.RouteReuseStrategy = RouteReuseStrategy;\n exports.Router = Router;\n exports.RouterEvent = RouterEvent;\n exports.RouterLink = RouterLink;\n exports.RouterLinkActive =\n RouterLinkActive;\n exports.RouterLinkWithHref\n = RouterLinkWithHref;\n exports.RouterModule = RouterModule;\n exports.RouterOutlet = RouterOutlet;\n exports.RouterPreloader = RouterPreloader;\n exports.RouterState = RouterState;\n exports.RouterStateSnapshot\n = RouterStateSnapshot;\n exports.RoutesRecognized = RoutesRecognized;\n exports.Scroll = Scroll;\n exports.UrlHandlingStrategy = UrlHandlingStrategy;\n exports.UrlSegment = UrlSegment;\n exports.UrlSegmentGroup = UrlSegmentGroup;\n exports.UrlSerializer = UrlSerializer;\n exports.UrlTree =\n UrlTree;\n exports.VERSION = VERSION;\n exports.convertToParamMap = convertToParamMap;\n exports.provideRoutes = provideRoutes;\n exports.EmptyOutletComponent = EmptyOutletComponent;\n exports.ROUTER_PROVIDERS = ROUTER_PROVIDERS;\n exports.angular_packages_router_router_a =\n ROUTER_FORROOT_GUARD;\n exports.angular_packages_router_router_b = routerNgProbeToken;\n exports.angular_packages_router_router_c = createRouterScroller;\n\n exports.angular_packages_router_router_d = provideLocationStrategy;\n exports.angular_packages_router_router_e = provideForRootGuard;\n exports.angular_packages_router_router_f\n = setupRouter;\n exports.angular_packages_router_router_g = rootRoute;\n exports.angular_packages_router_router_h = RouterInitializer;\n exports.angular_packages_router_router_i =\n getAppInitializer;\n exports.angular_packages_router_router_j = getBootstrapListener;\n exports.angular_packages_router_router_k = provideRouterInitializer;\n exports.angular_packages_router_router_l = EmptyOutletComponent;\n exports.angular_packages_router_router_m = Tree;\n exports.angular_packages_router_router_n = TreeNode;\n exports.angular_packages_router_router_o = RouterScroller;\n exports.assignExtraOptionsToRouter =\n assignExtraOptionsToRouter;\n exports.flatten = flatten;\n\n Object.defineProperty(exports, '__esModule', {\n value: true });\n\n sourceMappingURL=router.umd.js.map\n]}

```

Found in path(s):

\* /router-11-0-2-tgz/package/bundles/router.umd.min.js.map





```

*\/n navigationTrigger: 'imperative'|'popstate'|'hashchange' = 'imperative',\/n /** @docsNotRequired */\/n
restoredState: {[k: string]: any, navigationId: number}|null = null) {\/n super(id, url);\/n this.navigationTrigger =
navigationTrigger;\/n this.restoredState = restoredState;\/n }\/n\/n /** @docsNotRequired */\/n toString(): string {\/n
 return `NavigationStart(id: ${this.id}, url: '${this.url}')`;\/n }\/n}\/n\/n/**\/n * An event triggered when a navigation
ends successfully.\/n */\/n * @see `NavigationStart`\/n
* @see `NavigationCancel`\/n * @see `NavigationError`\/n */\/n * @publicApi\/n */\/nexport class NavigationEnd
extends RouterEvent {\/n constructor(\/n /** @docsNotRequired */\/n id: number,\/n /** @docsNotRequired
*/\/n url: string,\/n /** @docsNotRequired */\/n public urlAfterRedirects: string) {\/n super(id, url);\/n }\/n\/n
/** @docsNotRequired */\/n toString(): string {\/n return `NavigationEnd(id: ${this.id}, url: '${this.url}',
urlAfterRedirects: '${this.urlAfterRedirects}')`;\/n }\/n}\/n}\/n/**\/n * An event triggered when a navigation is
canceled, directly or indirectly.\/n * This can happen when a route guard\/n * returns `false` or initiates a redirect by
returning a `UrlTree`.\/n */\/n * @see `NavigationStart`\/n * @see `NavigationEnd`\/n * @see `NavigationError`\/n */\/n
* @publicApi\/n */\/nexport class NavigationCancel extends RouterEvent {\/n constructor(\/n /**
@docsNotRequired */\/n id: number,\/n /** @docsNotRequired */\/n url: string,\/n
 /** @docsNotRequired */\/n public reason: string) {\/n super(id, url);\/n }\/n\/n /** @docsNotRequired */\/n
toString(): string {\/n return `NavigationCancel(id: ${this.id}, url: '${this.url}')`;\/n }\/n}\/n}\/n/**\/n * An event
triggered when a navigation fails due to an unexpected error.\/n */\/n * @see `NavigationStart`\/n * @see
`NavigationEnd`\/n * @see `NavigationCancel`\/n */\/n * @publicApi\/n */\/nexport class NavigationError extends
RouterEvent {\/n constructor(\/n /** @docsNotRequired */\/n id: number,\/n /** @docsNotRequired */\/n
url: string,\/n /** @docsNotRequired */\/n public error: any) {\/n super(id, url);\/n }\/n\/n /**
@docsNotRequired */\/n toString(): string {\/n return `NavigationError(id: ${this.id}, url: '${this.url}', error:
${this.error}')`;\/n }\/n}\/n}\/n/**\/n * An event triggered when routes are recognized.\/n */\/n * @publicApi\/n */\/nexport
class RoutesRecognized extends RouterEvent {\/n constructor(\/n /** @docsNotRequired */\/n
 id: number,\/n /** @docsNotRequired */\/n url: string,\/n /** @docsNotRequired */\/n public
urlAfterRedirects: string,\/n /** @docsNotRequired */\/n public state: RouterStateSnapshot) {\/n super(id,
url);\/n }\/n\/n /** @docsNotRequired */\/n toString(): string {\/n return `RoutesRecognized(id: ${this.id}, url:
'${this.url}', urlAfterRedirects: '${this.urlAfterRedirects}', state: ${this.state}')`;\/n }\/n}\/n}\/n/**\/n * An event
triggered at the start of the Guard phase of routing.\/n */\/n * @see `GuardsCheckEnd`\/n */\/n * @publicApi\/n
*/\/nexport class GuardsCheckStart extends RouterEvent {\/n constructor(\/n /** @docsNotRequired */\/n id:
number,\/n /** @docsNotRequired */\/n url: string,\/n /** @docsNotRequired */\/n public
urlAfterRedirects: string,\/n /** @docsNotRequired */\/n public state: RouterStateSnapshot) {\/n super(id,
url);\/n }\/n\/n toString(): string {\/n return `GuardsCheckStart(id: ${this.id}, url:
'${this.url}', urlAfterRedirects: '${this.urlAfterRedirects}', state: ${this.state}')`;\/n }\/n}\/n}\/n/**\/n * An event
triggered at the end of the Guard phase of routing.\/n */\/n * @see `GuardsCheckStart`\/n */\/n * @publicApi\/n
*/\/nexport class GuardsCheckEnd extends RouterEvent {\/n constructor(\/n /** @docsNotRequired */\/n id:
number,\/n /** @docsNotRequired */\/n url: string,\/n /** @docsNotRequired */\/n public
urlAfterRedirects: string,\/n /** @docsNotRequired */\/n public state: RouterStateSnapshot,\/n /**
@docsNotRequired */\/n public shouldActivate: boolean) {\/n super(id, url);\/n }\/n\/n toString(): string {\/n
 return `GuardsCheckEnd(id: ${this.id}, url: '${this.url}', urlAfterRedirects: '${this.urlAfterRedirects}', state:
${this.state}, shouldActivate: ${this.shouldActivate}')`;\/n }\/n}\/n}\/n/**\/n * An event triggered at the the start of the
Resolve phase of routing.\/n */\/n * Runs in the `resolve` phase whether or not there
is anything to resolve.\/n * In future, may change to only run when there are things to be resolved.\/n */\/n * @see
`ResolveEnd`\/n */\/n * @publicApi\/n */\/nexport class ResolveStart extends RouterEvent {\/n constructor(\/n /**
@docsNotRequired */\/n id: number,\/n /** @docsNotRequired */\/n url: string,\/n /** @docsNotRequired
*/\/n public urlAfterRedirects: string,\/n /** @docsNotRequired */\/n public state: RouterStateSnapshot) {\/n
 super(id, url);\/n }\/n\/n toString(): string {\/n return `ResolveStart(id: ${this.id}, url: '${this.url}', urlAfterRedirects:
'${this.urlAfterRedirects}', state: ${this.state}')`;\/n }\/n}\/n}\/n/**\/n * An event triggered at the end of the
Resolve phase of routing.\/n */\/n * @see `ResolveStart`\/n */\/n * @publicApi\/n */\/nexport class ResolveEnd extends

```



```

[NavigationEnd](api/router/NavigationEnd): When navigation ends successfully.\n * *
[NavigationCancel](api/router/NavigationCancel):
 When navigation is canceled.\n * * [NavigationError](api/router/NavigationError): When navigation fails\n * due to
 an unexpected error.\n * * [Scroll](api/router/Scroll): When the user scrolls.\n * \n * @publicApi\n * \n\nexport type
Event = RouterEvent|RouteConfigLoadStart|RouteConfigLoadEnd|ChildActivationStart|\n
ChildActivationEnd|ActivationStart|ActivationEnd|Scroll;\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n * \n\nimport {Route, UrlMatchResult} from './config';\nimport
{UrlSegment, UrlSegmentGroup} from './url_tree';\n\n\n/**\n * The primary routing outlet.\n * \n * @publicApi\n * \n\nexport const PRIMARY_OUTLET = 'primary';\n\n\n/**\n * A collection of matrix and query URL parameters.\n
* @see `convertToParamMap`\n * @see `ParamMap`\n * \n * @publicApi\n * \n\nexport type Params = {\n [key:
string]: any;\n};\n\n\n/**\n
* A map that provides access to the required and optional parameters\n * specific to a route.\n * The map supports
retrieving a single value with `get()`\n * or multiple values with `getAll()`\n * \n * @see
[URLSearchParams](https://developer.mozilla.org/en-US/docs/Web/API/URLSearchParams)\n * \n * @publicApi\n
* \n\nexport interface ParamMap {\n /**\n * Reports whether the map contains a given parameter.\n * @param
name The parameter name.\n * @returns True if the map contains the given parameter, false otherwise.\n * \n
has(name: string): boolean;\n /**\n * Retrieves a single value for a parameter.\n * @param name The parameter
name.\n * @return The parameter's single value,\n * or the first value if the parameter has multiple values,\n * or
`null` when there is no such parameter.\n * \n get(name: string): string|null;\n /**\n * Retrieves multiple values
for a parameter.\n * @param name The parameter name.\n * @return An array containing one or
more values,\n * or an empty array if there is no such parameter.\n * \n * \n get(name: string): string[];\n\n
/** Names of the parameters in the map. *\n readonly keys: string[];\n}\n\n\nclass ParamsAsMap implements
ParamMap {\n private params: Params;\n\n constructor(params: Params) {\n this.params = params || {};\n }\n\n
has(name: string): boolean {\n return Object.prototype.hasOwnProperty.call(this.params, name);\n }\n\n
get(name: string): string|null {\n if (this.has(name)) {\n const v = this.params[name];\n return
Array.isArray(v) ? v[0] : v;\n }\n\n return null;\n }\n\n getAll(name: string): string[] {\n if (this.has(name))
{\n const v = this.params[name];\n return Array.isArray(v) ? v : [v];\n }\n\n return [];\n }\n\n get keys():
string[] {\n return Object.keys(this.params);\n }\n}\n\n\n/**\n * Converts a `Params` instance to a `ParamMap`.\n *
@param params The instance to convert.\n * @returns The new map instance.\n
* \n * @publicApi\n * \n\nexport function convertToParamMap(params: Params): ParamMap {\n return new
ParamsAsMap(params);\n}\n\n\nconst NAVIGATION_CANCELING_ERROR =
'ngNavigationCancelingError';\n\nexport function navigationCancelingError(message: string) {\n const error =
Error('NavigationCancelingError: ' + message);\n (error as any)[NAVIGATION_CANCELING_ERROR] = true;\n\n
return error;\n}\n\nexport function isNavigationCancelingError(error: Error) {\n return error && (error as
any)[NAVIGATION_CANCELING_ERROR];\n}\n\n\n// Matches the route configuration (`route`) against the actual
URL (`segments`).\nexport function defaultUrlMatcher(\n segments: UrlSegment[], segmentGroup:
UrlSegmentGroup, route: Route): UrlMatchResult|null {\n const parts = route.path!.split('/');\n\n if (parts.length >
segments.length) {\n // The actual URL is shorter than the config, no match\n return null;\n }\n\n if
(route.pathMatch === 'full' &&\n (segmentGroup.hasChildren() || parts.length
< segments.length)) {\n // The config is longer than the actual URL but we are looking for a full match, return
null\n return null;\n }\n\n const posParams: {[key: string]: UrlSegment} = {};\n\n // Check each config part
against the actual URL\n for (let index = 0; index < parts.length; index++) {\n const part = parts[index];\n const
segment = segments[index];\n const isParameter = part.startsWith(':');\n if (isParameter) {\n
posParams[part.substring(1)] = segment;\n } else if (part !== segment.path) {\n // The actual URL part does not
match the config, no match\n return null;\n }\n }\n\n return {consumed: segments.slice(0, parts.length),
posParams};\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n

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*\\n\\nimport {isObservable as isObservable, isPromise as isPromise} from '@angular/core';\\nimport
{from, Observable, of} from 'rxjs';\\nimport {concatAll, last as lastValue, map} from 'rxjs/operators';\\n\\nimport
{Params, PRIMARY_OUTLET} from './shared';\\n\\nexport function shallowEqualArrays(a: any[], b: any[]):
boolean {\\n if (a.length !== b.length) return false;\\n for (let i = 0; i < a.length; ++i) {\\n if (!shallowEqual(a[i],
b[i])) return false;\\n }\\n return true;\\n}\\n\\nexport function shallowEqual(a: Params, b: Params): boolean {\\n //
Casting Object.keys return values to include `undefined` as there are some cases\\n // in IE 11 where this can
happen. Cannot provide a test because the behavior only\\n // exists in certain circumstances in IE 11, therefore
doing this cast ensures the\\n // logic is correct for when this edge case is hit.\\n const k1 = Object.keys(a) as string[]
| undefined;\\n const k2 = Object.keys(b) as string[] | undefined;\\n if (!k1 || !k2 || k1.length !== k2.length) {\\n return
false;\\n }\\n let key: string;\\n for (let i = 0; i <
k1.length; i++) {\\n key = k1[i];\\n if (!equalArraysOrString(a[key], b[key])) {\\n return false;\\n }\\n }\\n
return true;\\n}\\n\\n/**\\n * Test equality for arrays of strings or a string.\\n */\\nexport function equalArraysOrString(a:
string|string[], b: string|string[]) {\\n if (Array.isArray(a) && Array.isArray(b)) {\\n if (a.length !== b.length)
return false;\\n const aSorted = [...a].sort();\\n const bSorted = [...b].sort();\\n return aSorted.every((val, index)
=> bSorted[index] === val);\\n } else {\\n return a === b;\\n }\\n}\\n\\n/**\\n * Flattens single-level nested arrays.\\n
*/\\nexport function flatten<T>(arr: T[][]): T[] {\\n return Array.prototype.concat.apply([], arr);\\n}\\n\\n/**\\n * Return
the last element of an array.\\n */\\nexport function last<T>(a: T[]): T|null {\\n return a.length > 0 ? a[a.length - 1] :
null;\\n}\\n\\n/**\\n * Verifies all booleans in an array are `true`.\\n */\\nexport function and(booleans: boolean[]): boolean
{\\n return !booleans.some(v => !v);\\n}\\n\\nexport
function forEach<K, V>(map: {[key: string]: V}, callback: (v: V, k: string) => void): void {\\n for (const prop in
map) {\\n if (map.hasOwnProperty(prop)) {\\n callback(map[prop], prop);\\n }\\n }\\n}\\n\\nexport function
waitForMap<A, B>(\\n obj: {[k: string]: A}, fn: (k: string, a: A) => Observable): Observable<{[k: string]: B}>
{\\n if (Object.keys(obj).length === 0) {\\n return of({});\\n }\\n\\n const waitHead: Observable[] = [];\\n const
waitTail: Observable[] = [];\\n const res: {[k: string]: B} = {};\\n\\n forEach(obj, (a: A, k: string) => {\\n const
mapped = fn(k, a).pipe(map((r: B) => res[k] = r));\\n if (k === PRIMARY_OUTLET) {\\n
waitHead.push(mapped);\\n } else {\\n waitTail.push(mapped);\\n }\\n });\\n\\n // Closure compiler has problem
with using spread operator here. So we use `Array.concat`.\\n // Note that we also need to cast the new promise
because TypeScript cannot infer the type\\n // when calling the `of` function through
`Function.apply`\\n return (of.apply(null, waitHead.concat(waitTail)) as Observable<Observable>).\\n
.pipe(concatAll(), lastValue(), map(() => res));\\n}\\n\\nexport function wrapIntoObservable<T>(value:
T|Promise<T>|Observable<T>): Observable<T> {\\n if (isObservable(value)) {\\n return value;\\n }\\n\\n if
(isPromise(value)) {\\n // Use `Promise.resolve()` to wrap promise-like instances.\\n // Required ie when a
Resolver returns a AngularJS `$q` promise to correctly trigger the\\n // change detection.\\n return
from(Promise.resolve(value));\\n }\\n\\n return of(value);\\n}\\n\\n", "/*\\n * @license\\n * Copyright Google LLC All
Rights Reserved.\\n *\\n * Use of this source code is governed by an MIT-style license that can be\\n * found in the
LICENSE file at https://angular.io/license\\n */\\n\\nimport {convertToParamMap, ParamMap, Params,
PRIMARY_OUTLET} from './shared';\\nimport {equalArraysOrString, forEach, shallowEqual} from
'./utils/collection';\\n\\nexport function createEmptyUrlTree()
{\\n return new UrlTree(new UrlSegmentGroup([], {}), {}, null);\\n}\\n\\nexport function containsTree(container:
UrlTree, containee: UrlTree, exact: boolean): boolean {\\n if (exact) {\\n return
equalQueryParams(container.queryParams, containee.queryParams) &&\\n equalSegmentGroups(container.root,
containee.root);\\n }\\n\\n return containsQueryParams(container.queryParams, containee.queryParams) &&\\n
containsSegmentGroup(container.root, containee.root);\\n}\\n\\nfunction equalQueryParams(container: Params,
containee: Params): boolean {\\n // TODO: This does not handle array params correctly.\\n return
shallowEqual(container, containee);\\n}\\n\\nfunction equalSegmentGroups(container: UrlSegmentGroup, containee:
UrlSegmentGroup): boolean {\\n if (!equalPath(container.segments, containee.segments)) return false;\\n if
(container.numberOfChildren !== containee.numberOfChildren) return false;\\n for (const c in containee.children)
{\\n if (!container.children[c]) return false;\\n

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if (!equalSegmentGroups(container.children[c], containee.children[c])) return false;\n }\n return
true;\n}\n\nfunction containsQueryParams(container: Params, containee: Params): boolean {\n return
Object.keys(containee).length <= Object.keys(container).length &&\n Object.keys(containee).every(key =>
equalArraysOrString(container[key], containee[key]));\n}\n\nfunction containsSegmentGroup(container:
UrlSegmentGroup, containee: UrlSegmentGroup): boolean {\n return containsSegmentGroupHelper(container,
containee, containee.segments);\n}\n\nfunction containsSegmentGroupHelper(\n container: UrlSegmentGroup,
containee: UrlSegmentGroup, containeePaths: UrlSegment[]): boolean {\n if (container.segments.length >
containeePaths.length) {\n const current = container.segments.slice(0, containeePaths.length);\n if
(!equalPath(current, containeePaths)) return false;\n if (containee.hasChildren()) return false;\n return true;\n }\n else if (container.segments.length
=== containeePaths.length) {\n if (!equalPath(container.segments, containeePaths)) return false;\n for (const c
in containee.children) {\n if (!container.children[c]) return false;\n if
(!containsSegmentGroup(container.children[c], containee.children[c])) return false;\n }\n return true;\n }\n } else
{\n const current = containeePaths.slice(0, container.segments.length);\n const next =
containeePaths.slice(container.segments.length);\n if (!equalPath(container.segments, current)) return false;\n if
(!container.children[PRIMARY_OUTLET]) return false;\n return
containsSegmentGroupHelper(container.children[PRIMARY_OUTLET], containee, next);\n }\n}\n\n/**\n *
@description\n *\n * Represents the parsed URL.\n *\n * Since a router state is a tree, and the URL is nothing but a
serialized state, the URL is a\n * serialized tree.\n * UrlTree is a data structure that provides a lot of affordances in
dealing with URLs\n *\n * @usageNotes\n * ### Example\n *\n
* ```\n * @Component({templateUrl:'template.html'})\n * class MyComponent {\n * constructor(router: Router)
{\n * const tree: UrlTree =\n * router.parseUrl('/team/33/(user/victor/support:help)?debug=true#fragment');\n *
* const f = tree.fragment; // return 'fragment'\n * const q = tree.queryParams; // returns {debug: 'true'}\n *
const g: UrlSegmentGroup = tree.root.children[PRIMARY_OUTLET];\n * const s: UrlSegment[] = g.segments; //
returns 2 segments 'team' and '33'\n * g.children[PRIMARY_OUTLET].segments; // returns 2 segments 'user' and
'victor'\n * g.children['support'].segments; // return 1 segment 'help'\n * }\n * }\n * ```\n *\n * @publicApi\n
*/\nexport class UrlTree {\n /** @internal */\n // TODO(issue/24571): remove '!'.\n _queryParamMap!:
ParamMap;\n /** @internal */\n constructor(\n /** The root segment group of the URL */\n public
root: UrlSegmentGroup,\n /** The query params of the URL */\n public queryParams:
Params,\n /** The fragment of the URL */\n public fragment: string|null) {\n }\n get queryParamMap():
ParamMap {\n if (!this._queryParamMap) {\n this._queryParamMap =
convertToParamMap(this.queryParams);\n }\n return this._queryParamMap;\n }\n /** @docsNotRequired
*/\n toString(): string {\n return DEFAULT_SERIALIZER.serialize(this);\n }\n}\n\n/**\n * @description\n *\n *
Represents the parsed URL segment group.\n *\n * See `UrlTree` for more information.\n *\n * @publicApi\n
*/\nexport class UrlSegmentGroup {\n /** @internal */\n // TODO(issue/24571): remove '!'.\n _sourceSegment!:
UrlSegmentGroup;\n /** @internal */\n // TODO(issue/24571): remove '!'.\n _segmentIndexShift!: number;\n /**
The parent node in the url tree */\n parent: UrlSegmentGroup|null = null;\n constructor(\n /** The URL
segments of this group. See `UrlSegment` for more information */\n public segments: UrlSegment[],\n /**
The list of children of this
group */\n public children: {[key: string]: UrlSegmentGroup}) {\n forEach(children, (v: any, k: any) =>
v.parent = this);\n }\n /** Whether the segment has child segments */\n hasChildren(): boolean {\n return
this.numberOfChildren > 0;\n }\n /** Number of child segments */\n get numberOfChildren(): number {\n return
Object.keys(this.children).length;\n }\n /** @docsNotRequired */\n toString(): string {\n return
serializePaths(this);\n }\n}\n\n/**\n * @description\n *\n * Represents a single URL segment.\n *\n * A
UrlSegment is a part of a URL between the two slashes. It contains a path and the matrix\n * parameters associated
with the segment.\n *\n * @usageNotes\n * ### Example\n *\n
* ```\n * @Component({templateUrl:'template.html'})\n * class MyComponent {\n * constructor(router: Router) {\n *
const tree: UrlTree = router.parseUrl('/team?id=33');\n * const g: UrlSegmentGroup =

```



```

*function encodeURIComponent(s: string): string {
 return encodeURIComponent(s).replace(/%40/g, '@')
 .replace(/%3A/g, ':')
 .replace(/%24/g, '$')
 .replace(/%2C/g, ',');
}

* This function should be used to encode both keys and values in a query string key/value. In the following URL, you need to call encodeUriQuery on "k" and "v":
* http://www.site.org/html;mk=mv?k=v#f

*function encodeUriQuery(s: string): string {
 return encodeURIComponent(s).replace(/%3B/g, ';');
}

* This function should be used to encode a URL fragment. In the following URL, you need to call encodeUriFragment on "f":
* http://www.site.org/html;mk=mv?k=v#f

*function encodeUriFragment(s: string): string {
 return encodeURI(s);
}

* This function should be run on any URI segment as well as the key and value in a key/value pair for matrix params. In the following URL, you need to call encodeUriSegment on "html", "mk", and "mv":
* http://www.site.org/html;mk=mv?k=v#f

*function encodeUriSegment(s: string): string {
 return encodeURIComponent(s).replace(/[/\?]/g, '%28').replace(/[/\?]/g, '%29').replace(/%/g, '%26');
}

*function decode(s: string): string {
 return decodeURIComponent(s);
}

// Query keys/values should have the "+" replaced first, as "+" in a query string is " ". decodeURIComponent function will not decode "+" as a space.
*function decodeQuery(s: string): string {
 return decode(s.replace(/[/\?]/g, '%20'));
}

*function serializePath(path: UriSegment): string {
 return `${encodeURIComponent(path.path)}${serializeMatrixParams(path.parameters)}`;
}

*function serializeMatrixParams(params: { [key: string]: string }): string {
 return Object.keys(params).map(key => `;${encodeURIComponent(key)}=${encodeURIComponent(params[key])}`).join('');
}

*function serializeQueryParams(params: { [key: string]: any }): string {
 const strParams: string[] = Object.keys(params).map((name) => {
 const value = params[name];
 return Array.isArray(value) ? value.map(v => `${encodeURIComponent(name)}=${encodeURIComponent(v)}`).join('&') : `${encodeURIComponent(name)}=${encodeURIComponent(value)}`;
 });
 return strParams.length ? `?${strParams.join('&')}` : '';
}

const SEGMENT_RE = /^[^\/()?=#]+/;
function matchSegments(str: string): string {
 const match = str.match(SEGMENT_RE);
 return match ? match[0] : '';
}

const QUERY_PARAM_RE = /^[^=?&#]+/;
// Return the name of the query param at the start of the string or an empty string
function matchQueryParams(str: string): string {
 const match = str.match(QUERY_PARAM_RE);
 return match ? match[0] : '';
}

const QUERY_PARAM_VALUE_RE = /^[^?&#]+/;
// Return the value of the query param at the start of the string or an empty string
function matchUrlQueryParamValue(str: string): string {
 const match = str.match(QUERY_PARAM_VALUE_RE);
 return match ? match[0] : '';
}

class UrlParser {
 private remaining: string;

 constructor(private url: string) {
 this.remaining = url;
 }

 parseRootSegment(): UriSegmentGroup {
 this.consumeOptional('/');
 if (this.remaining === '' || this.peekStartsWith('?') || this.peekStartsWith('#')) {
 return new UriSegmentGroup([], {});
 }
 // The root segment group never has segments
 return new UriSegmentGroup([], this.parseChildren());
 }

 parseQueryParams(): Params {
 const params: Params = {};
 if (this.consumeOptional('?')) {
 do {
 this.parseQueryParam(params);
 } while (this.consumeOptional('&'));
 }
 return params;
 }

 parseFragment(): string | null {
 return this.consumeOptional('#') ? decodeURIComponent(this.remaining) : null;
 }

 private parseChildren(): { [outlet: string]: UriSegmentGroup } {
 if (this.remaining === '') {
 return {};
 }
 this.consumeOptional('/');
 const segments: UriSegment[] = [];
 if (!this.peekStartsWith('(')) {
 segments.push(this.parseSegment());
 }
 while (this.peekStartsWith('/') && !this.peekStartsWith('//') && !this.peekStartsWith('(')) {
 this.capture('/');
 segments.push(this.parseSegment());
 }
 let children: { [outlet: string]: UriSegmentGroup } = {};
 if (this.peekStartsWith('(')) {
 this.capture('(');
 children = this.parseParens(true);
 }
 let res: { [outlet: string]: UriSegmentGroup } = {};
 if (this.peekStartsWith('(')) {
 res = this.parseParens(false);
 }
 if (segments.length > 0 || Object.keys(children).length > 0) {
 res[PRIMARY_OUTLET] = new UriSegmentGroup(segments, children);
 }
 return res;
 }

 // parse a segment with its matrix parameters
 // ie `name;k1=v1;k2`
 private parseSegment(): UriSegment {
 const path = matchSegments(this.remaining);

```



```

 if (path === "" && this.peekStartsWith(';')) {\n throw new Error(`Empty path url segment cannot have
parameters: '${this.remaining}'.`);\n }\n this.capture(path);\n return new UriSegment(decode(path),
this.parseMatrixParams());\n }\n private parseMatrixParams(): {[key: string]: any} {\n const params: {[key:
string]: any} = {};\n while (this.consumeOptional(';')) {\n this.parseParam(params);\n }\n return params;\n }\n private parseParam(params: {[key: string]: any}): void {\n const key = matchSegments(this.remaining);\n if (!key) {\n return;\n }\n this.capture(key);\n let value: any = ";\n if (this.consumeOptional('=')) {\n const valueMatch = matchSegments(this.remaining);\n if (valueMatch) {\n value = valueMatch;\n this.capture(value);\n }\n }\n params[decode(key)] = decode(value);\n }\n // Parse a single query
parameter `name[=value]`\n private parseQueryParam(params:
Params): void {\n const key = matchQueryParams(this.remaining);\n if (!key) {\n return;\n }\n this.capture(key);\n let value: any = ";\n if (this.consumeOptional('=')) {\n const valueMatch =
matchUrlQueryParamValue(this.remaining);\n if (valueMatch) {\n value = valueMatch;\n this.capture(value);\n }\n }\n const decodedKey = decodeQuery(key);\n const decodedVal =
decodeQuery(value);\n if (params.hasOwnProperty(decodedKey)) {\n // Append to existing values\n let
currentVal = params[decodedKey];\n if (!Array.isArray(currentVal)) {\n currentVal = [currentVal];\n }\n params[decodedKey] = currentVal;\n currentVal.push(decodedVal);\n } else {\n // Create a new
value\n params[decodedKey] = decodedVal;\n }\n }\n // parse `(a/b//outlet_name:c/d)`\n private
parseParens(allowPrimary: boolean): {[outlet: string]: UriSegmentGroup} {\n const segments: {[key: string]:
UriSegmentGroup} = {};\n this.capture('(');\n while (!this.consumeOptional(')')) && this.remaining.length > 0) {\n const path = matchSegments(this.remaining);\n const next = this.remaining[path.length];\n // if is is
not one of these characters, then the segment was unescaped\n // or the group was not closed\n if (next !== '/'
&& next !== ')' && next !== ';') {\n throw new Error(`Cannot parse url '${this.url}'`);\n }\n let
outletName: string = undefined;\n if (path.indexOf('.') > -1) {\n outletName = path.substr(0,
path.indexOf('.'));\n this.capture(outletName);\n this.capture('.');\n } else if (allowPrimary) {\n outletName = PRIMARY_OUTLET;\n }\n const children = this.parseChildren();\n segments[outletName] = Object.keys(children).length === 1 ? children[PRIMARY_OUTLET] : \n new UriSegmentGroup([], children);\n }\n this.consumeOptional('/');\n }\n return segments;\n }\n private peekStartsWith(str: string): boolean {\n return this.remaining.startsWith(str);\n }\n // Consumes the prefix when it is present and returns whether it has
been consumed\n private consumeOptional(str: string): boolean {\n if (this.peekStartsWith(str)) {\n this.remaining = this.remaining.substring(str.length);\n return true;\n }\n return false;\n }\n private
capture(str: string): void {\n if (!this.consumeOptional(str)) {\n throw new Error(`Expected \"${str}\"`);\n }\n }\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n export class Tree<T> {\n /** @internal */\n _root: TreeNode<T>;\n constructor(root: TreeNode<T>) {\n this._root = root;\n }\n get root(): T {\n return this._root.value;\n }\n /**\n * @internal\n */\n parent(t: T): T|null {\n const p = this.pathFromRoot(t);\n return p.length > 1 ?
p[p.length - 2] : null;\n }\n /**\n * @internal\n */\n children(t: T): T[] {\n const n = findNode(t,
this._root);\n return n ? n.children.map(t => t.value) : [];\n }\n /**\n * @internal\n */\n firstChild(t: T):
T|null {\n const n = findNode(t, this._root);\n return n && n.children.length > 0 ? n.children[0].value : null;\n }\n /**\n * @internal\n */\n siblings(t: T): T[] {\n const p = findPath(t, this._root);\n if (p.length < 2) return
[];\n const c = p[p.length - 2].children.map(c => c.value);\n return c.filter(cc => cc !== t);\n }\n /**\n *
@internal\n */\n pathFromRoot(t: T): T[] {\n return findPath(t, this._root).map(s => s.value);\n }\n }\n // DFS
for the node matching the value\n function findNode<T>(value: T, node: TreeNode<T>): TreeNode<T>|null {\n if
(value === node.value) return node;\n for (const child of node.children) {\n const node = findNode(value, child);\n if (node) return node;\n }\n return null;\n }\n // Return the path to the node with the given value using DFS\n function findPath<T>(value: T,
node: TreeNode<T>): TreeNode<T>[] {\n if (value === node.value) return [node];\n for (const child of

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node.children) {\n const path = findPath(value, child);\n if (path.length) {\n path.unshift(node);\n return\npath;\n }\n }\n }\n return [];\n}\n\nexport class TreeNode<T> {\n constructor(public value: T, public children:\nTreeNode<T>[]) {\n }\n toString(): string {\n return `TreeNode(${this.value})`;}\n }\n }\n }\n // Return the list of T\nindexed by outlet name\nexport function nodeChildrenAsMap<T extends {outlet: string}>(node:\nTreeNode<T>|null) {\n const map: {[outlet: string]: TreeNode<T>} = {};\n if (node) {\n\nnode.children.forEach(child => map[child.value.outlet] = child);\n }\n }\n return map;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport {Type} from\n'@angular/core';\nimport {BehaviorSubject, Observable} from 'rxjs';\nimport {map} from 'rxjs/operators';\nimport {\nData, ResolveData, Route} from './config';\nimport {convertToParamMap, ParamMap, Params,\nPRIMARY_OUTLET} from './shared';\nimport {equalSegments, UrlSegment, UrlSegmentGroup, UrlTree} from\n'./url_tree';\nimport {shallowEqual, shallowEqualArrays} from './utils/collection';\nimport {Tree, TreeNode} from\n'./utils/tree';\n\n/**\n * Represents the state of the router as a tree of activated routes.\n * @usageNotes\n *\n * Every node in the route tree is an `ActivatedRoute` instance\n * that knows about the `consumed` URL\nsegments, the extracted parameters,\n * and the resolved data.\n * Use the `ActivatedRoute` properties to traverse\nthe tree from any node.\n\n * The following fragment shows how a component gets the root node\n * of the current state to establish its own\nroute tree:\n\n * @Component({templateUrl: 'template.html'})\n * class MyComponent {\n * constructor(router: Router) {\n * const state: RouterState = router.routerState;\n * const root: ActivatedRoute =\nstate.root;\n * const child = root.firstChild;\n * const id: Observable<string> = child.params.map(p => p.id);\n * //...\n * }\n * }\n\n * @see `ActivatedRoute`\n * @see [Getting route\ninformation](guide/router#getting-route-information)\n\n * @publicApi\n */\nexport class RouterState extends\nTree<ActivatedRoute> {\n /** @internal */\n constructor(\n root: TreeNode<ActivatedRoute>,\n /** The\ncurrent snapshot of the router state */\n public snapshot: RouterStateSnapshot) {\n super(root);\n setRouterState(<RouterState>this, root);\n }\n toString(): string {\n return this.snapshot.toString();\n }\n}\n\nexport\n\nfunction createEmptyState(urlTree: UrlTree, rootComponent: Type<any>|null): RouterState {\n const snapshot =\ncreateEmptyStateSnapshot(urlTree, rootComponent);\n const emptyUrl = new BehaviorSubject([new\nUrlSegment("", {})]);\n const emptyParams = new BehaviorSubject({});\n const emptyData = new\nBehaviorSubject({});\n const emptyQueryParams = new BehaviorSubject({});\n const fragment = new\nBehaviorSubject("");\n const activated = new ActivatedRoute(\n emptyUrl, emptyParams, emptyQueryParams,\nfragment, emptyData, PRIMARY_OUTLET, rootComponent,\n snapshot.root);\n activated.snapshot =\nsnapshot.root;\n return new RouterState(new TreeNode<ActivatedRoute>(activated, []), snapshot);\n}\n\nexport\nfunction createEmptyStateSnapshot(\n urlTree: UrlTree, rootComponent: Type<any>|null): RouterStateSnapshot\n{\n const emptyParams = {};\n const emptyData = {};\n const emptyQueryParams = {};\n const fragment = "";\n const activated = new ActivatedRouteSnapshot(\n [], emptyParams, emptyQueryParams, fragment, emptyData, PRIMARY_OUTLET, rootComponent, null,\nurlTree.root, -1, {});\n return new RouterStateSnapshot("", new TreeNode<ActivatedRouteSnapshot>(activated,\n[]));\n}\n\n/**\n * Provides access to information about a route associated with a component\n * that is loaded in an\noutlet.\n * Use to traverse the `RouterState` tree and extract information from nodes.\n *\n * The following example\nshows how to construct a component using information from a\n * currently activated route.\n *\n * @example\nrouter/activated-route/module.ts\nregion="activated-route"\n * header="activated-route.component.ts"\n */\n * @see [Getting route information](guide/router#getting-route-information)\n\n * @publicApi\n */\nexport class\nActivatedRoute {\n /** The current snapshot of this route */\n snapshot!: ActivatedRouteSnapshot;\n /**\n@internal */\n _futureSnapshot: ActivatedRouteSnapshot;\n /** @internal */\n _routerState!: RouterState;\n /** @internal */\n _paramMap!: Observable<ParamMap>;\n /** @internal */\n _queryParamMap!\nObservable<ParamMap>;\n\n /** @internal */\n constructor(\n /** An observable of the URL segments\nmatched by this route. */\n public url: Observable<UrlSegment[]>,\n /** An observable of the matrix

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parameters scoped to this route. */n public params: Observable<Params>,\n /** An observable of the query
parameters shared by all the routes. */n public queryParams: Observable<Params>,\n /** An observable of
the URL fragment shared by all the routes. */n public fragment: Observable<string>,\n /** An observable of
the static and resolved data of this route. */n public data: Observable<Data>,\n /** The outlet name of the
route, a constant. */n public outlet: string,\n /** The component of the route, a constant. */n //
TODO(vsavkin): remove |string\n public component: Type<any>|string|null, futureSnapshot:
ActivatedRouteSnapshot)

{\n this._futureSnapshot = futureSnapshot;\n }\n\n /** The configuration used to match this route. */n get
routeConfig(): Route|null {\n return this._futureSnapshot.routeConfig;\n }\n\n /** The root of the router state.
*/n get root(): ActivatedRoute {\n return this._routerState.root;\n }\n\n /** The parent of this route in the router
state tree. */n get parent(): ActivatedRoute|null {\n return this._routerState.parent(this);\n }\n\n /** The first
child of this route in the router state tree. */n get firstChild(): ActivatedRoute|null {\n return
this._routerState.firstChild(this);\n }\n\n /** The children of this route in the router state tree. */n get children():
ActivatedRoute[] {\n return this._routerState.children(this);\n }\n\n /** The path from the root of the router state
tree to this route. */n get pathFromRoot(): ActivatedRoute[] {\n return this._routerState.pathFromRoot(this);\n
}\n\n /**\n * An Observable that contains
a map of the required and optional parameters\n * specific to the route.\n * The map supports retrieving single
and multiple values from the same parameter.\n */n get paramMap(): Observable<ParamMap> {\n if
(!this._paramMap) {\n this._paramMap = this.params.pipe(map((p: Params): ParamMap =>
convertToParamMap(p)));\n }\n return this._paramMap;\n }\n\n /**\n * An Observable that contains a map of
the query parameters available to all routes.\n * The map supports retrieving single and multiple values from the
query parameter.\n */n get queryParams(): Observable<ParamMap> {\n if (!this._queryParams) {\n
this._queryParams =\n this.queryParams.pipe(map((p: Params): ParamMap => convertToParamMap(p)));\n }\n
return this._queryParams;\n }\n\n toString(): string {\n return this.snapshot ? this.snapshot.toString() :
`Future(${this._futureSnapshot})`;\n }\n}\n\nexport type ParamsInheritanceStrategy = 'emptyOnly'|'always';\n\n/**
@internal */nexport type Inherited = {\n params: Params,\n data: Data,\n resolve: Data,\n};\n\n/**\n * Returns
the inherited params, data, and resolve for a given route.\n * By default, this only inherits values up to the nearest
path-less or component-less route.\n * @internal */nexport function inheritedParamsDataResolve(\n route:
ActivatedRouteSnapshot,\n paramsInheritanceStrategy: ParamsInheritanceStrategy = 'emptyOnly'): Inherited {\n
const pathFromRoot = route.pathFromRoot;\n\n let inheritingStartingFrom = 0;\n if (paramsInheritanceStrategy
!== 'always') {\n inheritingStartingFrom = pathFromRoot.length - 1;\n\n while (inheritingStartingFrom >= 1) {\n
const current = pathFromRoot[inheritingStartingFrom];\n const parent =
pathFromRoot[inheritingStartingFrom - 1];\n // current route is an empty path => inherits its parent's params and
data\n if (current.routeConfig && current.routeConfig.path === "") {\n inheritingStartingFrom--;\n\n
 // parent is componentless => current route should inherit its params and data\n } else if (!parent.component)
{\n inheritingStartingFrom--;\n } else {\n break;\n }\n }\n }\n\n return
flattenInherited(pathFromRoot.slice(inheritingStartingFrom));\n }\n\n /** @internal */nfunction
flattenInherited(pathFromRoot: ActivatedRouteSnapshot[]): Inherited {\n return pathFromRoot.reduce((res, curr)
=> {\n const params = {...res.params, ...curr.params};\n const data = {...res.data, ...curr.data};\n const resolve =
{...res.resolve, ...curr._resolvedData};\n return {params, data, resolve};\n }, <any>{params: {}, data: {}, resolve:
{}});\n }\n\n /**\n * @description\n * Contains the information about a route associated with a component loaded
in an\n * outlet at a particular moment in time. ActivatedRouteSnapshot can also be used to\n * traverse the router
state tree.\n */n * The following example initializes a component with route information
extracted\n * from the snapshot of the root node at the time of creation.\n */n * ```\n */n * @Component({templateUrl: './my-component.html'})\n */n * class MyComponent {\n */n * constructor(route:
ActivatedRoute) {\n */n * const id: string = route.snapshot.params.id;\n */n * const url: string =
route.snapshot.url.join("");\n */n * const user = route.snapshot.data.user;\n */n * }\n */n * ```\n */n * @publicApi\n */n * export class ActivatedRouteSnapshot {\n */n * /** The configuration used to match this route */n public readonly

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routeConfig: Route|null;\n /** @internal **/\n _urlSegment: UrlSegmentGroup;\n /** @internal */\n
_lastPathIndex: number;\n /** @internal */\n _resolve: ResolveData;\n /** @internal */\n // TODO(issue/24571):
remove '!\n _resolvedData!: Data;\n /** @internal */\n // TODO(issue/24571): remove '!\n _routerState!:
RouterStateSnapshot;\n /** @internal */\n // TODO(issue/24571): remove '!\n _paramMap!: ParamMap;\n /**
@internal */\n // TODO(issue/24571):
remove '!\n _queryParamMap!: ParamMap;\n\n /** @internal */\n constructor(\n /** The URL segments
matched by this route */\n public url: UrlSegment[],\n /** The matrix parameters scoped to this route */\n
public params: Params,\n /** The query parameters shared by all the routes */\n public queryParams:
Params,\n /** The URL fragment shared by all the routes */\n public fragment: string,\n /** The static and
resolved data of this route */\n public data: Data,\n /** The outlet name of the route */\n public outlet:
string,\n /** The component of the route */\n public component: Type<any>|string|null, routeConfig:
Route|null, urlSegment: UrlSegmentGroup,\n lastPathIndex: number, resolve: ResolveData) {\n
this.routeConfig = routeConfig;\n this._urlSegment = urlSegment;\n this._lastPathIndex = lastPathIndex;\n
this._resolve = resolve;\n }\n\n /** The root of the router state */\n get root(): ActivatedRouteSnapshot
{\n return this._routerState.root;\n }\n\n /** The parent of this route in the router state tree */\n get parent():
ActivatedRouteSnapshot|null {\n return this._routerState.parent(this);\n }\n\n /** The first child of this route in
the router state tree */\n get firstChild(): ActivatedRouteSnapshot|null {\n return
this._routerState.firstChild(this);\n }\n\n /** The children of this route in the router state tree */\n get children():
ActivatedRouteSnapshot[] {\n return this._routerState.children(this);\n }\n\n /** The path from the root of the
router state tree to this route */\n get pathFromRoot(): ActivatedRouteSnapshot[] {\n return
this._routerState.pathFromRoot(this);\n }\n\n get paramMap(): ParamMap {\n if (!this._paramMap) {\n
this._paramMap = convertToParamMap(this.params);\n }\n return this._paramMap;\n }\n\n get
queryParamMap(): ParamMap {\n if (!this._queryParamMap) {\n this._queryParamMap =
convertToParamMap(this.queryParams);\n }\n return this._queryParamMap;\n }\n\n toString(): string {\n const url = this.url.map(segment =>
segment.toString()).join('/');\n const matched = this.routeConfig ? this.routeConfig.path : '';\n return
`Route(url:'${url}', path:'${matched}')`;\n }\n\n\n /**\n * @description\n * Represents the state of the router at
a moment in time.\n * This is a tree of activated route snapshots. Every node in this tree knows about\n * the
"consumed" URL segments, the extracted parameters, and the resolved data.\n * The following example shows
how a component is initialized with information\n * from the snapshot of the root node's state at the time of
creation.\n *\n * ```\n * @Component({ templateUrl: 'template.html' })\n * class MyComponent {\n *
constructor(router: Router) {\n * const state: RouterState = router.routerState;\n * const snapshot:
RouterStateSnapshot = state.snapshot;\n * const root: ActivatedRouteSnapshot = snapshot.root;\n
* const child = root.firstChild;\n * const id: Observable<string> = child.params.map(p => p.id);\n * //...\n *
}\n * }\n * ```\n *\n * @publicApi\n */\n\n export class RouterStateSnapshot extends Tree<ActivatedRouteSnapshot>
{\n /** @internal */\n constructor(\n /** The url from which this snapshot was created */\n public url: string,
root: TreeNode<ActivatedRouteSnapshot>) {\n super(root);\n setRouterState(<RouterStateSnapshot>this,
root);\n }\n\n toString(): string {\n return serializeNode(this._root);\n }\n\n\n function setRouterState<U, T
extends { _routerState: U }>(state: U, node: TreeNode<T>): void {\n node.value._routerState = state;\n
node.children.forEach(c => setRouterState(state, c));\n }\n\n function serializeNode(node:
TreeNode<ActivatedRouteSnapshot>): string {\n const c = node.children.length > 0 ? ` {
${node.children.map(serializeNode).join(', ')} ` : '';\n return `${node.value}${c}`;\n }\n\n\n /**\n * The expectation
is that
the activate route is created with the right set of parameters.\n * So we push new values into the observables only
when they are not the initial values.\n * And we detect that by checking if the snapshot field is set.\n */\n\n export
function advanceActivatedRoute(route: ActivatedRoute): void {\n if (route.snapshot) {\n const currentSnapshot =
route.snapshot;\n const nextSnapshot = route._futureSnapshot;\n route.snapshot = nextSnapshot;\n if
(!shallowEqual(currentSnapshot.queryParams, nextSnapshot.queryParams)) {\n

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(<any>route.queryParams).next(nextSnapshot.queryParams);\n }\n if (currentSnapshot.fragment !==
nextSnapshot.fragment) {\n (<any>route.fragment).next(nextSnapshot.fragment);\n }\n if
(!shallowEqual(currentSnapshot.params, nextSnapshot.params)) {\n
(<any>route.params).next(nextSnapshot.params);\n }\n if (!shallowEqualArrays(currentSnapshot.url,
nextSnapshot.url)) {\n (<any>route.url).next(nextSnapshot.url);\n }\n if (!shallowEqual(currentSnapshot.data,
nextSnapshot.data)) {\n (<any>route.data).next(nextSnapshot.data);\n }\n } else {\n route.snapshot =
route._futureSnapshot;\n\n // this is for resolved data\n (<any>route.data).next(route._futureSnapshot.data);\n
 }\n}\n\n\nexport function equalParamsAndUrlSegments(\n a: ActivatedRouteSnapshot, b:
ActivatedRouteSnapshot): boolean {\n const equalUrlParams = shallowEqual(a.params, b.params) &&
equalSegments(a.url, b.url);\n const parentsMismatch = !a.parent !== !b.parent;\n\n return equalUrlParams &&
!parentsMismatch &&\n (!a.parent || equalParamsAndUrlSegments(a.parent, b.parent!));\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{BehaviorSubject} from 'rxjs';\n\nimport {DetachedRouteHandleInternal, RouteReuseStrategy} from
'./route_reuse_strategy';\n\nimport
{ActivatedRoute, ActivatedRouteSnapshot, RouterState, RouterStateSnapshot} from './router_state';\n\nimport
{TreeNode} from './utils/tree';\n\nexport function createRouterState(\n routeReuseStrategy: RouteReuseStrategy,
curr: RouterStateSnapshot,\n prevState: RouterState): RouterState {\n const root =
createNode(routeReuseStrategy, curr._root, prevState ? prevState._root : undefined);\n return new RouterState(root,
curr);\n}\n\n\nfunction createNode(\n routeReuseStrategy: RouteReuseStrategy, curr:
TreeNode<ActivatedRouteSnapshot>,\n prevState?: TreeNode<ActivatedRoute>): TreeNode<ActivatedRoute>
{\n // reuse an activated route that is currently displayed on the screen\n if (prevState &&
routeReuseStrategy.shouldReuseRoute(curr.value, prevState.value.snapshot)) {\n const value = prevState.value;\n
 value._futureSnapshot = curr.value;\n const children = createOrReuseChildren(routeReuseStrategy, curr,
prevState);\n return new TreeNode<ActivatedRoute>(value, children);\n\n // retrieve an activated route that is used to be displayed, but is not currently displayed\n } else {\n const
detachedRouteHandle =\n <DetachedRouteHandleInternal>routeReuseStrategy.retrieve(curr.value);\n if
(detachedRouteHandle) {\n const tree: TreeNode<ActivatedRoute> = detachedRouteHandle.route;\n
 setFutureSnapshotsOfActivatedRoutes(curr, tree);\n return tree;\n\n } else {\n const value =
createActivatedRoute(curr.value);\n const children = curr.children.map(c => createNode(routeReuseStrategy,
c));\n return new TreeNode<ActivatedRoute>(value, children);\n }\n }\n}\n\n\nfunction
setFutureSnapshotsOfActivatedRoutes(\n curr: TreeNode<ActivatedRouteSnapshot>, result:
TreeNode<ActivatedRoute>): void {\n if (curr.value.routeConfig !== result.value.routeConfig) {\n throw new
Error('Cannot reattach ActivatedRouteSnapshot created from a different route');\n }\n if (curr.children.length !==
result.children.length) {\n
 throw new Error('Cannot reattach ActivatedRouteSnapshot with a different number of children');\n }\n
 result.value._futureSnapshot = curr.value;\n for (let i = 0; i < curr.children.length; ++i) {\n
 setFutureSnapshotsOfActivatedRoutes(curr.children[i], result.children[i]);\n }\n}\n\n\nfunction
createOrReuseChildren(\n routeReuseStrategy: RouteReuseStrategy, curr: TreeNode<ActivatedRouteSnapshot>,\n
prevState: TreeNode<ActivatedRoute>) {\n return curr.children.map(child => {\n for (const p of
prevState.children) {\n if (routeReuseStrategy.shouldReuseRoute(child.value, p.value.snapshot)) {\n return
createNode(routeReuseStrategy, child, p);\n }\n }\n return createNode(routeReuseStrategy, child);\n
 });\n}\n\n\nfunction createActivatedRoute(c: ActivatedRouteSnapshot) {\n return new ActivatedRoute(\n new
BehaviorSubject(c.url), new BehaviorSubject(c.params), new BehaviorSubject(c.queryParams),\n new
BehaviorSubject(c.fragment), new BehaviorSubject(c.data),\n c.outlet, c.component, c);\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {ActivatedRoute} from './router_state';\n\nimport {Params,

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PRIMARY_OUTLET} from './shared';\nimport {UrlSegment, UrlSegmentGroup, UrlTree} from
 './url_tree';\nimport {forEach, last, shallowEqual} from './utils/collection';\n\nexport function createUrlTree(\n
route: ActivatedRoute, urlTree: UrlTree, commands: any[], queryParams: Params,\n fragment: string): UrlTree {\n
if (commands.length === 0) {\n return tree(urlTree.root, urlTree.root, urlTree, queryParams, fragment);\n } \n\n
const nav = computeNavigation(commands);\n\n if (nav.toRoot()) {\n return tree(urlTree.root, new
UrlSegmentGroup([], {}), urlTree, queryParams, fragment);\n } \n\n const startingPosition =
findStartingPosition(nav, urlTree, route);\n\n
 const segmentGroup = startingPosition.processChildren ?\n updateSegmentGroupChildren(\n
startingPosition.segmentGroup, startingPosition.index, nav.commands) :\n
updateSegmentGroup(startingPosition.segmentGroup, startingPosition.index, nav.commands);\n return
tree(startingPosition.segmentGroup, segmentGroup, urlTree, queryParams, fragment);\n }\n\nfunction
isMatrixParams(command: any): boolean {\n return typeof command === 'object' && command != null &&
!command.outlets && !command.segmentPath;\n }\n\n/**\n * Determines if a given command has an `outlets` map.
When we encounter a command\n * with an outlets k/v map, we need to apply each outlet individually to the
existing segment.\n */\nfunction isCommandWithOutlets(command: any): boolean {\n return typeof command === 'object' && command != null && command.outlets;\n }\n\nfunction tree(\n
oldSegmentGroup: UrlSegmentGroup, newSegmentGroup: UrlSegmentGroup, urlTree: UrlTree,\n
queryParams: Params, fragment: string): UrlTree {\n let qp: any = {};\n if (queryParams) {\n
forEach(queryParams, (value: any, name: any) => {\n qp[name] = Array.isArray(value) ? value.map((v: any) =>
`$${v}`) : `$${value}`;\n });\n }\n\n if (urlTree.root === oldSegmentGroup) {\n return new
UrlTree(newSegmentGroup, qp, fragment);\n }\n\n return new UrlTree(replaceSegment(urlTree.root,
oldSegmentGroup, newSegmentGroup), qp, fragment);\n }\n\nfunction replaceSegment(\n current:
UrlSegmentGroup, oldSegment: UrlSegmentGroup,\n newSegment: UrlSegmentGroup): UrlSegmentGroup {\n
const children: {[key: string]: UrlSegmentGroup} = {};\n forEach(current.children, (c: UrlSegmentGroup,
outletName: string) => {\n if (c === oldSegment) {\n children[outletName] = newSegment;\n } else {\n
children[outletName] = replaceSegment(c, oldSegment, newSegment);\n }\n });\n return new
UrlSegmentGroup(current.segments, children);\n }\n\n\nclass Navigation {\n constructor(\n
 public isAbsolute: boolean, public numberOfDoubleDots: number, public commands: any[]) {\n if (isAbsolute
&& commands.length > 0 && isMatrixParams(commands[0])) {\n throw new Error('Root segment cannot have
matrix parameters');\n }\n\n const cmdWithOutlet = commands.find(isCommandWithOutlets);\n if
(cmdWithOutlet && cmdWithOutlet !== last(commands)) {\n throw new Error('{outlets: {}} has to be the last
command');\n }\n\n public toRoot(): boolean {\n return this.isAbsolute && this.commands.length === 1
&& this.commands[0] === '/';\n }\n\n /** Transforms commands to a normalized `Navigation` */\n function
computeNavigation(commands: any[]): Navigation {\n if ((typeof commands[0] === 'string') && commands.length
=== 1 && commands[0] === '/') {\n return new Navigation(true, 0, commands);\n }\n\n let
numberOfDoubleDots = 0;\n let isAbsolute = false;\n\n const res: any[] = commands.reduce((res, cmd, cmdIdx) =>
{\n if (typeof cmd === 'object'
&& cmd != null) {\n if (cmd.outlets) {\n const outlets: {[k: string]: any} = {};\n forEach(cmd.outlets,
(commands: any, name: string) => {\n outlets[name] = typeof commands === 'string' ? commands.split('/') :
commands;\n });\n return [...res, {outlets}];\n }\n\n if (cmd.segmentPath) {\n return [...res,
cmd.segmentPath];\n }\n\n if (!(typeof cmd === 'string')) {\n return [...res, cmd];\n }\n\n if
(cmdIdx === 0) {\n cmd.split('/').forEach((urlPart, partIndex) => {\n if (partIndex === 0 && urlPart === '.')
{\n // skip './a'\n } else if (partIndex === 0 && urlPart === '') {\n // '/a'\n isAbsolute = true;\n }
else if (urlPart === '..') {\n // '../a'\n numberOfDoubleDots++;\n } else if (urlPart !== '') {\n
res.push(urlPart);\n }\n });\n return res;\n }\n\n return [...res, cmd];\n }, []);\n }\n\n return new
Navigation(isAbsolute,
 numberOfDoubleDots, res);\n }\n\n \nclass Position {\n constructor(\n public segmentGroup: UrlSegmentGroup,
 public processChildren: boolean, public index: number) {\n }\n\n function findStartingPosition(nav: Navigation,

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tree: UrlTree, route: ActivatedRoute): Position {\n if (nav.isAbsolute) {\n return new Position(tree.root, true, 0);\n }\n\n if (route.snapshot._lastPathIndex === -1) {\n const segmentGroup = route.snapshot._urlSegment;\n // Pathless ActivatedRoute has _lastPathIndex === -1 but should not process children\n // see issue #26224, #13011, #35687\n // However, if the ActivatedRoute is the root we should process children like above.\n const processChildren = segmentGroup === tree.root;\n return new Position(segmentGroup, processChildren, 0);\n }\n\n const modifier = isMatrixParams(nav.commands[0]) ? 0 : 1;\n const index = route.snapshot._lastPathIndex + modifier;\n return createPositionApplyingDoubleDots(\n route.snapshot._urlSegment, index, nav.numberOfDoubleDots);\n}\n\nfunction createPositionApplyingDoubleDots(\n group: UrlSegmentGroup, index: number, numberOfDoubleDots: number): Position {\n let g = group;\n let ci = index;\n let dd = numberOfDoubleDots;\n while (dd > ci) {\n dd -= ci;\n g = g.parent!;\n if (!g) {\n throw new Error('Invalid number of \\'\\.\\\'');\n }\n ci = g.segments.length;\n }\n return new Position(g, false, ci - dd);\n}\n\nfunction getOutlets(commands: any[]): {[k: string]: any[]} {\n if (isCommandWithOutlets(commands[0])) {\n return commands[0].outlets;\n }\n\n return {[PRIMARY_OUTLET]: commands};\n}\n\nfunction updateSegmentGroup(\n segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]): UrlSegmentGroup {\n if (!segmentGroup) {\n segmentGroup = new UrlSegmentGroup([], {});\n }\n if (segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n return updateSegmentGroupChildren(segmentGroup, startIndex, commands);\n }\n\n const m = prefixedWith(segmentGroup, startIndex, commands);\n const slicedCommands = commands.slice(m.commandIndex);\n if (m.match && m.pathIndex < segmentGroup.segments.length) {\n const g = new UrlSegmentGroup(segmentGroup.segments.slice(0, m.pathIndex), {});\n g.children[PRIMARY_OUTLET] =\n new UrlSegmentGroup(segmentGroup.segments.slice(m.pathIndex), segmentGroup.children);\n return updateSegmentGroupChildren(g, 0, slicedCommands);\n } else if (m.match && slicedCommands.length === 0) {\n return new UrlSegmentGroup(segmentGroup.segments, {});\n } else if (m.match && !segmentGroup.hasChildren()) {\n return createNewSegmentGroup(segmentGroup, startIndex, commands);\n } else if (m.match) {\n return updateSegmentGroupChildren(segmentGroup, 0, slicedCommands);\n } else {\n return createNewSegmentGroup(segmentGroup, startIndex, commands);\n }\n}\n\nfunction updateSegmentGroupChildren(\n segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]): UrlSegmentGroup {\n if (commands.length === 0) {\n return new UrlSegmentGroup(segmentGroup.segments, {});\n } else {\n const outlets = getOutlets(commands);\n const children: {[key: string]: UrlSegmentGroup} = {};\n\n forEach(outlets, (commands: any, outlet: string) => {\n if (commands !== null) {\n children[outlet] = updateSegmentGroup(segmentGroup.children[outlet], startIndex, commands);\n }\n\n });\n\n forEach(segmentGroup.children, (child: UrlSegmentGroup, childOutlet: string) => {\n if (outlets[childOutlet] === undefined) {\n children[childOutlet] = child;\n }\n\n });\n\n return new UrlSegmentGroup(segmentGroup.segments, children);\n }\n}\n\nfunction prefixedWith(segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]) {\n let currentCommandIndex = 0;\n let currentPathIndex = startIndex;\n\n const noMatch = {match: false, pathIndex: 0, commandIndex: 0};\n while (currentPathIndex < segmentGroup.segments.length) {\n {\n if (currentCommandIndex >= commands.length) return noMatch;\n const path = segmentGroup.segments[currentPathIndex];\n const command = commands[currentCommandIndex];\n // Do not try to consume command as part of the prefixing if it has outlets because it can\n // contain outlets other than the one being processed. Consuming the outlets command would\n // result in other outlets being ignored.\n if (isCommandWithOutlets(command)) {\n break;\n }\n const curr = `${command}`;\n const next =\n currentCommandIndex < commands.length - 1 ? commands[currentCommandIndex + 1] : null;\n\n if (currentPathIndex > 0 && curr === undefined) break;\n if (curr && next && (typeof next === 'object') && next.outlets === undefined) {\n if (!compare(curr, next, path)) return noMatch;\n currentCommandIndex += 2;\n } else {\n if (!compare(curr, {}, path)) return noMatch;\n currentCommandIndex++;\n }\n\n currentPathIndex++;\n }

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 }\n\n return {match: true, pathIndex: currentPathIndex, commandIndex: currentCommandIndex};\n}\n\nfunction
createNewSegmentGroup(\n segmentGroup: UrlSegmentGroup, startIndex: number, commands: any[]):
UrlSegmentGroup {\n const paths = segmentGroup.segments.slice(0, startIndex);\n let i = 0;\n while (i <
commands.length) {\n const command = commands[i];\n if (isCommandWithOutlets(command)) {\n const
children = createNewSegmentChildren(command.outlets);\n return new UrlSegmentGroup(paths, children);\n
 }\n // if we start with an object literal, we need to reuse the path part from the segment\n if (i === 0 &&
isMatrixParams(commands[0])) {\n const p = segmentGroup.segments[startIndex];\n paths.push(new
UrlSegment(p.path, commands[0]));\n i++;\n continue;\n }\n const curr =
isCommandWithOutlets(command) ? command.outlets[PRIMARY_OUTLET] : `${command}`;\n const next = (i
< commands.length - 1) ? commands[i + 1]
: null;\n if (curr && next && isMatrixParams(next)) {\n paths.push(new UrlSegment(curr, stringify(next)));\n
 i += 2;\n } else {\n paths.push(new UrlSegment(curr, {}));\n i++;\n }\n }\n return new
UrlSegmentGroup(paths, {});\n}\n\nfunction createNewSegmentChildren(outlets: {[name: string]: any}): any {\n
const children: {[key: string]: UrlSegmentGroup} = {};\n forEach(outlets, (commands: any, outlet: string) => {\n
if (commands !== null) {\n children[outlet] = createNewSegmentGroup(new UrlSegmentGroup([], {}), 0,
commands);\n }\n});\n return children;\n}\n\nfunction stringify(params: {[key: string]: any}): {[key: string]:
string} {\n const res: {[key: string]: string} = {};\n forEach(params, (v: any, k: string) => res[k] = `${v}`);\n
return res;\n}\n\nfunction compare(path: string, params: {[key: string]: any}, segment: UrlSegment): boolean {\n
return path == segment.path && shallowEqual(params, segment.parameters);\n}\n\n"/**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {MonoTypeOperatorFunction}
from 'rxjs';\nimport {map} from 'rxjs/operators';\nimport {LoadedRouterConfig} from './config';\nimport
{ActivationEnd, ChildActivationEnd, Event} from './events';\nimport {DetachedRouteHandleInternal,
RouteReuseStrategy} from './route_reuse_strategy';\nimport {NavigationTransition} from './router';\nimport
{ChildrenOutletContexts} from './router_outlet_context';\nimport {ActivatedRoute, ActivatedRouteSnapshot,
advanceActivatedRoute, RouterState} from './router_state';\nimport {forEach} from './utils/collection';\nimport
{nodeChildrenAsMap, TreeNode} from './utils/tree';\n\nexport const activateRoutes = (\n rootContexts:
ChildrenOutletContexts, routeReuseStrategy: RouteReuseStrategy,\n forwardEvent: (evt: Event) => void):
MonoTypeOperatorFunction<NavigationTransition>
=>{\n map(t => {\n new ActivateRoutes(\n routeReuseStrategy, t.targetRouterState!,
t.currentRouterState, forwardEvent)\n .activate(rootContexts);\n return t;\n });\n\n export class
ActivateRoutes {\n constructor(\n private routeReuseStrategy: RouteReuseStrategy, private futureState:
RouterState,\n private currState: RouterState, private forwardEvent: (evt: Event) => void) {} \n\n activate(parentContexts: ChildrenOutletContexts): void {\n const futureRoot = this.futureState._root;\n const
currRoot = this.currState ? this.currState._root : null;\n\n this.deactivateChildRoutes(futureRoot, currRoot,
parentContexts);\n advanceActivatedRoute(this.futureState.root);\n this.activateChildRoutes(futureRoot,
currRoot, parentContexts);\n }\n\n // De-activate the child route that are not re-used for the future state\n private
deactivateChildRoutes(\n futureNode: TreeNode<ActivatedRoute>,\n currNode: TreeNode<ActivatedRoute>|null,\n contexts: ChildrenOutletContexts): void {\n const children:
{[outletName: string]: TreeNode<ActivatedRoute>} = nodeChildrenAsMap(currNode);\n\n // Recurse on the
routes active in the future state to de-activate deeper children\n futureNode.children.forEach(futureChild => {\n
const childOutletName = futureChild.value.outlet;\n this.deactivateRoutes(futureChild,
children[childOutletName], contexts);\n delete children[childOutletName];\n });\n\n // De-activate the routes
that will not be re-used\n forEach(children, (v: TreeNode<ActivatedRoute>, childName: string) => {\n
this.deactivateRouteAndItsChildren(v, contexts);\n });\n }\n\n private deactivateRoutes(\n futureNode:
TreeNode<ActivatedRoute>, currNode: TreeNode<ActivatedRoute>,\n parentContext: ChildrenOutletContexts):
void {\n const future = futureNode.value;\n const curr = currNode ? currNode.value : null;\n if (future

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==== curr) {\n // Reusing the node, check to see if the children need to be de-activated\n if (future.component)
{\n // If we have a normal route, we need to go through an outlet.\n const context =
parentContext.getContext(future.outlet);\n if (context) {\n this.deactivateChildRoutes(futureNode,
currNode, context.children);\n }\n } else {\n // if we have a componentless route, we recurse but keep the
same outlet map.\n this.deactivateChildRoutes(futureNode, currNode, parentContext);\n }\n } else {\n if
(curr) {\n // Deactivate the current route which will not be re-used\n
this.deactivateRouteAndItsChildren(currNode, parentContext);\n }\n }\n }\n private
deactivateRouteAndItsChildren(\n route: TreeNode<ActivatedRoute>, parentContexts: ChildrenOutletContexts):
void {\n if (this.routeReuseStrategy.shouldDetach(route.value.snapshot)) {\n
this.detachAndStoreRouteSubtree(route,
parentContexts);\n } else {\n this.deactivateRouteAndOutlet(route, parentContexts);\n }\n }\n private
detachAndStoreRouteSubtree(\n route: TreeNode<ActivatedRoute>, parentContexts: ChildrenOutletContexts):
void {\n const context = parentContexts.getContext(route.value.outlet);\n if (context && context.outlet) {\n
const componentRef = context.outlet.detach();\n const contexts = context.children.onOutletDeactivated();\n
this.routeReuseStrategy.store(route.value.snapshot, {componentRef, route, contexts});\n }\n }\n private
deactivateRouteAndOutlet(\n route: TreeNode<ActivatedRoute>, parentContexts: ChildrenOutletContexts): void
{\n const context = parentContexts.getContext(route.value.outlet);\n if (context) {\n const children:
{[outletName: string]: any} = nodeChildrenAsMap(route);\n const contexts = route.value.component ?
context.children : parentContexts;\n forEach(children, (v: any, k: string) =>
this.deactivateRouteAndItsChildren(v,
contexts));\n if (context.outlet) {\n // Destroy the component\n context.outlet.deactivate();\n //
Destroy the contexts for all the outlets that were in the component\n context.children.onOutletDeactivated();\n
}\n }\n }\n private activateChildRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode:
TreeNode<ActivatedRoute>|null,\n contexts: ChildrenOutletContexts): void {\n const children: {[outlet:
string]: any} = nodeChildrenAsMap(currNode);\n futureNode.children.forEach(c => {\n this.activateRoutes(c,
children[c.value.outlet], contexts);\n this.forwardEvent(new ActivationEnd(c.value.snapshot));\n });\n if
(futureNode.children.length) {\n this.forwardEvent(new ChildActivationEnd(futureNode.value.snapshot));\n
}\n }\n private activateRoutes(\n futureNode: TreeNode<ActivatedRoute>, currNode:
TreeNode<ActivatedRoute>,\n parentContexts: ChildrenOutletContexts):
void {\n const future = futureNode.value;\n const curr = currNode ? currNode.value : null;\n advanceActivatedRoute(future);\n // reusing the node\n if (future === curr) {\n if (future.component) {\n
// If we have a normal route, we need to go through an outlet.\n const context =
parentContexts.getOrCreateContext(future.outlet);\n this.activateChildRoutes(futureNode, currNode,
context.children);\n } else {\n // if we have a componentless route, we recurse but keep the same outlet
map.\n this.activateChildRoutes(futureNode, currNode, parentContexts);\n }\n } else {\n if
(future.component) {\n // if we have a normal route, we need to place the component into the outlet and
recurse.\n const context = parentContexts.getOrCreateContext(future.outlet);\n if
(this.routeReuseStrategy.shouldAttach(future.snapshot)) {\n const stored =\n
(<DetachedRouteHandleInternal>this.routeReuseStrategy.retrieve(future.snapshot));\n
this.routeReuseStrategy.store(future.snapshot, null);\n
context.children.onOutletReAttached(stored.contexts);\n context.attachRef = stored.componentRef;\n
context.route = stored.route.value;\n if (context.outlet) {\n // Attach right away when the outlet has
already been instantiated\n // Otherwise attach from `RouterOutlet.ngOnInit` when it is instantiated\n
context.outlet.attach(stored.componentRef, stored.route.value);\n }\n }\n advanceActivatedRouteNodeAndItsChildren(stored.route);\n } else {\n const config =
parentLoadedConfig(future.snapshot);\n const cmpFactoryResolver = config ?
config.module.componentFactoryResolver : null;\n context.attachRef = null;\n context.route = future;\n
context.resolver = cmpFactoryResolver;\n if (context.outlet) {\n // Activate the outlet

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when it has already been instantiated\n // Otherwise it will get activated from its `ngOnInit` when
instantiated\n context.outlet.activateWith(future, cmpFactoryResolver);\n }\n\nthis.activateChildRoutes(futureNode, null, context.children);\n }\n } else {\n // if we have a
componentless route, we recurse but keep the same outlet map.\n this.activateChildRoutes(futureNode, null,
parentContexts);\n }\n }\n }\n\nfunction advanceActivatedRouteNodeAndItsChildren(node:
TreeNode<ActivatedRoute>): void {\n advanceActivatedRoute(node.value);\n}

node.children.forEach(advanceActivatedRouteNodeAndItsChildren);\n}\n\nfunction parentLoadedConfig(snapshot:
ActivatedRouteSnapshot): LoadedRouterConfig|null {\n for (let s = snapshot.parent; s; s = s.parent) {\n const
route = s.routeConfig;\n if (route && route._loadedConfig) return route._loadedConfig;\n if (route &&
route.component) return null;\n }\n return
null;\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport { NgModuleFactory, NgModuleRef, Type } from '@angular/core';\nimport { Observable } from
'rxjs';\nimport { ActivatedRouteSnapshot } from './router_state';\nimport { UrlSegment, UrlSegmentGroup } from
'./url_tree';\n\n/**\n * Represents a route configuration for the Router service.\n * An array of `Route` objects,
used in `Router.config` and for nested route configurations\n * in `Route.children`.\n * \n * @see `Route`\n * @see
`Router`\n * @see [Router configuration guide](guide/router#configuration)\n * \n * @publicApi\n */\nexport type
Routes = Route[];\n\n/**\n * Represents the result of matching URLs with a custom matching function.\n * \n * \n *
`consumed` is an array of the consumed URL segments.\n * \n * `posParams` is a map of positional parameters.\n * \n *
@see `UrlMatcher`\n */\n\n * @publicApi\n */\nexport type UrlMatchResult = {\n consumed: UrlSegment[];\n posParams?: {[name: string]:
UrlSegment};\n};\n\n/**\n * A function for matching a route against URLs. Implement a custom URL matcher\n *
for `Route.matcher` when a combination of `path` and `pathMatch`\n * is not expressive enough. Cannot be used
together with `path` and `pathMatch`.\n * \n * The function takes the following arguments and returns a
`UrlMatchResult` object.\n * \n * * `segments`: An array of URL segments.\n * \n * * `group`: A segment group.\n * \n *
* `route`: The route to match against.\n * \n * The following example implementation matches HTML files.\n * \n *
```\n * export function htmlFiles(url: UrlSegment[]) {\n *   return url.length === 1 && url[0].path.endsWith('.html')
? ({ consumed: url }) : null;\n * }\n * \n * export const routes = [{ matcher: htmlFiles, component: AnyComponent
}];\n * ```\n * \n * @publicApi\n */\nexport type UrlMatcher = (segments: UrlSegment[], group: UrlSegmentGroup,
route: Route) => UrlMatchResult|null;\n\n/**\n * Represents static data associated with a particular route.\n * \n *
@see `Route#data`\n * \n * @publicApi\n */\nexport type Data = {\n  [name: string]: any;\n};\n\n/**\n * Represents the resolved data associated with a particular route.\n * \n * @see `Route#resolve`\n * \n * @publicApi\n */\nexport type ResolveData = {\n  [name: string]: any;\n};\n\n/**\n * A function that is called to resolve a
collection of lazy-loaded routes.\n * Must be an arrow function of the following form:\n * \n * `() =>
import(...).then(mod => mod.MODULE)`\n * \n * For example:\n * \n * ```\n * [{\n *   path: 'lazy',\n *
loadChildren: () => import('./lazy-route/lazy.module').then(mod => mod.LazyModule),\n * }];\n * ```\n * \n * @see
[Route.loadChildren](api/router/Route#loadChildren)\n * \n * @publicApi\n */\nexport type LoadChildrenCallback = ()
=> Type<any>|NgModuleFactory<any>|Observable<Type<any>>|Promise<NgModuleFactory<any>|Type<any>|any>;\n\n/**\n
*\n * A function that returns a set of routes to load.\n * \n * The string form of `LoadChildren` is deprecated (see
`DeprecatedLoadChildren`). The function\n * form (`LoadChildrenCallback`) should be used instead.\n * \n * @see
`loadChildrenCallback`\n * \n * @publicApi\n */\nexport type LoadChildren =
LoadChildrenCallback|DeprecatedLoadChildren;\n\n/**\n * A string of the form `path/to/file#exportName` that acts
as a URL for a set of routes to load.\n * \n * @see `loadChildrenCallback`\n * \n * @publicApi\n * \n * @deprecated The
`string` form of `loadChildren` is deprecated in favor of the\n * `LoadChildrenCallback` function which uses the ES
dynamic `import()` expression.\n * This offers a more natural and standards-based mechanism to dynamically\n *
load an ES module at runtime.\n * \n * @publicApi\n */\nexport type DeprecatedLoadChildren = string;\n\n/**\n * How to handle
query parameters in a router link.\n * \n * One of:\n * \n * - `merge` : Merge new with current parameters.\n * \n * - `preserve` :

```

Preserve current parameters.\n

```
*\n * @see `UrlCreationOptions#queryParamsHandling`\n * @see `RouterLink`\n * @publicApi\n * ^\nexport type QueryParamsHandling = 'merge'|'preserve';\n\n/**\n *\n * A policy for when to run guards and resolvers on a route.\n *\n * @see [Route.runGuardsAndResolvers](api/router/Route#runGuardsAndResolvers)\n * @publicApi\n *\n * ^\nexport type RunGuardsAndResolvers =\n
```

```
'pathParamsChange'|'pathParamsOrQueryParamsChange'|'paramsChange'|'paramsOrQueryParamsChange';\n\n'always'|(((from: ActivatedRouteSnapshot, to: ActivatedRouteSnapshot) => boolean);\n\n/**\n *\n * A configuration object that defines a single route.\n *\n * A set of routes are collected in a `Routes` array to define a `Router` configuration.\n *\n * The router attempts to match segments of a given URL against each route,\n * using the configuration options defined in this object.\n *\n * Supports static, parameterized, redirect, and wildcard routes, as well as\n * custom route data and resolve methods.\n *\n * For detailed usage information, see the [Routing Guide](guide/router).\n *\n * @usageNotes\n *\n * ### Simple Configuration\n *\n * The following route specifies that when navigating to, for example, `/team/11/user/bob`, the router creates the 'Team' component\n * with the 'User' child component in it.\n *\n * ```\n * [{\n *   path: 'team/:id',\n *   component: Team,\n *   children: [{\n *     path: 'user/:name',\n *     component: User\n *   }]\n * }]\n * ```\n *\n * ### Multiple Outlets\n *\n * The following route creates sibling components with multiple outlets.\n * When navigating to `/team/11(aux:chat/jim)`, the router creates the 'Team' component next to\n * the 'Chat' component. The 'Chat' component is placed into the 'aux' outlet.\n *\n * ```\n * [{\n *   path: 'team/:id',\n *   component: Team\n * }, {\n *   path: 'chat:user',\n *   component: Chat\n *   outlet: 'aux'\n * }]\n * ```\n *\n * ### Wild Cards\n *\n * The following route uses wild-card notation to specify a component\n * that is always instantiated regardless of where you navigate to.\n *\n * ```\n * [{\n *   path: '**',\n *   component: WildcardComponent\n * }]\n * ```\n *\n * ### Redirects\n *\n * The following route uses the `redirectTo` property to ignore a segment of\n * a given URL when looking for a child path.\n *\n * When navigating to '/team/11/legacy/user/jim', the router changes the URL segment\n * '/team/11/legacy/user/jim' to '/team/11/user/jim', and then instantiates\n * the Team component with the User child component in it.\n *\n * ```\n * [{\n *   path: 'team/:id',\n *   component: Team,\n *   children: [{\n *     path: 'legacy/user/:name',\n *     redirectTo: 'user/:name'\n *   }, {\n *     path: 'user/:name',\n *     component: User\n *   }]\n * }]\n * ```\n *\n * The redirect path can be relative, as shown in this example, or absolute.\n * If we change the `redirectTo` value in the example to the absolute URL segment '/user/:name',\n * the result URL is also absolute, '/user/jim'.\n\n
```

```
*\n * ### Empty Path\n *\n * Empty-path route configurations can be used to instantiate components that do not 'consume'\n * any URL segments.\n *\n * In the following configuration, when navigating to `/team/11`, the router instantiates the 'AllUsers' component.\n *\n * ```\n * [{\n *   path: 'team/:id',\n *   component: Team,\n *   children: [{\n *     path: '',\n *     component: AllUsers\n *   }, {\n *     path: 'user/:name',\n *     component: User\n *   }]\n * }]\n * ```\n *\n * Empty-path routes can have children. In the following example, when navigating\n * to `/team/11/user/jim`, the router instantiates the wrapper component with\n * the user component in it.\n *\n * Note that an empty path route inherits its parent's parameters and data.\n *\n * ```\n * [{\n *   path: 'team/:id',\n *   component: Team,\n *   children: [{\n *     path: '',\n *     component: WrapperCmp,\n *     children: [{\n *       path: 'user/:name',\n *       component: User\n *     }]\n *   }]\n * }]\n * ```\n *\n * ### Matching Strategy\n *\n * The default path-match strategy is 'prefix', which means that the router\n * checks URL elements from the left to see if the URL matches a specified path.\n * For example, '/team/11/user' matches 'team/:id'.\n *\n * ```\n * [{\n *   path: '',\n *   pathMatch: 'prefix', //default\n *   redirectTo: 'main'\n * }, {\n *   path: 'main',\n *   component: Main\n * }]\n * ```\n *\n * You can specify the path-match strategy 'full' to make sure that the path\n * covers the whole unconsumed URL. It is important to do this when redirecting\n * empty-path routes. Otherwise, because an empty path is a prefix of any URL,\n * the router would apply the redirect even when navigating to the redirect destination,\n * creating an endless loop.\n *\n * In the following example, supplying the 'full' `pathMatch` strategy ensures\n * that the router applies the redirect if and only if navigating to '/'.\n *\n * ```\n * [{\n *   path: '',\n *   pathMatch: 'full',\n
```

Componentless Routes

You can share parameters between sibling components. For example, suppose that two sibling components should go next to each other, and both of them require an ID parameter. You can accomplish this using a route that does not specify a component at the top level. In the following example, 'MainChild' and 'AuxChild' are siblings. When navigating to 'parent/10/(a//aux:b)', the route instantiates the main child and aux child components next to each other. For this to work, the application component must have the primary and aux outlets defined.

```
{ path: 'parent/:id', children: [{ path: 'a', component: MainChild }, { path: 'b', component: AuxChild, outlet: 'aux' } ] }
```

The router merges the parameters, data, and resolve of the componentless parent into the parameters, data, and resolve of the children. This is especially useful when child components are defined with an empty path string, as in the following example. With this configuration, navigating to '/parent/10' creates the main child and aux components.

```
{ path: 'parent/:id', children: [{ path: '', component: MainChild }, { path: '', component: AuxChild, outlet: 'aux' } ] }
```

Lazy Loading

Lazy loading speeds up application load time by splitting the application into multiple bundles and loading them on demand. To use lazy loading, provide the 'loadChildren' property in the 'Route' object, instead of the 'children' property. Given the following example route, the router will lazy load the associated module on demand using the browser native import system.

```
{ path: 'lazy', loadChildren: () => import('./lazy-route/lazy.module').then(mod => mod.LazyModule), }
```

```
@publicApi\nexport interface Route {\n  /**\n   * The path to match against. Cannot be used together with a custom `matcher` function.\n   * A URL string that uses router matching notation.\n   * Can be a wild card ('**') that matches any URL (see Usage Notes below).\n   * Default is '/' (the root path).\n   */\n  path?: string;\n  /**\n   * The path-matching strategy, one of 'prefix' or 'full'. Default is 'prefix'. By default, the router checks URL elements from the left to see if the URL matches a given path, and stops when there is a match. For example, '/team/11/user' matches 'team/:id'. The path-match strategy 'full' matches against the entire URL. It is important to do this when redirecting empty-path routes. Otherwise, because an empty path is a prefix of any URL, the router would apply the redirect even when navigating to the redirect destination, creating an endless loop.\n   */\n  pathMatch?: string;\n  /**\n   * A custom URL-matching function. Cannot be used together with `path`.\n   */\n  matcher?: UrlMatcher;\n  /**\n   * The component to instantiate when the path matches. Can be empty if child routes specify components.\n   */\n  component?: Type<any>;\n  /**\n   * A URL to redirect to when the path matches. Absolute if the URL begins with a slash (/), otherwise relative to the path URL. When not present, router does not redirect.\n   */\n  redirectTo?: string;\n  /**\n   * Name of a `RouterOutlet` object where the component can be placed when the path matches.\n   */\n  outlet?: string;\n  /**\n   * An array of dependency-injection tokens used to look up `CanActivate()` handlers, in order to determine if the current user is allowed to activate the component. By default, any user can activate.\n   */\n  canActivate?: any[];\n  /**\n   * An array of DI tokens used to look up `CanActivateChild()` handlers, in order to determine if the current user is allowed to activate a child of the component. By default, any user can activate a child.\n   */\n  canActivateChild?: any[];\n  /**\n   * An array of DI tokens used to look up `CanDeactivate()` handlers, in order to determine if the current user is allowed to deactivate the component. By default, any user can deactivate.\n   */\n  canDeactivate?: any[];\n  /**\n   * An array of DI tokens used to look up `CanLoad()` handlers, in order to determine if the current user is allowed to load the component. By default, any user can load.\n   */\n  canLoad?: any[];\n  /**\n   * Additional developer-defined data provided to the component via `ActivatedRoute`. By default, no additional data is passed.\n   */\n  data?: any;\n  /**\n   * A map of DI tokens used to look up data resolvers. See `Resolve`.\n   */\n  resolve?: any;\n  /**\n   * An array of child `Route` objects that specifies a nested route configuration.\n   */\n  children?: Routes;\n  /**\n   * An object specifying lazy-loaded child routes.\n   */\n  loadChildren?: LoadChildren;\n  /**\n   * Defines when guards and resolvers will be run. One of - `paramsOrQueryParamsChange` : Run when query parameters change. - `always` : Run on
```

```

every execution.\n * By default, guards and resolvers run only when the matrix\n * parameters of the route
change.\n */\n runGuardsAndResolvers?: RunGuardsAndResolvers;\n /**\n * Filled for routes with
`loadChildren` once the module has been loaded\n * @internal\n */\n _loadedConfig?:
LoadedRouterConfig;\n}\n\nexport class LoadedRouterConfig {\n  constructor(public routes: Route[], public
module: NgModuleRef<any>) {}\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport
{ CanActivate, CanActivateChild, CanDeactivate, CanLoad } from '../interfaces';\nimport { UrlTree } from
'../url_tree';\n\n/**\n * Simple function check, but generic so type inference will flow. Example:\n *\n * function
product(a: number, b: number) {\n *   return a * b;\n * }\n *\n * if (isFunction<product>(fn)) {\n *   return fn(1,
2);\n * } else {\n *   throw `Must provide the `product` function`;\n * }\n */\n\nexport function isFunction<T>(v:
any): v is T {\n  return typeof v === 'function';\n}\n\nexport function isBoolean(v: any): v is boolean {\n  return
typeof v === 'boolean';\n}\n\nexport function isUrlTree(v: any): v is UrlTree {\n  return v instanceof
UrlTree;\n}\n\nexport function isCanLoad(guard: any): guard is CanLoad {\n  return guard &&
isFunction<CanLoad>(guard.canLoad);\n}\n\nexport function isCanActivate(guard: any): guard is CanActivate {\n
return guard && isFunction<CanActivate>(guard.canActivate);\n}\n\nexport function isCanActivateChild(guard:
any): guard
is CanActivateChild {\n  return guard && isFunction<CanActivateChild>(guard.canActivateChild);\n}\n\nexport
function isCanDeactivate<T>(guard: any): guard is CanDeactivate<T> {\n  return guard &&
isFunction<CanDeactivate<T>>(guard.canDeactivate);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { combineLatest, Observable, OperatorFunction } from
'rxjs';\nimport { filter, map, scan, startWith, switchMap, take } from 'rxjs/operators';\nimport { UrlTree } from
'../url_tree';\nimport { isUrlTree } from '../utils/type_guards';\n\nconst INITIAL_VALUE =
Symbol('INITIAL_VALUE');\ndeclare type INTERIM_VALUES = typeof INITIAL_VALUE | boolean |
UrlTree;\n\nexport function prioritizedGuardValue():\n  OperatorFunction<Observable<boolean|UrlTree>[],
boolean|UrlTree> {\n  return switchMap(obs => {\n    return combineLatest(\n
      ...obs.map(o => o.pipe(take(1), startWith(INITIAL_VALUE as INTERIM_VALUES))))\n      .pipe(\n
        scan(\n          (acc: INTERIM_VALUES, list: INTERIM_VALUES[]) => {\n            let
isPending = false;\n            return list.reduce((innerAcc, val, i: number) => {\n              if (innerAcc
!== INITIAL_VALUE) return innerAcc;\n              // Toggle pending flag if any values haven't been set
yet\n              if (val === INITIAL_VALUE) isPending = true;\n              // Any other return
values are only valid if we haven't yet hit a pending\n              // call. This guarantees that in the case of a
guard at the bottom of the\n              // tree that returns a redirect, we will wait for the higher priority\n
              // guard at the top to finish before performing the redirect.\n              if
(!isPending) {\n                // Early return when we hit a `false` value as that should always\n
                // cancel navigation\n                if (val === false) return val;\n              }\n              if (i === list.length - 1 ||
isUrlTree(val)) {\n                return val;\n              }\n            },\n            innerAcc;\n          }, acc);\n          },\n          INITIAL_VALUE),\n          filter(item =>
item !== INITIAL_VALUE),\n          map(item => isUrlTree(item) ? item : item === true), //\n
take(1)) as Observable<boolean|UrlTree>;\n  });\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { Component }
from '@angular/core';\n\n/**\n * This component is used internally within the router to be a placeholder when an
empty\n * router-outlet is needed. For example, with a config such as:\n *\n * `{path: 'parent', outlet: 'nav', children:
[...]}`\n *\n * In order to render, there needs to be a component on this config, which will default\n * to this
`EmptyOutletComponent`.\n */\n\n@Component({\n  template: `<router-outlet></router-outlet>`\n})\nexport class
EmptyOutletComponent {\n}\n\nexport { EmptyOutletComponent as EmptyOutletComponent };\n", "/*\n *

```

```

@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{EmptyOutletComponent} from './components/empty_outlet';\nimport {Route, Routes} from './config';\nimport
{PRIMARY_OUTLET} from './shared';\n\nexport function validateConfig(config: Routes, parentPath: string = ""):
void {\n // forEach doesn't
iterate undefined values\n for (let i = 0; i < config.length; i++) {\n const route: Route = config[i];\n const
fullPath: string = getFullPath(parentPath, route);\n validateNode(route, fullPath);\n }\n}\n\nfunction
validateNode(route: Route, fullPath: string): void {\n if (typeof ngDevMode === 'undefined' || ngDevMode) {\n if
(!route) {\n throw new Error(`\n Invalid configuration of route '${fullPath}': Encountered undefined route.\n
The reason might be an extra comma.\n\n Example:\n const routes: Routes = [\n { path: "", redirectTo:
'/dashboard', pathMatch: 'full' },\n { path: 'dashboard', component: DashboardComponent }, << two commas\n
{ path: 'detail/:id', component: HeroDetailComponent }\n ];\n `);\n }\n if (Array.isArray(route)) {\n
throw new Error(`Invalid configuration of route '${fullPath}': Array cannot be specified`);\n }\n if
(!route.component && !route.children && !route.loadChildren
&&\n (route.outlet && route.outlet !== PRIMARY_OUTLET)) {\n throw new Error(`Invalid configuration
of route '${fullPath}': a componentless route without children or loadChildren cannot have a named outlet
set`);\n }\n if (route.redirectTo && route.children) {\n throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and children cannot be used together`);\n }\n if (route.redirectTo &&
route.loadChildren) {\n throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and
loadChildren cannot be used together`);\n }\n if (route.children && route.loadChildren) {\n throw new
Error(`Invalid configuration of route '${fullPath}': children and loadChildren cannot be used together`);\n
}\n if (route.redirectTo && route.component) {\n throw new Error(`Invalid configuration of route '${fullPath}': redirectTo and component cannot be used together`);\n }\n if (route.path && route.matcher) {\n throw new Error(`Invalid configuration of route
'${fullPath}': path and matcher cannot be used together`);\n }\n if (route.redirectTo === void 0 &&
!route.component && !route.children && !route.loadChildren) {\n throw new Error(`Invalid configuration of
route '${fullPath}'. One of the following must be provided: component, redirectTo, children or
loadChildren`);\n }\n if (route.path === void 0 && route.matcher === void 0) {\n throw new Error(`Invalid
configuration of route '${fullPath}': routes must have either a path or a matcher specified`);\n }\n if
(typeof route.path === 'string' && route.path.charAt(0) === '/') {\n throw new Error(`Invalid
configuration of route '${fullPath}': path cannot start with a slash`);\n }\n if (route.path === "" &&
route.redirectTo !== void 0 && route.pathMatch === void 0) {\n const exp =\n `The default
value of 'pathMatch' is 'prefix', but often the intent is to use 'full'.`; \n throw new Error(`Invalid configuration of
route '{path: "${fullPath}"', redirectTo: "${route.redirectTo}"': please provide 'pathMatch'. ${exp}`);\n }\n if (route.pathMatch !== void 0 && route.pathMatch !== 'full' && route.pathMatch !== 'prefix') {\n throw
new Error(`Invalid configuration of route '${fullPath}': pathMatch can only be set to 'prefix' or 'full');\n
}\n }\n if (route.children) {\n validateConfig(route.children, fullPath);\n }\n}\n\nfunction
getFullPath(parentPath: string, currentRoute: Route): string {\n if (!currentRoute) {\n return parentPath;\n }\n if
(!parentPath && !currentRoute.path) {\n return ""; \n } else if (parentPath && !currentRoute.path) {\n return
`${parentPath}/`; \n } else if (!parentPath && currentRoute.path) {\n return currentRoute.path;\n } else {\n
return `${parentPath}/${currentRoute.path}`;\n }\n}\n\n/**\n * Makes a copy of the config and adds any default required properties.\n */\nexport function standardizeConfig(r:
Route): Route {\n const children = r.children && r.children.map(standardizeConfig);\n const c = children ? {...r,
children} : {...r};\n if (!c.component && (children || c.loadChildren) && (c.outlet && c.outlet !==
PRIMARY_OUTLET)) {\n c.component = EmptyOutletComponent;\n }\n return c;\n}\n\n/** Returns of `Map`
of outlet names to the `Route`s for that outlet. */\nexport function groupRoutesByOutlet(routes: Route[]):
Map<string, Route[]> {\n return routes.reduce((map, route) => {\n const routeOutlet = getOutlet(route);\n if
(map.has(routeOutlet)) {\n map.get(routeOutlet)!.push(route);\n } else {\n map.set(routeOutlet, [route]);\n
}

```

```

}\n  return map;\n }, new Map<string, Route[]>());\n}\n\n/** Returns the `route.outlet` or PRIMARY_OUTLET if
none exists. */\nexport function getOutlet(route: Route): string {\n  return route.outlet ||
PRIMARY_OUTLET;\n}\n\n", "/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector,
NgModuleRef} from '@angular/core';\nimport {EmptyError, from, Observable, Observer, of} from 'rxjs';\nimport
{catchError, combineAll, concatMap, first, map, mergeMap, tap} from 'rxjs/operators';\nimport
{LoadedRouterConfig, Route, Routes} from './config';\nimport {CanLoadFn} from './interfaces';\nimport
{prioritizedGuardValue} from './operators/prioritized_guard_value';\nimport {RouterConfigLoader} from
'./router_config_loader';\nimport {defaultUrlMatcher, navigationCancelingError, Params, PRIMARY_OUTLET}
from './shared';\nimport {UrlSegment, UrlSegmentGroup, UrlSerializer, UrlTree} from './url_tree';\nimport
{forEach, waitForKeyMap, wrapIntoObservable} from './utils/collection';\nimport {getOutlet, groupRoutesByOutlet}
from './utils/config';\nimport
{isCanLoad, isFunction, isUrlTree} from './utils/type_guards';\n\nexport class NoMatch {\n  public segmentGroup:
UrlSegmentGroup|null;\n\n  constructor(segmentGroup?: UrlSegmentGroup) {\n    this.segmentGroup =
segmentGroup || null;\n  }\n}\n\nexport class AbsoluteRedirect {\n  constructor(public urlTree: UrlTree) {\n  }\n}\n\nfunction
noMatch(segmentGroup: UrlSegmentGroup): Observable<UrlSegmentGroup> {\n  return new
Observable<UrlSegmentGroup>(\n    (obs: Observer<UrlSegmentGroup>) => obs.error(new
NoMatch(segmentGroup)));\n}\n\nfunction absoluteRedirect(newTree: UrlTree): Observable<any> {\n  return new
Observable<UrlSegmentGroup>(\n    (obs: Observer<UrlSegmentGroup>) => obs.error(new
AbsoluteRedirect(newTree)));\n}\n\nfunction namedOutletsRedirect(redirectTo: string): Observable<any> {\n
return new Observable<UrlSegmentGroup>(\n    (obs: Observer<UrlSegmentGroup>) => obs.error(new Error(\n
  `Only absolute redirects can have named outlets. redirectTo: '${redirectTo}'`));\n}\n\nfunction
canLoadFails(route: Route): Observable<LoadedRouterConfig> {\n  return new
Observable<LoadedRouterConfig>(\n    (obs: Observer<LoadedRouterConfig>) => obs.error(\n
navigationCancelingError(`Cannot load children because the guard of the route \"path: '${route.path}'\"
returned false`));\n}\n\n\n/**\n * Returns the `UrlTree` with the redirection applied.\n *\n * Lazy modules are loaded
along the way.\n */\nexport function applyRedirects(\n  moduleInjector: Injector, configLoader:
RouterConfigLoader, urlSerializer: UrlSerializer,\n  urlTree: UrlTree, config: Routes): Observable<UrlTree> {\n
return new ApplyRedirects(moduleInjector, configLoader, urlSerializer, urlTree, config).apply();\n}\n\nexport class
ApplyRedirects {\n  private allowRedirects: boolean = true;\n  private ngModule: NgModuleRef<any>;\n\n  constructor(\n    moduleInjector: Injector, private configLoader: RouterConfigLoader,\n    private urlSerializer:
UrlSerializer, private urlTree: UrlTree,\n    private config: Routes) {\n    this.ngModule = moduleInjector.get(NgModuleRef);\n  }\n\n  apply():
Observable<UrlTree> {\n    const expanded$ =\n      this.expandSegmentGroup(this.ngModule, this.config,
this.urlTree.root, PRIMARY_OUTLET);\n    const urlTrees$ = expanded$.pipe(\n      map((rootSegmentGroup:
UrlSegmentGroup) => this.createUrlTree(\n        rootSegmentGroup, this.urlTree.queryParams,
this.urlTree.fragment!));\n    return urlTrees$.pipe(catchError((e: any) => {\n      if (e instanceof AbsoluteRedirect)
{\n        // after an absolute redirect we do not apply any more redirects!\n        this.allowRedirects = false;\n        //
we need to run matching, so we can fetch all lazy-loaded modules\n        return this.match(e.urlTree);\n      }\n    }
\n    if (e instanceof NoMatch) {\n      throw this.noMatchError(e);\n    }\n    throw e;\n  }));\n  }\n\n  private
match(tree: UrlTree): Observable<UrlTree> {\n    const expanded$ =\n      this.expandSegmentGroup(this.ngModule,
this.config, tree.root, PRIMARY_OUTLET);\n    const mapped$ = expanded$.pipe(\n      map((rootSegmentGroup:
UrlSegmentGroup) =>\n        this.createUrlTree(rootSegmentGroup,
tree.queryParams, tree.fragment!));\n    return mapped$.pipe(catchError((e: any): Observable<UrlTree> => {\n
if (e instanceof NoMatch) {\n      throw this.noMatchError(e);\n    }\n    throw e;\n  }));\n  }\n\n  private
noMatchError(e: NoMatch): any {\n    return new Error(`Cannot match any routes. URL Segment:

```

```

'$ {e.segmentGroup}');\n }\n\n private createUrlTree(rootCandidate: UrlSegmentGroup, queryParams: Params,
fragment: string):\n UrlTree {\n const root = rootCandidate.segments.length > 0 ?\n new
UrlSegmentGroup([], [{PRIMARY_OUTLET}: rootCandidate]) :\n rootCandidate;\n return new
UrlTree(root, queryParams, fragment);\n }\n\n private expandSegmentGroup(\n ngModule:
NgModuleRef<any>, routes: Route[], segmentGroup: UrlSegmentGroup,\n
outlet: string): Observable<UrlSegmentGroup> {\n if (segmentGroup.segments.length === 0 &&
segmentGroup.hasChildren()) {\n return this.expandChildren(ngModule, routes, segmentGroup)\n
.pipe(map((children: any) => new UrlSegmentGroup([], children)));\n }\n\n return
this.expandSegment(ngModule, segmentGroup, routes, segmentGroup.segments, outlet, true);\n }\n\n //
Recursively expand segment groups for all the child outlets\n private expandChildren(\n ngModule:
NgModuleRef<any>, routes: Route[],\n segmentGroup: UrlSegmentGroup): Observable<{[name: string]:
UrlSegmentGroup}> {\n return waitForMap(\n segmentGroup.children,\n (childOutlet, child) =>
this.expandSegmentGroup(ngModule, routes, child, childOutlet));\n }\n\n private expandSegment(\n ngModule:
NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[],\n segments: UrlSegment[], outlet:
string,\n allowRedirects: boolean): Observable<UrlSegmentGroup>
{\n // We need to expand each outlet group independently to ensure that we not only load modules\n // for routes
matching the given `outlet`, but also those which will be activated because\n // their path is empty string. This can
result in multiple outlets being activated at once.\n const routesByOutlet: Map<string, Route[]> =
groupRoutesByOutlet(routes);\n if (!routesByOutlet.has(outlet)) {\n routesByOutlet.set(outlet, []);\n }\n\n
const expandRoutes = (routes: Route[]) => {\n return from(routes).pipe(\n concatMap((r: Route) => {\n
const expanded$ = this.expandSegmentAgainstRoute(\n ngModule, segmentGroup, routes, r, segments,
outlet, allowRedirects);\n return expanded$.pipe(catchError(e => {\n if (e instanceof NoMatch) {\n
return of(null);\n }\n throw e;\n }));\n })),\n first((s: UrlSegmentGroup|null):
s is UrlSegmentGroup
=> s !== null),\n catchError(e => {\n if (e instanceof EmptyError || e.name === 'EmptyError') {\n
if (this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n return of(new UrlSegmentGroup([],
{}));\n }\n throw new NoMatch(segmentGroup);\n }\n throw e;\n })),\n );\n
});\n\n const expansions = Array.from(routesByOutlet.entries()).map(([routeOutlet, routes]) => {\n const
expanded = expandRoutes(routes);\n // Map all results from outlets we aren't activating to `null` so they can be
ignored later\n return routeOutlet === outlet ? expanded :\n expanded.pipe(map(() =>
null), catchError(() => of(null)));\n }));\n return from(expansions)\n .pipe(\n combineAll(),\n
first(),\n // Return only the expansion for the route outlet we are trying to activate.\n map(results =>
results.find(result
=> result !== null)!),\n );\n }\n\n private noLeftoversInUrl(segmentGroup: UrlSegmentGroup, segments:
UrlSegment[], outlet: string):\n boolean {\n return segments.length === 0 &&
!segmentGroup.children[outlet];\n }\n\n private expandSegmentAgainstRoute(\n ngModule:
NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[], route: Route,\n paths: UrlSegment[],
outlet: string, allowRedirects: boolean): Observable<UrlSegmentGroup> {\n // Empty string segments are special
because multiple outlets can match a single path, i.e.\n // `[{path: "", component: B}, {path: "", loadChildren: () =>
{}], outlet: \"about\"}]`\n if (getOutlet(route) !== outlet && route.path !== "") {\n return
noMatch(segmentGroup);\n }\n\n if (route.redirectTo === undefined) {\n return
this.matchSegmentAgainstRoute(ngModule, segmentGroup, route, paths);\n }\n\n if (allowRedirects &&
this.allowRedirects) {\n return this.expandSegmentAgainstRouteUsingRedirect(\n
ngModule, segmentGroup, routes, route, paths, outlet);\n }\n\n return noMatch(segmentGroup);\n }\n\n
private expandSegmentAgainstRouteUsingRedirect(\n ngModule: NgModuleRef<any>, segmentGroup:
UrlSegmentGroup, routes: Route[], route: Route,\n segments: UrlSegment[], outlet: string):
Observable<UrlSegmentGroup> {\n if (route.path === '**') {\n return
this.expandWildcardWithParamsAgainstRouteUsingRedirect(\n ngModule, routes, route, outlet);\n }\n\n

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return this.expandRegularSegmentAgainstRouteUsingRedirect(\n      ngModule, segmentGroup, routes, route,
segments, outlet);\n }\n\n private expandWildcardWithParamsAgainstRouteUsingRedirect(\n      ngModule:
NgModuleRef<any>, routes: Route[], route: Route,\n      outlet: string): Observable<UrlSegmentGroup> {\n  const
newTree = this.applyRedirectCommands([], route.redirectTo!, {});\n  if (route.redirectTo!.startsWith('/')) {\n
return absoluteRedirect(newTree);\n
  }\n\n  return this.linalizeSegments(route, newTree).pipe(mergeMap((newSegments: UrlSegment[]) => {\n
const group = new UrlSegmentGroup(newSegments, {});\n  return this.expandSegment(ngModule, group, routes,
newSegments, outlet, false);\n  }));\n }\n\n private expandRegularSegmentAgainstRouteUsingRedirect(\n
ngModule: NgModuleRef<any>, segmentGroup: UrlSegmentGroup, routes: Route[], route: Route,\n      segments:
UrlSegment[], outlet: string): Observable<UrlSegmentGroup> {\n  const {matched, consumedSegments, lastChild,
positionalParamSegments} =\n      match(segmentGroup, route, segments);\n  if (!matched) return
noMatch(segmentGroup);\n\n  const newTree = this.applyRedirectCommands(\n      consumedSegments,
route.redirectTo!, <any>positionalParamSegments);\n  if (route.redirectTo!.startsWith('/')) {\n    return
absoluteRedirect(newTree);\n  }\n\n  return this.linalizeSegments(route,
newTree).pipe(mergeMap((newSegments: UrlSegment[])
=> {\n    return this.expandSegment(\n      ngModule, segmentGroup, routes,
newSegments.concat(segments.slice(lastChild)), outlet,\n      false);\n    }));\n  }\n\n  private
matchSegmentAgainstRoute(\n      ngModule: NgModuleRef<any>, rawSegmentGroup: UrlSegmentGroup, route:
Route,\n      segments: UrlSegment[]): Observable<UrlSegmentGroup> {\n    if (route.path === '**') {\n      if
(route.loadChildren) {\n        return this.configLoader.load(ngModule.injector, route)\n          .pipe(map((cfg:
LoadedRouterConfig) => {\n            route._loadedConfig = cfg;\n            return new UrlSegmentGroup(segments,
{});\n          }));\n      }\n      return of(new UrlSegmentGroup(segments, {}));\n    }\n\n    const {matched,
consumedSegments, lastChild} = match(rawSegmentGroup, route, segments);\n    if (!matched) return
noMatch(rawSegmentGroup);\n\n    const rawSlicedSegments = segments.slice(lastChild);\n    const childConfig$ =
this.getChildConfig(ngModule, route,
segments);\n\n    return childConfig$.pipe(mergeMap((routerConfig: LoadedRouterConfig) => {\n      const
childModule = routerConfig.module;\n      const childConfig = routerConfig.routes;\n\n      const {segmentGroup,
slicedSegments} =\n        split(rawSegmentGroup, consumedSegments, rawSlicedSegments, childConfig);\n      if
(slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n        const expanded$ =
this.expandChildren(childModule, childConfig, segmentGroup);\n        return expanded$.pipe(\n
map((children: any) => new UrlSegmentGroup(consumedSegments, children));\n      )\n\n      if (childConfig.length
=== 0 && slicedSegments.length === 0) {\n        return of(new UrlSegmentGroup(consumedSegments, {}));\n      }\n\n      const expanded$ = this.expandSegment(\n        childModule, segmentGroup, childConfig, slicedSegments,
PRIMARY_OUTLET, true);\n      return expanded$.pipe(\n        map((cs: UrlSegmentGroup) =>\n          new
UrlSegmentGroup(consumedSegments.concat(cs.segments),
cs.children));\n      ));\n    }\n\n    private getChildConfig(ngModule: NgModuleRef<any>, route: Route, segments:
UrlSegment[]):\n      Observable<LoadedRouterConfig> {\n      if (route.children) {\n        // The children belong to the
same module\n        return of(new LoadedRouterConfig(route.children, ngModule));\n      }\n\n      if
(route.loadChildren) {\n        // lazy children belong to the loaded module\n        if (route._loadedConfig !==
undefined) {\n          return of(route._loadedConfig);\n        }\n\n        return this.runCanLoadGuards(ngModule.injector,
route, segments)\n          .pipe(mergeMap((shouldLoadResult: boolean) => {\n            if (shouldLoadResult) {\n
return this.configLoader.load(ngModule.injector, route)\n              .pipe(map((cfg: LoadedRouterConfig) =>
{\n                route._loadedConfig = cfg;\n                return cfg;\n              }));\n            }\n            return
canLoadFails(route);\n          }));\n      }\n\n      return of(new LoadedRouterConfig([], ngModule));\n    }\n\n    private
runCanLoadGuards(moduleInjector: Injector, route: Route, segments: UrlSegment[]):\n      Observable<boolean>
{\n      const canLoad = route.canLoad;\n      if (!canLoad || canLoad.length === 0) return of(true);\n      const
canLoadObservables = canLoad.map((injectionToken: any) => {\n        const guard =

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moduleInjector.get(injectionToken);\n    let guardVal;\n    if (isCanLoad(guard)) {\n        guardVal =\n        guard.canLoad(route, segments);\n    } else if (isFunction<CanLoadFn>(guard)) {\n        guardVal = guard(route,\n        segments);\n    } else {\n        throw new Error('Invalid CanLoad guard');\n    }\n    return\n    wrapIntoObservable(guardVal);\n    });\n\n    return of(canLoadObservables)\n    .pipe(\n    prioritizedGuardValue(),\n    tap((result: UrlTree|boolean) => {\n        if (!isUrlTree(result)) return;\n\n        const error: Error&{url?: UrlTree}\n        = navigationCancelingError(\n            `Redirecting to \"${this.urlSerializer.serialize(result)}\"`);\n        error.url = result;\n        throw error;\n    })),\n    map(result => result === true),\n    );\n\n\nprivate linearizeSegments(route: Route, urlTree: UrlTree): Observable<UrlSegment[]> {\n    let res: UrlSegment[]\n    = [];\n    let c = urlTree.root;\n    while (true) {\n        res = res.concat(c.segments);\n        if (c.numberOfChildren ===\n        0) {\n            return of(res);\n        }\n        if (c.numberOfChildren > 1 || !c.children[PRIMARY_OUTLET]) {\n            return namedOutletsRedirect(route.redirectTo!);\n        }\n        c = c.children[PRIMARY_OUTLET];\n    }\n\n\nprivate applyRedirectCommands(\n    segments: UrlSegment[], redirectTo: string, posParams: {[k: string]:\n    UrlSegment}): UrlTree {\n    return this.applyRedirectCreateUrlTree(\n        redirectTo,\n        this.urlSerializer.parse(redirectTo), segments, posParams);\n\n\nprivate\n    applyRedirectCreateUrlTree(\n        redirectTo: string, urlTree: UrlTree, segments: UrlSegment[],\n        posParams:\n        {[k: string]: UrlSegment}): UrlTree {\n        const newRoot = this.createSegmentGroup(redirectTo, urlTree.root,\n        segments, posParams);\n        return new UrlTree(\n            newRoot, this.createQueryParams(urlTree.queryParams,\n            this.urlTree.queryParams),\n            urlTree.fragment);\n    }\n\n\nprivate createQueryParams(redirectToParams: Params,\n    actualParams: Params): Params {\n    const res: Params = {};\n    forEach(redirectToParams, (v: any, k: string) =>\n    {\n        const copySourceValue = typeof v === 'string' && v.startsWith(':');\n        if (copySourceValue) {\n            const\n            sourceName = v.substring(1);\n            res[k] = actualParams[sourceName];\n        } else {\n            res[k] = v;\n        }\n    });\n    return res;\n\n\nprivate createSegmentGroup(\n    redirectTo: string, group: UrlSegmentGroup,\n    segments: UrlSegment[],\n    posParams: {[k: string]: UrlSegment}): UrlSegmentGroup\n    {\n        const updatedSegments = this.createSegments(redirectTo, group.segments, segments, posParams);\n        let\n        children: {[n: string]: UrlSegmentGroup} = {};\n        forEach(group.children, (child: UrlSegmentGroup, name: string)\n        => {\n            children[name] = this.createSegmentGroup(redirectTo, child, segments, posParams);\n        });\n        return\n        new UrlSegmentGroup(updatedSegments, children);\n    }\n\n\nprivate createSegments(\n    redirectTo: string,\n    redirectToSegments: UrlSegment[], actualSegments: UrlSegment[],\n    posParams: {[k: string]: UrlSegment}): UrlSegment[] {\n    return redirectToSegments.map(\n        s => s.path.startsWith(':') ?\n        this.findPosParam(redirectTo, s, posParams) : this.findOrReturn(s, actualSegments));\n\n\nprivate findPosParam(\n    redirectTo: string, redirectToUrlSegment: UrlSegment,\n    posParams: {[k:\n    string]: UrlSegment}): UrlSegment {\n    const pos = posParams[redirectToUrlSegment.path.substring(1)];\n    if (!pos)\n        throw new Error(\n            `Cannot redirect to '${redirectTo}'. Cannot find\n            '${redirectToUrlSegment.path}'.`);\n    return pos;\n\n\nprivate findOrReturn(redirectToUrlSegment:\n    UrlSegment, actualSegments: UrlSegment[]): UrlSegment {\n    let idx = 0;\n    for (const s of actualSegments) {\n        if (s.path === redirectToUrlSegment.path) {\n            actualSegments.splice(idx);\n            return s;\n        }\n        idx++;\n    }\n    return redirectToUrlSegment;\n\n\nfunction match(segmentGroup: UrlSegmentGroup, route: Route,\n    segments: UrlSegment[]): {\n    matched: boolean,\n    consumedSegments: UrlSegment[],\n    lastChild: number,\n    positionalParamSegments: {[k: string]: UrlSegment}\n} {\n    if (route.path === '') {\n        if ((route.pathMatch ===\n        'full') && (segmentGroup.hasChildren() || segments.length > 0)) {\n            return {\n                matched: false,\n                consumedSegments:\n                [],\n                lastChild: 0,\n                positionalParamSegments: {};\n            }\n        }\n        return {\n            matched: true,\n            consumedSegments:\n            [],\n            lastChild: 0,\n            positionalParamSegments: {};\n        }\n    }\n\n    const matcher = route.matcher || defaultUrlMatcher;\n    const res = matcher(segments, segmentGroup, route);\n    if (!res) {\n        return {\n            matched: false,\n            consumedSegments: <any[]>[],\n            lastChild: 0,\n            positionalParamSegments: {},\n        }\n    }\n    return {\n        matched: true,\n        consumedSegments: res.consumed!,\n        lastChild: res.consumed.length!,\n        positionalParamSegments: res.posParams!,\n    };\n\n\nfunction split(\n    segmentGroup: UrlSegmentGroup,\n    consumedSegments: UrlSegment[], slicedSegments: UrlSegment[],\n    config: Route[]) {\n    if

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(slicedSegments.length > 0 && \n    containsEmptyPathRedirectsWithNamedOutlets(segmentGroup,
slicedSegments, config)) {\n    const s = new UrlSegmentGroup(\n        consumedSegments,\n        createChildrenForEmptySegments(\n            config, new UrlSegmentGroup(slicedSegments,
segmentGroup.children));\n    return {segmentGroup: mergeTrivialChildren(s),
slicedSegments: []};\n } \n\n if (slicedSegments.length === 0 && \n
containsEmptyPathRedirects(segmentGroup, slicedSegments, config)) {\n    const s = new UrlSegmentGroup(\n
segmentGroup.segments,\n        addEmptySegmentsToChildrenIfNeeded(\n            segmentGroup, slicedSegments,
config, segmentGroup.children));\n    return {segmentGroup: mergeTrivialChildren(s), slicedSegments};\n } \n\n
return {segmentGroup, slicedSegments};\n }\n\nfunction mergeTrivialChildren(s: UrlSegmentGroup):
UrlSegmentGroup {\n    if (s.numberOfChildren === 1 && s.children[PRIMARY_OUTLET]) {\n        const c =
s.children[PRIMARY_OUTLET];\n        return new UrlSegmentGroup(s.segments.concat(c.segments), c.children);\n
}\n\n    return s;\n }\n\nfunction addEmptySegmentsToChildrenIfNeeded(\n    segmentGroup: UrlSegmentGroup,
slicedSegments: UrlSegment[], routes: Route[], \n    children: {[name: string]: UrlSegmentGroup}): {[name: string]:
UrlSegmentGroup} {\n    const res: {[name: string]: UrlSegmentGroup}
= {};\n    for (const r of routes) {\n        if (isEmptyPathRedirect(segmentGroup, slicedSegments, r) &&
!children[getOutlet(r)]) {\n            res[getOutlet(r)] = new UrlSegmentGroup([], {});\n        }\n    }\n    return {...children,
...res};\n }\n\nfunction createChildrenForEmptySegments(\n    routes: Route[], primarySegmentGroup:
UrlSegmentGroup): {[name: string]: UrlSegmentGroup} {\n    const res: {[name: string]: UrlSegmentGroup} = {};\n
res[PRIMARY_OUTLET] = primarySegmentGroup;\n    for (const r of routes) {\n        if (r.path === " && getOutlet(r)
!== PRIMARY_OUTLET) {\n            res[getOutlet(r)] = new UrlSegmentGroup([], {});\n        }\n    }\n    return
res;\n }\n\nfunction containsEmptyPathRedirectsWithNamedOutlets(\n    segmentGroup: UrlSegmentGroup,
segments: UrlSegment[], routes: Route[]): boolean {\n    return routes.some(\n        r =>
isEmptyPathRedirect(segmentGroup, segments, r) && getOutlet(r) !== PRIMARY_OUTLET);\n }\n\nfunction
containsEmptyPathRedirects(\n    segmentGroup: UrlSegmentGroup, segments:
UrlSegment[], routes: Route[]): boolean {\n    return routes.some(r => isEmptyPathRedirect(segmentGroup,
segments, r));\n }\n\nfunction isEmptyPathRedirect(\n    segmentGroup: UrlSegmentGroup, segments:
UrlSegment[], r: Route): boolean {\n    if ((segmentGroup.hasChildren() || segments.length > 0) && r.pathMatch ===
'full') {\n        return false;\n    }\n    return r.path === " && r.redirectTo !== undefined;\n }\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from
'@angular/core';\nimport {MonoTypeOperatorFunction, Observable} from 'rxjs';\nimport {map, switchMap} from
'rxjs/operators';\nimport {applyRedirects as applyRedirectsFn} from './apply_redirects';\nimport {Routes} from
'./config';\nimport {NavigationTransition} from './router';\nimport {RouterConfigLoader} from
'./router_config_loader';\nimport {UrlSerializer}
from './url_tree';\n\nexport function applyRedirects(\n    moduleInjector: Injector, configLoader:
RouterConfigLoader, urlSerializer: UrlSerializer, \n    config: Routes):
MonoTypeOperatorFunction<NavigationTransition> {\n    return function(source:
Observable<NavigationTransition>) {\n        return source.pipe(switchMap(\n            t =>
applyRedirectsFn(moduleInjector, configLoader, urlSerializer, t.extractedUrl, config)\n        ).pipe(map(urlAfterRedirects => ({...t, urlAfterRedirects})))));\n    };\n }\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {Injector} from '@angular/core';\nimport
{LoadedRouterConfig, RunGuardsAndResolvers} from './config';\nimport {ChildrenOutletContexts,
OutletContext} from './router_outlet_context';\nimport {ActivatedRouteSnapshot, equalParamsAndUrlSegments,
RouterStateSnapshot}
from './router_state';\nimport {equalPath} from './url_tree';\nimport {forEach, shallowEqual} from
'./utils/collection';\nimport {nodeChildrenAsMap, TreeNode} from './utils/tree';\n\nexport class CanActivate {\n
readonly route: ActivatedRouteSnapshot;\n    constructor(public path: ActivatedRouteSnapshot[]) {\n        this.route =

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this.path[this.path.length - 1];\n }\n}\n\nexport class CanDeactivate {\n  constructor(public component: Object|null,\n    public route: ActivatedRouteSnapshot) {\n}\n}\n\nexport declare type Checks = {\n  canDeactivateChecks:\n    CanDeactivate[],\n  canActivateChecks: CanActivate[],\n};\n\nexport function getAllRouteGuards(\n  future:\n    RouterStateSnapshot, curr: RouterStateSnapshot,\n    parentContexts: ChildrenOutletContexts) {\n  const futureRoot\n    = future._root;\n  const currRoot = curr ? curr._root : null;\n  return getChildRouteGuards(futureRoot, currRoot,\n    parentContexts, [futureRoot.value]);\n}\n\nexport function getCanActivateChild(p: ActivatedRouteSnapshot):\n  {\n    node: ActivatedRouteSnapshot, guards: any[]\n  }|null {\n  const canActivateChild = p.routeConfig ?\n    p.routeConfig.canActivateChild : null;\n  if (!canActivateChild || canActivateChild.length === 0) return null;\n  return {node: p, guards: canActivateChild};\n}\n\nexport function getToken(\n  token: any, snapshot:\n    ActivatedRouteSnapshot, moduleInjector: Injector): any {\n  const config = getClosestLoadedConfig(snapshot);\n  const injector = config ? config.module.injector : moduleInjector;\n  return injector.get(token);\n}\n\nfunction\n  getClosestLoadedConfig(snapshot: ActivatedRouteSnapshot): LoadedRouterConfig|null {\n  if (!snapshot) return\n    null;\n  for (let s = snapshot.parent; s; s = s.parent) {\n    const route = s.routeConfig;\n    if (route &&\n      route._loadedConfig) return route._loadedConfig;\n  }\n  return null;\n}\n\nfunction getChildRouteGuards(\n  futureNode: TreeNode<ActivatedRouteSnapshot>, currNode: TreeNode<ActivatedRouteSnapshot>|null,\n  contexts:\n    ChildrenOutletContexts|null, futurePath: ActivatedRouteSnapshot[], checks: Checks = {\n      canDeactivateChecks:\n        [],\n      canActivateChecks: []\n    }): Checks {\n  const prevChildren = nodeChildrenAsMap(currNode);\n  // Process the children of the future route\n  futureNode.children.forEach(c => {\n    getRouteGuards(c,\n      prevChildren[c.value.outlet], contexts, futurePath.concat([c.value]), checks);\n    delete\n      prevChildren[c.value.outlet];\n  });\n  // Process any children left from the current route (not active for the future\n  route)\n  forEach(\n    prevChildren,\n    (v: TreeNode<ActivatedRouteSnapshot>, k: string) => {\n      deactivateRouteAndItsChildren(v, contexts!.getContext(k), checks);\n    }\n  );\n  return checks;\n}\n\nfunction\n  getRouteGuards(\n    futureNode: TreeNode<ActivatedRouteSnapshot>, currNode:\n      TreeNode<ActivatedRouteSnapshot>,\n    parentContexts: ChildrenOutletContexts|null, futurePath:\n      ActivatedRouteSnapshot[],\n    checks: Checks = {\n      canDeactivateChecks:\n        [],\n      canActivateChecks: []\n    }): Checks {\n  const future = futureNode.value;\n  const curr = currNode ?\n    currNode.value : null;\n  const context = parentContexts ? parentContexts.getContext(futureNode.value.outlet) :\n    null;\n  // reusing the node\n  if (curr && future.routeConfig === curr.routeConfig) {\n    const shouldRun =\n      shouldRunGuardsAndResolvers(curr, future, future.routeConfig!.runGuardsAndResolvers);\n    if (shouldRun) {\n      checks.canActivateChecks.push(new CanActivate(futurePath));\n    } else {\n      // we need to set the data\n      future.data = curr.data;\n      future._resolvedData = curr._resolvedData;\n    }\n    // If we have a component, we\n    need to go through an outlet.\n    if (future.component) {\n      getChildRouteGuards(\n        futureNode, currNode,\n        context ? context.children : null, futurePath, checks);\n    } // if we have a componentless route, we recurse but\n    keep the same outlet map.\n    } else {\n      getChildRouteGuards(futureNode,\n        currNode, parentContexts, futurePath, checks);\n    }\n    if (shouldRun && context && context.outlet &&\n      context.outlet.isActive) {\n      checks.canDeactivateChecks.push(new CanDeactivate(context.outlet.component,\n        curr));\n    } else {\n      if (curr) {\n        deactivateRouteAndItsChildren(currNode, context, checks);\n      }\n      checks.canActivateChecks.push(new CanActivate(futurePath));\n    } // If we have a component, we need to go\n    through an outlet.\n    if (future.component) {\n      getChildRouteGuards(futureNode, null, context ?\n        context.children : null, futurePath, checks);\n    } // if we have a componentless route, we recurse but keep the same\n    outlet map.\n    } else {\n      getChildRouteGuards(futureNode, null, parentContexts, futurePath, checks);\n    }\n  }\n  return checks;\n}\n\nfunction shouldRunGuardsAndResolvers(\n  curr: ActivatedRouteSnapshot, future:\n    ActivatedRouteSnapshot,\n  mode: RunGuardsAndResolvers|undefined): boolean {\n  if\n    (typeof mode === 'function') {\n    return mode(curr, future);\n  }\n  switch (mode) {\n    case\n      'pathParamsChange':\n      return !equalPath(curr.url, future.url);\n    case 'pathParamsOrQueryParamsChange':\n      return !equalPath(curr.url, future.url) ||\n        !shallowEqual(curr.queryParams, future.queryParams);\n    case\n      'always':\n      return true;\n    case 'paramsOrQueryParamsChange':\n      return

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!equalParamsAndUrlSegments(curr, future) ||\n      !shallowEqual(curr.queryParams, future.queryParams);\n\n case 'paramsChange':\n   default:\n     return !equalParamsAndUrlSegments(curr, future);\n   }\n}\n\nfunction\n deactivateRouteAndItsChildren(\n   route: TreeNode<ActivatedRouteSnapshot>, context: OutletContext|null,\n   checks: Checks): void {\n   const children = nodeChildrenAsMap(route);\n   const r = route.value;\n   forEach(children, (node: TreeNode<ActivatedRouteSnapshot>, childName: string) => {\n     if (!r.component) {\n       deactivateRouteAndItsChildren(node,\n         context, checks);\n     } else if (context) {\n       deactivateRouteAndItsChildren(node,\n         context.children.getContext(childName), checks);\n     } else {\n       deactivateRouteAndItsChildren(node, null,\n         checks);\n     }\n   });\n   if (!r.component) {\n     checks.canDeactivateChecks.push(new CanDeactivate(null, r));\n   } else if (context && context.outlet && context.outlet.isActive) {\n     checks.canDeactivateChecks.push(new\n       CanDeactivate(context.outlet.component, r));\n   } else {\n     checks.canDeactivateChecks.push(new\n       CanDeactivate(null, r));\n   }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use\n * of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n * https://angular.io/license\n */\n\nimport {Injector} from '@angular/core';\nimport {defer, from,\n  MonoTypeOperatorFunction, Observable, of} from 'rxjs';\nimport {concatAll, concatMap, first, map, mergeMap}\n  from 'rxjs/operators';\nimport {ActivationStart,\n  ChildActivationStart, Event} from '../events';\nimport {CanActivateChildFn, CanActivateFn, CanDeactivateFn}\n  from '../interfaces';\nimport {NavigationTransition} from '../router';\nimport {ActivatedRouteSnapshot,\n  RouterStateSnapshot} from '../router_state';\nimport {UrlTree} from '../url_tree';\nimport {wrapIntoObservable}\n  from '../utils/collection';\nimport {CanActivate, CanDeactivate, getCanActivateChild, getToken} from\n  '../utils/preactivation';\nimport {isBoolean, isCanActivate, isCanActivateChild, isCanDeactivate, isFunction} from\n  '../utils/type_guards';\nimport {prioritizedGuardValue} from './prioritized_guard_value';\n\nexport function\n  checkGuards(moduleInjector: Injector, forwardEvent?: (evt: Event) => void):\n  MonoTypeOperatorFunction<NavigationTransition> {\n    return function(source:\n      Observable<NavigationTransition>) {\n      return source.pipe(mergeMap(t => {\n        const {targetSnapshot,\n          currentSnapshot, guards: {canActivateChecks, canDeactivateChecks}} = t;\n        if (canDeactivateChecks.length\n          === 0 && canActivateChecks.length === 0) {\n          return of({...t, guardsResult: true});\n        }\n        return\n          runCanDeactivateChecks(\n            canDeactivateChecks, targetSnapshot!, currentSnapshot, moduleInjector)\n            .pipe(\n              mergeMap(canDeactivate => {\n                return canDeactivate && isBoolean(canDeactivate)\n              })\n            ?\n              runCanActivateChecks(\n                targetSnapshot!, canActivateChecks, moduleInjector,\n                forwardEvent) :\n              of(canDeactivate);\n            ),\n            map(guardsResult => ({...t,\n              guardsResult}));\n          });\n      });\n    }\n  }\n\nfunction runCanDeactivateChecks(\n  checks: CanDeactivate[], futureRSS:\n  RouterStateSnapshot, currRSS: RouterStateSnapshot,\n  moduleInjector: Injector) {\n    return from(checks).pipe(\n      mergeMap(\n        check =>\n          runCanDeactivate(check.component, check.route, currRSS, futureRSS,\n            moduleInjector)),\n      first(result\n        => {\n          return result !== true;\n        }, true as boolean | UrlTree));\n  }\n\nfunction runCanActivateChecks(\n  futureSnapshot: RouterStateSnapshot, checks: CanActivate[], moduleInjector: Injector,\n  forwardEvent?: (evt: Event) => void) {\n    return from(checks).pipe(\n      concatMap((check: CanActivate) => {\n        return from([\n          fireChildActivationStart(check.route.parent, forwardEvent),\n          fireActivationStart(check.route,\n            forwardEvent),\n          runCanActivateChild(futureSnapshot, check.path, moduleInjector),\n          runCanActivate(futureSnapshot, check.route, moduleInjector)\n        ])\n        .pipe(concatAll(), first(result =>\n          {\n            return result !== true;\n          }, true as boolean | UrlTree));\n      })),\n      first(result => {\n        return result !== true;\n      }, true as boolean | UrlTree));\n  }\n\n/**\n * This should fire off `ActivationStart` events\n * for each route\n * being activated at this level.\n * In other words, if you're activating `a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will fire `ActivationStart` for both. Always\n * return `true` so\n * checks continue to run.\n */\nfunction fireActivationStart(\n  snapshot: ActivatedRouteSnapshot|null,\n  forwardEvent?: (evt: Event) => void): Observable<boolean> {\n  if (snapshot !== null && forwardEvent) {\n

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forwardEvent(new ActivationStart(snapshot));\n } \n return of(true);\n}\n\n/**\n * This should fire off
`ChildActivationStart` events for each route being activated at this\n * level.\n * In other words, if you're activating
`a` and `b` below, `path` will contain the\n * `ActivatedRouteSnapshot`s for both and we will fire
`ChildActivationStart` for both. Always\n * return\n * `true` so checks continue to run.\n */\nfunction
fireChildActivationStart(\n  snapshot: ActivatedRouteSnapshot|null,\n  forwardEvent?: (evt: Event) => void):
Observable<boolean>
{\n  if (snapshot !== null && forwardEvent) {\n    forwardEvent(new ChildActivationStart(snapshot));\n  }\n  return of(true);\n}\n\nfunction runCanActivate(\n  futureRSS: RouterStateSnapshot, futureARS:
ActivatedRouteSnapshot,\n  moduleInjector: Injector): Observable<boolean|UrlTree> {\n  const canActivate =
futureARS.routeConfig ? futureARS.routeConfig.canActivate : null;\n  if (!canActivate || canActivate.length === 0)
return of(true);\n  \n  const canActivateObservables = canActivate.map((c: any) => {\n    return defer(() => {\n
const guard = getToken(c, futureARS, moduleInjector);\n    let observable;\n    if (isCanActivate(guard)) {\n
observable = wrapIntoObservable(guard.canActivate(futureARS, futureRSS));\n    } else if
(isFunction<CanActivateFn>(guard)) {\n      observable = wrapIntoObservable(guard(futureARS, futureRSS));\n    }
else {\n      throw new Error('Invalid CanActivate guard');\n    }\n    return observable.pipe(first());\n  });\n});\n  return of(canActivateObservables).pipe(prioritizedGuardValue());\n}\n\nfunction
runCanActivateChild(\n  futureRSS: RouterStateSnapshot, path: ActivatedRouteSnapshot[],\n  moduleInjector:
Injector): Observable<boolean|UrlTree> {\n  const futureARS = path[path.length - 1];\n  \n  const
canActivateChildGuards = path.slice(0, path.length - 1)\n    .reverse()\n    .map(p => getCanActivateChild(p))\n    .filter(_ => _ !== null);\n  \n  const
canActivateChildGuardsMapped = canActivateChildGuards.map((d: any) => {\n    return defer(() => {\n      const
guardsMapped = d.guards.map((c: any) => {\n        const guard = getToken(c, d.node, moduleInjector);\n        let
observable;\n        if (isCanActivateChild(guard)) {\n          observable =
wrapIntoObservable(guard.canActivateChild(futureARS, futureRSS));\n        } else if
(isFunction<CanActivateChildFn>(guard)) {\n
observable = wrapIntoObservable(guard(futureARS, futureRSS));\n        } else {\n          throw new Error('Invalid
CanActivateChild guard');\n        }\n        return observable.pipe(first());\n      });\n    });\n    return
of(guardsMapped).pipe(prioritizedGuardValue());\n  });\n  \n  return
of(canActivateChildGuardsMapped).pipe(prioritizedGuardValue());\n}\n\nfunction runCanDeactivate(\n
component: Object|null, currARS: ActivatedRouteSnapshot, currRSS: RouterStateSnapshot,\n  futureRSS:
RouterStateSnapshot, moduleInjector: Injector): Observable<boolean|UrlTree> {\n  const canDeactivate = currARS
&& currARS.routeConfig ? currARS.routeConfig.canDeactivate : null;\n  if (!canDeactivate || canDeactivate.length
=== 0) return of(true);\n  \n  const canDeactivateObservables = canDeactivate.map((c: any) => {\n    const guard =
getToken(c, currARS, moduleInjector);\n    let observable;\n    if (isCanDeactivate(guard)) {\n      observable =
wrapIntoObservable(guard.canDeactivate(component!,
currARS, currRSS, futureRSS));\n    } else if (isFunction<CanDeactivateFn<any>>(guard)) {\n      observable =
wrapIntoObservable(guard(component, currARS, currRSS, futureRSS));\n    } else {\n      throw new Error('Invalid
CanDeactivate guard');\n    }\n    return observable.pipe(first());\n  });\n  \n  return
of(canDeactivateObservables).pipe(prioritizedGuardValue());\n}\n\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from '@angular/core';\nimport {Observable,
Observer, of} from 'rxjs';\nimport {Data, ResolveData, Route, Routes} from './config';\nimport
{ActivatedRouteSnapshot, inheritedParamsDataResolve, ParamsInheritanceStrategy, RouterStateSnapshot} from
'./router_state';\nimport {defaultUrlMatcher, PRIMARY_OUTLET} from './shared';\nimport
{mapChildrenIntoArray, UrlSegment, UrlSegmentGroup, UrlTree} from
'./url_tree';\nimport {forEach, last} from './utils/collection';\nimport {TreeNode} from './utils/tree';\n\nclass
NoMatch {}\n\nexport function recognize(\n  rootComponentType: Type<any>|null, config: Routes, urlTree:
UrlTree, url: string,\n  paramsInheritanceStrategy: ParamsInheritanceStrategy = 'emptyOnly',\n

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relativeLinkResolution: 'legacy'|'corrected' = 'legacy'): Observable<RouterStateSnapshot> {\n  return new
Recognizer(\n    rootComponentType, config, urlTree, url, paramsInheritanceStrategy,\n    relativeLinkResolution)\n    .recognize();\n}\n\nnclass Recognizer {\n  constructor(\n    private
rootComponentType: Type<any>|null, private config: Routes, private urlTree: UrlTree,\n    private url: string,
private paramsInheritanceStrategy: ParamsInheritanceStrategy,\n    private relativeLinkResolution:
'legacy'|'corrected') {\n\n    recognize(): Observable<RouterStateSnapshot> {\n      try {\n        const rootSegmentGroup
=\n          split(this.urlTree.root,
            [], [], this.config, this.relativeLinkResolution).segmentGroup;\n\n        const children =
this.processSegmentGroup(this.config, rootSegmentGroup, PRIMARY_OUTLET);\n\n        const root = new
ActivatedRouteSnapshot(\n          [], Object.freeze({}), Object.freeze({...this.urlTree.queryParams}),\n          this.urlTree.fragment!, {}, PRIMARY_OUTLET, this.rootComponentType, null,\n          this.urlTree.root, -1,
          {});\n\n        const rootNode = new TreeNode<ActivatedRouteSnapshot>(root, children);\n        const routeState = new
RouterStateSnapshot(this.url, rootNode);\n        this.inheritParamsAndData(routeState._root);\n        return
of(routeState);\n      } catch (e) {\n        return new Observable<RouterStateSnapshot>(\n          (obs:
Observer<RouterStateSnapshot>) => obs.error(e));\n      }\n    }\n\n    inheritParamsAndData(routeNode:
TreeNode<ActivatedRouteSnapshot>): void {\n      const route = routeNode.value;\n      const i =
inheritedParamsDataResolve(route, this.paramsInheritanceStrategy);\n      route.params = Object.freeze(i.params);\n      route.data = Object.freeze(i.data);\n\n      routeNode.children.forEach(n => this.inheritParamsAndData(n));\n    }\n\n    processSegmentGroup(config: Route[],
segmentGroup: UrlSegmentGroup, outlet: string):\n      TreeNode<ActivatedRouteSnapshot>[] {\n      if
(segmentGroup.segments.length === 0 && segmentGroup.hasChildren()) {\n        return this.processChildren(config,
segmentGroup);\n      }\n      return this.processSegment(config, segmentGroup, segmentGroup.segments, outlet);\n    }\n\n    processChildren(config: Route[], segmentGroup: UrlSegmentGroup):\n      TreeNode<ActivatedRouteSnapshot>[] {\n      const children = mapChildrenIntoArray(\n        segmentGroup, (child,
childOutlet) => this.processSegmentGroup(config, child, childOutlet));\n      checkOutletNameUniqueness(children);\n      sortActivatedRouteSnapshots(children);\n      return children;\n    }\n\n    processSegment(\n      config: Route[], segmentGroup: UrlSegmentGroup, segments: UrlSegment[],\n      outlet: string):\n      TreeNode<ActivatedRouteSnapshot>[] {\n      for (const r of config) {\n        try {\n          return
this.processSegmentAgainstRoute(r, segmentGroup, segments, outlet);\n        } catch (e) {\n          if (!(e instanceof
NoMatch)) throw e;\n        }\n      }\n      if (this.noLeftoversInUrl(segmentGroup, segments, outlet)) {\n        return [];\n      }\n      throw new NoMatch();\n    }\n\n    private noLeftoversInUrl(segmentGroup: UrlSegmentGroup, segments:
UrlSegment[], outlet: string):\n      boolean {\n      return segments.length === 0 &&
!segmentGroup.children[outlet];\n    }\n\n    processSegmentAgainstRoute(\n      route: Route, rawSegment:
UrlSegmentGroup, segments: UrlSegment[],\n      outlet: string):\n      TreeNode<ActivatedRouteSnapshot>[] {\n      if
(route.redirectTo) throw new NoMatch();\n      if ((route.outlet || PRIMARY_OUTLET) !== outlet) throw new
NoMatch();\n      let snapshot: ActivatedRouteSnapshot;\n      let consumedSegments: UrlSegment[] = [];\n      let
rawSlicedSegments:
UrlSegment[] = [];\n      if (route.path === '**') {\n        const params = segments.length > 0 ?
last(segments).parameters : {};\n        snapshot = new ActivatedRouteSnapshot(\n          segments, params,
Object.freeze({...this.urlTree.queryParams}), this.urlTree.fragment!,\n          getData(route), outlet,
route.component!, route, getSourceSegmentGroup(rawSegment),\n          getPathIndexShift(rawSegment) +
segments.length, getResolve(route));\n      } else {\n        const result: MatchResult = match(rawSegment, route,
segments);\n        consumedSegments = result.consumedSegments;\n        rawSlicedSegments =
segments.slice(result.lastChild);\n        snapshot = new ActivatedRouteSnapshot(\n          consumedSegments,
result.parameters, Object.freeze({...this.urlTree.queryParams}),\n          this.urlTree.fragment!, getData(route),
outlet, route.component!, route,\n          getSourceSegmentGroup(rawSegment),\n          getPathIndexShift(rawSegment) + consumedSegments.length, getResolve(route));\n      }\n    }

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    }\n\n    const childConfig: Route[] = getChildConfig(route);\n\n    const {segmentGroup, slicedSegments} =
split(\n        rawSegment, consumedSegments, rawSlicedSegments, childConfig, this.relativeLinkResolution);\n\n    if (slicedSegments.length === 0 && segmentGroup.hasChildren()) {\n        const children =
this.processChildren(childConfig, segmentGroup);\n        return [new TreeNode<ActivatedRouteSnapshot>(snapshot,
children)];\n    }\n\n    if (childConfig.length === 0 && slicedSegments.length === 0) {\n        return [new
TreeNode<ActivatedRouteSnapshot>(snapshot, [])];\n    }\n\n    const children = this.processSegment(childConfig,
segmentGroup, slicedSegments, PRIMARY_OUTLET);\n    return [new
TreeNode<ActivatedRouteSnapshot>(snapshot, children)];\n}\n\nfunction sortActivatedRouteSnapshots(nodes:
TreeNode<ActivatedRouteSnapshot>[]): void {\n    nodes.sort((a, b) => {\n        if (a.value.outlet ===
PRIMARY_OUTLET) return -1;\n        if (b.value.outlet === PRIMARY_OUTLET)
return 1;\n        return a.value.outlet.localeCompare(b.value.outlet);\n    });\n}\n\nfunction getChildConfig(route:
Route): Route[] {\n    if (route.children) {\n        return route.children;\n    }\n\n    if (route.loadChildren) {\n        return
route._loadedConfig!.routes;\n    }\n\n    return [];\n}\n\ninterface MatchResult {\n    consumedSegments:
UrlSegment[];\n    lastChild: number;\n    parameters: any;\n}\n\nfunction match(segmentGroup: UrlSegmentGroup,
route: Route, segments: UrlSegment[]): MatchResult {\n    if (route.path === '') {\n        if (route.pathMatch === 'full'
&& (segmentGroup.hasChildren() || segments.length > 0)) {\n            throw new NoMatch();\n        }\n\n        return
{consumedSegments: [], lastChild: 0, parameters: {}};\n    }\n\n    const matcher = route.matcher ||
defaultUrlMatcher;\n    const res = matcher(segments, segmentGroup, route);\n    if (!res) throw new NoMatch();\n\n    const posParams: {[n: string]: string} = {};\n    forEach(res.posParams!, (v: UrlSegment, k: string) => {\n
posParams[k]
= v.path;\n    });\n    const parameters = res.consumed.length > 0 ? {\n        ...posParams,
...res.consumed[res.consumed.length - 1].parameters\n    } : posParams;\n\n    return {consumedSegments:
res.consumed, lastChild: res.consumed.length, parameters};\n}\n\nfunction checkOutletNameUniqueness(nodes:
TreeNode<ActivatedRouteSnapshot>[]): void {\n    const names: {[k: string]: ActivatedRouteSnapshot} = {};\n
nodes.forEach(n => {\n        const routeWithSameOutletName = names[n.value.outlet];\n        if
(routeWithSameOutletName) {\n            const p = routeWithSameOutletName.url.map(s => s.toString()).join('/');\n
const c = n.value.url.map(s => s.toString()).join('/');\n            throw new Error(`Two segments cannot have the same
outlet name: '${p}' and '${c}'.`);\n        }\n        names[n.value.outlet] = n.value;\n    });\n}\n\nfunction
getSourceSegmentGroup(segmentGroup: UrlSegmentGroup): UrlSegmentGroup {\n    let s = segmentGroup;\n
while (s._sourceSegment) {\n        s = s._sourceSegment;\n    }\n    return s;\n}\n\nfunction
getPathIndexShift(segmentGroup: UrlSegmentGroup): number {\n    let s = segmentGroup;\n    let res =
(s._segmentIndexShift ? s._segmentIndexShift : 0);\n    while (s._sourceSegment) {\n        s = s._sourceSegment;\n
res += (s._segmentIndexShift ? s._segmentIndexShift : 0);\n    }\n    return res - 1;\n}\n\nfunction split(\n    segmentGroup:
UrlSegmentGroup, consumedSegments: UrlSegment[], slicedSegments: UrlSegment[],\n    config: Route[],
relativeLinkResolution: 'legacy'|'corrected') {\n    if (slicedSegments.length > 0 &&\n
containsEmptyPathMatchesWithNamedOutlets(segmentGroup, slicedSegments, config)) {\n        const s = new
UrlSegmentGroup(\n            consumedSegments,\n            createChildrenForEmptyPaths(\n                segmentGroup,
consumedSegments, config,\n                new UrlSegmentGroup(slicedSegments, segmentGroup.children));\n            s._sourceSegment = segmentGroup;\n            s._segmentIndexShift = consumedSegments.length;\n            return
{segmentGroup: s, slicedSegments: []};\n        }\n\n        if (slicedSegments.length === 0 &&\n
containsEmptyPathMatches(segmentGroup, slicedSegments, config)) {\n            const s = new
UrlSegmentGroup(\n                segmentGroup.segments,\n                addEmptyPathsToChildrenIfNeeded(\n
segmentGroup, consumedSegments, slicedSegments, config, segmentGroup.children,\n
relativeLinkResolution));\n            s._sourceSegment = segmentGroup;\n            s._segmentIndexShift =
consumedSegments.length;\n            return {segmentGroup: s, slicedSegments};\n        }\n\n        const s = new
UrlSegmentGroup(segmentGroup.segments, segmentGroup.children);\n        s._sourceSegment = segmentGroup;\n
s._segmentIndexShift = consumedSegments.length;\n        return {segmentGroup: s, slicedSegments};\n    }\n\n    function
addEmptyPathsToChildrenIfNeeded(\n        segmentGroup: UrlSegmentGroup, consumedSegments: UrlSegment[],

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slicedSegments: UrlSegment[],\n  routes: Route[], children: {[name: string]: UrlSegmentGroup},\n
relativeLinkResolution: 'legacy'|'corrected'): {[name: string]: UrlSegmentGroup}
{\n  const res: {[name: string]: UrlSegmentGroup} = {};\n  for (const r of routes) {\n    if
(emptyPathMatch(segmentGroup, slicedSegments, r) && !children[getOutlet(r)]) {\n      const s = new
UrlSegmentGroup([], {});\n      s._sourceSegment = segmentGroup;\n      if (relativeLinkResolution === 'legacy')
{\n        s._segmentIndexShift = segmentGroup.segments.length;\n      } else {\n        s._segmentIndexShift =
consumedSegments.length;\n      }\n      res[getOutlet(r)] = s;\n    }\n  }\n  return {...children, ...res};\n}\n\nfunction
createChildrenForEmptyPaths(\n  segmentGroup: UrlSegmentGroup, consumedSegments: UrlSegment[], routes:
Route[],\n  primarySegment: UrlSegmentGroup): {[name: string]: UrlSegmentGroup} {\n  const res: {[name:
string]: UrlSegmentGroup} = {};\n  res[PRIMARY_OUTLET] = primarySegment;\n  primarySegment._sourceSegment = segmentGroup;\n  primarySegment._segmentIndexShift =
consumedSegments.length;\n\n  for (const r of routes) {\n    if (r.path === "
&& getOutlet(r) !== PRIMARY_OUTLET) {\n      const s = new UrlSegmentGroup([], {});\n      s._sourceSegment
= segmentGroup;\n      s._segmentIndexShift = consumedSegments.length;\n      res[getOutlet(r)] = s;\n    }\n  }\n
return res;\n}\n\nfunction containsEmptyPathMatchesWithNamedOutlets(\n  segmentGroup: UrlSegmentGroup,
slicedSegments: UrlSegment[], routes: Route[]): boolean {\n  return routes.some(\n    r =>
emptyPathMatch(segmentGroup, slicedSegments, r) && getOutlet(r) !== PRIMARY_OUTLET);\n}\n\nfunction
containsEmptyPathMatches(\n  segmentGroup: UrlSegmentGroup, slicedSegments: UrlSegment[], routes:
Route[]): boolean {\n  return routes.some(r => emptyPathMatch(segmentGroup, slicedSegments, r));\n}\n\nfunction
emptyPathMatch(\n  segmentGroup: UrlSegmentGroup, slicedSegments: UrlSegment[], r: Route): boolean {\n  if
((segmentGroup.hasChildren() || slicedSegments.length > 0) && r.pathMatch === 'full') {\n    return false;\n  }\n\n
return r.path === " && r.redirectTo ===
undefined;\n}\n\nfunction getOutlet(route: Route): string {\n  return route.outlet ||
PRIMARY_OUTLET;\n}\n\nfunction getData(route: Route): Data {\n  return route.data || {};\n}\n\nfunction
getResolve(route: Route): ResolveData {\n  return route.resolve || {};\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {Type} from '@angular/core';\nimport
{MonoTypeOperatorFunction, Observable} from 'rxjs';\nimport {map, mergeMap} from 'rxjs/operators';\nimport
{Route} from '../config';\nimport {recognize as recognizeFn} from '../recognize';\nimport {NavigationTransition}
from '../router';\nimport {UrlTree} from '../url_tree';\n\nexport function recognize(\n  rootComponentType:
Type<any>|null, config: Route[], serializer: (url: UrlTree) => string,\n  paramsInheritanceStrategy:
'emptyOnly'|"always",\n  relativeLinkResolution:
'legacy'|'corrected'): MonoTypeOperatorFunction<NavigationTransition> {\n  return function(source:
Observable<NavigationTransition>) {\n    return source.pipe(mergeMap(\n      t => recognizeFn(\n
rootComponentType, config, t.urlAfterRedirects, serializer(t.urlAfterRedirects),\n
paramsInheritanceStrategy, relativeLinkResolution)\n    ).pipe(map(targetSnapshot => ({...t,
targetSnapshot})))));\n  };\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Injector} from '@angular/core';\nimport {EMPTY, from,
MonoTypeOperatorFunction, Observable, of} from 'rxjs';\nimport {concatMap, map, mergeMap, takeLast, tap}
from 'rxjs/operators';\nimport {ResolveData} from '../config';\nimport {NavigationTransition} from
'../router';\nimport {ActivatedRouteSnapshot, inheritedParamsDataResolve,
RouterStateSnapshot} from '../router_state';\nimport {wrapIntoObservable} from '../utils/collection';\nimport
{getToken} from '../utils/preactivation';\n\nexport function resolveData(\n  paramsInheritanceStrategy:
'emptyOnly'|"always",\n  moduleInjector: Injector): MonoTypeOperatorFunction<NavigationTransition> {\n  return
function(source: Observable<NavigationTransition>) {\n    return source.pipe(mergeMap(t => {\n      const
{targetSnapshot, guards: {canActivateChecks}} = t;\n\n      if (!canActivateChecks.length) {\n        return of(t);\n
      }\n\n      let canActivateChecksResolved = 0;\n      return from(canActivateChecks)\n        .pipe(\n

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concatMap(\n      check => runResolve(\n      check.route, targetSnapshot!,
paramsInheritanceStrategy, moduleInjector)),\n      tap(() => canActivateChecksResolved++),\n
takeLast(1),\n      mergeMap(_ => canActivateChecksResolved === canActivateChecks.length
? of(t) : EMPTY),\n      );\n  });\n};\n\nfunction runResolve(\n  futureARS: ActivatedRouteSnapshot,
futureRSS: RouterStateSnapshot,\n  paramsInheritanceStrategy: 'emptyOnly'|'always', moduleInjector: Injector) {\n
const resolve = futureARS._resolve;\n  return resolveNode(resolve, futureARS, futureRSS, moduleInjector)\n
.pipe(map((resolvedData: any) => {\n    futureARS._resolvedData = resolvedData;\n    futureARS.data = {\n
...futureARS.data,\n    ...inheritedParamsDataResolve(futureARS, paramsInheritanceStrategy).resolve\n
});\n    return null;\n  }));\n}\n\nfunction resolveNode(\n  resolve: ResolveData, futureARS:
ActivatedRouteSnapshot, futureRSS: RouterStateSnapshot,\n  moduleInjector: Injector): Observable<any> {\n
const keys = Object.keys(resolve);\n  if (keys.length === 0) {\n    return of({});\n  }\n  const data: {[k: string]: any}
= {};\n  return from(keys).pipe(\n    mergeMap(\n      (key: string) =>
getResolver(resolve[key], futureARS, futureRSS, moduleInjector)\n      .pipe(tap((value: any) =>
{\n        data[key] = value;\n      }))),\n    takeLast(1),\n    mergeMap(() => {\n
// Ensure all resolvers returned values, otherwise don't emit any "next" and just complete\n    // the chain which
will cancel navigation\n    if (Object.keys(data).length === keys.length) {\n      return of(data);\n    }\n
return EMPTY;\n  })),\n  );\n}\n\nfunction getResolver(\n  injectionToken: any, futureARS:
ActivatedRouteSnapshot, futureRSS: RouterStateSnapshot,\n  moduleInjector: Injector): Observable<any> {\n
const resolver = getToken(injectionToken, futureARS, moduleInjector);\n  return resolver.resolve ?
wrapIntoObservable(resolver.resolve(futureARS, futureRSS)) :\n
wrapIntoObservable(resolver(futureARS, futureRSS));\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {from, MonoTypeOperatorFunction,
ObservableInput} from 'rxjs';\nimport {map, switchMap} from 'rxjs/operators';\n\n/**\n * Perform a side effect
through a switchMap for every emission on the source Observable,\n * but return an Observable that is identical to
the source. It's essentially the same as\n * the `tap` operator, but if the side effectful `next` function returns an
ObservableInput,\n * it will wait before continuing with the original value.\n */\nexport function
switchTap<T>(next: (x: T) => void|ObservableInput<any>):\n  MonoTypeOperatorFunction<T> {\n  return
function(source) {\n    return source.pipe(switchMap(v => {\n      const nextResult = next(v);\n      if (nextResult) {\n
return from(nextResult).pipe(map(() => v));\n      }\n      return from([v]);\n    }));\n  };\n}\n\n"/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{ComponentRef} from '@angular/core';\nimport {OutletContext} from './router_outlet_context';\nimport
{ActivatedRoute, ActivatedRouteSnapshot} from './router_state';\nimport {TreeNode} from './utils/tree';\n\n/**\n
* @description\n * Represents the detached route tree.\n * This is an opaque value the router will give to a
custom route reuse strategy\n * to store and retrieve later on.\n */\n * @publicApi\n */\nexport type
DetachedRouteHandle = {};\n\n/**\n * @internal\n */\nexport type DetachedRouteHandleInternal = {\n  contexts:
Map<string, OutletContext>,\n  componentRef: ComponentRef<any>,\n  route:
TreeNode<ActivatedRoute>,\n};\n\n/**\n * @description\n * Provides a way to customize when activated
routes get reused.\n */\n * @publicApi\n */\nexport abstract class RouteReuseStrategy
{\n  /**\n   * Determines if this route (and its subtree) should be detached to be reused later\n   */\n  abstract
shouldDetach(route: ActivatedRouteSnapshot): boolean;\n\n  /**\n   * Stores the detached route.\n   */\n  * Storing a
`null` value should erase the previously stored value.\n   */\n  abstract store(route: ActivatedRouteSnapshot, handle:
DetachedRouteHandle|null): void;\n\n  /**\n   * Determines if this route (and its subtree) should be reattached\n   */\n
  abstract shouldAttach(route: ActivatedRouteSnapshot): boolean;\n\n  /**\n   * Retrieves the previously stored route\n   */\n
  abstract retrieve(route: ActivatedRouteSnapshot): DetachedRouteHandle|null;\n\n  /**\n   * Determines if a route should
be reused\n   */\n  abstract shouldReuseRoute(future: ActivatedRouteSnapshot, curr: ActivatedRouteSnapshot):
boolean;\n}\n\n/**\n * @description\n * This base route reuse strategy only reuses routes when the matched

```

router configs are identical. This prevents components from being destroyed and recreated when just the fragment or query parameters change (that is, the existing component is `_reused`).

This strategy does not store any routes for later reuse. Angular uses this strategy by default.

It can be used as a base class for custom route reuse strategies, i.e. you can create your own class that extends the `BaseRouteReuseStrategy` one.

```
@publicApi
export abstract class BaseRouteReuseStrategy
implements RouteReuseStrategy {
  /** Whether the given route should detach for later reuse. Always
  returns false for `BaseRouteReuseStrategy`. */
  shouldDetach(route: ActivatedRouteSnapshot): boolean {
    return false;
  }

  /** A no-op; the route is never stored since this strategy never detaches routes for later
  reuse. */
  store(route: ActivatedRouteSnapshot, detachedTree: DetachedRouteHandle): void {}

  /** Returns `false`, meaning the route (and its subtree) is never reattached. */
  shouldAttach(route:
  ActivatedRouteSnapshot): boolean {
    return false;
  }

  /** Returns `null` because this strategy does not store
  routes for later re-use. */
  retrieve(route: ActivatedRouteSnapshot): DetachedRouteHandle|null {
    return null;
  }

  /** Determines if a route should be reused. This strategy returns `true` when the future route
  config and current route config are identical. */
  shouldReuseRoute(future: ActivatedRouteSnapshot, curr:
  ActivatedRouteSnapshot): boolean {
    return future.routeConfig === curr.routeConfig;
  }
}

export class
DefaultRouteReuseStrategy extends BaseRouteReuseStrategy {}

/**
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 * the LICENSE file at https://angular.io/license
 */
import { Compiler, InjectionToken, Injector,
NgModuleFactory, NgModuleFactoryLoader } from '@angular/core';
import { from, Observable,
of } from 'rxjs';
import { map, mergeMap } from 'rxjs/operators';
import { LoadChildren, LoadedRouterConfig,
Route } from './config';
import { flatten, wrapIntoObservable } from './utils/collection';
import { standardizeConfig }
from './utils/config';

/** The [DI token](guide/glossary/#di-token) for a router configuration. */
@see `ROUTES`
@publicApi
export const ROUTES = new InjectionToken<Route[]>('ROUTES');

export class RouterConfigLoader {
  constructor(
    private loader: NgModuleFactoryLoader,
    private compiler:
    Compiler,
    private onLoadStartListener?: (r: Route) => void,
    private onLoadEndListener?: (r: Route) =>
    void ) {}

  load(parentInjector: Injector, route: Route): Observable<LoadedRouterConfig> {
    if (this.onLoadStartListener) {
      this.onLoadStartListener(route);
    }

    const moduleFactory$ =
this.loadModuleFactory(route.loadChildren!);

    return moduleFactory$.pipe(map((factory:
NgModuleFactory<any>) => {
      if (this.onLoadEndListener) {
        this.onLoadEndListener(route);
      }

      const module =
factory.create(parentInjector);

      return new LoadedRouterConfig(
flatten(module.injector.get(ROUTES)).map(standardizeConfig), module);
    }));
  }

  private
loadModuleFactory(loadChildren: LoadChildren): Observable<NgModuleFactory<any>> {
    if (typeof
loadChildren === 'string') {
      return from(this.loader.load(loadChildren));
    } else {
      return
wrapIntoObservable(loadChildren()).pipe(mergeMap((t: any) => {
        if (t instanceof NgModuleFactory) {
          return of(t);
        } else {
          return from(this.compiler.compileModuleAsync(t));
        }
      }));
    }
  }
}

/**
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 * governed by an MIT-style license that can be found in the LICENSE file at
 * https://angular.io/license
 */
import { ComponentFactoryResolver, ComponentRef }
from '@angular/core';
import { RouterOutlet } from './directives/router_outlet';
import { ActivatedRoute } from
'./router_state';

/** Store contextual information about a `RouterOutlet`. */
@publicApi
export class OutletContext {
  outlet: RouterOutlet|null = null;
  route: ActivatedRoute|null = null;
  resolver:
ComponentFactoryResolver|null = null;
  children = new ChildrenOutletContexts();
  attachRef:
ComponentRef<any>|null = null;
}

/** Store contextual information about the children (= nested
`RouterOutlet`s). */
@publicApi
export class ChildrenOutletContexts {
  // contexts for child outlets, by
  name.
  private contexts = new Map<string, OutletContext>();

  /** Called when a `RouterOutlet` directive is
  instantiated. */
  onChildOutletCreated(childName: string, outlet: RouterOutlet): void {
    const context =
this.getOrCreateContext(childName);
    context.outlet = outlet;
    this.contexts.set(childName, context);
  }
}
```

```

/**\n * Called when a `RouterOutlet` directive is destroyed.\n * We need to keep the context as the outlet could
be destroyed inside a NgIf and might be\n * re-created later.\n */\n onChildOutletDestroyed(childName: string):
void {\n   const context = this.getContext(childName);\n   if (context) {\n     context.outlet = null;\n   }\n }\n\n/**\n * Called when the corresponding route is deactivated during navigation.\n * Because the component get
destroyed, all children outlet are destroyed.\n */\n onOutletDeactivated(): Map<string, OutletContext> {\n   const
contexts = this.contexts;\n   this.contexts = new Map();\n   return contexts;\n }\n\n onOutletReAttached(contexts:
Map<string, OutletContext>) {\n   this.contexts = contexts;\n }\n\n getOrCreateContext(childName: string):
OutletContext {\n   let context = this.getContext(childName);\n\n   if (!context) {\n     context = new
OutletContext();\n     this.contexts.set(childName, context);\n   }\n\n   return context;\n }\n\n getContext(childName: string): OutletContext|null {\n   return
this.contexts.get(childName) || null;\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { UrlTree } from './url_tree';\n\n/**\n * @description\n *\n * Provides a way
to migrate AngularJS applications to Angular.\n *\n * @publicApi\n */\n\nexport abstract class UrlHandlingStrategy
{\n   /**\n   * Tells the router if this URL should be processed.\n   *\n   * When it returns true, the router will execute
the regular navigation.\n   *\n   * When it returns false, the router will set the router state to an empty state.\n   * As a
result, all the active components will be destroyed.\n   */\n   abstract shouldProcessUrl(url: UrlTree):
boolean;\n\n   /**\n   * Extracts the part of the URL that should be handled by the router.\n   *\n   * The rest of the URL will remain untouched.\n   */\n   abstract extract(url: UrlTree): UrlTree;\n\n   /**\n   * Merges
the URL fragment with the rest of the URL.\n   */\n   abstract merge(newUrlPart: UrlTree, rawUrl: UrlTree):
UrlTree;\n\n   /**\n   * @publicApi\n   */\n\n   export class DefaultUrlHandlingStrategy implements UrlHandlingStrategy
{\n     shouldProcessUrl(url: UrlTree): boolean {\n       return true;\n     }\n\n     extract(url: UrlTree): UrlTree {\n
       return url;\n     }\n\n     merge(newUrlPart: UrlTree, wholeUrl: UrlTree): UrlTree {\n       return newUrlPart;\n     }\n   }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { Location,
PopStateEvent } from '@angular/common';\nimport { Compiler, Injectable, Injector, NgModuleFactoryLoader,
NgModuleRef, NgZone, Type, Console as Console } from '@angular/core';\nimport { BehaviorSubject, EMPTY,
Observable,
of, Subject, SubscriptionLike } from 'rxjs';\nimport { catchError, filter, finalize, map, switchMap, tap } from
'rxjs/operators';\n\nimport { QueryParamsHandling, Route, Routes } from './config';\nimport { createRouterState }
from './create_router_state';\nimport { createUrlTree } from './create_url_tree';\nimport { Event, GuardsCheckEnd,
GuardsCheckStart, NavigationCancel, NavigationEnd, NavigationError, NavigationStart, NavigationTrigger,
ResolveEnd, ResolveStart, RouteConfigLoadEnd, RouteConfigLoadStart, RoutesRecognized } from
'./events';\nimport { activateRoutes } from './operators/activate_routes';\nimport { applyRedirects } from
'./operators/apply_redirects';\nimport { checkGuards } from './operators/check_guards';\nimport { recognize } from
'./operators/recognize';\nimport { resolveData } from './operators/resolve_data';\nimport { switchTap } from
'./operators/switch_tap';\nimport { DefaultRouteReuseStrategy, RouteReuseStrategy } from
'./route_reuse_strategy';\nimport { RouterConfigLoader } from './router_config_loader';\nimport
{ ChildrenOutletContexts } from './router_outlet_context';\nimport { ActivatedRoute, createEmptyState, RouterState,
RouterStateSnapshot } from './router_state';\nimport { isNavigationCancelingError, navigationCancelingError,
Params } from './shared';\nimport { DefaultUrlHandlingStrategy, UrlHandlingStrategy } from
'./url_handling_strategy';\nimport { containsTree, createEmptyUrlTree, UrlSerializer, UrlTree } from
'./url_tree';\nimport { standardizeConfig, validateConfig } from './utils/config';\nimport { Checks, getAllRouteGuards }
from './utils/preactivation';\nimport { isUrlTree } from './utils/type_guards';\n\n\n\n/**\n * @description\n *\n *
Options that modify the `Router` URL.\n * Supply an object containing any of these properties to a `Router`
navigation function to\n * control how the target URL should be constructed.\n *\n * @see [Router.navigate()
method](api/router/Router#navigate)\n *\n * @see [Router.createUrlTree() method](api/router/Router#createurltree)\n */

```

```
@see [Routing and Navigation guide](guide/router)\n * @publicApi\n *\\nexport interface UrlCreationOptions {\n  /**\n   * Specifies a root URI to use for relative navigation.\n   * For example, consider the following route configuration where the parent route\n   * has two children.\n   * \\n * \\n * \\n * [{\n   *   path: 'parent',\n   *   component: ParentComponent,\n   *   children: [{\n   *     path: 'list',\n   *     component: ListComponent\n   *   }, {\n   *     path: 'child',\n   *     component: ChildComponent\n   *   }]\n   * }]\n   * \\n * \\n * The following `go()` function navigates to the `list` route by\n   * interpreting the destination URI as relative to the activated `child` route\n   * \\n * \\n * \\n * @Component({...})\n   * class ChildComponent {\n   *   constructor(private router: Router, private route: ActivatedRoute) {\n   *     go() {\n   *       this.router.navigate(['../list'], { relativeTo: this.route });\n   *     }\n   *   }\n   * }\n   * \\n * \\n * \\n * Sets query parameters to the URL.\n   * \\n * \\n * \\n * // Navigate to /results?page=1\n   * this.router.navigate(['/results'], { queryParams: { page: 1 } });\n   * \\n * \\n * \\n * // Navigate to /results#top\n   * this.router.navigate(['/results'], { fragment: 'top' });\n   * \\n * \\n * \\n * // fragment?: string;\n   * \\n * \\n * \\n * One of:\n   * * `preserve` : Preserve current parameters.\n   * * `merge` : Merge new with current parameters.\n   * * The `\"preserve\"` option discards any new query params:\n   * * \\n * \\n * // from /view1?page=1 to /view2?page=1\n   * this.router.navigate(['/view2'], { queryParams: { page: 2 }, queryParamsHandling: \"preserve\" });\n   * \\n * \\n * \\n * The `\"merge\"` option appends new query params to the params from the current URL:\n   * * \\n * \\n * // from /view1?page=1 to /view2?page=1&otherKey=2\n   * this.router.navigate(['/view2'], { queryParams: { otherKey: 2 }, queryParamsHandling: \"merge\" });\n   * \\n * \\n * \\n * In case of a key collision between current parameters and those in the `queryParams` object,\n   * the new value is used.\n   * \\n * \\n * \\n * When true, preserves the URL fragment for the next navigation\n   * \\n * \\n * \\n * // Preserve fragment from /results#top to /view#top\n   * this.router.navigate(['/view'], { preserveFragment: true });\n   * \\n * \\n * \\n * // preserveFragment?: boolean;\n   * \\n * \\n * \\n * Options that modify the `Router` navigation strategy.\n   * Supply an object containing any of these properties to a `Router` navigation function to\n   * control how the navigation should be handled.\n   * \\n * \\n * \\n * @see [Router.navigate() method](api/router/Router#navigate)\n   * \\n * \\n * \\n * @see [Router.navigateByUrl() method](api/router/Router#navigatebyurl)\n   * \\n * \\n * \\n * @publicApi\n   *\\nexport interface NavigationBehaviorOptions {\n  /**\n   * When true, navigates without pushing a new state into history.\n   * \\n * \\n * \\n * // Navigate silently to /view\n   * this.router.navigate(['/view'], { skipLocationChange: true });\n   * \\n * \\n * \\n * // skipLocationChange?: boolean;\n   * \\n * \\n * \\n * When true, navigates while replacing the current state in history.\n   * \\n * \\n * \\n * // Navigate to /view\n   * this.router.navigate(['/view'], { replaceUrl: true });\n   * \\n * \\n * \\n * // replaceUrl?: boolean;\n   * \\n * \\n * \\n * Developer-defined state that can be passed to any navigation.\n   * Access this value through the `Navigation.extras` object\n   * returned from the [Router.getCurrentNavigation() method](api/router/Router#getCurrentnavigation) while a navigation is executing.\n   * \\n * \\n * \\n * After a navigation completes, the router writes an object containing this\n   * value together with a `navigationId` to `history.state`.\n   * \\n * The value is written when `location.go()` or `location.replaceState()`\n   * is called before activating this route.\n   * \\n * \\n * Note that `history.state` does not pass an object equality test because\n   * the router adds the `navigationId` on each navigation.\n   * \\n * \\n * \\n * state?: {[k: string]: any};\n   * \\n * \\n * \\n * Options that modify the `Router` navigation strategy.\n   * Supply an object containing any of these properties to a `Router` navigation function to\n   * control how the target URL should be constructed or interpreted.\n   * \\n * \\n * \\n * @see [Router.navigate() method](api/router/Router#navigate)\n   * \\n * \\n * \\n * @see [Router.navigateByUrl() method](api/router/Router#navigatebyurl)\n   * \\n * \\n * \\n * @see [Router.createUrlTree() method](api/router/Router#createurltree)\n   * \\n * \\n * \\n * @see [Routing and Navigation guide](guide/router)\n   * \\n * \\n * \\n * @see [UrlCreationOptions]\n   * \\n * \\n * \\n * @see NavigationBehaviorOptions\n   * \\n * \\n * \\n * @publicApi\n   *\\nexport interface NavigationExtras
```

extends UrlCreationOptions, NavigationBehaviorOptions { }
 Error handler that is invoked when a navigation error occurs.
 If the handler returns a value, the navigation Promise is resolved with this value.
 If the handler throws an exception, the navigation Promise is rejected with the exception.
 @publicApi
 export type ErrorHandler = (error: any) => any;
 function defaultErrorHandler(error: any): any {
 throw error;
 }
 function defaultMalformedUriErrorHandler(
 error: URIError, urlSerializer: UrlSerializer, url: string): UrlTree {
 return urlSerializer.parse('/');
 }
 export type RestoredState = {
 [k: string]: any;
 navigationId: number;
 };
 Information about a navigation operation.
 Retrieve the most recent navigation object with the [Router.getCurrentNavigation() method](api/router/Router#getCurrentNavigation).
 id: The unique identifier of the current navigation.
 initialUrl: The target URL passed into the Router#navigateByUrl() call before navigation.
 This is the value before the router has parsed or applied redirects to it.
 extractedUrl: The initial target URL after being parsed with UrlSerializer.extract().
 finalUrl: The extracted URL after redirects have been applied.
 This URL may not be available immediately, therefore this property can be undefined.
 It is guaranteed to be set after the RoutesRecognized event fires.
 trigger: Identifies how this navigation was triggered.
 --imperative-- Triggered by router.navigateByUrl or router.navigate.
 --popstate-- Triggered by a popstate event.
 --hashchange-- Triggered by a hashchange event.
 extras: A NavigationExtras options object that controlled the strategy used for this navigation.
 previousNavigation: The previously successful Navigation object. Only one previous navigation is available, therefore this previous Navigation object has a null value for its own previousNavigation.
 @publicApi
 export type Navigation = {
 /**
 * The unique identifier of the current navigation.
 */
 id: number;
 /**
 * The target URL passed into the Router#navigateByUrl() call before navigation. This is the value before the router has parsed or applied redirects to it.
 */
 initialUrl: string | UrlTree;
 /**
 * The initial target URL after being parsed with UrlSerializer.extract().
 */
 extractedUrl: UrlTree;
 /**
 * The extracted URL after redirects have been applied.
 * This URL may not be available immediately, therefore this property can be undefined.
 * It is guaranteed to be set after the RoutesRecognized event fires.
 */
 finalUrl?: UrlTree;
 /**
 * Identifies how this navigation was triggered.
 * --imperative-- Triggered by router.navigateByUrl or router.navigate.
 * --popstate-- Triggered by a popstate event.
 * --hashchange-- Triggered by a hashchange event.
 */
 trigger: 'imperative' | 'popstate' | 'hashchange';
 /**
 * Options that controlled the strategy used for this navigation.
 * See NavigationExtras.
 */
 extras: NavigationExtras;
 /**
 * The previously successful Navigation object. Only one previous navigation is available, therefore this previous Navigation object has a null value for its own previousNavigation.
 */
 previousNavigation: Navigation | null;
 };
 export type NavigationTransition = {
 id: number,
 currentUrlTree: UrlTree,
 currentRawUrl: UrlTree,
 extractedUrl: UrlTree,
 urlAfterRedirects: UrlTree,
 rawUrl: UrlTree,
 extras: NavigationExtras,
 resolve: any,
 reject: any,
 promise: Promise<boolean>,
 source: NavigationTrigger,
 restoredState: RestoredState | null,
 currentSnapshot: RouterStateSnapshot,
 targetSnapshot: RouterStateSnapshot | null,
 currentRouterState: RouterState,
 targetRouterState: RouterState | null,
 guards: Checks,
 guardsResult: boolean | UrlTree | null;
 };
 @internal
 export type RouterHook = (snapshot: RouterStateSnapshot, runExtras: {
 appliedUrlTree: UrlTree,
 rawUrlTree: UrlTree,
 skipLocationChange: boolean,
 replaceUrl: boolean,
 navigationId: number
 }) => Observable<void>;
 @internal
 function defaultRouterHook(snapshot: RouterStateSnapshot, runExtras: {
 appliedUrlTree: UrlTree,
 rawUrlTree: UrlTree,
 skipLocationChange: boolean,
 replaceUrl: boolean,
 navigationId: number
 }): Observable<void> {
 return of(null) as any;
 }
 Information related to a location change, necessary for scheduling follow-up Router navigations.
 type LocationChangeInfo = {
 source: 'popstate' | 'hashchange',
 urlTree: UrlTree,
 state: RestoredState | null,
 transitionId: number
 };
 @description
 A service that provides navigation among views and URL manipulation capabilities.
 @see Route.
 @see [Routing and Navigation Guide](guide/router).
 @ngModule RouterModule
 @publicApi
 @Injectable()
 export class Router {
 private currentUrlTree: UrlTree;
 private

```

rawUrlTree: UrlTree;\n private browserUrlTree: UrlTree;\n private readonly transitions:
BehaviorSubject<NavigationTransition>;\n private navigations: Observable<NavigationTransition>;\n private
lastSuccessfulNavigation: Navigation|null = null;\n private currentNavigation: Navigation|null = null;\n\n private
locationSubscription?: SubscriptionLike;\n /**\n * Tracks the previously seen location change from the location
subscription so we can compare\n * the two latest to see if they are duplicates. See
setUpLocationChangeListener.\n */\n private lastLocationChangeInfo: LocationChangeInfo|null = null;\n private
navigationId: number = 0;\n private configLoader: RouterConfigLoader;\n private ngModule:
NgModuleRef<any>;\n private console: Console;\n private isNgZoneEnabled:
boolean = false;\n\n /**\n * An event stream for routing events in this NgModule.\n */\n public readonly events:
Observable<Event> = new Subject<Event>();\n /**\n * The current state of routing in this NgModule.\n */\n\n public readonly routerState: RouterState;\n\n /**\n * A handler for navigation errors in this NgModule.\n */\n\n errorHandler: ErrorHandler = defaultErrorHandler;\n\n /**\n * A handler for errors thrown by
`Router.parseUrl(url)`\n * when `url` contains an invalid character.\n * The most common case is a `%` sign\n * that's not encoded and is not part of a percent encoded sequence.\n */\n\n malformedUriErrorHandler: (error:
URLError, urlSerializer: UrlSerializer,\n url: string) => UrlTree = defaultMalformedUriErrorHandler;\n\n /**\n * True if at least one navigation event has occurred,\n * false otherwise.\n */\n\n navigated: boolean = false;\n\n private lastSuccessfulId: number = -1;\n\n /**\n * Hooks that enable
you to pause navigation,\n * either before or after the preactivation phase.\n * Used by `RouterModule`.\n */\n\n * @internal\n */\n\n hooks: {\n beforePreactivation: RouterHook,\n afterPreactivation: RouterHook\n } =
{beforePreactivation: defaultRouterHook, afterPreactivation: defaultRouterHook};\n\n /**\n * A strategy for
extracting and merging URLs.\n * Used for AngularJS to Angular migrations.\n */\n\n urlHandlingStrategy:
UrlHandlingStrategy = new DefaultUrlHandlingStrategy();\n\n /**\n * A strategy for re-using routes.\n */\n\n routeReuseStrategy: RouteReuseStrategy = new DefaultRouteReuseStrategy();\n\n /**\n * How to handle a
navigation request to the current URL. One of:\n * - `ignore` : The router ignores the request.\n * - `reload` :
The router reloads the URL. Use to implement a `refresh` feature.\n */\n\n onSameUrlNavigation: 'reload'|'ignore'
= 'ignore';\n\n /**\n * How to merge parameters, data, and resolved data from parent
to child\n * routes. One of:\n * - `emptyOnly` : Inherit parent parameters, data, and resolved data\n * for
path-less or component-less routes.\n * - `always` : Inherit parent parameters, data, and resolved data\n * for all
child routes.\n */\n\n paramsInheritanceStrategy: 'emptyOnly'|'always' = 'emptyOnly';\n\n /**\n * Determines
when the router updates the browser URL.\n * By default (`deferred`), updates the browser URL after
navigation has finished.\n * Set to `eager` to update the browser URL at the beginning of navigation.\n * You
can choose to update early so that, if navigation fails,\n * you can show an error message with the URL that
failed.\n */\n\n urlUpdateStrategy: 'deferred'|'eager' = 'deferred';\n\n /**\n * Enables a bug fix that corrects relative
link resolution in components with empty paths.\n * @see `RouterModule`\n */\n\n relativeLinkResolution:
'legacy'|'corrected' = 'corrected';\n\n /**\n * Creates the router service.\n\n */\n\n // TODO: vsavkin make internal after the final is out.\n\n constructor(\n private rootComponentType:
Type<any>|null, private urlSerializer: UrlSerializer,\n private rootContexts: ChildrenOutletContexts, private
location: Location, injector: Injector,\n loader: NgModuleFactoryLoader, compiler: Compiler, public config:
Routes) {\n const onLoadStart = (r: Route) => this.triggerEvent(new RouteConfigLoadStart(r));\n const
onLoadEnd = (r: Route) => this.triggerEvent(new RouteConfigLoadEnd(r));\n\n this.ngModule =
injector.get(NgModuleRef);\n this.console = injector.get(Console);\n const ngZone = injector.get(NgZone);\n
this.isNgZoneEnabled = ngZone instanceof NgZone;\n\n this.resetConfig(config);\n this.currentUrlTree =
createEmptyUrlTree();\n this.rawUrlTree = this.currentUrlTree;\n this.browserUrlTree = this.currentUrlTree;\n\n
this.configLoader = new RouterConfigLoader(loader, compiler, onLoadStart, onLoadEnd);\n this.routerState
= createEmptyState(this.currentUrlTree, this.rootComponentType);\n\n this.transitions = new
BehaviorSubject<NavigationTransition>({\n id: 0,\n currentUrlTree: this.currentUrlTree,\n currentRawUrl:
this.currentUrlTree,\n extractedUrl: this.urlHandlingStrategy.extract(this.currentUrlTree),\n urlAfterRedirects:
this.urlHandlingStrategy.extract(this.currentUrlTree),\n rawUrl: this.currentUrlTree,\n extras: {},\n

```

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resolve: null,\n    reject: null,\n    promise: Promise.resolve(true),\n    source: 'imperative',\n    restoredState:
null,\n    currentSnapshot: this.routerState.snapshot,\n    targetSnapshot: null,\n    currentRouterState:
this.routerState,\n    targetRouterState: null,\n    guards: { canActivateChecks: [], canActivateChecks: [] },\n
guardsResult: null,\n    });\n    this.navigations = this.setupNavigations(this.transitions);\n\n    this.processNavigations();\n  }\n\n  private setupNavigations(transitions: Observable<NavigationTransition>):\n    Observable<NavigationTransition> {\n    const eventsSubject = (this.events as Subject<Event>);\n    return
transitions.pipe(\n      filter(t => t.id !== 0),\n      // Extract URL\n      map(t =>\n
({ ...t, extractedUrl: this.urlHandlingStrategy.extract(t.rawUrl) }) as\n      NavigationTransition)),\n      \n      // Using switchMap so we cancel executing navigations when a new one comes in\n      switchMap(t => {\n
        let completed = false;\n        let errored = false;\n        return of(t).pipe(\n          // Store the
Navigation object\n          tap(t => {\n            this.currentNavigation = {\n              id: t.id,\n
              initialUrl: t.currentRawUrl,\n              extractedUrl: t.extractedUrl,\n              trigger:
t.source,\n
              extras: t.extras,\n              previousNavigation: this.lastSuccessfulNavigation ?\n
{ ...this.lastSuccessfulNavigation, previousNavigation: null } :\n              null\n            });\n
          }),\n          switchMap(t => {\n            const urlTransition = !this.navigated ||\n
t.extractedUrl.toString() !== this.browserUrlTree.toString();\n            const processCurrentUrl =\n
(this.onSameUrlNavigation === 'reload' ? true : urlTransition) &&\n
this.urlHandlingStrategy.shouldProcessUrl(t.rawUrl);\n            if (processCurrentUrl) {\n
              return of(t).pipe(\n                // Fire NavigationStart event\n                switchMap(t => {\n
                  const transition = this.transitions.getValue();\n
                  eventsSubject.next(new NavigationStart(\n                    t.id, this.serializeUrl(t.extractedUrl),\n
t.source,\n                    t.restoredState));\n                    if (transition !== this.transitions.getValue())\n
{\n                      return EMPTY;\n                    }\n                    return [t];\n                  })),\n                  \n                  // This delay is required to match old behavior that forced navigation\n                  //
to always be async\n                  switchMap(t => Promise.resolve(t)),\n                  \n                  //
ApplyRedirects\n                  applyRedirects(\n                    this.ngModule.injector, this.configLoader,\n
this.urlSerializer,\n                    this.config),\n                  \n                  // Update the currentNavigation\n
                  tap(t\n                    => {\n                      this.currentNavigation = {\n                        ...this.currentNavigation!,\n
                        finalUrl: t.urlAfterRedirects,\n                        });\n                      // Recognize\n
                      recognize(\n                        this.rootComponentType, this.config,\n                        (url)\n                        => this.serializeUrl(url), this.paramsInheritanceStrategy,\n                        this.relativeLinkResolution),\n                      \n                      // Update URL if in `eager` update mode\n                      tap(t => {\n                        if
(this.urlUpdateStrategy === 'eager') {\n                          if (!t.extras.skipLocationChange) {\n
                            this.setBrowserUrl(\n                              t.urlAfterRedirects, !!t.extras.replaceUrl, t.id,\n
                              t.extras.state);\n                              }\n                              this.browserUrlTree =
t.urlAfterRedirects;\n                              }\n                              // Fire RoutesRecognized\n
                              tap(t => {\n                                const routesRecognized = new RoutesRecognized(\n
                                  t.id, this.serializeUrl(t.extractedUrl),\n                                  this.serializeUrl(t.urlAfterRedirects),\n
t.targetSnapshot!);\n                                eventsSubject.next(routesRecognized);\n                                }));\n
                            } else {\n                              const processPreviousUrl = urlTransition && this.rawUrlTree &&\n
this.urlHandlingStrategy.shouldProcessUrl(this.rawUrlTree);\n                              /* When the current URL shouldn't be
processed, but the previous one was,\n
                                * we handle this "error condition" by navigating to the previously\n
                                * successful URL,\n
                                but leaving the URL intact.*\n
                                if (processPreviousUrl) {\n                                  const { id, extractedUrl,\n
source, restoredState, extras } = t;\n                                  const navStart = new NavigationStart(\n                                    id,\n
this.serializeUrl(extractedUrl), source, restoredState);\n                                  eventsSubject.next(navStart);\n

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const targetSnapshot =\n
this.rootComponentType).snapshot;\n\n
targetSnapshot,\n
skipLocationChange: false, replaceUrl: false);\n\n
} else {\n
    /* When neither the current or previous URL can be processed, do nothing\n
    * other than update router's internal reference to the current \"settled\" URL. This way\n
    the next navigation will be coming from the current URL\n
    this.rawUrlTree = t.rawUrl;\n
    this.browserUrlTree = t.urlAfterRedirects;\n
    t.resolve(null);\n
    return EMPTY;\n
    // Before Preactivation\n
    switchTap(t => {\n
    targetSnapshot,\n
    id: navigationId,\n
    rawUrl: rawUrlTree,\n
    extras: {skipLocationChange, replaceUrl}\n
    this.hooks.beforePreactivation(targetSnapshot!,\n
    rawUrlTree,\n
    skipLocationChange: !!skipLocationChange,\n
    !!replaceUrl,\n
    const guardsStart = new GuardsCheckStart(\n
    this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!);\n
    })),\n
    checkGuards(this.ngModule.injector, (evt: Event) => this.triggerEvent(evt)),\n
    if (isUrlTree(t.guardsResult)) {\n
        `Redirecting to \"${this.serializeUrl(t.guardsResult)}\"`);\n
        t.guardsResult;\n
        throw error;\n
        const guardsEnd = new GuardsCheckEnd(\n
        this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!,\n
        this.triggerEvent(guardsEnd);\n
        filter(t => {\n
        const navCancel =\n
        eventsSubject.next(navCancel);\n
        }\n
        return true;\n
        const navCancel = new NavigationCancel(t.id, this.serializeUrl(t.extractedUrl), \"\");\n
        eventsSubject.next(navCancel);\n
        t.resolve(false);\n
        return false;\n
        // --- RESOLVE ---\n
        if (t.guards.canActivateChecks.length) {\n
            return of(t).pipe(\n
            tap(t => {\n
            this.serializeUrl(t.extractedUrl),\n
            this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!);\n
            this.triggerEvent(resolveStart);\n
            let dataResolved = false;\n
            this.paramsInheritanceStrategy, this.ngModule.injector),\n
            next: () => dataResolved = true,\n
            complete: () => {\n
            if\n
            (!dataResolved) {\n
            t.id, this.serializeUrl(t.extractedUrl),\n
            `At least one route resolver didn't emit any\n
            value.`);\n
            eventsSubject.next(navCancel);\n
            t.resolve(false);\n
            });\n
            );\n
            tap(t => {\n
            const resolveEnd = new\n
            ResolveEnd(\n
            t.id, this.serializeUrl(t.extractedUrl),\n
            this.serializeUrl(t.urlAfterRedirects), t.targetSnapshot!);\n
            this.triggerEvent(resolveEnd);\n
            }));\n
            }\n
            return undefined;\n
            })),\n
            // --- AFTER

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PREACTIVATION ---\n          switchTap((t: NavigationTransition) => {\n          const {\n
targetSnapshot,\n          id: navigationId,\n          extractedUrl: appliedUrlTree,\n
rawUrl: rawUrlTree,\n          extras: {skipLocationChange, replaceUrl}\n          } = t;\n
return this.hooks.afterPreactivation(targetSnapshot!, {\n          navigationId,\n
appliedUrlTree,\n          rawUrlTree,\n          skipLocationChange: !!skipLocationChange,\n
replaceUrl: !!replaceUrl,\n          });\n          });\n          map((t: NavigationTransition)
=> {\n          const targetRouterState = createRouterState(\n          this.routeReuseStrategy,
t.targetSnapshot!, t.currentRouterState);\n          return ({...t, targetRouterState});\n          })),\n
/* Once here, we are about to activate synchronously. The assumption is this\n          will succeed, and
user code may read from the Router service. Therefore\n
before activation, we need to update router properties storing the current\n          URL and
the RouterState, as well as updated the browser URL. All this should\n          happen *before* activating.
*/\n          tap((t: NavigationTransition) => {\n          this.currentUrlTree = t.urlAfterRedirects;\n
this.rawUrlTree =\n          this.urlHandlingStrategy.merge(this.currentUrlTree, t.rawUrl);\n
(this as {routerState: RouterState}).routerState = t.targetRouterState!;\n          if
(this.urlUpdateStrategy === 'deferred') {\n          if (!t.extras.skipLocationChange) {\n
this.setBrowserUrl(\n          this.rawUrlTree, !!t.extras.replaceUrl, t.id, t.extras.state);\n
}\n          this.browserUrlTree = t.urlAfterRedirects;\n
}\n          });\n          activateRoutes(\n          this.rootContexts,
this.routeReuseStrategy,\n          (evt: Event) => this.triggerEvent(evt)),\n          tap({\n
next() {\n          completed = true;\n          },\n          complete() {\n
completed = true;\n          }},\n          finalize() => {\n          /* When the
navigation stream finishes either through error or success, we\n          * set the `completed` or `errored` flag.
However, there are some situations\n          * where we could get here without either of those being set. For
instance, a\n          * redirect during NavigationStart. Therefore, this is a catch-all to make\n          *
sure the NavigationCancel\n
* event is fired when a navigation gets cancelled but not caught by other\n          * means. */\n
if (!completed && !errored) {\n          // Must reset to current URL tree here to ensure history.state is set.
On a\n          // fresh page load, if a new navigation comes in before a successful\n          //
navigation completes, there will be nothing in\n          // history.state.navigationId. This can cause sync
problems with AngularJS\n          // sync code which looks for a value here in order to determine whether
or\n          // not to handle a given popstate event or to leave it to the Angular\n          // router.\n
this.resetUrlToCurrentUrlTree();\n          const navCancel = new NavigationCancel(\n
t.id, this.serializeUrl(t.extractedUrl),\n
`Navigation ID ${t.id} is not equal to the current navigation id ${\n          this.navigationId}`);\n
eventsSubject.next(navCancel);\n          t.resolve(false);\n          }\n          //
currentNavigation should always be reset to null here. If navigation was\n          // successful,
lastSuccessfulTransition will have already been set. Therefore\n          // we can safely set currentNavigation
to null here.\n          this.currentNavigation = null;\n          }},\n          catchError((e) => {\n
errored = true;\n          /* This error type is issued during Redirect, and is handled as a\n
* cancellation rather than an error. */\n          if (isNavigationCancelingError(e)) {\n          const
redirecting = isUrlTree(e.url);\n
if (!redirecting) {\n          // Set property only if we're not redirecting. If we landed on a page and\n
// redirect to `^` route, the new navigation is going to see the `^`\n          // isn't a change from the
default currentUrlTree and won't navigate.\n          // This is only applicable with initial navigation, so
setting\n          // `navigated` only when not redirecting resolves this scenario.\n
this.navigated = true;\n          this.resetStateAndUrl(t.currentRouterState, t.currentUrlTree, t.rawUrl);\n
}\n          const navCancel = new NavigationCancel(\n          t.id,

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this.serializeUrl(t.extractedUrl), e.message);\n                eventsSubject.next(navCancel);\n                //\n
When redirecting, we need to delay resolving the navigation\n
    // promise and push it to the redirect navigation\n                if (!redirecting) {\n
t.resolve(false);\n                } else {\n                // setTimeout is required so this navigation finishes\n
with\n                // the return EMPTY below. If it isn't allowed to finish\n                // processing, there\n
can be multiple navigations to the same\n                // URL.\n                setTimeout(() => {\n
    const mergedTree =\n                this.urlHandlingStrategy.merge(e.url, this.rawUrlTree);\n
    const extras = {\n                skipLocationChange: t.extras.skipLocationChange,\n
replaceUrl: this.urlUpdateStrategy === 'eager'\n                };\n                return\n
this.scheduleNavigation(\n
    mergedTree, 'imperative', null, extras,\n                { resolve: t.resolve, reject: t.reject, promise:\n
t.promise });\n                }, 0);\n                }\n                /* All other errors should reset to the\n
router's internal URL reference to\n                * the pre-error state. *\n                } else {\n
this.resetStateAndUrl(t.currentRouterState, t.currentUrlTree, t.rawUrl);\n                const navError =\n
    new NavigationError(t.id, this.serializeUrl(t.extractedUrl), e);\n
eventsSubject.next(navError);\n                try {\n                t.resolve(this.errorHandler(e));\n
    } catch (ee) {\n                t.reject(ee);\n                }\n                return EMPTY;\n
    });\n                // TODO(jasonaden):\n
remove cast once g3 is on updated TypeScript\n                ))) as any as Observable<NavigationTransition>;\n                }\n                /**\n
    * @internal\n
    * TODO: this should be removed once the constructor of the router made internal\n
    */\n
resetRootComponentType(rootComponentType: Type<any>): void {\n    this.rootComponentType =\n
rootComponentType;\n    // TODO: vsavkin router 4.0 should make the root component set to null\n    // this will\n
simplify the lifecycle of the router.\n    this.routerState.root.component = this.rootComponentType;\n    }\n    private\n
getTransition(): NavigationTransition {\n    const transition = this.transitions.value;\n    // This value needs to be set.\n
Other values such as extractedUrl are set on initial navigation\n    // but the urlAfterRedirects may not get set if we\n
aren't processing the new URL *and* not\n    // processing the previous URL.\n    transition.urlAfterRedirects =\n
this.browserUrlTree;\n    return transition;\n    }\n    private setTransition(t:\n
Partial<NavigationTransition>): void {\n    this.transitions.next({...this.getTransition(), ...t});\n    }\n    /**\n
    * Sets\n
up the location change listener and performs the initial navigation.\n    */\n    initialNavigation(): void {\n
this.setUpLocationChangeListener();\n    if (this.navigationId === 0) {\n
this.navigateByUrl(this.location.path(true), {replaceUrl: true});\n    }\n    }\n    /**\n
    * Sets up the location change\n
listener. This listener detects navigations triggered from outside\n    * the Router (the browser back/forward buttons,\n
for example) and schedules a corresponding Router\n    * navigation so that the correct events, guards, etc. are\n
triggered.\n    */\n    setUpLocationChangeListener(): void {\n    // Don't need to use Zone.wrap any more, because\n
zone.js\n    // already patch onPopState, so location change callback will\n    // run into ngZone\n    if\n
(!this.locationSubscription) {\n    this.locationSubscription = this.location.subscribe(event => {\n
        const currentChange = this.extractLocationChangeInfoFromEvent(event);\n        if\n
(this.shouldScheduleNavigation(this.lastLocationChangeInfo, currentChange)) {\n        // The `setTimeout` was\n
added in #12160 and is likely to support Angular/AngularJS\n        // hybrid apps.\n        setTimeout(() => {\n
            const {source, state, urlTree} = currentChange;\n            const extras: NavigationExtras = {replaceUrl: true};\n
            if (state) {\n                const stateCopy = {...state} as Partial<RestoredState>;\n                delete\n
stateCopy.navigationId;\n                if (Object.keys(stateCopy).length !== 0) {\n                    extras.state = stateCopy;\n
                }\n                }\n                this.scheduleNavigation(urlTree, source, state, extras);\n                }, 0);\n                }\n
this.lastLocationChangeInfo = currentChange;\n                });\n                }\n                }\n                /** Extracts router-related information from a\n
`PopStateEvent`. *\n
    private extractLocationChangeInfoFromEvent(change:\n
PopStateEvent): LocationChangeInfo {\n    return {\n        source: change['type'] === 'popstate' ? 'popstate':\n
'hashchange',\n        urlTree: this.parseUrl(change['url']!),\n        // Navigations coming from Angular router have a\n
navigationId state\n        // property. When this exists, restore the state.\n        state: change.state?.navigationId ?

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change.state : null,\n    transitionId: this.getTransition().id\n  } as const;\n }\n\n /**\n * Determines whether
two events triggered by the Location subscription are due to the same\n * navigation. The location subscription can
fire two events (popstate and hashchange) for a\n * single navigation. The second one should be ignored, that is,
we should not schedule another\n * navigation in the Router.\n */\n private shouldScheduleNavigation(previous:
LocationChangeInfo|null, current: LocationChangeInfo):\n    boolean {\n    if (!previous) return true;\n    const
sameDestination = current.urlTree.toString()\n    === previous.urlTree.toString();\n    const eventsOccurredAtSameTime = current.transitionId ===
previous.transitionId;\n    if (!eventsOccurredAtSameTime || !sameDestination) {\n    return true;\n    }\n\n    if
((current.source === 'hashchange' && previous.source === 'popstate') ||\n    (current.source === 'popstate' &&
previous.source === 'hashchange')) {\n    return false;\n    }\n\n    return true;\n    }\n\n /** The current URL. *\n get url(): string {\n    return this.serializeUrl(this.currentUrlTree);\n    }\n\n /** The current Navigation object if one
exists *\n getCurrentNavigation(): Navigation|null {\n    return this.currentNavigation;\n    }\n\n /** @internal *\n triggerEvent(event: Event): void {\n    (this.events as Subject<Event>).next(event);\n    }\n\n /**\n * Resets the
route configuration used for navigation and generating links.\n */\n * @param config The route array for the new
configuration.\n */\n * @usageNotes\n */\n * ```\n * router.resetConfig([\n
  * { path: 'team/:id', component: TeamCmp, children: [\n    * { path: 'simple', component: SimpleCmp },\n    * {
path: 'user/:name', component: UserCmp }\n    * ]\n    * }];\n * ```\n */\n * router.resetConfig(config: Routes): void {\n
validateConfig(config);\n    this.config = config.map(standardizeConfig);\n    this.navigated = false;\n
this.lastSuccessfulId = -1;\n    }\n\n /** @nodoc *\n ngOnDestroy(): void {\n    this.dispose();\n    }\n\n /**
Disposes of the router. *\n dispose(): void {\n    if (this.locationSubscription) {\n
this.locationSubscription.unsubscribe();\n    this.locationSubscription = undefined;\n    }\n    }\n\n /**\n * Appends
URL segments to the current URL tree to create a new URL tree.\n */\n * @param commands An array of URL
fragments with which to construct the new URL tree.\n */\n * If the path is static, can be the literal URL string. For a
dynamic path, pass an array of path\n * segments, followed by the parameters for
each segment.\n */\n * The fragments are applied to the current URL tree or the one provided in the `relativeTo`\n *
property of the options object, if supplied.\n */\n * @param navigationExtras Options that control the navigation
strategy.\n */\n * @returns The new URL tree.\n */\n * @usageNotes\n */\n * ```\n * // create /team/33/user/11\n
* router.createUrlTree(['/team', 33, 'user', 11]);\n * \n * // create /team/33;expand=true/user/11\n
* router.createUrlTree(['/team', 33, {expand: true}, 'user', 11]);\n * \n * // you can collapse static segments like this
(this works only with the first passed-in value):\n * router.createUrlTree(['/team/33/user', userId]);\n * \n * // If
the first segment can contain slashes, and you do not want the router to split it,\n * // you can do the following:\n
* router.createUrlTree([{'segmentPath': 'one/two'}]);\n * \n * // create /team/33/(user/11/right:chat)\n
* router.createUrlTree(['/team', 33, {outlets: {primary: 'user/11',
right: 'chat'}}]);\n * \n * // remove the right secondary node\n * router.createUrlTree(['/team', 33, {outlets:
{primary: 'user/11', right: null}}]);\n * \n * // assuming the current url is `team/33/user/11` and the route points to
`user/11`\n * \n * // navigate to /team/33/user/11/details\n * router.createUrlTree(['/details'], {relativeTo:
route});\n * \n * // navigate to /team/33/user/22\n * router.createUrlTree(['../22'], {relativeTo: route});\n * \n *
// navigate to /team/44/user/22\n * router.createUrlTree(['../../team/44/user/22'], {relativeTo: route});\n * ```\n
*\n */\n * createUrlTree(commands: any[], navigationExtras: UrlCreationOptions = {}): UrlTree {\n    const {relativeTo,
queryParams, fragment, queryParamsHandling, preserveFragment} =\n    navigationExtras;\n    const a =
relativeTo || this.routerState.root;\n    const f = preserveFragment ? this.currentUrlTree.fragment : fragment;\n    let
q: Params|null = null;\n    switch (queryParamsHandling)\n    {\n    case 'merge':\n    q = {...this.currentUrlTree.queryParams, ...queryParams};\n    break;\n    case
'preserve':\n    q = this.currentUrlTree.queryParams;\n    break;\n    default:\n    q = queryParams || null;\n    }\n
    if (q !== null) {\n    q = this.removeEmptyProps(q);\n    }\n    return createUrlTree(a, this.currentUrlTree,
commands, q!, f!);\n    }\n\n /**\n * Navigates to a view using an absolute route path.\n */\n * @param url An
absolute path for a defined route. The function does not apply any delta to the\n * current URL.\n */\n * @param
extras An object containing properties that modify the navigation strategy.\n */\n * @returns A Promise that

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resolves to 'true' when navigation succeeds,\n * to 'false' when navigation fails, or is rejected on error.\n *\n *
@usageNotes\n *\n * The following calls request navigation to an absolute path.\n *\n * ```\n *
router.navigateByUrl("/team/33/user/11");\n *\n * //
Navigate without updating the URL\n * router.navigateByUrl("/team/33/user/11", { skipLocationChange: true
});\n * ```\n *\n * @see [Routing and Navigation guide](guide/router)\n *\n * /\n navigateByUrl(url:
string|UrlTree, extras: NavigationBehaviorOptions = {\n   skipLocationChange: false\n }): Promise<boolean> {\n
if (typeof ngDevMode === 'undefined' ||\n   ngDevMode && this.isNgZoneEnabled &&
!NgZone.isInAngularZone()) {\n   this.console.warn(\n     `Navigation triggered outside Angular zone, did you
forget to call 'ngZone.run()'`);\n   }\n\n   const urlTree = isUrlTree(url) ? url : this.parseUrl(url);\n   const
mergedTree = this.urlHandlingStrategy.merge(urlTree, this.rawUrlTree);\n\n   return
this.scheduleNavigation(mergedTree, 'imperative', null, extras);\n   }\n\n   /**\n    * Navigate based on the provided
array of commands and a starting point.\n    * If no starting route is provided, the navigation is absolute.\n    *\n    *
@param commands An array
of URL fragments with which to construct the target URL.\n    * If the path is static, can be the literal URL string.
For a dynamic path, pass an array of path\n    * segments, followed by the parameters for each segment.\n    * The
fragments are applied to the current URL or the one provided in the `relativeTo` property\n    * of the options object,
if supplied.\n    * @param extras An options object that determines how the URL should be constructed or\n    *
interpreted.\n    *\n    * @returns A Promise that resolves to `true` when navigation succeeds, to `false` when
navigation\n    * fails,\n    * or is rejected on error.\n    *\n    * @usageNotes\n    *\n    * The following calls request
navigation to a dynamic route path relative to the current URL.\n    *\n    * ```\n    * router.navigate(['team', 33, 'user',
11], {relativeTo: route});\n    *\n    * // Navigate without updating the URL, overriding the default behavior\n    *
router.navigate(['team', 33, 'user', 11], {relativeTo: route,
skipLocationChange: true});\n    * ```\n    *\n    * @see [Routing and Navigation guide](guide/router)\n    *\n    * /\n
navigate(commands: any[], extras: NavigationExtras = {skipLocationChange: false});\n    Promise<boolean> {\n
validateCommands(commands);\n    return this.navigateByUrl(this.createUrlTree(commands, extras), extras);\n
}\n\n    /** Serializes a `UrlTree` into a string *\n    serializeUrl(url: UrlTree): string {\n    return
this.urlSerializer.serialize(url);\n    }\n\n    /** Parses a string into a `UrlTree` *\n    parseUrl(url: string): UrlTree {\n
let urlTree: UrlTree;\n    try {\n    urlTree = this.urlSerializer.parse(url);\n    } catch (e) {\n    urlTree =
this.malformedUriErrorHandler(e, this.urlSerializer, url);\n    }\n    return urlTree;\n    }\n\n    /** Returns whether the
url is activated *\n    isActive(url: string|UrlTree, exact: boolean): boolean {\n    if (isUrlTree(url)) {\n    return
containsTree(this.currentUrlTree, url, exact);\n    }\n\n    const urlTree
= this.parseUrl(url);\n    return containsTree(this.currentUrlTree, urlTree, exact);\n    }\n\n    private
removeEmptyProps(params: Params): Params {\n    return Object.keys(params).reduce((result: Params, key: string)
=> {\n    const value: any = params[key];\n    if (value !== null && value !== undefined) {\n    result[key] =
value;\n    }\n    return result;\n    }, {});\n    }\n\n    private processNavigations(): void {\n
this.navigations.subscribe(\n    t => {\n    this.navigated = true;\n    this.lastSuccessfulId = t.id;\n
(this.events as Subject<Event>)\n    .next(new NavigationEnd(\n    t.id,
this.serializeUrl(t.extractedUrl), this.serializeUrl(this.currentUrlTree));\n    this.lastSuccessfulNavigation =
this.currentNavigation;\n    this.currentNavigation = null;\n    t.resolve(true);\n    },\n    e => {\n
this.console.warn(`Unhandled Navigation Error: `);\n    });\n    }\n\n    private
scheduleNavigation(\n    rawUrl: UrlTree, source: NavigationTrigger, restoredState: RestoredState|null,\n    extras:
NavigationExtras,\n    priorPromise?: {resolve: any, reject: any, promise: Promise<boolean>});\n    Promise<boolean> {\n
// * Imperative navigations (router.navigate) might trigger additional navigations to the
same\n    // URL via a popstate event and the locationChangeListener. We should skip these duplicate\n    // navs.
Duplicates may also be triggered by attempts to sync AngularJS and Angular router\n    // states.\n    // * Imperative
navigations can be cancelled by router guards, meaning the URL won't change. If\n    // the user follows that with a
navigation using the back/forward button or manual URL change,\n    // the destination may be the same as the
previous imperative attempt. We should not skip\n    // these navigations because it's a separate case from the one

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above -- it's not a duplicate\n // navigation.\n const lastNavigation
= this.getTransition();\n // We don't want to skip duplicate successful navs if they're imperative because\n //
onSameUrlNavigation could be 'reload' (so the duplicate is intended).\n const browserNavPrecededByRouterNav
=\n source !== 'imperative' && lastNavigation?.source === 'imperative';\n const lastNavigationSucceeded =
this.lastSuccessfulId === lastNavigation.id;\n // If the last navigation succeeded or is in flight, we can use the
rawUrl as the comparison.\n // However, if it failed, we should compare to the final result (urlAfterRedirects).\n
const lastNavigationUrl = (lastNavigationSucceeded || this.currentNavigation) ?\n lastNavigation.rawUrl :\n lastNavigation.urlAfterRedirects;\n const duplicateNav = lastNavigationUrl.toString() === rawUrl.toString();\n
if (browserNavPrecededByRouterNav && duplicateNav) {\n return Promise.resolve(true); // return value is not
used\n }\n\n let resolve: any;\n let reject: any;\n
let promise: Promise<boolean>;\n if (priorPromise) {\n resolve = priorPromise.resolve;\n reject =
priorPromise.reject;\n promise = priorPromise.promise;\n\n } else {\n promise = new
Promise<boolean>((res, rej) => {\n resolve = res;\n reject = rej;\n });\n }\n\n const id =
++this.navigationId;\n this.setTransition({\n id,\n source,\n restoredState,\n currentUrlTree:
this.currentUrlTree,\n currentRawUrl: this.rawUrlTree,\n rawUrl,\n extras,\n resolve,\n reject,\n
promise,\n currentSnapshot: this.routerState.snapshot,\n currentRouterState: this.routerState\n });\n\n //
Make sure that the error is propagated even though `processNavigations` catch\n // handler does not rethrow\n
return promise.catch((e: any) => {\n return Promise.reject(e);\n });\n }\n\n private setBrowserUrl(\n url:
UrlTree, replaceUrl: boolean, id: number, state?: {[key: string]:
any}) {\n const path = this.urlSerializer.serialize(url);\n state = state || {};\n if
(this.location.isCurrentPathEqualTo(path) || replaceUrl) {\n // TODO(jasonaden): Remove first `navigationId`\n
and rely on `ng` namespace.\n this.location.replaceState(path, "", {...state, navigationId: id});\n } else {\n
this.location.go(path, "", {...state, navigationId: id});\n }\n }\n\n private resetStateAndUrl(storedState:
RouterState, storedUrl: UrlTree, rawUrl: UrlTree): void {\n (this as {routerState: RouterState}).routerState =
storedState;\n this.currentUrlTree = storedUrl;\n this.rawUrlTree =
this.urlHandlingStrategy.merge(this.currentUrlTree, rawUrl);\n this.resetUrlToCurrentUrlTree();\n }\n\n private
resetUrlToCurrentUrlTree(): void {\n this.location.replaceState(\n this.urlSerializer.serialize(this.rawUrlTree),
"", {navigationId: this.lastSuccessfulId});\n }\n\n\nfunction validateCommands(commands: string[]): void {\n for
(let i =
0; i < commands.length; i++) {\n const cmd = commands[i];\n if (cmd == null) {\n throw new Error(`The
requested path contains ${cmd} segment at index ${i}`);\n }\n }\n\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {LocationStrategy} from
'@angular/common';\nimport {Attribute, Directive, ElementRef, HostBinding, HostListener, Input, OnChanges,
OnDestroy, Renderer2, SimpleChanges} from '@angular/core';\nimport {Subject, Subscription} from
'rxjs';\n\nimport {QueryParamsHandling} from '../config';\nimport {Event, NavigationEnd} from '../events';\nimport
{Router} from '../router';\nimport {ActivatedRoute} from '../router_state';\nimport {Params} from
'../shared';\nimport {UrlTree} from '../url_tree';\n\n\n/**\n * @description\n *\n * When applied to an element in a
template, makes that element a link\n
* that initiates navigation to a route. Navigation opens one or more routed components\n * in one or more `<router-
outlet>` locations on the page.\n *\n * Given a route configuration `[{ path: 'user/:name', component: UserCmp
}]`,\n * the following creates a static link to the route:\n *\n * <a routerLink="/user/bob">link to user
component</a>\n *\n * You can use dynamic values to generate the link.\n * For a dynamic link, pass an array of
path segments,\n * followed by the params for each segment.\n * For example, `['/team', teamId, 'user', userName,
{details: true}]`\n * generates a link to `/team/11/user/bob;details=true`.\n *\n * Multiple static segments can be
merged into one term and combined with dynamic segments.\n * For example, `['/team/11/user', userName,
{details: true}]`\n *\n * The input that you provide to the link is treated as a delta to the current URL.\n * For
instance, suppose the current URL is `/user/(box//aux:team)`.\n * The link `<a

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[routerLink]="['/user/jim']">Jim</a>`
creates the URL\n * `/user/(jim//aux:team)`.\n * See { @link Router#createUrlTree createUrlTree } for more
information.\n * \n * @usageNotes\n * \n * You can use absolute or relative paths in a link, set query parameters,\n * control how parameters are handled, and keep a history of navigation states.\n * \n * ### Relative link paths\n * \n *
The first segment name can be prepended with `^`, `./`, or `../`.\n * \n * If the first segment begins with `^`, the router
looks up the route from the root of the\n * app.\n * \n * If the first segment begins with `./`, or doesn't begin with a
slash, the router\n * looks in the children of the current activated route.\n * \n * If the first segment begins with `../`,
the router goes up one level in the route tree.\n * \n * ### Setting and handling query params and fragments\n * \n *
The following link adds a query parameter and a fragment to the generated URL:\n * \n * ```\n * <a
[routerLink]="['/user/bob']" [queryParams]="{debug: true}" fragment="education">\n
* link to user component\n * </a>\n * ```\n * By default, the directive constructs the new URL using the given
query parameters.\n * The example generates the link: `/user/bob?debug=true#education`.\n * \n * You can instruct
the directive to handle query parameters differently\n * by specifying the `queryParamsHandling` option in the
link.\n * Allowed values are:\n * \n * - `merge`: Merge the given `queryParams` into the current query params.\n *
- `preserve`: Preserve the current query params.\n * \n * For example:\n * \n * ```\n * <a
[routerLink]="['/user/bob']" [queryParams]="{debug: true}" queryParamsHandling="merge">\n * link to user
component\n * </a>\n * ```\n * \n * See { @link UrlCreationOptions.queryParamsHandling
UrlCreationOptions#queryParamsHandling }.\n * \n * ### Preserving navigation history\n * \n * You can provide a
`state` value to be persisted to the browser's\n * [History.state` property](https://developer.mozilla.org/en-
US/docs/Web/API/History#Properties).\n
* For example:\n * \n * ```\n * <a [routerLink]="['/user/bob']" [state]="{tracingId: 123}">\n * link to user
component\n * </a>\n * ```\n * \n * Use { @link Router.getCurrentNavigation() Router#getCurrentNavigation } to
retrieve a saved\n * navigation-state value. For example, to capture the `tracingId` during the `NavigationStart`\n *
event:\n * \n * ```\n * // Get NavigationStart events\n * router.events.pipe(filter(e => e instanceof
NavigationStart)).subscribe(e => {\n *   const navigation = router.getCurrentNavigation();\n *
tracingService.trace({id: navigation.extras.state.tracingId});\n * });\n * ```\n * \n * @ngModule RouterModule\n * \n
* @publicApi\n * \n * @Directive({selector: 'not(a):not(area)[routerLink]'})\n * \n * export class RouterLink implements
OnChanges {\n *   /**\n *    * Passed to { @link Router#createUrlTree Router#createUrlTree } as part of the\n *
`UrlCreationOptions`.\n *    * @see { @link UrlCreationOptions#queryParams UrlCreationOptions#queryParams }\n *
    * @see { @link Router#createUrlTree Router#createUrlTree }\n *    * \n *    * @Input() queryParams?: Params|null;\n *
    * Passed to { @link Router#createUrlTree Router#createUrlTree } as part of the\n *    * `UrlCreationOptions`.\n *
    * @see { @link UrlCreationOptions#fragment UrlCreationOptions#fragment }\n *    * @see { @link
Router#createUrlTree Router#createUrlTree }\n *    * \n *    * @Input() fragment?: string;\n *    * Passed to { @link
Router#createUrlTree Router#createUrlTree } as part of the\n *    * `UrlCreationOptions`.\n *    * @see { @link
UrlCreationOptions#queryParamsHandling UrlCreationOptions#queryParamsHandling }\n *    * @see { @link
Router#createUrlTree Router#createUrlTree }\n *    * \n *    * @Input() queryParamsHandling?:
QueryParamsHandling|null;\n *    * Passed to { @link Router#createUrlTree Router#createUrlTree } as part of
the\n *    * `UrlCreationOptions`.\n *    * @see { @link UrlCreationOptions#preserveFragment
UrlCreationOptions#preserveFragment }\n *    * @see { @link Router#createUrlTree Router#createUrlTree }\n *
    * \n *    * // TODO(issue/24571): remove '!'.\n *    * @Input() preserveFragment!: boolean;\n *    * Passed to { @link
Router#navigateByUrl Router#navigateByUrl } as part of the\n *    * `NavigationBehaviorOptions`.\n *    * @see { @link
NavigationBehaviorOptions#skipLocationChange NavigationBehaviorOptions#skipLocationChange }\n *    * @see
{ @link Router#navigateByUrl Router#navigateByUrl }\n *    * \n *    * // TODO(issue/24571): remove '!'.\n *    * @Input()
skipLocationChange!: boolean;\n *    * Passed to { @link Router#navigateByUrl Router#navigateByUrl } as part
of the\n *    * `NavigationBehaviorOptions`.\n *    * @see { @link NavigationBehaviorOptions#replaceUrl
NavigationBehaviorOptions#replaceUrl }\n *    * @see { @link Router#navigateByUrl Router#navigateByUrl }\n *
    * \n *    * // TODO(issue/24571): remove '!'.\n *    * @Input() replaceUrl!: boolean;\n *    * Passed to { @link
Router#navigateByUrl Router#navigateByUrl } as part of the\n *    * `NavigationBehaviorOptions`.\n *    * @see { @link
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NavigationBehaviorOptions#state NavigationBehaviorOptions#state}}\n
  * @see {@link Router#navigateByUrl Router#navigateByUrl}\n  * \n @Input() state?: {[k: string]: any};\n
private commands: any[] = [];\n private preserve!: boolean;\n\n /** @internal */\n ngOnChanges = new
Subject<RouterLink>();\n\n constructor(\n   private router: Router, private route: ActivatedRoute,\n   @Attribute('tabindex') tabIndex: string, renderer: Renderer2, el: ElementRef) {\n   if (tabIndex == null) {\n
renderer.setAttribute(el.nativeElement, 'tabindex', '0');\n   }\n }\n\n /** @nodoc */\n ngOnChanges(changes:
SimpleChanges) {\n   // This is subscribed to by `RouterLinkActive` so that it knows to update when there are
changes\n   // to the RouterLinks it's tracking.\n   this.onChanges.next(this);\n }\n\n /**\n  * Commands to pass to
{@link Router#createUrlTree Router#createUrlTree}.\n  * - **array**: commands to pass to {@link
Router#createUrlTree Router#createUrlTree}.\n  * - **string**: shorthand for array of
commands with just the string, i.e. `['/route']`\n  * - **null|undefined**: shorthand for an empty array of
commands, i.e. `[]`\n  * @see {@link Router#createUrlTree Router#createUrlTree}\n  * \n @Input()\n set
routerLink(commands: any[]|string|null|undefined) {\n   if (commands != null) {\n     this.commands =
Array.isArray(commands) ? commands : [commands];\n   } else {\n     this.commands = [];\n   }\n }\n\n /**
@nodoc */\n @HostListener('click')\n onClick(): boolean {\n   const extras = {\n     skipLocationChange:
attrBoolValue(this.skipLocationChange),\n     replaceUrl: attrBoolValue(this.replaceUrl),\n     state: this.state,\n
  };\n   this.router.navigateByUrl(this.urlTree, extras);\n   return true;\n }\n\n get urlTree(): UrlTree {\n   return
this.router.createUrlTree(this.commands, {\n     relativeTo: this.route,\n     queryParams: this.queryParams,\n
    fragment: this.fragment,\n     queryParamsHandling: this.queryParamsHandling,\n     preserveFragment:
attrBoolValue(this.preserveFragment),\n   });\n }\n\n\n /**\n  * @description\n  * \n * Lets you link to specific
routes in your app.\n  * \n * See `RouterLink` for more information.\n  * \n * @ngModule RouterModule\n  * \n *
@publicApi\n  * \n @Directive({ selector: 'a[routerLink],area[routerLink]'})\n export class RouterLinkWithHref
implements OnChanges, OnDestroy {\n   // TODO(issue/24571): remove '!'.\n   @HostBinding('attr.target') @Input()
target!: string;\n   /**\n    * Passed to {@link Router#createUrlTree Router#createUrlTree} as part of the\n    *
`UrlCreationOptions`.\n    * @see {@link UrlCreationOptions#queryParams UrlCreationOptions#queryParams}\n    *
@see {@link Router#createUrlTree Router#createUrlTree}\n    * \n @Input() queryParams?: Params|null;\n    /**\n
    * Passed to {@link Router#createUrlTree Router#createUrlTree} as part of the\n    * `UrlCreationOptions`.\n    *
@see {@link UrlCreationOptions#fragment UrlCreationOptions#fragment}\n    * @see {@link
Router#createUrlTree Router#createUrlTree}\n    * \n @Input() fragment?: string;\n    /**\n    * Passed to {@link Router#createUrlTree Router#createUrlTree} as
part of the\n    * `UrlCreationOptions`.\n    * @see {@link UrlCreationOptions#queryParamsHandling
UrlCreationOptions#queryParamsHandling}\n    * @see {@link Router#createUrlTree Router#createUrlTree}\n    * \n
@Input() queryParamsHandling?: QueryParamsHandling|null;\n    /**\n    * Passed to {@link
Router#createUrlTree Router#createUrlTree} as part of the\n    * `UrlCreationOptions`.\n    * @see {@link
UrlCreationOptions#preserveFragment UrlCreationOptions#preserveFragment}\n    * @see {@link
Router#createUrlTree Router#createUrlTree}\n    * \n @Input() // TODO(issue/24571): remove '!'.\n    @Input()
preserveFragment!: boolean;\n    /**\n    * Passed to {@link Router#navigateByUrl Router#navigateByUrl} as part of
the\n    * `NavigationBehaviorOptions`.\n    * @see {@link NavigationBehaviorOptions#skipLocationChange
NavigationBehaviorOptions#skipLocationChange}\n    * @see {@link
Router#navigateByUrl Router#navigateByUrl}\n    * \n @Input() // TODO(issue/24571): remove '!'.\n    @Input()
skipLocationChange!: boolean;\n    /**\n    * Passed to {@link Router#navigateByUrl Router#navigateByUrl} as part
of the\n    * `NavigationBehaviorOptions`.\n    * @see {@link NavigationBehaviorOptions#replaceUrl
NavigationBehaviorOptions#replaceUrl}\n    * @see {@link Router#navigateByUrl Router#navigateByUrl}\n    * \n
@Input() // TODO(issue/24571): remove '!'.\n    @Input() replaceUrl!: boolean;\n    /**\n    * Passed to {@link
Router#navigateByUrl Router#navigateByUrl} as part of the\n    * `NavigationBehaviorOptions`.\n    * @see {@link
NavigationBehaviorOptions#state NavigationBehaviorOptions#state}\n    * @see {@link Router#navigateByUrl
Router#navigateByUrl}\n    * \n @Input() state?: {[k: string]: any};\n private commands: any[] = [];\n private
subscription: Subscription;\n   // TODO(issue/24571): remove '!'.\n   private preserve!: boolean;\n\n   // the url

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remove('!.\n @HostBinding() href!: string;\n\n /** @internal *\n\n ngOnChanges = new
Subject<RouterLinkWithHref>();\n\n constructor(\n    private router: Router, private route: ActivatedRoute,\n    private locationStrategy: LocationStrategy) {\n    this.subscription = router.events.subscribe((s: Event) => {\n    if
(s instanceof NavigationEnd) {\n    this.updateTargetUrlAndHref();\n    }\n    });\n    }\n\n /**\n * Commands to
pass to { @link Router#createUrlTree Router#createUrlTree}.\n * - **array**: commands to pass to { @link
Router#createUrlTree Router#createUrlTree}.\n * - **string**: shorthand for array of commands with just the
string, i.e. `['/route']`\n * - **null|undefined**: shorthand for an empty array of commands, i.e. `[]`\n * @see
{ @link Router#createUrlTree Router#createUrlTree}\n *\n @Input()\n set routerLink(commands:
any[]|string|null|undefined) {\n    if (commands != null) {\n    this.commands = Array.isArray(commands)
? commands : [commands];\n    } else {\n    this.commands = [];\n    }\n    }\n\n /** @nodoc *\n
ngOnChanges(changes: SimpleChanges): any {\n    this.updateTargetUrlAndHref();\n    this.onChanges.next(this);\n
}\n\n /** @nodoc *\n ngOnDestroy(): any {\n    this.subscription.unsubscribe();\n    }\n\n /** @nodoc *\n
@HostListener(\n    'click',\n    ['$event.button', '$event.ctrlKey', '$event.shiftKey', '$event.altKey',
'$event.metaKey'])\n    onClick(button: number, ctrlKey: boolean, shiftKey: boolean, altKey: boolean, metaKey:
boolean):\n    boolean {\n    if (button !== 0 || ctrlKey || shiftKey || altKey || metaKey) {\n    return true;\n    }\n\n
if (typeof this.target === 'string' && this.target !== '_self') {\n    return true;\n    }\n\n    const extras = {\n
skipLocationChange: attrBoolValue(this.skipLocationChange),\n    replaceUrl: attrBoolValue(this.replaceUrl),\n
state: this.state\n    };\n    this.router.navigateByUrl(this.urlTree, extras);\n    return
false;\n    }\n\n    private updateTargetUrlAndHref(): void {\n    this.href =
this.locationStrategy.prepareExternalUrl(this.router.serializeUrl(this.urlTree));\n    }\n\n    get urlTree(): UrlTree {\n
return this.router.createUrlTree(this.commands, {\n    relativeTo: this.route,\n    queryParams: this.queryParams,\n
fragment: this.fragment,\n    queryParamsHandling: this.queryParamsHandling,\n    preserveFragment:
attrBoolValue(this.preserveFragment),\n    });\n    }\n\n\nfunction attrBoolValue(s: any): boolean {\n    return s === "
" || !s;\n    }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {AfterContentInit, ChangeDetectorRef, ContentChildren, Directive, ElementRef, Input, OnChanges,
OnDestroy, Optional, QueryList, Renderer2, SimpleChanges} from '@angular/core';\nimport {from, of,
Subscription} from 'rxjs';\nimport
{mergeAll} from 'rxjs/operators';\nimport {Event, NavigationEnd} from '../events';\nimport {Router} from
'../router';\n\nimport {RouterLink, RouterLinkWithHref} from './router_link';\n\n\n/**\n *\n * @description\n *\n *
Tracks whether the linked route of an element is currently active, and allows you\n * to specify one or more CSS
classes to add to the element when the linked route\n * is active.\n *\n * Use this directive to create a visual
distinction for elements associated with an active route.\n * For example, the following code highlights the word
"Bob" when the the router\n * activates the associated route:\n *\n * ```\n * <a routerLink="/user/bob"\n
routerLinkActive="active-link">Bob</a>\n * ```\n *\n * Whenever the URL is either '/user' or '/user/bob', the
"active-link" class is\n * added to the anchor tag. If the URL changes, the class is removed.\n *\n * You can set
more than one class using a space-separated string or an array.\n * For example:\n *\n * ```\n * <a routerLink="/user/bob" routerLinkActive="class1 class2">Bob</a>\n * <a routerLink="/user/bob"\n
[routerLinkActive]="['class1', 'class2']">Bob</a>\n * ```\n *\n * To add the classes only when the URL matches
the link exactly, add the option `exact: true`:\n *\n * ```\n * <a routerLink="/user/bob" routerLinkActive="active-
link" [routerLinkActiveOptions]="{exact: true}">Bob</a>\n * ```\n *\n * To directly check the `isActive`
status of the link, assign the `RouterLinkActive`\n * instance to a template variable.\n * For example, the following
checks the status without assigning any CSS classes:\n *\n * ```\n * <a routerLink="/user/bob" routerLinkActive
#rla="routerLinkActive">\n *   Bob {{ rla.isActive ? '(already open)' : '' }}\n * </a>\n * ```\n *\n * You can apply
the `RouterLinkActive` directive to an ancestor of linked elements.\n * For example, the following sets the active-
link class on the `<div>` parent tag\n * when the URL is either '/user/jim' or

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'/user/bob'.\n * \n * ```\n * <div routerLinkActive=\"active-link\" [routerLinkActiveOptions]=\"{exact: true}\">\n *
<a routerLink=\"/user/jim\">Jim</a>\n * <a routerLink=\"/user/bob\">Bob</a>\n * </div>\n * ```\n * \n *
@ngModule RouterModule\n * \n * @publicApi\n * \n @Directive({\n selector: '[routerLinkActive]',\n exportAs:
'routerLinkActive',\n })\n export class RouterLinkActive implements OnChanges, OnDestroy, AfterContentInit {\n
@ContentChildren(RouterLink, {descendants: true}) links!: QueryList<RouterLink>;\n
@ContentChildren(RouterLinkWithHref, {descendants: true})\n linksWithHrefs!:
QueryList<RouterLinkWithHref>;\n\n private classes: string[] = [];\n private routerEventsSubscription:
Subscription;\n private linkInputChangesSubscription?: Subscription;\n public readonly isActive: boolean =
false;\n\n @Input() routerLinkActiveOptions: {exact: boolean} = {exact: false};\n\n constructor(\n private
router: Router, private element: ElementRef, private renderer: Renderer2,\n
private readonly cdr: ChangeDetectorRef, @Optional() private link?: RouterLink,\n @Optional() private
linkWithHref?: RouterLinkWithHref) {\n this.routerEventsSubscription = router.events.subscribe((s: Event) =>
{\n if (s instanceof NavigationEnd) {\n this.update();\n }\n });\n }\n\n /** @nodoc */\n
ngAfterContentInit(): void {\n // `of(null)` is used to force subscribe body to execute once immediately (like
`startWith`).\n from([this.links.changes, this.linksWithHrefs.changes, of(null)])\n .pipe(mergeAll())\n
.subscribe(_ => {\n this.update();\n this.subscribeToEachLinkOnChanges();\n });\n }\n\n private
subscribeToEachLinkOnChanges() {\n this.linkInputChangesSubscription?.unsubscribe();\n const
allLinkChanges =\n [...this.links.toArray(), ...this.linksWithHrefs.toArray(), this.link, this.linkWithHref]\n
.filter((link): link is RouterLink|RouterLinkWithHref => !!link)\n
.map(link => link.onChanges);\n this.linkInputChangesSubscription =
from(allLinkChanges).pipe(mergeAll()).subscribe(link => {\n if (this.isActive !==
this.isLinkActive(this.router)(link)) {\n this.update();\n }\n });\n }\n\n @Input()\n set
routerLinkActive(data: string[]|string) {\n const classes = Array.isArray(data) ? data : data.split(' ');
this.classes =
classes.filter(c => !!c);\n }\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n
this.update();\n }\n\n /** @nodoc */\n ngOnDestroy(): void {\n this.routerEventsSubscription.unsubscribe();\n
this.linkInputChangesSubscription?.unsubscribe();\n }\n\n private update(): void {\n if (!this.links ||
!this.linksWithHrefs || !this.router.navigated) return;\n Promise.resolve().then(() => {\n const hasActiveLinks =
this.hasActiveLinks();\n if (this.isActive !== hasActiveLinks) {\n (this as any).isActive = hasActiveLinks;\n
this.cdr.markForCheck();\n
this.classes.forEach((c) => {\n if (hasActiveLinks) {\n
this.renderer.addClass(this.element.nativeElement, c);\n } else {\n
this.renderer.removeClass(this.element.nativeElement, c);\n }\n });\n }\n\n private
isLinkActive(router: Router): (link: (RouterLink|RouterLinkWithHref)) => boolean {\n return (link:
RouterLink|RouterLinkWithHref) =>\n router.isActive(link.urlTree, this.routerLinkActiveOptions.exact);\n
}\n\n private hasActiveLinks(): boolean {\n const isActiveCheckFn = this.isLinkActive(this.router);\n return
this.link && isActiveCheckFn(this.link) ||\n this.linkWithHref && isActiveCheckFn(this.linkWithHref) ||\n
this.links.some(isActiveCheckFn) || this.linksWithHrefs.some(isActiveCheckFn);\n }\n }\n\n", /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {Attribute, ChangeDetectorRef,
ComponentFactoryResolver, ComponentRef, Directive, EventEmitter, Injector, OnDestroy, OnInit, Output,
ViewContainerRef} from '@angular/core';\n\nimport {Data} from './config';\n\nimport {ChildrenOutletContexts}
from './router_outlet_context';\n\nimport {ActivatedRoute} from './router_state';\n\nimport {PRIMARY_OUTLET}
from './shared';\n\n/**\n * @description\n * \n * Acts as a placeholder that Angular dynamically fills based on the
current router state.\n * \n * Each outlet can have a unique name, determined by the optional `name` attribute.\n *
The name cannot be set or changed dynamically. If not set, default value is `primary`.\n * \n * ```\n * <router-
outlet></router-outlet>\n * <router-outlet name='left'></router-outlet>\n * <router-outlet name='right'></router-
outlet>\n * ```\n * \n * Named outlets can be the targets of secondary routes.\n * The `Route` object for a secondary

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route has an

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`outlet` property to identify the target outlet:\n *\n * `{path: <base-path>, component: <component>, outlet:\n <target_outlet_name>}`\n *\n * Using named outlets and secondary routes, you can target multiple outlets in\n *\n * the same `RouterLink` directive.\n *\n * The router keeps track of separate branches in a navigation tree for each named\n * outlet and\n * generates a representation of that tree in the URL.\n * The URL for a secondary route uses the\n * following syntax to specify both the primary and secondary\n * routes at the same time:\n *\n * `http://base-path/primary-route-path(outlet-name:route-path)`\n *\n * A router outlet emits an activate event when a new\n * component is instantiated,\n * and a deactivate event when a component is destroyed.\n *\n * ``\n *\n * <router-outlet\n * (activate)='onActivate($event)'\n * (deactivate)='onDeactivate($event)'\n * ></router-outlet>\n * ``\n *\n * @see [Routing tutorial](guide/router-tutorial-toh#named-outlets)\n * \"Example of a named\n * outlet and\n * secondary route configuration\".\n *\n * @see `RouterLink`\n *\n * @see `Route`\n *\n * @NgModule RouterModule\n *\n * @publicApi\n *\n * @Directive({ selector: 'router-outlet', exportAs: 'outlet' })\n * export class RouterOutlet implements\n * OnDestroy, OnInit {\n *   private activated: ComponentRef<any> | null = null;\n *   private _activatedRoute:\n *   ActivatedRoute | null = null;\n *   private name: string;\n *   @Output('activate') activateEvents = new\n *   EventEmitter<any>();\n *   @Output('deactivate') deactivateEvents = new EventEmitter<any>();\n *\n *   constructor(\n *   private parentContexts: ChildrenOutletContexts,\n *   private location: ViewContainerRef,\n *   private resolver:\n *   ComponentFactoryResolver, @Attribute('name') name: string,\n *   private changeDetector: ChangeDetectorRef)\n *   {\n *     this.name = name || PRIMARY_OUTLET;\n *     parentContexts.onChildOutletCreated(this.name, this);\n *   }\n *\n *   /** @nodoc */\n *   ngOnDestroy(): void {\n *     this.parentContexts.onChildOutletDestroyed(this.name);\n *   }\n *\n *   /**\n *   @nodoc */\n *   ngOnInit():\n *   void {\n *     if (!this.activated) {\n *       // If the outlet was not instantiated at the time the route got activated we need to\n *       populate\n *       // the outlet when it is initialized (ie inside a NgIf)\n *       const context =\n *       this.parentContexts.getContext(this.name);\n *       if (context && context.route) {\n *         if (context.attachRef) {\n *           // `attachRef` is populated when there is an existing component to mount\n *           this.attach(context.attachRef,\n *           context.route);\n *         } else {\n *           // otherwise the component defined in the configuration is created\n *           this.activateWith(context.route, context.resolver || null);\n *         }\n *       }\n *     }\n *     get isActivated(): boolean {\n *       return !!this.activated;\n *     }\n *     get component(): Object {\n *       if (!this.activated) throw new Error('Outlet is not\n *       activated');\n *       return this.activated.instance;\n *     }\n *     get activatedRoute(): ActivatedRoute {\n *       if (!this.activated)\n *       throw new Error('Outlet is not activated');\n *     }\n *     return this._activatedRoute as ActivatedRoute;\n *     get activatedRouteData(): Data {\n *       if\n *       (this._activatedRoute) {\n *         return this._activatedRoute.snapshot.data;\n *       }\n *       return {};\n *     }\n *     /**\n *     *\n *     * Called\n *     * when the `RouteReuseStrategy` instructs to detach the subtree\n *     */\n *     detach(): ComponentRef<any> {\n *       if\n *       (!this.activated) throw new Error('Outlet is not activated');\n *       this.location.detach();\n *       const cmp =\n *       this.activated;\n *       this.activated = null;\n *       this._activatedRoute = null;\n *       return cmp;\n *     }\n *     /**\n *     *\n *     * Called\n *     * when the `RouteReuseStrategy` instructs to re-attach a previously detached subtree\n *     */\n *     attach(ref:\n *     ComponentRef<any>, activatedRoute: ActivatedRoute) {\n *       this.activated = ref;\n *       this._activatedRoute =\n *       activatedRoute;\n *       this.location.insert(ref.hostView);\n *     }\n *     deactivate(): void {\n *       if (this.activated) {\n *         const c = this.component;\n *         this.activated.destroy();\n *         this.activated = null;\n *       }\n *       this._activatedRoute = null;\n *       this.deactivateEvents.emit(c);\n *     }\n *     activateWith(activatedRoute:\n *     ActivatedRoute, resolver: ComponentFactoryResolver | null) {\n *       if (this.isActivated) {\n *         throw new\n *         Error('Cannot activate an already activated outlet');\n *       }\n *       this._activatedRoute = activatedRoute;\n *       const\n *       snapshot = activatedRoute._futureSnapshot;\n *       const component = <any>snapshot.routeConfig!.component;\n *       resolver = resolver || this.resolver;\n *       const factory = resolver.resolveComponentFactory(component);\n *       const\n *       childContexts = this.parentContexts.getOrCreateContext(this.name).children;\n *       const injector = new\n *       OutletInjector(activatedRoute, childContexts, this.location.injector);\n *       this.activated =\n *       this.location.createComponent(factory, this.location.length, injector);\n *       // Calling `markForCheck` to make sure\n *       we will run the change detection when the\n *       // `RouterOutlet` is inside a `ChangeDetectionStrategy.OnPush`\n *       component.\n *     }\n *   }\n * }
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    this.changeDetector.markForCheck();\n    this.activateEvents.emit(this.activated.instance);\n  }\n}\n\nclass
OutletInjector implements Injector {\n  constructor(\n    private route: ActivatedRoute, private childContexts:
ChildrenOutletContexts,\n    private parent: Injector) {\n\n    get(token: any, notFoundValue?: any): any {\n      if
(token === ActivatedRoute) {\n        return this.route;\n      }\n\n      if (token === ChildrenOutletContexts) {\n        return
this.childContexts;\n      }\n\n      return this.parent.get(token, notFoundValue);\n    }\n  }\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { Compiler, Injectable,
Injector, NgModuleFactoryLoader, NgModuleRef, OnDestroy } from '@angular/core';\nimport { from, Observable,
of, Subscription } from 'rxjs';\nimport { catchError, concatMap, filter, map, mergeAll, mergeMap }
from 'rxjs/operators';\nimport { LoadedRouterConfig, Route, Routes } from './config';\nimport { Event,
NavigationEnd, RouteConfigLoadEnd, RouteConfigLoadStart } from './events';\nimport { Router } from
'./router';\nimport { RouterConfigLoader } from './router_config_loader';\n\n/**\n * @description\n * Provides
a preloading strategy.\n *\n * @publicApi\n */\nexport abstract class PreloadingStrategy {\n  abstract preload(route:
Route, fn: () => Observable<any>): Observable<any>;\n\n  /**\n * @description\n * Provides a preloading
strategy that preloads all modules as quickly as possible.\n *\n * RouterModule.forRoot(ROUTES,
{preloadingStrategy: PreloadAllModules})\n *\n * @publicApi\n */\nexport class PreloadAllModules
implements PreloadingStrategy {\n  preload(route: Route, fn: () => Observable<any>): Observable<any> {\n
return fn().pipe(catchError(() => of(null)));\n  }\n\n  /**\n * @description\n * Provides a preloading strategy
that does not preload
any modules.\n *\n * This strategy is enabled by default.\n *\n * @publicApi\n */\nexport class NoPreloading
implements PreloadingStrategy {\n  preload(route: Route, fn: () => Observable<any>): Observable<any> {\n
return of(null);\n  }\n\n  /**\n * The preloader optimistically loads all router configurations to\n * make
navigations into lazily-loaded sections of the application faster.\n *\n * The preloader runs in the background. When
the router bootstraps, the preloader\n * starts listening to all navigation events. After every such event, the
preloader\n * will check if any configurations can be loaded lazily.\n *\n * If a route is protected by `canLoad`
guards, the preloaded will not load it.\n *\n * @publicApi\n */\nexport class RouterPreloader
implements OnDestroy {\n  private loader: RouterConfigLoader;\n  private subscription?: Subscription;\n\n  constructor(\n
    private router: Router, moduleLoader: NgModuleFactoryLoader, compiler: Compiler,\n    private
injector: Injector, private preloadingStrategy: PreloadingStrategy) {\n    const onStartLoad = (r: Route) =>
router.triggerEvent(new RouteConfigLoadStart(r));\n    const onEndLoad = (r: Route) => router.triggerEvent(new
RouteConfigLoadEnd(r));\n\n    this.loader = new RouterConfigLoader(moduleLoader, compiler, onStartLoad,
onEndLoad);\n  }\n\n  setUpPreloading(): void {\n    this.subscription =\n      this.router.events\n
.pipe(filter((e: Event) => e instanceof NavigationEnd), concatMap(() => this.preload()))\n      .subscribe(() =>
{});\n  }\n\n  preload(): Observable<any> {\n    const ngModule = this.injector.get(NgModuleRef);\n    return
this.processRoutes(ngModule, this.router.config);\n  }\n\n  /**\n * @nodoc\n */\n  ngOnDestroy(): void {\n    if
(this.subscription) {\n      this.subscription.unsubscribe();\n    }\n  }\n\n  private processRoutes(ngModule:
NgModuleRef<any>, routes: Routes): Observable<void> {\n    const res: Observable<any>[] = [];\n    for (const
route
of routes) {\n      // we already have the config loaded, just recurse\n      if (route.loadChildren && !route.canLoad
&& route._loadedConfig) {\n        const childConfig = route._loadedConfig;\n
res.push(this.processRoutes(childConfig.module, childConfig.routes));\n\n        // no config loaded, fetch the
config\n      } else if (route.loadChildren && !route.canLoad) {\n        res.push(this.preloadConfig(ngModule,
route));\n\n        // recurse into children\n      } else if (route.children) {\n
res.push(this.processRoutes(ngModule, route.children));\n      }\n    }\n    return from(res).pipe(mergeAll(), map((_)
=> void 0));\n  }\n\n  private preloadConfig(ngModule: NgModuleRef<any>, route: Route): Observable<void> {\n
return this.preloadingStrategy.preload(route, () => {\n    const loaded$ = this.loader.load(ngModule.injector,
route);\n    return loaded$.pipe(mergeMap((config: LoadedRouterConfig) => {\n      route._loadedConfig =
config;\n      return this.processRoutes(config.module,

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config.routes);\n    });\n  });\n}\n\n"/**\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at\n https://angular.io/license\n */\nimport { ViewportScroller } from '@angular/common';\nimport { Injectable,\n OnDestroy } from '@angular/core';\nimport { Unsubscribable } from 'rxjs';\nimport { NavigationEnd,\n NavigationStart, Scroll } from './events';\nimport { Router } from './router';\n\n@Injectable()\nexport class\nRouterScroller implements OnDestroy {\n // TODO(issue/24571): remove '!'\n private routerEventsSubscription!: Unsubscribable;\n // TODO(issue/24571): remove '!'\n private scrollEventsSubscription!: Unsubscribable;\n\n private lastId = 0;\n private lastSource: 'imperative'|'popstate'|'hashchange'|undefined = 'imperative';\n private restoredId = 0;\n private store: {[key: string]: [number, number]} = {};\n\n constructor(\n   private router: Router,\n   /** @docsNotRequired */ public readonly viewportScroller: ViewportScroller,\n   private options: {\n     scrollPositionRestoration?: 'disabled'|'enabled'|'top',\n     anchorScrolling?: 'disabled'|'enabled'\n   } = {}) {\n // Default both options to 'disabled'\n options.scrollPositionRestoration =\n options.scrollPositionRestoration || 'disabled';\n options.anchorScrolling = options.anchorScrolling || 'disabled';\n }\n\n init(): void {\n // we want to disable the automatic scrolling because having two places\n // responsible for\n scrolling results race conditions, especially given\n // that browser don't implement this behavior consistently\n if (this.options.scrollPositionRestoration !== 'disabled') {\n this.viewportScroller.setHistoryScrollRestoration('manual');\n }\n\n this.routerEventsSubscription =\n this.createScrollEvents();\n this.scrollEventsSubscription = this.consumeScrollEvents();\n }\n\n private\ncreateScrollEvents()\n{\n return this.router.events.subscribe(e => {\n if (e instanceof NavigationStart) {\n // store the scroll\n position of the current stable navigations.\n this.store[this.lastId] = this.viewportScroller.getScrollPosition();\n\n this.lastSource = e.navigationTrigger;\n this.restoredId = e.restoredState ? e.restoredState.navigationId : 0;\n }\n else if (e instanceof NavigationEnd) {\n this.lastId = e.id;\n this.scheduleScrollEvent(e,\n this.router.parseUrl(e.urlAfterRedirects).fragment);\n }\n });\n }\n\n private consumeScrollEvents() {\n return this.router.events.subscribe(e => {\n if (!(e instanceof Scroll)) return;\n // a popstate event. The pop\n state event will always ignore anchor scrolling.\n if (e.position) {\n if (this.options.scrollPositionRestoration\n === 'top') {\n this.viewportScroller.scrollToPosition([0, 0]);\n }\n else if\n(this.options.scrollPositionRestoration\n=== 'enabled') {\n this.viewportScroller.scrollToPosition(e.position);\n }\n // imperative navigation\n \"forward\" )\n } else {\n if (e.anchor && this.options.anchorScrolling === 'enabled') {\n this.viewportScroller.scrollToAnchor(e.anchor);\n }\n else if (this.options.scrollPositionRestoration !==\n'disabled') {\n this.viewportScroller.scrollToPosition([0, 0]);\n }\n }\n });\n }\n\n private\nscheduleScrollEvent(routerEvent: NavigationEnd, anchor: string|null): void {\n this.router.triggerEvent(new\n Scroll(\n routerEvent, this.lastSource === 'popstate' ? this.store[this.restoredId] : null, anchor));\n }\n\n /**\n @nodoc\n ngOnDestroy() {\n if (this.routerEventsSubscription) {\n this.routerEventsSubscription.unsubscribe();\n }\n if (this.scrollEventsSubscription) {\n this.scrollEventsSubscription.unsubscribe();\n }\n }\n\n"/**\n * Copyright Google LLC All\n Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at\n https://angular.io/license\n */\nimport { APP_BASE_HREF, HashLocationStrategy, Location,\n LOCATION_INITIALIZED, LocationStrategy, PathLocationStrategy, PlatformLocation, ViewportScroller,\n getDOM as getDOM } from '@angular/common';\nimport { ANALYZE_FOR_ENTRY_COMPONENTS,\n APP_BOOTSTRAP_LISTENER, APP_INITIALIZER, ApplicationRef, Compiler, ComponentRef, Inject,\n Injectable, InjectionToken, Injector, ModuleWithProviders, NgModule, NgModuleFactoryLoader, NgProbeToken,\n Optional, Provider, SkipSelf, SystemJsNgModuleLoader } from '@angular/core';\nimport { of, Subject } from 'rxjs';\nimport { EmptyOutletComponent } from './components/empty_outlet';\nimport { Route, Routes } from './config';\nimport { RouterLink, RouterLinkWithHref } from './directives/router_link';\nimport { RouterLinkActive } from './directives/router_link_active';\nimport { RouterOutlet } from './directives/router_outlet';\nimport
```

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{Event} from './events';\nimport {RouteReuseStrategy} from './route_reuse_strategy';\nimport {ErrorHandler,
Router} from './router';\nimport {ROUTES} from './router_config_loader';\nimport {ChildrenOutletContexts} from
 './router_outlet_context';\nimport {NoPreloading, PreloadAllModules, PreloadingStrategy, RouterPreloader} from
 './router_preloader';\nimport {RouterScroller} from './router_scroller';\nimport {ActivatedRoute} from
 './router_state';\nimport {UrlHandlingStrategy} from './url_handling_strategy';\nimport {DefaultUrlSerializer,
UrlSerializer, UrlTree} from './url_tree';\nimport {flatten} from './utils/collection';\n\n/**\n * The directives defined
in the `RouterModule`\n */\nconst ROUTER_DIRECTIVES = [\n  RouterOutlet, RouterLink,
RouterLinkWithHref, RouterLinkActive, EmptyOutletComponent];\n\n/**\n * A [DI token](guide/glossary/#di-
token) for the router service.\n */\n * @publicApi\n */\nexport const ROUTER_CONFIGURATION = new
InjectionToken<ExtraOptions>('ROUTER_CONFIGURATION');\n\n/**\n
* @docsNotRequired\n */\nexport const ROUTER_FORROOT_GUARD = new
InjectionToken<void>('ROUTER_FORROOT_GUARD');\n\nexport const ROUTER_PROVIDERS: Provider[] =
[\n  Location,\n  {provide: UrlSerializer, useClass: DefaultUrlSerializer},\n  {\n    provide: Router,\n    useFactory:
setupRouter,\n    deps: [\n      UrlSerializer, ChildrenOutletContexts, Location, Injector, NgModuleFactoryLoader,
Compiler,\n      ROUTES, ROUTER_CONFIGURATION, [UrlHandlingStrategy, new Optional()],\n
[RouteReuseStrategy, new Optional()]\n    ]\n  },\n  ChildrenOutletContexts,\n  {provide: ActivatedRoute,
useFactory: rootRoute, deps: [Router]},\n  {provide: NgModuleFactoryLoader, useClass:
SystemJsNgModuleLoader},\n  RouterPreloader,\n  NoPreloading,\n  PreloadAllModules,\n  {provide:
ROUTER_CONFIGURATION, useValue: {enableTracing: false}},\n];\n\nexport function routerNgProbeToken()
{\n  return new NgProbeToken('Router', Router);\n}\n\n/**\n * @description\n */\n * Adds directives
and providers for in-app navigation among views defined in an application.\n * Use the Angular `Router` service to
declaratively specify application states and manage state\n * transitions.\n */\n * You can import this NgModule
multiple times, once for each lazy-loaded bundle.\n * However, only one `Router` service can be active.\n * To
ensure this, there are two ways to register routes when importing this module:\n */\n * * The `forRoot()` method
creates an `NgModule` that contains all the directives, the given\n * routes, and the `Router` service itself.\n * * The
`forChild()` method creates an `NgModule` that contains all the directives and the given\n * routes, but does not
include the `Router` service.\n */\n * @see [Routing and Navigation guide](guide/router) for an\n * overview of how
the `Router` service should be used.\n */\n * @publicApi\n */\n@NgModule({\n  declarations:
ROUTER_DIRECTIVES,\n  exports: ROUTER_DIRECTIVES,\n  entryComponents:
[EmptyOutletComponent]\n})\n\nexport class
RouterModule {\n  // Note: We are injecting the Router so it gets created eagerly...\n  constructor(@Optional()
@Inject(ROUTER_FORROOT_GUARD) guard: any, @Optional() router: Router) {\n\n    /**\n     * Creates and
configures a module with all the router providers and directives.\n     * Optionally sets up an application listener to
perform an initial navigation.\n     */\n     * When registering the NgModule at the root, import as follows:\n     */\n
    * @NgModule({\n     * imports: [RouterModule.forRoot(ROUTES)]\n     * })\n     * class MyNgModule {\n     */\n
    * @param routes An array of `Route` objects that define the navigation paths for the application.\n     */\n
    * @param config An `ExtraOptions` configuration object that controls how navigation is performed.\n     */\n
    * @return The new `NgModule`.\n     */\n     */\n     static forRoot(routes: Routes, config?: ExtraOptions):
ModuleWithProviders<RouterModule> {\n    return {\n      ngModule: RouterModule,\n      providers: [\n
ROUTER_PROVIDERS,\n
        provideRoutes(routes),\n
        {\n          provide: ROUTER_FORROOT_GUARD,\n          useFactory:
provideForRootGuard,\n          deps: [[Router, new Optional(), new SkipSelf()]]\n        },\n
        {\n          provide: ROUTER_CONFIGURATION, useValue: config ? config : {},\n          {\n            provide: LocationStrategy,\n
            useFactory: provideLocationStrategy,\n            deps:\n              [PlatformLocation, [new Inject(APP_BASE_HREF),
new Optional()], ROUTER_CONFIGURATION]\n          },\n          {\n            provide: RouterScroller,\n
            useFactory: createRouterScroller,\n            deps: [Router, ViewportScroller, ROUTER_CONFIGURATION]\n
          },\n          {\n            provide: PreloadingStrategy,\n            useExisting: config && config.preloadingStrategy ?
config.preloadingStrategy :\n
              NoPreloading\n          },\n          {\n            provide:

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NgProbeToken, multi: true, useFactory: routerNgProbeToken},\n      provideRouterInitializer(),\n    ],\n  });\n}\n\n/**\n * Creates a module with all the router directives and a provider registering routes,\n * without creating a new Router service.\n * When registering for submodules and lazy-loaded submodules, create\n * the NgModule as follows:\n *\n * ```\n * @NgModule({\n *   imports: [RouterModule.forChild(ROUTES)]\n * })\n * class MyNgModule {\n *   ```\n *\n *   @param routes An array of `Route` objects that define the\n *   navigation paths for the submodule.\n *   @return The new NgModule.\n *\n *   /\n *   static forChild(routes: Routes):\n *   ModuleWithProviders<RouterModule> {\n *     return {ngModule: RouterModule, providers:\n *       [provideRoutes(routes)]};\n *   }\n * }\n\nexport function createRouterScroller(\n  router: Router, viewportScroller:\n  ViewportScroller, config: ExtraOptions): RouterScroller {\n  if (config.scrollOffset) {\n    viewportScroller.setOffset(config.scrollOffset);\n  }\n  return new RouterScroller(router, viewportScroller,\n    config);\n}\n\nexport function provideLocationStrategy(\n  platformLocationStrategy: PlatformLocation,\n  baseHref: string, options: ExtraOptions = {}) {\n  return options.useHash ? new\n  HashLocationStrategy(platformLocationStrategy, baseHref) :\n    new\n  PathLocationStrategy(platformLocationStrategy, baseHref);\n}\n\nexport function provideForRootGuard(router:\n  Router): any {\n  if ((typeof ngDevMode === 'undefined' || ngDevMode) && router) {\n    throw new Error(\n      `RouterModule.forRoot() called twice. Lazy loaded modules should use RouterModule.forChild() instead.`);\n  }\n  return 'guarded';\n}\n\n/**\n * Registers a [DI provider](guide/glossary#provider) for a set of routes.\n * @param\n * routes The route configuration to provide.\n * @usageNotes\n *\n * ```\n * @NgModule({\n *   imports:\n *   [RouterModule.forChild(ROUTES)],\n *   providers: [provideRoutes(EXTRA_ROUTES)]\n * })\n * class\n * MyNgModule {\n *   ```\n *\n *   @publicApi\n *\n *   export function provideRoutes(routes:\n *   Routes): any {\n *     return [\n *       {provide: ANALYZE_FOR_ENTRY_COMPONENTS, multi: true, useValue:\n *       routes},\n *       {provide: ROUTES, multi: true, useValue: routes},\n *     ];\n *   }\n * }\n\n/**\n * Allowed values in an\n * `ExtraOptions` object that configure\n * when the router performs the initial navigation operation.\n *\n * * `enabledNonBlocking` - (default) The initial navigation starts after the\n * root component has been created. The\n * bootstrap is not blocked on the completion of the initial\n * navigation.\n * * `enabledBlocking` - The initial\n * navigation starts before the root component is created.\n * * The bootstrap is blocked until the initial navigation is\n * complete. This value is required\n * for [server-side rendering](guide/universal) to work.\n * * `disabled` - The initial\n * navigation is not performed. The location listener is set up before\n * the root component gets created. Use if there is\n * a reason to have\n * more control over when the router starts its initial navigation due\n * to some complex\n * initialization logic.\n *\n * The following values have been\n * [deprecated](guide/releases#deprecation-practices) since v11,\n * and should not be used for new applications.\n *\n * * `enabled` - This option is 1:1 replaceable with `enabledNonBlocking`.\n * @see `forRoot()`\n *\n * @publicApi\n *\n * export type InitialNavigation =\n * 'disabled'|'enabled'|'enabledBlocking'|'enabledNonBlocking';\n\n/**\n * A set of configuration options for a router\n * module, provided in the\n * `forRoot()` method.\n *\n * @see `forRoot()`\n *\n * @publicApi\n *\n * export\n * interface ExtraOptions {\n *   /**\n *    * When true, log all internal navigation events to the console.\n *    * Use for\n *    debugging.\n *    */\n *   enableTracing?: boolean;\n *   /**\n *    * When true, enable the location strategy that uses the\n *    URL fragment\n *    instead of the history API.\n *    */\n *   useHash?: boolean;\n *   /**\n *    * One of `enabled`,\n *    `enabledBlocking`, `enabledNonBlocking` or `disabled`.\n *    * When set to `enabled`\n *    or `enabledBlocking`, the initial navigation starts before the root\n *    component is created. The bootstrap is\n *    blocked until the initial navigation is complete. This\n *    value is required for [server-side\n *    rendering](guide/universal) to work. When set to\n *    `enabledNonBlocking`, the initial navigation starts after the\n *    root component has been created.\n *    * The bootstrap is not blocked on the completion of the initial navigation.\n *    When set to\n *    `disabled`, the initial navigation is not performed. The location listener is set up before the\n *    root component gets created. Use if there is a reason to have more control over when the router\n *    starts its initial\n *    navigation due to some complex initialization logic.\n *    */\n *   initialNavigation?: InitialNavigation;\n *   /**\n *    * A\n *    custom error handler for failed navigations.\n *    * If the handler returns a value, the navigation Promise is resolved\n *    with this value.\n *    * If the handler throws an exception, the navigation Promise

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is rejected with the exception.

- `errorHandler?: ErrorHandler;` Configures a preloading strategy. One of `PreloadAllModules` or `NoPreloading` (the default).
- `preloadingStrategy?: any;` Define what the router should do if it receives a navigation request to the current URL. Default is `'ignore'`, which causes the router ignores the navigation. This can disable features such as a `"refresh"` button. Use this option to configure the behavior when navigating to the current URL. Default is `'ignore'`.
- `onSameUrlNavigation?: 'reload'|'ignore';` Configures if the scroll position needs to be restored when navigating back.
 - `'disabled'` - (Default) Does nothing. Scroll position is maintained on navigation.
 - `'top'` - Sets the scroll position to `x = 0, y = 0` on all navigation.
 - `'enabled'` - Restores the previous scroll position on backward navigation, else sets the position to the anchor if one is provided, or sets the scroll position to `[0, 0]` (forward navigation). This option will be the default in the future.
- You can implement custom scroll restoration behavior by adapting the enabled behavior as in the following example.


```
typescript
class AppModule {
  constructor(router: Router, viewportScroller: ViewportScroller) {
    router.events.pipe(
      filter((e: Event): e is Scroll => e instanceof Scroll)
    ).subscribe(e => {
      if (e.position) {
        // backward navigation
        viewportScroller.scrollToPosition(e.position);
      } else if (e.anchor) {
        // anchor navigation
        viewportScroller.scrollToAnchor(e.anchor);
      } else {
        // forward navigation
        viewportScroller.scrollToPosition([0, 0]);
      }
    });
  }
}

scrollPositionRestoration?: 'disabled'|'enabled'|'top';
```
- When set to `'enabled'`, scrolls to the anchor element when the URL has a fragment. Anchor scrolling is disabled by default. Anchor scrolling does not happen on `'popstate'`. Instead, we restore the position that we stored or scroll to the top.
- `anchorScrolling?: 'disabled'|'enabled';` Configures the scroll offset the router will use when scrolling to an element.
 - When given a tuple with `x` and `y` position value, the router uses that offset each time it scrolls.
 - When given a function, the router invokes the function every time it restores scroll position.
- `scrollOffset?: [number, number]|((() => [number, number]));` Defines how the router merges parameters, data, and resolved data from parent to child routes. By default (`'emptyOnly'`), inherits parent parameters only for path-less or component-less routes. Set to `'always'` to enable unconditional inheritance of parent parameters.
- `paramsInheritanceStrategy?: 'emptyOnly'|'always';` A custom handler for malformed URI errors. The handler is invoked when `encodedURI` contains invalid character sequences. The default implementation is to redirect to the root URL, dropping any path or parameter information. The function takes three parameters:
 - `URIError` - Error thrown when parsing a bad URL.
 - `UrlSerializer` - `UrlSerializer` that's configured with the router.
 - `url` - The malformed URL that caused the `URIError`.
- `malformedUriErrorHandler?: (error: URIError, urlSerializer: UrlSerializer, url: string) => UrlTree;` Defines when the router updates the browser URL. By default (`'deferred'`), update after successful navigation. Set to `'eager'` if prefer to update the URL at the beginning of navigation. Updating the URL early allows you to handle a failure of navigation by showing an error message with the URL that failed.
- `urlUpdateStrategy?: 'deferred'|'eager';` Enables a bug fix that corrects relative link resolution in components with empty paths. Example:


```
typescript
const routes = [
  { path: '', component: ContainerComponent, children: [
    { path: 'a', component: AComponent },
    { path: 'b', component: BComponent }
  ] },
];
```

 From the `ContainerComponent`, this will not work:


```
<a [routerLink]="['./a']">Link to A</a>
```

 However, this will work:


```
<a [routerLink]="['./a']">Link to A</a>
```

 In other words, you're required to use `../` rather than `./`. The default in v11 is `'corrected'`.
- `relativeLinkResolution?: 'legacy'|'corrected';`

export function setupRouter(urlSerializer: UrlSerializer, contexts: ChildrenOutletContexts, location: Location, injector: Injector, loader: NgModuleFactoryLoader, compiler: Compiler, config: Route[], opts: ExtraOptions = {}, urlHandlingStrategy?: UrlHandlingStrategy, routeReuseStrategy?: RouteReuseStrategy) {
 const router = new Router(
 null, urlSerializer, contexts, location, injector, loader,


```

compiler, flatten(config));\n\n if (urlHandlingStrategy) {\n  router.urlHandlingStrategy = urlHandlingStrategy;\n }\n\n if (routeReuseStrategy) {\n  router.routeReuseStrategy = routeReuseStrategy;\n }\n\n assignExtraOptionsToRouter(opts, router);\n\n if (opts.enableTracing) {\n  const dom = getDOM();\n  router.events.subscribe((e: Event) => {\n    dom.logGroup(`Router Event: ${(<any>e.constructor).name}`);\n    dom.log(e.toString());\n    dom.log(e);\n    dom.logGroupEnd();\n  });\n }\n\n return router;\n}\n\n\nexport\nfunction assignExtraOptionsToRouter(opts: ExtraOptions, router: Router): void {\n  if (opts.errorHandler) {\n    router.errorHandler\n      = opts.errorHandler;\n  }\n\n  if (opts.malformedUriErrorHandler) {\n    router.malformedUriErrorHandler =\n      opts.malformedUriErrorHandler;\n  }\n\n  if (opts.onSameUrlNavigation) {\n    router.onSameUrlNavigation =\n      opts.onSameUrlNavigation;\n  }\n\n  if (opts.paramsInheritanceStrategy) {\n    router.paramsInheritanceStrategy =\n      opts.paramsInheritanceStrategy;\n  }\n\n  if (opts.relativeLinkResolution) {\n    router.relativeLinkResolution =\n      opts.relativeLinkResolution;\n  }\n\n  if (opts.urlUpdateStrategy) {\n    router.urlUpdateStrategy =\n      opts.urlUpdateStrategy;\n  }\n}\n\n\nexport function rootRoute(router: Router): ActivatedRoute {\n  return\n    router.routerState.root;\n}\n\n\n/**\n * Router initialization requires two steps:\n * \n * First, we start the navigation in\n * a `APP_INITIALIZER` to block the bootstrap if\n * a resolver or a guard executes asynchronously.\n * \n * Next, we\n * actually run activation in a `BOOTSTRAP_LISTENER`, using the\n * `afterPreactivation` hook provided\n * by the router.\n * \n * The router navigation starts, reaches the point when preactivation is done, and then\n * pauses. It\n * waits for the hook to be resolved. We then resolve it only in a bootstrap listener.\n * \n * \n * @Injectable()\n */\nexport class\nRouterInitializer {\n  private initNavigation: boolean = false;\n  private resultOfPreactivationDone = new\n    Subject<void>();\n\n  constructor(private injector: Injector) {}\n\n  appInitializer(): Promise<any> {\n    const p:\n      Promise<any> = this.injector.get(LOCATION_INITIALIZED, Promise.resolve(null));\n    return p.then(() => {\n      let resolve: Function = null!;\n      const res = new Promise(r => resolve = r);\n      const router =\n        this.injector.get(Router);\n      const opts = this.injector.get(ROUTER_CONFIGURATION);\n\n      if\n        (opts.initialNavigation === 'disabled') {\n          router.setUpLocationChangeListener();\n          resolve(true);\n        }\n      else if (\n        // TODO: enabled is deprecated as of v11, can be removed in v13\n        opts.initialNavigation\n          === 'enabled' || opts.initialNavigation === 'enabledBlocking') {\n          router.hooks.afterPreactivation = () => {\n            // only the initial navigation should be delayed\n            if (!this.initNavigation) {\n              this.initNavigation =\n                true;\n              resolve(true);\n            }\n            return this.resultOfPreactivationDone;\n          }\n          // subsequent navigations\n          should not be delayed\n        } else {\n          return of(null) as any;\n        }\n      }\n\n      router.initialNavigation();\n    }) else {\n      resolve(true);\n    }\n  }\n\n  return res;\n}\n\n\nexport\nfunction bootstrapListener(bootstrappedComponentRef: ComponentRef<any>): void {\n  const opts =\n    this.injector.get(ROUTER_CONFIGURATION);\n  const preloader = this.injector.get(RouterPreloader);\n  const\n    routerScroller = this.injector.get(RouterScroller);\n  const router = this.injector.get(Router);\n  const ref =\n    this.injector.get<ApplicationRef>(ApplicationRef);\n\n  if (bootstrappedComponentRef !== ref.components[0]) {\n    return;\n  }\n\n  // Default case\n  if\n    (opts.initialNavigation === 'enabledNonBlocking' || opts.initialNavigation === undefined) {\n      router.initialNavigation();\n    }\n\n  preloader.setUpPreloading();\n  routerScroller.init();\n  router.resetRootComponentType(ref.componentTypes[0]);\n  this.resultOfPreactivationDone.next(null!);\n  this.resultOfPreactivationDone.complete();\n}\n\n\nexport function getAppInitializer(r: RouterInitializer) {\n  return r.appInitializer.bind(r);\n}\n\n\nexport function getBootstrapListener(r: RouterInitializer) {\n  return\n    r.bootstrapListener.bind(r);\n}\n\n\n/**\n * A [DI token](guide/glossary/#di-token) for the router initializer that\n * is\n * called after the app is bootstrapped.\n * \n * \n * @publicApi\n */\nexport const ROUTER_INITIALIZER =\n  new\n  InjectionToken<(compRef: ComponentRef<any>) => void>('Router Initializer');\n\nexport function\nprovideRouterInitializer() {\n  return\n    [\n      RouterInitializer,\n      {\n        provide: APP_INITIALIZER,\n        multi: true,\n        useFactory:\n          getAppInitializer,\n        deps: [RouterInitializer]\n      },\n      {\n        provide: ROUTER_INITIALIZER,\n        useFactory:\n          getBootstrapListener,\n        deps: [RouterInitializer]\n      },\n      {\n        provide: APP_BOOTSTRAP_LISTENER,\n        multi: true,\n        useExisting: ROUTER_INITIALIZER\n      }\n    ];\n}\n\n\n"/**\n * @license\n * Copyright Google LLC All Rights

```

```

Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\n/**\n * @module\n * @description\n * Entry point for all public
APIs of the common package.\n *\n\nimport { Version } from '@angular/core';\n\n/**\n * @publicApi\n *\n\nexport
const VERSION = new Version('11.0.2');\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\n\nexport
{ EmptyOutletComponent } from './components/empty_outlet';\n\nexport { assignExtraOptionsToRouter as
assignExtraOptionsToRouter, ROUTER_PROVIDERS as ROUTER_PROVIDERS } from
'./router_module';\n\nexport { flatten as flatten } from './utils/collection';\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\n\nexport { Data, DeprecatedLoadChildren, LoadChildren,
LoadChildrenCallback, QueryParamsHandling, ResolveData, Route, Routes, RunGuardsAndResolvers, UrlMatcher,
UrlMatchResult } from './config';\n\nexport { RouterLink, RouterLinkWithHref } from './directives/router_link';\n\nexport
{ RouterLinkActive } from './directives/router_link_active';\n\nexport { RouterOutlet } from
'./directives/router_outlet';\n\nexport { ActivationEnd, ActivationStart, ChildActivationEnd, ChildActivationStart,
Event, GuardsCheckEnd, GuardsCheckStart, NavigationCancel,
NavigationEnd, NavigationError, NavigationStart, ResolveEnd, ResolveStart, RouteConfigLoadEnd,
RouteConfigLoadStart, RouterEvent, RoutesRecognized, Scroll } from './events';\n\nexport { CanActivate,
CanActivateChild, CanDeactivate, CanLoad, Resolve } from './interfaces';\n\nexport { BaseRouteReuseStrategy,
DetachedRouteHandle, RouteReuseStrategy } from './route_reuse_strategy';\n\nexport { Navigation,
NavigationBehaviorOptions, NavigationExtras, Router, UrlCreationOptions } from './router';\n\nexport { ROUTES }
from './router_config_loader';\n\nexport { ExtraOptions, InitialNavigation, provideRoutes,
ROUTER_CONFIGURATION, ROUTER_INITIALIZER, RouterModule } from './router_module';\n\nexport
{ ChildrenOutletContexts, OutletContext } from './router_outlet_context';\n\nexport { NoPreloading,
PreloadAllModules, PreloadingStrategy, RouterPreloader } from './router_preloader';\n\nexport { ActivatedRoute,
ActivatedRouteSnapshot, RouterState, RouterStateSnapshot } from './router_state';\n\nexport { convertToParamMap,
ParamMap,
Params, PRIMARY_OUTLET } from './shared';\n\nexport { UrlHandlingStrategy } from
'./url_handling_strategy';\n\nexport { DefaultUrlSerializer, UrlSegment, UrlSegmentGroup, UrlSerializer, UrlTree }
from './url_tree';\n\nexport { VERSION } from './version';\n\nexport * from './private_export';\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n\n/**\n * @module\n * @description\n
* Entry point for all public APIs of this package.\n *\n\nexport * from './src/index';\n\n// This file only reexports
content of the `src` folder. Keep it that way.\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\n\n// This file is not used to build this module. It is only used during editing\n// by
the TypeScript language service and during build for verification. `ngc` replaces this file with production
index.ts when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n", "/*\n * Generated bundle
index. Do not edit.\n *\n\nexport * from './index';\n\nexport { EmptyOutletComponent as
angular_packages_router_router_l } from './src/components/empty_outlet';\n\nexport
{ ROUTER_FORROOT_GUARD as angular_packages_router_router_a, RouterInitializer as
angular_packages_router_router_h, createRouterScroller as angular_packages_router_router_c, getAppInitializer as
angular_packages_router_router_i, getBootstrapListener as angular_packages_router_router_j, provideForRootGuard
as angular_packages_router_router_e, provideLocationStrategy as
angular_packages_router_router_d, provideRouterInitializer as angular_packages_router_router_k, rootRoute as
angular_packages_router_router_g, routerNgProbeToken as angular_packages_router_router_b, setupRouter as
angular_packages_router_router_f }

```


AAI,IAAI,EAAE,CAAC;QAC/E,OAAO,6BAA6B,IAAI,IAAI,CAAC;KAC9C;CACF;AAED;;;;;;;;;MAQa,eAAe;IAC1B;;IAEW,QAAgC;QAAhC,aAAQ,GAAR,QAAQ,CAAwB;KAAI;IAC/C,QAAQ;QACN,MAAM,IAAI,GAAG,IAAI,CAAC,QAAQ,CAAC,WAAW,IAAI,IAAI,CAAC,QAAQ,CAAC,WAAW,CAAC,IAAI,IAAI,EAAE,CAAC;QAC/E,OAAO,0BAA0B,IAAI,IAAI,CAAC;KAC3C;CACF;AAED;;;;;;;;;MAQa,aAAa;IACxB;;IAEW,QAAgC;QAAhC,aAAQ,GAAR,QAAQ,CAAwB;KAAI;IAC/C,QAAQ;QACN,MAAM,IAAI,GAAG,IAAI,CAAC,QAAQ,CAAC,WAAW,IAAI,IAAI,CAAC,QAAQ,CAAC,WAAW,CAAC,IAAI,IAAI,EAAE,CAAC;QAC/E,OAAO,wBAAwB,IAAI,IAAI,CAAC;KACzC;CACF;AAED;;;;;;;;;MAKa,MAAM;IACjB;;IAEa,WAA0B;;IAG1B,QAA+B;;IAG/B,MAAM B;QANnB,gBAAW,GAAX,WAAW,CAAe;QAG1B,aAAQ,GAAR,QAAQ,CAAuB;QAG/B,WAAM,GAAN,MAAM,CAAa;KAAI;IAEpC,QAAQ;QACN,MAAM,GAAG,GAAG,IAAI,CAAC,QAAQ,GAAG,GAAG,IAAI,CAAC,QAAQ,CAAC,CAAC,CAAC,KAAC,IAAI,CAAC,QAAQ,CAAC,CAAC,CAAC,EAAE,GAAG,IAAI,CAAC;QAC9E,OAAO,mBAAmB,IAAI,CAAC,MAAM,iBAAiB,GAAG,IAAI,CAAC;KAC/D;;;AC3bH;;;;;;;;;AAYA;;;;;;;;;MAKa,cAAc,GAAG,UAAU;AAMdxC,MAAM,WAAW;IAGf,YAAY,MAAc;QACxB,IAAI,CAAC,MAAM,GAAG,MAAM,IAAI,EAAE,CAAC;KAC5B;IAED,GAAG,CAAC,IAAY;QACd,OAAO,MAAM,CAAC,SAAS,CAAC,cAAc,C AAC,IAAI,CAAC,IAAI,CAAC,MAAM,EAAE,IAAI,CAAC,CAAC;KACHe;IAED,GAAG,CAAC,IAAY;QACd,IAAI,IAAI,CAAC,GAAG,CAAC,IAAI,CAAC,EAAE;YACIB,MAAM,CAAC,GAAG,IAAI,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC;YAC5B,OAAO,KAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,C AAC,GAAG,CAAC,CAAC;SACpC;QAED,OAAO,IAAI,CAAC;KACb;IAED,MAAM,CAAC,IAAY;QACjB,IAAI,IAAI,CAAC,GAAG,CAAC,IAAI,CAAC,EAAE;YACIB,MAAM,CAAC,GAAG,IAAI,CAAC,MAAM,CAAC,IAAI,CAAC,CAAC;YAC5B,OAAO,KAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,CAA C,CAAC,CAAC;SACnC;QAED,OAAO,EAAE,CAAC;KACX;IAED,IAAI,IAAI;QACN,OAAO,MAAM,CAAC,IAAI,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC;KACjC;CACF;AAED;;;;;;;;;SAOgB,iBAAiB,CAAC,MAAc;IAC9C,OAAO,IAAI,WAAW,CAAC,MAAM,CAAC,CAAC;AACjC,CAAC;AAED,MAAM,0BAA0B,GAAG,4BAA4B,CAAC;SAEhD,wBAAwB,CAAC,OAAe;IACtD,MAAM,KAAC,GAAG,KAAC,CAAC,4BAA4B,GAAG,OAAO,C AAC,CAAC;IAC3D,KAAa,CAAC,0BAA0B,CAAC,GAAG,IAAI,CAAC;IACID,OAAO,KAAC,CAAC;AACf,CAAC;SAEe,0BAA0B,CAAC,KAAY;IACrD,OAAO,KAAC,IAAC,KAAa,CAAC,0BAA0B,CAAC,CAAC;AAC7D,C AAC;AAED;SACgB,iBAAiB,CAC7B,QAAaB,EAAE,YAA6B,EAAE,KAAY;IACrE,MAAM,KAAC,GAAG,KAA K,CAAC,IAAC,CAAC,KAAC,CAAC,GAAG,CAAC,CAAC;IAErC,IAAI,KAAC,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM,EAAE;;QAEIC,OAAO,IAAI,CAAC;KACb;IAED,IAAI,KAAC,CAAC,SAAS,KAAC,MAAM;SACzB,YAAY,CAAC,WAAW,EAAE,IAAI,KAAC,CAAC,MAAM,GAAG,QAAQ,CAAC,MAAM,CAAC,EAAE;;QAEIE,OAAO,IAAI,CAAC;KACb;IAED,MAAM,SAAS,GAAG,C,EAAE,CAAC;;IAGID,KAAC,IAAI,KAAC,GAAG,CAAC,EAAE,KAAC,GAAG,KAAC,CAAC,MAAM,EAAE,KAAC,EAAE,EAAE;QACjD,MAAM,IAAI,GAAG,KAAC,CAAC,KAAC,CAAC,CAAC;QACIB,MAAM,OAAO,GAAG,QAAQ,CAAC,KAAC,CAAC,CAAC;QACChC,MAAM,WAAW,GAAG,IAAI,CAAC,UAAU,CAAC,GAAG,CAAC,CAAC;QACzC,IAAI,WAAW,EAAE;YACf,SAAS,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,OAAO,CAAC;SACxC;aAAM,IAAI,IAAI,KAAC,OAAO,CAAC,IAAI,EAAE;;YAEhC,OAAO,IAAI,CAAC;SACb;KACF;IAED,OAAO,EAAE,QAAQ,EAAE,QAAQ,CAAC,KAAC,CAAC,CAAC,EAAE,KAAC,CAAC,MAAM,CAAC,EAAE,SAAS,EAAE,CAAC;AACChE;;AC7JA;;;;;;;;;SACgB,kBAAkB,CAAC,CAAQ,EAAE,CAAQ;IACnD,IAAI,CAAC,CAAC,MAAM,KAAC,CAAC,CAAC,MAAM;QAAE,OAAO,KAAC,CAAC;IACxC,KAAC,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,EAAE,CAAC,EAAE;QACjC,IAAI,CAAC,YAAY,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;YAAE,OAAO,KAAC,CAAC;KAC7C;IACD,OAAO,IAAI,CAAC;AACd,CAAC;SAEe,YAAY,CAAC,CAAS,EAAE,CAAS;;;;;;;;;IAK/C,MAAM,EAAE,GAAG,MAAM,CAAC,IAAI,CAAC,CAAC,CAAYB,CAAC;IACID,MAAM,EAAE,GAAG,MAAM,CAAC,IAAI,CAAC,CAAC,CAAYB,C AAC;IACID,IAAI,CAAC,EAAE,IAAI,CAAC,EAAE,IAAI,EAAE,CAAC,MAAM,IAAI,EAAE,CAAC,MAAM,EAAE;QACxC,OAAO,KAAC,CAAC;KACd;IACD,IAAI,GAAG,CAAC;IACbB,KAAC,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,EAAE,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;QACIC,GAAG,GAAG,EAAE,CAAC,CAAC,CAAC,CAAC;QACZ,IAAI,CAAC,mBAAmB,CAAC,CAAC,CAAC,GAAG,CAAC,EAAE,CAAC,CAAC,GAAG,CAAC,CAAC,EAAE;YACxC,OAAO,KAAC,CAAC;SACd;KACF;IACD,OAAO,IAAI,CAAC;AACd,CAAC;AAED;;;SAGgB,mBAAmB,CAAC,CAAKB,EAAE,CAAKB;IACxE,IAAI,KAAC,CAAC,OAAO,CAAC,CAA

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 IAAI,CAAC;AAC/C,CAAC;AAED;;;SAGgB,GAAG,CAAC,KAAgB;IAClC,OAAO,CAAC,KAAC,CAAC,IAAI,
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 ACxF,KAAC,MAAM,IAAI,IAAI,GAAG,EAAE;QACtB,IAAI,GAAG,CAAC,cAAc,CAAC,IAAI,CAAC,EAAE;Y
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 ,UAAU,CACtB,GAAqB,EAAE,EAAc;IAC/D,IAAI,MAAM,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,MAAM,
 KAAC,CAAC,EAAE;QACjC,OAAO,EAAE,CAAC,EAAE,CAAC,CAAC;KACf;IAED,MAAM,QAAQ,GAAoB,E
 AAE,CAAC;IACrC,MAAM,QAAQ,GAAoB,EAAE,CAAC;IACrC,MAAM,GAAG,GAAqB,EAAE,CAAC;IAEjC,
 OAAO,CAAC,GAAG,EAAE,CAAC,CAAI,EAAE,CAAS;QAC3B,MAAM,MAAM,GAAG,EAAE,CAAC,CAAC,
 EAAE,CAAC,CAAC,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,CAAI,KAAC,GAAG,CAAC,CAAC,CAAC,GA
 AG,CAAC,CAAC,CAAC,CAAC;QACxD,IAAI,CAAC,KAAC,cAAc,EAAE;YACxB,QAAQ,CAAC,IAAI,CAAC,
 MAAM,CAAC,CAAC;SACvB;aAAM;YACL,QAAQ,CAAC,IAAI,CAAC,MAAM,CAAC,CAAC;SACvB;KACF,
 CAAC,CAAC;;;IAKH,OAAQ,EAAE,CAAC,KAAC,CAAC,IAAI,EAAE,QAAQ,CAAC,MAAM,CAAC,QAAQ,C
 AAC,CAA+B;SAC1E,IAAI,CAAC,SAAS,EAAE,EAAEA,MAAS,EAAE,EAAE,GAAG,CAAC,MAAM,GAAG,C
 AAC,CAAC,CAAC;AACtD,CAAC;SAEe,kBAaKB,CAAI,KAAiC;IACrE,IAAI,cAAy,CAAC,KAAC,CAAC,E
 AAE;QACvB,OAAO,KAAC,CAAC;KACd;IAED,IAAI,UAAS,CAAC,KAAC,CAAC,EAAE;;;QAIpB,OAAO,I
 AAI,CAAC,OAAO,CAAC,OAAO,CAAC,KAAC,CAAC,CAAC,CAAC;KACrC;IAED,OAAO,EAAE,CAAC,KA
 AK,CAAC,CAAC;AACnB;;AC5HA;;;;;SAWgB,kBAaKB;IACChC,OAAO,IAAI,OAAO,CAAC,IAAI,eAAe,CAA
 C,EAAE,EAAE,EAAE,CAAC,EAAE,EAAE,EAAE,IAAI,CAAC,CAAC;AAC5D,CAAC;SAEe,YAAy,CAAC,SA
 AkB,EAAE,SAaKB,EAAE,KAAc;IACjF,IAAI,KAAC,EAAE;QACT,OAAO,gBAAGB,CAAC,SAAS,CAAC,WA
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No license file was found, but licenses were detected in source scan.

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ble","configurable","load","path","Promise","reject","Error","setupTestingRouter","urlSerializer","contexts","location","loader","injector","routes","opts","urlHandlingStrategy","router\$1","Router","flatten","isUrlHandlingStrategy","assignExtraOptionsToRouter","decorators","type","Injectable","ctorParameters","Compiler","RouterTestingModule","withRoutes","config","ngModule","providers","provideRoutes","provide","ROUTER_CONFIGURATION","useValue","NgModule","args","RouterModule","ROUTER_PROVIDERS","Location","useClass","SpyLocation","LocationStrategy","MockLocationStrategy","NgModuleFactoryLoader","useFactory","deps","UrlSerializer","ChildrenOutletContexts","Injector","ROUTES","UrlHandlingStrategy","Optional","PreloadingStrategy","useExisting","NoPreloading"],"mappings":":;;;;;CAMC,SAAUA,EAAQC,GACI,iBAAZC,SAA0C,oBAAXC,OAAyBF,EAAQC,QAA SE,QAAQ,mBAAoBA,QAAQ,2BAA4BA,QAAQ,iBAAkBA,QAAQ,oBAChK,mBAAXC,QAAyBA,OAAOC,IAA MD,OAAO,0BAA2B,CAAC,UAAW,kBAAMb,0BAA2B,gBAAiB,mBAAoBJ,GACpJA,IAAzBD,EAASA,GAAU O,MAAsBC,GAACKR,EAAOQ,IAAM,GAAIR,EAAOQ,GAAGC,OAAST,EAAOQ,GAAGC,QAAU,GAAIT,EAA OQ,GAAGC,OAAOC,QAAU,IAAKV,EAAOQ,GAAGG,OAAQX,EAAOQ,GAAGG,OAAOD,QAASV,EAAOQ, GAAGI,KAAMZ,EAAOQ,GAAGC,QAHRn,CAIEI,MAAM,SAAWX,EAASS,EAAQD,EAASE,EAAMH,GAAU;; ;;;;;;;;;;oFA4UzD,IAAIK,EAA0C,WAC1C,SAASA,EAAyBC,GAC9BF,KAAKE,SAAWA,EAIhBF,KAAKG,gB AAKB,GAYc3B,OAvcAC,OAAOC,eAAeJ,EAAyBK,UAAW,iBAaKB,CAIxEC,IAAK,WACD,OAAOP,KAAKG, iBAKhBK,IAAK,SAAUC,GACX,IAAIC,EAAKC,EACLC,EAAM,GACV,IACI,IAAK,IAAIC,EArLzB,SAASC,E AASC,GACd,IAAIC,EAAbB,mBAAXC,QAAyBA,OAAOC,SAAUC,EAAIH,GAACKD,EAAEC,GAAII,EAAI,EA C5E,GAAID,EACA,OAAOA,EAAEE,KAAKN,GACIB,GAAIA,GAAyB,iBAAbA,EAAEO,OACd,MAAO,CACH C,KAAM,WAGF,OAFIR,GAACK,GAACKL,EAAEO,SACZP,OAAI,GACD,CAAES,MAAOT,GAACKA,EAAEK,K AAMK,MAAOV,KAGhD,MAAM,IAAIW,UAAUV,EAAI,0BAA4B,mCAyK1BF,CAASV,OAAOuB,KAAKIB,IA AWmB,EAAKf,EAAGU,QAASK,EAAGH,KAAMG,EAAKf,EAAGU,OAAQ,CACpF,IAAIM,EAAID,EAAGJ,M ACXZ,EAAIiB,GAACK7B,KAAKE,SAAS4B,mBAAMBrB,EAAQoB,KAG1D,MAAOE,GAASrB,EAAM,CAAES B,MAAOD,GAC/B,QACI,IACQH,IAAOA,EAAGH,OAASd,EAAKE,EAAGoB,SAAStB,EAAGU,KAAKR,GAEP D,QAAU,GAAIH,EAAK,MAAMA,EAAIsB,OAejChC,KAAKG,gBAaKBS,GAEE3BsB,YAAY,EACZC,cAAc,IAE IBIC,EAAyBK,UAAU8B,KAAO,SAAUC,GACHd,OAAIrC,KAAKG,gBAAGBkC,GACdrC,KAAKG,gBAAGBkC, GAGrBC,QAAQC,OAAO,IAAIC,MAAM,sBAAwBH,KAGzDpC,EA/CkC,GAIE7C,SAASwC,EAAMBC,EAAeC, EAAUC,EAAUC,EAAQ3C,EAAU4C,EAAUC,EAAQC,EAAMC,GACrG,IAAIC,EAAW,IAAItd,EAAOuD,OAA O,KAAMT,EAAeC,EAAUC,EAAUE,EAAUD,EAAQ3C,EAAUN,EAAOWD,SAASL,IActH,OAbIC,IAZR,SAAS K,EAAbL,GAG3B,MAAO,qBAAsBA,EAWrBK,CAAsBL,GACtBE,EAASD,oBAAsBD,EAI/BpD,EAAO0D,4B AA4BN,EAAME,IAG7CD,IACAC,EAASD,oBAAsBA,GAEE5BC,EA/BXjD,EAAyBsD,WAAa,CACIC,CAAEC,K AAMzD,EAAK0D,aAEjBxD,EAAyByD,eAAiB,WAAc,MAAO,CAC3D,CAAEF,KAAMzD,EAAK4D,YAuDjB,I AAIC,EAAqC,WACrC,SAASA,KAWT,OATAA,EAAoBC,WAAa,SAAUd,EAAQe,GAC/C,MAAO,CACHC,SAA UH,EACVI,UAAW,CACPPe,EAAOqE,cAAcIB,GACrB,CAAEbB,QAAStE,EAAOuE,qBAAsBC,SAAUN,GAACK B,OAIzEF,EAZ6B,GACxCA,EAAoBL,WAAa,CAC7B,CAAEC,KAAMzD,EAAKsE,SAAUC,KAAM,CAAC,CAC IBjF,QAAS,CAACO,EAAO2E,cACjBP,UAAW,CACPPe,EAAO4E,kBAAMb,CAAEN,QAASpE,EAAO2E,SAA UC,SAAU7E,EAAQ8E,aACxE,CAAEt,QAASpE,EAAO8E,iBAaKBF,SAAU7E,EAAQgF,sBACTd,CAAEEX,QA ASnE,EAAK+E,sBAABuBJ,SAAUzE,GAA4B,CACzEiE,QAAStE,EAAOuD,OACb4B,WAAytC,EACZuC,KAA M,CACFPf,EAAOqF,cAAerF,EAAOsF,uBAAwBpF,EAAO2E,SAAU1E,EAAK+E,sBAABuB/E,EAAK4D,SAAU5 D,EAAKoF,SACtHvF,EAAOWf,OAAQxF,EAAOuE,qBAAsB,CAACvE,EAAOyF,oBAABqB,IAAIItF,EAAKuF,Y AG1F,CAAEPB,QAAStE,EAAO2F,mBAAoBC,YAAa5F,EAAO6F,cAAgB7F,EAAOqE,cAAc;:::;AAK CnH5E,EAAQuE,oBAAsBA,EAC9BvE,EAAQY,yBAA2BA,EACnCZ,EAAQoD,mBAABqBA,EAE7BrC,OAAOC, eAAehB,EAAS,aAAc,CAAEbC,OAAO","sourcesContent":["/**\n

```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n(function\n(global, factory) {\n  typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\n    require('@angular/common'), require('@angular/common/testing'), require('@angular/core'),\n    require('@angular/router')) :\n  typeof define === 'function' && define.amd ? define('@angular/router/testing',\n    ['exports', '@angular/common', '@angular/common/testing', '@angular/core', '@angular/router'], factory) :\n  (global = global || self, factory((global.ng = global.ng || {}), global.ng.router = global.ng.router || {}),
```



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        if (y = 0, t)\n                op = [op[0] & 2, t.value];\n                switch (op[0]) {\n
case 0:\n                case 1:\n                t = op;\n                break;\n                case 4:\n
        _label++;\n                return { value: op[1], done: false };\n                case 5:\n
        _label++;\n                y = op[1];\n                op = [0];\n                continue;\n
case 7:\n                op = _ops.pop();\n                _trys.pop();\n                continue;\n
        default:\n                if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] === 2))\n
        {\n                _ = 0;\n                continue;\n
                }\n                if (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) {\n
        _label = op[1];\n                break;\n                }\n                if (op[0] === 6 && _label <
t[1]) {\n                _label = t[1];\n                t = op;\n                break;\n
        }\n                if (t && _label < t[2]) {\n                _label = t[2];\n
        _ops.push(op);\n                break;\n                }\n                if (t[2])\n
        _ops.pop();\n                _trys.pop();\n                continue;\n                }\n                op =
body.call(thisArg, _);\n                }\n                catch (e) {\n                op = [6,
e];\n                y = 0;\n                }\n                finally {\n                f = t = 0;\n                }\n                if (op[0] &
5)\n                throw op[1];\n                return { value: op[0] ? op[1] : void 0, done: true };\n                }\n                }\n                var
__createBinding = Object.create ? (function (o, m, k, k2) {\n                if (k2 === undefined)\n                k2 = k;\n
Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; } });\n                }) : (function (o, m, k, k2)
{\n                if (k2 === undefined)\n                k2 = k;\n                o[k2] = m[k];\n                });\n                function __exportStar(m, exports) {\n
        for (var p in m)\n                if (p !== \"default\" && !exports.hasOwnProperty(p))\n
__createBinding(exports, m, p);\n                }\n                function __values(o) {\n                var s = typeof Symbol === \"function\" &&
Symbol.iterator, m = s && o[s], i = 0;\n                if (m)\n                return m.call(o);\n                if (o && typeof o.length ===
\"number\")\n                return {\n                next: function () {\n                if (o && i >= o.length)\n                o
= void 0;\n                return { value: o && o[i++], done: !o };\n                }\n                };\n                throw new
TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is not defined.\");\n                }\n                function __read(o, n) {\n
var m = typeof Symbol === \"function\" && o[Symbol.iterator];\n                if (!m)\n                return o;\n                var i =
m.call(o), r, ar = [], e;\n                try {\n                while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n
ar.push(r.value);\n                }\n                catch (error) {\n                e = { error: error };\n                }\n                finally {\n                try {\n
        if (r && !r.done && (m = i[\"return\"]))\n                m.call(i);\n                }\n                finally {\n                if
(e)\n                throw e.error;\n                }\n                }\n                }\n                return ar;\n                }\n                function __spread() {\n
for (var ar = [], i = 0; i < arguments.length; i++)\n                ar =
ar.concat(__read(arguments[i]));\n                return ar;\n                }\n                function __spreadArrays() {\n                for (var s = 0, i = 0, il
= arguments.length; i < il; i++)\n                s += arguments[i].length;\n                for (var r = Array(s), k = 0, i = 0; i < il;
i++)\n                for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n                r[k] = a[j];\n                return r;\n
        }\n                }\n                function __await(v) {\n                return this instanceof __await ? (this.v = v, this) : new __await(v);\n                }\n
        function __asyncGenerator(thisArg, _arguments, generator) {\n                if (!Symbol.asyncIterator)\n                throw new
TypeError(\"Symbol.asyncIterator is not defined.\");\n                var g = generator.apply(thisArg, _arguments || []), i, q =
[];\n                return i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function
() { return this; }, i;\n                function verb(n) {\n                if (g[n])\n                i[n] = function (v) {\n                return new Promise(function (a,
b) {\n                q.push([n, v, a, b]) > 1 || resume(n, v); }); });\n                }\n                function resume(n, v) {\n                try {\n                step(g[n](v));\n
        }\n                catch (e) {\n                settle(q[0][3], e);\n                }\n                }\n                function step(r) {\n                r.value instanceof __await ?
Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\n                function fulfill(value) {\n                resume(\"next\",
value); }\n                function reject(value) {\n                resume(\"throw\", value); }\n                function settle(f, v) {\n                if (f(v), q.shift(),
q.length)\n                resume(q[0][0], q[0][1]); }\n                }\n                }\n                function __asyncDelegator(o) {\n                var i, p;\n                return i
= { }, verb(\"next\"), verb(\"throw\"), function (e) {\n                throw e; }, verb(\"return\"), i[Symbol.iterator] = function () {\n
return this; }, i;\n                function verb(n, f) {\n                i[n] = o[n] ? function (v) {\n                return (p = !p) ? { value:
__await(o[n](v)), done: n === \"return\" } : f ? f(v) : v; } : f;\n                }\n                }\n                function __asyncValues(o) {\n                if
(!Symbol.asyncIterator)\n                throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n                var m =

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o[Symbol.asyncIterator], i);\n    return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) :
o[Symbol.iterator](), i = {}, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () {
return this; }, i);\n    function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject)
{ v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; };\n    function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }\n    }\n    function
__makeTemplateObject(cooked, raw) {\n    if (Object.defineProperty) {\n        Object.defineProperty(cooked,
\"raw\", { value: raw });\n    }\n    else {\n
        cooked.raw = raw;\n    }\n    return cooked;\n    }\n    ;\n    var __setModuleDefault = Object.create ? (function
(o, v) {\n        Object.defineProperty(o, \"default\", { enumerable: true, value: v });\n    }) : function (o, v) {\n
o[\"default\"] = v;\n    };\n    function __importStar(mod) {\n    if (mod && mod.__esModule)\n        return
mod;\n    var result = {};\n    if (mod != null)\n        for (var k in mod)\n            if
(Object.hasOwnProperty.call(mod, k))\n                __createBinding(result, mod, k);\n    __setModuleDefault(result, mod);\n    return result;\n    }\n    function __importDefault(mod) {\n    return (mod
&& mod.__esModule) ? mod : { default: mod };\n    }\n    function __classPrivateFieldGet(receiver, privateMap)
{\n    if (!privateMap.has(receiver)) {\n        throw new TypeError(\"attempted to get private field on non-
instance\");\n    }\n    return privateMap.get(receiver);\n    }\n
    function __classPrivateFieldSet(receiver, privateMap, value) {\n    if (!privateMap.has(receiver)) {\n
        throw new TypeError(\"attempted to set private field on non-instance\");\n    }\n    privateMap.set(receiver,
value);\n    return value;\n    }\n\n    /**\n     * @description\n     * \n     * Allows to simulate the loading of ng
modules in tests.\n     * \n     * ``\n     * const loader = TestBed.inject(NgModuleFactoryLoader);\n     * \n     *
@Component({ template: 'lazy-loaded' })\n     * class LazyLoadedComponent { }\n     * @NgModule({\n     *
declarations: [LazyLoadedComponent],\n     * imports: [RouterModule.forChild([ { path: 'loaded', component:
LazyLoadedComponent } ] )]\n     * })\n     * \n     * class LoadedModule { }\n     * \n     * // sets up stubbedModules\n
     * loader.stubbedModules = { lazyModule: LoadedModule };\n     * \n     * router.resetConfig([ \n     * { path: 'lazy',
loadChildren: 'lazyModule' }, \n     * ]);\n     * \n     * router.navigateByUrl('/lazy/loaded');\n
     * ``\n     * \n     * @publicApi\n     * \n     * var SpyNgModuleFactoryLoader = /** @class */ (function () {\n
function SpyNgModuleFactoryLoader(compiler) {\n        this.compiler = compiler;\n        /**\n         *
@docsNotRequired\n         * \n         * this._stubbedModules = {};\n         * }\n
Object.defineProperty(SpyNgModuleFactoryLoader.prototype, \"stubbedModules\", {\n        /**\n         *
@docsNotRequired\n         * \n         * get: function () {\n            return this._stubbedModules;\n        },\n
        /**\n         * @docsNotRequired\n         * \n         * set: function (modules) {\n            var e_1, _a;\n
            var res = {};\n            try {\n                for (var _b = __values(Object.keys(modules)), _c = _b.next(); !_c.done;
_c = _b.next()) {\n                    var t = _c.value;\n                    res[t] =
this.compiler.compileModuleAsync(modules[t]);\n                }\n            }\n            catch (e_1_1) { e_1 = { error: e_1_1 }; }\n            finally {\n
                try {\n                    if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n                }\n                finally { if
(e_1) throw e_1.error; }\n            }\n            this._stubbedModules = res;\n        },\n        enumerable:
false,\n        configurable: true\n    });\n    SpyNgModuleFactoryLoader.prototype.load = function (path) {\n
        if (this._stubbedModules[path]) {\n            return this._stubbedModules[path];\n        }\n        else {\n
            return Promise.reject(new Error(\"Cannot find module \" + path));\n        }\n    };\n    return
SpyNgModuleFactoryLoader;\n    }());\n    SpyNgModuleFactoryLoader.decorators = [\n        { type: core.Injectable
}]\n    ];\n    SpyNgModuleFactoryLoader.ctorParameters = function
    () { return [\n        { type: core.Compiler }]\n    ]; }\n    function isUrlHandlingStrategy(opts) {\n    // This
property check is needed because UrlHandlingStrategy is an interface and doesn't exist at\n    // runtime.\n    return 'shouldProcessUrl' in opts;\n    }\n    /**\n     * Router setup factory function used for testing.\n     * \n     *
@Component\n     * \n     * function setupTestingRouter(urlSerializer, contexts, location, loader, compiler, injector,
routes, opts, urlHandlingStrategy) {\n        var router$1 = new router.Router(null, urlSerializer, contexts, location,
injector, loader, compiler, router.flatten(routes));\n        if (opts) {\n            // Handle deprecated argument

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ordering.\n      if (isUrlHandlingStrategy(opts)) {\n          router$1.urlHandlingStrategy = opts;\n      }\n      else {\n          // Handle ExtraOptions\n          router.assignExtraOptionsToRouter(opts, router$1);\n      }\n  }\n  if (urlHandlingStrategy) {\n      router$1.urlHandlingStrategy = urlHandlingStrategy;\n  }\n  return router$1;\n  }\n  /**\n   * @description\n   * Sets up the router to be used for testing.\n   *\n   * The modules sets up the router to be used for testing.\n   * It provides spy implementations of `Location`,\n   * `LocationStrategy`, and { @link\n   * NgModuleFactoryLoader}.\n   * @usageNotes\n   * ### Example\n   *\n   * ```\n   * beforeEach(() => {\n   *   TestBed.configureTestingModule({\n   *     imports: [\n   *       RouterTestingModule.withRoutes(\n   *         [{path: '', component: BlankCmp}, {path: 'simple', component:\n   *           SimpleCmp}]\n   *       )\n   *     ]\n   *   });\n   * });\n   * ```\n   * @publicApi\n   */\n  var\n  RouterTestingModule = /** @class */ (function () {\n    function RouterTestingModule() {\n    }\n\n    RouterTestingModule.withRoutes = function (routes,\n    config) {\n      return {\n        ngModule: RouterTestingModule,\n        providers: [\n          router.provideRoutes(routes),\n          { provide: router.ROUTER_CONFIGURATION, useValue: config ?\n          config : {} },\n          ]\n        };\n      return RouterTestingModule;\n    }());\n\n    RouterTestingModule.decorators = [\n      { type: core.NgModule, args: [{\n        exports:\n        [router.RouterModule],\n        providers: [\n          router.ROUTER_PROVIDERS, { provide:\n          common.Location, useClass: testing.SpyLocation },\n          { provide: common.LocationStrategy,\n          useClass: testing.MockLocationStrategy },\n          { provide: core.NgModuleFactoryLoader, useClass:\n          SpyNgModuleFactoryLoader }, {\n          provide: router.Router,\n          useFactory:\n          setupTestingRouter,\n          deps: [\n            router.UrlSerializer, router.ChildrenOutletContexts, common.Location,\n            core.NgModuleFactoryLoader, core.Compiler, core.Injector,\n            router.ROUTES,\n            router.ROUTER_CONFIGURATION, [router.UrlHandlingStrategy, new core.Optional()]\n          ]\n        },\n        { provide: router.PreloadingStrategy, useExisting: router.NoPreloading },\n        ]\n      },\n      router.provideRoutes([])\n    ],\n    ],\n    ]\n  };\n  /**\n   * @license\n   * Copyright Google\n   * LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  /**\n   * @license\n   * Copyright Google\n   * LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  //\n  This file only reexports content of the `src` folder. Keep it that way.\n  /**\n   * @license\n   * Copyright\n   * Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can\n   * be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  /**\n   * Generated bundle index. Do\n   * not edit.\n   */\n  exports.RouterTestingModule = RouterTestingModule;\n  exports.SpyNgModuleFactoryLoader = SpyNgModuleFactoryLoader;\n  exports.setupTestingRouter =\n  setupTestingRouter;\n  Object.defineProperty(exports, '__esModule', { value: true });\n  sourceMappingURL=router-testing.umd.js.map\n  }

```

Found in path(s):

* /router-11-0-2-tgz/package/bundles/router-testing.umd.min.js.map

MIT

No license file was found, but licenses were detected in source scan.

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governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n

```

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*\n\nimport {Location} from '@angular/common';\nimport {APP_BOOTSTRAP_LISTENER, ComponentRef,\nInjectionToken} from '@angular/core';\nimport {Router} from '@angular/router';\nimport {UpgradeModule} from\n'@angular/upgrade/static';\n\n/**\n * Creates an initializer that sets up `ngRoute` integration\n * along with setting\n up the Angular router.\n *\n * @usageNotes\n *\n * <code-example language=\\\"typescript\\\">\n * @NgModule({\n *   imports:\n [\n RouterModule.forRoot(SOME_ROUTES),\n UpgradeModule\n ],\n * providers: [\n *\n RouterUpgradeInitializer\n ]\n })\n * export class AppModule {\n *   ngDoBootstrap() {}\n * }\n * </code-example>\n *\n * @publicApi\n */\nexport const RouterUpgradeInitializer = {\n provide:\n APP_BOOTSTRAP_LISTENER,\n multi: true,\n useFactory: locationSyncBootstrapListener as (ngUpgrade:\n UpgradeModule) => () => void,\n deps: [UpgradeModule]\n};\n\n/**\n * @internal\n */\nexport function\nlocationSyncBootstrapListener(ngUpgrade: UpgradeModule) {\n return () => {\n setUpLocationSync(ngUpgrade);\n };\n}\n\n/**\n * Sets up a location change listener to trigger\n `history.pushState`. \n * Works around the problem that `onPopState` does not trigger `history.pushState`. \n * Must\n be called *after* calling `UpgradeModule.bootstrap`. \n *\n * @param ngUpgrade The upgrade NgModule. \n *\n * @param urlType The location strategy. \n * @see `HashLocationStrategy`\n * @see `PathLocationStrategy`\n *\n * @publicApi\n */\nexport function setUpLocationSync(ngUpgrade: UpgradeModule, urlType: 'path'|'hash' = 'path')\n{\n if (!ngUpgrade.$injector) {\n throw new Error(`\n RouterUpgradeInitializer can be used only after\n UpgradeModule.bootstrap has been called.`\n Remove RouterUpgradeInitializer and call setUpLocationSync\n after UpgradeModule.bootstrap.`\n );\n }\n\n const router: Router = ngUpgrade.injector.get(Router);\n const\n location: Location = ngUpgrade.injector.get(Location);\n\n ngUpgrade.$injector.get('$rootScope').\n .$on('$locationChangeStart', (_: any, next: string, __: string) => {\n let url;\n if (urlType === 'path') {\n url = resolveUrl(next);\n } else if (urlType === 'hash') {\n // Remove the first hash from the URL\n const hashIdx = next.indexOf('#');\n url = resolveUrl(next.substring(0, hashIdx) + next.substring(hashIdx +\n 1));\n } else {\n throw 'Invalid URLType passed to setUpLocationSync:'\n + urlType;\n }\n\n const path = location.normalize(url.pathname);\n router.navigateByUrl(path +\n url.search + url.hash);\n });\n}\n\n/**\n * Normalizes and parses a URL. \n *\n * - Normalizing means that a\n relative URL will be resolved into an absolute URL in the context of\n * the application document. \n * - Parsing\n means that the anchor's `protocol`, `hostname`, `port`, `pathname` and related\n * properties are all populated to reflect the normalized URL. \n *\n * While this approach has wide compatibility, it doesn't work as expected on IE.\n On IE, normalizing\n * happens similar to other browsers, but the parsed components will not be set. (E.g. if you\n assign\n * `a.href = 'foo'`, then `a.protocol`, `a.host`, etc. will not be correctly updated.) \n *\n * We work around that by performing the parsing in a 2nd step by taking a previously normalized URL\n * and assigning it again. This correctly populates all properties. \n *\n * See\n *\n https://github.com/angular/angular.js/blob/2c7400e7d07b0f6cec1817dab40b9250ce8ebce6/src/ng/urlUtils.js#L26-L33\n\n * for more info. \n */\nlet anchor: HTMLAnchorElement|undefined;\nfunction resolveUrl(url: string): {pathname:\n string, search: string, hash: string} {\n if (!anchor) {\n anchor = document.createElement('a');\n }\n\n anchor.setAttribute('href', url);\n anchor.setAttribute('href', anchor.href);\n\n return {\n // IE does not start\n `pathname` with `^` like other browsers.\n pathname: `${anchor.pathname.replace(/^\\/$/, '')}`,\n search:\n anchor.search,\n hash: anchor.hash\n }; \n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved. \n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n * @module\n * @description\n * Entry point for all public APIs of this package. \n */\nexport * from './src/upgrade';\n\n// This file only reexports content of the `src` folder.\nKeep it that way. \n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved. \n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n * This file is not used to build this module. It is only used during editing\n * by the TypeScript language service and during build for verification. `ngc` replaces this file with production index.ts when it rewrites private symbol names. \n */\nexport * from './public_api';\n\n/**\n * Generated bundle index. Do not edit. \n */\nexport *
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```
"/index";\n"],"names":["APP_BOOTSTRAP_LISTENER","UpgradeModule","router","Router","Location"],"mappings":";IAAA;;aAuCc;IAIBd;;QAuBa,wBAAwB,GAAG;QACtC,OAAO,EAAEA,2BAAsB;QAC/B,KAAK,EAAE,IAAI;QACX,UAAU,IAA2E;QACrF,IAAI,EAAE,CAACC,qBAAa,CAAC;MACrB;IAEF;;aAGgB,6BAA6B,CAAC,SAAwB;QACpE,OAAO;YACL,iBAAiB,CAAC,SAAS,CAAC,CAAC;SAC9B,CAAC;IACJ,CAAC;IAED;;aAYgB,iBAAiB,CAAC,SAAwB,EAAE,OAA+B;QAA/B,wBAAA,EAAA,gBAA+B;QACzF,IAAI,CAAC,SAAS,CAAC,SAAS,EAAE;YACxB,MAAM,IAAI,KAAK,CAAC,+MAGb,CAAC,CAAC;SACN;QAED,IAAMC,QAAM,GAAW,SAAS,CAAC,QAAQ,CAAC,GAAG,CAACC,aAAM,CAAC,CAAC;QACtD,IAAM,QAAQ,GAaA,SAAS,CAAC,QAAQ,CAAC,GAAG,CAACC,eAAQ,CAAC,CAAC;QAE5D,SAAS,CAAC,SAAS,CAAC,GAAG,CAAC,YAAY,CAAC;aAchC,GAAG,CAAC,sBAAsB,EAAE,UAAc,CAAM,EAAE,IAAY,EA AE,EAAU;YAC5D,IAAI,GAAG,CAAC;YACR,IAAI,OAAO,KAAK,MAAM,EAAE;gBACtB,GAAG,GAAG,UAAU,CAAC,IAAI,CAAC,CAAC;aACxB;iBAAM,IAAI,OAAO,KAAK,MAAM,EAAE;;gBAE7B,IAAM,OAAO,GAG,IAAI,CAAC,OAAO,CAAC,GAAG,CAAC,CAAC;gBACiC,GAAG,GAAG,UAAU,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,EAAE,OAAO,CAAC,GAAG,IAAI,CAAC,SAAS,CAAC,OAAO,GAAG,CAAC,CAAC,CAAC,CAAC;aAC5E;iBAAM;gBACL,MAAM,+CAA+C,GAAG,OAAO,CAAC;aACjE;YACD,IAAM,IAAI,GAAG,QAAQ,CAAC,SAAS,CAAC,GAAG,CAAC,QAAQ,CAAC,CAAC;YAC9CF,QAAM,CAAC,aAAa,CAAC,IAAI,GAAG,GAAG,CAAC,MAAM,GAAG,GAAG,CAAC,IAAI,CAAC,CAAC;SACpD,CAAC,CAAC;IACT,CAAC;IAED;;IAkBA,IAAI,MAAmC,CAAC;IACxC,SAAS,UAAU,CAAC,GAAW;QAC7B,IAAI,CAAC,MAAM,EAAE;YACX,MAAM,GAAG,QAAQ,CAAC,aAAa,CAAC,GAAG,CAAC,CAAC;SACtC;QAED,MAAM,CAAC,YAAY,CAAC,MAAM,EAAE,GAAG,CAAC,CAAC;QACjC,MAAM,CAAC,YAAY,CAAC,MAAM,EAAE,MAAM,CAAC,IAAI,CAAC,CAAC;QAEzC,OAAO;;YAEI,QAAQ,EAAE,MAAI,MAAM,CAAC,QAAQ,CAAC,OAAO,CAAC,KAAK,EAAE,EAAE,CAAG;YACiD,MAAM,EAAE,MAAM,CAAC,MAAM;YACrB,IAAI,EAAE,MAAM,CAAC,IAAI;SACiB,CAAC;IACJ;IC7HA;IAeA;ICfA;ICAA;}
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No license file was found, but licenses were detected in source scan.

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Object.setPrototypeOf(Array, ({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) || function (d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; }); return extendStatics(d,
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b);\r\n};\r\n\r\nexport function __extends(d, b) {\r\n    extendStatics(d, b);\r\n    function __() { this.constructor = d; }
\r\n    d.prototype = b === null ? Object.create(b) : (__.prototype = b.prototype, new __());\r\n}\r\n\r\nexport var
__assign = function() {\r\n    __assign = Object.assign || function __assign(t) {\r\n
        for (var s, i = 1, n = arguments.length; i < n; i++) {\r\n            s = arguments[i];\r\n            for (var p in s) if
(Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];\r\n        }\r\n        return t;\r\n    }\r\n    return
__assign.apply(this, arguments);\r\n}\r\n\r\nexport function __rest(s, e) {\r\n    var t = {};\r\n    for (var p in s) if
(Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\r\n        t[p] = s[p];\r\n    if (s != null && typeof
Object.getOwnPropertySymbols === "function")\r\n        for (var i = 0, p = Object.getOwnPropertySymbols(s); i <
p.length; i++) {\r\n            if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\r\n
                t[p[i]] = s[p[i]];\r\n        }\r\n    return t;\r\n}\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n
    var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) :
    desc, d;\r\n    if (typeof
Reflect === "object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key,
    desc);\r\n    else for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target,
    key, r) : d(target, key)) || r;\r\n    return c > 3 && r && Object.defineProperty(target, key, r);\r\n}\r\n\r\nexport
function __param(paramIndex, decorator) {\r\n    return function (target, key) { decorator(target, key, paramIndex);
}\r\n}\r\n\r\nexport function __metadata(metadataKey, metadataValue) {\r\n    if (typeof Reflect === "object" &&
    typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey, metadataValue);\r\n}\r\n\r\nexport
function __awaiter(thisArg, _arguments, P, generator) {\r\n    function adopt(value) { return value instanceof P ?
    value : new P(function (resolve) { resolve(value); }); }\r\n    return new (P || (P = Promise))(function (resolve, reject)
{\r\n        function fulfilled(value) { try {
            step(generator.next(value)); } catch (e) { reject(e); } }\r\n        function rejected(value) { try {
            step(generator["throw"](value)); } catch (e) { reject(e); } }\r\n        function step(result) { result.done ?
            resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\r\n        step((generator =
            generator.apply(thisArg, _arguments || [])).next());\r\n    });\r\n}\r\n\r\nexport function __generator(thisArg, body)
{\r\n    var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;\r\n
    return g = { next: verb(0, "throw": verb(1, "return": verb(2) }, typeof Symbol === "function" &&
    (g[Symbol.iterator] = function() { return this; })), g;\r\n    function verb(n) { return function (v) { return step([n, v]);
    }; }\r\n    function step(op) {\r\n        if (f) throw new TypeError("Generator is already executing.");\r\n        while
        (__) try {\r\n            if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0]
            ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;\r\n            if
            (y = 0, t) op = [op[0] & 2, t.value];\r\n            switch (op[0]) {\r\n                case 0: case 1: t = op; break;\r\n
                case 4: _.label++; return { value: op[1], done: false }; \r\n                case 5: _.label++; y = op[1]; op = [0];
                continue;\r\n                case 7: op = _.ops.pop(); _.trys.pop(); continue;\r\n                default: \r\n                    if (!(t =
                    _.trys, t = t.length > 0 && t[t.length - 1] && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }\r\n                    if
                    (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) { _.label = op[1]; break; }\r\n                    if (op[0] === 6 &&
                    _.label < t[1]) { _.label = t[1]; t = op; break; }\r\n                    if (t && _.label < t[2]) { _.label = t[2];
                    _.ops.push(op); break; }\r\n                    if (t[2]) _.ops.pop(); \r\n                    _.trys.pop(); continue;\r\n
                    }\r\n                op = body.call(thisArg, _); \r\n            } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }\r\n
            if (op[0] & 5) throw op[1]; return { value: op[0] ? op[1] : void 0, done: true }; }\r\n    }\r\n}\r\n\r\nexport var
__createBinding = Object.create ? (function(o, m, k, k2) {\r\n    if (k2 === undefined) k2 = k;\r\n    Object.defineProperty(o, k2, { enumerable: true, get: function() { return m[k]; } });\r\n}) : (function(o, m, k, k2)
{\r\n    if (k2 === undefined) k2 = k;\r\n    o[k2] = m[k];\r\n});\r\n\r\nexport function __exportStar(m, exports) {\r\n
    for (var p in m) if (p !== "default" && !exports.hasOwnProperty(p)) __createBinding(exports, m,
    p);\r\n}\r\n\r\nexport function __values(o) {\r\n    var s = typeof Symbol === "function" && Symbol.iterator, m =
    s && o[s], i = 0;\r\n    if (m) return m.call(o);\r\n    if (o && typeof o.length === "number") return {\r\n        next:
        function () {\r\n            if (o && i >= o.length) o

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= void 0;\r\n    value: o && o[i++], done: !o };\r\n        }\r\n        throw new TypeError(s ?\n\"Object is not iterable.\" : \"Symbol.iterator is not defined.\");\r\n}\r\n\r\n\r\nexport function __read(o, n) {\r\n    var m = typeof Symbol === \"function\" && o[Symbol.iterator];\r\n    if (!m) return o;\r\n    var i = m.call(o), r, ar = [], e;\r\n    try {\r\n        while ((n === void 0 || n-- > 0) && !(r = i.next()).done) ar.push(r.value);\r\n    }\r\n    catch (error) { e = { error: error }; }\r\n    finally {\r\n        try {\r\n            if (r && !r.done && (m = i[\"return\"])) m.call(i);\r\n        }\r\n        finally { if (e) throw e.error; }\r\n    }\r\n    return ar;\r\n}\r\n\r\n\r\nexport function __spread() {\r\n    for (var ar = [], i = 0; i < arguments.length; i++)\r\n        ar = ar.concat(__read(arguments[i]));\r\n    return ar;\r\n}\r\n\r\n\r\nexport function __spreadArrays() {\r\n    for (var s = 0, i = 0, il = arguments.length; i < il; i++) s += arguments[i].length;\r\n    for (var r = Array(s), k = 0, i = 0; i < il; i++)\r\n        for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\r\n            r[k] = a[j];\r\n    return r;\r\n};\r\n\r\n\r\nexport function __await(v) {\r\n    return this instanceof __await ? (this.v = v, this) : new __await(v);\r\n}\r\n\r\n\r\nexport function __asyncGenerator(thisArg, _arguments, generator) {\r\n    if (!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not defined.\");\r\n    var g = generator.apply(thisArg, _arguments || []), i, q = [];\r\n    return i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i;\r\n    function verb(n) { if (g[n]) i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\r\n    function resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); }}\r\n    function step(r) { r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\r\n    function fulfill(value) { resume(\"next\", value); }\r\n    function reject(value) { resume(\"throw\", value); }\r\n    function settle(f, v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\n\r\nexport function __asyncDelegator(o) {\r\n    var i, p;\r\n    return i = { }, verb(\"next\"), verb(\"throw\"), function (e) { throw e; }, verb(\"return\"), i[Symbol.iterator] = function () { return this; }, i;\r\n    function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === \"return\" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\n\r\nexport function __asyncValues(o) {\r\n    if (!Symbol.asyncIterator) throw new TypeError(\"Symbol.asyncIterator is not defined.\");\r\n    var m = o[Symbol.asyncIterator], i;\r\n    return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) : o[Symbol.iterator]() , i = { }, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator]\n= function () { return this; }, i);\r\n    function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; }\r\n    function settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject); }\r\n}\r\n\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n    if (Object.defineProperty) { Object.defineProperty(cooked, \"raw\", { value: raw }); } else { cooked.raw = raw; }\r\n    return cooked;\r\n};\r\n\r\n\r\n__nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n    Object.defineProperty(o, \"default\", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n    o[\"default\"] = v;\r\n};\r\n\r\n\r\nexport function __importStar(mod) {\r\n    if (mod && mod.__esModule) return mod;\r\n    var result = {};\r\n    if (mod != null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n    __setModuleDefault(result, mod);\r\n    return result;\r\n}\r\n\r\n\r\nexport function __importDefault(mod) {\r\n    return (mod && mod.__esModule) ? mod : { default: mod }; }\r\n\r\n\r\nexport function __classPrivateFieldGet(receiver, privateMap) {\r\n    if (!privateMap.has(receiver)) {\r\n        throw new TypeError(\"attempted to get private field on non-instance\");\r\n    }\r\n    return privateMap.get(receiver);\r\n}\r\n\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n    if (!privateMap.has(receiver)) {\r\n        throw new TypeError(\"attempted to set private field on non-instance\");\r\n    }\r\n    privateMap.set(receiver, value);\r\n    return value;\r\n};\r\n\r\n\r\n\"**\\n * @license\\n * Copyright Google LLC All Rights Reserved.\\n **\\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\\n */\\n\\nimport {Location, LocationStrategy} from '@angular/common';\\nimport {MockLocationStrategy, SpyLocation} from '@angular/common/testing';\\nimport {Compiler, Injectable, Injector, ModuleWithProviders, NgModule, NgModuleFactory, NgModuleFactoryLoader, Optional} from '@angular/core';\\nimport
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{ChildrenOutletContexts, ExtraOptions, NoPreloading, PreloadingStrategy, provideRoutes, Route, Router,
ROUTER_CONFIGURATION, RouterModule, ROUTES, Routes, UrlHandlingStrategy, UrlSerializer,
assignExtraOptionsToRouter as assignExtraOptionsToRouter, flatten as flatten, ROUTER_PROVIDERS as
ROUTER_PROVIDERS} from '@angular/router';\n\n/**\n * @description\n *\n * Allows to simulate the
loading of ng modules in tests.\n *\n * ``\n * const loader = TestBed.inject(NgModuleFactoryLoader);\n *\n * @Component({template: 'lazy-loaded'})\n * class LazyLoadedComponent {\n *\n * @NgModule({\n *\n * declarations:
[LazyLoadedComponent],\n *\n * imports: [RouterModule.forChild({path: 'loaded', component:
LazyLoadedComponent})])\n *\n * })\n *\n * class LoadedModule {\n *\n * // sets up stubbedModules\n
* loader.stubbedModules = {lazyModule: LoadedModule};\n *\n * router.resetConfig({\n *\n * {path: 'lazy',
loadChildren: 'lazyModule'},\n *\n * });\n *\n * router.navigateByUrl('/lazy/loaded');\n *\n * ``\n *\n * @publicApi\n
*\n * @Injectable()\n * export class SpyNgModuleFactoryLoader implements NgModuleFactoryLoader {\n *\n * /**\n *\n * @docsNotRequired\n
* \n * private _stubbedModules: {[path: string]: Promise<NgModuleFactory<any>>} =
{\n *\n * }\n *\n * /**\n *\n * @docsNotRequired\n
* \n * set stubbedModules(modules: {[path: string]: any}) {\n *\n * const res:
{[path: string]: any} = {\n *\n * for (const t of Object.keys(modules)) {\n *\n * res[t] =
this.compiler.compileModuleAsync(modules[t]);\n *\n * }\n *\n * this._stubbedModules = res;\n *\n * }\n *\n * /**\n *\n * @docsNotRequired\n
* \n * get stubbedModules(): {[path: string]: any} {\n *\n * return this._stubbedModules;\n *\n * }\n *\n * constructor(private compiler: Compiler) {\n *\n * }\n *\n * load(path: string): Promise<NgModuleFactory<any>> {\n *\n * if
(this._stubbedModules[path]) {\n *\n * return this._stubbedModules[path];\n *\n * } else {\n *\n * return <any>Promise.reject(new Error(`Cannot find module
${path}`));\n *\n * }\n *\n * }\n *\n * function isUrlHandlingStrategy(opts: ExtraOptions\n
UrlHandlingStrategy): opts is UrlHandlingStrategy {\n *\n * // This property check is needed because
UrlHandlingStrategy is an interface and doesn't exist at\n *\n * // runtime.\n *\n * return 'shouldProcessUrl' in
opts;\n *\n * }\n *\n * /**\n *\n * Router setup factory function used for testing.\n *\n * * @publicApi\n
*\n * @NgModule\n
*\n * export function\n
setupTestingRouter(\n *\n * urlSerializer: UrlSerializer, contexts: ChildrenOutletContexts, location: Location,\n
loader: NgModuleFactoryLoader, compiler: Compiler, injector: Injector, routes: Route[][],\n *\n * opts?: ExtraOptions,\n
urlHandlingStrategy?: UrlHandlingStrategy): Router;\n *\n * /**\n *\n * Router setup factory function used for testing.\n *\n * * @deprecated As of v5.2. The 2nd-to-last argument should be `ExtraOptions`, not\n
*\n * `UrlHandlingStrategy`\n *\n * @publicApi\n
*\n * @NgModule\n
*\n * export function setupTestingRouter(\n *\n * urlSerializer: UrlSerializer, contexts: ChildrenOutletContexts, location:
Location,\n *\n * loader: NgModuleFactoryLoader, compiler: Compiler, injector: Injector, routes: Route[][],\n
urlHandlingStrategy?: UrlHandlingStrategy): Router;\n *\n * /**\n *\n * Router setup factory function used for testing.\n *\n * * @publicApi\n
*\n * @NgModule\n
*\n * export function setupTestingRouter(\n *\n * urlSerializer: UrlSerializer, contexts:
ChildrenOutletContexts, location: Location,\n *\n * loader: NgModuleFactoryLoader, compiler: Compiler, injector:
Injector, routes: Route[][],\n *\n * opts?: ExtraOptions|UrlHandlingStrategy, urlHandlingStrategy?:
UrlHandlingStrategy) {\n *\n * const router = new Router(\n *\n * null!, urlSerializer, contexts, location, injector, loader,\n
compiler, flatten(routes));\n *\n * if (opts) {\n *\n * // Handle deprecated argument ordering.\n *\n * if
(isUrlHandlingStrategy(opts)) {\n *\n * router.urlHandlingStrategy = opts;\n *\n * } else {\n *\n * // Handle ExtraOptions\n
*\n * assignExtraOptionsToRouter(opts, router);\n *\n * }\n *\n * }\n *\n * if (urlHandlingStrategy) {\n *\n * router.urlHandlingStrategy
= urlHandlingStrategy;\n *\n * }\n *\n * return router;\n *\n * }\n *\n * /**\n *\n * @description\n
*\n * Sets up the router to be used for testing.\n *\n * * The modules sets up the router to be used for testing.\n *\n * * It provides spy implementations of
`Location`, `LocationStrategy`, and { @link\n *\n * NgModuleFactoryLoader }.\n *\n * * @usageNotes\n
*\n * ###\n
Example\n *\n * ``\n *\n * beforeEach(() => {\n *\n * TestBed.configureTestingModule({\n *\n * imports: [\n *\n * RouterTestingModule.withRoutes(\n *\n * [{path: '', component: BlankCmp}, {path: 'simple', component:
SimpleCmp}],\n *\n * )\n *\n * ]\n *\n * });\n *\n * });\n *\n * ``\n *\n * * @publicApi\n
*\n * @NgModule\n
*\n * @NgModule({\n *\n * exports:
[RouterModule],\n *\n * providers: [\n *\n * ROUTER_PROVIDERS, {provide: Location, useClass: SpyLocation},\n
*\n * {provide: LocationStrategy, useClass: MockLocationStrategy},\n *\n * {provide: NgModuleFactoryLoader, useClass:
SpyNgModuleFactoryLoader},

```

```
{
  provide: Router,
  useFactory: setupTestingRouter,
  deps: [
    UrlSerializer,
    ChildrenOutletContexts,
    Location,
    NgModuleFactoryLoader,
    Compiler,
    Injector,
    ROUTES,
    ROUTER_CONFIGURATION,
    [UrlHandlingStrategy, new Optional()]
  ],
  {
    provide:
      PreloadingStrategy,
      useExisting: NoPreloading,
  },
  provideRoutes([])
})

export class RouterTestingModule {
  static withRoutes(routes: Routes, config?: ExtraOptions):
    ModuleWithProviders<RouterTestingModule> {
    return {
      ngModule: RouterTestingModule,
      providers: [
        provideRoutes(routes),
        {
          provide:
            ROUTER_CONFIGURATION,
            useValue: config ? config : {},
        },
      ],
    };
  }
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license
 * that can be found in the LICENSE file at https://angular.io/license
 * @module
 * @description
 * Entry point for all public
 * APIs of the router/testing package.
 */
export * from './router_testing_module';

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license
 * that can be found in the LICENSE file at https://angular.io/license
 * @module
 * @description
 * Entry point for all public APIs of this package.
 */
export * from './src/testing';

// This file only reexports
// content of the `src` folder. Keep it that way.
/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license
 * that can be found in the LICENSE file at
 * https://angular.io/license
 * This file is not used to build this module. It is only used during editing
 * by the TypeScript language service and during build for verification.
 * `ngc` replaces this file with production index.ts
 * when it rewrites private symbol names.
 */
export * from './public_api';

/**
 * Generated bundle index. Do not edit.
 */
export * from
  './index';

const names: string[] = [
  'Injectable',
  'Compiler',
  'router',
  'Router',
  'flatten',
  'assignExtraOptionsToRouter',
  'provideRoutes',
  'ROUTER_CONFIGURATION',
  'NgModule',
  'RouterModule',
  'ROUTER_PROVIDERS',
  'Location',
  'SpyLocation',
  'LocationStrategy',
  'MockLocationStrategy',
  'NgModuleFactoryLoader',
  'UrlSerializer',
  'ChildrenOutletContexts',
  'Injector',
  'ROUTES',
  'UrlHandlingStrategy',
  'Optional',
  'PreloadingStrategy',
  'NoPreloading',
  ], mappings:
    'IAAA;IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aAChC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAAU,CAAC,EAAE,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,CAAC;oBAAE,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,OAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAAE,CAAC;QAC1B,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,WAAW,GAAG,CAAC,CAAC,EAAE;QACvC,CAAC,CAAC,SAAS,GAAG,CAAC,KAAK,IAAI,GAAG,MAAM,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE,EAAE,CAAC,CAAC;IACzF,CAAC;IAEM,IAAI,QAAQ,GAAG;QAC1B,QAAQ,GAAG,MAAM,CAAC,MAAM,IAAI,SAAS,QAAQ,CAAC,CAAC;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;aAChF;YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,KAAK,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CAAC,EAAE,CAAC;QACvB,IAAI,CAAC,GAAG,EAAE,CAAC;QACX,KAAK,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,GAAG,CAAC;gBAC/E,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC;QACkB,IAAI,CAAC,IAAI,IAAIL,OAAO,MAAM,CAAC,qBAAqB,KAAK,UAAU;YAC/D,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,MAAM,CAAC,qBAAqB,CAAC,CAAC,CAAC,EAAE,CAAC,GAAG,CAAC,CAAC,MAAM,EAAE,CAAC,EAAE,EAAE;gBACpE,IAAI,CAAC,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,MAAM,CAAC,SAAS,CAAC,oBAAoB,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,CAAC,CAAC;oBAC1E,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,C
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Found

in path(s):

* /router-11-0-2-tgz/package/bundles/router-testing.umd.js.map

No license file was found, but licenses were detected in source scan.

```
/**
 * @license Angular v11.0.2
 * (c) 2010-2020 Google LLC. https://angular.io/
 * License: MIT
 */

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 *
 * Use of this source code is governed by an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
```

Found in path(s):

```
* /router-11-0-2-tgz/package/fesm2015/router.js
* /router-11-0-2-tgz/package/fesm2015/testing.js
* /router-11-0-2-tgz/package/fesm2015/upgrade.js
```

No license file was found, but licenses were detected in source scan.

```
/**
 * @license Angular v11.0.2
 * (c) 2010-2020 Google LLC. https://angular.io/
 * License: MIT
 */
/*! *****
Copyright (c) Microsoft Corporation.
```

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```
*****
```

```
*/

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 * found in the LICENSE file at https://angular.io/license
 */
```

Found in path(s):

- * /router-11-0-2-tgz/package/bundles/router.umd.js
- * /router-11-0-2-tgz/package/bundles/router-testing.umd.min.js
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- * /router-11-0-2-tgz/package/bundles/router.umd.min.js

1.446 angular-devkit-build-angular 0.1100.2

1.446.1 Available under license :

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WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

```
{
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```

MIT

1.447 @angular/platform-browser-dynamic 11.0.2

1.447.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
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 * @license
 * Copyright Google LLC All Rights Reserved.
 *
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 * found in the LICENSE file at https://angular.io/license
 */
```

Found in path(s):

```
* /platform-browser-dynamic-11-0-2-tgz/package/esm2015/testing/src/private_export_testing.js
* /platform-browser-dynamic-11-0-2-tgz/package/esm2015/src/platform_providers.js
* /platform-browser-dynamic-11-0-2-tgz/package/esm2015/src/resource_loader/resource_loader_cache.js
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* /platform-browser-dynamic-11-0-2-tgz/package/esm2015/src/platform_core_dynamic.js
* /platform-browser-dynamic-11-0-2-tgz/package/esm2015/testing/public_api.js
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No license file was found, but licenses were detected in source scan.

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/*!
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```

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ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS

SOFTWARE.

```
global Reflect, Promise
var extendStatics = function(d, b) {
  extendStatics =
Object.setPrototypeOf ||
  ({ __proto__: [] } instanceof Array && function(d, b) { d.__proto__
= b; }) ||
  function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; };
  return
extendStatics(d, b);
}
export function __extends(d, b) {
  extendStatics(d, b);
  function __() {
this.constructor = d;
}
  d.prototype = b === null ? Object.create(b) : (__.prototype = b.prototype, new
__());
}
export var __assign = function() {
  __assign = Object.assign || function __assign(t) {
    for (var s, i = 1, n = arguments.length; i < n; i++) {
      s = arguments[i];
      for (var p in s) if
(Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];
    }
    return t;
  }
  __assign.apply(this, arguments);
}
export function __rest(s, e) {
  var t = {};
  for (var p in s) if
(Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0) t[p] = s[p];
  if (s != null && typeof
Object.getOwnPropertySymbols === "function")
    for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {
      if (e.indexOf(p[i]) < 0 &&
Object.prototype.propertyIsEnumerable.call(s, p[i])) t[p[i]] = s[p[i]];
    }
  return t;
}
export function __decorate(decorators, target, key, desc) {
  var c = arguments.length, r = c < 3 ?
target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;
  if (typeof Reflect ===
"object" && typeof Reflect.decorate === "function") r = Reflect.decorate(decorators, target, key, desc);
  else
    for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target,
key)) || r;
  return c > 3 && r && Object.defineProperty(target, key, r), r;
}
export function __param(paramIndex, decorator) {
  return function (target, key) { decorator(target, key, paramIndex);
}
}
export function __metadata(metadataKey,
metadataValue) {
  if (typeof Reflect === "object" && typeof Reflect.metadata === "function") return
Reflect.metadata(metadataKey, metadataValue);
}
export function __awaiter(thisArg, _arguments, P,
generator) {
  function adopt(value) { return value instanceof P ? value : new P(function (resolve) {
resolve(value);
}); }
  return new (P || (P = Promise))(function (resolve, reject) {
    function fulfilled(value) { try {
step(generator.next(value)); } catch (e) { reject(e); } }
    function rejected(value) { try {
step(generator["throw"](value)); } catch (e) { reject(e); } }
    function step(result) { result.done ?
resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }
    step((generator =
generator.apply(thisArg, _arguments || []).next()).value);
  });
}
export function __generator(thisArg, body) {
  var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys:
[], ops: [] }, f, y, t, g;
  return g = { next: verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol ===
"function" && (g[Symbol.iterator] = function() { return this; }), g;
  function verb(n) { return function (v) {
return step([n, v]);
}; }
  function step(op) {
    if (f) throw new TypeError("Generator is already
executing.");
    while (_) try {
      if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] ||
((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;
      if (y = 0, t) op =
[op[0] & 2, t.value];
      switch (op[0]) {
        case 0: case 1: t = op; break;
        case 4:
_.label++; return { value: op[1], done: false };
        case 5: _.label++; y = op[1]; op = [0]; continue;
        case 7: op = _.ops.pop(); _.trys.pop(); continue;
        default:
          if (!(t = _.trys, t
= t.length > 0 && t[t.length - 1] && (op[0] === 6 || op[0] === 2))) { _ = 0; continue; }
          if (op[0] ===
3 && !(t || (op[1] > t[0] && op[1] < t[3]))) { _.label = op[1]; break; }
          if (op[0] === 6 && _.label <
t[1]) { _.label = t[1]; t = op; break; }
          if (t && _.label < t[2]) { _.label = t[2]; _.ops.push(op); break; }
          if (t[2]) _.ops.pop();
          _.trys.pop(); continue;
        op =
body.call(thisArg, _);
      } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }
      if (op[0] & 5) throw

```



```

privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n  if
(!privateMap.has(receiver))
  {\r\n    throw new TypeError(\r\n    "attempted to set private field on non-instance\r\n    ");\r\n  }\r\n
privateMap.set(receiver, value);\r\n  return value;\r\n}\r\n\r\n"/**\r\n * @license\r\n * Copyright Google LLC All
Rights Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found in the
LICENSE file at https://angular.io/license\r\n */\r\n\r\nimport {DOCUMENT, getDOM as getDOM} from
'@angular/common';\r\nimport {Inject, Injectable} from '@angular/core';\r\nimport {TestComponentRenderer} from
'@angular/core/testing';\r\n\r\n/**\r\n * A DOM based implementation of the TestComponentRenderer.\r\n */\r\n\r\n@Injectable()\r\nexport class DOMTestComponentRenderer extends TestComponentRenderer {\r\n
  constructor(@Inject(DOCUMENT) private _doc: any) {\r\n    super();\r\n  }\r\n\r\n  insertRootElement(rootElId: string)
{\r\n    const template = getDOM().getDefaultDocument().createElement('template');\r\n    template.innerHTML =
`<div id="${rootElId}"></div>`; \r\n    const rootEl = <HTMLElement>getContent(template).firstChild;\r\n\r\n
    // TODO(juliemr): can/should this be optional?\r\n    const oldRoots = this._doc.querySelectorAll('[id^=root]');\r\n
    for (let i = 0; i < oldRoots.length; i++) {\r\n      getDOM().remove(oldRoots[i]);\r\n    }\r\n\r\n    this._doc.body.appendChild(rootEl);\r\n  }\r\n\r\n  function getContent(node: Node): Node {\r\n    if ('content' in node)
{\r\n      return (<any>node).content;\r\n    } else {\r\n      return node;\r\n    }\r\n  }\r\n\r\n"/**\r\n * @license\r\n * Copyright Google
LLC All Rights Reserved.\r\n * Use of this source code is governed by an MIT-style license that can be\r\n * found
in the LICENSE file at https://angular.io/license\r\n */\r\n\r\n`MetadataOverride` has been moved to core/testing to
allow using it from the render3 TestBed\r\nexport {MetadataOverride as MetadataOverride} from
'@angular/core/testing';\r\n\r\n"/**\r\n * @license\r\n * Copyright Google LLC All Rights Reserved.\r\n * Use of this
source code is governed by an MIT-style license that can be\r\n * found in the LICENSE
file at https://angular.io/license\r\n */\r\n\r\nimport {CompileReflector, DirectiveResolver,
ERROR_COMPONENT_TYPE, NgModuleResolver, PipeResolver} from '@angular/compiler';\r\nimport
{MockDirectiveResolver, MockNgModuleResolver, MockPipeResolver} from '@angular/compiler/testing';\r\nimport
{CompilerFactory, CompilerOptions, Component, ComponentFactory, Directive, Injector,
ModuleWithComponentFactories, NgModule, NgModuleFactory, Pipe, StaticProvider, Type, stringify as stringify}
from '@angular/core';\r\nimport {MetadataOverride, TestingCompiler as TestingCompiler, TestingCompilerFactory
as TestingCompilerFactory} from '@angular/core/testing';\r\nimport {CompilerImpl as CompilerImpl} from
'@angular/platform-browser-dynamic';\r\n\r\nimport {MetadataOverride} from './metadata_override';\r\n\r\nexport const
COMPILER_PROVIDERS: StaticProvider[] = [\r\n  {provide: MockPipeResolver, deps: [CompileReflector]},\r\n
  {provide: PipeResolver, useExisting: MockPipeResolver},\r\n  {provide: MockDirectiveResolver,
  deps: [CompileReflector]},\r\n  {provide: DirectiveResolver, useExisting: MockDirectiveResolver},\r\n
  {provide: MockNgModuleResolver, deps: [CompileReflector]},\r\n  {provide: NgModuleResolver, useExisting:
MockNgModuleResolver},\r\n]\r\n\r\nexport class TestingCompilerFactoryImpl implements TestingCompilerFactory
{\r\n  constructor(private _injector: Injector, private _compilerFactory: CompilerFactory) {\r\n  }\r\n\r\n
  createTestingCompiler(options: CompilerOptions[]): TestingCompiler {\r\n    const compiler =
<CompilerImpl>this._compilerFactory.createCompiler(options);\r\n    return new TestingCompilerImpl(\r\n
      compiler, compiler.injector.get(MockDirectiveResolver),\r\n      compiler.injector.get(MockPipeResolver),
      compiler.injector.get(MockNgModuleResolver));\r\n  }\r\n}\r\n\r\nexport class TestingCompilerImpl implements
TestingCompiler {\r\n  private _override = new MetadataOverride();\r\n  constructor(\r\n    private _compiler:
CompilerImpl, private _directiveResolver: MockDirectiveResolver,\r\n    private _pipeResolver:
MockPipeResolver, private _moduleResolver: MockNgModuleResolver) {\r\n  }\r\n\r\n  get injector(): Injector {\r\n    return
this._compiler.injector;\r\n  }\r\n\r\n  compileModuleSync<T>(moduleType: Type<T>): NgModuleFactory<T> {\r\n
    return this._compiler.compileModuleSync(moduleType);\r\n  }\r\n\r\n  compileModuleAsync<T>(moduleType:
Type<T>): Promise<NgModuleFactory<T>> {\r\n    return this._compiler.compileModuleAsync(moduleType);\r\n  }\r\n\r\n
  compileModuleAndAllComponentsSync<T>(moduleType: Type<T>): ModuleWithComponentFactories<T> {\r\n
    return this._compiler.compileModuleAndAllComponentsSync(moduleType);\r\n  }\r\n\r\n
  compileModuleAndAllComponentsAsync<T>(moduleType: Type<T>):\r\n

```

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Promise<ModuleWithComponentFactories<T>> {\n  return
this._compiler.compileModuleAndAllComponentsAsync(moduleType);\n }\n\ngetComponentFactory<T>(component: Type<T>): ComponentFactory<T> {\n  return
this._compiler.getComponentFactory(component);\n }\n\ncheckOverrideAllowed(type: Type<any>): {\n  if
(this._compiler.hasAotSummary(type))
{\n    throw new Error(`${stringify(type)} was AOT compiled, so its metadata cannot be changed.`);\n  }\n }\n\noverrideModule(ngModule: Type<any>, override: MetadataOverride<NgModule>): void {\n
this.checkOverrideAllowed(ngModule);\n  const oldMetadata = this._moduleResolver.resolve(ngModule, false);\n  this._moduleResolver.setNgModule(\n    ngModule, this._overrider.overrideMetadata(NgModule, oldMetadata,
override));\n  this.clearCacheFor(ngModule);\n }\n\noverrideDirective(directive: Type<any>, override:
MetadataOverride<Directive>): void {\n  this.checkOverrideAllowed(directive);\n  const oldMetadata =
this._directiveResolver.resolve(directive, false);\n  this._directiveResolver.setDirective(\n    directive,
this._overrider.overrideMetadata(Directive, oldMetadata!, override));\n  this.clearCacheFor(directive);\n }\n\noverrideComponent(component: Type<any>, override: MetadataOverride<Component>): void {\n
this.checkOverrideAllowed(component);\n
  const oldMetadata = this._directiveResolver.resolve(component, false);\n
this._directiveResolver.setDirective(\n  component, this._overrider.overrideMetadata(Component, oldMetadata!,
override));\n  this.clearCacheFor(component);\n }\n\noverridePipe(pipe: Type<any>, override:
MetadataOverride<Pipe>): void {\n  this.checkOverrideAllowed(pipe);\n  const oldMetadata =
this._pipeResolver.resolve(pipe, false);\n  this._pipeResolver.setPipe(pipe, this._overrider.overrideMetadata(Pipe,
oldMetadata, override));\n  this.clearCacheFor(pipe);\n }\n\nloadAotSummaries(summaries: () => any[]) {\n
this._compiler.loadAotSummaries(summaries);\n }\n\nclearCache(): void {\n  this._compiler.clearCache();\n }\n\n
clearCacheFor(type: Type<any>) {\n  this._compiler.clearCacheFor(type);\n }\n\n\ngetComponentFromError(error: Error) {\n  return (error as any)[ERROR_COMPONENT_TYPE] || null;\n }\n\n
getModuleId(moduleType: Type<any>): string|undefined {\n
  return this._moduleResolver.resolve(moduleType, true).id;\n }\n\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport { COMPILER_OPTIONS, CompilerFactory,
createPlatformFactory, Injector, PlatformRef } from '@angular/core';\nimport { TestingCompilerFactory as
TestingCompilerFactory } from '@angular/core/testing';\nimport { platformCoreDynamic as platformCoreDynamic }
from '@angular/platform-browser-dynamic';\n\nimport { COMPILER_PROVIDERS, TestingCompilerFactoryImpl }
from './compiler_factory';\n\n/**\n * Platform for dynamic tests\n */\n * @publicApi\n */\nexport const
platformCoreDynamicTesting: (extraProviders?: any[]) => PlatformRef =\n
createPlatformFactory(platformCoreDynamic, 'coreDynamicTesting', [\n  { provide: COMPILER_OPTIONS,
  useValue: { providers: COMPILER_PROVIDERS }, multi: true },\n  {\n    provide: TestingCompilerFactory,\n
    useClass: TestingCompilerFactoryImpl,\n    deps: [Injector, CompilerFactory]\n  }\n ]);\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport
{ DOMTestComponentRenderer as DOMTestComponentRenderer } from './dom_test_component_renderer';\nexport
{ platformCoreDynamicTesting as platformCoreDynamicTesting } from './platform_core_dynamic_testing';\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{ createPlatformFactory, NgModule, PlatformRef, StaticProvider } from '@angular/core';\nimport
{ TestComponentRenderer } from '@angular/core/testing';\nimport
{ INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS as
INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS }
from '@angular/platform-browser-dynamic';\nimport { BrowserTestingModule } from '@angular/platform-
browser/testing';\nimport { DOMTestComponentRenderer } from './dom_test_component_renderer';\nimport

```

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{platformCoreDynamicTesting} from './platform_core_dynamic_testing';\n\nexport * from
'./private_export_testing';\n\n/**\n * @publicApi\n */\nexport const platformBrowserDynamicTesting =
createPlatformFactory(\n  platformCoreDynamicTesting, 'browserDynamicTesting',\n  INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS);\n\n/**\n * NgModule for testing.\n */\n *
@publicApi\n */\n@NgModule({\n  exports: [BrowserTestingModule],\n  providers: [\n    {provide:
TestComponentRenderer, useClass: DOMTestComponentRenderer},\n  ]\n})\nexport class
BrowserDynamicTestingModule {\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n
*/\n\n/**\n * @module\n * @description\n * Entry point for all public APIs of this package.\n */\nexport * from
'./src/testing';\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n *
Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n//
This file is not used to build this module. It is only used during editing\n// by the TypeScript language service and
during build for verification. `ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n//
names.\n\nexport * from './public_api';\n", "/*\n * Generated bundle index. Do not edit.\n */\n\nexport * from
'./index';\n\nexport {COMPILER_PROVIDERS as
angular_packages_platform_browser_dynamic_testing_testing_a,TestingCompilerFactoryImpl as
angular_packages_platform_browser_dynamic_testing_testing_b} from
'./src/compiler_factory';\n\n}, {"names":["getDOM","TestComponentRenderer","Injectable","Inject","DOCUMENT","M
ockPipeResolver","CompileReflector","PipeResolver","MockDirectiveResolver","DirectiveResolver","MockNgMo
duleResolver","NgModuleResolver","MetadataOverride","stringify","NgModule","Directive","Component","Pipe",
"ERROR_COMPONENT_TYPE","createPlatformFactory","platformCoreDynamic","COMPILER_OPTIONS","Te
stingCompilerFactory","Injector","CompilerFactory","INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROV
IDERS","BrowserTestingModule"],"mappings":";;;;;;;;;IAAA;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,C
AAC,EAAE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aAChC,EAAE,SAAS,EAAE,EAAE,EAAE,YAA
Y,KAAK,IAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YA
C5E,UAAU,CAAC,EAAE,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CA
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C;QAC/E,OAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CA
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AI,EAAE,EAAE,CAAC,CAAC;IACzF,CAAC;IAEM,IAAI,QAAQ,GAAG;QACIB,QAAQ,GAAG,MAAM,CAAC
,MAAM,IAAI,SAAS,QAAQ,CAAC,CAAC;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CA
AC,GAAG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GA
AG,SAAS,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,
SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAAC,GA
AG,CAAC,CAAC,CAAC,CAAC,CAAC;aAChF;YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAA
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AAE,CAAC;QACvB,IAAI,CAAC,GAAG,EAAE,CAAC;QACX,KAAK,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,M
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,CAAC,CAAC,CAAC,GAAG,CAAC,IAAI,MAAM,CAAC,SAAS,CAAC,oBAAoB,CAAC,IAAI,CAAC,CAAC,E
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AAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;aACzB;QACL,OAAO,CAAC,CAAC;IACb,CAAC;aAEe

```

,UAAU,CAAC,UAAU,EAAE,MAAM,EAAE,GAAG,EAAE,IAAI;QACpD,IAAI,CAAC,GAAG,SAAS,CAAC,M
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C;aAEe,SAAS,CAAC,OAAO,EAAE,UAAU,EAAE,CAAC,EAAE,SAAS;QACvD,SAAS,KAAK,CAAC,KAAK,I
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O,CAAC,GAAG,EAAE,IAAI,EAAE,IAAI,CAAC,CAAC,CAAC,EAAE,OAAO,EAAE,IAAI,CAAC,CAAC,CAA
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AM,IAAI,SAAS,CAAC,iCAAiC,CAAC,CAAC;YAC9D,OAAO,CAAC;gBAAE,IAAI;oBACV,IAAI,CAAC,GAA
G,CAAC,EAAE,CAAC,KAAK,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,
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SOFTWARE.\r\n*****

/\r\n/ global

```
Reflect, Promise */\r\n\r\nvar extendStatics = function(d, b) {\r\n    extendStatics = Object.setPrototypeOf ||\r\n    ({ __proto__: [] } instanceof Array && function(d, b) { d.__proto__ = b; }) ||\r\n    function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; }; \r\n    return extendStatics(d, b);\r\n};\r\n\r\n\r\n\r\nexport function __extends(d, b) {\r\n    extendStatics(d, b);\r\n    function __() { this.constructor = d; }\r\n    d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\r\n};\r\n\r\n\r\n\r\nexport var __assign = function() {\r\n    __assign = Object.assign || function __assign(t) {\r\n        for (var s, i = 1, n = arguments.length; i < n; i++) {\r\n            s = arguments[i];\r\n            for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];\r\n        }\r\n        return t;\r\n    }; \r\n    return __assign.apply(this, arguments);\r\n};\r\n\r\n\r\n\r\nexport function __rest(s, e) {\r\n    var t = {};\r\n    for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\r\n        t[p] = s[p];\r\n    if (s != null && typeof Object.getOwnPropertySymbols === \"function\")\r\n        for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\r\n            if (e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\r\n                t[p[i]] = s[p[i]];\r\n        }\r\n    return t;\r\n};\r\n\r\n\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n    var c = arguments.length, r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\r\n    if (typeof Reflect === \"object\" && typeof Reflect.decorate === \"function\") r = Reflect.decorate(decorators, target, key, desc);\r\n    else for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\r\n    return c > 3 && r && Object.defineProperty(target, key, r), r;\r\n};\r\n\r\n\r\n\r\nexport function __param(paramIndex, decorator) {\r\n    return function (target, key) {\r\n        decorator(target, key, paramIndex);\r\n    }; \r\n};\r\n\r\n\r\n\r\nexport function __metadata(metadataKey, metadataValue) {\r\n    if
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(typeof Reflect === "object" && typeof Reflect.metadata === "function") return Reflect.metadata(metadataKey,
metadataValue);\r\n\r\n\r\nexport function __awaiter(thisArg, _arguments, P, generator) {\r\n  function
adopt(value) { return value instanceof P ? value : new P(function (resolve) { resolve(value); }); }\r\n  return new (P
|| (P = Promise))(function (resolve, reject) {\r\n    function fulfilled(value) { try { step(generator.next(value)); }
catch (e) { reject(e); } }\r\n    function rejected(value) { try { step(generator["throw"](value)); } catch (e) {
reject(e); } }\r\n    function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled,
rejected); }\r\n    step((generator = generator.apply(thisArg, _arguments
|| [])).next());\r\n  });\r\n}\r\n\r\n\r\nexport function __generator(thisArg, body) {\r\n  var _ = { label: 0, sent:
function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;\r\n  return g = { next: verb(0),
"throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function() {
return this; }), g;\r\n  function verb(n) { return function (v) { return step([n, v]); }; }\r\n  function step(op) {\r\n
if (f) throw new TypeError("Generator is already executing.");\r\n    while (1) try {\r\n      if (f = 1, y && (t
= op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && t.call(y, 0) : y.next) && !(t = t.call(y,
op[1])).done) return t;\r\n      if (y = 0, t) op = [op[0] & 2, t.value];\r\n      switch (op[0]) {\r\n        case
0: case 1: t = op; break;\r\n        case 4: _label++; return { value: op[1], done: false }; \r\n        case
5: _label++; y = op[1]; op = [0]; continue;\r\n        case 7: op = _ops.pop(); _trys.pop(); continue;\r\n
default:\r\n          if (!t = _trys, t = t.length > 0 && t[t.length - 1] && (op[0] === 6 || op[0] === 2)) { _ = 0;
continue; }\r\n          if (op[0] === 3 && (t || (op[1] > t[0] && op[1] < t[3]))) { _label = op[1]; break; }\r\n
          if (op[0] === 6 && _label < t[1]) { _label = t[1]; t = op; break; }\r\n          if (t && _label < t[2]) {
_label = t[2]; _ops.push(op); break; }\r\n          if (t[2]) _ops.pop();\r\n          _trys.pop(); continue;\r\n
        }\r\n        op = body.call(thisArg, _);\r\n      } catch (e) { op = [6, e]; y = 0; } finally { f = t = 0; }\r\n      if
(op[0] & 5) throw op[1]; return { value: op[0] ? op[1] : void 0, done: true }; }\r\n  }\r\n}\r\n\r\n\r\nexport var
__createBinding = Object.create ? (function(o, m, k, k2) {\r\n  if (k2 === undefined)
k2 = k;\r\n  Object.defineProperty(o, k2, { enumerable: true, get: function() { return m[k]; } });\r\n}) : (function(o,
m, k, k2) {\r\n  if (k2 === undefined) k2 = k;\r\n  o[k2] = m[k];\r\n});\r\n\r\n\r\nexport function __exportStar(m,
exports) {\r\n  for (var p in m) if (p !== "default" && !exports.hasOwnProperty(p)) __createBinding(exports, m,
p);\r\n}\r\n\r\n\r\nexport function __values(o) {\r\n  var s = typeof Symbol === "function" && Symbol.iterator, m =
s && o[s], i = 0;\r\n  if (m) return m.call(o);\r\n  if (o && typeof o.length === "number") return {\r\n    next:
function () {\r\n      if (o && i >= o.length) o = void 0;\r\n      return { value: o && o[i++], done: !o }; \r\n
    };\r\n  };\r\n  throw new TypeError(s ? "Object is not iterable." : "Symbol.iterator is not
defined.");\r\n}\r\n\r\n\r\nexport function __read(o, n) {\r\n  var m = typeof Symbol === "function" &&
o[Symbol.iterator];\r\n  if (!m) return o;\r\n  var i = m.call(o),
r, ar = [], e;\r\n  try {\r\n    while ((n === void 0 || n-- > 0) && !(r = i.next()).done) ar.push(r.value);\r\n  } \r\n
catch (error) { e = { error: error }; }\r\n  finally {\r\n    try {\r\n      if (r && !r.done && (m = i["return"]))
m.call(i);\r\n    } \r\n    finally { if (e) throw e.error; }\r\n  }\r\n  return ar;\r\n}\r\n\r\n\r\nexport function
__spread() {\r\n  for (var ar = [], i = 0; i < arguments.length; i++)\r\n    ar = ar.concat(__read(arguments[i]));\r\n
return ar;\r\n}\r\n\r\n\r\nexport function __spreadArrays() {\r\n  for (var s = 0, i = 0, il = arguments.length; i < il; i++) s
+= arguments[i].length;\r\n  for (var r = Array(s), k = 0, i = 0; i < il; i++)\r\n    for (var a = arguments[i], j = 0, jl
= a.length; j < jl; j++, k++)\r\n      r[k] = a[j];\r\n  return r;\r\n}\r\n\r\n\r\nexport function __await(v) {\r\n  return
this instanceof __await ? (this.v = v, this) : new __await(v);\r\n}\r\n\r\n\r\nexport function __asyncGenerator(thisArg,
_arguments, generator) {\r\n  if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n  var g = generator.apply(thisArg, _arguments || []), i, q = [];\r\n  return i = { }, verb("next"),
verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i;\r\n  function verb(n) { if
(g[n]) i[n] = function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\r\n
function resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n  function step(r) { r.value
instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\r\n  function fulfill(value) {
resume("next", value); }\r\n  function reject(value) { resume("throw", value); }\r\n  function settle(f, v) { if
(f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\n\r\nexport function __asyncDelegator(o) {\r\n  var i,

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p;\r\n  return
  i = {}, verb("next"), verb("throw", function (e) { throw e; }), verb("return"), i[Symbol.iterator] = function () {
return this; }, i;\r\n  function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),
done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\n\r\nexport function __asyncValues(o) {\r\n  if
(!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not defined.");\r\n  var m =
o[Symbol.asyncIterator], i;\r\n  return m ? m.call(o) : (o = typeof __values === "function" ? __values(o) :
o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"), i[Symbol.asyncIterator] = function () {
return this; }, i);\r\n  function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject)
{ v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; }\r\n  function settle(resolve, reject, d, v) {
Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject);
}\r\n}\r\n\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n  if (Object.defineProperty) {
Object.defineProperty(cooked, "raw", { value: raw }); } else { cooked.raw = raw; }\r\n  return
cooked;\r\n};\r\n\r\n\r\nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n  Object.defineProperty(o,
"default", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n  o["default"] = v;\r\n};\r\n\r\n\r\nexport
function __importStar(mod) {\r\n  if (mod && mod.__esModule) return mod;\r\n  var result = {};\r\n  if (mod !=
null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n  __setModuleDefault(result, mod);\r\n  return result;\r\n}\r\n\r\n\r\nexport function __importDefault(mod) {\r\n
return (mod && mod.__esModule) ? mod : { default: mod };\r\n}\r\n\r\n\r\nexport function
__classPrivateFieldGet(receiver, privateMap) {\r\n  if (!privateMap.has(receiver)) {\r\n    throw new
TypeError("attempted to get private field
on non-instance");\r\n  }\r\n  return privateMap.get(receiver);\r\n}\r\n\r\n\r\nexport function
__classPrivateFieldSet(receiver, privateMap, value) {\r\n  if (!privateMap.has(receiver)) {\r\n    throw new
TypeError("attempted to set private field on non-instance");\r\n  }\r\n  privateMap.set(receiver, value);\r\n
return value;\r\n}\r\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { CompileReflector, ExternalReference, getUrlScheme, Identifiers, syntaxError } from
'@angular/compiler';\n\nimport { ANALYZE_FOR_ENTRY_COMPONENTS, ChangeDetectionStrategy,
ChangeDetectorRef, Component, ComponentFactory, ComponentFactoryResolver, ComponentRef, ElementRef,
Injector, LOCALE_ID, NgModuleFactory, NgModuleRef, QueryList, Renderer2, SecurityContext, TemplateRef,
TRANSLATIONS_FORMAT, ViewContainerRef, ViewEncapsulation,
and, ccf, cmf, CodegenComponentFactoryResolver, crt, did, eld, EMPTY_ARRAY, EMPTY_MAP,
inlineInterpolate, interpolate, mod, mpd, ncd, nov, pad, pid, pod, ppd, prd, qud, ReflectionCapabilities as
ReflectionCapabilities, registerModuleFactory, stringify as stringify, ted, unv, vid } from '@angular/core';\n\nexport
const MODULE_SUFFIX = ";\nconst builtinExternalReferences =
createBuiltinExternalReferencesMap();\n\nexport class JitReflector implements CompileReflector {\n  private
reflectionCapabilities = new ReflectionCapabilities();\n\n  componentModuleUrl(type: any, cmpMetadata:
Component): string {\n    const moduleId = cmpMetadata.moduleId;\n\n    if (typeof moduleId === 'string') {\n
const scheme = getUrlScheme(moduleId);\n    return scheme ? moduleId :
`package:${moduleId}${MODULE_SUFFIX}`;\n  } else if (moduleId !== null && moduleId !== void 0) {\n
throw syntaxError(\n    `moduleId should be a string in "${stringify(type)}".
See https://goo.gl/wIDDiL for more information.\n` +\n    `If you're using Webpack you should inline the
template and the styles, see https://goo.gl/X2J8zc.`);\n  }\n\n  return `.${stringify(type)}`;\n}\n\n
parameters(typeOrFunc: /*Type*/ any): any[] {\n  return this.reflectionCapabilities.parameters(typeOrFunc);\n
}\n\ntryAnnotations(typeOrFunc: /*Type*/ any): any[] {\n  return this.annotations(typeOrFunc);\n}\n\n
annotations(typeOrFunc: /*Type*/ any): any[] {\n  return this.reflectionCapabilities.annotations(typeOrFunc);\n
}\n\nshallowAnnotations(typeOrFunc: /*Type*/ any): any[] {\n  throw new Error('Not supported in JIT mode');\n
}\n\npropMetadata(typeOrFunc: /*Type*/ any): {[key: string]: any[]} {\n  return
this.reflectionCapabilities.propMetadata(typeOrFunc);\n}\n\nhasLifecycleHook(type: any, lcProperty: string):

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boolean {\n  return this.reflectionCapabilities.hasLifecycleHook(type, lcProperty);\n }\n guards(type: any): {[key:
string]:
  any} {\n  return this.reflectionCapabilities.guards(type);\n }\n resolveExternalReference(ref: ExternalReference):
any {\n  return builtinExternalReferences.get(ref) || ref.runtime;\n }\n}\n\nfunction
createBuiltinExternalReferencesMap() {\n  const map = new Map<ExternalReference, any>();\n
map.set(Identifiers.ANALYZE_FOR_ENTRY_COMPONENTS, ANALYZE_FOR_ENTRY_COMPONENTS);\n
map.set(Identifiers.ElementRef, ElementRef);\n map.set(Identifiers.NgModuleRef, NgModuleRef);\n
map.set(Identifiers.ViewContainerRef, ViewContainerRef);\n map.set(Identifiers.ChangeDetectorRef,
ChangeDetectorRef);\n map.set(Identifiers.Renderer2, Renderer2);\n map.set(Identifiers.QueryList, QueryList);\n
map.set(Identifiers.TemplateRef, TemplateRef);\n map.set(Identifiers.CodegenComponentFactoryResolver,
CodegenComponentFactoryResolver);\n map.set(Identifiers.ComponentFactoryResolver,
ComponentFactoryResolver);\n map.set(Identifiers.ComponentFactory, ComponentFactory);\n
map.set(Identifiers.ComponentRef,
ComponentRef);\n map.set(Identifiers.NgModuleFactory, NgModuleFactory);\n
map.set(Identifiers.createModuleFactory, cmf);\n map.set(Identifiers.moduleDef, mod);\n
map.set(Identifiers.moduleProviderDef, mpd);\n map.set(Identifiers.RegisterModuleFactoryFn,
registerModuleFactory);\n map.set(Identifiers.Injector, Injector);\n map.set(Identifiers.ViewEncapsulation,
ViewEncapsulation);\n map.set(Identifiers.ChangeDetectionStrategy, ChangeDetectionStrategy);\n
map.set(Identifiers.SecurityContext, SecurityContext);\n map.set(Identifiers.LOCALE_ID, LOCALE_ID);\n
map.set(Identifiers.TRANSLATIONS_FORMAT, TRANSLATIONS_FORMAT);\n
map.set(Identifiers.inlineInterpolate, inlineInterpolate);\n map.set(Identifiers.interpolate, interpolate);\n
map.set(Identifiers.EMPTY_ARRAY, EMPTY_ARRAY);\n map.set(Identifiers.EMPTY_MAP, EMPTY_MAP);\n
map.set(Identifiers.viewDef, vid);\n map.set(Identifiers.elementDef, eld);\n map.set(Identifiers.anchorDef, and);\n
map.set(Identifiers.textDef,
ted);\n map.set(Identifiers.directiveDef, did);\n map.set(Identifiers.providerDef, prd);\n
map.set(Identifiers.queryDef, qud);\n map.set(Identifiers.pureArrayDef, pad);\n map.set(Identifiers.pureObjectDef,
pod);\n map.set(Identifiers.purePipeDef, ppd);\n map.set(Identifiers.pipeDef, pid);\n
map.set(Identifiers.nodeValue, nov);\n map.set(Identifiers.ngContentDef, ncd);\n map.set(Identifiers.unwrapValue,
unv);\n map.set(Identifiers.createRendererType2, crt);\n map.set(Identifiers.createComponentFactory, ccf);\n
return map;\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {CompileMetadataResolver, CompilerConfig, CompileReflector, DirectiveNormalizer,
DirectiveResolver, DomElementSchemaRegistry, ElementSchemaRegistry, HtmlParser, I18NHtmlParser,
JitCompiler, JitEvaluator,
JitSummaryResolver, Lexer, NgModuleCompiler, NgModuleResolver, Parser, PipeResolver, ProviderMeta,
ResourceLoader, StaticSymbolCache, StyleCompiler, SummaryResolver, TemplateParser, UrlResolver,
ViewCompiler} from '@angular/compiler';\nimport {Compiler, CompilerFactory, CompilerOptions,
ComponentFactory, Inject, InjectionToken, Injector, isDevMode, MissingTranslationStrategy,
ModuleWithComponentFactories, NgModuleFactory, Optional, PACKAGE_ROOT_URL, StaticProvider,
TRANSLATIONS, TRANSLATIONS_FORMAT, Type, ViewEncapsulation, Console as Console} from
'@angular/core';\n\nimport {JitReflector} from './compiler_reflector';\n\nexport const
ERROR_COLLECTOR_TOKEN = new InjectionToken('ErrorCollector');\n\n/*\n * A default provider for { @link
PACKAGE_ROOT_URL } that maps to ' '.\n */\nexport const DEFAULT_PACKAGE_URL_PROVIDER = {\n
provide: PACKAGE_ROOT_URL,\n useValue: ' '\n};\n\nconst _NO_RESOURCE_LOADER: ResourceLoader =
{\n  get(url: string): Promise<string> {\n    throw new Error(\n
'No ResourceLoader implementation has been provided. Can't read the url \"${url}\"');\n  }\n};\n\nconst
baseHtmlParser = new InjectionToken('HtmlParser');\n\nexport class CompilerImpl implements Compiler {\n
  private _delegate: JitCompiler;\n  public readonly injector: Injector;\n  constructor(\n    injector: Injector, private

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_metadataResolver: CompileMetadataResolver,\n    templateParser: TemplateParser, styleCompiler:
StyleCompiler, viewCompiler: ViewCompiler,\n    ngModuleCompiler: NgModuleCompiler, summaryResolver:
SummaryResolver<Type<any>>,\n    compileReflector: CompileReflector, jitEvaluator: JitEvaluator,\n
compilerConfig: CompilerConfig, console: Console) {\n    this._delegate = new JitCompiler(\n
_metadataResolver, templateParser, styleCompiler, viewCompiler, ngModuleCompiler,\n    summaryResolver,
compileReflector, jitEvaluator, compilerConfig, console,\n    this.getExtraNgModuleProviders.bind(this));\n
this.injector = injector;\n } \n\n
private getExtraNgModuleProviders() {\n    return [this._metadataResolver.getProviderMetadata(\n    new
ProviderMeta(Compiler, {useValue: this}));\n } \n\n compileModuleSync<T>(moduleType: Type<T>):
NgModuleFactory<T> {\n    return this._delegate.compileModuleSync(moduleType) as NgModuleFactory<T>;\n
}\n compileModuleAsync<T>(moduleType: Type<T>): Promise<NgModuleFactory<T>> {\n    return
this._delegate.compileModuleAsync(moduleType) as Promise<NgModuleFactory<T>>;\n } \n
compileModuleAndAllComponentsSync<T>(moduleType: Type<T>): ModuleWithComponentFactories<T> {\n
const result = this._delegate.compileModuleAndAllComponentsSync(moduleType);\n    return {\n
ngModuleFactory: result.ngModuleFactory as NgModuleFactory<T>,\n    componentFactories:
result.componentFactories as ComponentFactory<any>[],\n    }; \n } \n
compileModuleAndAllComponentsAsync<T>(moduleType: Type<T>):\n
Promise<ModuleWithComponentFactories<T>> {\n    return
this._delegate.compileModuleAndAllComponentsAsync(moduleType)\n
    .then((result) => ({\n        ngModuleFactory: result.ngModuleFactory as NgModuleFactory<T>,\n
componentFactories: result.componentFactories as ComponentFactory<any>[],\n        })); \n } \n
loadAotSummaries(summaries: () => any[]) {\n    this._delegate.loadAotSummaries(summaries);\n } \n
hasAotSummary(ref: Type<any>): boolean {\n    return this._delegate.hasAotSummary(ref);\n } \n
getComponentFactory<T>(component: Type<T>): ComponentFactory<T> {\n    return
this._delegate.getComponentFactory(component) as ComponentFactory<T>;\n } \n clearCache(): void {\n
this._delegate.clearCache();\n } \n clearCacheFor(type: Type<any>) {\n    this._delegate.clearCacheFor(type);\n
}\n getModuleId(moduleType: Type<any>): string|undefined {\n    const meta =
this._metadataResolver.getNgModuleMetadata(moduleType);\n    return meta && meta.id || undefined;\n
}\n}\n\n/**\n * A set of providers that provide `JitCompiler` and its dependencies
to use for\n * template compilation.\n */\nconst COMPILER_PROVIDERS__PRE_R3__ = <StaticProvider[]>[\n
{provide: CompileReflector, useValue: new JitReflector(),\n {provide: ResourceLoader, useValue:
_NO_RESOURCE_LOADER},\n {provide: JitSummaryResolver, deps: []},\n {provide: SummaryResolver,
useExisting: JitSummaryResolver},\n {provide: Console, deps: []},\n {provide: Lexer, deps: []},\n {provide:
Parser, deps: [Lexer]},\n \n provide: baseHtmlParser,\n useClass: HtmlParser,\n deps: [],\n },\n {\n
provide: I18NHtmlParser,\n useFactory:\n    (parser: HtmlParser, translations: string|null, format: string, config:
CompilerConfig,\n    console: Console) => {\n        translations = translations || ";\n        const
missingTranslation =\n            translations ? config.missingTranslation! : MissingTranslationStrategy.Ignore;\n
return new I18NHtmlParser(parser, translations, format, missingTranslation, console);\n    },\n deps:
[\n    baseHtmlParser,\n    [new Optional(), new Inject(TRANSLATIONS)],\n    [new Optional(), new
Inject(TRANSLATIONS_FORMAT)],\n    [CompilerConfig],\n    [Console],\n    ]\n },\n {\n provide:
HtmlParser,\n useExisting: I18NHtmlParser,\n },\n {\n provide: TemplateParser,\n deps: [CompilerConfig,
CompileReflector, Parser, ElementSchemaRegistry, I18NHtmlParser, Console]\n },\n {provide: JitEvaluator,
useClass: JitEvaluator, deps: []},\n {provide: DirectiveNormalizer, deps: [ResourceLoader, UrlResolver,
HtmlParser, CompilerConfig]},\n {\n provide: CompileMetadataResolver,\n deps: [\n    CompilerConfig,
HtmlParser, NgModuleResolver, DirectiveResolver, PipeResolver,\n    SummaryResolver,
ElementSchemaRegistry, DirectiveNormalizer, Console,\n    [Optional, StaticSymbolCache], CompileReflector,
[Optional, ERROR_COLLECTOR_TOKEN]\n    ]\n },\n DEFAULT_PACKAGE_URL_PROVIDER,\n {\n provide:
StyleCompiler, deps: [UrlResolver]},\n {\n provide: ViewCompiler,

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    deps: [CompileReflector]],\n {provide: NgModuleCompiler, deps: [CompileReflector]],\n {provide:
CompilerConfig, useValue: new CompilerConfig()},\n {\n   provide: Compiler,\n   useClass: CompilerImpl,\n
deps: [\n     Injector, CompileMetadataResolver, TemplateParser, StyleCompiler, ViewCompiler,\n
NgModuleCompiler, SummaryResolver, CompileReflector, JitEvaluator, CompilerConfig, Console\n   ]\n },\n
{provide: DomElementSchemaRegistry, deps: []},\n {provide: ElementSchemaRegistry, useExisting:
DomElementSchemaRegistry},\n {provide: UrlResolver, deps: [PACKAGE_ROOT_URL]},\n {provide:
DirectiveResolver, deps: [CompileReflector]],\n {provide: PipeResolver, deps: [CompileReflector]],\n {provide:
NgModuleResolver, deps: [CompileReflector]],\n};\n\nexport const COMPILER_PROVIDERS__POST_R3__ =\n<StaticProvider[]>[{provide: Compiler, useFactory: () => new Compiler()}];\n\nexport const
COMPILER_PROVIDERS = COMPILER_PROVIDERS__PRE_R3__;\n\n/**\n * @publicApi\n */\nexport class
JitCompilerFactory implements CompilerFactory {\n  private _defaultOptions: CompilerOptions[];\n  /**
   * @internal\n   */\n  constructor(defaultOptions: CompilerOptions[]) {\n    const compilerOptions: CompilerOptions =
{\n      useJit: true,\n      defaultEncapsulation: ViewEncapsulation.Emulated,\n      missingTranslation:
MissingTranslationStrategy.Warning,\n    };\n\n    this._defaultOptions = [compilerOptions, ...defaultOptions];\n
  }\n\n  createCompiler(options: CompilerOptions[] = []): Compiler {\n    const opts =
_mergeOptions(this._defaultOptions.concat(options));\n    const injector = Injector.create([\n
COMPILER_PROVIDERS, {\n      provide: CompilerConfig,\n      useFactory: () => {\n        return new
CompilerConfig({\n          // let explicit values from the compiler options overwrite options\n          // from the app
providers\n          useJit: opts.useJit,\n          jitDevMode: isDevMode(),\n          // let explicit values from the
compiler options
          overwrite options\n          // from the app providers\n          defaultEncapsulation: opts.defaultEncapsulation,\n
          missingTranslation: opts.missingTranslation,\n          preserveWhitespaces: opts.preserveWhitespaces,\n
        });\n      },\n      deps: []\n    },\n    opts.providers!\n  ]);\n    return injector.get(Compiler);\n  }\n}\n\nfunction
_mergeOptions(optionsArr: CompilerOptions[]): CompilerOptions {\n  return {\n    useJit:
_lastDefined(optionsArr.map(options => options.useJit)),\n    defaultEncapsulation:
_lastDefined(optionsArr.map(options => options.defaultEncapsulation)),\n    providers:
_mergeArrays(optionsArr.map(options => options.providers!)),\n    missingTranslation:
_lastDefined(optionsArr.map(options => options.missingTranslation)),\n    preserveWhitespaces:
_lastDefined(optionsArr.map(options => options.preserveWhitespaces)),\n  };\n}\n\nfunction _lastDefined<T>(args:
T[]): T | undefined {\n  for (let i = args.length - 1; i >= 0; i--) {\n    if (args[i] !== undefined) {\n      return args[i];\n    }\n  }\n  return undefined;\n}\n\nfunction
_mergeArrays(parts: any[][]): any[] {\n  const result: any[] = [];\n  parts.forEach((part) => part &&
result.push(...part));\n  return result;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {COMPILER_OPTIONS, CompilerFactory, createPlatformFactory,
platformCore, PlatformRef, StaticProvider} from '@angular/core';\n\nimport {JitCompilerFactory} from
'./compiler_factory';\n\n/**\n * A platform that included corePlatform and the compiler.\n */\n * @publicApi\n */\nexport const platformCoreDynamic = createPlatformFactory(platformCore, 'coreDynamic', [\n {provide:
COMPILER_OPTIONS, useValue: {}, multi: true},\n {provide: CompilerFactory, useClass: JitCompilerFactory,
deps: [COMPILER_OPTIONS]},\n]);\n\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {ResourceLoader}
from '@angular/compiler';\n\nimport {Injectable} from '@angular/core';\n\n@Injectable()\nexport class
ResourceLoaderImpl extends ResourceLoader {\n  get(url: string): Promise<string> {\n    let resolve: (result: any)
=> void;\n    let reject: (error: any) => void;\n    const promise = new Promise<string>((res, rej) => {\n      resolve =
res;\n      reject = rej;\n    });\n    const xhr = new XMLHttpRequest();\n    xhr.open('GET', url, true);\n    xhr.responseType = 'text';\n    xhr.onload = function() {\n      // responseText is the old-school way of retrieving
response (supported by IE8 & 9)\n      // response/responseType properties were introduced in ResourceLoader

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Level2 spec (supported\n    // by IE10)\n    const response = xhr.response || xhr.responseText;\n\n    // normalize IE9 bug (http://bugs.jquery.com/ticket/1450)\n    let status = xhr.status === 1223 ? 204 :\n    xhr.status;\n\n    // fix status code when it is 0 (0 status is undocumented).\n    // Occurs when accessing file\n    resources or on Android 4.1 stock browser\n    // while retrieving files from application cache.\n    if (status ===\n    0) {\n        status = response ? 200 : 0;\n    }\n\n    if (200 <= status && status <= 300) {\n        resolve(response);\n    } else {\n        reject(`Failed to load ${url}`);\n    }\n\n    xhr.onerror = function() {\n        reject(`Failed to load ${url}`);\n    };\n\n    xhr.send();\n    return promise;\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license\n     * that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    import\n    {PLATFORM_BROWSER_ID as PLATFORM_BROWSER_ID} from '@angular/common';\n    import\n    {ResourceLoader}\n    from '@angular/compiler';\n    import {COMPILER_OPTIONS, PLATFORM_ID, StaticProvider} from\n    '@angular/core';\n    import {INTERNAL_BROWSER_PLATFORM_PROVIDERS as\n    INTERNAL_BROWSER_PLATFORM_PROVIDERS} from '@angular/platform-browser';\n    import\n    {ResourceLoaderImpl} from './resource_loader/resource_loader_impl';\n\n    /**\n     * @publicApi\n     */\n    export const\n    INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS: StaticProvider[] = [\n    INTERNAL_BROWSER_PLATFORM_PROVIDERS,\n    {\n        provide: COMPILER_OPTIONS,\n        useValue:\n        {\n            providers: [{provide: ResourceLoader, useClass: ResourceLoaderImpl, deps: []}],\n            multi: true\n        },\n        provide: PLATFORM_ID, useValue: PLATFORM_BROWSER_ID\n    },\n    {\n        provide: PLATFORM_BROWSER_ID,\n        useValue: PLATFORM_BROWSER_ID\n    },\n    {\n        provide: PLATFORM_BROWSER_ID,\n        useValue: PLATFORM_BROWSER_ID\n    }\n    ],\n    /**\n     * @license\n     * Copyright\n     * Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    import {ResourceLoader} from\n    '@angular/compiler';\n    import {global as global} from '@angular/core';\n\n    /**\n     * An implementation of ResourceLoader that uses a template cache to avoid doing an actual\n     * ResourceLoader.\n     * The template cache needs to be built and loaded into window.$templateCache\n     * via a separate mechanism.\n     * @publicApi\n     */\n    export class CachedResourceLoader extends ResourceLoader {\n        private _cache: {[url:\n        string]: string};\n\n        constructor() {\n            super();\n            this._cache = (<any>global).$templateCache;\n            if (this._cache\n            == null) {\n                throw new Error('CachedResourceLoader: Template cache was not found in $templateCache.);\n            }\n        }\n\n        get(url: string): Promise<string> {\n            if (this._cache.hasOwnProperty(url)) {\n                return\n                Promise.resolve(this._cache[url]);\n            } else {\n                return <Promise<any>>Promise.reject(\n                'CachedResourceLoader: Did not find cached template for ' + url);\n            }\n        }\n    }\n\n    /**\n     * @license\n     * Copyright\n     * Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that\n     * can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    export\n    {COMPILER_PROVIDERS__POST_R3__ as COMPILER_PROVIDERS__POST_R3__, CompilerImpl as\n    CompilerImpl} from './compiler_factory';\n    export {platformCoreDynamic as platformCoreDynamic} from\n    './platform_core_dynamic';\n    export {INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS as\n    INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS} from './platform_providers';\n    export\n    {ResourceLoaderImpl as ResourceLoaderImpl} from './resource_loader/resource_loader_impl';\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-\n     * style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    /**\n     * @module\n     * @description\n     * Entry point for all public APIs of the common package.\n     */\n    import {Version} from\n    '@angular/core';\n\n    /**\n     * @publicApi\n     */\n    export const VERSION = new Version('11.0.2');\n\n    /**\n     * @license\n     * Copyright Google LLC All\n     * Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the\n     * LICENSE file at https://angular.io/license\n     */\n\n    import {ResourceLoader} from '@angular/compiler';\n    import\n    {CompilerFactory, createPlatformFactory, platformCore, PlatformRef, Provider, StaticProvider} from\n    '@angular/core';\n    import {platformCoreDynamic} from './platform_core_dynamic';\n    import\n    {INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS} from './platform_providers';\n    import\n    {CachedResourceLoader} from './resource_loader/resource_loader_cache';\n\n    export * from

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'./private_export';\nexport { VERSION } from './version';\nexport { JitCompilerFactory } from
'./compiler_factory';\n\n/**\n * @publicApi\n */\nexport const RESOURCE_CACHE_PROVIDER: Provider[] =\n[{\n  provide: ResourceLoader,\n  useClass: CachedResourceLoader,\n  deps: []\n}];\n\n/**\n * @publicApi\n */\nexport const\nplatformBrowserDynamic = createPlatformFactory(\n  platformCoreDynamic,\n  'browserDynamic',\n  INTERNAL_BROWSER_DYNAMIC_PLATFORM_PROVIDERS);\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an\nMIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n/**\n * @module\n * @description\n * Entry point for all public APIs of this package.\n */\nexport * from './src/platform-browser-\ndynamic';\n\n// This file only reexports content of the `src` folder. Keep it that way.\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license\nthat can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this\nmodule. It is only used during editing\n// by the TypeScript language service and during build for verification.\n`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from\n'./public_api';\n\n"/**\n * Generated bundle index. Do not\nedit.\n */\n\nexport * from './index';\n\nexport { CachedResourceLoader as\nangular_packages_platform_browser_dynamic_platform_browser_dynamic_a } from\n'./src/resource_loader/resource_loader_cache';\n\n],\n\nnames":[\n  "ReflectionCapabilities",\n  "getUrlScheme",\n  "syntaxError",\n  "stringify",\n  "Identifiers",\n  "ANALYZE_FOR_ENTRY_COMPONENTS",\n  "ElementRef",\n  "NgModuleRef",\n  "ViewContain\nerRef",\n  "ChangeDetectorRef",\n  "Renderer2",\n  "QueryList",\n  "TemplateRef",\n  "CodegenComponentFactoryResolver",\n  "Com\nponentFactoryResolver",\n  "ComponentFactory",\n  "ComponentRef",\n  "NgModuleFactory",\n  "cmf",\n  "mod",\n  "mpd",\n  "register\nModuleFactory",\n  "Injector",\n  "ViewEncapsulation",\n  "ChangeDetectionStrategy",\n  "SecurityContext",\n  "LOCALE_ID",\n  "T\nRANSLATIONS_FORMAT",\n  "inlineInterpolate",\n  "interpolate",\n  "EMPTY_ARRAY",\n  "EMPTY_MAP",\n  "vid",\n  "eld",\n  "a\nnd",\n  "ted",\n  "did",\n  "prd",\n  "qud",\n  "pad",\n  "pod",\n  "ppd",\n  "pid",\n  "nov",\n  "ncd",\n  "unv",\n  "crt",\n  "ccf",\n  "InjectionToken",\n  "PACKAGE_R\nOOT_URL",\n  "JitCompiler",\n  "ProviderMeta",\n  "Compiler",\n  "MissingTranslationStrategy",\n  "I18NHtmlParser",\n  "Compiler\nConfig",\n  "CompileReflector",\n  "ResourceLoader",\n  "JitSummaryResolver",\n  "SummaryResolver",\n  "Console",\n  "Lexer",\n  "Par\nser",\n  "HtmlParser",\n  "Optional",\n  "Inject",\n  "TRANSLATIONS",\n  "TemplateParser",\n  "ElementSchemaRegistry",\n  "JitEvaluat\nor",\n  "DirectiveNormalizer",\n  "UrlResolver",\n  "CompileMetadataResolver",\n  "NgModuleResolver",\n  "DirectiveResolver",\n  "\nPipeResolver",\n  "StaticSymbolCache",\n  "StyleCompiler",\n  "ViewCompiler",\n  "NgModuleCompiler",\n  "DomElementSchem\naRegistry",\n  "isDevMode",\n  "createPlatformFactory",\n  "platformCore",\n  "COMPILER_OPTIONS",\n  "CompilerFactory",\n  "In\njectable",\n  "PLATFORM_BROWSER_ID",\n  "INTERNAL_BROWSER_PLATFORM_PROVIDERS",\n  "PLATFORM_\nID",\n  "global",\n  "Version"],\n\nmappings":\n";;;;;;;;;;;IAAA;;;;;;;;;;IAcA;IAEA,IAAI,aAAa,GAAG,UAAS,CAAC,EAA\nE,CAAC;QAC7B,aAAa,GAAG,MAAM,CAAC,cAAc;aAchC,EAAE,SAAS,EAAE,EAAE,EAAE,YAAY,KAAK,I\nAAI,UAAU,CAAC,EAAE,CAAC,IAAI,CAAC,CAAC,SAAS,GAAG,CAAC,CAAC,EAAE,CAAC;YAC5E,UAA\nU,CAAC,EAAE,CAAC,IAAI,KAAK,IAAI,CAAC,IAAI,CAAC;gBAAE,IAAI,CAAC,CAAC,cAAc,CAAC,CAAC,\nCAAC;oBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,CAAC,CAAC,CAAC,CAAC,EAAE,CAAC;QAC/E,\nOAAO,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;IAC/B,CAAC,CAAC;aAEc,SAAS,CAAC,CAAC,EAA\nE,CAAC;QAC1B,aAAa,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC;QACpB,SAAS,EAAE,KAAK,IAAI,CAAC,\nWAAW,GAAG,CAAC,CAAC,EAAE;QACvC,CAAC,CAAC,SAAS,GAAG,CAAC,KAAK,IAAI,GAAG,MAAM,\nCAAC,MAAM,CAAC,CAAC,CAAC,IAAI,EAAE,CAAC,SAAS,GAAG,CAAC,CAAC,SAAS,EAAE,IAAI,EAAE\n,EAAE,CAAC,CAAC;IACzF,CAAC;IAEM,IAAI,QAAQ,GAAG;QACIB,QAAQ,GAAG,MAAM,CAAC,MAAM,I\nAAI,SAAS,QAAQ,CAAC,CAAC;YAC3C,KAAK,IAAI,CAAC,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,GAA\nG,SAAS,CAAC,MAAM,EAAE,CAAC,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;gBACjD,CAAC,GAAG,SAAS\n,CAAC,CAAC,CAAC,CAAC;gBACjB,KAAK,IAAI,CAAC,IAAI,CAAC;oBAAE,IAAI,MAAM,CAAC,SAAS,CA\nAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC;wBAAE,CAAC,CAAC,CAAC,CAAC,GAAG,CAAC,\nCAAC,CAAC,CAAC,CAAC;aAchF,YACD,OAAO,CAAC,CAAC;SACZ,CAAA;QACD,OAAO,QAAQ,CAAC,K\nAAK,CAAC,IAAI,EAAE,SAAS,CAAC,CAAC;IAC3C,CAAC,CAAA;aAEe,MAAM,CAAC,CAAC,EAAE,CAAC\n;QACvB,IAAI,CAAC,GAAG,EAAE,CAAC;QACX,KAAK,IAAI,CAAC,IAAI,CAAC;YAAE,IAAI,MAAM,CAA\nC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC,EAAE,CAAC,CAAC,IAAI,CAAC,CAAC,OAAO,CAAC,CAA

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Found

in path(s):

* /platform-browser-dynamic-11-0-2-tgz/package/bundles/platform-browser-dynamic.umd.js.map

No license file was found, but licenses were detected in source scan.

Angular

=====

The sources for this package are in the main [Angular](https://github.com/angular/angular) repo. Please file issues and pull requests against that repo.

Usage information and reference details can be found in [Angular documentation](https://angular.io/docs).

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* /platform-browser-dynamic-11-0-2-tgz/package/README.md

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/**

* @license Angular v11.0.2

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Found in path(s):

* /platform-browser-dynamic-11-0-2-tgz/package/testing/testing.d.ts

* /platform-browser-dynamic-11-0-2-tgz/package/testing.d.ts

* /platform-browser-dynamic-11-0-2-tgz/package/platform-browser-dynamic.d.ts

1.448 ngx-charter 0.0.7

1.448.1 Available under license :

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{
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1.449 angular-compiler 11.0.2

1.449.1 Available under license :

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Angular
=====

The sources for this package are in the main [Angular](<https://github.com/angular/angular>) repo. Please file issues and pull requests against that repo.

Usage information and reference details can be found in [Angular documentation](<https://angular.io/docs>).

License: MIT

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- */

Found in path(s):

- * /compiler-11-0-2-tgz/package/src/render3/view/i18n/util.js

- * /compiler-11-0-2-tgz/package/src/aot/summary_serializer.js

- * /compiler-11-0-2-tgz/package/src/parse_util.js

- * /compiler-11-0-2-tgz/package/src/i18n/index.js

- * /compiler-11-0-2-tgz/package/testing/src/directive_resolver_mock.js

No license file was found, but licenses were detected in source scan.

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"H4","H5","H6","HR","I","LI","LINK","OL","P","Q","S","SMALL","SUB","SUP","TBODY","TD","TFOOT","TH","THEAD","TR","TT","U","UL","PlaceholderRegistry","_placeholderNameCounts","_signatureToName","getStartTagPlaceholderName","signature","_hashTag","upperTag","baseName","_generateUniqueName","getCloseTagPlaceholderName","_hashClosingTag","getPlaceholderName","upperName","getUniquePlaceholder","_expParser","createI18nMessageFactory","_I18nVisitor","visitNodeFn","toI18nMessage","noopVisitNodeFn","_html","_expressionParser","isIcu","icuDepth","placeholderRegistry","placeholderToContent","i18nodes","startPhName","closePhName","i18nIcuCases","i18nIcu","caze","expPh","phName","_icuCase","_context","sDelimiter","eDelimiter","_CUSTOM_PH_EXP","stringSpan","getOffsetSourceSpan","expressionSpan","lastStringIdx","setI18nRefs","htmlNode","i18nNode","previousMessage","I18nMetaVisitor","keepI18nAttrs","enableI18nLegacyMessageIdFormat","_createI18nMessage","_generateI18nMessage","_parseMetadata","_setMessageId","_setLegacyIds","hasI18nAttrs","attrsMeta","attrs_1","attrs_1_1","currentMessage","parseI18nMeta","idIndex","descIndex","meaningAndDesc","createGoogleGetMsgStatements","variable\$1","closureVar","serializeI18nMessageForGetMsg","serializerVisitor\$1","googGetMsgStmt","metaComment","i18nMetaToJSDoc","GetMsgSerializerVisitor","createLocalizeStatements","serializeI18nMessageForLocalize","pieces","serializerVisitor\$2","processMessagePieces","placeholders","createEmptyMessagePart","getSourceSpan","startNode","localizedString\$1","localizedString","placeholderNames","variableInitialization","LocalizeSerializerVisitor","createPlaceholderPiece","EVENT_BINDING_SCOPE_GLOBALS","GLOBAL_TARGET_RESOLVERS","LEADING_TRIVIA_CHARS","renderFlagCheckIfStmt","prepareEventListenerParameters","eventAst","handlerName","scope","implicitReceiverExpr","bindingLevel","getOrCreateSharedContextVar","bindingExpr","restoreViewStatement","variableDeclarations","prepareSyntheticListenerName","fnName","fnArgs","handlerFn","TemplateDefinitionBuilder","parentBindingScope","contextName","i18nContext","directiveMatcher","pipeTypeByName","_namespace","relativeContextFilePath","i18nUseExternalIds","_constants","prepareStatements","constExpressions","_dataIndex","_bindingContext","_prefixCode","_creationCodeFns","_updateCodeFns","_currentIndex","_tempVariables","_nestedTemplateFns","_unsupported","_pureFunctionSlots","_bindingSlots","_ngContentReservedSlots","_ngContentSelectorsOffset","_implicitReceiverExpr","_bindingScope","nestedScope","fileBasedI18nSuffix","_valueConverter","ValueConverter","allocateDataSlot","numSlots","allocatePureFunctionSlots","slot","pipeType","creationInstruction","buildTemplateFunction","ngContentSelectorsOffset","registerContextVariables","initI18nContext","isSingleElementTemplate","selfClosingI18nInstruction","hasTextChildrenOnly","updatePipeSlotOffsets","buildTemplateFn","r3ReservedSlots","creationStatements","updateStatements","creationVariables","viewSnapshotStatements","updateVariables","creationBlock","updateBlock","i18nTranslate","transformFn","_ref","i18nGenerateMainBlockVar","getTranslationDeclStmts","createClosureModeGuard","i18nGenerateClosureVar","scopeName","freshReferenceName","retrievalLevel","relativeLevel","getSharedContextName","generateNextContextExpr","i18nAppendBindings","i18nBindProps","label","assembleI18nBoundString","acc","lastIdx","messageId","uniqueSuffix","i18nUpdateRef","isRoot","isResolved","icuMapping_1","params_1","instruction","addToConsts","chainBindings_1","updateInstructionChainWithAdvance","getConstCount","updateInstruction","i18nAttributesInstruction","nodeIndex","i18nAttrArgs","converted","constIndex","getNamespaceInstruction","namespaceKey","addNamespaceInstruction","nsInstruction","interpolatedUpdateInstruction","elementIndex","updateInstructionWithAdvance","getUpdateInstructionArguments","ngContent","projectionSlotIdx","nonContentSelectAttributes","getAttributeExpressions","stylingBuilder","isNonBindableMode","outputAttrs","isNgContainer\$1","matchDirectives","allOtherInputs","boundI18nAttrs","addAttrsToConsts","prepareRefsArray","wasInNamespace","currentNamespace","hasChildren","createSelfClosingInstruction","createSelfClosingI18nInstruction","listeners","outputAst","prepareListenerParameter","creationInstructionChain","stylingInstructions","limit","processStylingUpdateInstruction","emptyValueBindInstruction","propertyBindings","attributeBindings","inputType","value_1","hasValue_1","value_2","params_2","attrNamespace","attrName_1","sanitizationRef","resolveSanitizationFn","namespaceLiteral","getPropertyInterpolationExpression","getAttributeInterpolationExpression","boundValue_1","attrsExprs","templateVisitor","templateFunctionExpr","getVarCount","templatePropertyBindings","partitionArray","conditionFn","truthy","falsy","arr_1","arr_1_1","i18nInputs","value_3","getTextInterpolationExpression","initWasInvoked","formatted","getConsts","getNgContentSelectors","bindingContext","value_4","instructionFn","fns","paramsOrFn","prepend","calls_1","addAdvanceInstructionIfNecessary","updateInstructionChain","fnParams","originalSlots","getImplicitReceiverExpr","convertedPrope

rttyBinding","valExpr","convertUpdateArguments","contextVariableExpression","expressionWithArgumentsToExtract","createCssSelector","staticType","renderAttributes","ngProjectAsAttr","alreadySeen","attrExprs","renderAttributes_1","renderAttributes_1_1","getAttributeNameLiterals","trustedConstAttribute","addAttrExpr","getNgProjectAsLiteral","parsedR3Selector","attrsLengthBeforeInputs","consts","variableName","nextContextStmt","refExpr","bindingFnName","allocateSlot","_pipeBindExprs","slotPseudoLocal","pureFunctionSlot","pipeBindingCallInfo","pipeBindingIdentifiers","isVarLength","pipeBindExpr","bindingSlots","array","pureFunctionIdentifiers","relativeLevelDiff","literal\$1","allocateSlots","startSlot","pureFunctionCallInfo","attributeNamespace","nameLiteral","BindingScope","referenceNameIndex","restoreViewVariable","globals_1","globals_1_1","createRootScope","declareLocalCallback","declare","priority","localRef","maybeGenerateSharedContextVar","maybeRestoreView","getComponentProperty","SHARED_CONTEXT_KEY","newScope","generateSharedContextVar","bindingKey","sharedCtxObj","componentValue","localRefLookup","isListenerScope","getCurrentViewInstruction","currentContextLevel","levelDiff","currStmts","elementNameNoNs","nameNoNs","parseTemplate","makeBindingParser","parseResult","i18nMetaVisitor","elementRegistry","isTextNode","ATTR_REGEX","baseDirectiveFields","createContentQueriesFunction","createStatements","tempAllocator","queries_1","queries_1_1","static","prepareQueryParams","getQueryList","refresh","updateDirective","propertyName","contentQueriesFnName","createViewQueriesFunction","queryDefinition","viewQueryFnName","createHostBindingsFunction","hostBindingsMetadata","styleBuilder","specialAttributes","styleAttr","hostBindingSourceSpan","directiveSummary","metadataAsSummary","eventBindings","createHostListeners","syntheticListeners","bindingName","allOtherBindings","totalHostVarsCount","getValueConverter","originalVarsCount","syntheticHostBindings","bindingFn","getBindingNameAndInstruction","attrMatches","sanitizerFn","instructionParams","hostAttrs","convertAttributesToExpressions","convertStylingCall","hostBindingsFnName","addFeatures","features","usesInheritance","fullInheritance","lifecycle","usesOnChanges","compileDirectiveFromMetadata","createDirectiveTypeParams","compileComponentFromMetadata","firstSelector","selectorAttributes","expression_1","templateTypeName","directivesUsed","pipesUsed","templateBuilder","templateFunctionExpression","constsExpr","directivesExpr","wrapDirectivesAndPipesInClosure","pipesExpr","shadowCss","stringArrayAsType","directiveMetadataFromGlobalMetadata","queriesFromGlobalMetadata","selectorsFromGlobalMetadata","selectorStrings","stringMapAsType","selectorForType","q","implicit","typeMapToExpressionMap","HOST_REG_EXP\$1","parseHostBindings","e_4","e_4_1","verifyHostBindings","summary","ResourceLoader","CompilerFacadeImpl","jitEvaluator","elementSchemaRegistry","compilePipe","angularCoreEnv","sourceMapUrl","facade","wrapReference\$1","convertR3DependencyMetadataArray","jitExpression","wrapExpression","USE_CLASS","USE_FACTORY","USE_VALUE","USE_EXISTING","compileDirective","convertDirectiveFacadeToMetadata","err","compileFactory","factoryRes","createParseSourceSpan","def","preStatements","wrapped","convertToR3QueryMetadata","inputsFromMetadata","parseInputOutputs","outputsFromMetadata","inputsFromType","outputsFromType","_loop_1","field","ann","isInput","isOutput","extractHostBindings","convertR3DependencyMetadata","facades","_loop_2","isHostListener","piece","publishFacade","compilerFacade","VERSION\$1","CompilerConfig","defaultEncapsulation","useJit","jitDevMode","missingTranslation","strictInjectionParameters","preserveWhitespacesDefault","preserveWhitespacesOption","defaultSetting","DirectiveNormalizer","_resourceLoader","_resourceLoaderCache","clearCache","clear","clearCacheFor","normalizedDirective","_fetch","normalizeTemplate","prenormData","_preParseTemplate","preparedTemplate","_normalizeTemplateMetadata","prenormData","resolve","_preparseLoadedTemplate","templateAbsUrl","rootNodesAndErrors","templateMetadataStyles","_normalizeStylesheet","TemplatePreparseVisitor","templateStyles","inlineStyleUrls","_loadMissingExternalStylesheets","_normalizeLoadedTemplateMetadata","stylesheets","_inlineStyles","targetStyles","loadedStylesheets","loadedStyle","allStyleUrls","allStyles","styleWithImports","extractStyleUrls","resolver","baseUrl","foundUrls","modifiedCssText","ngNonBindableStackCount","textContent_1","QUERY_METADATA_IDENTIFIERS","DirectiveResolver","isDirective","typeMetadata","isDirectiveMetadata","throwIfNotFound","findLast","propertyMetadata","_mergeWithPropertyMetadata","dm","directiveType","hostBinding","startWith","hostListener","_merge","_extractPublicName","_dedupeBindings","names","publicNames","reversedResult","reverse","mergedInputs","mergedOutputs","mergedHost","mergedQueries","moduleId","_VisitorMode","I18nError","_I18N_COMMENT_PREFIX_REGEX","i18nCommentsWarned",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deFlag","multiProviderDef","allDepDefs","allParams","providerIndex","depExprs","convertDeps","providerExpr","depsExpr","depIndex","paramName","depDef","singleProviderDef","tokenMeta","nodeFlag","componentFactoryResolverProviderDef","entryComponentFactories","entryComponent","classMeta","NgModuleCompileResult","ngModuleFactoryVar","LOG_VAR","NgModuleCompiler","providerParser","providerDefs","ngModuleDef","ngModuleDefFactory","_createNgModuleFactory","registerFactoryStmt","createStub","ngModuleReference","ngModuleFactoryStmt","NgModuleResolver","debugOutputAstAsTypeScript","_TsEmitterVisitor","TypeScriptEmitter","emitStatementsAndContext","preamble","emitSourceMaps","referenceFilter","importFilter","preambleLines","reexports","exportedModuleName","reexportsCode","reexport","as","importsWithPrefixes","importedModuleName","sm","sourceText","emitStatements","typeExpression","defaultType","_visitIdentifier","_printColonType","_visitClassField","Private","typeStr","PipeResolver","metas","TypeCheckCompiler","componentId","externalReferenceVars","embeddedViewCount","viewBuilderFactory","embeddedViewIndex","ViewBuilder","defaultResolver","TypeCheckLocalResolver","isHostComponent","refOutputVars","updates","actions","getOutputVar","getTypeGuardExpressions","guard","useIf","astNodes","targetStatements","viewStmts","bindingCount","preprocessUpdateExpression","General","guardExpression","guardClause","viewFactory","visitElementOrTemplate","fullTemplateTypeCheck","childVisitor","inputAst","dirAst","hostEventAst","currBuilder","outputVarType","varAst","pipeOutputVar","ViewCompileResult","viewClassVar","rendererTypeVar","ViewCompiler","renderComponentVarName","template_1","customRenderData","renderComponentVar","ViewBuilder\$1","viewName","LOG_VAR\$1","VIEW_VAR","CHECK_VAR","COMP_VAR","EVENT_NAME_VAR","ALLOW_DEFAULT_VAR","purePipeNodeIndices","refNodeIndices","_createPipe","queryIndex","calcStaticDynamicQueryFlags","nodeFlags","nodeDef","needsAdditionalRootNode","lastAstNode","_createNodeExpressions","updateDirectivesStmts","nodeDefExprs","updateRendererFn","_createUpdateFn","updateRendererStmts","updateDirectivesFn","viewFlags","OnPush","updateStmts","updateFn","preStmts","inter","updateRendererExpressions","bindingIndex","_preprocessUpdateExpression","checkIndex","updateRenderer","_visitElementOrTemplate","queryMatchesExpr","childCount","_createElementHandleEventFn","usedEvents","dirHostBindings","hostBindings","inputDefs","outputDefs","elementBindingDef","compAst","compRendererType","compView","elementAst","mapResult","mergeAttributeValue","attrValue1","attrValue2","elementEventNameAndTarget","elementEventFullName","_visitComponentFactoryResolverProvider","localDirAst","_visitDirective","dirHostEvents","_visitProvider","queryMatchExprs","_visitProviderOrDirective","updateDirectiveExpressions","dirContextExpr","updateDirectives","_addProviderNode","componentDirMeta","currViewExpr","refNodeIndex","varValue","_createLiteralArrayConverter","valueExpr_1","callCheckStmt","_createLiteralMapConverter","valueExpr_2","_createPipeConverter","checkIndex_1","compViewExpr","compBuilder","pipeNodeIndex","pipeValueExpr_1","callUnwrapValue","nodeValueExpr_1","diDep","updateBindingCount","createUpdateStatements","allowEmptyExprs","handlers","handleEventFn","handleEventStmts","handleEventBindingCount","trueStmts","fullEventName","bindingIdx","MessageBundle","updateFromTemplate","htmlParserResult","i18nParserResult","extractMessages","getMessages","filterSources","mapperVisitor","MapPlaceholderNames","msgList","src","transformedMessage","GeneratedFile","srcFileUrl","genFileUrl","sourceOrStmts","listLazyRoutes","allLazyRoutes","ROUTES","loadChildren","_collectLoadChildren","loadChildren_1","loadChildren_1_1","parseLazyRoute","routes","routes_1","routes_1_1","route","referencedModule","TS","ResolvedStaticSymbol","StaticSymbolResolver","staticSymbolCache","summaryResolver","errorRecorder","metadataCache","resolvedSymbols","importAs","symbolResourcePaths","symbolFromFile","knownFileNameToModuleNames","resolveSymbol","staticSymbol","_resolveSymbolMembers","_resolveSymbolFromSummary","_createSymbolsOf","getImportAs","useSummaries","baseSymbol","getStaticSymbol","baseImportAs","summarizedFileName","stripSummaryForJitFileSuffix","summarizedName","stripSummaryForJitNameSuffix","getResourcePath","getTypeArity","isGeneratedFile","resolvedSymbol","unwrapResolvedMetadata","arity","getKnownModuleName","recordImportAs","sourceSymbol","targetSymbol","recordModuleNameForFileName","invalidat

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ymbolNames","_originalFileMemo","isTsFile","isLibraryFile","getOriginalName","transformedMeta","ReferenceTr
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ameToFileName","createSummaryForJitFunction","ToJsonSerializer","symbolResolver","srcFileName","indexByS
ymbol","reexportedBy","processedSummaryBySymbol","processedSummaries","unprocessedSymbolSummariesBy
Symbol","addSummary","unprocessedSummary","processedSummary","processValue","metadata_1","clone_1","is
Call","isFunctionCall","isMethodCallOnVariable","declarationSymbol","ngModuleSummary","summary_1","create
ExternalSymbolReexports","json","summaries","reexportSymbol","__symbol","toSummaryFileName","visitStaticS
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omSummaryFileName","AotCompiler","_options","_host","_metadataResolver","_templateParser","_styleCompiler
","_viewCompiler","_typeCheckCompiler","_ngModuleCompiler","_injectableCompiler","_outputEmitter","_symb
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TypeBySel_1","pipeTypeByName_1","compileComponentFromRender2","directiveTypeBySel","definitionField","
ngFactoryDefStatement","componentDefStatement","compileDirectiveFromRender2","directiveDefStatement","pip
eMetadata","compilePipeFromRender2","pipeDefStatement","emitAllPartialModules2","_emitPartialModule2","em
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alizer_1","createExternalSymbolFactoryReexports","normalizedLocale","i18nFormat","hostMeta","hostViewFactory
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azyRoutes_2_1","lazyRoute","lazyRoutes_1","lazyRoutes_1_1","compileResult","stylesheetUrl","analyzeNgModul
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DvpF,EAAOo/E,EAAS7L,EAAB51C,WAAYx,C,EAASX,EAASB6K,IAEHHC,EAatUL,GAUUAjrF,KAAKsnF,eAA
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3Bx1D,EAAQsb,gBAAkBA,EAC1Btb,EAAQkb,oBAAsBA,EAC9Blb,EAAQma,gBAAkBA,EAC1Bna,EAAQ26C
 ,WAAaA,GACrB36C,EAAQ01F,mBAAqBA,GAC7B11F,EAAQkuB,UAAyA,GACpBluB,EAAQs/I,gBAAkBA,
 GAC1Bt/I,EAAQs9B,aAAeA,GACvBt9B,EAAQ29B,kBAAoBA,GAC5B39B,EAAQ8qI,qBAAuBA,GAC/B9qI,E
 AAQilE,cAAgBA,GACxBjlE,EAAQ4kE,wBAA0BA,GAClC5kE,EAAQymJ,gBAAkBA,GAC1BzmJ,EAAQ81F,2
 BAA6BA,GACrC91F,EAAQ+1F,mBAAqBA,GAC7B/1F,EAAQgmF,oBAAsBA,GAC9BhmF,EAAQmmF,eAAiB
 A,GACzBnmF,EAAQsvC,KAAOs3B,GACf5mE,EAAQ42E,QAAUA,GACIB52E,EAAQ40D,aAAeA,GACvB50D
 ,EAAQiwB,UAAyA,GACpBjwB,EAAQoxJ,sBAAwBthH,GACChC9vC,EAAQqxJ,kBAAoBjhH,GAC5BpwC,EAA
 QsxJ,iBAAmB7hH,GAC3BzvC,EAAQuxJ,eAAiBhgH,GACzBvxC,EAAQwxJ,eAAiB5gH,GACzB5wC,EAAQyxJ,
 WAAa5/G,GACrB7xC,EAAQ0xJ,wBAA0Bz/G,GAClCjyC,EAAQ2xJ,iBAAmBhgH,GAC3B3xC,EAAQ4xJ,gBA
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 B/xE,EAAQ6vB,aAAeA,GACvB7vB,EAAQ4f,KAAOoB,GACfhB,EAAQ2+H,kBAAoBA,GAC5B3+H,EAAQsn
 B,WAAaA,GACrBtnB,EAAQ62D,MAAQa,GACbB72D,EAAQ8rB,kBAAoBA,GAC5B9rB,EAAQgsJ,YAAcA,G
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B5sF,EAQgzJ,iBA19FR,SAASA,GA AiBtwJ,GACtB,QAASA,EA AuB,oBAk9FpC1C,EAQgzF,aAAeA,GACvB
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CjC/qF,EA AKhjB,MACN,MAAM,IAAI5tB,MAAM,oDAAsD4wC,EA AK+1F,YAE/E,OAAO,IAAIL,IAAoBgB,e
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CjC1sI,EAQ0/G,mBA AqBA,GAC7B1/G,EAQs+B,cAAgBA,GACxBt+B,EAQqyC,SA AWo1B,GA EnB7mE,
OAAO+mD,eAAe3nD,EAAS,aAAc,CAAEiC,OAAO","sourcesContent":["/**\n

* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n */\n\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports) :\n typeof define === 'function' && define.amd ? define(['@angular/compiler', ['exports'], factory) :\n (global = global || self,\n factory((global.ng = global.ng || {}), global.ng.compiler = {}));\n})(this, (function (exports) {\n 'use strict';\n\n /*!\n ****\n

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****\n\n /* global

Reflect, Promise\n\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ __proto__:\n [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\n function (d, b) { for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p]; });\n return extendStatics(d, b);\n\n function\n __extends(d, b) {\n extendStatics(d, b);\n function __() { this.constructor = d; }\n d.prototype = b ===\n null ? Object.create(b) : (__proto__ = b.prototype, new __());\n }\n\n var __assign = function () {\n __assign = Object.assign || function __assign(t) {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n return __assign.apply(this, arguments);\n };\n\n function __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s,

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p) && e.indexOf(p) < 0)\n      t[p] = s[p];\n      if (s != null && typeof Object.getOwnPropertySymbols ===
\"function\")\n        for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\n          if
(e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\n            t[p[i]] = s[p[i]];\n        }\n      return t;\n    }\n    function __decorate(decorators, target, key, desc) {\n      var c = arguments.length, r = c
< 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n      if (typeof Reflect
=== \"object\" && typeof Reflect.decorate === \"function\")\n        r = Reflect.decorate(decorators, target, key,
desc);\n      else\n        for (var i = decorators.length - 1; i >= 0; i--)\n          if (d = decorators[i])\n            r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n      return
c > 3 && r && Object.defineProperty(target, key, r);\n    }\n    function __param(paramIndex, decorator) {\n
return function (target, key) { decorator(target, key, paramIndex); }\n    }\n    function __metadata(metadataKey,
metadataValue) {\n      if (typeof Reflect === \"object\" && typeof Reflect.metadata === \"function\")\n        return Reflect.metadata(metadataKey, metadataValue);\n    }\n    function __awaiter(thisArg, _arguments, P,
generator) {\n      function adopt(value) { return value instanceof P ? value : new P(function (resolve) {
resolve(value); }); }\n      return new (P || (P = Promise))(function (resolve, reject) {\n        function
fulfilled(value) { try {\n          step(generator.next(value));\n        } catch (e) {\n          reject(e);\n
        }\n        function rejected(value) { try {\n          step(generator[\"throw\"](value));\n        } catch (e) {\n
          reject(e);\n        }\n        function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled,
rejected); }\n        step((generator = generator.apply(thisArg, _arguments || [])).next());\n      });\n    }\n    function __generator(thisArg, body) {\n      var _ = { label: 0, sent: function () { if (t[0] & 1)\n        throw t[1];\n        return t[1]; }, trys: [], ops: [] }, f, y, t, g;\n      return g = { next: verb(0), \"throw\": verb(1), \"return\": verb(2) },
typeof Symbol === \"function\" && (g[Symbol.iterator] = function () { return this; }), g;\n      function verb(n) {\n        return function (v) { return step([n, v]); }; }\n      function step(op) {\n        if (f)\n          throw new
TypeError(\"Generator is already executing.\");\n        while (!_)\n          try {\n            if (f = 1, y && (t =
op[0] & 2 ? y[\"return\"] : op[0] ? y[\"throw\"] || ((t = y[\"return\"]) && t.call(y), 0) : y.next) && !(t
= t.call(y, op[1])).done)\n              return t;\n            if (y = 0, t)\n              op = [op[0] & 2,
t.value];\n            switch (op[0]) {\n              case 0:\n                t = op;\n                break;\n              case 4:\n                _label++;\n                return { value: op[1],
done: false }; \n              case 5:\n                _label++;\n                y = op[1];\n                op = [0];\n                continue;\n              case 7:\n                op = _ops.pop();\n                _trys.pop();\n                continue;\n              default:\n                if (!(t = _trys, t = t.length > 0
&& t[t.length - 1]) && (op[0] === 6 || op[0] === 2)) {\n                  _ = 0;\n                  continue;\n                }\n                if (op[0] === 3 && (!t || (op[1] >
t[0] && op[1] < t[3]))) {\n                  _label = op[1];\n                  break;\n                }\n                if (op[0] === 6 && _label < t[1]) {\n                  _label = t[1];\n                  t = op;\n                  break;\n                }\n                if (t && _label < t[2]) {\n                  _label
= t[2];\n                  _ops.push(op);\n                  break;\n                }\n                if
(t[2])\n                  _ops.pop();\n                _trys.pop();\n                continue;\n            }\n            op = body.call(thisArg, _);\n          }\n          catch (e) {\n            op = [6, e];\n            y = 0;\n          }\n          finally {\n            f = t = 0;\n          }\n          if (op[0] & 5)\n            throw op[1];\n          return { value: op[0] ? op[1] : void
0, done: true }; }\n      }\n      var __createBinding = Object.create ? (function (o, m, k, k2) {\n        if (k2 ===
undefined)\n          k2 = k;\n        Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; }
});\n      }) : (function (o, m, k, k2) {\n        if (k2 === undefined)\n          k2 = k;\n        o[k2] = m[k];\n      });\n      function __exportStar(m, exports) {\n        for (var p in m)\n          if (p !== \"default\" &&
!exports.hasOwnProperty(p))\n            __createBinding(exports, m, p);\n      }\n      function __values(o) {\n        var
s = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0;\n        if (m)\n

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return m.call(o);\n    if (o && typeof o.length === \"number\")\n        return {\n            next: function\n        () {\n            if (o && i >= o.length)\n                o = void 0;\n            return {\n                value: o && o[i++],\n                done: !o\n            };\n        };\n        throw new TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is\nnot defined.\");\n    }\n    function __read(o, n) {\n        var m = typeof Symbol === \"function\" &&\no[Symbol.iterator];\n        if (!m)\n            return o;\n        var i = m.call(o), r, ar = [], e;\n        try {\n            while ((\n=== void 0 || n-- > 0) && !(r = i.next()).done)\n                ar.push(r.value);\n        } catch (error) {\n            e =\n{ error: error };\n        }\n        finally {\n            try {\n                if (r && !r.done && (m = i[\"return\"])\n) m.call(i);\n            } finally {\n                if (e)\n                    throw e.error;\n            }\n        }\n        return ar;\n    }\n    function __spread() {\n        for (var ar = [], i\n= 0; i < arguments.length; i++)\n            ar = ar.concat(__read(arguments[i]));\n        return ar;\n    }\n    function\n__spreadArrays() {\n        for (var s = 0, i = 0, il = arguments.length; i < il; i++)\n            s += arguments[i].length;\n        for (var r = Array(s), k = 0, i = 0; i < il; i++)\n            for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++,\nk++)\n                r[k] = a[j];\n        return r;\n    }\n    ;\n    function __await(v) {\n        return this instanceof __await\n? (this.v = v, this) : new __await(v);\n    }\n    function __asyncGenerator(thisArg, _arguments, generator) {\n        if\n(!Symbol.asyncIterator)\n            throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n        var g =\ngenerator.apply(thisArg, _arguments || []), i, q = [];\n        return i = {\n            verb(\"next\"),\n            verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () {\n                return this;\n            }, i;\n            function verb(n) {\n                if\n(g[n])\n                    i[n] = function (v) {\n                        return new Promise(function (a, b) {\n                            q.push([n, v, a, b]) > 1 || resume(n, v);\n                        });\n                    }\n                }\n            function resume(n, v) {\n                try {\n                    step(g[n](v));\n                } catch (e) {\n                    settle(q[0][3], e);\n                }\n            }\n            function step(r) {\n                r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) :\nsettle(q[0][2], r);\n            }\n            function fulfill(value) {\n                resume(\"next\", value);\n            }\n            function reject(value) {\n                resume(\"throw\", value);\n            }\n            function settle(f, v) {\n                if (f(v), q.shift(), q.length)\n                    resume(q[0][0], q[0][1]);\n            }\n        }\n        function __asyncDelegator(o) {\n            var i, p;\n            return i = {\n                verb(\"next\"), verb(\"throw\"),\n                function (e) {\n                    throw e;\n                }, verb(\"return\"), i[Symbol.iterator] = function () {\n                    return this;\n                }, i;\n                function verb(n,\nf) {\n                    i[n] = o[n] ? function (v) {\n                        return (p = !p) ? {\n                            value: __await(o[n](v)),\n                            done: n === \"return\" : f ? f(v) : v;\n                        } : f;\n                    } : f;\n                }\n            }\n            function __asyncValues(o) {\n                if (!Symbol.asyncIterator)\n                    throw new\nTypeError(\"Symbol.asyncIterator is not defined.\");\n                var m = o[Symbol.asyncIterator], i;\n                return m ?\nm.call(o) : (o = typeof __values === \"function\" ? __values(o) : o[Symbol.iterator](), i = {\n                }, verb(\"next\"),\n                verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () {\n                    return this;\n                }, i);\n                function verb(n) {\n                    i[n] = o[n] && function (v) {\n                        return new Promise(function (resolve, reject) {\n                            v = o[n](v), settle(resolve, reject,\nv.done, v.value);\n                        });\n                    };\n                }\n                function settle(resolve, reject, d, v) {\n                    Promise.resolve(v).then(function (v) {\n                        resolve({\n                            value: v,\n                            done: d\n                        });\n                    }, reject);\n                }\n            }\n            function __makeTemplateObject(cooked, raw) {\n                if\n(Object.defineProperty) {\n                    Object.defineProperty(cooked, \"raw\", {\n                        { value: raw };\n                    });\n                } else {\n                    cooked.raw = raw;\n                }\n                return cooked;\n            }\n            ;\n            var\n__setModuleDefault = Object.create ? (function (o, v) {\n                Object.defineProperty(o, \"default\", {\n                    enumerable:\ntrue,\n                    value: v\n                });\n            }) : function (o, v) {\n                o[\"default\"] = v;\n            };\n            function __importStar(mod) {\n                if\n(mod && mod.__esModule)\n                    return mod;\n                var result = {};\n                if (mod != null)\n                    for (var k in\nmod)\n                        if (Object.hasOwnProperty.call(mod, k))\n                            __createBinding(result, mod, k);\n                __setModuleDefault(result, mod);\n                return result;\n            }\n            function __importDefault(mod) {\n                return (mod\n&& mod.__esModule) ? mod : {\n                    default: mod\n                };\n            }\n            function __classPrivateFieldGet(receiver, privateMap)\n{\n                if (!privateMap.has(receiver))\n                    throw new\nTypeError(\"attempted to get private field on non-instance\");\n                }\n                return privateMap.get(receiver);\n            }\n            function __classPrivateFieldSet(receiver, privateMap, value)\n{\n                if (!privateMap.has(receiver))\n                    throw new\nTypeError(\"attempted to set private field on non-instance\");\n                }\n                privateMap.set(receiver, value);\n                return value;\n            }\n            /**\n             * @license\n             * Copyright Google LLC All Rights Reserved.\n             * Use of this source code is governed by an MIT-style\n             * license that can be\n             * found in the LICENSE file at https://angular.io/license\n             */\n            (function\n(TagContentType) {\n                TagContentType[TagContentType[\"RAW_TEXT\"] = 0] = \"RAW_TEXT\";\n            }\n
```



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'\u2209',\n      'nsup': '\u2284',\n      'Ntilde': '\u00D1',\n      'ntilde': '\u00F1',\n      'Nu': '\u039D',\n      'nu': '\u03BD',\n      'Oacute': '\u00D3',\n      'oacute': '\u00F3',\n      'Ocirc': '\u00D4',\n      'ocirc': '\u00F4',\n      'OElig': '\u0152',\n      'oelig': '\u0153',\n      'Ograve': '\u00D2',\n      'ograve': '\u00F2',\n      'oline': '\u203E',\n      'Omega': '\u03A9',\n      'omega': '\u03C9',\n      'Omicron': '\u039F',\n      'omicron': '\u03BF',\n      'oplus': '\u2295',\n      'or': '\u2228',\n      'ordf': '\u00AA',\n      'ordm': '\u00BA',\n      'Oslash': '\u00D8',\n      'oslash': '\u00F8',\n      'Otilde': '\u00D5',\n      'otilde': '\u00F5',\n      'otimes': '\u2297',\n      'Ouml': '\u00D6',\n      'ouml': '\u00F6',\n      'para': '\u00B6',\n      'permil': '\u2030',\n      'perp': '\u22A5',\n      'Phi': '\u03A6',\n      'phi': '\u03C6',\n      'Pi': '\u03A0',\n      'pi': '\u03C0',\n      'piv': '\u03D6',\n      'plusmn': '\u00B1',\n      'pound': '\u00A3',\n      'prime': '\u2032',\n      'Prime': '\u2033',\n      'prod': '\u220F',\n      'prop': '\u221D',\n      'Psi': '\u03A8',\n      'psi': '\u03C8',\n      'quot': '\u0022',\n      'radic': '\u221A',\n      'rang': '\u27E9',\n      'raquo': '\u00BB',\n      'rarr': '\u2192',\n      'rArr': '\u21D2',\n      'rceil': '\u2309',\n      'rdquo': '\u201D',\n      'real': '\u211C',\n      'reg': '\u00AE',\n      'rfloor': '\u230B',\n      'Rho': '\u03A1',\n      'rho': '\u03C1',\n      'rlm': '\u200F',\n      'rsquo': '\u2019',\n      'sbquo': '\u201A',\n      'Scaron': '\u0160',\n      'saron': '\u0161',\n      'sdot': '\u22C5',\n      'sect': '\u00A7',\n      'shy': '\u00AD',\n      'Sigma': '\u03A3',\n      'sigma': '\u03C3',\n      'sigmaf': '\u03C2',\n      'sim': '\u223C',\n      'spades': '\u2660',\n      'sub': '\u2282',\n      'sube': '\u2286',\n      'sum': '\u2211',\n      'sup': '\u2283',\n      'sup1': '\u00B9',\n      'sup2': '\u00B2',\n      'sup3': '\u00B3',\n      'supe': '\u2287',\n      'szlig': '\u00DF',\n      'Tau': '\u03A4',\n      'tau': '\u03C4',\n      'there4': '\u2234',\n      'Theta': '\u0398',\n      'theta': '\u03B8',\n      'thetasym': '\u03D1',\n      'thinsp': '\u2009',\n      'THORN': '\u00DE',\n      'thorn': '\u00FE',\n      'tilde': '\u02DC',\n      'times': '\u00D7',\n      'trade': '\u2122',\n      'Uacute': '\u00DA',\n      'uacute': '\u00FA',\n      'uarr': '\u2191',\n      'uArr': '\u21D1',\n      'Ucirc': '\u00DB',\n      'ucirc': '\u00FB',\n      'Ugrave': '\u00D9',\n      'ugrave': '\u00F9',\n      'uml': '\u00A8',\n      'upsih': '\u03D2',\n      'Upsilon': '\u03A5',\n      'upsilon': '\u03C5',\n      'Uuml': '\u00DC',\n      'uuml': '\u00FC',\n      'weierp': '\u2118',\n      'Xi': '\u039E',\n      'xi': '\u03BE',\n      'Yacute': '\u00DD',\n      'yacute': '\u00FD',\n      'yen': '\u00A5',\n      'yuml': '\u00FF',\n      'Yuml': '\u0178',\n      'Zeta': '\u0396',\n      'zeta': '\u03B6',\n      'zwj': '\u200D',\n      'zwnj': '\u200C',\n      }\n      // The &nbsp; pseudo-entity is denoting a space. see: https://github.com/dart-lang/angular/blob/0bb611387d29d65b5af7f9d2515ab571fd3fbee4/_tests/test/compiler/preserve_whitespace_test.dart\n      \n      var NGSP_UNICODE = '\uE500';\n      NAMED_ENTITIES['ngsp'] = NGSP_UNICODE;\n      \n      /**\n      *\n      * Copyright Google LLC All Rights Reserved.\n      *\n      * Use of this source code is governed by an MIT-style\n      * license that can be found in the LICENSE file at https://angular.io/license\n      *\n      var HtmlTagDefinition =\n      /** @class */ (function () {\n      function HtmlTagDefinition(_c) {\n      var _this = this;\n      var _d = _c\n      === void 0 ? {} : _c, closedByChildren = _d.closedByChildren, implicitNamespacePrefix =\n      _d.implicitNamespacePrefix, _e = _d.contentType, contentType = _e === void 0 ?\n      exports.TagContentType.PARSABLE_DATA : _e, _f = _d.closedByParent, closedByParent = _f === void 0 ? false\n      : _f, _g = _d.isVoid, isVoid = _g === void 0 ? false : _g, _h = _d.ignoreFirstLf, ignoreFirstLf = _h === void 0 ?\n      false : _h, _j = _d.preventNamespaceInheritance, preventNamespaceInheritance = _j === void 0 ? false : _j;\n      this.closedByChildren = {};\n      this.closedByParent = false;\n      this.canSelfClose = false;\n      if (closedByChildren && closedByChildren.length > 0) {\n      closedByChildren.forEach(function\n      (tagName) { return _this.closedByChildren[tagName] = true; });\n      }\n      this.isVoid = isVoid;\n      this.closedByParent = closedByParent || isVoid;\n      this.implicitNamespacePrefix = implicitNamespacePrefix ||\n      null;\n      this.contentType = contentType;\n      this.ignoreFirstLf = ignoreFirstLf;\n      this.preventNamespaceInheritance = preventNamespaceInheritance;\n      }\n      HtmlTagDefinition.prototype.isClosedByChild = function (name) {\n      return this.isVoid ||\n      name.toLowerCase() in this.closedByChildren;\n      };\n      return HtmlTagDefinition;\n      }());\n      var\n      _DEFAULT_TAG_DEFINITION;\n      // see http://www.w3.org/TR/html51/syntax.html#optional-tags\n      // This

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implementation does not fully conform to the HTML5 spec.\n  var TAG_DEFINITIONS;\n  function
getHtmlTagDefinition(tagName) {\n
    var _a, _b;\n    if (!TAG_DEFINITIONS) {\n        _DEFAULT_TAG_DEFINITION = new
HtmlTagDefinition();\n        TAG_DEFINITIONS = {\n            'base': new HtmlTagDefinition({ isVoid: true
}),\n            'meta': new HtmlTagDefinition({ isVoid: true }),\n            'area': new HtmlTagDefinition({ isVoid:
true }),\n            'embed': new HtmlTagDefinition({ isVoid: true }),\n            'link': new HtmlTagDefinition({
isVoid: true }),\n            'img': new HtmlTagDefinition({ isVoid: true }),\n            'input': new
HtmlTagDefinition({ isVoid: true }),\n            'param': new HtmlTagDefinition({ isVoid: true }),\n            'hr':
new HtmlTagDefinition({ isVoid: true }),\n            'br': new HtmlTagDefinition({ isVoid: true }),\n
'source': new HtmlTagDefinition({ isVoid: true }),\n            'track': new HtmlTagDefinition({ isVoid: true }),\n
'wbr': new HtmlTagDefinition({ isVoid: true }),\n
            'p': new HtmlTagDefinition({\n                closedByChildren: [\n                    'address', 'article', 'aside',
'blockquote', 'div', 'dl', 'fieldset',\n                    'footer', 'form', 'h1', 'h2', 'h3', 'h4', 'h5',\n                    'h6', 'header',
'hgroup', 'hr', 'main', 'nav', 'ol',\n                    'p', 'pre', 'section', 'table', 'ul'\n                ],\n                closedByParent: true\n            }),\n            'thead': new HtmlTagDefinition({ closedByChildren: ['tbody', 'tfoot']
}),\n            'tbody': new HtmlTagDefinition({ closedByChildren: ['tbody', 'tfoot'], closedByParent: true }),\n
'tfoot': new HtmlTagDefinition({ closedByChildren: ['tbody'], closedByParent: true }),\n            'tr': new
HtmlTagDefinition({ closedByChildren: ['tr'], closedByParent: true }),\n            'td': new HtmlTagDefinition({
closedByChildren: ['td', 'th'], closedByParent: true }),\n
            'th': new HtmlTagDefinition({ closedByChildren: ['td', 'th'], closedByParent: true }),\n            'col': new
HtmlTagDefinition({ isVoid: true }),\n            'svg': new HtmlTagDefinition({ implicitNamespacePrefix: 'svg'
}),\n            'foreignObject': new HtmlTagDefinition({\n                // Usually the implicit namespace here would
be redundant since it will be inherited from\n                // the parent `svg`, but we have to do it for `foreignObject`,
because the way the parser\n                // works is that the parent node of an end tag is its own start tag which
means that\n                // the `preventNamespaceInheritance` on `foreignObject` would have it default to the\n
                // implicit namespace which is `html`, unless specified otherwise.\n                implicitNamespacePrefix:
'svg',\n                // We want to prevent children of foreignObject from inheriting its namespace, because\n
                // the point of the element is to allow nodes from other namespaces to be inserted.\n                preventNamespaceInheritance: true,\n            }),\n            'math': new HtmlTagDefinition({
implicitNamespacePrefix: 'math' }),\n            'li': new HtmlTagDefinition({ closedByChildren: ['li'],
closedByParent: true }),\n            'dt': new HtmlTagDefinition({ closedByChildren: ['dt', 'dd'] }),\n            'dd':
new HtmlTagDefinition({ closedByChildren: ['dt', 'dd'], closedByParent: true }),\n            'rb': new
HtmlTagDefinition({ closedByChildren: ['rb', 'rt', 'rtc', 'rp'], closedByParent: true }),\n            'rt': new
HtmlTagDefinition({ closedByChildren: ['rb', 'rt', 'rtc', 'rp'], closedByParent: true }),\n            'rtc': new
HtmlTagDefinition({ closedByChildren: ['rb', 'rtc', 'rp'], closedByParent: true }),\n            'rp': new
HtmlTagDefinition({ closedByChildren: ['rb', 'rt', 'rtc', 'rp'], closedByParent: true }),\n
            'optgroup': new HtmlTagDefinition({ closedByChildren: ['optgroup'], closedByParent: true }),\n
            'option': new HtmlTagDefinition({ closedByChildren: ['option', 'optgroup'], closedByParent: true }),\n
            'pre': new HtmlTagDefinition({ ignoreFirstLf: true }),\n            'listing': new HtmlTagDefinition({ ignoreFirstLf:
true }),\n            'style': new HtmlTagDefinition({ contentType: exports.TagContentType.RAW_TEXT }),\n
            'script': new HtmlTagDefinition({ contentType: exports.TagContentType.RAW_TEXT }),\n            'title': new
HtmlTagDefinition({ contentType: exports.TagContentType.ESCAPABLE_RAW_TEXT }),\n            'textarea':
new HtmlTagDefinition({ contentType: exports.TagContentType.ESCAPABLE_RAW_TEXT, ignoreFirstLf: true
}),\n            };
        }\n        // We have to make both a case-sensitive and a case-insensitive lookup, because\n        //
HTML tag names are case insensitive, whereas some SVG tags
are case sensitive.\n        return (_b = (_a = TAG_DEFINITIONS[tagName]) !== null && _a !== void 0 ? _a :
TAG_DEFINITIONS[tagName.toLowerCase()]) !== null && _b !== void 0 ? _b :
_DEFAULT_TAG_DEFINITION;\n    }\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights

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Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the  
LICENSE file at https://angular.io/license\n *\n var _SELECTOR_REGEXP = new RegExp('(\\|\\\\|not\\\\|\\\\|)|' + /\n1: '|':not('\\n      '((\\\\|\\\\|\\\\|#)?)[-\\\\w+)]'|' // 2: '|tag'; 3: '\\.|\"|^\"#\";'\n// \"-\" should appear first in the regexp below as FF31 parses '['.-\\\\w]' as a range\n    // 4: attribute; 5: attribute_string; 6: attribute_value\n        '(?:\\\\|\\\\|([-.\\\\w*]+)(?:(=|(\\\\|\\\\|\"\\\\|')?(^\\\\|\\\\|\\\\|\\\\|\\\\|')*(\\\\)5)?\\\\|\\\\|)' + '/' '[name]', '[name=value]',\n        // '[name='value']'\n            '\\(\\\\|\\\\|)' + '/' 7: '\\(''\n            '\\(\\\\|\\\\|s*', '\\|\\\\|s*)',\n\n// 8: '\\,'',''\n            'g');\n/**\n * A css selector contains an element name,\n * css classes and attribute/value pairs with the purpose\n * of selecting subsets out of them.\n */\nvar CssSelector = /** @class */ (function () {\n    function CssSelector() {\n        this.element = null;\n        this.classNames = [];\n        /**\n         * The selectors are encoded in pairs where:\n         * - even locations are attribute names\n         * - odd locations are attribute values.\n         */\n        Example:\n        Selector: `[key1=value1][key2]` would parse to:\n        * ```\n        * [key1, 'value1', key2, ]`\n        * ```\n        *\n        this.attrs = [];\n\nthis.notSelectors = [];\n}\nCssSelector.parse = function(selector) {\n    var results = [];\n    var _addResult = function(res, cssSel) {\n        if (cssSel.notSelectors.length > 0 && !cssSel.element && cssSel.classNames.length == 0 &&\n            cssSel.attrs.length == 0) {\n                cssSel.element = '*';\n            }\n            res.push(cssSel);\n        };\n        var cssSelector = new CssSelector();\n        var match;\n        var current = cssSelector;\n        var inNot = false;\n        _SELECTOR_REGEXP.lastIndex = 0;\n        while (match = _SELECTOR_REGEXP.exec(selector)) {\n            if (match[1 /* NOT */) {\n                if (inNot) {\n                    throw new Error('Nesting :not in a selector is not allowed');\n                }\n                inNot = true;\n                current = new CssSelector();\n                cssSelector.notSelectors.push(current);\n            }\n            var tag = match[2 /* TAG */];\n            if (tag) {\n                var prefix = match[3 /* PREFIX */];\n                if (prefix === '#') {\n                    // #hash\n                    current.addAttribute('id', tag.substr(1));\n                }\n                else if (prefix === '.') {\n                    // Class\n                    current.addClassName(tag.substr(1));\n                }\n                else {\n                    // Element\n                    current.setElement(tag);\n                }\n                var attribute = match[4 /* ATTRIBUTE */];\n                if (attribute) {\n                    current.addAttribute(attribute, match[6 /* ATTRIBUTE_VALUE */]);\n                }\n                if (match[7 /* NOT_END */) {\n                    inNot = false;\n                    current = cssSelector;\n                }\n                if (match[8 /* SEPARATOR */) {\n                    if (inNot) {\n                        throw new Error('Multiple selectors in :not are not supported');\n                    }\n                    _addResult(results, cssSelector);\n                    cssSelector = current = new CssSelector();\n                }\n            }\n            _addResult(results, cssSelector);\n        }\n        return results;\n    };\n\n    return this.hasElementSelector() && this.classNames.length == 0 && this.attrs.length == 0 &&\n        this.notSelectors.length === 0;\n};\n\n    return !!this.element;\n});\n\n    if (element === void 0) { element = null; }\n    this.element = element;\n};\n\n    /** Gets a template string for an element that matches the selector. */\n    CssSelector.prototype.getMatchingElementTemplate = function () {\n        var tagName = this.element || 'div';\n        var classAttr = this.classNames.length > 0 ? `class=${this.classNames.join(' ')}` : '';\n        var attrs = '';\n        for (var i = 0; i < this.attrs.length; i += 2) {\n            var attrName = this.attrs[i];\n            var attrValue = this.attrs[i + 1] !== '?' ? `${attrName}="${this.attrs[i + 1]}"` : `${attrName}=""`;\n            attrs += ` ${attrName}${attrValue}`;\n        }\n        return getHtmlTagDefinition(tagName).isVoid ? `<${tagName}${classAttr}${attrs}>` : `<${tagName}${classAttr}${attrs}></${tagName}>`;\n    }\n\n    CssSelector.prototype.getAttrs = function () {\n        var result = [];\n        if (this.classNames.length > 0) {\n            result.push('class', this.classNames.join(' '));\n        }\n        return result.concat(this.attrs);\n    };\n\n    CssSelector.prototype.addAttribute = function(name, value) {\n        if (value === void 0) { value = ''; }\n
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        this.attrs.push(name, value && value.toLowerCase() || "");\n    };\n    CssSelector.prototype.addClassName
= function (name) {\n        this.classNames.push(name.toLowerCase());\n    };\n    CssSelector.prototype.toString = function () {\n        var res = this.element || "";\n        if (this.classNames) {\n            this.classNames.forEach(function (klass) { return res += "." + klass; });\n        }\n        if (this.attrs) {\n            for (var i = 0; i < this.attrs.length; i += 2) {\n                var name = this.attrs[i];\n                var value = this.attrs[i + 1];\n                res += "[" + name + (value ? '=' + value : '') + "]";\n            }\n        }\n        this.notSelectors.forEach(function (notSelector) { return res += ":not(" + notSelector + ")"; });\n        return res;\n    };\n    return CssSelector;\n    });\n    /**\n     * Reads a list of CssSelectors and allows to calculate which ones\n     * are contained in a given CssSelector.\n     */\n    var SelectorMatcher = /** @class */ (function () {\n        function SelectorMatcher() {\n            this._elementMap = new Map();\n            this._elementPartialMap = new Map();\n            this._classMap = new Map();\n            this._classPartialMap = new Map();\n            this._attrValueMap = new Map();\n            this._attrValuePartialMap = new Map();\n            this._listContexts = [];\n        }\n        SelectorMatcher.createNotMatcher = function (notSelectors) {\n            var notMatcher = new SelectorMatcher();\n            notMatcher.addSelectables(notSelectors, null);\n            return notMatcher;\n        };\n        SelectorMatcher.prototype.addSelectables = function (cssSelectors, callbackCtxt) {\n            var listContext = null;\n            if (cssSelectors.length > 1) {\n                listContext = new SelectorListContext(cssSelectors);\n                this._listContexts.push(listContext);\n            }\n            for (var i = 0; i < cssSelectors.length; i++) {\n                this._addSelectable(cssSelectors[i], callbackCtxt, listContext);\n            }\n            /**\n             * Add an object that can be found later on by calling `match`\n             * @param cssSelector A css selector\n             * @param callbackCtxt An opaque object that will be given to the callback of the `match` function\n             */\n            SelectorMatcher.prototype._addSelectable = function (cssSelector, callbackCtxt, listContext) {\n                var matcher = this;\n                var element = cssSelector.element;\n                var classNames = cssSelector.classNames;\n                var attrs = cssSelector.attrs;\n                var selectable = new SelectorContext(cssSelector, callbackCtxt, listContext);\n                if (element) {\n                    var isTerminal = attrs.length === 0 && classNames.length === 0;\n                    if (isTerminal) {\n                        this._addTerminal(matcher._elementMap, element, selectable);\n                    } else {\n                        matcher = this._addPartial(matcher._elementPartialMap, element);\n                    }\n                }\n                if (classNames) {\n                    for (var i = 0; i < classNames.length; i++) {\n                        var isTerminal = attrs.length === 0 && i === classNames.length - 1;\n                        var className = classNames[i];\n                        if (isTerminal) {\n                            this._addTerminal(matcher._classMap, className, selectable);\n                        } else {\n                            matcher = this._addPartial(matcher._classPartialMap, className);\n                        }\n                    }\n                }\n                if (attrs) {\n                    for (var i = 0; i < attrs.length; i += 2) {\n                        var isTerminal = i === attrs.length - 2;\n                        var name = attrs[i];\n                        var value = attrs[i + 1];\n                        if (isTerminal) {\n                            var terminalMap = matcher._attrValueMap;\n                            var terminalValuesMap = terminalMap.get(name);\n                            if (!terminalValuesMap) {\n                                terminalValuesMap = new Map();\n                                terminalMap.set(name, terminalValuesMap);\n                            }\n                            this._addTerminal(terminalValuesMap, value, selectable);\n                        } else {\n                            var partialMap = matcher._attrValuePartialMap;\n                            var partialValuesMap = partialMap.get(name);\n                            if (!partialValuesMap) {\n                                partialValuesMap = new Map();\n                                partialMap.set(name, partialValuesMap);\n                            }\n                            this._addPartial(partialValuesMap, value);\n                        }\n                    }\n                }\n            };\n            SelectorMatcher.prototype._addTerminal = function (map, name, selectable) {\n                var terminalList = map.get(name);\n                if (!terminalList) {\n                    terminalList = [];\n                    map.set(name, terminalList);\n                }\n                terminalList.push(selectable);\n            };\n            SelectorMatcher.prototype._addPartial = function (map, name) {\n                var matcher = map.get(name);\n                if (!matcher) {\n                    matcher = new SelectorMatcher();\n                    map.set(name, matcher);\n                }\n                return matcher;\n            };\n            /**\n             * Find the objects that have been added via `addSelectable`\n             */

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whose css selector is contained in the given css selector.\n      * @param cssSelector A css selector\n      *\n      @param matchedCallback This callback will be called with the object handed into `addSelectable`\n      * @return\n      boolean true if\n      a match was found\n      */\n      SelectorMatcher.prototype.match = function (cssSelector, matchedCallback) {\n        var result = false;\n        var element = cssSelector.element;\n        var classNames =\n        cssSelector.classNames;\n        var attrs = cssSelector.attrs;\n        for (var i = 0; i < this._listContexts.length;\n        i++) {\n          this._listContexts[i].alreadyMatched = false;\n        }\n        result =\n        this._matchTerminal(this._elementMap, element, cssSelector, matchedCallback) || result;\n        result =\n        this._matchPartial(this._elementPartialMap, element, cssSelector, matchedCallback) ||\n        result;\n        if\n        (classNames) {\n          for (var i = 0; i < classNames.length; i++) {\n            var className =\n            classNames[i];\n            result =\n            this._matchTerminal(this._classMap, className, cssSelector,\n            matchedCallback) || result;\n            result\n            =\n            this._matchPartial(this._classPartialMap, className, cssSelector, matchedCallback) ||\n            result;\n          }\n          if (attrs) {\n            for (var i = 0; i < attrs.length; i += 2) {\n              var name = attrs[i];\n              var value = attrs[i + 1];\n              var terminalValuesMap =\n              this._attrValueMap.get(name);\n              if (value) {\n                result =\n                this._matchTerminal(terminalValuesMap, value, cssSelector, matchedCallback) || result;\n              }\n              result =\n              this._matchTerminal(terminalValuesMap, value, cssSelector, matchedCallback) || result;\n              var partialValuesMap = this._attrValuePartialMap.get(name);\n              if (value) {\n                result = this._matchPartial(partialValuesMap, value, cssSelector, matchedCallback)\n                || result;\n              }\n              result =\n              this._matchPartial(partialValuesMap, value,\n              cssSelector, matchedCallback) || result;\n            }\n          }\n          return result;\n        }\n        /** @internal\n        */\n        SelectorMatcher.prototype._matchTerminal = function (map, name, cssSelector, matchedCallback) {\n          if (!map || typeof name !== 'string') {\n            return false;\n          }\n          var selectables = map.get(name) ||\n          [];\n          var starSelectables = map.get('*');\n          if (starSelectables) {\n            selectables =\n            selectables.concat(starSelectables);\n          }\n          if (selectables.length === 0) {\n            return false;\n          }\n          var selectable;\n          var result = false;\n          for (var i = 0; i < selectables.length; i++) {\n            selectable = selectables[i];\n            result = selectable.finalize(cssSelector,\n            matchedCallback) || result;\n          }\n          return result;\n        }\n        /** @internal */\n        SelectorMatcher.prototype._matchPartial = function (map, name, cssSelector, matchedCallback) {\n          if (!map\n          || typeof name !== 'string') {\n            return false;\n          }\n          var nestedSelector = map.get(name);\n          if (!nestedSelector) {\n            return false;\n          }\n          // TODO(perf): get rid of recursion and measure\n          again\n          // TODO(perf): don't pass the whole selector into the recursion,\n          // but only the not processed\n          parts\n          return nestedSelector.match(cssSelector, matchedCallback);\n        }\n        return SelectorMatcher;\n      }());\n      var SelectorListContext = /** @class */ (function () {\n        function SelectorListContext(selectors) {\n          this.selectors = selectors;\n          this.alreadyMatched = false;\n        }\n        return\n        SelectorListContext;\n      }());\n      // Store context to pass back selector and context when a selector is matched\n      var SelectorContext = /** @class */ (function () {\n        function SelectorContext(selector, cbContext, listContext)\n        {\n          this.selector = selector;\n          this.cbContext = cbContext;\n          this.listContext = listContext;\n          this.notSelectors = selector.notSelectors;\n        }\n        SelectorContext.prototype.finalize = function (cssSelector,\n        callback) {\n          var result = true;\n          if (this.notSelectors.length > 0 && (!this.listContext ||\n          !this.listContext.alreadyMatched)) {\n            var notMatcher =\n            SelectorMatcher.createNotMatcher(this.notSelectors);\n            result = !notMatcher.match(cssSelector, null);\n          }\n          if (result && callback && (!this.listContext || !this.listContext.alreadyMatched)) {\n            if\n            (this.listContext) {\n              this.listContext.alreadyMatched\n              = true;\n            }\n            callback(this.selector, this.cbContext);\n          }\n          return result;\n        }\n        return SelectorContext;\n      }());\n      var createInject = makeMetadataFactory('Inject', function (token) {\n        return {\n          token: token\n        };\n      });\n      var createInjectionToken = makeMetadataFactory('InjectionToken', function (desc) {\n        return

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({ _desc: desc, prov: undefined }); });\n  var createAttribute = makeMetadataFactory('Attribute', function
(attributeName) { return ({ attributeName: attributeName }); });\n  var createContentChildren =
makeMetadataFactory('ContentChildren', function (selector, data) {\n    if (data === void 0) { data = {}; }\n    return (Object.assign({ selector: selector, first: false, isViewQuery: false, descendants: false }, data));\n  });\n  var
createContentChild = makeMetadataFactory('ContentChild', function (selector, data) {\n    if (data === void 0) {
data = {}; }\n    return
(Object.assign({ selector: selector, first: true, isViewQuery: false, descendants: true }, data));\n  });\n  var
createViewChildren = makeMetadataFactory('ViewChildren', function (selector, data) {\n    if (data === void 0) {
data = {}; }\n    return (Object.assign({ selector: selector, first: false, isViewQuery: true, descendants: true },
data));\n  });\n  var createViewChild = makeMetadataFactory('ViewChild', function (selector, data) { return
(Object.assign({ selector: selector, first: true, isViewQuery: true, descendants: true }, data)); });\n  var
createDirective = makeMetadataFactory('Directive', function (dir) {\n    if (dir === void 0) { dir = {}; }\n    return dir;\n  });\n  var ViewEncapsulation;\n  (function (ViewEncapsulation) {\n
ViewEncapsulation[ViewEncapsulation["Emulated"] = 0] = "Emulated";\n    // Historically the 1 value was for
`Native` encapsulation which has been removed as of v11.\n    ViewEncapsulation[ViewEncapsulation["None"]
= 2] = "None";\n    ViewEncapsulation[ViewEncapsulation["ShadowDom"] = 3] = "ShadowDom";\n  })(ViewEncapsulation || (ViewEncapsulation = {}));\n  var ChangeDetectionStrategy;\n  (function
(ChangeDetectionStrategy) {\n    ChangeDetectionStrategy[ChangeDetectionStrategy["OnPush"] = 0] =
"OnPush";\n    ChangeDetectionStrategy[ChangeDetectionStrategy["Default"] = 1] = "Default";\n  })(ChangeDetectionStrategy || (ChangeDetectionStrategy = {}));\n  var createComponent =
makeMetadataFactory('Component', function (c) {\n    if (c === void 0) { c = {}; }\n    return (Object.assign({
changeDetection: ChangeDetectionStrategy.Default }, c));\n  });\n  var createPipe = makeMetadataFactory('Pipe',
function (p) { return (Object.assign({ pure: true }, p)); });\n  var createInput = makeMetadataFactory('Input',
function (bindingPropertyName) { return ({ bindingPropertyName: bindingPropertyName }); });\n  var
createOutput = makeMetadataFactory('Output',
function (bindingPropertyName) { return ({ bindingPropertyName: bindingPropertyName }); });\n  var
createHostBinding = makeMetadataFactory('HostBinding', function (hostPropertyName) { return ({
hostPropertyName: hostPropertyName }); });\n  var createHostListener = makeMetadataFactory('HostListener',
function (eventName, args) { return ({ eventName: eventName, args: args }); });\n  var createNgModule =
makeMetadataFactory('NgModule', function (ngModule) { return ngModule; });\n  var createInjectable =
makeMetadataFactory('Injectable', function (injectable) {\n    if (injectable === void 0) { injectable = {}; }\n    return injectable;\n  });\n  var CUSTOM_ELEMENTS_SCHEMA = {\n    name: 'custom-elements'\n  };\n  var NO_ERRORS_SCHEMA = {\n    name: 'no-errors-schema'\n  };\n  var createOptional =
makeMetadataFactory('Optional');\n  var createSelf = makeMetadataFactory('Self');\n  var createSkipSelf =
makeMetadataFactory('SkipSelf');\n
  var createHost = makeMetadataFactory('Host');\n  var Type = Function;\n  var SecurityContext;\n  (function
(SecurityContext) {\n    SecurityContext[SecurityContext["NONE"] = 0] = "NONE";\n
SecurityContext[SecurityContext["HTML"] = 1] = "HTML";\n
SecurityContext[SecurityContext["STYLE"] = 2] = "STYLE";\n
SecurityContext[SecurityContext["SCRIPT"] = 3] = "SCRIPT";\n
SecurityContext[SecurityContext["URL"] = 4] = "URL";\n
SecurityContext[SecurityContext["RESOURCE_URL"] = 5] = "RESOURCE_URL";\n  })(SecurityContext ||
(SecurityContext = {}));\n  var MissingTranslationStrategy;\n  (function (MissingTranslationStrategy) {\n
MissingTranslationStrategy[MissingTranslationStrategy["Error"] = 0] = "Error";\n
MissingTranslationStrategy[MissingTranslationStrategy["Warning"] = 1] = "Warning";\n
MissingTranslationStrategy[MissingTranslationStrategy["Ignore"] = 2] = "Ignore";\n  })(MissingTranslationStrategy

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|| (MissingTranslationStrategy = {}));\n  function makeMetadataFactory(name, props) {\n    // This must be
declared as a function, not a fat arrow, so that ES2015 devmode produces code\n    // that works with the
static_reflector.ts in the ViewEngine compiler.\n    // In particular, `_registerDecoratorOrConstructor` assumes
that the value returned here can be\n    // new'ed.\n    function factory() {\n      var args = [];\n      for (var
_i = 0; _i < arguments.length; _i++) {\n        args[_i] = arguments[_i];\n      }\n      var values = props ?
props.apply(void 0, __spread(args)) : {};\n      return Object.assign({ ngMetadataName: name }, values);\n    }\n    factory.isTypeOf = function (obj) { return obj && obj.ngMetadataName === name; }\n    factory.ngMetadataName = name;\n    return factory;\n  }\n  function parserSelectorToSimpleSelector(selector)
{\n    var classes = selector.classNames
    && selector.classNames.length ? __spread([8 /* CLASS */], selector.classNames) : [];\n    var
elementName = selector.element && selector.element !== '*' ? selector.element : '';\n    return
__spread([elementName], selector.attrs, classes);\n  }\n  function parserSelectorToNegativeSelector(selector) {\n
    var classes = selector.classNames && selector.classNames.length ? __spread([8 /* CLASS */],
selector.classNames) : [];\n    if (selector.element) {\n      return __spread([1 /* NOT */ | 4
/* ELEMENT */], selector.element\n      ], selector.attrs, classes);\n    }\n    else if (selector.attrs.length) {\n
      return __spread([1 /* NOT */ | 2 /* ATTRIBUTE */], selector.attrs, classes);\n    }\n    else {\n
      return selector.classNames && selector.classNames.length ? __spread([1 /* NOT */ | 8 /* CLASS */],
selector.classNames) : [];\n    }\n  }\n  function parserSelectorToR3Selector(selector) {\n    var positive = parserSelectorToSimpleSelector(selector);\n    var negative = selector.notSelectors && selector.notSelectors.length ?\n    selector.notSelectors.map(function (notSelector) { return parserSelectorToNegativeSelector(notSelector); }) : [];\n    return positive.concat.apply(positive, __spread(negative));\n  }\n  function
parseSelectorToR3Selector(selector) {\n    return selector ?
CssSelector.parse(selector).map(parserSelectorToR3Selector) : [];\n  }\n  var core =
/*#__PURE__*/Object.freeze({\n    __proto__: null,\n    createInject: createInject,\n    createInjectionToken:
createInjectionToken,\n    createAttribute: createAttribute,\n    createContentChildren: createContentChildren,\n
    createContentChild: createContentChild,\n    createViewChildren: createViewChildren,\n
    createViewChild: createViewChild,\n    createDirective: createDirective,\n
    get ViewEncapsulation () { return ViewEncapsulation; },\n    get ChangeDetectionStrategy () { return
ChangeDetectionStrategy; },\n    createComponent: createComponent,\n    createPipe: createPipe,\n
    createInput: createInput,\n    createOutput: createOutput,\n    createHostBinding: createHostBinding,\n
    createHostListener: createHostListener,\n    createNgModule: createNgModule,\n    createInjectable:
createInjectable,\n    CUSTOM_ELEMENTS_SCHEMA: CUSTOM_ELEMENTS_SCHEMA,\n
    NO_ERRORS_SCHEMA: NO_ERRORS_SCHEMA,\n    createOptional: createOptional,\n    createSelf:
createSelf,\n    createSkipSelf: createSkipSelf,\n    createHost: createHost,\n    Type: Type,\n    get
SecurityContext () { return SecurityContext; },\n    get MissingTranslationStrategy () { return
MissingTranslationStrategy; },\n    parseSelectorToR3Selector: parseSelectorToR3Selector\n  });\n  /**\n   *
@license\n
   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style
license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  // Types\n  var
TypeModifier;\n  (function (TypeModifier) {\n    TypeModifier[TypeModifier["Const"] = 0] = "Const";\n  })
(TypeModifier || (TypeModifier = {}));\n  var Type$1 = /** @class */ (function () {\n    function
Type(modifiers) {\n      if (modifiers === void 0) { modifiers = []; }\n      this.modifiers = modifiers;\n    }\n    Type.prototype.hasModifier = function (modifier) {\n      return this.modifiers.indexOf(modifier) !== -
1;\n    };\n    return Type;\n  })();\n  (function (BuiltinTypeName) {\n    BuiltinTypeName[BuiltinTypeName["Dynamic"] = 0] = "Dynamic";\n    BuiltinTypeName[BuiltinTypeName["Bool"] = 1] = "Bool";\n    BuiltinTypeName[BuiltinTypeName["String"] = 2] = "String";\n  })

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    BuiltinTypeName[BuiltinTypeName["Int"] = 3] = "Int";\n
    BuiltinTypeName[BuiltinTypeName["Number"] = 4] = "Number";\n
    BuiltinTypeName[BuiltinTypeName["Function"] = 5] = "Function";\n
    BuiltinTypeName[BuiltinTypeName["Inferred"] = 6] = "Inferred";\n
    BuiltinTypeName[BuiltinTypeName["None"] = 7] = "None";\n
  })(exports.BuiltinTypeName ||
  (exports.BuiltinTypeName = {}));\n
  var BuiltinType = /** @class */ (function (_super) {\n
    __extends(BuiltinType, _super);\n
    function BuiltinType(name, modifiers) {\n
      var _this = _super.call(this, modifiers) || this;\n
      _this.name = name;\n
      return _this;\n
    }\n
    BuiltinType.prototype.visitType =
    function (visitor, context) {\n
      return visitor.visitBuiltinType(this, context);\n
    }; \n
    return
    BuiltinType;\n
  })(Type$1));\n
  var ExpressionType = /** @class */ (function (_super) {\n
    __extends(ExpressionType, _super);\n
    function ExpressionType(value, modifiers, typeParams) {\n
      if (typeParams === void 0) { typeParams =
      null; }\n
      var _this = _super.call(this, modifiers) || this;\n
      _this.value = value;\n
      _this.typeParams
      = typeParams;\n
      return _this;\n
    }\n
    ExpressionType.prototype.visitType = function (visitor, context)
    {\n
      return visitor.visitExpressionType(this, context);\n
    }; \n
    return ExpressionType;\n
  })(Type$1));\n
  var ArrayType = /** @class */ (function (_super) {\n
    __extends(ArrayType, _super);\n
    function ArrayType(of, modifiers) {\n
      var _this = _super.call(this, modifiers) || this;\n
      _this.of = of;\n
      return _this;\n
    }\n
    ArrayType.prototype.visitType = function (visitor, context) {\n
      return
      visitor.visitArrayType(this, context);\n
    }; \n
    return ArrayType;\n
  })(Type$1));\n
  var MapType = /**
  @class */ (function
  (_super) {\n
    __extends(MapType, _super);\n
    function MapType(valueType, modifiers) {\n
      var _this
      = _super.call(this, modifiers) || this;\n
      _this.valueType = valueType || null;\n
      return _this;\n
    }\n
    MapType.prototype.visitType = function (visitor, context) {\n
      return visitor.visitMapType(this, context);\n
    }; \n
    return MapType;\n
  })(Type$1));\n
  var DYNAMIC_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Dynamic);\n
  var INFERRED_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Inferred);\n
  var BOOL_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Bool);\n
  var INT_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Int);\n
  var NUMBER_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Number);\n
  var STRING_TYPE = new
  BuiltinType(exports.BuiltinTypeName.String);\n
  var FUNCTION_TYPE = new
  BuiltinType(exports.BuiltinTypeName.Function);\n
  var NONE_TYPE = new
  BuiltinType(exports.BuiltinTypeName.None);\n
  (function (UnaryOperator) {\n
    UnaryOperator[UnaryOperator["Minus"] = 0] = "Minus";\n
    UnaryOperator[UnaryOperator["Plus"] = 1] = "Plus";\n
  })(exports.UnaryOperator || (exports.UnaryOperator =
  {}));\n
  (function (BinaryOperator) {\n
    BinaryOperator[BinaryOperator["Equals"] = 0] = "Equals";\n
    BinaryOperator[BinaryOperator["NotEquals"] = 1] = "NotEquals";\n
    BinaryOperator[BinaryOperator["Identical"] = 2] = "Identical";\n
    BinaryOperator[BinaryOperator["NotIdentical"] = 3] = "NotIdentical";\n
    BinaryOperator[BinaryOperator["Minus"] = 4] = "Minus";\n
    BinaryOperator[BinaryOperator["Plus"] = 5] =
    "Plus";\n
    BinaryOperator[BinaryOperator["Divide"] = 6] = "Divide";\n
    BinaryOperator[BinaryOperator["Multiply"] = 7] = "Multiply";\n
    BinaryOperator[BinaryOperator["Modulo"] = 8] = "Modulo";\n
    BinaryOperator[BinaryOperator["And"] =
    9] = "And";\n
    BinaryOperator[BinaryOperator["Or"]
    = 10] = "Or";\n
    BinaryOperator[BinaryOperator["BitwiseAnd"] = 11] = "BitwiseAnd";\n
    BinaryOperator[BinaryOperator["Lower"] = 12] = "Lower";\n
    BinaryOperator[BinaryOperator["LowerEquals"] = 13] = "LowerEquals";\n
    BinaryOperator[BinaryOperator["Bigger"] = 14] = "Bigger";\n
    BinaryOperator[BinaryOperator["BiggerEquals"] = 15] = "BiggerEquals";\n
  })(exports.BinaryOperator ||

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(exports.BinaryOperator = {}));\n  function nullSafeIsEquivalent(base, other) {\n    if (base == null || other ==\n    null) {\n      return base == other;\n    }\n    return base.isEquivalent(other);\n  }\n  function\n  areAllEquivalent(base, other) {\n    var len = base.length;\n    if (len !== other.length) {\n      return false;\n    }\n    for (var i = 0; i < len; i++) {\n      if (!base[i].isEquivalent(other[i])) {\n        return false;\n      }\n    }\n    return true;\n  }\n  var Expression = /** @class */ (function () {\n    function Expression(type, sourceSpan)\n    {\n      this.type = type || null;\n      this.sourceSpan = sourceSpan || null;\n    }\n    Expression.prototype.prop = function (name, sourceSpan) {\n      return new ReadPropExpr(this, name, null,\n      sourceSpan);\n    }; \n    Expression.prototype.key = function (index, type, sourceSpan) {\n      return new\n      ReadKeyExpr(this, index, type, sourceSpan);\n    }; \n    Expression.prototype.callMethod = function (name,\n    params, sourceSpan) {\n      return new InvokeMethodExpr(this, name, params, null, sourceSpan);\n    }; \n    Expression.prototype.callFn = function (params, sourceSpan, pure) {\n      return new InvokeFunctionExpr(this,\n      params, null, sourceSpan, pure);\n    }; \n    Expression.prototype.instantiate = function (params, type,\n    sourceSpan) {\n      return new InstantiateExpr(this, params,\n      type, sourceSpan);\n    }; \n    Expression.prototype.conditional = function (trueCase, falseCase, sourceSpan)\n    {\n      if (falseCase === void 0) { falseCase = null; }\n      return new ConditionalExpr(this, trueCase,\n      falseCase, null, sourceSpan);\n    }; \n    Expression.prototype.equals = function (rhs, sourceSpan) {\n      return new BinaryOperatorExpr(exports.BinaryOperator.Equals, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.notEquals = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.NotEquals, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.identical = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Identical, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.notIdentical = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.NotIdentical,\n      this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.minus = function (rhs, sourceSpan) {\n      return new BinaryOperatorExpr(exports.BinaryOperator.Minus, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.plus = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Plus, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.divide = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Divide, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.multiply = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Multiply, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.modulo = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Modulo, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.and = function\n    (rhs, sourceSpan) {\n      return new BinaryOperatorExpr(exports.BinaryOperator.And, this, rhs, null,\n      sourceSpan);\n    }; \n    Expression.prototype.bitwiseAnd = function (rhs, sourceSpan, parens) {\n      if\n      (parens === void 0) { parens = true; }\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.BitwiseAnd, this, rhs, null, sourceSpan, parens);\n    }; \n    Expression.prototype.or = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Or, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.lower = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.Lower, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.lowerEquals = function (rhs, sourceSpan) {\n      return new\n      BinaryOperatorExpr(exports.BinaryOperator.LowerEquals, this, rhs, null, sourceSpan);\n    }; \n    Expression.prototype.bigger = function\n    (rhs, sourceSpan) {\n      return new BinaryOperatorExpr(exports.BinaryOperator.Bigger, this, rhs, null,\n      sourceSpan);\n    }; \n    Expression.prototype.biggerEquals = function (rhs, sourceSpan) {\n      return new

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BinaryOperatorExpr(exports.BinaryOperator.BiggerEquals, this, rhs, null, sourceSpan);\n    };\n
Expression.prototype.isBlank = function (sourceSpan) {\n    // Note: We use equals by purpose here to compare\n    to null and undefined in JS.\n    // We use the typed null to allow strictNullChecks to narrow types.\n    return this.equals(TYPED_NULL_EXPR, sourceSpan);\n    };\n
Expression.prototype.cast = function (type,\nsourceSpan) {\n    return new CastExpr(this, type, sourceSpan);\n    };\n
Expression.prototype.toStmt =\nfunction () {\n    return new ExpressionStatement(this, null);\n    };\n    return Expression;\n    }());\n
(function (BuiltinVar) {\n    BuiltinVar[BuiltinVar["This"]\n= 0] = "This";\n    BuiltinVar[BuiltinVar["Super"] = 1] = "Super";\n    BuiltinVar[BuiltinVar["CatchError"] = 2] = "CatchError";\n    BuiltinVar[BuiltinVar["CatchStack"] = 3] =\n"CatchStack";\n    })(exports.BuiltinVar || (exports.BuiltinVar = {}));\n    var ReadVarExpr = /** @class */\n(function (_super) {\n    __extends(ReadVarExpr, _super);\n    function ReadVarExpr(name, type, sourceSpan)\n{\n        var _this = _super.call(this, type, sourceSpan) || this;\n        if (typeof name === 'string') {\n            _this.name = name;\n            _this.builtin = null;\n        } else {\n            _this.name = null;\n            _this.builtin = name;\n        }\n        return _this;\n    }\n    ReadVarExpr.prototype.isEquivalent = function\n(e) {\n        return e instanceof ReadVarExpr && this.name === e.name && this.builtin === e.builtin;\n    };\n    ReadVarExpr.prototype.isConstant\n= function () {\n        return false;\n    };\n    ReadVarExpr.prototype.visitExpression = function (visitor,\ncontext) {\n        return visitor.visitReadVarExpr(this, context);\n    };\n    ReadVarExpr.prototype.set =\nfunction (value) {\n        if (!this.name) {\n            throw new Error("Built in variable '" + this.builtin + "' can\nnot be assigned to.");\n        }\n        return new WriteVarExpr(this.name, value, null, this.sourceSpan);\n    };\n    return ReadVarExpr;\n})(Expression));\n    var TypeofExpr = /** @class */ (function (_super) {\n    __extends(TypeofExpr, _super);\n    function TypeofExpr(expr, type, sourceSpan) {\n        var _this =\n_super.call(this, type, sourceSpan) || this;\n        _this.expr = expr;\n        return _this;\n    }\n    TypeofExpr.prototype.visitExpression = function (visitor, context) {\n        return visitor.visitTypeofExpr(this,\ncontext);\n    };\n    TypeofExpr.prototype.isEquivalent = function (e) {\n        return e instanceof TypeofExpr &&\ne.expr.isEquivalent(this.expr);\n    };\n    TypeofExpr.prototype.isConstant = function () {\n        return\nthis.expr.isConstant();\n    };\n    return TypeofExpr;\n})(Expression));\n    var WrappedNodeExpr = /**\n@class */ (function (_super) {\n    __extends(WrappedNodeExpr, _super);\n    function\nWrappedNodeExpr(node, type, sourceSpan) {\n        var _this = _super.call(this, type, sourceSpan) || this;\n        _this.node = node;\n        return _this;\n    }\n    WrappedNodeExpr.prototype.isEquivalent = function (e) {\n        return e instanceof WrappedNodeExpr && this.node === e.node;\n    };\n    WrappedNodeExpr.prototype.isConstant = function () {\n        return false;\n    };\n    WrappedNodeExpr.prototype.visitExpression = function (visitor, context) {\n        return\nvisitor.visitWrappedNodeExpr(this,\ncontext);\n    };\n    return WrappedNodeExpr;\n})(Expression));\n    var WriteVarExpr = /** @class */\n(function (_super) {\n    __extends(WriteVarExpr, _super);\n    function WriteVarExpr(name, value, type,\nsourceSpan) {\n        var _this = _super.call(this, type || value.type, sourceSpan) || this;\n        _this.name =\nname;\n        _this.value = value;\n        return _this;\n    }\n    WriteVarExpr.prototype.isEquivalent =\nfunction (e) {\n        return e instanceof WriteVarExpr && this.name === e.name &&\nthis.value.isEquivalent(e.value);\n    };\n    WriteVarExpr.prototype.isConstant = function () {\n        return\nfalse;\n    };\n    WriteVarExpr.prototype.visitExpression = function (visitor, context) {\n        return\nvisitor.visitWriteVarExpr(this, context);\n    };\n    WriteVarExpr.prototype.toDeclStmt = function (type,\nmodifiers) {\n        return new DeclareVarStmt(this.name,\nthis.value, type, modifiers, this.sourceSpan);\n    };\n    WriteVarExpr.prototype.toConstDecl = function () {\n        return this.toDeclStmt(INFERRED_TYPE, [exports.StmtModifier.Final]);\n    };\n    return\nWriteVarExpr;\n})(Expression));\n    var WriteKeyExpr = /** @class */ (function (_super) {\n    __extends(WriteKeyExpr, _super);\n    function WriteKeyExpr(receiver, index, value, type, sourceSpan) {\n

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var _this = _super.call(this, type || value.type, sourceSpan) || this;\n      _this.receiver = receiver;\n      _this.index = index;\n      _this.value = value;\n      return _this;\n    }\n\nWriteKeyExpr.prototype.isEquivalent = function (e) {\n      return e instanceof WriteKeyExpr &&\n      this.receiver.isEquivalent(e.receiver) &&\n      this.index.isEquivalent(e.index) &&\n      this.value.isEquivalent(e.value);\n    };\n\nWriteKeyExpr.prototype.isConstant = function () {\n      return\n      false;\n    };\n\nWriteKeyExpr.prototype.visitExpression = function (visitor, context) {\n      return\n      visitor.visitWriteKeyExpr(this, context);\n    };\n\nreturn WriteKeyExpr;\n  }(Expression));\n\nvar\nWritePropExpr = /** @class */ (function (_super) {\n      __extends(WritePropExpr, _super);\n      function\n      WritePropExpr(receiver, name, value, type, sourceSpan) {\n          var _this = _super.call(this, type || value.type,\n          sourceSpan) || this;\n          _this.receiver = receiver;\n          _this.name = name;\n          _this.value = value;\n          return _this;\n      }\n      WritePropExpr.prototype.isEquivalent = function (e) {\n          return e instanceof\n          WritePropExpr && this.receiver.isEquivalent(e.receiver) &&\n          this.name === e.name &&\n          this.value.isEquivalent(e.value);\n      };\n      WritePropExpr.prototype.isConstant = function () {\n          return\n          false;\n      };\n      WritePropExpr.prototype.visitExpression\n      = function (visitor, context) {\n          return visitor.visitWritePropExpr(this, context);\n      };\n      return\n      WritePropExpr;\n  }(Expression));\n\n(function (BuiltinMethod) {\n      BuiltinMethod[BuiltinMethod["ConcatArray"] = 0] = "ConcatArray";\n      BuiltinMethod[BuiltinMethod["SubscribeObservable"] = 1] = "SubscribeObservable";\n      BuiltinMethod[BuiltinMethod["Bind"] = 2] = "Bind";\n  })(exports.BuiltinMethod || (exports.BuiltinMethod =\n  {}));\n\nvar InvokeMethodExpr = /** @class */ (function (_super) {\n      __extends(InvokeMethodExpr,\n      _super);\n      function InvokeMethodExpr(receiver, method, args, type, sourceSpan) {\n          var _this =\n          _super.call(this, type, sourceSpan) || this;\n          _this.receiver = receiver;\n          _this.args = args;\n          if\n          (typeof method === 'string') {\n              _this.name = method;\n              _this.builtin = null;\n          }\n          else\n          {\n              _this.name = null;\n              _this.builtin = method;\n          }\n          return _this;\n      }\n      InvokeMethodExpr.prototype.isEquivalent = function (e) {\n          return e instanceof InvokeMethodExpr &&\n          this.receiver.isEquivalent(e.receiver) &&\n          this.name === e.name && this.builtin === e.builtin &&\n          areAllEquivalent(this.args, e.args);\n      };\n      InvokeMethodExpr.prototype.isConstant = function () {\n          return\n          false;\n      };\n      InvokeMethodExpr.prototype.visitExpression = function (visitor, context) {\n          return\n          visitor.visitInvokeMethodExpr(this, context);\n      };\n      return\n      InvokeMethodExpr;\n  }(Expression));\n\nvar InvokeFunctionExpr = /** @class */ (function (_super) {\n      __extends(InvokeFunctionExpr, _super);\n      function\n      InvokeFunctionExpr(fn, args, type, sourceSpan, pure) {\n          if (pure === void 0) { pure = false; }\n          var _this = _super.call(this,\n          type, sourceSpan) || this;\n          _this.fn = fn;\n          _this.args = args;\n          _this.pure = pure;\n          return\n          _this;\n      }\n      InvokeFunctionExpr.prototype.isEquivalent = function (e) {\n          return e instanceof\n          InvokeFunctionExpr && this.fn.isEquivalent(e.fn) &&\n          areAllEquivalent(this.args, e.args) && this.pure\n          === e.pure;\n      };\n      InvokeFunctionExpr.prototype.isConstant = function () {\n          return\n          false;\n      };\n      InvokeFunctionExpr.prototype.visitExpression = function (visitor, context) {\n          return\n          visitor.visitInvokeFunctionExpr(this, context);\n      };\n      return\n      InvokeFunctionExpr;\n  }(Expression));\n\nvar InstantiateExpr = /** @class */ (function (_super) {\n      __extends(InstantiateExpr, _super);\n      function\n      InstantiateExpr(classExpr, args, type, sourceSpan) {\n          var _this = _super.call(this, type, sourceSpan) || this;\n          _this.classExpr = classExpr;\n          _this.args = args;\n          return _this;\n      }\n      InstantiateExpr.prototype.isEquivalent = function (e) {\n          return e instanceof\n          InstantiateExpr &&\n          this.classExpr.isEquivalent(e.classExpr) &&\n          areAllEquivalent(this.args, e.args);\n      };\n      InstantiateExpr.prototype.isConstant = function () {\n          return\n          false;\n      };\n      InstantiateExpr.prototype.visitExpression = function (visitor, context) {\n          return\n          visitor.visitInstantiateExpr(this, context);\n      };\n      return\n      InstantiateExpr;\n  }(Expression));\n\nvar

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```

LiteralExpr = /** @class */ (function (_super) {
    __extends(LiteralExpr, _super);
    function LiteralExpr(value, type, sourceSpan) {
        var _this = _super.call(this, type, sourceSpan) || this;
        _this.value = value;
        return _this;
    }
    LiteralExpr.prototype.isEquivalent = function (e) {
        return e instanceof LiteralExpr && this.value === e.value;
    };
    LiteralExpr.prototype.isConstant = function () {
        return true;
    };
    LiteralExpr.prototype.visitExpression = function (visitor, context) {
        return visitor.visitLiteralExpr(this, context);
    };
    return LiteralExpr;
})(Expression);
var MessagePiece = /** @class */ (function () {
    function MessagePiece(text, sourceSpan) {
        this.text = text;
        this.sourceSpan = sourceSpan;
    }
    return MessagePiece;
})();
var LiteralPiece = /** @class */ (function (_super) {
    __extends(LiteralPiece, _super);
    function LiteralPiece() {
        return _super !== null && _super.apply(this, arguments) || this;
    }
    return LiteralPiece;
})(MessagePiece);
var PlaceholderPiece = /** @class */ (function (_super) {
    __extends(PlaceholderPiece, _super);
    function PlaceholderPiece() {
        return _super !== null && _super.apply(this, arguments) || this;
    }
    return PlaceholderPiece;
})(MessagePiece);
var LocalizedString = /** @class */ (function (_super) {
    __extends(LocalizedString, _super);
    function LocalizedString(metaBlock, messageParts, placeholderNames, expressions, sourceSpan) {
        var _this = _super.call(this, STRING_TYPE, sourceSpan) || this;
        _this.metaBlock = metaBlock;
        _this.messageParts = messageParts;
        _this.placeholderNames = placeholderNames;
        _this.expressions = expressions;
        return _this;
    }
    LocalizedString.prototype.isEquivalent = function (e) {
        // return e instanceof LocalizedString && this.message === e.message;
        return false;
    };
    LocalizedString.prototype.isConstant = function () {
        return false;
    };
    LocalizedString.prototype.visitExpression = function (visitor, context) {
        return visitor.visitLocalizedString(this, context);
    };
    /**
     * Serialize the given `meta` and `messagePart` into `cooked` and `raw` strings that can be used in a `$localize` tagged string. The format of the metadata is the same as that parsed by `parseI18nMeta`.
     * @param meta The metadata to serialize
     * @param messagePart The first part of the tagged string
     */
    LocalizedString.prototype.serializeI18nHead = function () {
        var MEANING_SEPARATOR = '|';
        var ID_SEPARATOR = '@';
        var LEGACY_ID_INDICATOR = ";";
        var metaBlock = this.metaBlock.description || "";
        if (this.metaBlock.meaning) {
            metaBlock = "\"\" + this.metaBlock.meaning + MEANING_SEPARATOR + metaBlock;
        }
        if (this.metaBlock.customId) {
            metaBlock = "\"\" + metaBlock + ID_SEPARATOR + this.metaBlock.customId;
        }
        if (this.metaBlock.legacyIds) {
            this.metaBlock.legacyIds.forEach(function (legacyId) {
                metaBlock = "\"\" + metaBlock + LEGACY_ID_INDICATOR + legacyId;
            });
        }
        return createCookedRawString(metaBlock, this.messageParts[0].text, this.getMessagePartSourceSpan(0));
    };
    LocalizedString.prototype.getMessagePartSourceSpan = function (i) {
        var _a, _b;
        return (_b = (_a = this.messageParts[i]) === null || _a === void 0 ? void 0 : _a.sourceSpan) !== null && _b !== void 0 ? _b : this.sourceSpan;
    };
    LocalizedString.prototype.getPlaceholderSourceSpan = function (i) {
        var _a, _b, _c, _d;
        return (_d = (_b = (_a = this.placeholderNames[i]) === null || _a === void 0 ? void 0 : _a.sourceSpan) !== null && _b !== void 0 ? _b : _c = this.expressions[i] === null || _c === void 0 ? void 0 : _c.sourceSpan) !== null && _d !== void 0 ? _d : this.sourceSpan;
    };
    /**
     * Serialize the given `placeholderName` and `messagePart` into `cooked` and `raw` strings that can be used in a `$localize` tagged string.
     * @param placeholderName The placeholder name to serialize
     * @param messagePart The following message string after this placeholder
     */
    LocalizedString.prototype.serializeI18nTemplatePart = function (partIndex) {
        var placeholderName = this.placeholderNames[partIndex - 1].text;
        var messagePart = this.messageParts[partIndex];
        return createCookedRawString(placeholderName, messagePart.text, this.getMessagePartSourceSpan(partIndex));
    };
    return LocalizedString;
})(Expression);

```

```

escapeSlashes = function (str) { return str.replace(/\\\\/g, '\\\\\\\\'); };
var escapeStartingColon = function (str) { return str.replace(/^\:/, '\\\\:'); };
var escapeColons = function (str) { return str.replace(/:/g, '\\\\:'); };
var escapeForMessagePart = function (str) { return str.replace(/`/g, '\\\\`').replace(/\\$/g, '\\\\\\\\$'); };
/**
 * Creates a `{cooked, raw}` object from the `metaBlock` and `messagePart`.
 * The `raw` text must have various character sequences escaped:
 * `\\` would otherwise indicate that the next character is a control character.
 * `\\` and `\\$` are template string control sequences that would otherwise prematurely indicate the end of a message part.
 * `\\:` inside a metablock would prematurely indicate the end of the metablock.
 * `\\:` at the start of a messagePart with no metablock would erroneously indicate the start of a metablock.
 * @param metaBlock Any metadata that should be prepended to the string
 * @param messagePart The message part of the string
 */
function createCookedRawString(metaBlock, messagePart, range) {
  if (metaBlock === '') {
    return {
      cooked: messagePart,
      raw: escapeForMessagePart(escapeStartingColon(escapeSlashes(messagePart))),
      range: range,
    };
  } else {
    return {
      cooked: `\\:` + metaBlock + `\\:` + messagePart,
      raw: escapeForMessagePart(`\\:` + escapeColons(escapeSlashes(metaBlock)) + `\\:` + escapeSlashes(messagePart)),
      range: range,
    };
  }
}

var ExternalExpr = /** @class */ (function (_super) {
  __extends(ExternalExpr, _super);
  function ExternalExpr(value, type, typeParams, sourceSpan) {
    if (typeParams === void 0) { typeParams = null; }
    var _this = _super.call(this, type, sourceSpan) || this;
    _this.value = value;
    _this.typeParams = typeParams;
    return _this;
  }
  ExternalExpr.prototype.isEquivalent = function (e) {
    return e instanceof ExternalExpr && this.value.name === e.value.name && this.value.moduleName === e.value.moduleName && this.value.runtime === e.value.runtime;
  };
  ExternalExpr.prototype.isConstant = function () {
    return false;
  };
  ExternalExpr.prototype.visitExpression = function (visitor, context) {
    return visitor.visitExternalExpr(this, context);
  };
  return ExternalExpr;
})(Expression);

var ExternalReference = /** @class */ (function () {
  function ExternalReference(moduleName, name, runtime) {
    this.moduleName = moduleName;
    this.name = name;
    this.runtime = runtime;
  }
  return ExternalReference;
})();

var ConditionalExpr = /** @class */ (function (_super) {
  __extends(ConditionalExpr, _super);
  function ConditionalExpr(condition, trueCase, falseCase, type, sourceSpan) {
    if (falseCase === void 0) { falseCase = null; }
    var _this = _super.call(this, type || trueCase.type, sourceSpan) || this;
    _this.condition = condition;
    _this.falseCase = falseCase;
    _this.trueCase = trueCase;
    return _this;
  }
  ConditionalExpr.prototype.isEquivalent = function (e) {
    return e instanceof ConditionalExpr && this.condition.isEquivalent(e.condition) && this.trueCase.isEquivalent(e.trueCase) && nullSafeIsEquivalent(this.falseCase, e.falseCase);
  };
  ConditionalExpr.prototype.isConstant = function () {
    return false;
  };
  ConditionalExpr.prototype.visitExpression = function (visitor, context) {
    return visitor.visitConditionalExpr(this, context);
  };
  return ConditionalExpr;
})(Expression);

var NotExpr = /** @class */ (function (_super) {
  __extends(NotExpr, _super);
  function NotExpr(condition, sourceSpan) {
    var _this = _super.call(this, BOOL_TYPE, sourceSpan) || this;
    _this.condition = condition;
    return _this;
  }
  NotExpr.prototype.isEquivalent = function (e) {
    return e instanceof NotExpr && this.condition.isEquivalent(e.condition);
  };
  NotExpr.prototype.isConstant = function () {
    return false;
  };
  NotExpr.prototype.visitExpression = function (visitor, context) {
    return visitor.visitNotExpr(this, context);
  };
  return NotExpr;
})(Expression);

var AssertNotNull = /** @class */ (function (_super) {
  __extends(AssertNotNull, _super);
  function AssertNotNull(condition, sourceSpan) {
    var _this = _super.call(this, condition.type, sourceSpan) || this;
    _this.condition = condition;
    return _this;
  }
  AssertNotNull.prototype.isEquivalent = function (e) {
    return e instanceof AssertNotNull && this.condition.isEquivalent(e.condition);
  };
  return AssertNotNull;
})(Expression);

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AssertNotNull.prototype.isConstant = function () {\n    return false;\n};\n
AssertNotNull.prototype.visitExpression = function (visitor, context) {\n    return
visitor.visitAssertNotNullExpr(this, context);\n};\n    return AssertNotNull;\n}(Expression));\n    var
CastExpr = /** @class */ (function (_super) {\n    __extends(CastExpr, _super);\n    function CastExpr(value,
type, sourceSpan) {\n        var _this = _super.call(this, type, sourceSpan) || this;\n        _this.value = value;\n        return _this;\n    }\n    CastExpr.prototype.isEquivalent = function (e) {\n        return e instanceof CastExpr
&& this.value.isEquivalent(e.value);\n    };\n
    CastExpr.prototype.isConstant = function () {\n        return false;\n    };\n
CastExpr.prototype.visitExpression = function (visitor, context) {\n        return visitor.visitCastExpr(this,
context);\n    };\n    return CastExpr;\n}(Expression));\n    var FnParam = /** @class */ (function () {\n
function FnParam(name, type) {\n        if (type === void 0) { type = null; }\n        this.name = name;\n        this.type = type;\n    }\n    FnParam.prototype.isEquivalent = function (param) {\n        return this.name ===
param.name;\n    };\n    return FnParam;\n}());\n    var FunctionExpr = /** @class */ (function (_super) {\n
__extends(FunctionExpr, _super);\n    function FunctionExpr(params, statements, type, sourceSpan, name) {\n
        var _this = _super.call(this, type, sourceSpan) || this;\n        _this.params = params;\n        _this.statements
= statements;\n        _this.name
= name;\n        return _this;\n    }\n    FunctionExpr.prototype.isEquivalent = function (e) {\n        return e
instanceof FunctionExpr && areAllEquivalent(this.params, e.params) &&\n
areAllEquivalent(this.statements, e.statements);\n    };\n    FunctionExpr.prototype.isConstant = function () {\n
        return false;\n    };\n    FunctionExpr.prototype.visitExpression = function (visitor, context) {\n
return visitor.visitFunctionExpr(this, context);\n    };\n    FunctionExpr.prototype.toDeclStmt = function (name,
modifiers) {\n        return new DeclareFunctionStmt(name, this.params, this.statements, this.type, modifiers,
this.sourceSpan);\n    };\n    return FunctionExpr;\n}(Expression));\n    var UnaryOperatorExpr = /** @class
*/ (function (_super) {\n    __extends(UnaryOperatorExpr, _super);\n    function UnaryOperatorExpr(operator,
expr, type, sourceSpan, parens) {\n        if (parens
=== void 0) { parens = true; }\n        var _this = _super.call(this, type || NUMBER_TYPE, sourceSpan) || this;\n
        _this.operator = operator;\n        _this.expr = expr;\n        _this.parens = parens;\n        return _this;\n
    }\n    UnaryOperatorExpr.prototype.isEquivalent = function (e) {\n        return e instanceof UnaryOperatorExpr
&& this.operator === e.operator &&\n        this.expr.isEquivalent(e.expr);\n    };\n
    UnaryOperatorExpr.prototype.isConstant = function () {\n        return false;\n    };\n
    UnaryOperatorExpr.prototype.visitExpression = function (visitor, context) {\n        return
visitor.visitUnaryOperatorExpr(this, context);\n    };\n    return UnaryOperatorExpr;\n}(Expression));\n    var
BinaryOperatorExpr = /** @class */ (function (_super) {\n    __extends(BinaryOperatorExpr, _super);\n    function
BinaryOperatorExpr(operator, lhs, rhs, type, sourceSpan, parens)
{\n        if (parens === void 0) { parens = true; }\n        var _this = _super.call(this, type || lhs.type, sourceSpan)
|| this;\n        _this.operator = operator;\n        _this.rhs = rhs;\n        _this.parens = parens;\n        _this.lhs =
lhs;\n        return _this;\n    }\n    BinaryOperatorExpr.prototype.isEquivalent = function (e) {\n        return
e instanceof BinaryOperatorExpr && this.operator === e.operator &&\n        this.lhs.isEquivalent(e.lhs) &&
this.rhs.isEquivalent(e.rhs);\n    };\n    BinaryOperatorExpr.prototype.isConstant = function () {\n        return
false;\n    };\n    BinaryOperatorExpr.prototype.visitExpression = function (visitor, context) {\n        return
visitor.visitBinaryOperatorExpr(this, context);\n    };\n    return BinaryOperatorExpr;\n}(Expression));\n    var
ReadPropExpr = /** @class */ (function (_super) {\n    __extends(ReadPropExpr, _super);\n    function
ReadPropExpr(receiver, name, type, sourceSpan) {\n        var _this = _super.call(this, type, sourceSpan) || this;\n
        _this.receiver = receiver;\n        _this.name = name;\n        return _this;\n    }\n
    ReadPropExpr.prototype.isEquivalent = function (e) {\n        return e instanceof ReadPropExpr &&
this.receiver.isEquivalent(e.receiver) &&\n        this.name === e.name;\n    };\n
    ReadPropExpr.prototype.isConstant = function () {\n        return false;\n    };\n
    ReadPropExpr.prototype.visitExpression = function (visitor, context) {\n        return

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visitor.visitReadPropExpr(this, context);\n    };\n    ReadPropExpr.prototype.set = function (value) {\nreturn new WritePropExpr(this.receiver, this.name, value, null, this.sourceSpan);\n    };\n    return\nReadPropExpr;\n  }(Expression));\n  var ReadKeyExpr = /** @class */ (function (_super) {\n__extends(ReadKeyExpr, _super);\n    function ReadKeyExpr(receiver, index, type, sourceSpan) {\n        var _this = _super.call(this, type,\nsourceSpan) || this;\n        _this.receiver = receiver;\n        _this.index = index;\n        return _this;\n    }\n    ReadKeyExpr.prototype.isEquivalent = function (e) {\n        return e instanceof ReadKeyExpr &&\nthis.receiver.isEquivalent(e.receiver) &&\n        this.index.isEquivalent(e.index);\n    };\n    ReadKeyExpr.prototype.isConstant = function () {\n        return false;\n    };\n    ReadKeyExpr.prototype.visitExpression = function (visitor, context) {\n        return\nvisitor.visitReadKeyExpr(this, context);\n    };\n    ReadKeyExpr.prototype.set = function (value) {\nreturn new WriteKeyExpr(this.receiver, this.index, value, null, this.sourceSpan);\n    };\n    return\nReadKeyExpr;\n  }(Expression));\n  var LiteralArrayExpr = /** @class */ (function (_super) {\n__extends(LiteralArrayExpr, _super);\n    function LiteralArrayExpr(entries, type, sourceSpan) {\n        var\n_this = _super.call(this, type, sourceSpan) || this;\n        _this.entries = entries;\n        return _this;\n    }\n    LiteralArrayExpr.prototype.isConstant = function () {\n        return this.entries.every(function (e) { return\ne.isConstant(); });\n    };\n    LiteralArrayExpr.prototype.isEquivalent = function (e) {\n        return e\ninstanceof LiteralArrayExpr && areAllEquivalent(this.entries, e.entries);\n    };\n    LiteralArrayExpr.prototype.visitExpression = function (visitor, context) {\n        return\nvisitor.visitLiteralArrayExpr(this, context);\n    };\n    return LiteralArrayExpr;\n  }(Expression));\n  var\nLiteralMapEntry = /** @class */ (function () {\n    function LiteralMapEntry(key, value, quoted) {\nthis.key = key;\n        this.value = value;\n        this.quoted = quoted;\n    }\n    LiteralMapEntry.prototype.isEquivalent = function (e) {\n        return this.key === e.key &&\nthis.value.isEquivalent(e.value);\n    };\n    return LiteralMapEntry;\n  }());\n  var LiteralMapExpr = /**\n@class */ (function (_super) {\n__extends(LiteralMapExpr, _super);\n    function LiteralMapExpr(entries,\ntype, sourceSpan) {\n        var _this = _super.call(this, type, sourceSpan) || this;\n        _this.entries = entries;\n        _this.valueType = null;\n        if (type) {\n            _this.valueType = type.valueType;\n        }\n        return _this;\n    }\n    LiteralMapExpr.prototype.isEquivalent = function (e) {\n        return e instanceof\nLiteralMapExpr && areAllEquivalent(this.entries, e.entries);\n    };\n    LiteralMapExpr.prototype.isConstant =\nfunction () {\n        return this.entries.every(function (e) { return e.value.isConstant(); });\n    };\n    LiteralMapExpr.prototype.visitExpression\n= function (visitor, context) {\n        return visitor.visitLiteralMapExpr(this, context);\n    };\n    return\nLiteralMapExpr;\n  }(Expression));\n  var CommaExpr = /** @class */ (function (_super) {\n__extends(CommaExpr, _super);\n    function CommaExpr(parts, sourceSpan) {\n        var _this =\n_super.call(this, parts[parts.length - 1].type, sourceSpan) || this;\n        _this.parts = parts;\n        return _this;\n    }\n    CommaExpr.prototype.isEquivalent = function (e) {\n        return e instanceof CommaExpr &&\nareAllEquivalent(this.parts, e.parts);\n    };\n    CommaExpr.prototype.isConstant = function () {\n        return\nfalse;\n    };\n    CommaExpr.prototype.visitExpression = function (visitor, context) {\n        return\nvisitor.visitCommaExpr(this, context);\n    };\n    return CommaExpr;\n  }(Expression));\n  var THIS_EXPR\n= new ReadVarExpr(exports.BuiltinVar.This,\nnull, null);\n  var SUPER_EXPR = new ReadVarExpr(exports.BuiltinVar.Super, null, null);\n  var\nCATCH_ERROR_VAR = new ReadVarExpr(exports.BuiltinVar.CatchError, null, null);\n  var\nCATCH_STACK_VAR = new ReadVarExpr(exports.BuiltinVar.CatchStack, null, null);\n  var NULL_EXPR =\nnew LiteralExpr(null, null, null);\n  var TYPED_NULL_EXPR = new LiteralExpr(null, INFERRED_TYPE,\nnull);\n  (function (StmtModifier) {\n    StmtModifier[StmtModifier["Final"] = 0] = "Final";\n    StmtModifier[StmtModifier["Private"] = 1] = "Private";\n    StmtModifier[StmtModifier["Exported"] = 2] =\n"Exported";\n    StmtModifier[StmtModifier["Static"] = 3] = "Static";\n  })(exports.StmtModifier ||\n(exports.StmtModifier = {}));\n  var LeadingComment = /** @class */ (function () {\n    function

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LeadingComment(text, multiline, trailingNewline) {\n      this.text = text;\n      this.multiline = multiline;\n      this.trailingNewline =\n      trailingNewline;\n    }\n    LeadingComment.prototype.toString = function () {\n      return this.multiline ?\n      '\" \" + this.text + \" \" : this.text;\n    };\n    return LeadingComment;\n  }());\n  var JSDocComment = /**\n  @class */ (function (_super) {\n    __extends(JSDocComment, _super);\n    function JSDocComment(tags) {\n      var _this = _super.call(this, \"\", /* multiline */ true, /* trailingNewline */ true) || this;\n      _this.tags = tags;\n      return _this;\n    }\n    JSDocComment.prototype.toString = function () {\n      return\n      serializeTags(this.tags);\n    };\n    return JSDocComment;\n  }(LeadingComment));\n  var Statement = /**\n  @class */ (function () {\n    function Statement(modifiers, sourceSpan, leadingComments) {\n      if (modifiers\n      === void 0) { modifiers = []; }\n      if (sourceSpan === void 0) { sourceSpan = null; }\n      this.modifiers =\n      modifiers;\n      this.sourceSpan = sourceSpan;\n      this.leadingComments = leadingComments;\n    }\n    Statement.prototype.hasModifier = function (modifier) {\n      return this.modifiers.indexOf(modifier) !== -1;\n    };\n    Statement.prototype.addLeadingComment = function (leadingComment) {\n      var _a;\n      this.leadingComments = (_a = this.leadingComments) !== null && _a !== void 0 ? _a : [];\n      this.leadingComments.push(leadingComment);\n    };\n    return Statement;\n  }());\n  var DeclareVarStmt =\n  /** @class */ (function (_super) {\n    __extends(DeclareVarStmt, _super);\n    function DeclareVarStmt(name,\n    value, type, modifiers, sourceSpan, leadingComments) {\n      var _this = _super.call(this, modifiers,\n      sourceSpan, leadingComments) || this;\n      _this.name = name;\n      _this.value = value;\n      _this.type\n      = type || (value && value.type) || null;\n      return _this;\n    }\n    DeclareVarStmt.prototype.isEquivalent = function (stmt) {\n      return stmt instanceof DeclareVarStmt &&\n      this.name === stmt.name &&\n      (this.value ? !stmt.value && this.value.isEquivalent(stmt.value) :\n      !stmt.value);\n    };\n    DeclareVarStmt.prototype.visitStatement = function (visitor, context) {\n      return\n      visitor.visitDeclareVarStmt(this, context);\n    };\n    return DeclareVarStmt;\n  }(Statement));\n  var\n  DeclareFunctionStmt = /** @class */ (function (_super) {\n    __extends(DeclareFunctionStmt, _super);\n    function DeclareFunctionStmt(name, params, statements, type, modifiers, sourceSpan, leadingComments) {\n      var _this = _super.call(this, modifiers, sourceSpan, leadingComments) || this;\n      _this.name = name;\n      _this.params = params;\n      _this.statements = statements;\n      _this.type = type || null;\n      return\n      _this;\n    }\n    DeclareFunctionStmt.prototype.isEquivalent\n    = function (stmt) {\n      return stmt instanceof DeclareFunctionStmt && areAllEquivalent(this.params,\n      stmt.params) &&\n      areAllEquivalent(this.statements, stmt.statements);\n    };\n    DeclareFunctionStmt.prototype.visitStatement = function (visitor, context) {\n      return\n      visitor.visitDeclareFunctionStmt(this, context);\n    };\n    return DeclareFunctionStmt;\n  }(Statement));\n  var ExpressionStatement = /** @class */ (function (_super) {\n    __extends(ExpressionStatement, _super);\n    function ExpressionStatement(expr, sourceSpan, leadingComments) {\n      var _this = _super.call(this, [],\n      sourceSpan, leadingComments) || this;\n      _this.expr = expr;\n      return _this;\n    }\n    ExpressionStatement.prototype.isEquivalent = function (stmt) {\n      return stmt instanceof ExpressionStatement\n      && this.expr.isEquivalent(stmt.expr);\n    };\n    ExpressionStatement.prototype.visitStatement\n    = function (visitor, context) {\n      return visitor.visitExpressionStmt(this, context);\n    };\n    return\n    ExpressionStatement;\n  }(Statement));\n  var ReturnStatement = /** @class */ (function (_super) {\n    __extends(ReturnStatement, _super);\n    function ReturnStatement(value, sourceSpan, leadingComments) {\n      if (sourceSpan === void 0) { sourceSpan = null; }\n      var _this = _super.call(this, [], sourceSpan,\n      leadingComments) || this;\n      _this.value = value;\n      return _this;\n    }\n    ReturnStatement.prototype.isEquivalent = function (stmt) {\n      return stmt instanceof ReturnStatement &&\n      this.value.isEquivalent(stmt.value);\n    };\n    ReturnStatement.prototype.visitStatement = function (visitor,\n    context) {\n      return visitor.visitReturnStmt(this, context);\n    };\n    return ReturnStatement;\n  }(Statement));\n  var AbstractClassPart

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= /** @class */ (function () {\n    function AbstractClassPart(type, modifiers) {\n        if (type === void 0) {\n            type = null; }\n        if (modifiers === void 0) { modifiers = []; }\n        this.type = type;\n        this.modifiers = modifiers;\n    }\n    AbstractClassPart.prototype.hasModifier = function (modifier) {\n        return this.modifiers.indexOf(modifier) !== -1;\n    };\n    return AbstractClassPart;\n})();\nvar ClassField = /** @class */ (function (_super) {\n    __extends(ClassField, _super);\n    function ClassField(name, type, modifiers, initializer) {\n        var _this = _super.call(this, type, modifiers) || this;\n        _this.name = name;\n        _this.initializer = initializer;\n        return _this;\n    }\n    ClassField.prototype.isEquivalent = function (f) {\n        return this.name === f.name;\n    };\n    return ClassField;\n})(AbstractClassPart);\nvar ClassMethod = /** @class */ (function (_super) {\n    __extends(ClassMethod, _super);\n    function ClassMethod(name, params, body, type, modifiers) {\n        var _this = _super.call(this, type, modifiers) || this;\n        _this.name = name;\n        _this.params = params;\n        _this.body = body;\n        return _this;\n    }\n    ClassMethod.prototype.isEquivalent = function (m) {\n        return this.name === m.name && areAllEquivalent(this.body, m.body);\n    };\n    return ClassMethod;\n})(AbstractClassPart);\nvar ClassGetter = /** @class */ (function (_super) {\n    __extends(ClassGetter, _super);\n    function ClassGetter(name, body, type, modifiers) {\n        var _this = _super.call(this, type, modifiers) || this;\n        _this.name = name;\n        _this.body = body;\n        return _this;\n    }\n    ClassGetter.prototype.isEquivalent = function (m) {\n        return this.name === m.name && areAllEquivalent(this.body, m.body);\n    };\n    return ClassGetter;\n})(AbstractClassPart);\nvar ClassStmt = /** @class */ (function (_super) {\n    __extends(ClassStmt, _super);\n    function ClassStmt(name, parent, fields, getters, constructorMethod, methods, modifiers, sourceSpan, leadingComments) {\n        var _this = _super.call(this, modifiers, sourceSpan, leadingComments) || this;\n        _this.name = name;\n        _this.parent = parent;\n        _this.fields = fields;\n        _this.getters = getters;\n        _this.constructorMethod = constructorMethod;\n        _this.methods = methods;\n        return _this;\n    }\n    ClassStmt.prototype.isEquivalent = function (stmt) {\n        return stmt instanceof ClassStmt && this.name === stmt.name && nullSafeIsEquivalent(this.parent, stmt.parent) && areAllEquivalent(this.fields, stmt.fields) && areAllEquivalent(this.getters, stmt.getters) && this.constructorMethod.isEquivalent(stmt.constructorMethod) && areAllEquivalent(this.methods, stmt.methods);\n    };\n    ClassStmt.prototype.visitStatement = function (visitor, context) {\n        return visitor.visitDeclareClassStmt(this, context);\n    };\n    return ClassStmt;\n})(Statement);\nvar IfStmt = /** @class */ (function (_super) {\n    __extends(IfStmt, _super);\n    function IfStmt(condition, trueCase, falseCase, sourceSpan, leadingComments) {\n        if (falseCase === void 0) {\n            falseCase = [];\n        }\n        var _this = _super.call(this, [], sourceSpan, leadingComments) || this;\n        _this.condition = condition;\n        _this.trueCase = trueCase;\n        _this.falseCase = falseCase;\n        return _this;\n    }\n    IfStmt.prototype.isEquivalent = function (stmt) {\n        return stmt instanceof IfStmt && this.condition.isEquivalent(stmt.condition) && areAllEquivalent(this.trueCase, stmt.trueCase) && areAllEquivalent(this.falseCase, stmt.falseCase);\n    };\n    IfStmt.prototype.visitStatement = function (visitor, context) {\n        return visitor.visitIfStmt(this, context);\n    };\n    return IfStmt;\n})(Statement);\nvar TryCatchStmt = /** @class */ (function (_super) {\n    __extends(TryCatchStmt, _super);\n    function TryCatchStmt(bodyStmts, catchStmts, sourceSpan, leadingComments) {\n        if (sourceSpan === void 0) {\n            sourceSpan = null;\n        }\n        var _this = _super.call(this, [], sourceSpan, leadingComments) || this;\n        _this.bodyStmts = bodyStmts;\n        _this.catchStmts = catchStmts;\n        return _this;\n    }\n    TryCatchStmt.prototype.isEquivalent = function (stmt) {\n        return stmt instanceof TryCatchStmt && areAllEquivalent(this.bodyStmts, stmt.bodyStmts) && areAllEquivalent(this.catchStmts, stmt.catchStmts);\n    };\n    TryCatchStmt.prototype.visitStatement = function (visitor, context) {\n        return visitor.visitTryCatchStmt(this, context);\n    };\n    return TryCatchStmt;\n})(Statement);\nvar ThrowStmt = /** @class */ (function (_super) {\n    __extends(ThrowStmt, _super);\n    function ThrowStmt(error, sourceSpan, leadingComments) {\n        if

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(sourceSpan === void 0) { sourceSpan = null; }
var _this = _super.call(this, [], sourceSpan,
leadingComments) || this;
_this.error = error;
return _this;
}

ThrowStmt.prototype.isEquivalent = function (stmt) {
return stmt instanceof TryCatchStmt &&
this.error.isEquivalent(stmt.error);
};

ThrowStmt.prototype.visitStatement = function (visitor, context) {
return visitor.visitThrowStmt(this, context);
};

return ThrowStmt;
})(Statement));

var AstTransformer = /** @class */ (function () {
function AstTransformer() {}

AstTransformer.prototype.transformExpr = function (expr, context) {
return expr;
};

AstTransformer.prototype.transformStmt = function (stmt, context) {
return stmt;
};

AstTransformer.prototype.visitReadVarExpr = function (ast, context) {
return this.transformExpr(ast, context);
};

AstTransformer.prototype.visitWrappedNodeExpr = function (ast, context) {
return this.transformExpr(ast, context);
};

AstTransformer.prototype.visitTypeofExpr = function (expr, context) {
return this.transformExpr(new TypeofExpr(expr.expr.visitExpression(this, context), expr.type, expr.sourceSpan), context);
};

AstTransformer.prototype.visitWriteVarExpr = function (expr, context) {
return this.transformExpr(new WriteVarExpr(expr.name, expr.value.visitExpression(this, context), expr.type, expr.sourceSpan), context);
};

AstTransformer.prototype.visitWriteKeyExpr = function (expr, context) {
return this.transformExpr(new WriteKeyExpr(expr.receiver.visitExpression(this, context), expr.index.visitExpression(this, context), expr.value.visitExpression(this, context), expr.type, expr.sourceSpan), context);
};

AstTransformer.prototype.visitWritePropExpr = function (expr, context) {
return this.transformExpr(new WritePropExpr(expr.receiver.visitExpression(this, context), expr.name, expr.value.visitExpression(this, context), expr.type, expr.sourceSpan), context);
};

AstTransformer.prototype.visitInvokeMethodExpr = function (ast, context) {
var method = ast.builtin || ast.name;
return this.transformExpr(new InvokeMethodExpr(ast.receiver.visitExpression(this, context), method, this.visitAllExpressions(ast.args, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitInvokeFunctionExpr = function (ast, context) {
return this.transformExpr(new InvokeFunctionExpr(ast.fn.visitExpression(this, context), this.visitAllExpressions(ast.args, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitInstantiateExpr = function (ast, context) {
return this.transformExpr(new InstantiateExpr(ast.classExpr.visitExpression(this, context), this.visitAllExpressions(ast.args, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitLiteralExpr = function (ast, context) {
return this.transformExpr(ast, context);
};

AstTransformer.prototype.visitLocalizedString = function (ast, context) {
return this.transformExpr(new LocalizedString(ast.metaBlock, ast.messageParts, ast.placeholderNames, this.visitAllExpressions(ast.expressions, context), ast.sourceSpan), context);
};

AstTransformer.prototype.visitExternalExpr = function (ast, context) {
return this.transformExpr(ast, context);
};

AstTransformer.prototype.visitConditionalExpr = function (ast, context) {
return this.transformExpr(new ConditionalExpr(ast.condition.visitExpression(this, context), ast.trueCase.visitExpression(this, context), ast.falseCase.visitExpression(this, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitNotExpr = function (ast, context) {
return this.transformExpr(new NotExpr(ast.condition.visitExpression(this, context), ast.sourceSpan), context);
};

AstTransformer.prototype.visitAssertNotNullExpr = function (ast, context) {
return this.transformExpr(new AssertNotNull(ast.condition.visitExpression(this, context), ast.sourceSpan), context);
};

AstTransformer.prototype.visitCastExpr = function (ast, context) {
return this.transformExpr(new CastExpr(ast.value.visitExpression(this, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitFunctionExpr = function (ast, context) {
return this.transformExpr(new FunctionExpr(ast.params, this.visitAllStatements(ast.statements, context), ast.type, ast.sourceSpan), context);
};

AstTransformer.prototype.visitUnaryOperatorExpr = function (ast, context) {
return this.transformExpr(new UnaryOperatorExpr(ast.operator, ast.expr.visitExpression(this, context), ast.type, ast.sourceSpan), context);
};
}

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AstTransformer.prototype.visitBinaryOperatorExpr = function (ast, context) {\n      return
this.transformExpr(new BinaryOperatorExpr(ast.operator, ast.lhs.visitExpression(this, context),
ast.rhs.visitExpression(this, context), ast.type, ast.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitReadPropExpr
= function (ast, context) {\n      return this.transformExpr(new ReadPropExpr(ast.receiver.visitExpression(this,
context), ast.name, ast.type, ast.sourceSpan), context);\n    };\n    AstTransformer.prototype.visitReadKeyExpr
= function (ast, context) {\n      return this.transformExpr(new ReadKeyExpr(ast.receiver.visitExpression(this,
context), ast.index.visitExpression(this, context), ast.type, ast.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitLiteralArrayExpr = function (ast, context) {\n      return this.transformExpr(new
LiteralArrayExpr(this.visitAllExpressions(ast.entries, context), ast.type, ast.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitLiteralMapExpr = function (ast, context) {\n      var _this = this;\n      var
entries = ast.entries.map(function (entry) { return new LiteralMapEntry(entry.key, entry.value.visitExpression(_this,
context), entry.quoted);
});\n      var mapType = new MapType(ast.valueType);\n      return this.transformExpr(new
LiteralMapExpr(entries, mapType, ast.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitCommaExpr = function (ast, context) {\n      return this.transformExpr(new
CommaExpr(this.visitAllExpressions(ast.parts, context), ast.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitAllExpressions = function (exprs, context) {\n      var _this = this;\n      return
exprs.map(function (expr) { return expr.visitExpression(_this, context); });\n    };\n
AstTransformer.prototype.visitDeclareVarStmt = function (stmt, context) {\n      var value = stmt.value &&
stmt.value.visitExpression(this, context);\n      return this.transformStmt(new DeclareVarStmt(stmt.name, value,
stmt.type, stmt.modifiers, stmt.sourceSpan, stmt.leadingComments), context);\n    };\n
AstTransformer.prototype.visitDeclareFunctionStmt
= function (stmt, context) {\n      return this.transformStmt(new DeclareFunctionStmt(stmt.name, stmt.params,
this.visitAllStatements(stmt.statements, context), stmt.type, stmt.modifiers, stmt.sourceSpan,
stmt.leadingComments), context);\n    };\n    AstTransformer.prototype.visitExpressionStmt = function (stmt,
context) {\n      return this.transformStmt(new ExpressionStatement(stmt.expr.visitExpression(this, context),
stmt.sourceSpan, stmt.leadingComments), context);\n    };\n    AstTransformer.prototype.visitReturnStmt =
function (stmt, context) {\n      return this.transformStmt(new ReturnStatement(stmt.value.visitExpression(this,
context), stmt.sourceSpan, stmt.leadingComments), context);\n    };\n
AstTransformer.prototype.visitDeclareClassStmt = function (stmt, context) {\n      var _this = this;\n      var
parent = stmt.parent.visitExpression(this, context);\n      var getters = stmt.getters.map(function (getter)
{ return new ClassGetter(getter.name, _this.visitAllStatements(getter.body, context), getter.type, getter.modifiers);
});\n      var ctorMethod = stmt.constructorMethod &&\n      new
ClassMethod(stmt.constructorMethod.name, stmt.constructorMethod.params,
this.visitAllStatements(stmt.constructorMethod.body, context), stmt.constructorMethod.type,
stmt.constructorMethod.modifiers);\n      var methods = stmt.methods.map(function (method) { return new
ClassMethod(method.name, method.params, _this.visitAllStatements(method.body, context), method.type,
method.modifiers); });\n      return this.transformStmt(new ClassStmt(stmt.name, parent, stmt.fields, getters,
ctorMethod, methods, stmt.modifiers, stmt.sourceSpan), context);\n    };\n
AstTransformer.prototype.visitIfStmt = function (stmt, context) {\n      return this.transformStmt(new
IfStmt(stmt.condition.visitExpression(this, context), this.visitAllStatements(stmt.trueCase, context),
this.visitAllStatements(stmt.falseCase,
context), stmt.sourceSpan, stmt.leadingComments), context);\n    };\n
AstTransformer.prototype.visitTryCatchStmt = function (stmt, context) {\n      return this.transformStmt(new
TryCatchStmt(this.visitAllStatements(stmt.bodyStmts, context), this.visitAllStatements(stmt.catchStmts, context),
stmt.sourceSpan, stmt.leadingComments), context);\n    };\n    AstTransformer.prototype.visitThrowStmt =
function (stmt, context) {\n      return this.transformStmt(new ThrowStmt(stmt.error.visitExpression(this,

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context), stmt.sourceSpan, stmt.leadingComments), context);\n    };\n
AstTransformer.prototype.visitAllStatements = function (stmts, context) {\n    var _this = this;\n    return\n    stmts.map(function (stmt) { return stmt.visitStatement(_this, context); });\n    };\n    return AstTransformer;\n
})();\n    var RecursiveAstVisitor = /** @class */ (function () {\n    function RecursiveAstVisitor()\n    {\n    }\n    RecursiveAstVisitor.prototype.visitType = function (ast, context) {\n    return ast;\n    };\n    RecursiveAstVisitor.prototype.visitExpression = function (ast, context) {\n    if (ast.type) {\n    ast.type.visitType(this, context);\n    }\n    return ast;\n    };\n    RecursiveAstVisitor.prototype.visitBuiltinType = function (type, context) {\n    return this.visitType(type,\n    context);\n    };\n    RecursiveAstVisitor.prototype.visitExpressionType = function (type, context) {\n    var _this = this;\n    type.value.visitExpression(this, context);\n    if (type.typeParams !== null) {\n    type.typeParams.forEach(function (param) { return _this.visitType(param, context); });\n    }\n    return\n    this.visitType(type, context);\n    };\n    RecursiveAstVisitor.prototype.visitArrayType = function (type,\n    context) {\n    return\n    this.visitType(type, context);\n    };\n    RecursiveAstVisitor.prototype.visitMapType = function (type, context)\n    {\n    return this.visitType(type, context);\n    };\n    RecursiveAstVisitor.prototype.visitWrappedNodeExpr\n    = function (ast, context) {\n    return ast;\n    };\n    RecursiveAstVisitor.prototype.visitTypeofExpr =\n    function (ast, context) {\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitReadVarExpr = function (ast, context) {\n    return this.visitExpression(ast,\n    context);\n    };\n    RecursiveAstVisitor.prototype.visitWriteVarExpr = function (ast, context) {\n    ast.value.visitExpression(this, context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitWriteKeyExpr = function (ast, context) {\n    ast.receiver.visitExpression(this, context);\n    ast.index.visitExpression(this,\n    context);\n    ast.value.visitExpression(this, context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitWritePropExpr = function (ast, context) {\n    ast.receiver.visitExpression(this, context);\n    ast.value.visitExpression(this, context);\n    return\n    this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitInvokeMethodExpr = function\n    (ast, context) {\n    ast.receiver.visitExpression(this, context);\n    this.visitAllExpressions(ast.args,\n    context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitInvokeFunctionExpr = function (ast, context) {\n    ast.fn.visitExpression(this, context);\n    this.visitAllExpressions(ast.args, context);\n    return\n    this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitInstantiateExpr\n    = function (ast, context) {\n    ast.classExpr.visitExpression(this, context);\n    this.visitAllExpressions(ast.args, context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitLiteralExpr = function (ast, context) {\n    return this.visitExpression(ast,\n    context);\n    };\n    RecursiveAstVisitor.prototype.visitLocalizedString = function (ast, context) {\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitExternalExpr = function\n    (ast, context) {\n    var _this = this;\n    if (ast.typeParams) {\n    ast.typeParams.forEach(function\n    (type) { return type.visitType(_this, context); });\n    }\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitConditionalExpr = function (ast, context) {\n    ast.condition.visitExpression(this,\n    context);\n    ast.trueCase.visitExpression(this, context);\n    ast.falseCase.visitExpression(this, context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitNotExpr =\n    function (ast, context) {\n    ast.condition.visitExpression(this, context);\n    return this.visitExpression(ast,\n    context);\n    };\n    RecursiveAstVisitor.prototype.visitAssertNotNullExpr = function (ast, context) {\n    ast.condition.visitExpression(this, context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitCastExpr = function (ast, context) {\n    ast.value.visitExpression(this,\n    context);\n    return this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitFunctionExpr = function (ast, context) {\n

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this.visitAllStatements(ast.statements, context);\n        return this.visitExpression(ast,
context);\n    };\n    RecursiveAstVisitor.prototype.visitUnaryOperatorExpr = function (ast, context) {\n
ast.expr.visitExpression(this, context);\n        return this.visitExpression(ast, context);\n    };\n
RecursiveAstVisitor.prototype.visitBinaryOperatorExpr = function (ast, context) {\n
ast.lhs.visitExpression(this, context);\n        ast.rhs.visitExpression(this, context);\n        return
this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitReadPropExpr = function (ast,
context) {\n        ast.receiver.visitExpression(this, context);\n        return this.visitExpression(ast, context);\n
};\n    RecursiveAstVisitor.prototype.visitReadKeyExpr = function (ast, context) {\n
ast.receiver.visitExpression(this, context);\n        ast.index.visitExpression(this, context);\n        return
this.visitExpression(ast, context);\n    };\n
    RecursiveAstVisitor.prototype.visitLiteralArrayExpr = function (ast, context) {\n
this.visitAllExpressions(ast.entries, context);\n        return this.visitExpression(ast, context);\n    };\n
RecursiveAstVisitor.prototype.visitLiteralMapExpr = function (ast, context) {\n        var _this = this;\n
ast.entries.forEach(function (entry) { return entry.value.visitExpression(_this, context); });\n        return
this.visitExpression(ast, context);\n    };\n    RecursiveAstVisitor.prototype.visitCommaExpr = function (ast,
context) {\n        this.visitAllExpressions(ast.parts, context);\n        return this.visitExpression(ast, context);\n
};\n    RecursiveAstVisitor.prototype.visitAllExpressions = function (exprs, context) {\n        var _this =
this;\n        exprs.forEach(function (expr) { return expr.visitExpression(_this, context); });\n    };\n
RecursiveAstVisitor.prototype.visitDeclareVarStmt
= function (stmt, context) {\n        if (stmt.value) {\n            stmt.value.visitExpression(this, context);\n
}\n        if (stmt.type) {\n            stmt.type.visitType(this, context);\n        }\n        return stmt;\n    };\n
RecursiveAstVisitor.prototype.visitDeclareFunctionStmt = function (stmt, context) {\n
this.visitAllStatements(stmt.statements, context);\n        if (stmt.type) {\n            stmt.type.visitType(this,
context);\n        }\n        return stmt;\n    };\n    RecursiveAstVisitor.prototype.visitExpressionStmt =
function (stmt, context) {\n        stmt.expr.visitExpression(this, context);\n        return stmt;\n    };\n
RecursiveAstVisitor.prototype.visitReturnStmt = function (stmt, context) {\n        stmt.value.visitExpression(this,
context);\n        return stmt;\n    };\n    RecursiveAstVisitor.prototype.visitDeclareClassStmt = function (stmt,
context) {\n        var _this = this;\n        stmt.parent.visitExpression(this, context);\n
stmt.getters.forEach(function (getter) { return _this.visitAllStatements(getter.body, context); });\n        if
(stmt.constructorMethod) {\n            this.visitAllStatements(stmt.constructorMethod.body, context);\n        }\n
        stmt.methods.forEach(function (method) { return _this.visitAllStatements(method.body, context); });\n
return stmt;\n    };\n    RecursiveAstVisitor.prototype.visitIfStmt = function (stmt, context) {\n
stmt.condition.visitExpression(this, context);\n        this.visitAllStatements(stmt.trueCase, context);\n
this.visitAllStatements(stmt.falseCase, context);\n        return stmt;\n    };\n
RecursiveAstVisitor.prototype.visitTryCatchStmt = function (stmt, context) {\n
this.visitAllStatements(stmt.bodyStmts, context);\n        this.visitAllStatements(stmt.catchStmts,
context);\n        return stmt;\n    };\n    RecursiveAstVisitor.prototype.visitThrowStmt = function (stmt,
context) {\n        stmt.error.visitExpression(this, context);\n        return stmt;\n    };\n
RecursiveAstVisitor.prototype.visitAllStatements = function (stmts, context) {\n        var _this = this;\n
stmts.forEach(function (stmt) { return stmt.visitStatement(_this, context); });\n    };\n    return
RecursiveAstVisitor;\n})();\n    function findReadVarNames(stmts) {\n        var visitor = new
_ReadVarVisitor();\n        visitor.visitAllStatements(stmts, null);\n        return visitor.varNames;\n    }\n    var
_ReadVarVisitor = /** @class */ (function (_super) {\n        __extends(_ReadVarVisitor, _super);\n        function
_ReadVarVisitor() {\n            var _this = _super.apply(this, __spread(arguments)) || this;\n            _this.varNames =
new Set();\n            return _this;\n        }\n        _ReadVarVisitor.prototype.visitDeclareFunctionStmt
= function (stmt, context) {\n            // Don't descend into nested functions\n            return stmt;\n        };\n
_ReadVarVisitor.prototype.visitDeclareClassStmt = function (stmt, context) {\n            // Don't descend into nested
classes\n            return stmt;\n        };\n        _ReadVarVisitor.prototype.visitReadVarExpr = function (ast, context)

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{\n      if (ast.name) {\n          this.varNames.add(ast.name);\n      }\n      return null;\n  };\n  return _ReadVarVisitor;\n  }(RecursiveAstVisitor));\n  function collectExternalReferences(stmts) {\n      var\n      visitor = new _FindExternalReferencesVisitor();\n      visitor.visitAllStatements(stmts, null);\n      return\n      visitor.externalReferences;\n  }\n  var _FindExternalReferencesVisitor = /** @class */ (function (_super) {\n      __extends(_FindExternalReferencesVisitor, _super);\n      function _FindExternalReferencesVisitor()\n      {\n          var _this = _super.apply(this, __spread(arguments)) || this;\n          _this.externalReferences = [];\n          return _this;\n      }\n      _FindExternalReferencesVisitor.prototype.visitExternalExpr = function (e, context) {\n          this.externalReferences.push(e.value);\n          return _super.prototype.visitExternalExpr.call(this, e, context);\n      };\n      return _FindExternalReferencesVisitor;\n  })(RecursiveAstVisitor);\n  function\n  applySourceSpanToStatementIfNeeded(stmt, sourceSpan) {\n      if (!sourceSpan) {\n          return stmt;\n      }\n      var transformer = new _ApplySourceSpanTransformer(sourceSpan);\n      return\n      stmt.visitStatement(transformer, null);\n  }\n  function applySourceSpanToExpressionIfNeeded(expr,\n  sourceSpan) {\n      if (!sourceSpan) {\n          return expr;\n      }\n      var transformer = new\n      _ApplySourceSpanTransformer(sourceSpan);\n      return expr.visitExpression(transformer,\n      null);\n  }\n  var _ApplySourceSpanTransformer = /** @class */ (function (_super) {\n      __extends(_ApplySourceSpanTransformer, _super);\n      function _ApplySourceSpanTransformer(sourceSpan)\n      {\n          var _this = _super.call(this) || this;\n          _this.sourceSpan = sourceSpan;\n          return _this;\n      }\n      _ApplySourceSpanTransformer.prototype._clone = function (obj) {\n          var e_1, _e;\n          var clone\n          = Object.create(obj.constructor.prototype);\n          try {\n              for (var _f = __values(Object.keys(obj)), _g =\n              _f.next(); !_g.done; _g = _f.next()) {\n                  var prop = _g.value;\n                  clone[prop] = obj[prop];\n              }\n          }\n          catch (e_1_1) {\n              e_1 = { error: e_1_1 }; \n          }\n          finally {\n              try {\n                  if\n                  (_g && !_g.done && (_e = _f.return)) _e.call(_f);\n              }\n              finally {\n                  if (e_1) throw e_1.error;\n              }\n          }\n          return clone;\n      };\n      _ApplySourceSpanTransformer.prototype.transformExpr =\n      function (expr, context) {\n          if (!expr.sourceSpan) {\n              expr = this._clone(expr);\n              expr.sourceSpan = this.sourceSpan;\n          }\n          return expr;\n      };\n      _ApplySourceSpanTransformer.prototype.transformStmt = function (stmt, context) {\n          if (!stmt.sourceSpan)\n          {\n              stmt = this._clone(stmt);\n              stmt.sourceSpan = this.sourceSpan;\n          }\n          return\n          stmt;\n      };\n      return _ApplySourceSpanTransformer;\n  })(AstTransformer));\n  function\n  leadingComment(text, multiline, trailingNewline) {\n      if (multiline === void 0) { multiline = false; }\n      if\n      (trailingNewline === void 0) { trailingNewline = true; }\n      return new LeadingComment(text, multiline,\n      trailingNewline);\n  }\n  function jsDocComment(tags) {\n      if (tags\n      === void 0) { tags = []; }\n      return new JSDocComment(tags);\n  }\n  function variable(name, type,\n  sourceSpan) {\n      return new ReadVarExpr(name, type, sourceSpan);\n  }\n  function importExpr(id,\n  typeParams, sourceSpan) {\n      if (typeParams === void 0) { typeParams = null; }\n      return new\n      ExternalExpr(id, null, typeParams, sourceSpan);\n  }\n  function importType(id, typeParams, typeModifiers) {\n      return id != null ? expressionType(importExpr(id, typeParams, null), typeModifiers) : null;\n  }\n  function\n  expressionType(expr, typeModifiers, typeParams) {\n      return new ExpressionType(expr, typeModifiers,\n      typeParams);\n  }\n  function typeofExpr(expr) {\n      return new TypeofExpr(expr);\n  }\n  function\n  literalArr(values, type, sourceSpan) {\n      return new LiteralArrayExpr(values, type, sourceSpan);\n  }\n  function\n  literalMap(values, type) {\n      if (type === void 0) { type = null; }\n      return new\n      LiteralMapExpr(values.map(function\n      (e) {\n          return new LiteralMapEntry(e.key, e.value, e.quoted); \n      }, type, null);\n      ), type, null);\n  }\n  function unary(operator, expr,\n  type, sourceSpan) {\n      return new UnaryOperatorExpr(operator, expr, type, sourceSpan);\n  }\n  function\n  not(expr, sourceSpan) {\n      return new NotExpr(expr, sourceSpan);\n  }\n  function assertNotNull(expr,\n  sourceSpan) {\n      return new AssertNotNull(expr, sourceSpan);\n  }\n  function fn(params, body, type,\n  sourceSpan, name) {\n      return new FunctionExpr(params, body, type, sourceSpan, name);\n  }\n  function\n  ifStmt(condition, thenClause, elseClause, sourceSpan, leadingComments) {\n      return new IfStmt(condition,\n      thenClause, elseClause, sourceSpan, leadingComments);\n  }\n  function literal(value, type, sourceSpan) {\n

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[illegible]

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ERROR_PARSE_ERRORS = 'ngParseErrors';\n  function isSyntaxError(error) {\n    return
error[ERROR_SYNTAX_ERROR];\n  }\n  function getParseErrors(error) {\n    return
error[ERROR_PARSE_ERRORS] || [];\n  }\n  // Escape characters that have a special meaning in Regular
Expressions\n  function escapeRegExp(s) {\n    return s.replace(/[.*+?^=!:${}()|\\'\\/\\\\\\\\]/g, '\\\\$1');\n  }\n
var STRING_MAP_PROTO = Object.getPrototypeOf({});\n  function isStrictStringMap(obj) {\n    return typeof
obj === 'object' &&
obj !== null && Object.getPrototypeOf(obj) === STRING_MAP_PROTO;\n  }\n  function utf8Encode(str) {\n
    var encoded = [];\n    for (var index = 0; index < str.length; index++) {\n      var codePoint =
str.charCodeAt(index);\n      // decode surrogate\n      // see https://mathiasbynens.be/notes/javascript-
encoding#surrogate-formulae\n      if (codePoint >= 0xd800 && codePoint <= 0xdbff && str.length > (index +
1)) {\n        var low = str.charCodeAt(index + 1);\n        if (low >= 0xdc00 && low <= 0xdfff) {\n
          index++;\n          codePoint = ((codePoint - 0xd800) << 10) + low - 0xdc00 + 0x10000;\n        }\n
      }\n      if (codePoint <= 0x7f) {\n        encoded.push(codePoint);\n      }\n      else if (codePoint <=
0x7ff) {\n        encoded.push(((codePoint >> 6) & 0x1f) | 0xc0, (codePoint & 0x3f) | 0x80);\n      }\n
      else if (codePoint <=
0xffff) {\n        encoded.push((codePoint >> 12) | 0xe0, ((codePoint >> 6) & 0x3f) | 0x80, (codePoint & 0x3f) |
0x80);\n      }\n      else if (codePoint <= 0x1ffff) {\n        encoded.push(((codePoint >> 18) & 0x07) |
0xf0, ((codePoint >> 12) & 0x3f) | 0x80, ((codePoint >> 6) & 0x3f) | 0x80, (codePoint & 0x3f) | 0x80);\n
      }\n      return encoded;\n    }\n    function stringify(token) {\n      if (typeof token === 'string') {\n        return
token;\n      }\n      if (Array.isArray(token)) {\n        return '[' + token.map(stringify).join(', ') + ']';\n      }\n
      if (token === null) {\n        return '' + token;\n      }\n      if (token.OverridesName) {\n        return '\\\"' +
token.OverridesName;\n      }\n      if (token.name) {\n        return '\\\"' + token.name;\n      }\n      if
(!token.toString) {\n        return 'object';\n      }\n      // WARNING: do not try to `JSON.stringify(token)`
here\n      // see https://github.com/angular/angular/issues/23440\n      var res = token.toString();\n      if (res ===
null) {\n        return '' + res;\n      }\n      var newLineIndex = res.indexOf('\\n');\n      return newLineIndex ===
-1 ? res : res.substring(0, newLineIndex);\n    }\n    /**\n     * Lazily retrieves the reference value from a
forwardRef.\n     */\n    function resolveForwardRef(type) {\n      if (typeof type === 'function' &&
type.hasOwnProperty('__forward_ref__')) {\n        return type();\n      }\n      else {\n        return type;\n
      }\n    }\n    /**\n     * Determine if the argument is shaped like a Promise\n     */\n    function isPromise(obj) {\n
      // allow any Promise/A+ compliant thenable.\n      // It's up to the caller to ensure that obj.then conforms to the
spec\n      return !!obj && typeof obj.then === 'function';\n    }\n    var Version = /** @class */ (function () {\n
      function Version(full) {\n        this.full = full;\n        var splits = full.split('.');\n        this.major = splits[0];\n        this.minor =
splits[1];\n        this.patch = splits.slice(2).join('.');\n      }\n      return Version;\n    }());\n    var __window =
typeof window !== 'undefined' && window;\n    var __self = typeof self !== 'undefined' && typeof
WorkerGlobalScope !== 'undefined' &&\n    self instanceof WorkerGlobalScope && self;\n    var __global =
typeof global !== 'undefined' && global;\n    // Check __global first, because in Node tests both __global and
__window may be defined and __global\n    // should be __global in that case.\n    var __global = __global || __window
|| __self;\n    function newArray(size, value) {\n      var list = [];\n      for (var i = 0; i < size; i++) {\n
        list.push(value);\n      }\n      return list;\n    }\n    /**\n     * Partitions a given array into 2 arrays, based on a
boolean value returned by the condition\n
     */\n    function\n    * @param arr Input array that should be partitioned\n    * @param conditionFn Condition
function that is called for each item in a given array and returns a\n    * boolean value.\n    */\n    function
partitionArray(arr, conditionFn) {\n      var e_1, _a;\n      var truthy = [];\n      var falsy = [];\n      try {\n
        for (var arr_1 = __values(arr), arr_1_1 = arr_1.next(); !arr_1_1.done; arr_1_1 = arr_1.next()) {\n          var item =
arr_1_1.value;\n          (conditionFn(item) ? truthy : falsy).push(item);\n        }\n      } catch (e_1_1) {\n
        e_1 = { error: e_1_1 }; }\n      finally {\n        try {\n          if (arr_1_1 && !arr_1_1.done && (_a =
arr_1.return)) _a.call(arr_1);\n        } finally { if (e_1) throw e_1.error; }\n      }\n      return [truthy,

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falsy);\n }\n\n var CONSTANT_PREFIX = '_c';\n /**\n  * `ConstantPool` tries to reuse literal factories
  * when two or more literals are identical.\n  * We determine whether literals are identical by creating a key out of
  * their AST using the\n  * `KeyVisitor`. This constant is used to replace dynamic expressions which can't be safely\n
  * converted into a key. E.g. given an expression `{foo: bar()}`, since we don't know what\n  * the result of `bar`
  * will be, we create a key that looks like `{foo: <unknown>}`. Note\n  * that we use a variable, rather than
  * something like `null` in order to avoid collisions.\n  */\n var UNKNOWN_VALUE_KEY =
  variable('<unknown>');\n /**\n  * Context to use when producing a key.\n  */\n * This ensures we see the
  * constant not the reference variable when producing\n  * a key.\n  */\n var KEY_CONTEXT = {};\n /**\n
  * Generally all primitive values are excluded from the `ConstantPool`, but there is an exclusion\n  * for strings that
  * reach a certain length threshold. This constant defines the length threshold for\n
  * strings.\n  */\n var POOL_INCLUSION_LENGTH_THRESHOLD_FOR_STRINGS = 50;\n /**\n  * A
  * node that is a place-holder that allows the node to be replaced when the actual\n  * node is known.\n  */\n *
  * This allows the constant pool to change an expression from a direct reference to\n  * a constant to a shared
  * constant. It returns a fix-up node that is later allowed to\n  * change the referenced expression.\n  */\n var
  FixupExpression = /** @class */ (function (_super) {\n  __extends(FixupExpression, _super);\n  function
  FixupExpression(resolved) {\n    var _this = _super.call(this, resolved.type) || this;\n    _this.resolved =
    resolved;\n    _this.original = resolved;\n    return _this;\n  }\n  FixupExpression.prototype.visitExpression = function (visitor, context) {\n    if (context ===
    KEY_CONTEXT) {\n      // When producing a key we want to traverse the constant not the\n
      // variable used to refer to it.\n      return this.original.visitExpression(visitor, context);\n    }\n    else {\n      return this.resolved.visitExpression(visitor, context);\n    }\n  };\n
  FixupExpression.prototype.isEquivalent = function (e) {\n    return e instanceof FixupExpression &&
    this.resolved.isEquivalent(e.resolved);\n  };\n  FixupExpression.prototype.isConstant = function () {\n
  return true;\n };\n  FixupExpression.prototype.fixup = function (expression) {\n    this.resolved =
    expression;\n    this.shared = true;\n  };\n  return FixupExpression;\n })(Expression));\n /**\n  * A
  * constant pool allows a code emitter to share constant in an output context.\n  */\n * The constant pool also
  * supports sharing access to ivy definitions references.\n  */\n var ConstantPool = /** @class */ (function () {\n
  function ConstantPool(isClosureCompilerEnabled)
  {\n    if (isClosureCompilerEnabled === void 0) { isClosureCompilerEnabled = false; }\n
    this.isClosureCompilerEnabled = isClosureCompilerEnabled;\n    this.statements = [];\n    this.literals =
    new Map();\n    this.literalFactories = new Map();\n    this.injectorDefinitions = new Map();\n
    this.directiveDefinitions = new Map();\n    this.componentDefinitions = new Map();\n
    this.pipeDefinitions = new Map();\n    this.nextNameIndex = 0;\n  }\n
  ConstantPool.prototype.getConstLiteral = function (literal, forceShared) {\n    if ((literal instanceof LiteralExpr
  && !isLongStringLiteral(literal)) ||\n    literal instanceof FixupExpression) {\n      // Do not put simple
  literals into the constant pool or try to produce a constant for a\n      // reference to a constant.\n
  return literal;\n    }\n
    var key = this.keyOf(literal);\n    var fixup = this.literals.get(key);\n    var newValue = false;\n
    if (!fixup) {\n      fixup = new FixupExpression(literal);\n      this.literals.set(key, fixup);\n
      newValue = true;\n    }\n    if ((!newValue && !fixup.shared) || (newValue && forceShared)) {\n
  // Replace the expression with a variable\n      var name = this.freshName();\n      var definition = void
  0;\n      var usage = void 0;\n      if (this.isClosureCompilerEnabled && isLongStringLiteral(literal)) {\n
  // For string literals, Closure will **always** inline the string at\n      // **all** usages,
  duplicating it each time. For large strings, this\n      // unnecessarily bloats bundle size. To work around this
  restriction, we\n      // wrap the string in a function, and call that function
  for each usage.\n      // This tricks Closure into using inline logic for functions instead of\n      //
  string literals. Function calls are only inlined if the body is small\n      // enough to be worth it. By doing
  this, very large strings will be\n      // shared across multiple usages, rather than duplicating the string at\n

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// each usage site.\n          /\n          // const myStr = function() { return \"very very very long
string\"; };\n          // const usage1 = myStr();\n          // const usage2 = myStr();\n          definition
= variable(name).set(new FunctionExpr([], // Params.\n          [\n          // Statements.\n          new ReturnStatement(literal),\n          ]));\n          usage = variable(name).callFn([]);\n          }\n
else {\n          // Just declare
and use the variable directly, without a function call\n          // indirection. This saves a few bytes and avoids
an unnecessary call.\n          definition = variable(name).set(literal);\n          usage = variable(name);\n
}\n          this.statements.push(definition.toDeclStmt(INFERRED_TYPE, [exports.StmtModifier.Final]));\n
fixup.fixup(usage);\n          }\n          return fixup;\n          };\n          ConstantPool.prototype.getDefinition =
function (type, kind, ctx, forceShared) {\n          if (forceShared === void 0) { forceShared = false; }\n          var
definitions = this.definitionsOf(kind);\n          var fixup = definitions.get(type);\n          var newValue = false;\n
if (!fixup) {\n          var property = this.propertyNameOf(kind);\n          fixup = new
FixupExpression(ctx.importExpr(type).prop(property));\n          definitions.set(type, fixup);\n
newValue = true;\n          }\n          if ((!newValue && !fixup.shared) || (newValue && forceShared)) {\n
var name = this.freshName();\n
this.statements.push(variable(name).set(fixup.resolved).toDeclStmt(INFERRED_TYPE,
[exports.StmtModifier.Final]));\n          fixup.fixup(variable(name));\n          }\n          return fixup;\n          };\n
ConstantPool.prototype.getLiteralFactory = function (literal) {\n          // Create a pure function that builds an
array of a mix of constant and variable expressions\n          if (literal instanceof LiteralArrayExpr) {\n          var
argumentsForKey = literal.entries.map(function (e) { return e.isConstant() ? e : UNKNOWN_VALUE_KEY; });\n
var key = this.keyOf(literalArr(argumentsForKey));\n          return this._getLiteralFactory(key,
literal.entries, function (entries) { return literalArr(entries); });\n          }\n          else {\n          var
expressionForKey = literalMap(literal.entries.map(function (e) { return ({\n          key: e.key,\n
value: e.value.isConstant() ? e.value : UNKNOWN_VALUE_KEY,\n          quoted: e.quoted\n          }));\n
var key = this.keyOf(expressionForKey);\n          return this._getLiteralFactory(key,
literal.entries.map(function (e) { return e.value; }), function (entries) { return literalMap(entries.map(function
(value, index) { return ({\n          key: literal.entries[index].key,\n          value: value,\n
quoted: literal.entries[index].quoted\n          })); }));\n          }\n          };\n
ConstantPool.prototype._getLiteralFactory = function (key, values, resultMap) {\n          var _this = this;\n
var literalFactory = this.literalFactories.get(key);\n          var literalFactoryArguments = values.filter((function (e) {
return !e.isConstant(); }));\n
if (!literalFactory) {\n          var resultExpressions = values.map(function (e, index) { return
e.isConstant() ? _this.getConstLiteral(e, true) : variable(\"a\" + index); });\n          var parameters =
resultExpressions.filter(isVariable).map(function (e) { return new FnParam(e.name, DYNAMIC_TYPE); });\n
var pureFunctionDeclaration = fn(parameters, [new ReturnStatement(resultMap(resultExpressions))],
INFERRED_TYPE);\n          var name = this.freshName();\n
this.statements.push(variable(name).set(pureFunctionDeclaration).toDeclStmt(INFERRED_TYPE, [\n
exports.StmtModifier.Final\n          ]));\n          literalFactory = variable(name);\n
this.literalFactories.set(key, literalFactory);\n          }\n          return { literalFactory: literalFactory,
literalFactoryArguments: literalFactoryArguments };\n          };\n          /**\n          * Produce a unique name.\n          */

* The name might be unique among different prefixes if any of the prefixes end in\n          * a digit so the prefix
should be a constant string (not based on user input) and\n          * must not end in a digit.\n          */
ConstantPool.prototype.uniqueName = function (prefix) {\n          return \"\" + prefix + this.nextNameIndex++;\n
};\n          ConstantPool.prototype.definitionsOf = function (kind) {\n          switch (kind) {\n          case 2 /*
Component */:\n          return this.componentDefinitions;\n          case 1 /* Directive */:\n
return this.directiveDefinitions;\n          case 0 /* Injector */:\n          return this.injectorDefinitions;\n
case 3 /* Pipe */:\n          return this.pipeDefinitions;\n          }\n          error(\"Unknown definition kind \"

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+ kind);\n      return this.componentDefinitions;\n    };\n    ConstantPool.prototype.propertyNameOf
= function (kind) {\n      switch (kind) {\n        case 2 /* Component */:\n          return 'cmp';\n        case 1 /* Directive */:\n          return 'dir';\n        case 0 /* Injector */:\n          return 'inj';\n        case 3 /* Pipe */:\n          return 'pipe';\n      }\n      error(\"Unknown definition kind \" + kind);\n    }\n    return '<unknown>';\n  };\n  ConstantPool.prototype.freshName = function () {\n    return
this.uniqueName(CONSTANT_PREFIX);\n  };\n  ConstantPool.prototype.keyOf = function (expression) {\n
    return expression.visitExpression(new KeyVisitor(), KEY_CONTEXT);\n  };\n  return
ConstantPool;\n})();\n /**\n  * Visitor used to determine if 2 expressions are equivalent and can be shared in
the\n  * `ConstantPool`.\n  *\n  * When the id (string) generated by the visitor is equal, expressions
are considered equivalent.\n  */\n  var KeyVisitor = /** @class */ (function () {\n    function KeyVisitor() {\n
      this.visitWrappedNodeExpr = invalid;\n      this.visitWriteVarExpr = invalid;\n
      this.visitWriteKeyExpr = invalid;\n      this.visitWritePropExpr = invalid;\n      this.visitInvokeMethodExpr =
invalid;\n      this.visitInvokeFunctionExpr = invalid;\n      this.visitInstantiateExpr = invalid;\n
      this.visitConditionalExpr = invalid;\n      this.visitNotExpr = invalid;\n      this.visitAssertNotNullExpr =
invalid;\n      this.visitCastExpr = invalid;\n      this.visitFunctionExpr = invalid;\n
      this.visitUnaryOperatorExpr = invalid;\n      this.visitBinaryOperatorExpr = invalid;\n
      this.visitReadPropExpr = invalid;\n      this.visitReadKeyExpr = invalid;\n      this.visitCommaExpr =
invalid;\n      this.visitLocalizedString = invalid;\n
    }\n    KeyVisitor.prototype.visitLiteralExpr = function (ast) {\n      return \"\" + (typeof ast.value ===
'string' ? \"\" + ast.value + \"\" : ast.value);\n    };\n    KeyVisitor.prototype.visitLiteralArrayExpr = function (ast,
context) {\n      var _this = this;\n      return \"[\" + ast.entries.map(function (entry) { return
entry.visitExpression(_this, context); }).join(',') + \"]\";\n    };\n    KeyVisitor.prototype.visitLiteralMapExpr =
function (ast, context) {\n      var _this = this;\n      var mapKey = function (entry) {\n        var quote =
entry.quoted ? \"\" : \"\";\n        return \"\" + quote + entry.key + quote;\n      };\n      var mapEntry =
function (entry) { return mapKey(entry) + \":\" + entry.value.visitExpression(_this, context); };\n      return \"{\" +
ast.entries.map(mapEntry).join(',') + \"}\";\n    };\n    KeyVisitor.prototype.visitExternalExpr = function (ast) {\n
      return ast.value.moduleName ? \"EX:\" + ast.value.moduleName + \":\" + ast.value.name :\n        \"EX:\" +
ast.value.runtime.name;\n    };\n    KeyVisitor.prototype.visitReadVarExpr = function (node) {\n      return
\"VAR:\" + node.name;\n    };\n    KeyVisitor.prototype.visitTypeofExpr = function (node, context) {\n
      return \"TYPEOF:\" + node.expr.visitExpression(this, context);\n    };\n    return KeyVisitor;\n  })();\n
function invalid(arg) {\n    throw new Error(\"Invalid state: Visitor \" + this.constructor.name + \" doesn't handle
\" + arg.constructor.name);\n  }\n  function isVariable(e) {\n    return e instanceof ReadVarExpr;\n  }\n
function isLongStringLiteral(expr) {\n    return expr instanceof LiteralExpr && typeof expr.value === 'string'
&&\n      expr.value.length >= POOL_INCLUSION_LENGTH_THRESHOLD_FOR_STRINGS;\n  }\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n
   *\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the LICENSE file
at https://angular.io/license\n   */\n  var CORE = '@angular/core';\n  var Identifiers = /** @class */ (function ()
{\n    function Identifiers() {\n    }\n    return Identifiers;\n  })();\n  Identifiers.ANALYZE_FOR_ENTRY_COMPONENTS = {\n    name:
'ANALYZE_FOR_ENTRY_COMPONENTS',\n    moduleName: CORE,\n  };\n  Identifiers.ElementRef = {\n    name: 'ElementRef',
moduleName: CORE;\n  };\n  Identifiers.NgModuleRef = {\n    name: 'NgModuleRef', moduleName: CORE;\n  };\n
  Identifiers.ViewContainerRef = {\n    name: 'ViewContainerRef', moduleName: CORE;\n  };\n
  Identifiers.ChangeDetectorRef = {\n    name: 'ChangeDetectorRef',\n    moduleName: CORE,\n  };\n
  Identifiers.QueryList = {\n    name: 'QueryList', moduleName: CORE;\n  };\n  Identifiers.TemplateRef = {\n    name:
'TemplateRef', moduleName: CORE;\n  };\n  Identifiers.Renderer2 = {\n    name: 'Renderer2',
moduleName: CORE;\n  };\n  Identifiers.CodegenComponentFactoryResolver = {\n    name:
'CodegenComponentFactoryResolver',\n    moduleName: CORE,\n  };\n
  Identifiers.ComponentFactoryResolver = {\n    name: 'ComponentFactoryResolver',\n    moduleName:

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CORE,\n  };\n  Identifiers.ComponentFactory = { name: 'ComponentFactory', moduleName: CORE };\n
Identifiers.ComponentRef = { name: 'ComponentRef', moduleName: CORE };\n  Identifiers.NgModuleFactory = {
name: 'NgModuleFactory', moduleName: CORE };\n  Identifiers.createModuleFactory = {\n    name: 'cmf',\nmoduleName: CORE,\n  };\n  Identifiers.moduleDef = {\n    name: 'mod',\n    moduleName: CORE,\n  };\n
Identifiers.moduleProviderDef = {\n    name: 'mpd',\n    moduleName: CORE,\n  };\n
Identifiers.RegisterModuleFactoryFn = {\n    name: 'registerModuleFactory',\n    moduleName: CORE,\n  };\n
Identifiers.inject = { name: 'inject', moduleName: CORE };\n
  Identifiers.directiveInject = { name: 'directiveInject', moduleName: CORE };\n  Identifiers.INJECTOR = {
name: 'INJECTOR', moduleName: CORE };\n  Identifiers.Injector = { name: 'Injector', moduleName: CORE };\n
Identifiers.defineInjectable = { name: 'defineInjectable', moduleName: CORE };\n  Identifiers.InjectableDef = {
name: 'InjectableDef', moduleName: CORE };\n  Identifiers.ViewEncapsulation = {\n    name:
'ViewEncapsulation',\n    moduleName: CORE,\n  };\n  Identifiers.ChangeDetectionStrategy = {\n    name:
'ChangeDetectionStrategy',\n    moduleName: CORE,\n  };\n  Identifiers.SecurityContext = {\n    name:
'SecurityContext',\n    moduleName: CORE,\n  };\n  Identifiers.LOCALE_ID = { name: 'LOCALE_ID',
moduleName: CORE };\n  Identifiers.TRANSLATIONS_FORMAT = {\n    name:
'TRANSLATIONS_FORMAT',\n    moduleName: CORE,\n  };\n  Identifiers.inlineInterpolate = {\n    name:
'inlineInterpolate',\n    moduleName:
CORE,\n  };\n  Identifiers.interpolate = { name: 'interpolate', moduleName: CORE };\n
Identifiers.EMPTY_ARRAY = { name: 'EMPTY_ARRAY', moduleName: CORE };\n  Identifiers.EMPTY_MAP
= { name: 'EMPTY_MAP', moduleName: CORE };\n  Identifiers.Renderer = { name: 'Renderer', moduleName:
CORE };\n  Identifiers.viewDef = { name: 'vid', moduleName: CORE };\n  Identifiers.elementDef = { name: 'eld',
moduleName: CORE };\n  Identifiers.anchorDef = { name: 'and', moduleName: CORE };\n  Identifiers.textDef =
{ name: 'ted', moduleName: CORE };\n  Identifiers.directiveDef = { name: 'did', moduleName: CORE };\n
Identifiers.providerDef = { name: 'prd', moduleName: CORE };\n  Identifiers.queryDef = { name: 'qud',
moduleName: CORE };\n  Identifiers.pureArrayDef = { name: 'pad', moduleName: CORE };\n
Identifiers.pureObjectDef = { name: 'pod', moduleName: CORE };\n  Identifiers.purePipeDef = { name: 'ppd',
moduleName: CORE };\n  Identifiers.pipeDef = { name:
'pid', moduleName: CORE };\n  Identifiers.nodeValue = { name: 'nov', moduleName: CORE };\n
Identifiers.ngContentDef = { name: 'ncd', moduleName: CORE };\n  Identifiers.unwrapValue = { name: 'unv',
moduleName: CORE };\n  Identifiers.createRendererType2 = { name: 'crt', moduleName: CORE };\n  // type
only\n  Identifiers.RendererType2 = {\n    name: 'RendererType2',\n    moduleName: CORE,\n  };\n  // type
only\n  Identifiers.ViewDefinition = {\n    name: 'ViewDefinition',\n    moduleName: CORE,\n  };\n
Identifiers.createComponentFactory = { name: 'ccf', moduleName: CORE };\n  Identifiers.setClassMetadata = {
name: 'setClassMetadata', moduleName: CORE };\n  function createTokenForReference(reference) {\n    return
{ identifier: { reference: reference } };\n  }\n  function createTokenForExternalReference(reflector, reference) {\n
return createTokenForReference(reflector.resolveExternalReference(reference));\n  }\n\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
/**\n * A token representing the a reference to a static type.\n * This token is unique for a filePath and
name and can be used as a hash table key.\n */\n  var StaticSymbol = /** @class */ (function () {\n    function
StaticSymbol(filePath, name, members) {\n      this.filePath = filePath;\n      this.name = name;\n      this.members = members;\n    }\n    StaticSymbol.prototype.assertNoMembers = function () {\n      if
(this.members.length) {\n        throw new Error("Illegal state: symbol without members expected, but got " +
JSON.stringify(this) + ".");\n      }\n    };\n    return StaticSymbol;\n  }());\n\n  /**\n * A cache of static
symbol used by the StaticReflector
to return the same symbol for the\n * same symbol values.\n */\n  var StaticSymbolCache = /** @class */
(function () {\n    function StaticSymbolCache() {\n      this.cache = new Map();\n    }\n    StaticSymbolCache.prototype.get = function (declarationFile, name, members) {\n      members = members ||

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[];\n      var memberSuffix = members.length ? "." + members.join('.') : "";\n      var key = "\"\"\"\" +\n      declarationFile + "\"\"\"\".\" + name + memberSuffix;\n      var result = this.cache.get(key);\n      if (!result) {\n        result = new StaticSymbol(declarationFile, name, members);\n        this.cache.set(key, result);\n      }\n      return result;\n    };\n    return StaticSymbolCache;\n  }());\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style\n   * license that can be found in\n   * the LICENSE file at https://angular.io/license\n   */\n  // group 0: \"[prop] or (event) or @trigger\"\n  // group 1:\n  // \"prop\" from \"[prop]\"\n  // group 2: \"event\" from \"(event)\"\n  // group 3: \"@trigger\" from \"@trigger\"\n  var HOST_REG_EXP = /^(?:\\[[^\\]]+\\]|(?:\\((?:\\[[^\\]]+\\]|\\)|@[-\\w]+)$)/;\n  function sanitizeIdentifier(name)\n  {\n    return name.replace(/\\W/g, '_');\n  }\n  var _anonymousTypeIndex = 0;\n  function\n  identifierName(compileIdentifier) {\n    if (!compileIdentifier || !compileIdentifier.reference) {\n      return\n      null;\n    }\n    var ref = compileIdentifier.reference;\n    if (ref instanceof StaticSymbol) {\n      return\n      ref.name;\n    }\n    if (ref['__anonymousType']) {\n      return ref['__anonymousType'];\n    }\n    var\n    identifier = stringify(ref);\n    if (identifier.indexOf('(') >= 0) {\n      // case: anonymous functions!\n      identifier = \"anonymous_\"\n      + _anonymousTypeIndex++;\n      ref['__anonymousType'] = identifier;\n    }\n    else {\n      identifier\n      = sanitizeIdentifier(identifier);\n    }\n    return identifier;\n  }\n  function\n  identifierModuleUrl(compileIdentifier) {\n    var ref = compileIdentifier.reference;\n    if (ref instanceof\n    StaticSymbol) {\n      return ref.filePath;\n    }\n    // Runtime type\n    return \"\".^(\" + stringify(ref);\n  }\n  function viewClassName(compType, embeddedTemplateIndex) {\n    return \"View_\" + identifierName({\n      reference: compType }) + \"_\" + embeddedTemplateIndex;\n  }\n  function rendererTypeName(compType) {\n    return \"RenderType_\" + identifierName({ reference: compType });\n  }\n  function\n  hostViewClassName(compType) {\n    return \"HostView_\" + identifierName({ reference: compType });\n  }\n  function\n  componentFactoryName(compType) {\n    return identifierName({ reference: compType }) +\n    \"NgFactory\";\n  }\n  (function (CompileSummaryKind) {\n    CompileSummaryKind[CompileSummaryKind[\"Pipe\"] = 0] = \"Pipe\";\n    CompileSummaryKind[CompileSummaryKind[\"Directive\"] = 1] = \"Directive\";\n    CompileSummaryKind[CompileSummaryKind[\"NgModule\"] = 2] = \"NgModule\";\n    CompileSummaryKind[CompileSummaryKind[\"Injectable\"] = 3] = \"Injectable\";\n  })(exports.CompileSummaryKind || (exports.CompileSummaryKind = {}));\n  function tokenName(token) {\n    return token.value != null ? sanitizeIdentifier(token.value) : identifierName(token.identifier);\n  }\n  function\n  tokenReference(token) {\n    if (token.identifier != null) {\n      return token.identifier.reference;\n    }\n    else {\n      return token.value;\n    }\n  }\n  /**\n   * Metadata about a stylesheet\n   */\n  var\n  CompileStylesheetMetadata = /** @class */ (function () {\n    function CompileStylesheetMetadata(_a) {\n      var _b\n      = _a === void 0 ? {} : _a, moduleUrl = _b.moduleUrl, styles = _b.styles, styleUrls = _b.styleUrls;\n      this.moduleUrl = moduleUrl || null;\n      this.styles = _normalizeArray(styles);\n      this.styleUrls =\n      _normalizeArray(styleUrls);\n    }\n    return CompileStylesheetMetadata;\n  }());\n  /**\n   * Metadata\n   * regarding compilation of a template.\n   */\n  var CompileTemplateMetadata = /** @class */ (function () {\n    function CompileTemplateMetadata(_a) {\n      var encapsulation = _a.encapsulation, template = _a.template,\n      templateUrl = _a.templateUrl, htmlAst = _a.htmlAst, styles = _a.styles, styleUrls = _a.styleUrls, externalStylesheets\n      = _a.externalStylesheets, animations = _a.animations, ngContentSelectors = _a.ngContentSelectors, interpolation =\n      _a.interpolation, isInline = _a.isInline, preserveWhitespaces = _a.preserveWhitespaces;\n      this.encapsulation =\n      encapsulation;\n      this.template = template;\n      this.templateUrl = templateUrl;\n      this.htmlAst = htmlAst;\n      this.styles = _normalizeArray(styles);\n      this.styleUrls = _normalizeArray(styleUrls);\n      this.externalStylesheets =\n      _normalizeArray(externalStylesheets);\n      this.animations = animations ? flatten(animations) : [];\n      this.ngContentSelectors = ngContentSelectors || [];\n      if (interpolation && interpolation.length != 2) {\n
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        throw new Error("'" + interpolation + "' should have a start and an end symbol.");\n    }\n    this.interpolation =
interpolation;\n    this.isInline = isInline;\n    this.preserveWhitespaces = preserveWhitespaces;\n    }\n    CompileTemplateMetadata.prototype.toSummary = function () {\n        return {\n            ngContentSelectors:
this.ngContentSelectors,\n            encapsulation: this.encapsulation,\n            styles: this.styles,\n            animations:
this.animations\n        };\n    };\n    return CompileTemplateMetadata;\n    }());\n    /**\n     * Metadata
regarding compilation of a directive.\n     */\n    var CompileDirectiveMetadata = /** @class */ (function () {\n    function CompileDirectiveMetadata(_a) {\n        var isHost = _a.isHost, type = _a.type, isComponent =
_a.isComponent, selector = _a.selector, exportAs = _a.exportAs, changeDetection = _a.changeDetection, inputs =
_a.inputs, outputs = _a.outputs, hostListeners = _a.hostListeners, hostProperties = _a.hostProperties, hostAttributes
= _a.hostAttributes, providers = _a.providers, viewProviders = _a.viewProviders, queries = _a.queries, guards =
_a.guards, viewQueries = _a.viewQueries, entryComponents = _a.entryComponents, template = _a.template,
componentViewType = _a.componentViewType, rendererType = _a.rendererType, componentFactory =
_a.componentFactory;\n        this.isHost = !!isHost;\n        this.type = type;\n        this.isComponent
= isComponent;\n        this.selector = selector;\n        this.exportAs = exportAs;\n        this.changeDetection
= changeDetection;\n        this.inputs = inputs;\n        this.outputs = outputs;\n        this.hostListeners =
hostListeners;\n        this.hostProperties = hostProperties;\n        this.hostAttributes = hostAttributes;\n        this.providers = _normalizeArray(providers);\n        this.viewProviders = _normalizeArray(viewProviders);\n        this.queries = _normalizeArray(queries);\n        this.guards = guards;\n        this.viewQueries =
_normalizeArray(viewQueries);\n        this.entryComponents = _normalizeArray(entryComponents);\n        this.template = template;\n        this.componentViewType = componentViewType;\n        this.rendererType =
rendererType;\n        this.componentFactory = componentFactory;\n    }\n    CompileDirectiveMetadata.create = function (_a) {\n        var isHost = _a.isHost, type = _a.type, isComponent = _a.isComponent, selector = _a.selector, exportAs =
_a.exportAs, changeDetection = _a.changeDetection, inputs = _a.inputs, outputs = _a.outputs, host = _a.host,
providers = _a.providers, viewProviders = _a.viewProviders, queries = _a.queries, guards = _a.guards, viewQueries =
_a.viewQueries, entryComponents = _a.entryComponents, template = _a.template, componentViewType =
_a.componentViewType, rendererType = _a.rendererType, componentFactory = _a.componentFactory;\n        var
hostListeners = {};\n        var hostProperties = {};\n        var hostAttributes = {};\n        if (host != null) {\n            Object.keys(host).forEach(function (key) {\n                var value = host[key];\n                var matches =
key.match(HOST_REG_EXP);\n                if (matches === null) {\n                    hostAttributes[key] = value;\n                }\n                else if (matches[1] != null) {\n                    {\n                        hostProperties[matches[1]] = value;\n                    }\n                } else if (matches[2] != null) {\n                    {\n                        hostListeners[matches[2]] = value;\n                    }\n                });\n                var inputsMap =
{};\n                if (inputs != null) {\n                    inputs.forEach(function (bindConfig) {\n                        // canonical syntax:
`dirProp: elProp`\n                        // if there is no `:` , use dirProp = elProp\n                        var parts =
splitAtColon(bindConfig, [bindConfig, bindConfig]);\n                        inputsMap[parts[0]] = parts[1];\n                    });\n                }\n                var outputsMap = {};\n                if (outputs != null) {\n                    outputs.forEach(function
(bindConfig) {\n                        // canonical syntax: `dirProp: elProp`\n                        // if there is no `:` , use dirProp =
elProp\n                        var parts = splitAtColon(bindConfig, [bindConfig,
bindConfig]);\n                        outputsMap[parts[0]] = parts[1];\n                    });\n                }\n                return new
CompileDirectiveMetadata({\n                    isHost: isHost,\n                    type: type,\n                    isComponent:
!!isComponent,\n                    selector: selector,\n                    exportAs: exportAs,\n                    changeDetection:
changeDetection,\n                    inputs: inputsMap,\n                    outputs: outputsMap,\n                    hostListeners:
hostListeners,\n                    hostProperties: hostProperties,\n                    hostAttributes: hostAttributes,\n                    providers: providers,\n                    viewProviders: viewProviders,\n                    queries: queries,\n                    guards:
guards,\n                    viewQueries: viewQueries,\n                    entryComponents: entryComponents,\n                    template: template,\n                    componentViewType: componentViewType,\n                    rendererType:

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rendererType,\n
    componentFactory: componentFactory,\n    });\n    };\n
CompileDirectiveMetadata.prototype.toSummary = function () {\n    return {\n        summaryKind:\nexports.CompileSummaryKind.Directive,\n        type: this.type,\n        isComponent: this.isComponent,\n        selector: this.selector,\n        exportAs: this.exportAs,\n        inputs: this.inputs,\n        outputs:\nthis.outputs,\n        hostListeners: this.hostListeners,\n        hostProperties: this.hostProperties,\n        hostAttributes: this.hostAttributes,\n        providers: this.providers,\n        viewProviders:\nthis.viewProviders,\n        queries: this.queries,\n        guards: this.guards,\n        viewQueries:\nthis.viewQueries,\n        entryComponents: this.entryComponents,\n        changeDetection:\nthis.changeDetection,\n        template:\nthis.template && this.template.toSummary(),\n        componentViewType: this.componentViewType,\n        rendererType: this.rendererType,\n        componentFactory: this.componentFactory\n    });\n};\n
return CompileDirectiveMetadata;\n})();\n
var CompilePipeMetadata = /** @class */ (function () {\nfunction CompilePipeMetadata(_a) {\n    var type = _a.type, name = _a.name, pure = _a.pure;\n    this.type\n= type;\n    this.name = name;\n    this.pure = !!pure;\n}
CompilePipeMetadata.prototype.toSummary = function () {\n    return {\n        summaryKind:\nexports.CompileSummaryKind.Pipe,\n        type: this.type,\n        name: this.name,\n        pure:\nthis.pure\n    });\n};\n};\n
return CompilePipeMetadata;\n})();\n
var CompileShallowModuleMetadata = /** @class */ (function () {\nfunction CompileShallowModuleMetadata()\n{\n    }\n    return CompileShallowModuleMetadata;\n})();\n
/**\n * Metadata regarding compilation of\na module.\n */\n
var CompileNgModuleMetadata = /** @class */ (function () {\nfunction\nCompileNgModuleMetadata(_a) {\n    var type = _a.type, providers = _a.providers, declaredDirectives =\n_a.declaredDirectives, exportedDirectives = _a.exportedDirectives, declaredPipes = _a.declaredPipes, exportedPipes\n= _a.exportedPipes, entryComponents = _a.entryComponents, bootstrapComponents = _a.bootstrapComponents,\nimportedModules = _a.importedModules, exportedModules = _a.exportedModules, schemas = _a.schemas,\ntransitiveModule = _a.transitiveModule, id = _a.id;\n    this.type = type || null;\n    this.declaredDirectives\n= _normalizeArray(declaredDirectives);\n    this.exportedDirectives = _normalizeArray(exportedDirectives);\n    this.declaredPipes = _normalizeArray(declaredPipes);\n    this.exportedPipes\n= _normalizeArray(exportedPipes);\n    this.providers = _normalizeArray(providers);\n    this.entryComponents = _normalizeArray(entryComponents);\n    this.bootstrapComponents =\n_normalizeArray(bootstrapComponents);\n    this.importedModules = _normalizeArray(importedModules);\n    this.exportedModules = _normalizeArray(exportedModules);\n    this.schemas =\n_normalizeArray(schemas);\n    this.id = id || null;\n    this.transitiveModule = transitiveModule || null;\n}\n    CompileNgModuleMetadata.prototype.toSummary = function () {\n        var module =\nthis.transitiveModule;\n        return {\n            summaryKind: exports.CompileSummaryKind.NgModule,\n            type: this.type,\n            entryComponents: module.entryComponents,\n            providers:\nmodule.providers,\n            modules: module.modules,\n            exportedDirectives:\nmodule.exportedDirectives,\n            exportedPipes: module.exportedPipes\n        });\n};\n};\n
return CompileNgModuleMetadata;\n})();\n
var TransitiveCompileNgModuleMetadata = /** @class */ (function () {\nfunction\nTransitiveCompileNgModuleMetadata() {\n    this.directivesSet = new Set();\n    this.directives = [];\n    this.exportedDirectivesSet = new Set();\n    this.exportedDirectives = [];\n    this.pipesSet = new Set();\n    this.pipes = [];\n    this.exportedPipesSet = new Set();\n    this.exportedPipes = [];\n    this.modulesSet = new Set();\n    this.modules = [];\n    this.entryComponentsSet = new Set();\n    this.entryComponents = [];\n    this.providers = [];\n}\n    TransitiveCompileNgModuleMetadata.prototype.addProvider = function (provider, module) {\n        this.providers.push({ provider: provider, module: module });\n    }\n    TransitiveCompileNgModuleMetadata.prototype.addDirective

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function (id) {\n      if (!this.directivesSet.has(id.reference)) {\n
this.directivesSet.add(id.reference);\n      this.directives.push(id);\n      }\n    };\n
TransitiveCompileNgModuleMetadata.prototype.addExportedDirective = function (id) {\n      if
(!this.exportedDirectivesSet.has(id.reference)) {\n      this.exportedDirectivesSet.add(id.reference);\n
this.exportedDirectives.push(id);\n      }\n    };\n
TransitiveCompileNgModuleMetadata.prototype.addPipe = function (id) {\n      if
(!this.pipesSet.has(id.reference)) {\n      this.pipesSet.add(id.reference);\n      this.pipes.push(id);\n
}\n    };\n
TransitiveCompileNgModuleMetadata.prototype.addExportedPipe = function (id) {\n      if
(!this.exportedPipesSet.has(id.reference)) {\n      this.exportedPipesSet.add(id.reference);\n
this.exportedPipes.push(id);\n      }\n    };\n
TransitiveCompileNgModuleMetadata.prototype.addModule = function (id) {\n      if
(!this.modulesSet.has(id.reference)) {\n      this.modulesSet.add(id.reference);\n
this.modules.push(id);\n      }\n    };\n
TransitiveCompileNgModuleMetadata.prototype.addEntryComponent = function (ec) {\n      if
(!this.entryComponentsSet.has(ec.componentType)) {\n
this.entryComponentsSet.add(ec.componentType);\n      this.entryComponents.push(ec);\n      }\n    };\n
return TransitiveCompileNgModuleMetadata;\n  }());\n  function _normalizeArray(obj) {\n    return obj ||
[];\n  }\n  var ProviderMeta = /** @class */ (function () {\n    function ProviderMeta(token, _a) {\n      var
useClass = _a.useClass, useValue = _a.useValue, useExisting = _a.useExisting, useFactory = _a.useFactory, deps =
_a.deps,\n      multi = _a.multi;\n      this.token = token;\n      this.useClass = useClass || null;\n      this.useValue =
useValue;\n      this.useExisting = useExisting;\n      this.useFactory = useFactory || null;\n
this.dependencies = deps || null;\n      this.multi = !!multi;\n    }\n    return ProviderMeta;\n  }());\n
function flatten(list) {\n    return list.reduce(function (flat, item) {\n      var flatItem = Array.isArray(item) ?
flatten(item) : item;\n      return flat.concat(flatItem);\n    }, []);\n  }\n  function jitSourceUrl(url) {\n    //
Note: We need 3 "\\^" so that ng shows up as a separate domain\n    // in the chrome dev tools.\n    return
url.replace(/(\\w+:\\\\|\\w+:-)?(\\+)?/, 'ng:///');\n  }\n  function templateSourceUrl(ngModuleType, compMeta,
templateMeta) {\n    var url;\n    if (templateMeta.isInline) {\n      if (compMeta.type.reference instanceof
StaticSymbol)\n        {\n          // Note: a .ts file might contain multiple components with inline templates,\n          // so we need to
give them unique urls, as these will be used for sourcemaps.\n          url = compMeta.type.reference.filePath +
'\\.\\' + compMeta.type.reference.name + '\\.html';\n        }\n      else {\n        url =
identifierName(ngModuleType) + "\\^" + identifierName(compMeta.type) + '\\.html';\n      }\n    }\n    else {\n      url = templateMeta.templateUrl;\n    }\n    return compMeta.type.reference instanceof StaticSymbol
? url : jitSourceUrl(url);\n  }\n  function sharedStylesheetJitUrl(meta, id) {\n    var pathParts =
meta.moduleUrl.split(/\\\\\\\\g);\n    var baseName = pathParts[pathParts.length - 1];\n    return
jitSourceUrl("\\css^" + id + baseName + ".ngstyle.js");\n  }\n  function ngModuleJitUrl(moduleMeta) {\n
return jitSourceUrl(identifierName(moduleMeta.type) + "/module.ngfactory.js");\n  }\n  function templateJitUrl(ngModuleType, compMeta) {\n    return
jitSourceUrl(identifierName(ngModuleType) + "\\^" + identifierName(compMeta.type) + ".ngfactory.js");\n  }\n}\n
/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n
var CORE$1 = '@angular/core';\n  var Identifiers$1 = /** @class */ (function () {\n    function Identifiers() {\n
}\n    return Identifiers;\n  }());\n  /* Methods */\n  Identifiers$1.NEW_METHOD = 'factory';\n
Identifiers$1.TRANSFORM_METHOD = 'transform';\n  Identifiers$1.PATCH_DEPS = 'patchedDeps';\n  /*
Instructions */\n  Identifiers$1.namespaceHTML = { name: 'namespaceHTML', moduleName: CORE$1 };\n
Identifiers$1.namespaceMathML = { name: 'namespaceMathML', moduleName: CORE$1 };\n
Identifiers$1.namespaceSVG

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= { name: 'namespaceSVG', moduleName: CORE$1 };
Identifiers$1.element = { name: 'element',
moduleName: CORE$1 };
Identifiers$1.elementStart = { name: 'elementStart', moduleName: CORE$1 };
Identifiers$1.elementEnd = { name: 'elementEnd', moduleName: CORE$1 };
Identifiers$1.advance = { name: 'advance', moduleName: CORE$1 };
Identifiers$1.syntheticHostProperty = { name: 'syntheticHostProperty',
moduleName: CORE$1 };
Identifiers$1.syntheticHostListener = { name: 'syntheticHostListener', moduleName:
CORE$1 };
Identifiers$1.attribute = { name: 'attribute', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate1 = { name: 'attributeInterpolate1', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate2 = { name: 'attributeInterpolate2', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate3 = { name: 'attributeInterpolate3', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate4 = { name: 'attributeInterpolate4',
moduleName: CORE$1 };
Identifiers$1.attributeInterpolate5 = { name: 'attributeInterpolate5', moduleName:
CORE$1 };
Identifiers$1.attributeInterpolate6 = { name: 'attributeInterpolate6', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate7 = { name: 'attributeInterpolate7', moduleName: CORE$1 };
Identifiers$1.attributeInterpolate8 = { name: 'attributeInterpolate8', moduleName: CORE$1 };
Identifiers$1.attributeInterpolateV = { name: 'attributeInterpolateV', moduleName: CORE$1 };
Identifiers$1.classProp = { name: 'classProp', moduleName: CORE$1 };
Identifiers$1.elementContainerStart = {
name: 'elementContainerStart', moduleName: CORE$1 };
Identifiers$1.elementContainerEnd = { name:
'elementContainerEnd', moduleName: CORE$1 };
Identifiers$1.elementContainer = { name: 'elementContainer',
moduleName: CORE$1 };
Identifiers$1.styleMap = { name: 'styleMap', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate1
= { name: 'styleMapInterpolate1', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate2 = { name:
'styleMapInterpolate2', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate3 = { name:
'styleMapInterpolate3', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate4 = { name:
'styleMapInterpolate4', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate5 = { name:
'styleMapInterpolate5', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate6 = { name:
'styleMapInterpolate6', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate7 = { name:
'styleMapInterpolate7', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolate8 = { name:
'styleMapInterpolate8', moduleName: CORE$1 };
Identifiers$1.styleMapInterpolateV = { name:
'styleMapInterpolateV', moduleName: CORE$1 };
Identifiers$1.classMap = { name: 'classMap', moduleName:
CORE$1 };
Identifiers$1.classMapInterpolate1 = { name: 'classMapInterpolate1',
moduleName: CORE$1 };
Identifiers$1.classMapInterpolate2 = { name: 'classMapInterpolate2', moduleName:
CORE$1 };
Identifiers$1.classMapInterpolate3 = { name: 'classMapInterpolate3', moduleName: CORE$1 };
Identifiers$1.classMapInterpolate4 = { name: 'classMapInterpolate4', moduleName: CORE$1 };
Identifiers$1.classMapInterpolate5 = { name: 'classMapInterpolate5', moduleName: CORE$1 };
Identifiers$1.classMapInterpolate6 = { name: 'classMapInterpolate6', moduleName: CORE$1 };
Identifiers$1.classMapInterpolate7 = { name: 'classMapInterpolate7', moduleName: CORE$1 };
Identifiers$1.classMapInterpolate8 = { name: 'classMapInterpolate8', moduleName: CORE$1 };
Identifiers$1.classMapInterpolateV = { name: 'classMapInterpolateV', moduleName: CORE$1 };
Identifiers$1.styleProp = { name: 'styleProp', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate1 = {
name: 'stylePropInterpolate1', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate2
= { name: 'stylePropInterpolate2', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate3 = { name:
'stylePropInterpolate3', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate4 = { name:
'stylePropInterpolate4', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate5 = { name:
'stylePropInterpolate5', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate6 = { name:
'stylePropInterpolate6', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate7 = { name:
'stylePropInterpolate7', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolate8 = { name:
'stylePropInterpolate8', moduleName: CORE$1 };
Identifiers$1.stylePropInterpolateV = { name:
'stylePropInterpolateV', moduleName: CORE$1 };
Identifiers$1.nextContext = { name: 'nextContext',

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moduleName: CORE$1 };\n  Identifiers$1.templateCreate = { name: 'template', moduleName: CORE$1 };\n
Identifiers$1.text = { name: 'text', moduleName:
  CORE$1 };\n  Identifiers$1.enableBindings = { name: 'enableBindings', moduleName: CORE$1 };\n
Identifiers$1.disableBindings = { name: 'disableBindings', moduleName: CORE$1 };\n
Identifiers$1.getCurrentView = { name: 'getCurrentView', moduleName: CORE$1 };\n
Identifiers$1.textInterpolate = { name: 'textInterpolate', moduleName: CORE$1 };\n  Identifiers$1.textInterpolate1
= { name: 'textInterpolate1', moduleName: CORE$1 };\n  Identifiers$1.textInterpolate2 = { name:
'textInterpolate2', moduleName: CORE$1 };\n  Identifiers$1.textInterpolate3 = { name: 'textInterpolate3',
moduleName: CORE$1 };\n  Identifiers$1.textInterpolate4 = { name: 'textInterpolate4', moduleName: CORE$1
};\n  Identifiers$1.textInterpolate5 = { name: 'textInterpolate5', moduleName: CORE$1 };\n
Identifiers$1.textInterpolate6 = { name: 'textInterpolate6', moduleName: CORE$1 };\n
Identifiers$1.textInterpolate7 = { name: 'textInterpolate7', moduleName: CORE$1 };\n
  Identifiers$1.textInterpolate8 = { name: 'textInterpolate8', moduleName: CORE$1 };\n
Identifiers$1.textInterpolateV = { name: 'textInterpolateV', moduleName: CORE$1 };\n  Identifiers$1.restoreView
= { name: 'restoreView', moduleName: CORE$1 };\n  Identifiers$1.pureFunction0 = { name: 'pureFunction0',
moduleName: CORE$1 };\n  Identifiers$1.pureFunction1 = { name: 'pureFunction1', moduleName: CORE$1 };\n
Identifiers$1.pureFunction2 = { name: 'pureFunction2', moduleName: CORE$1 };\n  Identifiers$1.pureFunction3 =
{ name: 'pureFunction3', moduleName: CORE$1 };\n  Identifiers$1.pureFunction4 = { name: 'pureFunction4',
moduleName: CORE$1 };\n  Identifiers$1.pureFunction5 = { name: 'pureFunction5', moduleName: CORE$1 };\n
Identifiers$1.pureFunction6 = { name: 'pureFunction6', moduleName: CORE$1 };\n  Identifiers$1.pureFunction7 =
{ name: 'pureFunction7', moduleName: CORE$1 };\n  Identifiers$1.pureFunction8 = { name: 'pureFunction8',
moduleName:
  CORE$1 };\n  Identifiers$1.pureFunctionV = { name: 'pureFunctionV', moduleName: CORE$1 };\n
Identifiers$1.pipeBind1 = { name: 'pipeBind1', moduleName: CORE$1 };\n  Identifiers$1.pipeBind2 = { name:
'pipeBind2', moduleName: CORE$1 };\n  Identifiers$1.pipeBind3 = { name: 'pipeBind3', moduleName: CORE$1
};\n  Identifiers$1.pipeBind4 = { name: 'pipeBind4', moduleName: CORE$1 };\n  Identifiers$1.pipeBindV = {
name: 'pipeBindV', moduleName: CORE$1 };\n  Identifiers$1.hostProperty = { name: 'hostProperty',
moduleName: CORE$1 };\n  Identifiers$1.property = { name: 'property', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate = { name: 'propertyInterpolate', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate1 = { name: 'propertyInterpolate1', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate2 = { name: 'propertyInterpolate2', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate3 = { name: 'propertyInterpolate3', moduleName:
  CORE$1 };\n  Identifiers$1.propertyInterpolate4 = { name: 'propertyInterpolate4', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate5 = { name: 'propertyInterpolate5', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate6 = { name: 'propertyInterpolate6', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate7 = { name: 'propertyInterpolate7', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolate8 = { name: 'propertyInterpolate8', moduleName: CORE$1 };\n
Identifiers$1.propertyInterpolateV = { name: 'propertyInterpolateV', moduleName: CORE$1 };\n
Identifiers$1.i18n = { name: 'i18n', moduleName: CORE$1 };\n  Identifiers$1.i18nAttributes = { name:
'i18nAttributes', moduleName: CORE$1 };\n  Identifiers$1.i18nExp = { name: 'i18nExp', moduleName: CORE$1
};\n  Identifiers$1.i18nStart = { name: 'i18nStart', moduleName: CORE$1 };\n  Identifiers$1.i18nEnd = { name:
'i18nEnd', moduleName: CORE$1 };\n  Identifiers$1.i18nApply
= { name: 'i18nApply', moduleName: CORE$1 };\n  Identifiers$1.i18nPostprocess = { name: 'i18nPostprocess',
moduleName: CORE$1 };\n  Identifiers$1.pipe = { name: 'pipe', moduleName: CORE$1 };\n
Identifiers$1.projection = { name: 'projection', moduleName: CORE$1 };\n  Identifiers$1.projectionDef = { name:
'projectionDef', moduleName: CORE$1 };\n  Identifiers$1.reference = { name: 'reference', moduleName: CORE$1
};\n  Identifiers$1.inject = { name: 'inject', moduleName: CORE$1 };\n  Identifiers$1.injectAttribute = { name:
'injectAttribute', moduleName: CORE$1 };\n  Identifiers$1.injectPipeChangeDetectorRef = { name:

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'injectPipeChangeDetectorRef', moduleName: CORE$1 };\n  Identifiers$1.directiveInject = { name:
'directiveInject', moduleName: CORE$1 };\n  Identifiers$1.invalidFactory = { name: 'invalidFactory',
moduleName: CORE$1 };\n  Identifiers$1.invalidFactoryDep = { name: 'invalidFactoryDep', moduleName:
CORE$1 };\n  Identifiers$1.templateRefExtractor
= { name: 'templateRefExtractor', moduleName: CORE$1 };\n  Identifiers$1.resolveWindow = { name:
'resolveWindow', moduleName: CORE$1 };\n  Identifiers$1.resolveDocument = { name: 'resolveDocument',
moduleName: CORE$1 };\n  Identifiers$1.resolveBody = { name: 'resolveBody', moduleName: CORE$1 };\n
Identifiers$1.defineComponent = { name: 'defineComponent', moduleName: CORE$1 };\n
Identifiers$1.setComponentScope = { name: 'setComponentScope', moduleName: CORE$1 };\n
Identifiers$1.ComponentDefWithMeta = {\n    name: 'ComponentDefWithMeta',\n    moduleName:
CORE$1,\n  };\n  Identifiers$1.FactoryDef = {\n    name: 'FactoryDef',\n    moduleName: CORE$1,\n  };\n
Identifiers$1.defineDirective = {\n    name: 'defineDirective',\n    moduleName: CORE$1,\n  };\n
Identifiers$1.DirectiveDefWithMeta = {\n    name: 'DirectiveDefWithMeta',\n    moduleName: CORE$1,\n
  };\n  Identifiers$1.InjectorDef
= {\n    name: 'InjectorDef',\n    moduleName: CORE$1,\n  };\n  Identifiers$1.defineInjector = {\n
name: 'defineInjector',\n    moduleName: CORE$1,\n  };\n  Identifiers$1.NgModuleDefWithMeta = {\n
name: 'NgModuleDefWithMeta',\n    moduleName: CORE$1,\n  };\n  Identifiers$1.ModuleWithProviders = {\n
    name: 'ModuleWithProviders',\n    moduleName: CORE$1,\n  };\n  Identifiers$1.defineNgModule = {
name: 'defineNgModule', moduleName: CORE$1 };\n  Identifiers$1.setNgModuleScope = { name:
'setNgModuleScope', moduleName: CORE$1 };\n  Identifiers$1.PipeDefWithMeta = { name: 'PipeDefWithMeta',
moduleName: CORE$1 };\n  Identifiers$1.definePipe = { name: 'definePipe', moduleName: CORE$1 };\n
Identifiers$1.queryRefresh = { name: 'queryRefresh', moduleName: CORE$1 };\n  Identifiers$1.viewQuery = {
name: 'viewQuery', moduleName: CORE$1 };\n  Identifiers$1.staticViewQuery = { name: 'staticViewQuery',
moduleName:
CORE$1 };\n  Identifiers$1.staticContentQuery = { name: 'staticContentQuery', moduleName: CORE$1 };\n
Identifiers$1.loadQuery = { name: 'loadQuery', moduleName: CORE$1 };\n  Identifiers$1.contentQuery = { name:
'contentQuery', moduleName: CORE$1 };\n  Identifiers$1.NgOnChangesFeature = { name:
'NgOnChangesFeature', moduleName: CORE$1 };\n  Identifiers$1.InheritDefinitionFeature = { name:
'InheritDefinitionFeature', moduleName: CORE$1 };\n  Identifiers$1.CopyDefinitionFeature = { name:
'CopyDefinitionFeature', moduleName: CORE$1 };\n  Identifiers$1.ProvidersFeature = { name: 'ProvidersFeature',
moduleName: CORE$1 };\n  Identifiers$1.listener = { name: 'listener', moduleName: CORE$1 };\n
Identifiers$1.getFactoryOf = {\n    name: 'getFactoryOf',\n    moduleName: CORE$1,\n  };\n
Identifiers$1.getInheritedFactory = {\n    name: 'getInheritedFactory',\n    moduleName: CORE$1,\n  };\n //
sanitization-related functions\n  Identifiers$1.sanitizeHtml
= { name: 'sanitizeHtml', moduleName: CORE$1 };\n  Identifiers$1.sanitizeStyle = { name: 'sanitizeStyle',
moduleName: CORE$1 };\n  Identifiers$1.sanitizeResourceUrl = { name: 'sanitizeResourceUrl', moduleName:
CORE$1 };\n  Identifiers$1.sanitizeScript = { name: 'sanitizeScript', moduleName: CORE$1 };\n
Identifiers$1.sanitizeUrl = { name: 'sanitizeUrl', moduleName: CORE$1 };\n
Identifiers$1.sanitizeUrlOrResourceUrl = { name: 'sanitizeUrlOrResourceUrl', moduleName: CORE$1 };\n
Identifiers$1.trustConstantHtml = { name: 'trustConstantHtml', moduleName: CORE$1 };\n
Identifiers$1.trustConstantScript = { name: 'trustConstantScript', moduleName: CORE$1 };\n
Identifiers$1.trustConstantResourceUrl = { name: 'trustConstantResourceUrl', moduleName: CORE$1 };\n\n  /**\n
   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * \n   * Use of this source code is governed by
an MIT-style license that can be\n   * found
in the LICENSE file at https://angular.io/license\n   * \n   /**\n   * Convert an object map with `Expression`
values into a `LiteralMapExpr`.\n   * \n   function mapToMapExpression(map) {\n     var result =
Object.keys(map).map(function (key) { return ({\n       key: key,\n       // The assertion here is because really
TypeScript doesn't allow us to express that if the\n       // key is present, it will have a value, but this is true in

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reality.\n      value: map[key],\n      quoted: false,\n    }); });\n    return literalMap(result);\n  }\n  /**\n   * Convert metadata into an `Expression` in the given `OutputContext`.\n   * This operation will handle arrays, references to symbols, or literal `null` or `undefined`.\n   */\n  function convertMetaToOutput(meta, ctx) {\n    if (Array.isArray(meta)) {\n      return literalArr(meta.map(function (entry) {\n        return convertMetaToOutput(entry, ctx);\n      }));\n    }\n    if (meta instanceof StaticSymbol) {\n      return ctx.importExpr(meta);\n    }\n    if (meta == null) {\n      return literal(meta);\n    }\n    throw new Error("Internal error: Unsupported or unknown metadata: " + meta);\n  }\n  function typeWithParameters(type, numParams) {\n    if (numParams === 0) {\n      return expressionType(type);\n    }\n    var params = [];\n    for (var i = 0; i < numParams; i++) {\n      params.push(DYNAMIC_TYPE);\n    }\n    return expressionType(type, undefined, params);\n  }\n  var ANIMATE_SYMBOL_PREFIX = '@';\n  function prepareSyntheticPropertyName(name) {\n    return "\" + ANIMATE_SYMBOL_PREFIX + name;\n  }\n  function prepareSyntheticListenerName(name, phase) {\n    return "\" + ANIMATE_SYMBOL_PREFIX + name + \".\" + phase;\n  }\n  function isSyntheticPropertyOrListener(name) {\n    return name.charAt(0) == ANIMATE_SYMBOL_PREFIX;\n  }\n  function getSyntheticPropertyName(name) {\n    // this will strip out listener phase values...\n    // @foo.start => @foo\n    var i = name.indexOf('.');\n    name = i > 0 ? name.substring(0, i) : name;\n    if (name.charAt(0) !== ANIMATE_SYMBOL_PREFIX) {\n      name = ANIMATE_SYMBOL_PREFIX + name;\n    }\n    return name;\n  }\n  function prepareSyntheticListenerFunctionName(name, phase) {\n    return "animation_\" + name + \"_\" + phase;\n  }\n  function jitOnlyGuardedExpression(expr) {\n    var ngJitMode = new ExternalExpr({ name: 'ngJitMode', moduleName: null });\n    var jitFlagNotDefined = new BinaryOperatorExpr(exports.BinaryOperator.Idential, new TypeOfExpr(ngJitMode), literal('undefined'));\n    var jitFlagUndefinedOrTrue = new BinaryOperatorExpr(exports.BinaryOperator.Or, jitFlagNotDefined, ngJitMode, /* type */ undefined, /* sourceSpan */ undefined, true);\n    return new BinaryOperatorExpr(exports.BinaryOperator.And, jitFlagUndefinedOrTrue, expr);\n  }\n  function wrapReference(value) {\n    var wrapped = new WrappedNodeExpr(value);\n    return { value: wrapped, type: wrapped };\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n   */\n  var Text = /** @class */ (function () {\n    function Text(value, sourceSpan) {\n      this.value = value;\n      this.sourceSpan = sourceSpan;\n    }\n    Text.prototype.visit = function (visitor) {\n      return visitor.visitText(this);\n    };\n    return Text;\n  })();\n  var BoundText = /** @class */ (function () {\n    function BoundText(value, sourceSpan, i18n) {\n      this.value = value;\n      this.sourceSpan = sourceSpan;\n      this.i18n = i18n;\n    }\n    BoundText.prototype.visit = function (visitor) {\n      return visitor.visitBoundText(this);\n    };\n    return BoundText;\n  })();\n  var TextAttribute = /** @class */ (function () {\n    function TextAttribute(name, value, sourceSpan, valueSpan, i18n) {\n      this.name = name;\n      this.value = value;\n      this.sourceSpan = sourceSpan;\n      this.valueSpan = valueSpan;\n      this.i18n = i18n;\n    }\n    TextAttribute.prototype.visit = function (visitor) {\n      return visitor.visitTextAttribute(this);\n    };\n    return TextAttribute;\n  })();\n  var BoundAttribute = /** @class */ (function () {\n    function BoundAttribute(name, type, securityContext, value, unit, sourceSpan, keySpan, valueSpan, i18n) {\n      this.name = name;\n      this.type = type;\n      this.securityContext = securityContext;\n      this.value = value;\n      this.unit = unit;\n      this.sourceSpan = sourceSpan;\n      this.keySpan = keySpan;\n      this.valueSpan = valueSpan;\n      this.i18n = i18n;\n    }\n    BoundAttribute.fromBoundElementProperty = function (prop, i18n) {\n      if (prop.keySpan === undefined) {\n        throw new Error("Unexpected state: keySpan must be defined for bound attributes but was not for \" + prop.name + \": \" + prop.sourceSpan);\n      }\n      return new BoundAttribute(prop.name, prop.type, prop.securityContext, prop.value, prop.unit, prop.sourceSpan, prop.keySpan, prop.valueSpan, i18n);\n    }\n  });

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};\n    BoundAttribute.prototype.visit = function (visitor) {\n        return visitor.visitBoundAttribute(this);\n    };\n    return BoundAttribute;\n    }());\n    var BoundEvent = /** @class */ (function () {\n        function\n        BoundEvent(name, type, handler, target, phase, sourceSpan, handlerSpan) {\n            this.name = name;\n            this.type = type;\n            this.handler\n            = handler;\n            this.target = target;\n            this.phase = phase;\n            this.sourceSpan = sourceSpan;\n            this.handlerSpan = handlerSpan;\n        }\n        BoundEvent.fromParsedEvent = function (event) {\n            var\n            target = event.type === 0 /* Regular */ ? event.targetOrPhase : null;\n            var phase = event.type === 1 /*\n            Animation */ ? event.targetOrPhase : null;\n            return new BoundEvent(event.name, event.type, event.handler,\n            target, phase, event.sourceSpan, event.handlerSpan);\n        };\n        BoundEvent.prototype.visit = function (visitor)\n        {\n            return visitor.visitBoundEvent(this);\n        };\n        return BoundEvent;\n    }());\n    var Element = /**\n    @class */ (function () {\n        function Element(name, attributes, inputs, outputs, children, references, sourceSpan,\n        startSourceSpan, endSourceSpan, i18n) {\n            this.name = name;\n            this.attributes = attributes;\n            this.inputs =\n            inputs;\n            this.outputs = outputs;\n            this.children = children;\n            this.references = references;\n            this.sourceSpan = sourceSpan;\n            this.startSourceSpan = startSourceSpan;\n            this.endSourceSpan =\n            endSourceSpan;\n            this.i18n = i18n;\n        }\n        Element.prototype.visit = function (visitor) {\n            return visitor.visitElement(this);\n        };\n        return Element;\n    }());\n    var Template = /** @class */ (function\n    () {\n        function Template(tagName, attributes, inputs, outputs, templateAttrs, children, references, variables,\n        sourceSpan, startSourceSpan, endSourceSpan, i18n) {\n            this.tagName = tagName;\n            this.attributes =\n            attributes;\n            this.inputs = inputs;\n            this.outputs = outputs;\n            this.templateAttrs =\n            templateAttrs;\n            this.children = children;\n            this.references = references;\n            this.variables =\n            variables;\n            this.sourceSpan = sourceSpan;\n            this.startSourceSpan = startSourceSpan;\n            this.endSourceSpan\n            = endSourceSpan;\n            this.i18n = i18n;\n        }\n        Template.prototype.visit = function (visitor) {\n            return visitor.visitTemplate(this);\n        };\n        return Template;\n    }());\n    var Content = /** @class */ (function\n    () {\n        function Content(selector, attributes, sourceSpan, i18n) {\n            this.selector = selector;\n            this.attributes = attributes;\n            this.sourceSpan = sourceSpan;\n            this.i18n = i18n;\n            this.name =\n            'ng-content';\n        }\n        Content.prototype.visit = function (visitor) {\n            return visitor.visitContent(this);\n        };\n        return Content;\n    }());\n    var Variable = /** @class */ (function () {\n        function Variable(name,\n        value, sourceSpan, keySpan, valueSpan) {\n            this.name = name;\n            this.value =\n            value;\n            this.sourceSpan = sourceSpan;\n            this.keySpan = keySpan;\n            this.valueSpan =\n            valueSpan;\n        }\n        Variable.prototype.visit = function (visitor) {\n            return visitor.visitVariable(this);\n        };\n        return Variable;\n    }());\n    var Reference = /** @class */ (function () {\n        function\n        Reference(name, value, sourceSpan, valueSpan) {\n            this.name = name;\n            this.value = value;\n            this.sourceSpan = sourceSpan;\n            this.valueSpan = valueSpan;\n        }\n        Reference.prototype.visit =\n        function (visitor) {\n            return visitor.visitReference(this);\n        };\n        return Reference;\n    }());\n    var Icu = /** @class */ (function () {\n        function Icu(vars, placeholders, sourceSpan, i18n) {\n            this.vars = vars;\n            this.placeholders = placeholders;\n            this.sourceSpan = sourceSpan;\n            this.i18n = i18n;\n        }\n        Icu.prototype.visit = function (visitor) {\n            return visitor.visitIcu(this);\n        };\n        return Icu;\n    }());\n    var NullVisitor = /** @class */ (function () {\n        function NullVisitor() {\n        }\n        NullVisitor.prototype.visitElement = function (element) {\n        };\n        NullVisitor.prototype.visitTemplate = function\n        (template) {\n        };\n        NullVisitor.prototype.visitContent = function (content) {\n        };\n        NullVisitor.prototype.visitVariable = function (variable) {\n        };\n        NullVisitor.prototype.visitReference = function\n        (reference) {\n        };\n        NullVisitor.prototype.visitTextAttribute = function (attribute) {\n        };\n        NullVisitor.prototype.visitBoundAttribute = function (attribute) {\n        };\n        NullVisitor.prototype.visitBoundEvent =\n        function (attribute) {\n        };\n        NullVisitor.prototype.visitText = function (text) {\n        };\n        NullVisitor.prototype.visitBoundText = function (text) {\n        };\n        NullVisitor.prototype.visitIcu = function

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(icu) { };\n    return NullVisitor;\n    });\n    var RecursiveVisitor = /** @class */ (function () {\n        function RecursiveVisitor() {\n            RecursiveVisitor.prototype.visitElement = function (element) {\n                visitAll(this, element.attributes);\n                visitAll(this, element.children);\n                visitAll(this, element.references);\n            };\n            RecursiveVisitor.prototype.visitTemplate = function (template) {\n                visitAll(this, template.attributes);\n                visitAll(this, template.children);\n                visitAll(this, template.references);\n                visitAll(this, template.variables);\n            };\n            RecursiveVisitor.prototype.visitContent = function (content) {\n            };\n            RecursiveVisitor.prototype.visitVariable = function (variable) {\n            };\n            RecursiveVisitor.prototype.visitReference = function (reference) {\n            };\n            RecursiveVisitor.prototype.visitTextAttribute = function (attribute) {\n            };\n            RecursiveVisitor.prototype.visitBoundAttribute = function (attribute) {\n            };\n            RecursiveVisitor.prototype.visitBoundEvent = function (attribute) {\n            };\n            RecursiveVisitor.prototype.visitText = function (text) {\n            };\n            RecursiveVisitor.prototype.visitBoundText = function (text) {\n            };\n            RecursiveVisitor.prototype.visitIcu = function (icu) {\n            };\n            return RecursiveVisitor;\n        })();\n        var TransformVisitor = /** @class */ (function () {\n            function TransformVisitor() {\n            }\n            TransformVisitor.prototype.visitElement = function (element) {\n                var newAttributes = transformAll(this, element.attributes);\n                var newInputs = transformAll(this, element.inputs);\n                var newOutputs = transformAll(this, element.outputs);\n                var newChildren = transformAll(this, element.children);\n                var newReferences = transformAll(this, element.references);\n                if (newAttributes !== element.attributes ||\n                    newInputs !== element.inputs ||\n                    newOutputs !== element.outputs ||\n                    newChildren !== element.children ||\n                    newReferences !== element.references) {\n                    return new Element(element.name, newAttributes, newInputs, newOutputs, newChildren, newReferences, element.sourceSpan, element.startSourceSpan, element.endSourceSpan);\n                }\n                return element;\n            };\n            TransformVisitor.prototype.visitTemplate = function (template) {\n                var newAttributes = transformAll(this, template.attributes);\n                var newInputs = transformAll(this, template.inputs);\n                var newOutputs = transformAll(this, template.outputs);\n                var newTemplateAttrs = transformAll(this, template.templateAttrs);\n                var newChildren = transformAll(this, template.children);\n                var newReferences = transformAll(this, template.references);\n                var newVariables = transformAll(this, template.variables);\n                if (newAttributes !== template.attributes || newInputs !== template.inputs ||\n                    newOutputs !== template.outputs || newTemplateAttrs !== template.templateAttrs ||\n                    newChildren !== template.children || newReferences !== template.references ||\n                    newVariables !== template.variables) {\n                    return new Template(template.tagName, newAttributes, newInputs, newOutputs, newTemplateAttrs, newChildren, newReferences, newVariables, template.sourceSpan, template.startSourceSpan, template.endSourceSpan);\n                }\n                return template;\n            };\n            TransformVisitor.prototype.visitContent = function (content) {\n                return content;\n            };\n            TransformVisitor.prototype.visitVariable = function (variable) {\n                return variable;\n            };\n            TransformVisitor.prototype.visitReference = function (reference) {\n                return reference;\n            };\n            TransformVisitor.prototype.visitTextAttribute = function (attribute) {\n                return attribute;\n            };\n            TransformVisitor.prototype.visitBoundAttribute = function (attribute) {\n                return attribute;\n            };\n            TransformVisitor.prototype.visitBoundEvent = function (attribute) {\n                return attribute;\n            };\n            TransformVisitor.prototype.visitText = function (text) {\n                return text;\n            };\n            TransformVisitor.prototype.visitBoundText = function (text) {\n                return text;\n            };\n            TransformVisitor.prototype.visitIcu = function (icu) {\n                return icu;\n            };\n            return TransformVisitor;\n        })();\n        function visitAll(visitor, nodes) {\n            var e_1, _a, e_2, _b;\n            var result = [];\n            if (visitor.visit) {\n                try {\n                    for (var nodes_1 = __values(nodes), nodes_1_1 = nodes_1.next(); !nodes_1_1.done; nodes_1_1 = nodes_1.next()) {\n                        var node = nodes_1_1.value;\n                        var newNode = visitor.visit(node) || node.visit(visitor);\n                    }\n                } catch (e_1_1) {\n                    e_1 = { error: e_1_1 }; \n                } finally {\n                    try {\n                        if (nodes_1_1 && !nodes_1_1.done && (_a = nodes_1.return)) _a.call(nodes_1);\n                    } finally {\n                        if (e_1) throw e_1.error; \n                    }\n                }\n            }\n        }\n    })();\n}

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}\n    else {\n        try {\n            for (var nodes_2 = __values(nodes), nodes_2_1 = nodes_2.next();
!nodes_2_1.done; nodes_2_1 = nodes_2.next()) {\n                var node = nodes_2_1.value;\n                var
newNode = node.visit(visitor);\n                if (newNode) {\n                    result.push(newNode);\n
}\n            }\n            catch (e_2_1) { e_2 = { error: e_2_1 }; }\n            finally {\n                try {\n
                    if (nodes_2_1 && !nodes_2_1.done && (_b = nodes_2.return)) _b.call(nodes_2);\n
                }\n                finally { if (e_2) throw e_2.error; }\n            }\n            return result;\n        }\n    }\n    function
transformAll(visitor, nodes) {\n        var e_3, _a;\n        var result = [];\n        var changed = false;\n        try {\n
            for (var nodes_3 = __values(nodes), nodes_3_1 = nodes_3.next(); !nodes_3_1.done; nodes_3_1 = nodes_3.next())
            {\n                var node = nodes_3_1.value;\n                var newNode = node.visit(visitor);\n                if (newNode)
            {\n                result.push(newNode);\n                }\n                changed = changed || newNode !== node;\n            }\n
            catch (e_3_1) { e_3 = { error: e_3_1 }; }\n            finally {\n                try {\n                    if (nodes_3_1 &&
!nodes_3_1.done && (_a = nodes_3.return)) _a.call(nodes_3);\n                }\n                finally { if (e_3) throw e_3.error;
            }\n            }\n            return changed ? result : nodes;\n        }\n    }\n    /**\n
        * @license\n        * Copyright Google LLC All Rights Reserved.\n        * \n        * Use of this source code is governed
by an MIT-style license that can be\n        * found in the LICENSE file at https://angular.io/license\n        * \n        var
Message = /** @class */ (function () {\n        /**\n        * @param nodes message AST\n        * @param
placeholders maps placeholder names to static content and their source spans\n        * @param
placeholderToMessage maps placeholder names to messages (used for nested ICU messages)\n        * @param
meaning\n        * @param description\n        * @param customId\n        * \n        function Message(nodes,
placeholders, placeholderToMessage, meaning, description, customId) {\n            this.nodes = nodes;\n
            this.placeholders = placeholders;\n            this.placeholderToMessage = placeholderToMessage;\n
            this.meaning = meaning;\n            this.description = description;\n            this.customId = customId;\n
            this.id = this.customId;\n            /** The ids to use if there are no custom id and if
`i18nLegacyMessageIdFormat` is not empty */\n            this.legacyIds = [];\n            if (nodes.length) {\n
                this.sources = [{\n                    filePath: nodes[0].sourceSpan.start.file.url,\n                    startLine:
nodes[0].sourceSpan.start.line + 1,\n                    startCol: nodes[0].sourceSpan.start.col + 1,\n
                    endLine: nodes[nodes.length - 1].sourceSpan.end.line + 1,\n                    endCol: nodes[0].sourceSpan.start.col +
1\n                }];\n            }\n            else {\n                this.sources = [];\n            }\n            return Message;\n
        }());\n        var Text$1 = /** @class */ (function () {\n            function Text(value, sourceSpan) {\n                this.value =
value;\n                this.sourceSpan = sourceSpan;\n            }\n            Text.prototype.visit = function (visitor, context)
            {\n                return visitor.visitText(this, context);\n            };\n            return Text;\n        }());\n        // TODO(vic): do we
really need this node (vs an array) ?\n        var Container = /** @class */ (function () {\n            function
Container(children, sourceSpan) {\n                this.children = children;\n                this.sourceSpan = sourceSpan;\n
            }\n            Container.prototype.visit = function (visitor, context) {\n                return visitor.visitContainer(this,
context);\n            };\n            return Container;\n        }());\n        var Icu$1 = /** @class */ (function () {\n            function
Icu(expression, type, cases, sourceSpan) {\n                this.expression = expression;\n                this.type = type;\n
                this.cases = cases;\n                this.sourceSpan = sourceSpan;\n            }\n            Icu.prototype.visit = function (visitor,
context) {\n                return visitor.visitIcu(this, context);\n            };\n            return Icu;\n        }());\n        var TagPlaceholder =
/** @class
        */ (function () {\n            function TagPlaceholder(tag, attrs, startName, closeName, children, isVoid, \n            // TODO
sourceSpan should cover all (we need a startSourceSpan and endSourceSpan)\n            sourceSpan, startSourceSpan,
endSourceSpan) {\n                this.tag = tag;\n                this.attrs = attrs;\n                this.startName = startName;\n
                this.closeName = closeName;\n                this.children = children;\n                this.isVoid = isVoid;\n
                this.sourceSpan = sourceSpan;\n                this.startSourceSpan = startSourceSpan;\n                this.endSourceSpan =
endSourceSpan;\n            }\n            TagPlaceholder.prototype.visit = function (visitor, context) {\n                return
visitor.visitTagPlaceholder(this, context);\n            };\n            return TagPlaceholder;\n        }());\n        var Placeholder = /**
        @class */ (function () {\n            function Placeholder(value, name, sourceSpan) {\n                this.value = value;\n
                this.name = name;\n

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    this.sourceSpan = sourceSpan;\n    }\n    Placeholder.prototype.visit = function (visitor, context) {\n
return visitor.visitPlaceholder(this, context);\n    };\n    return Placeholder;\n    }());\n    var IcuPlaceholder =
/** @class */ (function () {\n    function IcuPlaceholder(value, name, sourceSpan) {\n        this.value = value;\n
        this.name = name;\n        this.sourceSpan = sourceSpan;\n    }\n    IcuPlaceholder.prototype.visit =
function (visitor, context) {\n        return visitor.visitIcuPlaceholder(this, context);\n    };\n    return
IcuPlaceholder;\n    }());\n    // Clone the AST\n    var CloneVisitor = /** @class */ (function () {\n    function
CloneVisitor() {\n    }\n    CloneVisitor.prototype.visitText = function (text, context) {\n        return new
Text$1(text.value, text.sourceSpan);\n    };\n    CloneVisitor.prototype.visitContainer = function (container,
context) {\n
        var _this = this;\n        var children = container.children.map(function (n) { return n.visit(_this, context);
});\n        return new Container(children, container.sourceSpan);\n    };\n    CloneVisitor.prototype.visitIcu =
function (icu, context) {\n        var _this = this;\n        var cases = {};\n
Object.keys(icu.cases).forEach(function (key) { return cases[key] = icu.cases[key].visit(_this, context); });\n
var msg = new Icu$1(icu.expression, icu.type, cases, icu.sourceSpan);\n        msg.expressionPlaceholder =
icu.expressionPlaceholder;\n        return msg;\n    };\n    CloneVisitor.prototype.visitTagPlaceholder =
function (ph, context) {\n        var _this = this;\n        var children = ph.children.map(function (n) { return
n.visit(_this, context); });\n        return new TagPlaceholder(ph.tag, ph.attrs, ph.startName, ph.closeName,
children, ph.isVoid, ph.sourceSpan, ph.startSourceSpan, ph.endSourceSpan);\n
    };\n    CloneVisitor.prototype.visitPlaceholder = function (ph, context) {\n        return new
Placeholder(ph.value, ph.name, ph.sourceSpan);\n    };\n    CloneVisitor.prototype.visitIcuPlaceholder =
function (ph, context) {\n        return new IcuPlaceholder(ph.value, ph.name, ph.sourceSpan);\n    };\n
return CloneVisitor;\n    }());\n    // Visit all the nodes recursively\n    var RecurseVisitor = /** @class */ (function ()
{\n    function RecurseVisitor() {\n    }\n    RecurseVisitor.prototype.visitText = function (text, context) {\n
    };\n    RecurseVisitor.prototype.visitContainer = function (container, context) {\n        var _this = this;\n
container.children.forEach(function (child) { return child.visit(_this); });\n    };\n
RecurseVisitor.prototype.visitIcu = function (icu, context) {\n        var _this = this;\n
Object.keys(icu.cases).forEach(function (k) {\n
        icu.cases[k].visit(_this);\n    });\n    };\n    RecurseVisitor.prototype.visitTagPlaceholder = function (ph,
context) {\n        var _this = this;\n        ph.children.forEach(function (child) { return child.visit(_this); });\n
    };\n    RecurseVisitor.prototype.visitPlaceholder = function (ph, context) {\n    };\n
RecurseVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n    };\n    return RecurseVisitor;\n    }());\n
    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     *\n     * Use of this source code is
governed by an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n
    /**\n     * Represents a big integer using a buffer of its individual digits, with the least significant\n     * digit stored
at the beginning of the array (little endian).\n     *\n     * For performance reasons, each instance is mutable. The
addition operation can be done in-place\n
     * to reduce memory pressure of allocation for the digits array.\n     */\n    var BigInteger = /** @class */
(function () {\n    /**\n     * Creates a big integer using its individual digits in little endian storage.\n     */\n
    function BigInteger(digits) {\n        this.digits = digits;\n    }\n    BigInteger.zero = function () {\n
return new BigInteger([0]);\n    };\n    BigInteger.one = function () {\n        return new BigInteger([1]);\n    };\n
    /**\n     * Creates a clone of this instance.\n     */\n    BigInteger.prototype.clone = function () {\n
return new BigInteger(this.digits.slice());\n    };\n    /**\n     * Returns a new big integer with the sum of
`this` and `other` as its value. This does not mutate\n     * `this` but instead returns a new instance, unlike
`addToSelf`.\n     */\n    BigInteger.prototype.add = function (other) {\n        var result
= this.clone();\n        result.addToSelf(other);\n        return result;\n    };\n    /**\n     * Adds `other` to
the instance itself, thereby mutating its value.\n     */\n    BigInteger.prototype.addToSelf = function (other) {\n
        var maxNrOfDigits = Math.max(this.digits.length, other.digits.length);\n        var carry = 0;\n        for (var
i = 0; i < maxNrOfDigits; i++) {\n            var digitSum = carry;\n            if (i < this.digits.length) {\n

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digitSum += this.digits[i];\n          }\n          if (i < other.digits.length) {\n              digitSum +=\nother.digits[i];\n          }\n          if (digitSum >= 10) {\n              this.digits[i] = digitSum - 10;\n              carry = 1;\n          }\n          else {\n              this.digits[i] = digitSum;\n              carry = 0;\n          }\n          }\n          // Apply a\nremaining carry if needed.\n          if (carry > 0) {\n              this.digits[maxNrOfDigits] = 1;\n          }\n          };\n          /**\n           * Builds the decimal string representation of the big integer. As this is stored in\n           * little endian,\nthe digits are concatenated in reverse order.\n          */\n          BigInteger.prototype.toString = function () {\nvar res = "";\n          for (var i = this.digits.length - 1; i >= 0; i--) {\n              res += this.digits[i];\n          }\nreturn res;\n          };\n          return BigInteger;\n      }());\n      /**\n       * Represents a big integer which is optimized for\nmultiplication operations, as its power-of-twos\n       * are memoized. See `multiplyBy()` for details on the\nmultiplication algorithm.\n      */\n      var BigIntForMultiplication = /** @class */ (function () {\n          function\nBigIntForMultiplication(value) {\n              this.powerOfTwos = [value];\n          }\n          /**\n           * Returns the big integer itself.\n          */\n          BigIntForMultiplication.prototype.getValue = function () {\nreturn this.powerOfTwos[0];\n          };\n          /**\n           * Computes the value for `num * b`, where `num` is a JS\nnumber and `b` is a big integer. The\n           * value for `b` is represented by a storage model that is optimized for this\ncomputation.\n           *\n           * This operation is implemented in N(log2(num)) by continuous halving of the\nnumber, where the\n           * least-significant bit (LSB) is tested in each iteration. If the bit is set, the bit's index is\n           * used as exponent into the power-of-two multiplication of `b`.\n           *\n           * As an example, consider the\nmultiplication num=42, b=1337. In binary 42 is 0b00101010 and the\n           * algorithm unrolls into the following\niterations:\n           *\n           * Iteration | num | LSB | b * 2^iter | Add? | product\n           * -----|-----|-----\n           * 0 | 0b00101010 | 0 | 1337 | No | 0\n           * 1 | 0b00010101 | 1 | 2674 | Yes | 2674\n           * 2 | 0b00001010 | 0 | 5348 | No | 2674\n           * 3 | 0b00000101 | 1 | 10696 | Yes | 13370\n           * 4 | 0b00000010 | 0 | 21392 | No | 13370\n           * 5 | 0b00000001 | 1 | 42784 | Yes | 56154\n           * 6 | 0b00000000 | 0 | 85568 | No | 56154\n           *\n           * The computed product of\n56154 is indeed the correct result.\n           *\n           * The `BigIntForMultiplication` representation for a big integer\nprovides memoized access to the\n           * power-of-two values to reduce the workload in computing those values.\n          */\n          BigIntForMultiplication.prototype.multiplyBy = function (num) {\nvar product =\nBigInteger.zero();\n              this.multiplyByAndAddTo(num, product);\n              return\nproduct;\n          };\n          /**\n           * See `multiplyBy()` for details. This function allows for the computed product\nto be added\n           * directly to the provided result big integer.\n          */\n          BigIntForMultiplication.prototype.multiplyByAndAddTo = function (num, result) {\n          for (var exponent = 0;\nnum !== 0; num = num >>> 1, exponent++) {\n              if (num & 1) {\n                  var value =\nthis.getMultipliedByPowerOfTwo(exponent);\n                  result.addToSelf(value);\n              }\n          }\n          /**\n           * Computes and memoizes the big integer value for `this.number * 2^exponent`.\n          */\n          BigIntForMultiplication.prototype.getMultipliedByPowerOfTwo = function (exponent) {\n          // Compute the\npowers up until the requested exponent, where each value is computed from its\n          // predecessor. This is\nsimple as `this.number * 2^(exponent - 1)` only has to be doubled (i.e.\n          // added to itself) to reach `this.number * 2^exponent`.\n          for (var i = this.powerOfTwos.length; i <=\nexponent; i++) {\n              var previousPower = this.powerOfTwos[i - 1];\n              this.powerOfTwos[i] =\npreviousPower.add(previousPower);\n          }\n          return this.powerOfTwos[exponent];\n          };\n          return\nBigIntForMultiplication;\n      }());\n      /**\n       * Represents an exponentiation operation for the provided base, of\nwhich exponents are computed and\n       * memoized. The results are represented by a `BigIntForMultiplication`\nwhich is tailored for\n       * multiplication operations by memoizing the power-of-twos. This effectively results in a\nmatrix\n       * representation that is lazily computed upon request.\n      */\n      var BigIntExponentiation = /** @class\n      */ (function () {\n          function BigIntExponentiation(base) {\n              this.base = base;\n              this.exponents =\n[new BigIntForMultiplication(BigInteger.one)];\n          }\n      }

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    }\n    /**\n    * Compute the value for `this.base^exponent`, resulting in a big integer that is optimized
for\n    * further multiplication operations.\n    */\n    BigIntExponentiation.prototype.toThePowerOf =
function (exponent) {\n    // Compute the results up until the requested exponent, where every value is
computed from its\n    // predecessor. This is because `this.base^(exponent - 1)` only has to be multiplied by
`base`\n    // to reach `this.base^exponent`.\n    for (var i = this.exponents.length; i <= exponent; i++) {\n
        var value = this.exponents[i - 1].multiplyBy(this.base);\n        this.exponents[i] = new
BigIntForMultiplication(value);\n    }\n    return this.exponents[exponent];\n    };\n    return
BigIntExponentiation;\n    }());\n\n    /**\n    * Return the message id or compute it using the XLIFF1 digest.\n
*/\n    function digest(message) {\n
        return message.id || computeDigest(message);\n    }\n    /**\n    * Compute the message id using the XLIFF1
digest.\n    */\n    function computeDigest(message) {\n    return sha1(serializeNodes(message.nodes).join("") +
("\n[" + message.meaning + "\n]"));}\n    }\n    /**\n    * Return the message id or compute it using the
XLIFF2/XMB/$localize digest.\n    */\n    function decimalDigest(message) {\n    return message.id ||
computeDecimalDigest(message);\n    }\n    /**\n    * Compute the message id using the XLIFF2/XMB/$localize
digest.\n    */\n    function computeDecimalDigest(message) {\n    var visitor = new
_SerializerIgnoreIcuExpVisitor();\n    var parts = message.nodes.map(function (a) { return a.visit(visitor, null);
});\n    return computeMsgId(parts.join(""), message.meaning);\n    }\n    /**\n    * Serialize the i18n ast to
something xml-like in order to generate an UID.\n    */\n    * The visitor is also used in the i18n parser tests\n
*/\n    * @internal\n    */\n    var _SerializerVisitor = /** @class */ (function () {\n    function
_SerializerVisitor() {\n    }\n    _SerializerVisitor.prototype.visitText = function (text, context) {\n    return
text.value;\n    };\n    _SerializerVisitor.prototype.visitContainer = function (container, context) {\n    var
_this = this;\n    return "\n[" + container.children.map(function (child) { return child.visit(_this); }).join(', ') +
"\n]";\n    };\n    _SerializerVisitor.prototype.visitIcu = function (icu, context) {\n    var _this = this;\n
var strCases = Object.keys(icu.cases).map(function (k) { return k + "\n {" + icu.cases[k].visit(_this) + "\n}"; });\n
    return "\n {" + icu.expression + "\n, " + icu.type + "\n, " + strCases.join(', ') + "\n}";\n    };\n
_SerializerVisitor.prototype.visitTagPlaceholder = function (ph, context) {\n    var _this = this;\n    return
ph.isVoid
? "\n    \n<ph tag name=\\\"\\\" + ph.startName + "\\\"/>\" :\n    \n<ph tag name=\\\"\\\" + ph.startName +
\\\"/>\" + ph.children.map(function (child) { return child.visit(_this); }).join(', ') + "\n<ph name=\\\"\\\" +
ph.closeName + "\\\"/>";\n    };\n    _SerializerVisitor.prototype.visitPlaceholder = function (ph, context) {\n
    return ph.value ? "\n<ph name=\\\"\\\" + ph.name + "\\\"/>\" + ph.value + "\n</ph>\" : "\n<ph name=\\\"\\\" + ph.name
+ "\\\"/>";\n    };\n    _SerializerVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n    return
"\n<ph icu name=\\\"\\\" + ph.name + "\\\"/>\" + ph.value.visit(this) + "\n</ph>";\n    };\n    return
_SerializerVisitor;\n    }());\n    var serializerVisitor = new _SerializerVisitor();\n    function serializeNodes(nodes)
{\n    return nodes.map(function (a) { return a.visit(serializerVisitor, null); });\n    }\n    /**\n    * Serialize the
i18n ast to something xml-like
in order to generate an UID.\n    */\n    * Ignore the ICU expressions so that message IDs stays identical if only the
expression changes.\n    */\n    * @internal\n    */\n    var _SerializerIgnoreIcuExpVisitor = /** @class */ (function
(_super) {\n    __extends(_SerializerIgnoreIcuExpVisitor, _super);\n    function
_SerializerIgnoreIcuExpVisitor() {\n    return _super !== null && _super.apply(this, arguments) || this;\n
}\n    _SerializerIgnoreIcuExpVisitor.prototype.visitIcu = function (icu, context) {\n    var _this = this;\n
var strCases = Object.keys(icu.cases).map(function (k) { return k + "\n {" + icu.cases[k].visit(_this) + "\n}"; });\n
    // Do not take the expression into account\n    return "\n {" + icu.type + "\n, " + strCases.join(', ') + "\n}";\n
};\n    return _SerializerIgnoreIcuExpVisitor;\n    }(_SerializerVisitor);\n    /**\n    * Compute the SHA1 of the
given string\n    */\n    *
see http://csrc.nist.gov/publications/fips/fips180-4/fips-180-4.pdf\n    */\n    * WARNING: this function has not
been designed not tested with security in mind.\n    * DO NOT USE IT IN A SECURITY SENSITIVE
CONTEXT.\n    */\n    function sha1(str) {\n    var utf8 = utf8Encode(str);\n    var words32 =

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bytesToWords32(utf8, Endian.Big);\n    var len = utf8.length * 8;\n    var w = newArray(80);\n    var a =
0x67452301, b = 0xefcdab89, c = 0x98badcfe, d = 0x10325476, e = 0xc3d2e1f0);\n    words32[len >> 5] |= 0x80
<< (24 - len % 32);\n    words32[((len + 64 >> 9) << 4) + 15] = len;\n    for (var i = 0; i < words32.length; i +=
16) {\n        var h0 = a, h1 = b, h2 = c, h3 = d, h4 = e;\n        for (var j = 0; j < 80; j++) {\n            if (j < 16)
{\n                w[j] = words32[i + j];\n            }\n            else {\n                w[j] = rol32(w[j - 3] ^ w[j - 8] ^
w[j - 14] ^ w[j - 16], 1);\n            }\n\n            var fkVal = fk(j, b, c, d);\n            var f = fkVal[0];\n            var k = fkVal[1];\n            var temp =
[rol32(a, 5), f, e, k, w[j]].reduce(add32);\n            e = d;\n            d = c;\n            c = rol32(b, 30);\n            b = a;\n            a = temp;\n            }\n            a = add32(a, h0);\n            b = add32(b, h1);\n            c = add32(c,
h2);\n            d = add32(d, h3);\n            e = add32(e, h4);\n            }\n            return
bytesToHexString(words32ToByteString([a, b, c, d, e]));\n        }\n        function fk(index, b, c, d) {\n            if (index < 20)
{\n                return [(b & c) | (~b & d), 0x5a827999];\n            }\n            if (index < 40) {\n                return [b ^ c ^ d,
0x6ed9eba1];\n            }\n            if (index < 60) {\n                return [(b & c) | (b & d) | (c & d), 0x8f1bbcdc];\n            }\n            return [b ^ c ^ d, 0xca62c1d6];\n        }\n        /**\n         * Compute the fingerprint of the given string\n
         *\n         * The output is 64 bit number encoded as a decimal string\n         *\n         * based on:\n         *
https://github.com/google/closure-
compiler/blob/master/src/com/google/javascript/jscomp/GoogleJsMessageIdGenerator.java\n         *\n         function
fingerprint(str) {\n            var utf8 = utf8Encode(str);\n            var hi = hash32(utf8, 0);\n            var lo = hash32(utf8,
102072);\n            if (hi == 0 && (lo == 0 || lo == 1)) {\n                hi = hi ^ 0x130f9bef;\n                lo = lo ^ -
0x6b5f56d8;\n            }\n            return [hi, lo];\n        }\n        function computeMsgId(msg, meaning) {\n            if (meaning
=== void 0) { meaning = "; }\n            var msgFingerprint = fingerprint(msg);\n            if (meaning) {\n                var
meaningFingerprint = fingerprint(meaning);\n                msgFingerprint = add64(rol64(msgFingerprint, 1),
meaningFingerprint);\n            }\n            var hi = msgFingerprint[0];\n            var lo = msgFingerprint[1];\n            return
wordsToDecimalString(hi & 0x7fffffff, lo);\n\n            }\n            function hash32(bytes, c) {\n                var a = 0x9e3779b9, b = 0x9e3779b9;\n                var i;\n                var len =
bytes.length;\n                for (i = 0; i + 12 <= len; i += 12) {\n                    a = add32(a, wordAt(bytes, i, Endian.Little));\n                    b = add32(b, wordAt(bytes, i + 4, Endian.Little));\n                    c = add32(c, wordAt(bytes, i + 8, Endian.Little));\n                    var res = mix(a, b, c);\n                    a = res[0], b = res[1], c = res[2];\n                }\n                a = add32(a, wordAt(bytes, i,
Endian.Little));\n                b = add32(b, wordAt(bytes, i + 4, Endian.Little));\n                // the first byte of c is reserved for the
length\n                c = add32(c, len);\n                c = add32(c, wordAt(bytes, i + 8, Endian.Little) << 8);\n                return mix(a, b,
c)[2];\n            }\n            // clang-format off\n            function mix(a, b, c) {\n                a = sub32(a, b);\n                a = sub32(a, c);\n                a
^= c >>> 13;\n                b = sub32(b, c);\n                b = sub32(b, a);\n                b ^= a << 8;\n                c = sub32(c, a);\n\n                c = sub32(c, b);\n                c ^= b >>> 13;\n                a = sub32(a, b);\n                a = sub32(a, c);\n                a ^= c >>> 12;\n                b = sub32(b, c);\n                b = sub32(b, a);\n                b ^= a << 16;\n                c = sub32(c, a);\n                c = sub32(c, b);\n                c ^=
b >>> 5;\n                a = sub32(a, b);\n                a = sub32(a, c);\n                a ^= c >>> 3;\n                b = sub32(b, c);\n                b = sub32(b,
a);\n                b ^= a << 10;\n                c = sub32(c, a);\n                c = sub32(c, b);\n                c ^= b >>> 15;\n                return [a, b, c];\n            }\n            // clang-format on\n            // Utils\n            var Endian;\n            (function (Endian) {\n                Endian[Endian["Little"] = 0] =
"Little";\n                Endian[Endian["Big"] = 1] = "Big";\n            })(Endian || (Endian = {}));\n            function add32(a, b) {\n                return add32to64(a, b)[1];\n            }\n            function add32to64(a, b) {\n                var low = (a & 0xffff) + (b & 0xffff);\n                var high = (a >>> 16) + (b >>> 16) + (low >>> 16);\n                return [high >>> 16, (high
<< 16) | (low & 0xffff)];\n            }\n            function add64(a, b) {\n                var ah = a[0], al = a[1];\n                var bh = b[0], bl =
b[1];\n                var result = add32to64(al, bl);\n                var carry = result[0];\n                var l = result[1];\n                var h =
add32(add32(ah, bh), carry);\n                return [h, l];\n            }\n            function sub32(a, b) {\n                var low = (a & 0xffff) - (b &
0xffff);\n                var high = (a >> 16) - (b >> 16) + (low >> 16);\n                return (high << 16) | (low & 0xffff);\n            }\n            //
Rotate a 32b number left `count` position\n            function rol32(a, count) {\n                return (a << count) | (a >>> (32 -
count));\n            }\n            // Rotate a 64b number left `count` position\n            function rol64(num, count) {\n                var hi =
num[0], lo = num[1];\n                var h = (hi << count) | (lo >>> (32 - count));\n                var l = (lo << count) | (hi >>> (32 -
count));\n                return [h, l];\n            }\n            function bytesToWords32(bytes, endian) {\n                var size = (bytes.length + 3)

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>>> 2;\n
    var words32 = [];\n    for (var i = 0; i < size; i++) {\n        words32[i] = wordAt(bytes, i * 4, endian);\n    }\n    return words32;\n } \n function byteAt(bytes, index) {\n    return index >= bytes.length ? 0 : \n    bytes[index];\n } \n function wordAt(bytes, index, endian) {\n    var word = 0;\n    if (endian === \n    Endian.Big) {\n        for (var i = 0; i < 4; i++) {\n            word += byteAt(bytes, index + i) << (24 - 8 * i);\n        }\n    } \n    else {\n        for (var i = 0; i < 4; i++) {\n            word += byteAt(bytes, index + i) << 8 * i;\n        }\n    }\n    return word;\n } \n function words32ToByteString(words32) {\n    return \n    words32.reduce(function (bytes, word) { return bytes.concat(word32ToByteString(word)); }, []);\n } \n function \n    word32ToByteString(word) {\n        var bytes = [];\n        for (var i = 0; i < 4; i++) {\n            bytes.push((word >>> \n            8 * (3 - i)) & \n            0xff);\n        }\n        return bytes;\n } \n function bytesToHexString(bytes) {\n    var hex = '';\n    for (var i = \n    0; i < bytes.length; i++) {\n        var b = byteAt(bytes, i);\n        hex += (b >>> 4).toString(16) + (b & \n        0x0f).toString(16);\n    }\n    return hex.toLowerCase();\n } \n /**\n  * Create a shared exponentiation pool \n  * for base-256 computations. This shared pool provides memoized\n  * power-of-256 results with memoized power-\n  * of-two computations for efficient multiplication.\n  * \n  * For our purposes, this can be safely stored as a global \n  * without memory concerns. The reason is\n  * that we encode two words, so only need the 0th (for the low word) \n  * and 4th (for the high word)\n  * exponent.\n  */\n    var base256 = new BigIntExponentiation(256);\n    /**\n  * Represents two 32-bit words as a single decimal number. This requires a big integer storage\n  * model as JS \n  * numbers are not accurate enough to represent \n  * the 64-bit number.\n  */\n    * Based on http://www.danvk.org/hex2dec.html\n    */\n    function \n    wordsToDecimalString(hi, lo) {\n        // Encode the four bytes in lo in the lower digits of the decimal number.\n        // Note: the multiplication results in lo itself but represented by a big integer using its\n        // decimal digits.\n        var decimal = base256.toThePowerOf(0).multiplyBy(lo);\n        // Encode the four bytes in hi above the four lo \n        bytes. lo is a maximum of (2^8)^4, which is why\n        // this multiplication factor is applied.\n        base256.toThePowerOf(4).multiplyByAndAddTo(hi, decimal);\n        return decimal.toString();\n    }\n\n    var \n    Serializer = /** @class */ (function () {\n        function Serializer() {\n        }\n        // Creates a name mapper, see \n        `PlaceholderMapper`\n        // Returning `null` means that no name mapping is used.\n        Serializer.prototype.createNameMapper = function (message) {\n            return null;\n        }\n        ;\n        return Serializer;\n    }());\n    /**\n  * A simple mapper that take a function to transform an internal \n  * name to a public name\n  */\n    var SimplePlaceholderMapper = /** @class */ (function (_super) {\n        __extends(SimplePlaceholderMapper, _super);\n        // create a mapping from the message\n        function \n        SimplePlaceholderMapper(message, mapName) {\n            var _this = _super.call(this) || this;\n            _this.mapName = mapName;\n            _this.internalToPublic = {};\n            _this.publicToNextId = {};\n            _this.publicToInternal = {};\n            message.nodes.forEach(function (node) { return node.visit(_this); });\n            return _this;\n        }\n        SimplePlaceholderMapper.prototype.toPublicName = function (internalName) {\n            return this.internalToPublic.hasOwnProperty(internalName) ?\n                this.internalToPublic[internalName] :\n                null;\n        }\n        SimplePlaceholderMapper.prototype.toInternalName \n        = function (publicName) {\n            return this.publicToInternal.hasOwnProperty(publicName) ? \n            this.publicToInternal[publicName] :\n                null;\n        }\n        ;\n        SimplePlaceholderMapper.prototype.visitText = \n        function (text, context) {\n            return null;\n        }\n        ;\n        SimplePlaceholderMapper.prototype.visitTagPlaceholder = function (ph, context) {\n            this.visitPlaceholderName(ph.startName);\n            _super.prototype.visitTagPlaceholder.call(this, ph, context);\n            this.visitPlaceholderName(ph.closeName);\n        }\n        ;\n        SimplePlaceholderMapper.prototype.visitPlaceholder \n        = function (ph, context) {\n            this.visitPlaceholderName(ph.name);\n        }\n        ;\n        SimplePlaceholderMapper.prototype.visitIcuPlaceholder = function (ph, context) {\n            this.visitPlaceholderName(ph.name);\n        }\n        ;\n        // XMB placeholders could only contains A-Z, 0-9 and _\n        SimplePlaceholderMapper.prototype.visitPlaceholderName

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= function (internalName) {\n      if (!internalName || this.internalToPublic.hasOwnProperty(internalName)) {\n
      return;\n      }\n      var publicName = this.mapName(internalName);\n      if
(this.publicToInternal.hasOwnProperty(publicName)) {\n      // Create a new XMB when it has already been
used\n      var nextId = this.publicToNextId[publicName];\n      this.publicToNextId[publicName] =
nextId + 1;\n      publicName = publicName + \"_\" + nextId;\n      }\n      else {\n
this.publicToNextId[publicName] = 1;\n      }\n      this.internalToPublic[internalName] = publicName;\n
      this.publicToInternal[publicName] = internalName;\n      };\n      return SimplePlaceholderMapper;\n
}(RecurseVisitor));\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of
this source code is governed by
an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var
_Visitor = /** @class */ (function () {\n      function _Visitor() {\n      }\n      _Visitor.prototype.visitTag =
function (tag) {\n      var _this = this;\n      var strAttrs = this._serializeAttributes(tag.attrs);\n      if
(tag.children.length === 0) {\n      return \"<\" + tag.name + strAttrs + \"/>\";\n      }\n      var strChildren
= tag.children.map(function (node) { return node.visit(_this); });\n      return \"<\" + tag.name + strAttrs + \">\" +
strChildren.join(\"\" + \"<\" + tag.name + \">\";\n      };\n      _Visitor.prototype.visitText = function (text) {\n
return text.value;\n      };\n      _Visitor.prototype.visitDeclaration = function (decl) {\n      return \"<?xml\" +
this._serializeAttributes(decl.attrs) + \" ?>\";\n      };\n      _Visitor.prototype._serializeAttributes = function
(attrs) {\n      var strAttrs = Object.keys(attrs).map(function (name) { return name + \"=\\\"\" + attrs[name] +
\"\\\"\";\n      }).join(' '); \n      return strAttrs.length > 0 ? ' ' + strAttrs : \"\";\n      };\n
_Visitor.prototype.visitDoctype = function (doctype) {\n      return \"<!DOCTYPE \" + doctype.rootTag + \"
[\\n\" + doctype.dtd + \"\\n]>\";\n      };\n      return _Visitor;\n      }());\n      var _visitor = new _Visitor();\n
function serialize(nodes) {\n      return nodes.map(function (node) { return node.visit(_visitor); }).join(\"\";\n      }\n
var Declaration = /** @class */ (function () {\n      function Declaration(unescapedAttrs) {\n      var _this =
this;\n      this.attrs = {};\n      Object.keys(unescapedAttrs).forEach(function (k) {\n      _this.attrs[k] =
escapeXml(unescapedAttrs[k]);\n      });\n      }\n      Declaration.prototype.visit = function (visitor) {\n
return visitor.visitDeclaration(this);\n      }\n      return Declaration;\n      }());\n      var Doctype = /** @class */ (function () {\n      function
Doctype(rootTag, dtd) {\n      this.rootTag = rootTag;\n      this.dtd = dtd;\n      }\n      Doctype.prototype.visit = function (visitor) {\n      return visitor.visitDoctype(this);\n      };\n      return
Doctype;\n      }());\n      var Tag = /** @class */ (function () {\n      function Tag(name, unescapedAttrs, children)
{\n      var _this = this;\n      if (unescapedAttrs === void 0) { unescapedAttrs = {};\n      }\n      if (children
=== void 0) { children = [];\n      }\n      this.name = name;\n      this.children = children;\n      this.attrs = {};\n      Object.keys(unescapedAttrs).forEach(function (k) {\n      _this.attrs[k] =
escapeXml(unescapedAttrs[k]);\n      });\n      }\n      Tag.prototype.visit = function (visitor) {\n      return
visitor.visitTag(this);\n      }\n      return Tag;\n      }());\n      var Text$2 = /** @class */ (function () {\n      function
Text(unescapedValue) {\n      this.value = escapeXml(unescapedValue);\n      }\n      Text.prototype.visit =
function (visitor) {\n      return visitor.visitText(this);\n      };\n      return Text;\n      }());\n      var CR = /**
@class */ (function (_super) {\n      __extends(CR, _super);\n      function CR(ws) {\n      if (ws === void 0) {\n
ws = 0;\n      }\n      return _super.call(this, \"\\n\" + new Array(ws + 1).join(' ')) || this;\n      }\n      return CR;\n
}(Text$2));\n      var _ESCAPED_CHARS = [\n      [\"&\", '&'],\n      [\"'\", '"'],\n      [\"'\", '''],\n
[\"<\", '<'],\n      [\">\", '>'],\n      ];\n      // Escape ` _ESCAPED_CHARS` characters in the given text with
encoded entities\n      function escapeXml(text) {\n      return _ESCAPED_CHARS.reduce(function (text, entry) {\n
return text.replace(entry[0],
entry[1]);\n      }, text);\n      }\n      var _MESSAGES_TAG = 'messagebundle';\n      var _MESSAGE_TAG = 'msg';\n
var _PLACEHOLDER_TAG = 'ph';\n      var _EXAMPLE_TAG = 'ex';\n      var _SOURCE_TAG = 'source';\n      var
_DOCTYPE = \"<!ELEMENT messagebundle (msg)*>\\n<ATTLIST messagebundle class CDATA
#IMPLIED>\\n\\n<!ELEMENT msg (#PCDATA|ph|source)*>\\n<ATTLIST msg id CDATA

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#IMPLIED>\n<!ATTLIST msg seq CDATA #IMPLIED>\n<!ATTLIST msg name CDATA
#IMPLIED>\n<!ATTLIST msg desc CDATA #IMPLIED>\n<!ATTLIST msg meaning CDATA
#IMPLIED>\n<!ATTLIST msg obsolete (obsolete) #IMPLIED>\n<!ATTLIST msg xml:space (default|preserve)
||"default||">\n<!ATTLIST msg is_hidden CDATA #IMPLIED>\n\n<!ELEMENT source
(PCDATA)>\n\n<!ELEMENT ph (PCDATA|ex)*>\n\n<!ATTLIST ph name CDATA
#REQUIRED>\n\n\n<!ELEMENT ex (PCDATA)>>";\n    var Xmb = /** @class */ (function (_super) {\n
__extends(Xmb, _super);\n        function Xmb() {\n            return _super !== null && _super.apply(this, arguments)
|| this;\n
        }\n        Xmb.prototype.write = function (messages, locale) {\n            var exampleVisitor = new
ExampleVisitor();\n            var visitor = new _Visitor$1();\n            var rootNode = new
Tag(_MESSAGES_TAG);\n            messages.forEach(function (message) {\n                var attrs = { id: message.id
};\n                if (message.description) {\n                    attrs['desc'] = message.description;\n                }\n                if
(message.meaning) {\n                    attrs['meaning'] = message.meaning;\n                }\n                var sourceTags =
[];\n                message.sources.forEach(function (source) {\n                    sourceTags.push(new
Tag(_SOURCE_TAG, {}, [new Text$2(source.filePath + '\\:' + source.startLine + (source.endLine !==
source.startLine ? ',' + source.endLine : '))));\n                });\n                rootNode.children.push(new CR(2), new
Tag(_MESSAGE_TAG, attrs, __spread(sourceTags, visitor.serialize(message.nodes)));\n
                });\n                rootNode.children.push(new CR());\n                return serialize([\n                    new Declaration({
version: '1.0', encoding: 'UTF-8' }),\n                    new CR(),\n                    new Doctype(_MESSAGES_TAG,
_DOCTYPE),\n                    new CR(),\n                    exampleVisitor.addDefaultExamples(rootNode),\n                    new
CR(),\n                ]);\n            };\n            Xmb.prototype.load = function (content, url) {\n                throw new
Error('Unsupported');\n            };\n            Xmb.prototype.digest = function (message) {\n                return
digest$1(message);\n            };\n            Xmb.prototype.createNameMapper = function (message) {\n                return new
SimplePlaceholderMapper(message, toPublicName);\n            };\n            return Xmb;\n        })(Serializer);\n        var
_Visitor$1 = /** @class */ (function () {\n            function _Visitor() {\n            }\n            _Visitor.prototype.visitText =
function (text, context) {\n                return [new Text$2(text.value)];\n
            };\n            _Visitor.prototype.visitContainer = function (container, context) {\n                var _this = this;\n
var nodes = [];\n                container.children.forEach(function (node) { return nodes.push.apply(nodes,
__spread(node.visit(_this))); });\n                return nodes;\n            };\n            _Visitor.prototype.visitIcu = function (icu,
context) {\n                var _this = this;\n                var nodes = [new Text$2("\\{" + icu.expressionPlaceholder + "\\", \" +
icu.type + "\", \")];\n                Object.keys(icu.cases).forEach(function (c) {\n                    nodes.push.apply(nodes,
__spread([new Text$2(c + \" {\", icu.cases[c].visit(_this), [new Text$2(\" } \")]);\n                });\n                nodes.push(new Text$2(\" } \"));\n                return nodes;\n            };\n            _Visitor.prototype.visitTagPlaceholder =
function (ph, context) {\n                var startTagAsText = new Text$2("<" + ph.tag + ">");\n                var startEx =
new Tag(_EXAMPLE_TAG,
                {}, [startTagAsText]);\n                // TC requires PH to have a non empty EX, and uses the text node to show the
\"original\" value.\n                var startTagPh = new Tag(_PLACEHOLDER_TAG, { name: ph.startName }, [startEx,
startTagAsText]);\n                if (ph.isVoid) {\n                    // void tags have no children nor closing tags\n
return [startTagPh];\n                }\n                var closeTagAsText = new Text$2("</" + ph.tag + ">");\n                var
closeEx = new Tag(_EXAMPLE_TAG, {}, [closeTagAsText]);\n                // TC requires PH to have a non empty EX,
and uses the text node to show the \"original\" value.\n                var closeTagPh = new Tag(_PLACEHOLDER_TAG,
                { name: ph.closeName }, [closeEx, closeTagAsText]);\n                return __spread([startTagPh,
this.serialize(ph.children), [closeTagPh]);\n            };\n            _Visitor.prototype.visitPlaceholder = function (ph, context)
{\n                var interpolationAsText = new Text$2("\\{" + ph.value +
\" } \");\n                // Example tag needs to be not-empty for TC.\n                var exTag = new Tag(_EXAMPLE_TAG,
                {}, [interpolationAsText]);\n                return [\n                    // TC requires PH to have a non empty EX, and uses the text
node to show the \"original\" value.\n                    new Tag(_PLACEHOLDER_TAG, { name: ph.name }, [exTag,
interpolationAsText]),\n                ];\n            };\n            _Visitor.prototype.visitIcuPlaceholder = function (ph, context) {\n

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    var icuExpression = ph.value.expression;\n    var icuType = ph.value.type;\n    var icuCases =
Object.keys(ph.value.cases).map(function (value) { return value + ' {...'; }).join(' '); \n    var icuAsText = new
Text$2("\{" + icuExpression + "\", \{" + icuType + "\", \{" + icuCases + "\}"); \n    var exTag = new
Tag(_EXAMPLE_TAG, {}, [icuAsText]); \n    return [ \n        // TC requires PH to have a non empty EX,
and uses the text node to show the \"original\" value. \n
        new Tag(_PLACEHOLDER_TAG, { name: ph.name }, [exTag, icuAsText]) \n    ]; \n    }; \n
_Visitor.prototype.serialize = function (nodes) { \n    var _this = this; \n    return [].concat.apply([],
__spread(nodes.map(function (node) { return node.visit(_this); })); \n    }; \n    return _Visitor; \n    }()); \n
function digest$1(message) { \n    return decimalDigest(message); \n    } \n    // TC requires at least one non-empty
example on placeholders \n    var ExampleVisitor = /** @class */ (function () { \n    function ExampleVisitor() { \n
    } \n    ExampleVisitor.prototype.addDefaultExamples = function (node) { \n    node.visit(this); \n
return node; \n    }; \n    ExampleVisitor.prototype.visitTag = function (tag) { \n    var _this = this; \n
if (tag.name === _PLACEHOLDER_TAG) { \n        if (!tag.children || tag.children.length === 0) { \n
var exText = new Text$2(tag.attrs['name']
|| '...'); \n        tag.children = [new Tag(_EXAMPLE_TAG, {}, [exText]); \n        } \n    } \n
else if (tag.children) { \n        tag.children.forEach(function (node) { return node.visit(_this); }); \n    } \n
}; \n    ExampleVisitor.prototype.visitText = function (text) { }; \n    ExampleVisitor.prototype.visitDeclaration
= function (decl) { }; \n    ExampleVisitor.prototype.visitDoctype = function (doctype) { }; \n    return
ExampleVisitor; \n    }()); \n    // XMB/XTB placeholders can only contain A-Z, 0-9 and _ \n    function
toPublicName(internalName) { \n    return internalName.toUpperCase().replace(/^[A-Z0-9_]/g, '_'); \n    } \n    /*
Closure variables holding messages must be named `MSG_[A-Z0-9]+` * \n    var
CLOSURE_TRANSLATION_VAR_PREFIX = 'MSG_'; \n    /** \n    * Prefix for non-`goog.getMessage` i18n-related
vars. \n    * Note: the prefix uses lowercase characters intentionally due to a
Closure behavior that \n    * considers variables like `I18N_0` as constants and throws an error when their value
changes. \n    * \n    var TRANSLATION_VAR_PREFIX = 'i18n_'; \n    /** Name of the i18n attributes */ \n    var
I18N_ATTR = 'i18n'; \n    var I18N_ATTR_PREFIX = 'i18n-'; \n    /** Prefix of var expressions used in ICUs */ \n
var I18N_ICU_VAR_PREFIX = 'VAR_'; \n    /** Prefix of ICU expressions for post processing */ \n    var
I18N_ICU_MAPPING_PREFIX = 'I18N_EXP_'; \n    /** Placeholder wrapper for i18n expressions */ \n    var
I18N_PLACEHOLDER_SYMBOL = "; \n    function isI18nAttribute(name) { \n    return name === I18N_ATTR ||
name.startsWith(I18N_ATTR_PREFIX); \n    } \n    function isI18nRootNode(meta) { \n    return meta instanceof
Message; \n    } \n    function isSingleI18nIcu(meta) { \n    return isI18nRootNode(meta) && meta.nodes.length
=== 1 && meta.nodes[0] instanceof Icu$1; \n    } \n    function hasI18nMeta(node) { \n    return !!node.i18n; \n
} \n    function
hasI18nAttrs(element) { \n    return element.attrs.some(function (attr) { return isI18nAttribute(attr.name); }); \n
} \n    function icuFromI18nMessage(message) { \n    return message.nodes[0]; \n    } \n    function
wrapI18nPlaceholder(content, contextId) { \n    if (contextId === void 0) { contextId = 0; } \n    var blockId =
contextId > 0 ? \"\":\" + contextId : "; \n    return \"\\" + I18N_PLACEHOLDER_SYMBOL + content + blockId +
I18N_PLACEHOLDER_SYMBOL; \n    } \n    function assembleI18nBoundString(strings, bindingStartIndex,
contextId) { \n    if (bindingStartIndex === void 0) { bindingStartIndex = 0; } \n    if (contextId === void 0) {
contextId = 0; } \n    if (!strings.length) \n        return "; \n    var acc = "; \n    var lastIdx = strings.length - 1; \n
for (var i = 0; i < lastIdx; i++) { \n        acc += \"\\" + strings[i] + wrapI18nPlaceholder(bindingStartIndex + i,
contextId); \n    } \n    acc += strings[lastIdx]; \n
return acc; \n    } \n    function getSeqNumberGenerator(startsAt) { \n    if (startsAt === void 0) { startsAt = 0; } \n
var current = startsAt; \n    return function () { return current++; }; \n    } \n    function
placeholdersToParams(placeholders) { \n    var params = { }; \n    placeholders.forEach(function (values, key)
{ \n        params[key] = literal(values.length > 1 ? \"\[" + values.join(',') + \"]\" : values[0]); \n    }); \n    return
params; \n    } \n    function updatePlaceholderMap(map, name) { \n    var values = []; \n    for (var _i = 2; _i <
arguments.length; _i++) { \n        values[_i - 2] = arguments[_i]; \n    } \n    var current = map.get(name) || []; \n

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    current.push.apply(current, __spread(values));\n    map.set(name, current);\n  }\n  function
assembleBoundTextPlaceholders(meta, bindingStartIndex, contextId) {\n    if (bindingStartIndex === void 0) {\n
bindingStartIndex = 0; }\n    if (contextId === void
0) {\n      contextId = 0; }\n    var startIdx = bindingStartIndex;\n    var placeholders = new Map();\n    var node =
meta instanceof Message ? meta.nodes.find(function (node) {\n      return node instanceof Container; }) : meta;\n    if
(node) {\n      node\n        .children\n        .filter(function (child) {\n          return child instanceof Placeholder;
        })\n        .forEach(function (child, idx) {\n          var content = wrapI18nPlaceholder(startIdx + idx,
contextId);\n          updatePlaceholderMap(placeholders, child.name, content);\n        });\n      }\n    return
placeholders;\n  }\n  /**\n   * Format the placeholder names in a map of placeholders to expressions.\n   *\n   * The placeholder names are converted from \"internal\" format (e.g. `START_TAG_DIV_1`) to \"external\" \n   *
format (e.g. `startTagDiv_1`).\n   *\n   * @param params A map of placeholder names to expressions.\n   *
@param useCamelCase whether
to camelCase the placeholder name when formatting.\n   * @returns A new map of formatted placeholder names
to expressions.\n   */\n  function i18nFormatPlaceholderNames(params, useCamelCase) {\n    if (params ===
void 0) {\n      params = {};\n    }\n    var _params = {};\n    if (params && Object.keys(params).length) {\n
Object.keys(params).forEach(function (key) {\n      return _params[formatI18nPlaceholderName(key, useCamelCase)] =
params[key];\n    });\n    return _params;\n  }\n  /**\n   * Converts internal placeholder names to public-
facing format\n   * (for example to use in goog.getMessage call).\n   * Example: `START_TAG_DIV_1` is converted
to `startTagDiv_1`.\n   *\n   * @param name The placeholder name that should be formatted\n   * @returns
Formatted placeholder name\n   */\n  function formatI18nPlaceholderName(name, useCamelCase) {\n    if
(useCamelCase === void 0) {\n      useCamelCase = true;\n    }\n    var publicName = toPublicName(name);\n
    if (!useCamelCase) {\n      return publicName;\n    }\n    var chunks = publicName.split('_');\n    if
(chunks.length === 1) {\n      // if no \"_\" found - just lowercase the value\n      return
name.toLowerCase();\n    }\n    var postfix;\n    // eject last element if it's a number\n    if
(/^[^d+$/].test(chunks[chunks.length - 1])) {\n      postfix = chunks.pop();\n    }\n    var raw =
chunks.shift().toLowerCase();\n    if (chunks.length) {\n      raw += chunks.map(function (c) {\n      return
c.charAt(0).toUpperCase() + c.slice(1).toLowerCase();\n    }).join(\"_\");\n    }\n    return postfix ? raw + \"_\" +
postfix : raw;\n  }\n  /**\n   * Generates a prefix for translation const name.\n   *\n   * @param extra
Additional local prefix that should be injected into translation var name\n   * @returns Complete translation const
prefix\n   */\n  function getTranslationConstPrefix(extra) {\n
    return (\"\" + CLOSURE_TRANSLATION_VAR_PREFIX + extra).toUpperCase();\n  }\n  /**\n   * Generate
AST to declare a variable. E.g. `var I18N_1`;\n   *\n   * @param variable the name of the variable to declare.\n   */\n
function declareI18nVariable(variable) {\n    return new DeclareVarStmt(variable.name, undefined,
INFERRED_TYPE, undefined, variable.sourceSpan);\n  }\n  /**\n   * Checks whether an object key contains
potentially unsafe chars, thus the key should be wrapped in\n   * quotes. Note: we do not wrap all keys into quotes,
as it may have impact on minification and may\n   * not work in some cases when object keys are mangled by
minifier.\n   *\n   * TODO(FW-1136): this is a temporary solution, we need to come up with a better way of
working with\n   * inputs that contain potentially unsafe chars.\n   */\n  var
UNSAFE_OBJECT_KEY_NAME_REGEX = /[.-]/;\n  /** Name of the temporary to use during data binding */\n
var TEMPORARY_NAME = '_t';\n
  /** Name of the context parameter passed into a template function */\n  var CONTEXT_NAME = 'ctx';\n
  /** Name of the RenderFlag passed into a template function */\n  var RENDER_FLAGS = 'rf';\n
  /** The prefix reference variables */\n  var REFERENCE_PREFIX = '_r';\n
  /** The name of the implicit context reference */\n  var IMPLICIT_REFERENCE = 'simplicit';\n
  /** Non bindable attribute name */\n  var
NON_BINDABLE_ATTR = 'ngNonBindable';\n
  /**\n   * Creates an allocator for a temporary variable.\n   *\n   * A variable declaration is added to the statements the first time the allocator is invoked.\n   */\n
function temporaryAllocator(statements, name) {\n    var temp = null;\n    return function () {\n      if (!temp) {\n
statements.push(new DeclareVarStmt(TEMPORARY_NAME, undefined, DYNAMIC_TYPE));\n

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temp = variable(name);\n      }\n      return temp;\n    };\n  }\n  function unsupported(feature)
{\n    if (this) {\n      throw new Error("\Builder \" + this.constructor.name + \" doesn't support \" + feature + \"
yet\");\n    }\n    throw new Error("\Feature \" + feature + \" is not supported yet\");\n  }\n  function
invalid$1(arg) {\n    throw new Error("\Invalid state: Visitor \" + this.constructor.name + \" doesn't handle \" +
arg.constructor.name);\n  }\n  function asLiteral(value) {\n    if (Array.isArray(value)) {\n      return
literalArr(value.map(asLiteral));\n    }\n    return literal(value, INFERRED_TYPE);\n  }\n  function
conditionallyCreateMapObjectLiteral(keys, keepDeclared) {\n    if (Object.getOwnPropertyNames(keys).length >
0) {\n      return mapToExpression(keys, keepDeclared);\n    }\n    return null;\n  }\n  function
mapToExpression(map, keepDeclared) {\n    return literalMap(Object.getOwnPropertyNames(map).map(function
(key) {\n      var _a, _b;\n      // canonical
syntax: `dirProp: publicProp`\n      // if there is no ``, use dirProp = elProp\n      var value = map[key];\n
      var declaredName;\n      var publicName;\n      var minifiedName;\n      if (Array.isArray(value)) {\n
        _a = __read(value, 2), publicName = _a[0], declaredName = _a[1];\n      }\n      else {\n        _b =
__read(splitAtColon(key, [key, value]), 2), declaredName = _b[0], publicName = _b[1];\n      }\n
      minifiedName = declaredName;\n      return {\n        key: minifiedName,\n        // put quotes around
keys that contain potentially unsafe characters\n        quoted:
UNSAFE_OBJECT_KEY_NAME_REGEXP.test(minifiedName),\n        value: (keepDeclared &&
publicName !== declaredName) ?\n          literalArr([asLiteral(publicName), asLiteral(declaredName)]) :\n
          asLiteral(publicName)\n      };\n    });\n  }\n  /**\n
   * Remove trailing null nodes as they are implied.\n   */\n  function trimTrailingNulls(parameters) {\n
while (isNull(parameters[parameters.length - 1])) {\n    parameters.pop();\n  }\n  return parameters;\n
}\n  function getQueryPredicate(query, constantPool) {\n    if (Array.isArray(query.predicate)) {\n      var
predicate_1 = [];\n      query.predicate.forEach(function (selector) {\n        // Each item in predicates array
may contain strings with comma-separated refs\n        // (for ex. 'ref, ref1, ..., refN'), thus we extract individual
refs and store them\n        // as separate array entities\n        var selectors = selector.split(',').map(function
(token) { return literal(token.trim()); });\n        predicate_1.push.apply(predicate_1, __spread(selectors));\n
      });\n      return constantPool.getConstLiteral(literalArr(predicate_1), true);\n    }\n    else {\n
      return query.predicate;\n    }\n  }\n  function noop() {\n    var DefinitionMap = /** @class */ (function
() {\n    function DefinitionMap() {\n      this.values = [];\n    }\n    DefinitionMap.prototype.set =
function (key, value) {\n      if (value) {\n        this.values.push({ key: key, value: value, quoted: false });\n
      }\n    };\n    DefinitionMap.prototype.toLiteralMap = function () {\n      return
literalMap(this.values);\n    };\n    return DefinitionMap;\n  })();\n  /**\n
   * Extract a map of properties to
values for a given element or template node, which can be used\n   * by the directive matching machinery.\n   *\n
   * @param elOrTpl the element or template in question\n   * @return an object set up for directive matching. For
attributes on the element/template, this\n   * object maps a property name to its (static) value. For any bindings, this
map simply maps the\n
   * property name to an empty string.\n   */\n  function getAttrsForDirectiveMatching(elOrTpl) {\n    var
attributesMap = {};\n    if (elOrTpl instanceof Template && elOrTpl.tagName !== 'ng-template') {\n
elOrTpl.templateAttrs.forEach(function (a) { return attributesMap[a.name] = "; });\n    }\n    else {\n
elOrTpl.attributes.forEach(function (a) {\n      if (!isI18nAttribute(a.name)) {\n
attributesMap[a.name] = a.value;\n      }\n    });\n    elOrTpl.inputs.forEach(function (i) {\n
attributesMap[i.name] = ";\n    });\n    elOrTpl.outputs.forEach(function (o) {\n
attributesMap[o.name] = ";\n    });\n    return attributesMap;\n  }\n  /** Returns a call expression
to a chained instruction, e.g. `property(params[0])(params[1])`. */\n  function chainedInstruction(reference, calls,
span) {\n    var expression = importExpr(reference,
null, span);\n    if (calls.length > 0) {\n      for (var i = 0; i < calls.length; i++) {\n        expression =
expression.callFn(calls[i], span);\n      }\n    }\n    else {\n      // Add a blank invocation, in case the
`calls` array is empty.\n      expression = expression.callFn([], span);\n    }\n    return expression;\n  }\n

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/**\n  * Gets the number of arguments expected to be passed to a generated instruction in the case of\n  * interpolation instructions.\n  * @param interpolation An interpolation ast\n  */\n  function\n  getInterpolationArgsLength(interpolation) {\n    var expressions = interpolation.expressions, strings =\n    interpolation.strings;\n    if (expressions.length === 1 && strings.length === 2 && strings[0] === " &&\n    strings[1] === ") {\n      // If the interpolation has one interpolated value, but the prefix and suffix are both\n      empty\n      // strings, we only pass\n      one argument, to a special instruction like `propertyInterpolate` or\n      // `textInterpolate`.\n      return 1;\n    }\n    else {\n      return expressions.length + strings.length;\n    }\n  }\n\n  var\n  R3FactoryDelegateType;\n  (function (R3FactoryDelegateType) {\n    R3FactoryDelegateType[R3FactoryDelegateType["Class"] = 0] = "Class";\n    R3FactoryDelegateType[R3FactoryDelegateType["Function"] = 1] = "Function";\n    R3FactoryDelegateType[R3FactoryDelegateType["Factory"] = 2] = "Factory";\n    })(R3FactoryDelegateType ||\n    (R3FactoryDelegateType = {}));\n    (function (R3FactoryTarget) {\n    R3FactoryTarget[R3FactoryTarget["Directive"] = 0] = "Directive";\n    R3FactoryTarget[R3FactoryTarget["Component"] = 1] = "Component";\n    R3FactoryTarget[R3FactoryTarget["Injectable"] = 2] = "Injectable";\n    R3FactoryTarget[R3FactoryTarget["Pipe"] = 3] = "Pipe";\n    R3FactoryTarget[R3FactoryTarget["NgModule"]\n    = 4] = "NgModule";\n    })(exports.R3FactoryTarget || (exports.R3FactoryTarget = {}));\n    (function\n    (R3ResolvedDependencyType) {\n      /**\n      * A normal token dependency.\n      */\n      R3ResolvedDependencyType[R3ResolvedDependencyType["Token"] = 0] = "Token";\n      /**\n      * The\n      dependency is for an attribute.\n      */\n      R3ResolvedDependencyType[R3ResolvedDependencyType["Attribute"] = 1] = "Attribute";\n      /**\n      * Injecting the `ChangeDetectorRef` token. Needs special handling when injected into a pipe.\n      */\n      R3ResolvedDependencyType[R3ResolvedDependencyType["ChangeDetectorRef"] = 2] =\n      "ChangeDetectorRef";\n      /**\n      * An invalid dependency (no token could be determined). An error should\n      be thrown at runtime.\n      */\n      R3ResolvedDependencyType[R3ResolvedDependencyType["Invalid"]\n      = 3] = "Invalid";\n    })(exports.R3ResolvedDependencyType || (exports.R3ResolvedDependencyType = {}));\n    /**\n    * Construct a factory function expression for the given `R3FactoryMetadata`.\n    */\n    function\n    compileFactoryFunction(meta) {\n      var t = variable('t');\n      var statements = [];\n      var ctorDepsType =\n      NONE_TYPE;\n      // The type to instantiate via constructor invocation. If there is no delegated factory, meaning\n      // this type is always created by constructor invocation, then this is the type-to-create\n      // parameter provided\n      by the user (t) if specified, or the current type if not. If there is a\n      // delegated factory (which is used to create\n      the current type) then this is only the type-to-\n      // create parameter (t).\n      var typeForCtor =\n      !isDelegatedMetadata(meta) ?\n      new BinaryOperatorExpr(exports.BinaryOperator.Or, t, meta.internalType)\n      :\n      t;\n      var ctorExpr = null;\n      if (meta.deps !== null) {\n        // There is a constructor (either explicitly or implicitly defined).\n        if\n        (meta.deps !== 'invalid') {\n          ctorExpr = new InstantiateExpr(typeForCtor, injectDependencies(meta.deps,\n          meta.injectFn, meta.target === exports.R3FactoryTarget.Pipe));\n          ctorDepsType =\n          createCtorDepsType(meta.deps);\n        }\n        else {\n          var baseFactory = variable("\\u0275" +\n          meta.name + "_BaseFactory");\n          var getInheritedFactory = importExpr(Identifiers$1.getInheritedFactory);\n          var baseFactoryStmt = baseFactory\n          .set(getInheritedFactory.callFn([meta.internalType], /*\n          sourceSpan */ undefined, /* pure */ true));\n          .toDeclStmt(INFERRED_TYPE,\n          [exports.StmtModifier.Exported, exports.StmtModifier.Final]);\n          statements.push(baseFactoryStmt);\n          // There is no constructor, use the base class' factory to construct typeForCtor.\n          ctorExpr = baseFactory.callFn([typeForCtor]);\n        }\n        var ctorExprFinal = ctorExpr;\n        var body =\n        [];\n        var retExpr = null;\n        function makeConditionalFactory(nonCtorExpr) {\n          var r = variable('r');\n          body.push(r.set(NULL_EXPR).toDeclStmt());\n          var ctorStmt = null;\n          if (ctorExprFinal !==

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null) {\n      ctorStmt = r.set(ctorExprFinal).toStmt();\n    }\n    else {\n      ctorStmt =\nimportExpr(Identifiers$1.invalidFactory).callFn([]).toStmt();\n    }\n    body.push(ifStmt(t, [ctorStmt],\n[r.set(nonCtorExpr).toStmt()]));\n    return r;\n  }\n  if (isDelegatedMetadata(meta) &&\nmeta.delegateType === R3FactoryDelegateType.Factory) {\n    var delegateFactory = variable("\u0275" +\nmeta.name + \"_BaseFactory\");\n    var getFactoryOf = importExpr(Identifiers$1.getFactoryOf);\n    if\n(meta.delegate.isEquivalent(meta.internalType))\n    {\n      throw new Error(\"Illegal state: compiling factory that delegates to itself\");\n    }\n    var\ndelegateFactoryStmt = delegateFactory.set(getFactoryOf.callFn([meta.delegate])).toDeclStmt(INFERRED_TYPE,\n[\n      exports.StmtModifier.Exported, exports.StmtModifier.Final\n    ]);\nstatements.push(delegateFactoryStmt);\n    retExpr = makeConditionalFactory(delegateFactory.callFn([]));\n  }\n  else if (isDelegatedMetadata(meta)) {\n    // This type is created with a delegated factory. If a type\nparameter is not specified, call\n    // the factory instead.\n    var delegateArgs =\ninjectDependencies(meta.delegateDeps, meta.injectFn, meta.target === exports.R3FactoryTarget.Pipe);\n    //\nEither call `new delegate(...)` or `delegate(...)` depending on meta.delegateType.\n    var factoryExpr = new\n(meta.delegateType === R3FactoryDelegateType.Class ?\n\n      InstantiateExpr :\n      InvokeFunctionExpr)(meta.delegate, delegateArgs);\n    retExpr =\nmakeConditionalFactory(factoryExpr);\n  }\n  else if (isExpressionFactoryMetadata(meta)) {\n    //\nTODO(alxhub): decide whether to lower the value here or in the caller\n    retExpr =\nmakeConditionalFactory(meta.expression);\n  }\n  else {\n    retExpr = ctorExpr;\n  }\n  if\n(retExpr !== null) {\n    body.push(new ReturnStatement(retExpr));\n  }\n  else {\n\nbody.push(importExpr(Identifiers$1.invalidFactory).callFn([]).toStmt());\n  }\n  return {\n    factory:\nfn([new FnParam('t', DYNAMIC_TYPE)], body, INFERRED_TYPE, undefined, meta.name + \"_Factory\"),\nstatements: statements,\n    type: expressionType(importExpr(Identifiers$1.FactoryDef,\n[typeWithParameters(meta.type.type, meta.typeArgumentCount), ctorDepsType]))\n  };\n}\n\nfunction injectDependencies(deps, injectFn, isPipe) {\n  return deps.map(function (dep, index) {\n    return\ncompileInjectDependency(dep, injectFn, isPipe, index);\n  });\n}\nfunction compileInjectDependency(dep,\ninjectFn, isPipe, index) {\n  // Interpret the dependency according to its resolved type.\n  switch\n(dep.resolved) {\n    case exports.R3ResolvedDependencyType.Token:\n      case\nexports.R3ResolvedDependencyType.ChangeDetectorRef:\n        // Build up the injection flags according to the\nmetadata.\n        var flags = 0 /* Default */ | (dep.self ? 2 /* Self */ : 0) | (dep.skipSelf ? 4 /*\nSkipSelf */ : 0) | (dep.host ? 1 /* Host */ : 0) | (dep.optional ? 8 /* Optional */ : 0);\n        // If this\ndependency is optional or otherwise has non-default flags, then additional\n        // parameters describing how\nto inject the dependency must be passed to the inject function\n        // that's being used.\n        var flagsParam = (flags !== 0 /* Default */ || dep.optional) ? literal(flags) :\nnull;\n        // We have a separate instruction for injecting ChangeDetectorRef into a pipe.\n        if (isPipe\n&& dep.resolved === exports.R3ResolvedDependencyType.ChangeDetectorRef) {\n          return\nimportExpr(Identifiers$1.injectPipeChangeDetectorRef).callFn(flagsParam ? [flagsParam] : []);\n        }\n        // Build up the arguments to the injectFn call.\n        var injectArgs = [dep.token];\n        if (flagsParam)\n{\n          injectArgs.push(flagsParam);\n        }\n        return\nimportExpr(injectFn).callFn(injectArgs);\n      case exports.R3ResolvedDependencyType.Attribute:\n        //\nIn the case of attributes, the attribute name in question is given as the token.\n        return\nimportExpr(Identifiers$1.injectAttribute).callFn([dep.token]);\n      case exports.R3ResolvedDependencyType.Invalid:\n        return\nimportExpr(Identifiers$1.invalidFactoryDep).callFn([literal(index)]);\n      default:\n        return\nunsupported(\"Unknown R3ResolvedDependencyType: \" + exports.R3ResolvedDependencyType[dep.resolved]);\n    }\n  }\n}\n\nfunction createCtorDepsType(deps) {\n  var hasTypes = false;\n  var attributeTypes =\ndeps.map(function (dep) {\n    var type = createCtorDepType(dep);\n    if (type !== null) {\n      hasTypes = true;\n      return type;\n    }\n    else {\n      return literal(null);\n    }\n  })\n}

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});\n    if (hasTypes) {\n        return expressionType(literalArr(attributeTypes));\n    }\n    else {\n        return NONE_TYPE;\n    }\n}\n\nfunction createCtorDepType(dep) {\n    var entries = [];\n    if (dep.resolved === exports.R3ResolvedDependencyType.Attribute)\n    {\n        if (dep.attribute !== null) {\n            entries.push({ key: 'attribute', value: dep.attribute, quoted: false\n        });\n        }\n        if (dep.optional) {\n            entries.push({ key: 'optional', value: literal(true), quoted:\n        false });\n        }\n        if (dep.host) {\n            entries.push({ key: 'host', value: literal(true), quoted: false });\n        }\n        if (dep.self) {\n            entries.push({ key: 'self', value: literal(true), quoted: false });\n        }\n        if (dep.skipSelf) {\n            entries.push({ key: 'skipSelf', value: literal(true), quoted: false });\n        }\n        return\n        entries.length > 0 ? literalMap(entries) : null;\n    }\n}\n\n/**\n * A helper function useful for extracting\n * `R3DependencyMetadata` from a Render2\n * `CompileTypeMetadata` instance.\n */\nfunction\ndependenciesFromGlobalMetadata(type, outputCtx, reflector) {\n    var e_1, _a;\n    // Use the\n    `CompileReflector`\n    to look up references to some well-known Angular types. These will\n    // be compared with the token to\n    statically determine whether the token has significance to\n    // Angular, and set the correct\n    `R3ResolvedDependencyType` as a result.\n    var injectorRef =\n    reflector.resolveExternalReference(Identifiers.Injector);\n    // Iterate through the type's DI dependencies and\n    produce `R3DependencyMetadata` for each of them.\n    var deps = [];\n    try {\n        for (var _b =\n        __values(type.diDeps), _c = _b.next(); !_c.done; _c = _b.next()) {\n            var dependency = _c.value;\n            if (dependency.token) {\n                var tokenRef = tokenReference(dependency.token);\n                var resolved\n                = dependency.isAttribute ?\n                exports.R3ResolvedDependencyType.Attribute : \n                exports.R3ResolvedDependencyType.Token;\n                // In the case of most dependencies, the token\n                will be a reference to a type. Sometimes,\n                // however, it can be a string, in the case of older Angular\n                code or @Attribute injection.\n                var token = tokenRef instanceof StaticSymbol ?\n                outputCtx.importExpr(tokenRef) : literal(tokenRef);\n                // Construct the dependency.\n                deps.push({\n                    token: token,\n                    attribute: null,\n                    resolved: resolved,\n                    host: !!dependency.isHost,\n                    optional: !!dependency.isOptional,\n                    self:\n                    !!dependency.isSelf,\n                    skipSelf: !!dependency.isSkipSelf,\n                });\n            }\n            else {\n                unsupported('dependency without a token');\n            }\n        }\n        catch (e_1_1)\n        { e_1 = { error: e_1_1 }; }\n        finally {\n            try {\n                if (_c &&\n                !_c.done && (_a = _b.return)) _a.call(_b);\n            }\n            finally { if (e_1) throw e_1.error; }\n        }\n    }\n    return deps;\n}\n\nfunction isDelegatedMetadata(meta) {\n    return meta.delegateType !== undefined;\n}\n\nfunction isExpressionFactoryMetadata(meta) {\n    return meta.expression !== undefined;\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\n * MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nfunction\ncompileInjectable(meta) {\n    var result = null;\n    var factoryMeta = {\n        name: meta.name,\n        type: meta.type,\n        internalType: meta.internalType,\n        typeArgumentCount:\n        meta.typeArgumentCount,\n        deps: [],\n        injectFn: Identifiers.inject,\n        target:\n        exports.R3FactoryTarget.Injectable,\n    };\n    if (meta.useClass\n    !== undefined) {\n        // meta.useClass has two modes of operation. Either deps are specified, in which case\n        `new` is\n        // used to instantiate the class with dependencies injected, or deps are not specified and\n        // the factory of the class is used to instantiate it.\n        // A special case exists for useClass: Type where\n        Type is the injectable type itself and no\n        // deps are specified, in which case 'useClass' is effectively\n        ignored.\n        var useClassOnSelf = meta.useClass.isEquivalent(meta.internalType);\n        var deps =\n        undefined;\n        if (meta.userDeps !== undefined) {\n            deps = meta.userDeps;\n        }\n        if\n        (deps !== undefined) {\n            // factory: () => new meta.useClass(...deps)\n            result =\n            compileFactoryFunction(Object.assign(Object.assign({}, factoryMeta), { delegate: meta.useClass, delegateDeps:\n            deps, delegateType: R3FactoryDelegateType.Class

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    });\n    }\n    else if (useClassOnSelf) {\n        result = compileFactoryFunction(factoryMeta);\n    }\n    else {\n        result = delegateToFactory(meta.type.value, meta.useClass);\n    }\n}\nelse if (meta.useFactory !== undefined) {\n    if (meta.userDeps !== undefined) {\n        result =\n        compileFactoryFunction(Object.assign(Object.assign({}, factoryMeta), { delegate: meta.useFactory, delegateDeps:\n        meta.userDeps || [], delegateType: R3FactoryDelegateType.Function }));\n    }\n    else {\n        result\n        = {\n            statements: [],\n            factory: fn([], [new ReturnStatement(meta.useFactory.callFn([]))])\n        };\n    }\n    else if (meta.useValue !== undefined) {\n        // Note: it's safe to use\n        `meta.useValue` instead of the `USE_VALUE` in meta` check used for\n        // client code\n        because meta.useValue is an Expression which will be defined even if the actual\n        // value is undefined.\n        result = compileFactoryFunction(Object.assign(Object.assign({}, factoryMeta), { expression: meta.useValue\n        }));\n    }\n    else if (meta.useExisting !== undefined) {\n        // useExisting is an `inject` call on the existing\n        token.\n        result = compileFactoryFunction(Object.assign(Object.assign({}, factoryMeta), { expression:\n        importExpr(Identifiers.inject).callFn([meta.useExisting]) }));\n    }\n    else {\n        result =\n        delegateToFactory(meta.type.value, meta.internalType);\n    }\n    var token = meta.internalType;\n    var\n    injectableProps = { token: token, factory: result.factory };\n    // Only generate providedIn property if it has a non-\n    null value\n    if (meta.providedIn.value !== null) {\n        injectableProps.providedIn = meta.providedIn;\n    }\n    var expression =\n    importExpr(Identifiers.defineInjectable).callFn([mapToMapExpression(injectableProps)]);\n    var type = new ExpressionType(importExpr(Identifiers.InjectableDef, [typeWithParameters(meta.type.type,\n    meta.typeArgumentCount)]));\n    return {\n        expression: expression,\n        type: type,\n        statements: result.statements,\n    };\n}\nfunction delegateToFactory(type, internalType) {\n    return {\n        statements: [],\n        // If types are the same, we can generate `factory: type.fac`\n        // If types are\n        different, we have to generate a wrapper function to ensure\n        // the internal type has been resolved (`factory:\n        function(t) { return type.fac(t); })`\n        factory: type.node === internalType.node ?\n        internalType.prop('fac') : \n        fn([new FnParam('t', DYNAMIC_TYPE)], [new\n        ReturnStatement(internalType.callMethod('fac', [variable('t')])]);\n    };\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nfunction\nassertArrayOfStrings(identifier, value) {\n    if (value == null) {\n        return;\n    }\n    if\n    (!Array.isArray(value)) {\n        throw new Error(`Expected \" + identifier + \" to be an array of strings.`);\n    }\n    for (var i = 0; i < value.length; i += 1) {\n        if (typeof value[i] !== 'string') {\n            throw new\n            Error(`Expected \" + identifier + \" to be an array of strings.`);\n        }\n    }\n}\n\nUNUSABLE_INTERPOLATION_REGEXPS = [\n    /^\\s*$/,\n    /<>/, \n    /^{}$/,\n    /&#[a-z]/i,\n    /^\\\\\\\\\\\\\\\\/,\n];\nfunction assertInterpolationSymbols(identifier, value) {\n    if (value != null &&\n    !(Array.isArray(value) && value.length == 2))\n    {\n        throw new Error(`Expected \" + identifier + \" to be an array, [start, end].`);\n    }\n    else if\n    (value != null) {\n        var start_1 = value[0];\n        var end_1 = value[1];\n        // Check for unusable\n        interpolation symbols\n        UNUSABLE_INTERPOLATION_REGEXPS.forEach(function (regexp) {\n            if (regexp.test(start_1) || regexp.test(end_1)) {\n                throw new Error(`\"[\" + start_1 + \"\", \" + end_1 + \"\"]\n                contains unusable interpolation symbol.`);\n            }\n        });\n    }\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nvar InterpolationConfig\n= /** @class */ (function () {\n    function InterpolationConfig(start, end) {\n        this.start = start;\n        this.end =\n        end;\n    }\n    InterpolationConfig.fromArray = function (markers) {\n        if (!markers) {\n            return\n            DEFAULT_INTERPOLATION_CONFIG;\n        }\n        assertInterpolationSymbols('interpolation',\n        markers);\n        return new InterpolationConfig(markers[0], markers[1]);\n    }\n    return\n    InterpolationConfig;\n})();\nvar DEFAULT_INTERPOLATION_CONFIG = new InterpolationConfig('{{',

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'})';\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n // https://docs.google.com/document/d/1U1RGAhQwRypUTovF1KRlpiOFze0b-_2gc6fAH0KY0k/edit\n
var VERSION = 3;\n var JS_B64_PREFIX = '# sourceMappingURL=data:application/json;base64,';\n var
SourceMapGenerator = /** @class */ (function () {\n function SourceMapGenerator(file) {\n if
(file === void 0) { file = null; }\n this.file = file;\n this.sourcesContent = new Map();\n
this.lines = [];\n this.lastCol0 = 0;\n this.hasMappings = false;\n }\n // The content is `null`
when the content is expected to be loaded using the URL\n SourceMapGenerator.prototype.addSource =
function (url, content) {\n if (content === void 0) { content = null; }\n if
(!this.sourcesContent.has(url)) {\n this.sourcesContent.set(url, content);\n }\n return this;\n
};\n SourceMapGenerator.prototype.addLine = function () {\n this.lines.push([]);\n this.lastCol0
= 0;\n return this;\n };\n SourceMapGenerator.prototype.addMapping = function (col0, sourceUrl,
sourceLine0, sourceCol0) {\n if (!this.currentLine) {\n throw new Error(`A line must be added
before mappings can be added`);\n }\n if (sourceUrl != null && !this.sourcesContent.has(sourceUrl)) {\n throw new
Error(`Unknown source file \\`\\` + sourceUrl + '\\`\\`');\n }\n if (col0 == null) {\n throw
new Error(`The column in the generated code must be provided`);\n }\n if (col0 < this.lastCol0) {\n
throw new Error(`Mapping should be added in output order`);\n }\n if (sourceUrl &&
(sourceLine0 == null || sourceCol0 == null)) {\n throw new Error(`The source location must be provided
when a source url is provided`);\n }\n this.hasMappings = true;\n this.lastCol0 = col0;\n
this.currentLine.push({ col0: col0, sourceUrl: sourceUrl, sourceLine0: sourceLine0, sourceCol0: sourceCol0 });\n
return this;\n };\n Object.defineProperty(SourceMapGenerator.prototype, 'currentLine', {\n
/**\n
* @internal strip this from published d.ts files due to\n
https://github.com/microsoft/TypeScript/issues/36216\n
*\n get: function () {\n return
this.lines.slice(-1)[0];\n },\n enumerable: false,\n configurable: true\n });\n
SourceMapGenerator.prototype.toJSON = function () {\n var _this = this;\n if (!this.hasMappings) {\n
return null;\n }\n var sourcesIndex = new Map();\n var sources = [];\n var
sourcesContent = [];\n Array.from(this.sourcesContent.keys()).forEach(function (url, i) {\n
sourcesIndex.set(url, i);\n sources.push(url);\n sourcesContent.push(_this.sourcesContent.get(url)
|| null);\n });\n var mappings = '';\n var lastCol0 = 0;\n var lastSourceIndex = 0;\n
var lastSourceLine0
= 0;\n var lastSourceCol0 = 0;\n this.lines.forEach(function (segments) {\n lastCol0 = 0;\n
mappings += segments\n .map(function (segment) {\n // zero-based starting column of
the line in the generated code\n var segAsStr = toBase64VLQ(segment.col0 - lastCol0);\n
lastCol0 = segment.col0;\n if (segment.sourceUrl != null) {\n // zero-based index into the
“sources” list\n segAsStr +=\n toBase64VLQ(sourcesIndex.get(segment.sourceUrl) -
lastSourceIndex);\n lastSourceIndex = sourcesIndex.get(segment.sourceUrl);\n // the
zero-based starting line in the original source\n segAsStr += toBase64VLQ(segment.sourceLine0 -
lastSourceLine0);\n lastSourceLine0 = segment.sourceLine0;\n
// the zero-based starting column in the original source\n segAsStr +=
toBase64VLQ(segment.sourceCol0 - lastSourceCol0);\n lastSourceCol0 = segment.sourceCol0;\n
}\n return segAsStr;\n })\n .join(',')\n mappings += ';\n
});\n mappings = mappings.slice(0, -1);\n return {\n 'file': this.file || '',\n 'version':
VERSION,\n 'sourceRoot': '',\n 'sources': sources,\n 'sourcesContent': sourcesContent,\n
'mappings': mappings,\n };\n };\n SourceMapGenerator.prototype.toJsComment = function () {\n
return this.hasMappings ? '/' + JS_B64_PREFIX + toBase64String(JSON.stringify(this, null, 0)) :\n
'';\n };\n return SourceMapGenerator;\n }());\n function toBase64String(value)

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return null;\n    };\n    AbstractEmitterVisitor.prototype.visitReturnStmt = function (stmt, ctx) {\n
this.printLeadingComments(stmt, ctx);\n    ctx.print(stmt, \"return \");\n    stmt.value.visitExpression(this,\n
ctx);\n    ctx.println(stmt, ';');\n    return null;\n    };\n    AbstractEmitterVisitor.prototype.visitIfStmt =\n
function (stmt, ctx) {\n    this.printLeadingComments(stmt, ctx);\n    ctx.print(stmt, \"if (\");\n
stmt.condition.visitExpression(this, ctx);\n    ctx.print(stmt, \" ) {\");\n    var hasElseCase = stmt.falseCase\n
!= null && stmt.falseCase.length > 0;\n    if (stmt.trueCase.length <= 1 && !hasElseCase) {\n
ctx.print(stmt, \" \");\n    this.visitAllStatements(stmt.trueCase, ctx);\n
ctx.removeEmptyLastLine();\n    ctx.print(stmt, \" \");\n    }\n    else {\n    ctx.println();\n
    ctx.incIndent();\n    this.visitAllStatements(stmt.trueCase, ctx);\n    ctx.decIndent();\n
    if (hasElseCase) {\n    ctx.println(stmt, \" } else {\");\n    ctx.incIndent();\n
this.visitAllStatements(stmt.falseCase, ctx);\n    ctx.decIndent();\n    }\n    }\n
ctx.println(stmt, \" }\");\n    return null;\n    };\n    AbstractEmitterVisitor.prototype.visitThrowStmt =\n
function (stmt, ctx) {\n    this.printLeadingComments(stmt, ctx);\n    ctx.print(stmt, \"throw \");\n
stmt.error.visitExpression(this, ctx);\n    ctx.println(stmt, ';');\n    return null;\n    };\n
AbstractEmitterVisitor.prototype.visitWriteVarExpr = function (expr, ctx) {\n    var lineWasEmpty =\n
ctx.lineIsEmpty();\n    if (!lineWasEmpty) {\n    ctx.print(expr, '(');\n    }\n
    ctx.print(expr, expr.name + \" = \");\n    expr.value.visitExpression(this, ctx);\n    if\n
(!lineWasEmpty) {\n    ctx.print(expr, ');');\n    }\n    return null;\n    };\n
AbstractEmitterVisitor.prototype.visitWriteKeyExpr = function (expr, ctx) {\n    var lineWasEmpty =\n
ctx.lineIsEmpty();\n    if (!lineWasEmpty) {\n    ctx.print(expr, '(');\n    }\n
expr.receiver.visitExpression(this, ctx);\n    ctx.print(expr, \"[ \");\n    expr.index.visitExpression(this,\n
ctx);\n    ctx.print(expr, \" ] = \");\n    expr.value.visitExpression(this, ctx);\n    if (!lineWasEmpty) {\n
    ctx.print(expr, ');');\n    }\n    return null;\n    };\n
AbstractEmitterVisitor.prototype.visitWritePropExpr = function (expr, ctx) {\n    var lineWasEmpty =\n
ctx.lineIsEmpty();\n    if (!lineWasEmpty) {\n
    ctx.print(expr, '(');\n    }\n    expr.receiver.visitExpression(this, ctx);\n    ctx.print(expr, \".\" +\n
expr.name + \" = \");\n    expr.value.visitExpression(this, ctx);\n    if (!lineWasEmpty) {\n
    ctx.print(expr, ');');\n    }\n    return null;\n    };\n
AbstractEmitterVisitor.prototype.visitMethodExpr = function (expr, ctx) {\n
expr.receiver.visitExpression(this, ctx);\n    var name = expr.name;\n    if (expr.builtin != null) {\n
name = this.getBuiltinMethodName(expr.builtin);\n    if (name == null) {\n    // some builtins just\n
mean to skip the call.\n    return null;\n    }\n    }\n    ctx.print(expr, \".\" + name +\n
\" (\");\n    this.visitAllExpressions(expr.args, ctx, ',');\n    ctx.print(expr, \" )\");\n    return null;\n
};\n    AbstractEmitterVisitor.prototype.visitInvokeFunctionExpr\n
= function (expr, ctx) {\n    expr.fn.visitExpression(this, ctx);\n    ctx.print(expr, \" (\");\n
this.visitAllExpressions(expr.args, ctx, ',');\n    ctx.print(expr, \" )\");\n    return null;\n    };\n
AbstractEmitterVisitor.prototype.visitWrappedNodeExpr = function (ast, ctx) {\n    throw new Error('Abstract\n
emitter cannot visit WrappedNodeExpr.');
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ctx.print(ast, \"new \");\n      ast.classExpr.visitExpression(this, ctx);\n      ctx.print(ast, \"(\");\nthis.visitAllExpressions(ast.args, ctx, ',');\n      ctx.print(ast, \")\");\n      return null;\n    };\nAbstractEmitterVisitor.prototype.visitLiteralExpr\n= function (ast, ctx) {\n      var value = ast.value;\n      if (typeof value === 'string') {\nctx.print(ast, escapeIdentifier(value, this._escapeDollarInStrings));\n      }\n      else {\nctx.print(ast, \"\\\"\" + value);\n      }\n      return null;\n    };\nAbstractEmitterVisitor.prototype.visitLocalizedString = function (ast, ctx) {\n      var head =\nast.serializeI18nHead();\n      ctx.print(ast, '$localize `\" + head.raw);\n      for (var i = 1; i <\nast.messageParts.length; i++) {\n      ctx.print(ast, '${' + ast.expressions[i - 1].visitExpression(this,\nctx);\n      ctx.print(ast, '\\\"\" + ast.serializeI18nTemplatePart(i).raw);\n      }\n      ctx.print(ast, '\"');\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitConditionalExpr = function (ast, ctx) {\nctx.print(ast,\n\"(\");\n      ast.condition.visitExpression(this, ctx);\n      ctx.print(ast, '? ');\nast.trueCase.visitExpression(this, ctx);\n      ctx.print(ast, ': ');\n      ast.falseCase.visitExpression(this, ctx);\n      ctx.print(ast, \")\");\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitNotExpr =\nfunction (ast, ctx) {\n      ctx.print(ast, '!');\n      ast.condition.visitExpression(this, ctx);\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitAssertNotNullExpr = function (ast, ctx) {\nast.condition.visitExpression(this, ctx);\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitUnaryOperatorExpr = function (ast, ctx) {\n      var opStr;\n      switch\n(ast.operator) {\n      case exports.UnaryOperator.Plus:\n      opStr = '+';\n      break;\n      case\nexports.UnaryOperator.Minus:\n      opStr = '-';\n      break;\n      default:\n      throw\nnew Error(\"Unknown operator \" + ast.operator);\n      }\n      if (ast.parens)\n      ctx.print(ast, \"(\");\n      ctx.print(ast, opStr);\n      ast.expr.visitExpression(this, ctx);\n      if (ast.parens)\nctx.print(ast, \")\");\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitBinaryOperatorExpr =\nfunction (ast, ctx) {\n      var opStr;\n      switch (ast.operator) {\n      case\nexports.BinaryOperator.Equals:\n      opStr = '==';\n      break;\n      case\nexports.BinaryOperator.Identical:\n      opStr = '===';\n      break;\n      case\nexports.BinaryOperator.NotEquals:\n      opStr = '!=';\n      break;\n      case\nexports.BinaryOperator.NotIdentical:\n      opStr = '!===';\n      break;\n      case exports.BinaryOperator.And:\n      opStr =\n'&&';\n      break;\n      case exports.BinaryOperator.BitwiseAnd:\n      opStr = '&';\n      break;\n      case exports.BinaryOperator.Or:\n      opStr = '||';\n      break;\n      case\nexports.BinaryOperator.Plus:\n      opStr = '+';\n      break;\n      case\nexports.BinaryOperator.Minus:\n      opStr = '-';\n      break;\n      case\nexports.BinaryOperator.Divide:\n      opStr = '/';\n      break;\n      case\nexports.BinaryOperator.Multiply:\n      opStr = '*';\n      break;\n      case\nexports.BinaryOperator.Modulo:\n      opStr = '%';\n      break;\n      case exports.BinaryOperator.Lower:\n      opStr = '<';\n      break;\n      case exports.BinaryOperator.LowerEquals:\n      opStr = '<=';\n      break;\n      case\nexports.BinaryOperator.Bigger:\n      opStr = '>';\n      break;\n      case\nexports.BinaryOperator.BiggerEquals:\n      opStr = '>=';\n      break;\n      default:\n      throw new Error(\"Unknown operator \" + ast.operator);\n      }\n      if (ast.parens)\nctx.print(ast, \"(\");\n      ast.lhs.visitExpression(this, ctx);\n      ctx.print(ast, \" \" + opStr + \" \");\n      ast.rhs.visitExpression(this, ctx);\n      if (ast.parens)\n      ctx.print(ast, \")\");\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitReadPropExpr = function\n(ast, ctx) {\n      ast.receiver.visitExpression(this, ctx);\n      ctx.print(ast, \".\");\n      ctx.print(ast,\nast.name);\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitReadKeyExpr = function (ast,

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ctx) {\n      ast.receiver.visitExpression(this, ctx);\n      ctx.print(ast, '[');\n      ast.index.visitExpression(this, ctx);\n      ctx.print(ast, ']');\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitLiteralArrayExpr = function (ast, ctx) {\n      ctx.print(ast, '[');\n      this.visitAllExpressions(ast.entries, ctx, ',');\n      ctx.print(ast, ']');\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitLiteralMapExpr = function (ast, ctx) {\n      var _this = this;\n      ctx.print(ast, '{');\n      this.visitAllObjects(function (entry) {\n        ctx.print(ast,\n        escapeIdentifier(entry.key,\n        _this._escapeDollarInStrings, entry.quoted) + ':');\n        entry.value.visitExpression(_this, ctx);\n      },\n      ast.entries, ctx, ',');\n      ctx.print(ast, '}');\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitCommaExpr = function (ast, ctx) {\n      ctx.print(ast, ',');\n      this.visitAllExpressions(ast.parts, ctx, ',');\n      ctx.print(ast, ',');\n      return null;\n    };\n    AbstractEmitterVisitor.prototype.visitAllExpressions = function (expressions, ctx, separator) {\n      var _this =\n      this;\n      this.visitAllObjects(function (expr) { return expr.visitExpression(_this, ctx); }, expressions, ctx,\n      separator);\n    };\n    AbstractEmitterVisitor.prototype.visitAllObjects = function (handler, expressions, ctx,\n      separator) {\n      var incrementedIndent = false;\n      for (var i = 0; i < expressions.length; i++) {\n        if (i > 0) {\n          if (ctx.lineLength() > 80) {\n            ctx.print(null, separator, true);\n            if\n            (!incrementedIndent) {\n              // continuation are marked with double indent.\n              ctx.incIndent();\n              ctx.incIndent();\n              incrementedIndent = true;\n            }\n          }\n          else {\n            ctx.print(null, separator, false);\n          }\n          handler(expressions[i]);\n          if (incrementedIndent) {\n            // continuation are marked with\n            double indent.\n            ctx.decIndent();\n            ctx.decIndent();\n          }\n        }\n      }\n    };\n    AbstractEmitterVisitor.prototype.visitAllStatements = function (statements, ctx) {\n      var _this = this;\n      statements.forEach(function (stmt) { return stmt.visitStatement(_this,\n      ctx); });\n      return AbstractEmitterVisitor;\n    };\n    function escapeIdentifier(input, escapeDollar,\n    alwaysQuote) {\n      if (alwaysQuote === void 0) { alwaysQuote = true; }\n      if (input == null) {\n        return\n        null;\n      }\n      var body = input.replace(_SINGLE_QUOTE_ESCAPE_STRING_RE, function () {\n        var\n        match = [];\n        for (var _i = 0; _i < arguments.length; _i++) {\n          match[_i] = arguments[_i];\n        }\n        if (match[0] == '$') {\n          return escapeDollar ? '\\\\$' : '$';\n        }\n        else if (match[0] ==\n        '\\n') {\n          return '\\\\n';\n        }\n        else if (match[0] == '\\r') {\n          return '\\\\r';\n        }\n        else {\n          return '\\\\' + match[0];\n        }\n      });\n      var requiresQuotes = alwaysQuote ||\n      !_LEGAL_IDENTIFIER_RE.test(body);\n      return requiresQuotes\n      ? '\\\"' + body + '\\\"' : body;\n    }\n    function _createIndent(count) {\n      var res = '';\n      for (var i = 0; i <\n      count; i++) {\n        res += _INDENT_WITH;\n      }\n      return res;\n    }\n    var AbstractJsEmitterVisitor =\n    /** @class */ (function (_super) {\n      __extends(AbstractJsEmitterVisitor, _super);\n      function\n      AbstractJsEmitterVisitor() {\n        return _super.call(this, false) || this;\n      }\n      AbstractJsEmitterVisitor.prototype.visitDeclareClassStmt = function (stmt, ctx) {\n        var _this = this;\n        ctx.pushClass(stmt);\n        this._visitClassConstructor(stmt, ctx);\n        if (stmt.parent != null) {\n          ctx.print(stmt, stmt.name + '.prototype = Object.create(\\');\n          stmt.parent.visitExpression(this, ctx);\n          ctx.println(stmt, '\\.prototype);');\n        }\n        stmt.getters.forEach(function (getter) { return\n        _this._visitClassGetter(stmt,\n        getter, ctx); });\n        stmt.methods.forEach(function (method) { return _this._visitClassMethod(stmt, method,\n        ctx); });\n        ctx.popClass();\n        return null;\n      };\n      AbstractJsEmitterVisitor.prototype._visitClassConstructor = function (stmt, ctx) {\n        ctx.print(stmt, 'function\n        \\\" + stmt.name + '\\(');\n        if (stmt.constructorMethod != null) {\n          this._visitParams(stmt.constructorMethod.params, ctx);\n        }\n        ctx.println(stmt, '\\)');\n        ctx.incIndent();\n        if (stmt.constructorMethod != null) {\n          if (stmt.constructorMethod.body.length >\n          0) {\n            ctx.println(stmt, 'var self = this;');\n          }\n        }\n      }\n    })

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this.visitAllStatements(stmt.constructorMethod.body, ctx);\n          }\n          }\n          ctx.decIndent();\nctx.println(stmt, "\\");\n    };\n    AbstractJsEmitterVisitor.prototype._visitClassGetter\n    = function (stmt, getter, ctx) {\n        ctx.println(stmt, "Object.defineProperty(\" + stmt.name + \".prototype, \" +\n        getter.name + "\", { get: function() {\n            ctx.incIndent();\n            if (getter.body.length > 0) {\n                ctx.println(stmt, "var self = this;");\n                this.visitAllStatements(getter.body, ctx);\n            }\n            ctx.decIndent();\n            ctx.println(stmt, "});");\n        };\n    }\n    AbstractJsEmitterVisitor.prototype._visitClassMethod = function (stmt, method, ctx) {\n        ctx.print(stmt,\n        stmt.name + ".prototype." + method.name + " = function();\n        this._visitParams(method.params, ctx);\n        ctx.println(stmt, " {\n            ctx.incIndent();\n            if (method.body.length > 0) {\n                ctx.println(stmt, "var self = this;");\n                this.visitAllStatements(method.body, ctx);\n            }\n            ctx.decIndent();\n            ctx.println(stmt,\n            "};");\n    };\n    AbstractJsEmitterVisitor.prototype.visitWrappedNodeExpr = function (ast, ctx) {\n        throw new Error('Cannot emit a WrappedNodeExpr in Javascript.);\n    };\n    AbstractJsEmitterVisitor.prototype.visitReadVarExpr = function (ast, ctx) {\n        if (ast.builtin ===\n        exports.BuiltinVar.This) {\n            ctx.print(ast, 'self');\n        }\n        else if (ast.builtin ===\n        exports.BuiltinVar.Super) {\n            throw new Error("'super' needs to be handled at a parent ast node, not at the\n            variable level!");\n        }\n        else {\n            _super.prototype.visitReadVarExpr.call(this, ast, ctx);\n        }\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitDeclareVarStmt = function (stmt, ctx)\n    {\n        ctx.print(stmt, "var " + stmt.name);\n        if (stmt.value) {\n            ctx.print(stmt, ' = ');\n            stmt.value.visitExpression(this,\n            ctx);\n        }\n        ctx.println(stmt, ";");\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitCastExpr = function (ast, ctx) {\n        ast.value.visitExpression(this,\n        ctx);\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitInvokeFunctionExpr = function\n    (expr, ctx) {\n        var fnExpr = expr.fn;\n        if (fnExpr instanceof ReadVarExpr && fnExpr.builtin ===\n        exports.BuiltinVar.Super) {\n            ctx.currentClass.parent.visitExpression(this, ctx);\n            ctx.print(expr,\n            ".call(this");\n            if (expr.args.length > 0) {\n                ctx.print(expr, ", ");\n                this.visitAllExpressions(expr.args, ctx, ',');\n            }\n            ctx.print(expr, "());\n        }\n        else {\n            _super.prototype.visitInvokeFunctionExpr.call(this, expr, ctx);\n        }\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitFunctionExpr = function (ast, ctx) {\n        ctx.print(ast,\n        "function" + (ast.name ? ' ' + ast.name : '') + "(\n        ctx.println(ast, " {\n            ctx.incIndent();\n            this.visitAllStatements(ast.statements, ctx);\n            ctx.decIndent();\n            ctx.print(ast, "});");\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitDeclareFunctionStmt = function (stmt, ctx) {\n        ctx.print(stmt,\n        "function " + stmt.name + "(\n        this._visitParams(stmt.params, ctx);\n        ctx.println(stmt, " {\n            ctx.incIndent();\n            this.visitAllStatements(stmt.statements, ctx);\n            ctx.decIndent();\n            ctx.println(stmt, "});");\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitTryCatchStmt =\n    function (stmt, ctx) {\n        ctx.println(stmt, "try {\n            ctx.incIndent();\n            this.visitAllStatements(stmt.bodyStmts, ctx);\n            ctx.decIndent();\n            ctx.println(stmt, "} catch (" + CATCH_ERROR_VAR$1.name + " {\n            ctx.incIndent();\n            var catchStmts =\n            [CATCH_STACK_VAR$1.set(CATCH_ERROR_VAR$1.prop('stack')).toDeclStmt(null, [\n            exports.StmtModifier.Final\n            ])].concat(stmt.catchStmts);\n            this.visitAllStatements(catchStmts,\n            ctx);\n            ctx.decIndent();\n            ctx.println(stmt, "});");\n        return null;\n    };\n    AbstractJsEmitterVisitor.prototype.visitLocalizedString = function (ast, ctx) {\n        var _this = this;\n        //\n        The following convoluted piece of code is effectively the downlevelled equivalent of\n        // ```\n        //\n        $localize `...`\n        // ```\n        // which is effectively like:\n        // ```\n        //\n        // $localize(__makeTemplateObject(cooked, raw), expression1, expression2, ...);\n        // ```\n        //\n        // The `$localize` function expects a "template object", which is an array of "cooked" strings\n        // plus a

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`raw` property that contains an array of `raw` strings.\n          //\n          // In some environments a helper
function called `__makeTemplateObject(cooked, raw)` might be\n          // available, in which case we use that.
Otherwise we must create our own helper function\n          // inline.\n          //\n          // In the inline function, if
`Object.defineProperty` is available we use that to attach the\n          // `raw` array.\n          ctx.print(ast,
'$localize((this&&this.__makeTemplateObject||function(e,t){return
Object.defineProperty?Object.defineProperty(e,\"raw\",{value:t}):e.raw=t,e}))');\n          var parts =
[ast.serializeI18nHead()];\n          for (var i = 1; i < ast.messageParts.length;
i++) {\n          parts.push(ast.serializeI18nTemplatePart(i));\n          }\n          ctx.print(ast, '[' +
parts.map(function (part) { return escapeIdentifier(part.cooked, false); }).join(', ') + ']', '\n');\n          ctx.print(ast,
 '[' + parts.map(function (part) { return escapeIdentifier(part.raw, false); }).join(', ') + '])\n');\n
ast.expressions.forEach(function (expression) {\n          ctx.print(ast, ', ');\n
expression.visitExpression(_this, ctx);\n          });\n          ctx.print(ast, ');\n          return null;\n          };\n
AbstractJsEmitterVisitor.prototype._visitParams = function (params, ctx) {\n          this.visitAllObjects(function
(param) { return ctx.print(null, param.name); }, params, ctx, ',');\n          };\n
AbstractJsEmitterVisitor.prototype.getBuiltinMethodName = function (method) {\n          var name;\n
switch (method) {\n          case exports.BuiltinMethod.ConcatArray:\n
name = 'concat';\n          break;\n          case exports.BuiltinMethod.SubscribeObservable:\n
name = 'subscribe';\n          break;\n          case exports.BuiltinMethod.Bind:\n          name =
'bind';\n          break;\n          default:\n          throw new Error("Unknown builtin method: " +
method);\n          }\n          return name;\n          };\n          return AbstractJsEmitterVisitor;\n
})(AbstractEmitterVisitor);\n          /**\n          * A helper class to manage the evaluation of JIT generated code.\n          */\n
var JitEvaluator = /** @class */ (function () {\n          function JitEvaluator() {\n          }\n          /**\n          *
@param sourceUrl The URL of the generated code.\n          * @param statements An array of Angular statement
AST nodes to be evaluated.\n          * @param reflector A helper used when converting the statements to executable
code.\n
          * @param createSourceMaps If true then create a source-map for the generated code and include it\n          *
inline as a source-map comment.\n          * @returns A map of all the variables in the generated code.\n          */\n
JitEvaluator.prototype.evaluateStatements = function (sourceUrl, statements, reflector, createSourceMaps) {\n
var converter = new JitEmitterVisitor(reflector);\n          var ctx = EmitterVisitorContext.createRoot();\n          //
Ensure generated code is in strict mode\n          if (statements.length > 0 && !isUseStrictStatement(statements[0]))
{\n          statements = __spread([
literal('use strict').toStmt(),\n          ], statements);\n          }\n
converter.visitAllStatements(statements, ctx);\n          converter.createReturnStmt(ctx);\n          return
this.evaluateCode(sourceUrl, ctx, converter.getArgs(), createSourceMaps);\n          };\n          /**\n          * Evaluate
a piece of JIT generated code.\n          * @param sourceUrl The URL of this generated code.\n          * @param ctx A
context object that contains an AST of the code to be evaluated.\n          * @param vars A map containing the names
and values of variables that the evaluated code might\n          * reference.\n          * @param createSourceMap If true
then create a source-map for the generated code and include it\n          * inline as a source-map comment.\n          *
@returns The result of evaluating the code.\n          */\n
JitEvaluator.prototype.evaluateCode = function
(sourceUrl, ctx, vars, createSourceMap) {\n          var fnBody = "\"\"\"use strict\"\"\";\n" + ctx.toSource() + "\n\"\"\"#\n
sourceURL=\" + sourceUrl;\n          var fnArgNames = [];\n          var fnArgValues = [];\n          for (var
argName in vars) {\n          fnArgValues.push(vars[argName]);\n          fnArgNames.push(argName);\n
}\n          if (createSourceMap) {\n
// using `new Function(...)` generates a header, 1 line of no arguments, 2 lines otherwise\n          // E.g. ```\n
// function anonymous(a,b,c\n          // /**/) { ... }```\n          // We don't want to hard code this fact, so
we auto detect it via an empty function first.\n          var emptyFn = new (Function.bind.apply(Function,
__spread([void 0], fnArgNames.concat('return null;')))).toString();\n          var headerLines = emptyFn.slice(0,
emptyFn.indexOf('return null;')).split("\n").length - 1;\n          fnBody += "\n" +
ctx.toSourceMapGenerator(sourceUrl, headerLines).toJsComment();\n          }\n          var fn = new

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(Function.bind.apply(Function, __spread([void 0], fnArgNames.concat(fnBody))))();\n      return
this.executeFunction(fn, fnArgValues);\n    };\n    /**\n     * Execute a JIT generated function by calling it.\n     *\n     * This method can be overridden in tests to capture
the functions that are generated\n     * by this `JitEvaluator` class.\n     *\n     * @param fn A function to
execute.\n     * @param args The arguments to pass to the function being executed.\n     * @returns The return
value of the executed function.\n     */\n    JitEvaluator.prototype.executeFunction = function (fn, args) {\n
return fn.apply(void 0, __spread(args));\n    };\n    return JitEvaluator;\n  }());\n  /**\n   * An Angular AST
visitor that converts AST nodes into executable JavaScript code.\n   */\n  var JitEmitterVisitor = /** @class */
(function (_super) {\n    __extends(JitEmitterVisitor, _super);\n    function JitEmitterVisitor(reflector) {\n
var _this = _super.call(this) || this;\n    _this.reflector = reflector;\n    _this._evalArgNames = [];\n
    _this._evalArgValues = [];\n    _this._evalExportedVars = [];\n    return _this;\n  }\n  JitEmitterVisitor.prototype.createReturnStmt
= function (ctx) {\n    var stmt = new ReturnStatement(new
LiteralMapExpr(this._evalExportedVars.map(function (resultVar) { return new LiteralMapEntry(resultVar,
variable(resultVar), false); })));;\n    stmt.visitStatement(this, ctx);\n  };\n  JitEmitterVisitor.prototype.getArgs = function () {\n    var result = {};\n    for (var i = 0; i <
this._evalArgNames.length; i++) {\n      result[this._evalArgNames[i]] = this._evalArgValues[i];\n    }\n    return result;\n  };\n  JitEmitterVisitor.prototype.visitExternalExpr = function (ast, ctx) {\n
this._emitReferenceToExternal(ast, this.reflector.resolveExternalReference(ast.value), ctx);\n    return null;\n  };\n  JitEmitterVisitor.prototype.visitWrappedNodeExpr = function (ast, ctx) {\n
this._emitReferenceToExternal(ast, ast.node, ctx);\n    return null;\n  };\n  JitEmitterVisitor.prototype.visitDeclareVarStmt = function (stmt, ctx) {\n    if
(stmt.hasModifier(exports.StmtModifier.Exported)) {\n      this._evalExportedVars.push(stmt.name);\n    }\n    return _super.prototype.visitDeclareVarStmt.call(this, stmt, ctx);\n  };\n  JitEmitterVisitor.prototype.visitDeclareFunctionStmt = function (stmt, ctx) {\n    if
(stmt.hasModifier(exports.StmtModifier.Exported)) {\n      this._evalExportedVars.push(stmt.name);\n    }\n    return _super.prototype.visitDeclareFunctionStmt.call(this, stmt, ctx);\n  };\n  JitEmitterVisitor.prototype.visitDeclareClassStmt = function (stmt, ctx) {\n    if
(stmt.hasModifier(exports.StmtModifier.Exported)) {\n      this._evalExportedVars.push(stmt.name);\n    }\n    return _super.prototype.visitDeclareClassStmt.call(this, stmt, ctx);\n  };\n  JitEmitterVisitor.prototype._emitReferenceToExternal
= function (ast, value, ctx) {\n    var id = this._evalArgValues.indexOf(value);\n    if (id === -1) {\n
      id = this._evalArgValues.length;\n      this._evalArgValues.push(value);\n      var name =
identifierName({ reference: value }) || 'val';\n      this._evalArgNames.push('jit_' + name + '_' + id);\n    }\n    ctx.print(ast, this._evalArgNames[id]);\n  };\n  return JitEmitterVisitor;\n
})(AbstractJsEmitterVisitor);\n  function isUseStrictStatement(statement) {\n    return
statement.isEquivalent(literal('use strict').toStmt());\n  }\n  /**\n   * @license\n   * Copyright Google LLC
All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   *
found in the LICENSE file at https://angular.io/license\n   */\n  var $EOF = 0;\n  var $BSPACE = 8;\n  var
$TAB = 9;\n  var $LF = 10;\n  var $VTAB = 11;\n
  var $FF = 12;\n  var $CR = 13;\n  var $SPACE = 32;\n  var $BANG = 33;\n  var $DQ = 34;\n  var $HASH
= 35;\n  var $$ = 36;\n  var $PERCENT = 37;\n  var $AMPERSAND = 38;\n  var $SQ = 39;\n  var $LPAREN
= 40;\n  var $RPAREN = 41;\n  var $STAR = 42;\n  var $PLUS = 43;\n  var $COMMA = 44;\n  var $MINUS
= 45;\n  var $PERIOD = 46;\n  var $SLASH = 47;\n  var $COLON = 58;\n  var $SEMICOLON = 59;\n  var
$LT = 60;\n  var $EQ = 61;\n  var $GT = 62;\n  var $QUESTION = 63;\n  var $0 = 48;\n  var $7 = 55;\n  var
$9 = 57;\n  var $A = 65;\n  var $E = 69;\n  var $F = 70;\n  var $X = 88;\n  var $Z = 90;\n  var $LBRACKET
= 91;\n  var $BACKSLASH = 92;\n  var $RBRACKET = 93;\n  var $CARET = 94;\n  var $_ = 95;\n  var $a =
97;\n  var $b = 98;\n  var $e = 101;\n  var $f = 102;\n  var $n = 110;\n  var $r = 114;\n  var $t = 116;\n  var

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$u = 117;\n  var $v = 118;\n  var $x = 120;\n  var $z = 122;\n  var $LBRACE = 123;\n
  var $BAR = 124;\n  var $RBRACE = 125;\n  var $NBSP = 160;\n  var $PIPE = 124;\n  var $TILDA =
126;\n  var $AT = 64;\n  var $BT = 96;\n  function isWhitespace(code) {\n    return (code >= $TAB && code
<= $SPACE) || (code == $NBSP);\n  }\n  function isDigit(code) {\n    return $0 <= code && code <= $9;\n
}\n  function isAsciiLetter(code) {\n    return code >= $a && code <= $z || code >= $A && code <= $Z;\n  }\n
  function isAsciiHexDigit(code) {\n    return code >= $a && code <= $f || code >= $A && code <= $F ||
isDigit(code);\n  }\n  function isNewLine(code) {\n    return code === $LF || code === $CR;\n  }\n  function
isOctalDigit(code) {\n    return $0 <= code && code <= $7;\n  }\n\n  /**\n   * @license\n   * Copyright
Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can
be\n   * found in the LICENSE file at https://angular.io/license\n   */\n
  var ParseLocation = /** @class */ (function () {\n    function ParseLocation(file, offset, line, col) {\n
this.file = file;\n      this.offset = offset;\n      this.line = line;\n      this.col = col;\n    }\n
    ParseLocation.prototype.toString = function () {\n      return this.offset != null ? this.file.url + "@" + this.line +
":" + this.col : this.file.url;\n    };\n    ParseLocation.prototype.moveBy = function (delta) {\n      var source
= this.file.content;\n      var len = source.length;\n      var offset = this.offset;\n      var line = this.line;\n
      var col = this.col;\n      while (offset > 0 && delta < 0) {\n        offset--;\n        delta++;\n
      }\n      var ch = source.charCodeAtAt(offset);\n      if (ch === $LF) {\n        line--;\n        var priorLine =
source.substr(0, offset - 1).lastIndexOf(String.fromCharCode($LF));\n
        col = priorLine > 0 ? offset - priorLine : offset;\n      }\n      else {\n        col--;\n
      }\n      while (offset < len && delta > 0) {\n        var ch = source.charCodeAtAt(offset);\n
        offset++;\n        delta--;\n        if (ch === $LF) {\n          line++;\n          col = 0;\n
        }\n      }\n      else {\n        col++;\n      }\n      return new ParseLocation(this.file, offset,
line, col);\n    };\n    // Return the source around the location\n    // Up to `maxChars` or `maxLines` on each
side of the location\n    ParseLocation.prototype.getContext = function (maxChars, maxLines) {\n      var
content = this.file.content;\n      var startOffset = this.offset;\n      if (startOffset != null) {\n        if
(startOffset > content.length - 1) {\n          startOffset = content.length - 1;\n        }\n        var endOffset = startOffset;\n        var
ctxChars = 0;\n        var ctxLines = 0;\n        while (ctxChars < maxChars && startOffset > 0) {\n          startOffset--;\n          ctxChars++;\n          if (content[startOffset] === "\\n") {\n            if
(++ctxLines == maxLines) {\n              break;\n            }\n          }\n        }\n        ctxChars = 0;\n        ctxLines = 0;\n        while (ctxChars < maxChars && endOffset < content.length - 1) {\n          endOffset++;\n          ctxChars++;\n          if (content[endOffset] === "\\n") {\n            if
(++ctxLines == maxLines) {\n              break;\n            }\n          }\n        }\n        return {\n          before: content.substring(startOffset, this.offset),\n          after: content.substring(this.offset,
endOffset + 1),\n        };\n      }\n      return null;\n    };\n    return ParseLocation;\n  }());\n  var
ParseSourceFile = /** @class */ (function () {\n    function ParseSourceFile(content, url) {\n      this.content =
content;\n      this.url = url;\n    }\n    return ParseSourceFile;\n  }());\n  var ParseSourceSpan = /**
@class */ (function () {\n    /**\n     * Create an object that holds information about spans of tokens/nodes
captured during\n     * lexing/parsing of text.\n     * @param start\n     * The location of the start of
the span (having skipped leading trivia).\n     * Skipping leading trivia makes source-spans more "user friendly",
since things like HTML\n     * elements will appear to begin at the start of the opening tag, rather than at the
start of any\n     * leading trivia, which could include newlines.\n     * @param end\n     * The
location of the end of the span.\n     * @param fullStart\n     * The start of the token without skipping
the leading trivia.\n     * This is used by tooling that splits tokens further, such as extracting Angular
interpolations\n     * from text tokens. Such tooling creates new source-spans relative to the original token's\n
     * source-span. If leading trivia characters have been skipped then the new source-spans may be\n     * incorrectly
offset.\n     * @param details\n     * Additional information (such as identifier names) that should be

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associated with the span.\n      */\n      function ParseSourceSpan(start, end, fullStart, details) {\n          if\n            (fullStart === void 0) { fullStart = start; }\n          if (details === void 0) { details = null; }\n          this.start =\n            start;\n          this.end = end;\n          this.fullStart = fullStart;\n          this.details = details;\n          }\n      ParseSourceSpan.prototype.toString = function () {\n          return this.start.file.content.substring(this.start.offset,\n            this.end.offset);\n      };\n      return ParseSourceSpan;\n    }());\n    (function (ParseErrorLevel) {\n      ParseErrorLevel[ParseErrorLevel["WARNING"] = 0] = "WARNING";\n      ParseErrorLevel[ParseErrorLevel["ERROR"] = 1] = "ERROR";\n    })(exports.ParseErrorLevel ||\n      (exports.ParseErrorLevel = {}));\n    var ParseError = /** @class */ (function () {\n      function ParseError(span,\n        msg, level) {\n        if (level === void 0) { level = exports.ParseErrorLevel.ERROR; }\n        this.span = span;\n        this.msg = msg;\n        this.level = level;\n      }\n      ParseError.prototype.contextualMessage = function\n        () {\n          var ctx = this.span.start.getContext(100, 3);\n          return ctx ? this.msg\n            + "\n      (" + ctx.before + "[" + exports.ParseErrorLevel[this.level] + "\n        ->]" + ctx.after + ")\n      " : this.msg;\n        };\n      ParseError.prototype.toString = function () {\n          var details = this.span.details ? "\n        " + this.span.details : "";\n          return this.contextualMessage() + "\n      " + this.span.start + details;\n        };\n      return ParseError;\n    }());\n    function typeSourceSpan(kind, type) {\n      var moduleUrl =\n        identifierModuleUrl(type);\n      var sourceFileName = moduleUrl != null ? "in " + kind + "\n      " +\n        identifierName(type) + "\n      in " + moduleUrl : "in " + kind + "\n      " + identifierName(type);\n      var\n        sourceFile = new ParseSourceFile("", sourceFileName);\n      return new ParseSourceSpan(new\n        ParseLocation(sourceFile, -1, -1, -1), new ParseLocation(sourceFile, -1, -1, -1));\n    }\n    /**\n     * Generates\n     * Source Span object for a given R3 Type for JIT mode.\n     * @param kind Component\n     * or Directive.\n     * @param typeName name of the Component or Directive.\n     * @param sourceUrl reference to\n     * Component or Directive source.\n     * @returns instance of ParseSourceSpan that represent a given Component or\n     * Directive.\n     */\n    function r3JitTypeSourceSpan(kind, typeName, sourceUrl) {\n      var sourceFileName = "in\n      " + kind + "\n      " + typeName + "\n      in " + sourceUrl;\n      var sourceFile = new ParseSourceFile(\n        sourceFileName);\n      return new ParseSourceSpan(new ParseLocation(sourceFile, -1, -1, -1), new\n        ParseLocation(sourceFile, -1, -1, -1));\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights\n     * Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the\n     * LICENSE file at https://angular.io/license\n     */\n    /**\n     * Implementation of `CompileReflector` which\n     * resolves references to @angular/core\n     * symbols at runtime, according to a consumer-provided mapping.\n     *\n     * Only supports `resolveExternalReference`, all other methods throw.\n     */\n    var R3JitReflector = /**\n     * @class */ (function () {\n      function R3JitReflector(context) {\n        this.context = context;\n      }\n      R3JitReflector.prototype.resolveExternalReference = function (ref) {\n        // This reflector only handles\n        @angular/core imports.\n        if (ref.moduleName !== '@angular/core')\n          throw new Error("Cannot\n            resolve external reference to " + ref.moduleName + "\n            , only references to @angular/core are supported.");\n        if (!this.context.hasOwnProperty(ref.name))\n          throw new Error("No value provided for\n            @angular/core symbol " + ref.name + ".");\n        return this.context[ref.name];\n      };\n      R3JitReflector.prototype.parameters = function (typeOrFunc) {\n        throw new Error('Not implemented.);\n      };\n      R3JitReflector.prototype.annotations\n        = function (typeOrFunc) {\n          throw new Error('Not implemented.);\n        };\n      R3JitReflector.prototype.shallowAnnotations = function (typeOrFunc) {\n        throw new Error('Not\n            implemented.);\n      };\n      R3JitReflector.prototype.tryAnnotations = function (typeOrFunc) {\n        throw\n          new Error('Not implemented.);\n      };\n      R3JitReflector.prototype.propMetadata = function (typeOrFunc) {\n        throw\n          new Error('Not implemented.);\n      };\n      R3JitReflector.prototype.hasLifecycleHook = function\n        (type, lcProperty) {\n          throw new Error('Not implemented.);\n        };\n      R3JitReflector.prototype.guards =\n        function (typeOrFunc) {\n          throw new Error('Not implemented.);\n        };\n      R3JitReflector.prototype.componentModuleUrl = function (type, cmpMetadata) {\n        throw\n          new Error('Not\n            implemented.);\n      };\n      return R3JitReflector;\n    }());\n    /**

```

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    * @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed
by an MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    function
mapEntry(key, value) {\n        return { key: key, value: value, quoted: false }; \n    }\n    function mapLiteral(obj,
quoted) {\n        if (quoted === void 0) { quoted = false; }\n        return literalMap(Object.keys(obj).map(function
(key) { return ({\n            key: key,\n            quoted: quoted,\n            value: obj[key],\n        }); }));\n    }\n\n    /**\n    * Construct an `R3NgModuleDef` for the given `R3NgModuleMetadata`.\n    */\n    function
compileNgModule(meta) {\n        var internalType = meta.internalType, moduleType = meta.type, bootstrap =
meta.bootstrap, declarations = meta.declarations, imports = meta.imports, exports = meta.exports, schemas =
meta.schemas, containsForwardDecls = meta.containsForwardDecls, emitInline
= meta.emitInline, id = meta.id;\n        var additionalStatements = [];\n        var definitionMap = { type:
internalType }; \n        // Only generate the keys in the metadata if the arrays have values.\n        if (bootstrap.length)
{\n            definitionMap.bootstrap = refsToArray(bootstrap, containsForwardDecls);\n        }\n        // If requested to
emit scope information inline, pass the declarations, imports and exports to\n        // the `defineNgModule` call. The
JIT compilation uses this.\n        if (emitInline) {\n            if (declarations.length) {\n
definitionMap.declarations = refsToArray(declarations, containsForwardDecls);\n            }\n            if
(imports.length) {\n                definitionMap.imports = refsToArray(imports, containsForwardDecls);\n            }\n
            if (exports.length) {\n                definitionMap.exports = refsToArray(exports, containsForwardDecls);\n
            }\n        }\n        // If not emitting inline,
the scope information is not passed into `defineNgModule` as it would\n        // prevent tree-shaking of the
declarations, imports and exports references.\n        else {\n            var setNgModuleScopeCall =
generateSetNgModuleScopeCall(meta);\n            if (setNgModuleScopeCall !== null) {\n
additionalStatements.push(setNgModuleScopeCall);\n            }\n        }\n        if (schemas && schemas.length) {\n
definitionMap.schemas = literalArr(schemas.map(function (ref) { return ref.value; }));\n        }\n        if (id) {\n
definitionMap.id = id;\n        }\n        var expression =
importExpr(Identifiers$.defineNgModule).callFn([mapToMapExpression(definitionMap)]);\n        var type = new
ExpressionType(importExpr(Identifiers$.NgModuleDefWithMeta, [\n            new
ExpressionType(moduleType.type), tupleTypeOf(declarations), tupleTypeOf(imports),\n
tupleTypeOf(exports)\n        ]));\n        return { expression: expression,
type: type, additionalStatements: additionalStatements }; \n    }\n\n    /**\n    * Generates a function call to
`setNgModuleScope` with all necessary information so that the\n    * transitive module scope can be computed
during runtime in JIT mode. This call is marked pure\n    * such that the references to declarations, imports and
exports may be elided causing these\n    * symbols to become tree-shakeable.\n    */\n    function
generateSetNgModuleScopeCall(meta) {\n        var moduleType = meta.adjacentType, declarations =
meta.declarations, imports = meta.imports, exports = meta.exports, containsForwardDecls =
meta.containsForwardDecls;\n        var scopeMap = {};\n        if (declarations.length) {\n
scopeMap.declarations = refsToArray(declarations, containsForwardDecls);\n        }\n        if (imports.length) {\n
scopeMap.imports = refsToArray(imports, containsForwardDecls);\n        }\n        if (exports.length) {\n
scopeMap.exports =
refsToArray(exports, containsForwardDecls);\n        }\n        if (Object.keys(scopeMap).length === 0) {\n
return null;\n        }\n        // setNgModuleScope(...)\n        var fnCall = new InvokeFunctionExpr(\n            /* fn */
importExpr(Identifiers$.setNgModuleScope), \n            /* args */ [moduleType,
mapToMapExpression(scopeMap)]);\n        // (ngJitMode guard) && setNgModuleScope(...)\n        var guardedCall
= jitOnlyGuardedExpression(fnCall);\n        // function() { (ngJitMode guard) && setNgModuleScope(...); }\n
var iife = new FunctionExpr(\n            /* params */ [], \n            /* statements */ [guardedCall.toStmt()]);\n        //
(function() { (ngJitMode guard) && setNgModuleScope(...); })()\n        var iifeCall = new InvokeFunctionExpr(\n
            /* fn */ iife, \n            /* args */ []);\n        return iifeCall.toStmt();\n    }\n\n    function compileInjector(meta) {\n
var result = compileFactoryFunction({\n        name: meta.name,\n        type:

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meta.type,\n      internalType: meta.internalType,\n      typeArgumentCount: 0,\n      deps: meta.deps,\n      injectFn: Identifiers$1.inject,\n      target: exports.R3FactoryTarget.NgModule,\n    });\n    var\n    definitionMap = {\n      factory: result.factory,\n    };\n    if (meta.providers !== null) {\n    definitionMap.providers = meta.providers;\n    }\n    if (meta.imports.length > 0) {\n    definitionMap.imports = literalArr(meta.imports);\n    }\n    var expression =\n    importExpr(Identifiers$1.defineInjector).callFn([mapToMapExpression(definitionMap)]);\n    var type = new\n    ExpressionType(importExpr(Identifiers$1.InjectorDef, [new ExpressionType(meta.type.type)]));\n    return {\n    expression: expression, type: type, statements: result.statements };\n  }\n  // TODO(alxhub): integrate this with\n  `compileNgModule`. Currently the two are separate operations.\n  function compileNgModuleFromRender2(ctx,\n  ngModule, injectableCompiler) {\n    var className = identifierName(ngModule.type);\n    var rawImports =\n    ngModule.rawImports ? [ngModule.rawImports] : [];\n    var rawExports = ngModule.rawExports ?\n    [ngModule.rawExports] : [];\n    var injectorDefArg = mapLiteral({\n      'factory':\n    injectableCompiler.factoryFor({ type: ngModule.type, symbol: ngModule.type.reference }, ctx),\n      'providers':\n    convertMetaToOutput(ngModule.rawProviders, ctx),\n      'imports':\n    convertMetaToOutput(__spread(rawImports, rawExports), ctx),\n    });\n    var injectorDef =\n    importExpr(Identifiers$1.defineInjector).callFn([injectorDefArg]);\n    ctx.statements.push(new ClassStmt(\n    /* name */ className, \n    /* parent */ null, \n    /* fields */ [new ClassField(\n    /* name */ 'inj', \n    /* type */ INFERRED_TYPE, \n    /* modifiers */ [exports.StmtModifier.Static], \n    /* initializer */\n    injectorDef)],\n    \n    /* getters */ [], \n    /* constructorMethod */ new ClassMethod(null, [], []), \n    /* methods */ []);\n  }\n  function accessExportScope(module) {\n    var selectorScope = new ReadPropExpr(module, 'mod');\n    return new ReadPropExpr(selectorScope, 'exported');\n  }\n  function tupleTypeOf(exp) {\n    var types =\n    exp.map(function (ref) { return typeOfExpr(ref.type); });\n    return exp.length > 0 ?\n    expressionType(literalArr(types)) : NONE_TYPE;\n  }\n  function refsToArray(refs, shouldForwardDeclare) {\n    var values = literalArr(refs.map(function (ref) { return ref.value; }));\n    return shouldForwardDeclare ? fn([],\n    [new ReturnStatement(values)]) : values;\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights\n    Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the\n    LICENSE file at https://angular.io/license\n   */\n  function compilePipeFromMetadata(metadata)\n  {\n    var definitionMapValues = [];\n    // e.g. `name: 'myPipe`\n    definitionMapValues.push({ key:\n    'name', value: literal(metadata.pipeName), quoted: false });\n    // e.g. `type: MyPipe`\n    definitionMapValues.push({ key: 'type', value: metadata.type.value, quoted: false });\n    // e.g. `pure: true`\n    definitionMapValues.push({ key: 'pure', value: literal(metadata.pure), quoted: false });\n    var expression =\n    importExpr(Identifiers$1.definePipe).callFn([literalMap(definitionMapValues)]);\n    var type = new\n    ExpressionType(importExpr(Identifiers$1.PipeDefWithMeta, [\n    typeWithParameters(metadata.type.type,\n    metadata.typeArgumentCount),\n    new ExpressionType(new LiteralExpr(metadata.pipeName)),\n  ]));\n    return { expression: expression, type: type };\n  }\n  /**\n   * Write a pipe definition to the output context.\n  */\n  function compilePipeFromRender2(outputCtx, pipe, reflector)\n  {\n    var name = identifierName(pipe.type);\n    if (!name) {\n    return error(`Cannot resolve the name\n    of ` + pipe.type);\n    }\n    var type = outputCtx.importExpr(pipe.type.reference);\n    var metadata = {\n    name: name,\n    type: wrapReference(type),\n    internalType: type,\n    pipeName: pipe.name,\n    typeArgumentCount: 0,\n    deps: dependenciesFromGlobalMetadata(pipe.type, outputCtx, reflector),\n    pure: pipe.pure,\n  };\n    var res = compilePipeFromMetadata(metadata);\n    var factoryRes =\n    compileFactoryFunction(Object.assign(Object.assign({}, metadata), { injectFn: Identifiers$1.directiveInject, target:\n    exports.R3FactoryTarget.Pipe }));\n    var definitionField = outputCtx.constantPool.propertyNameOf(3 /* Pipe\n    */);\n    var ngFactoryDefStatement = new ClassStmt(\n    /* name */ name, \n    /* parent */ null, \n    /*\n    fields */\n    [new ClassField(\n    /* name */ 'fac', \n    /* type */ INFERRED_TYPE, \n    /* modifiers */\n    [exports.StmtModifier.Static], \n    /* initializer */ factoryRes.factory)], \n    /* getters */ [], \n    /*\n
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constructorMethod */ new ClassMethod(null, [], [], \n      /* methods */ []);\n      var pipeDefStatement = new
ClassStmt(\n      /* name */ name, \n      /* parent */ null, \n      /* fields */ [new ClassField(\n      /* name */
definitionField, \n      /* type */ INFERRED_TYPE, \n      /* modifiers */ [exports.StmtModifier.Static], \n
      /* initializer */ res.expression)], \n      /* getters */ [], \n      /* constructorMethod */ new ClassMethod(null, [],
[], \n      /* methods */ []);\n      outputCtx.statements.push(ngFactoryDefStatement, pipeDefStatement);\n  }\n\n
/**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * \n   * Use of this source code is
governed by an
MIT-style license that can be\n   * found in the LICENSE file at https://angular.io/license\n   */\n   var
ParserError = /** @class */ (function () {\n      function ParserError(message, input, errLocation, ctxLocation) {\n
this.input = input;\n      this.errLocation = errLocation;\n      this.ctxLocation = ctxLocation;\n
this.message = \"Parser Error: \" + message + \" \" + errLocation + \" \" + input + \"\" in \" + ctxLocation;\n      }\n
return ParserError;\n  }());\n   var ParseSpan = /** @class */ (function () {\n      function ParseSpan(start, end)
{\n      this.start = start;\n      this.end = end;\n      }\n      ParseSpan.prototype.toAbsolute = function
(absoluteOffset) {\n      return new AbsoluteSourceSpan(absoluteOffset + this.start, absoluteOffset + this.end);\n
};\n      return ParseSpan;\n  }());\n   var AST = /** @class */ (function () {\n      function AST(span, \n
/**\n      * Absolute location of the expression AST in a source code file.\n      */\n      sourceSpan) {\n
this.span = span;\n      this.sourceSpan = sourceSpan;\n      }\n      AST.prototype.visit = function (visitor,
context) {\n      if (context === void 0) { context = null; }\n      return null;\n      };\n
AST.prototype.toString = function () {\n      return 'AST';\n      };\n      return AST;\n  }());\n   var
ASTWithName = /** @class */ (function (_super) {\n      __extends(ASTWithName, _super);\n      function
ASTWithName(span, sourceSpan, nameSpan) {\n      var _this = _super.call(this, span, sourceSpan) || this;\n
this.nameSpan = nameSpan;\n      return _this;\n      }\n      return ASTWithName;\n  }(AST));\n   /**\n   * Represents a quoted expression of the form:\n   * \n   * quote = prefix `` uninterpretedExpression\n   * prefix =
identifier\n   * uninterpretedExpression
= arbitrary string\n   * \n   * A quoted expression is meant to be pre-processed by an AST transformer that\n   *
converts it into another AST that no longer contains quoted expressions.\n   * It is meant to allow third-party
developers to extend Angular template\n   * expression language. The `uninterpretedExpression` part of the quote
is\n   * therefore not interpreted by the Angular's own expression parser.\n   */\n   var Quote = /** @class */
(function (_super) {\n      __extends(Quote, _super);\n      function Quote(span, sourceSpan, prefix,
uninterpretedExpression, location) {\n      var _this = _super.call(this, span, sourceSpan) || this;\n
this.prefix = prefix;\n      this.uninterpretedExpression = uninterpretedExpression;\n      this.location =
location;\n      return _this;\n      }\n      Quote.prototype.visit = function (visitor, context) {\n      if (context
=== void 0) { context = null; }\n      return
visitor.visitQuote(this, context);\n      };\n      Quote.prototype.toString = function () {\n      return 'Quote';\n
};\n      return Quote;\n  }(AST));\n   var EmptyExpr = /** @class */ (function (_super) {\n
__extends(EmptyExpr, _super);\n      function EmptyExpr() {\n      return _super !== null &&
_super.apply(this, arguments) || this;\n      }\n      EmptyExpr.prototype.visit = function (visitor, context) {\n
if (context === void 0) { context = null; }\n      // do nothing\n      };\n      return EmptyExpr;\n  }(AST));\n
var ImplicitReceiver = /** @class */ (function (_super) {\n      __extends(ImplicitReceiver, _super);\n      function
ImplicitReceiver() {\n      return _super !== null && _super.apply(this, arguments) || this;\n      }\n
ImplicitReceiver.prototype.visit = function (visitor, context) {\n      if (context === void 0) { context = null; }\n
return visitor.visitImplicitReceiver(this,
context);\n      };\n      return ImplicitReceiver;\n  }(AST));\n   /**\n   * Receiver when something is accessed
through `this` (e.g. `this.foo`). Note that this class\n   * inherits from `ImplicitReceiver`, because accessing
something through `this` is treated the\n   * same as accessing it implicitly inside of an Angular template (e.g.
`[attr.title]=`this.title``\n   * is the same as `[attr.title]=`title``). Inheriting allows for the `this` accesses to be
treated\n   * the same as implicit ones, except for a couple of exceptions like `Sevent` and `Sany`.\n   * TODO: we

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should find a way for this class not to extend from `ImplicitReceiver` in the future.\n    */\n    var ThisReceiver =
/** @class */ (function (_super) {\n    __extends(ThisReceiver, _super);\n    function ThisReceiver() {\n    return _super !== null && _super.apply(this, arguments) || this;\n    }\n    ThisReceiver.prototype.visit =
function (visitor,
    context) {\n        if (context === void 0) { context = null; }\n        var _a;\n        return (_a =
visitor.visitThisReceiver) === null || _a === void 0 ? void 0 : _a.call(visitor, this, context);\n    };\n    return
ThisReceiver;\n})(ImplicitReceiver));\n    /**\n     * Multiple expressions separated by a semicolon.\n     */\n    var
Chain = /** @class */ (function (_super) {\n    __extends(Chain, _super);\n    function Chain(span, sourceSpan,
expressions) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.expressions =
expressions;\n        return _this;\n    }\n    Chain.prototype.visit = function (visitor, context) {\n        if
(context === void 0) { context = null; }\n        return visitor.visitChain(this, context);\n    };\n    return
Chain;\n})(AST));\n    var Conditional = /** @class */ (function (_super) {\n    __extends(Conditional,
_super);\n    function Conditional(span,
sourceSpan, condition, trueExp, falseExp) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n
_this.condition = condition;\n        _this.trueExp = trueExp;\n        _this.falseExp = falseExp;\n        return
_this;\n    }\n    Conditional.prototype.visit = function (visitor, context) {\n        if (context === void 0) {\n
context = null; }\n        return visitor.visitConditional(this, context);\n    };\n    return Conditional;\n
})(AST));\n    var PropertyRead = /** @class */ (function (_super) {\n    __extends(PropertyRead, _super);\n    function PropertyRead(span, sourceSpan, nameSpan, receiver, name) {\n        var _this = _super.call(this, span,
sourceSpan, nameSpan) || this;\n        _this.receiver = receiver;\n        _this.name = name;\n        return
_this;\n    }\n    PropertyRead.prototype.visit = function (visitor, context) {\n        if (context === void
0) { context = null; }\n        return visitor.visitPropertyRead(this, context);\n    };\n    return PropertyRead;\n
})(ASTWithName));\n    var PropertyWrite = /** @class */ (function (_super) {\n    __extends(PropertyWrite,
_super);\n    function PropertyWrite(span, sourceSpan, nameSpan, receiver, name, value) {\n        var _this =
_super.call(this, span, sourceSpan, nameSpan) || this;\n        _this.receiver = receiver;\n        _this.name =
name;\n        _this.value = value;\n        return _this;\n    }\n    PropertyWrite.prototype.visit = function
(visitor, context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitPropertyWrite(this,
context);\n    };\n    return PropertyWrite;\n})(ASTWithName));\n    var SafePropertyRead = /** @class */
(function (_super) {\n    __extends(SafePropertyRead, _super);\n    function SafePropertyRead(span,
sourceSpan, nameSpan, receiver, name) {\n        var _this = _super.call(this, span, sourceSpan, nameSpan) || this;\n
        _this.receiver = receiver;\n        _this.name = name;\n        return _this;\n    }\n    SafePropertyRead.prototype.visit = function (visitor,
context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitSafePropertyRead(this,
context);\n    };\n    return SafePropertyRead;\n})(ASTWithName));\n    var KeyedRead = /** @class */
(function (_super) {\n    __extends(KeyedRead, _super);\n    function KeyedRead(span, sourceSpan, obj, key) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.obj = obj;\n        _this.key = key;\n        return
_this;\n    }\n    KeyedRead.prototype.visit = function (visitor, context) {\n        if (context ===
void 0) { context = null; }\n        return visitor.visitKeyedRead(this, context);\n    };\n    return KeyedRead;\n
})(AST));\n    var KeyedWrite = /** @class */ (function (_super) {\n    __extends(KeyedWrite, _super);\n    function KeyedWrite(span, sourceSpan, obj, key, value) {\n        var _this = _super.call(this, span, sourceSpan) ||
this;\n        _this.obj = obj;\n        _this.key = key;\n        _this.value = value;\n        return _this;\n    }\n    KeyedWrite.prototype.visit = function (visitor, context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitKeyedWrite(this, context);\n    };\n    return KeyedWrite;\n})(AST));\n    var BindingPipe
= /** @class */ (function (_super) {\n    __extends(BindingPipe, _super);\n    function BindingPipe(span,
sourceSpan, exp, name, args, nameSpan) {\n        var _this = _super.call(this, span, sourceSpan, nameSpan) ||
this;\n        _this.exp = exp;\n        _this.name = name;\n        _this.args = args;\n        return _this;\n    }\n    BindingPipe.prototype.visit = function (visitor, context) {\n        if (context === void 0) { context =
null; }\n        return visitor.visitPipe(this, context);\n    };\n    return BindingPipe;\n})(ASTWithName));\n

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var LiteralPrimitive = /** @class */ (function (_super) {\n    __extends(LiteralPrimitive, _super);\n    function\n    LiteralPrimitive(span, sourceSpan, value) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.value = value;\n        return _this;\n    }\n    LiteralPrimitive.prototype.visit = function (visitor, context)\n    {\n        if (context === void 0) { context = null; }\n        return visitor.visitLiteralPrimitive(this, context);\n    };\n    return LiteralPrimitive;\n})(AST));\nvar LiteralArray = /** @class */ (function (_super) {\n    __extends(LiteralArray, _super);\n    function LiteralArray(span, sourceSpan, expressions) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.expressions = expressions;\n        return\n        _this;\n    }\n    LiteralArray.prototype.visit = function (visitor, context) {\n        if (context === void 0) {\n            context = null; }\n        return visitor.visitLiteralArray(this, context);\n    };\n    return LiteralArray;\n})(AST));\nvar LiteralMap = /** @class */ (function (_super) {\n    __extends(LiteralMap, _super);\n    function LiteralMap(span, sourceSpan, keys, values) {\n        var _this = _super.call(this, span, sourceSpan) ||\n        this;\n        _this.keys = keys;\n        _this.values = values;\n        return _this;\n    }\n    LiteralMap.prototype.visit = function (visitor, context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitLiteralMap(this, context);\n    };\n    return LiteralMap;\n})(AST));\nvar Interpolation =\n/** @class */\n(function (_super) {\n    __extends(Interpolation, _super);\n    function Interpolation(span, sourceSpan, strings,\n    expressions) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.strings = strings;\n        _this.expressions = expressions;\n        return _this;\n    }\n    Interpolation.prototype.visit = function (visitor,\n    context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitInterpolation(this,\n        context);\n    };\n    return Interpolation;\n})(AST));\nvar Binary = /** @class */ (function (_super) {\n    __extends(Binary, _super);\n    function Binary(span, sourceSpan, operation, left, right) {\n        var _this =\n        _super.call(this, span, sourceSpan) || this;\n        _this.operation = operation;\n        _this.left = left;\n        _this.right = right;\n        return _this;\n    }\n    Binary.prototype.visit = function (visitor,\n    context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitBinary(this, context);\n    };\n    return Binary;\n})(AST));\n/**\n * For backwards compatibility reasons, `Unary` inherits from\n * `Binary` and mimics the binary AST\n * node that was originally used. This inheritance relation can be deleted in\n * some future major,\n * after consumers have been given a chance to fully support Unary.\n */\nvar Unary =\n/** @class */ (function (_super) {\n    __extends(Unary, _super);\n    /**\n     * During the deprecation\n     * period this constructor is private, to avoid consumers from creating\n     * a `Unary` with the fallback properties\n     * for `Binary`.\n     */\n    function Unary(span, sourceSpan, operator, expr, binaryOp, binaryLeft, binaryRight)\n    {\n        var _this = _super.call(this, span, sourceSpan, binaryOp, binaryLeft, binaryRight) || this;\n        _this.operator = operator;\n        _this.expr = expr;\n        return _this;\n    }\n    /**\n     * Creates a unary minus expression \"-x\",  
represented as `Binary` using \"0 - x\".\n     */\n    Unary.createMinus = function (span, sourceSpan, expr) {\n        return new Unary(span, sourceSpan, '-', expr, '-', new LiteralPrimitive(span, sourceSpan, 0), expr);\n    };\n    /**\n     * Creates a unary plus expression \"+x\", represented as `Binary` using \"x - 0\".\n     */\n    Unary.createPlus = function (span, sourceSpan, expr) {\n        return new Unary(span, sourceSpan, '+', expr, '-',\n        expr, new LiteralPrimitive(span, sourceSpan, 0));\n    };\n    Unary.prototype.visit = function (visitor, context)\n    {\n        if (context === void 0) { context = null; }\n        if (visitor.visitUnary !== undefined) {\n            return visitor.visitUnary(this, context);\n        }\n        return visitor.visitBinary(this, context);\n    };\n    return Unary;\n})(Binary));\nvar PrefixNot = /** @class */ (function (_super) {\n    __extends(PrefixNot, _super);\n    function PrefixNot(span, sourceSpan, expression) {\n        var _this =\n        _super.call(this, span, sourceSpan) || this;\n        _this.expression = expression;\n        return _this;\n    }\n    PrefixNot.prototype.visit = function (visitor, context) {\n        if (context === void 0) { context = null; }\n        return visitor.visitPrefixNot(this, context);\n    };\n    return PrefixNot;\n})(AST));\nvar NonNullAssert =\n/** @class */ (function (_super) {\n    __extends(NonNullAssert, _super);\n    function NonNullAssert(span,\n    sourceSpan, expression) {\n        var _this = _super.call(this, span, sourceSpan) || this;\n        _this.expression =\n        expression;\n        return _this;\n    }\n    NonNullAssert.prototype.visit = function (visitor, context) {\n

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if (context
=== void 0) { context = null; }\n      return visitor.visitNonNullAssert(this, context);\n    };\n    return
NonNullAssert);\n  }(AST));\n  var MethodCall = /** @class */ (function (_super) {\n    __extends(MethodCall,
_super);\n    function MethodCall(span, sourceSpan, nameSpan, receiver, name, args) {\n      var _this =
_super.call(this, span, sourceSpan, nameSpan) || this;\n      _this.receiver = receiver;\n      _this.name =
name;\n      _this.args = args;\n      return _this;\n    }\n    MethodCall.prototype.visit = function (visitor,
context) {\n      if (context === void 0) { context = null; }\n      return visitor.visitMethodCall(this,
context);\n    };\n    return MethodCall;\n  }(ASTWithName));\n  var SafeMethodCall = /** @class */
(function (_super) {\n    __extends(SafeMethodCall, _super);\n    function SafeMethodCall(span, sourceSpan,
nameSpan, receiver, name, args) {\n      var _this = _super.call(this, span, sourceSpan, nameSpan) || this;\n      _this.receiver = receiver;\n      _this.name = name;\n      _this.args = args;\n      return _this;\n    }\n    SafeMethodCall.prototype.visit =
function (visitor, context) {\n      if (context === void 0) { context = null; }\n      return
visitor.visitSafeMethodCall(this, context);\n    };\n    return SafeMethodCall;\n  }(ASTWithName));\n  var
FunctionCall = /** @class */ (function (_super) {\n    __extends(FunctionCall, _super);\n    function
FunctionCall(span, sourceSpan, target, args) {\n      var _this = _super.call(this, span, sourceSpan) || this;\n      _this.target = target;\n      _this.args = args;\n      return _this;\n    }\n    FunctionCall.prototype.visit =
function (visitor, context) {\n      if (context === void 0) { context = null; }\n      return
visitor.visitFunctionCall(this, context);\n    };\n    return FunctionCall;\n  }(AST));\n  /**\n   * Records the absolute position of a text span in a
source file, where `start` and `end` are the\n   * starting and ending byte offsets, respectively, of the text span in a
source file.\n   */\n  var AbsoluteSourceSpan = /** @class */ (function () {\n    function
AbsoluteSourceSpan(start, end) {\n      this.start = start;\n      this.end = end;\n    }\n    return
AbsoluteSourceSpan;\n  }());\n  var ASTWithSource = /** @class */ (function (_super) {\n    __extends(ASTWithSource, _super);\n    function ASTWithSource(ast, source, location, absoluteOffset, errors) {\n      var _this = _super.call(this, new ParseSpan(0, source === null ? 0 : source.length), new
AbsoluteSourceSpan(absoluteOffset, source === null ? absoluteOffset : absoluteOffset + source.length)) || this;\n      _this.ast = ast;\n      _this.source = source;\n      _this.location = location;\n      _this.errors = errors;\n      return _this;\n    }\n    ASTWithSource.prototype.visit = function (visitor,
context) {\n      if (context === void 0) { context = null; }\n      if (visitor.visitASTWithSource) {\n        return visitor.visitASTWithSource(this, context);\n      }\n      return this.ast.visit(visitor, context);\n    };\n    ASTWithSource.prototype.toString = function () {\n      return this.source + '\n' in '\n' + this.location;\n    };\n    return ASTWithSource;\n  }(AST));\n  var VariableBinding = /** @class */ (function () {\n    /**\n     * @param sourceSpan entire span of the binding.\n     * @param key name of the LHS along with its span.\n     * @param value optional value for the RHS along with its span.\n     */\n    function
VariableBinding(sourceSpan, key, value) {\n      this.sourceSpan = sourceSpan;\n      this.key = key;\n      this.value
= value;\n    }\n    return VariableBinding;\n  }());\n  var ExpressionBinding = /** @class */ (function () {\n    /**\n     * @param sourceSpan entire span of the binding.\n     * @param key binding name, like ngForOf,
ngForTrackBy, ngIf, along with its\n     * span. Note that the length of the span may not be the same as\n     * `key.source.length`. For example,\n     * 1. key.source = ngFor, key.span is for \"ngFor\"\n     * 2. key.source =
ngForOf, key.span is for \"of\"\n     * 3. key.source = ngForTrackBy, key.span is for \"trackBy\"\n     * @param
value optional expression for the RHS.\n     */\n    function ExpressionBinding(sourceSpan, key, value) {\n      this.sourceSpan = sourceSpan;\n      this.key = key;\n      this.value = value;\n    }\n    return
ExpressionBinding;\n  }());\n  var RecursiveAstVisitor$1 = /** @class */ (function () {\n    function
RecursiveAstVisitor() {\n      RecursiveAstVisitor.prototype.visit = function (ast, context) {\n        // The default implementation just
visits every node.\n        // Classes that extend RecursiveAstVisitor should override this function\n      }\n    }\n  })\n  RecursiveAstVisitor.prototype.visit = function (ast, context) {\n    // The default implementation just
visits every node.\n    // Classes that extend RecursiveAstVisitor should override this function\n  }\n}

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selectively visit the specified node.\n      ast.visit(this, context);\n    };\n\nRecursiveAstVisitor.prototype.visitUnary = function (ast, context) {\n      this.visit(ast.expr, context);\n    };\n\nRecursiveAstVisitor.prototype.visitBinary = function (ast, context) {\n      this.visit(ast.left, context);\n    this.visit(ast.right, context);\n  };\n\nRecursiveAstVisitor.prototype.visitChain = function (ast, context) {\n    this.visitAll(ast.expressions, context);\n  };\n\nRecursiveAstVisitor.prototype.visitConditional = function (ast, context) {\n    this.visit(ast.condition, context);\n    this.visit(ast.trueExp, context);\n    this.visit(ast.falseExp, context);\n  };\n\nRecursiveAstVisitor.prototype.visitPipe = function (ast, context) {\n    this.visit(ast.exp, context);\n    this.visitAll(ast.args, context);\n  };\n\nRecursiveAstVisitor.prototype.visitFunctionCall = function (ast, context) {\n    if (ast.target) {\n      this.visit(ast.target, context);\n    };\n    this.visitAll(ast.args, context);\n  };\n\nRecursiveAstVisitor.prototype.visitImplicitReceiver = function (ast, context) {\n  };\n\nRecursiveAstVisitor.prototype.visitThisReceiver = function (ast, context) {\n  };\n\nRecursiveAstVisitor.prototype.visitInterpolation = function (ast, context) {\n    this.visitAll(ast.expressions, context);\n  };\n\nRecursiveAstVisitor.prototype.visitKeyedRead = function (ast, context) {\n    this.visit(ast.obj, context);\n    this.visit(ast.key, context);\n  };\n\nRecursiveAstVisitor.prototype.visitKeyedWrite = function (ast, context) {\n    this.visit(ast.obj, context);\n    this.visit(ast.key, context);\n    this.visit(ast.value, context);\n  };\n\nRecursiveAstVisitor.prototype.visitLiteralArray = function (ast, context) {\n    this.visitAll(ast.expressions, context);\n  };\n\nRecursiveAstVisitor.prototype.visitLiteralMap = function (ast, context) {\n    this.visitAll(ast.values, context);\n  };\n\nRecursiveAstVisitor.prototype.visitLiteralPrimitive = function (ast, context) {\n  };\n\nRecursiveAstVisitor.prototype.visitMethodCall = function (ast, context) {\n    this.visit(ast.receiver, context);\n    this.visitAll(ast.args, context);\n  };\n\nRecursiveAstVisitor.prototype.visitPrefixNot = function (ast, context) {\n    this.visit(ast.expression, context);\n  };\n\nRecursiveAstVisitor.prototype.visitNonNullAssert = function (ast, context) {\n    this.visit(ast.expression, context);\n  };\n\nRecursiveAstVisitor.prototype.visitPropertyRead = function (ast, context) {\n    this.visit(ast.receiver, context);\n  };\n\nRecursiveAstVisitor.prototype.visitPropertyWrite = function (ast, context) {\n    this.visit(ast.receiver, context);\n    this.visit(ast.value, context);\n  };\n\nRecursiveAstVisitor.prototype.visitSafePropertyRead = function (ast, context) {\n    this.visit(ast.receiver, context);\n  };\n\nRecursiveAstVisitor.prototype.visitSafeMethodCall = function (ast, context) {\n    this.visit(ast.receiver, context);\n    this.visitAll(ast.args, context);\n  };\n\nRecursiveAstVisitor.prototype.visitQuote = function (ast, context) {\n  };\n\n// This is not part of the AstVisitor interface, just a helper method\nRecursiveAstVisitor.prototype.visitAll = function (asts, context) {\n    var e_1,\n        _b;\n    try {\n      for (var asts_1 = __values(asts), asts_1_1 = asts_1.next(); !asts_1_1.done; asts_1_1 = asts_1.next()) {\n        var ast = asts_1_1.value;\n        this.visit(ast, context);\n      }\n    } catch (e_1_1) {\n      e_1 = { error: e_1_1 }; \n    } finally {\n      try {\n        if (asts_1_1 && !asts_1_1.done && (_b = asts_1.return)) _b.call(asts_1);\n      } finally {\n        if (e_1) throw e_1.error;\n      }\n    }\n    return RecursiveAstVisitor;\n  }());\n\nvar AstTransformer$1 = /** @class */ (function () {\n    function AstTransformer() {\n    }\n\n    AstTransformer.prototype.visitImplicitReceiver = function (ast, context) {\n      return ast;\n    }\n\n    AstTransformer.prototype.visitThisReceiver = function (ast, context) {\n      return ast;\n    }\n\n    AstTransformer.prototype.visitInterpolation = function (ast, context) {\n      return new Interpolation(ast.span, ast.sourceSpan, ast.strings, this.visitAll(ast.expressions));\n    }\n\n    AstTransformer.prototype.visitLiteralPrimitive = function (ast, context) {\n      return new LiteralPrimitive(ast.span, ast.sourceSpan, ast.value);\n    }\n\n    AstTransformer.prototype.visitPropertyRead = function (ast, context) {\n      return new PropertyRead(ast.span, ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name);\n    }\n  }());

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AstTransformer.prototype.visitPropertyWrite = function (ast, context) {\n      return new PropertyWrite(ast.span,
ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name, ast.value.visit(this));\n    };\n
AstTransformer.prototype.visitSafePropertyRead = function (ast, context) {\n      return new
SafePropertyRead(ast.span, ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name);\n    };\n
AstTransformer.prototype.visitMethodCall
= function (ast, context) {\n      return new MethodCall(ast.span, ast.sourceSpan, ast.nameSpan,
ast.receiver.visit(this), ast.name, this.visitAll(ast.args));\n    };\n
AstTransformer.prototype.visitSafeMethodCall = function (ast, context) {\n      return new
SafeMethodCall(ast.span, ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name, this.visitAll(ast.args));\n    };\n
AstTransformer.prototype.visitFunctionCall = function (ast, context) {\n      return new
FunctionCall(ast.span, ast.sourceSpan, ast.target.visit(this), this.visitAll(ast.args));\n    };\n
AstTransformer.prototype.visitLiteralArray = function (ast, context) {\n      return new LiteralArray(ast.span,
ast.sourceSpan, this.visitAll(ast.expressions));\n    };\n
AstTransformer.prototype.visitLiteralMap = function
(ast, context) {\n      return new LiteralMap(ast.span, ast.sourceSpan, ast.keys, this.visitAll(ast.values));\n    };\n
AstTransformer.prototype.visitUnary = function (ast, context) {\n      switch (ast.operator) {\n
case '+':\n        return Unary.createPlus(ast.span, ast.sourceSpan, ast.expr.visit(this));\n      case '-':\n        return Unary.createMinus(ast.span, ast.sourceSpan, ast.expr.visit(this));\n      default:\n        throw new Error("Unknown unary operator '" + ast.operator);\n      }\n    };\n
AstTransformer.prototype.visitBinary = function (ast, context) {\n      return new Binary(ast.span,
ast.sourceSpan, ast.operation, ast.left.visit(this), ast.right.visit(this));\n    };\n
AstTransformer.prototype.visitPrefixNot = function (ast, context) {\n      return new PrefixNot(ast.span,
ast.sourceSpan, ast.expression.visit(this));\n    };\n
AstTransformer.prototype.visitNonNullAssert = function
(ast, context) {\n      return
new NonNullAssert(ast.span, ast.sourceSpan, ast.expression.visit(this));\n    };\n
AstTransformer.prototype.visitConditional = function (ast, context) {\n      return new Conditional(ast.span,
ast.sourceSpan, ast.condition.visit(this), ast.trueExp.visit(this), ast.falseExp.visit(this));\n    };\n
AstTransformer.prototype.visitPipe = function (ast, context) {\n      return new BindingPipe(ast.span,
ast.sourceSpan, ast.exp.visit(this), ast.name, this.visitAll(ast.args), ast.nameSpan);\n    };\n
AstTransformer.prototype.visitKeyedRead = function (ast, context) {\n      return new KeyedRead(ast.span,
ast.sourceSpan, ast.obj.visit(this), ast.key.visit(this));\n    };\n
AstTransformer.prototype.visitKeyedWrite =
function (ast, context) {\n      return new KeyedWrite(ast.span, ast.sourceSpan, ast.obj.visit(this),
ast.key.visit(this), ast.value.visit(this));\n    };\n
AstTransformer.prototype.visitAll = function
(ast) {\n      var res = [];\n      for (var i = 0; i < asts.length; ++i) {\n        res[i] = asts[i].visit(this);\n      }\n      return res;\n    };\n
AstTransformer.prototype.visitChain = function (ast, context) {\n
return new Chain(ast.span, ast.sourceSpan, this.visitAll(ast.expressions));\n    };\n
AstTransformer.prototype.visitQuote = function (ast, context) {\n      return new Quote(ast.span, ast.sourceSpan,
ast.prefix, ast.uninterpretedExpression, ast.location);\n    };\n
return AstTransformer;\n  }());\n  // A
transformer that only creates new nodes if the transformer makes a change or\n  // a change is made a child node.\n  var AstMemoryEfficientTransformer = /** @class */ (function () {\n    function
AstMemoryEfficientTransformer() {\n    }\n
AstMemoryEfficientTransformer.prototype.visitImplicitReceiver = function (ast, context) {\n      return ast;\n    };\n
AstMemoryEfficientTransformer.prototype.visitThisReceiver = function (ast, context) {\n      return ast;\n    };\n
AstMemoryEfficientTransformer.prototype.visitInterpolation = function (ast, context) {\n      var
expressions = this.visitAll(ast.expressions);\n      if (expressions !== ast.expressions)\n        return new
Interpolation(ast.span, ast.sourceSpan, ast.strings, expressions);\n      return ast;\n    };\n
AstMemoryEfficientTransformer.prototype.visitLiteralPrimitive = function (ast, context) {\n      return ast;\n    };\n
AstMemoryEfficientTransformer.prototype.visitPropertyRead = function (ast, context) {\n      var

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receiver = ast.receiver.visit(this);\n        if (receiver !== ast.receiver) {\n            return new
PropertyRead(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitPropertyWrite
    = function (ast, context) {\n        var receiver = ast.receiver.visit(this);\n        var value = ast.value.visit(this);\n        if (receiver !== ast.receiver || value !== ast.value) {\n            return new PropertyWrite(ast.span,
ast.sourceSpan, ast.nameSpan, receiver, ast.name, value);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitSafePropertyRead = function (ast, context) {\n        var receiver =
ast.receiver.visit(this);\n        if (receiver !== ast.receiver) {\n            return new SafePropertyRead(ast.span,
ast.sourceSpan, ast.nameSpan, receiver, ast.name);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitMethodCall = function (ast, context) {\n        var receiver =
ast.receiver.visit(this);\n        var args = this.visitAll(ast.args);\n        if (receiver !== ast.receiver || args !==
ast.args)\n        {\n            return new MethodCall(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name, args);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitSafeMethodCall = function (ast,
context) {\n        var receiver = ast.receiver.visit(this);\n        var args = this.visitAll(ast.args);\n        if
(receiver !== ast.receiver || args !== ast.args) {\n            return new SafeMethodCall(ast.span, ast.sourceSpan,
ast.nameSpan, receiver, ast.name, args);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitFunctionCall = function (ast, context) {\n        var target =
ast.target && ast.target.visit(this);\n        var args = this.visitAll(ast.args);\n        if (target !== ast.target || args
!== ast.args) {\n            return new FunctionCall(ast.span, ast.sourceSpan, target, args);\n        }\n        return
ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitLiteralArray = function (ast, context) {\n        var expressions
= this.visitAll(ast.expressions);\n        if (expressions !== ast.expressions) {\n            return new
LiteralArray(ast.span, ast.sourceSpan, expressions);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitLiteralMap = function (ast, context) {\n        var values =
this.visitAll(ast.values);\n        if (values !== ast.values) {\n            return new LiteralMap(ast.span,
ast.sourceSpan, ast.keys, values);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitUnary = function (ast, context) {\n        var expr =
ast.expr.visit(this);\n        if (expr !== ast.expr) {\n            switch (ast.operator) {\n                case '+':\n                    return Unary.createPlus(ast.span, ast.sourceSpan, expr);\n                case '-':\n                    return Unary.createMinus(ast.span, ast.sourceSpan, expr);\n                default:\n                    throw new Error("Unknown unary operator " + ast.operator);\n            }\n        }\n        return
ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitBinary = function (ast, context) {\n        var
left = ast.left.visit(this);\n        var right = ast.right.visit(this);\n        if (left !== ast.left || right !== ast.right) {\n            return new Binary(ast.span, ast.sourceSpan, ast.operation, left, right);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitPrefixNot = function (ast, context) {\n        var
expression = ast.expression.visit(this);\n        if (expression !== ast.expression) {\n            return new
PrefixNot(ast.span, ast.sourceSpan, expression);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitNonNullAssert = function (ast, context) {\n        var
expression = ast.expression.visit(this);\n        if (expression !== ast.expression) {\n            return new
NonNullAssert(ast.span, ast.sourceSpan, expression);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitConditional = function (ast, context) {\n        var condition =
ast.condition.visit(this);\n        var trueExp = ast.trueExp.visit(this);\n        var falseExp =
ast.falseExp.visit(this);\n        if (condition !== ast.condition || trueExp !== ast.trueExp || falseExp !==
ast.falseExp) {\n            return new Conditional(ast.span, ast.sourceSpan, condition, trueExp, falseExp);\n        }\n        return ast;\n    };\n
    AstMemoryEfficientTransformer.prototype.visitPipe = function (ast, context) {\n        var
exp = ast.exp.visit(this);\n        var

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args = this.visitAll(ast.args);\n      if (exp !== ast.exp || args !== ast.args) {\n          return new
BindingPipe(ast.span, ast.sourceSpan, exp, ast.name, args, ast.nameSpan);\n      }\n      return ast;\n  };\n  AstMemoryEfficientTransformer.prototype.visitKeyedRead = function (ast, context) {\n      var obj =
ast.obj.visit(this);\n      var key = ast.key.visit(this);\n      if (obj !== ast.obj || key !== ast.key) {\n
return new KeyedRead(ast.span, ast.sourceSpan, obj, key);\n      }\n      return ast;\n  };\n  AstMemoryEfficientTransformer.prototype.visitKeyedWrite = function (ast, context) {\n      var obj =
ast.obj.visit(this);\n      var key = ast.key.visit(this);\n      var value = ast.value.visit(this);\n      if (obj !==
ast.obj || key !== ast.key || value !== ast.value) {\n          return new KeyedWrite(ast.span, ast.sourceSpan, obj,
key, value);\n      }\n      return ast;\n  };\n  AstMemoryEfficientTransformer.prototype.visitAll = function (asts) {\n
var res = [];\n      var modified = false;\n      for (var i = 0; i < asts.length; ++i) {\n          var original
= asts[i];\n          var value = original.visit(this);\n          res[i] = value;\n          modified = modified ||
value !== original;\n      }\n      return modified ? res : asts;\n  };\n  AstMemoryEfficientTransformer.prototype.visitChain = function (ast, context) {\n      var expressions =
this.visitAll(ast.expressions);\n      if (expressions !== ast.expressions) {\n          return new Chain(ast.span,
ast.sourceSpan, expressions);\n      }\n      return ast;\n  };\n  AstMemoryEfficientTransformer.prototype.visitQuote = function (ast, context) {\n      return ast;\n  };\n
return AstMemoryEfficientTransformer;\n\n    });\n    // Bindings\n    var ParsedProperty = /** @class */ (function () {\n        function ParsedProperty(name,
expression, type, \n            // TODO(atscott): `keySpan` should really be required but allows `undefined` so VE does\n
            // not need to be updated. Make `keySpan` required when VE is removed.\n            sourceSpan, keySpan,
valueSpan) {\n            this.name = name;\n            this.expression = expression;\n            this.type = type;\n
this.sourceSpan = sourceSpan;\n            this.keySpan = keySpan;\n            this.valueSpan = valueSpan;\n
this.isLiteral = this.type === exports.ParsedPropertyType.LITERAL_ATTR;\n            this.isAnimation = this.type
=== exports.ParsedPropertyType.ANIMATION;\n        }\n        return ParsedProperty;\n    }());\n    (function
(ParsedPropertyType) {\n        ParsedPropertyType[ParsedPropertyType["DEFAULT"] = 0] = "DEFAULT";\n
        ParsedPropertyType[ParsedPropertyType["LITERAL_ATTR"] = 1] = "LITERAL_ATTR";\n
        ParsedPropertyType[ParsedPropertyType["ANIMATION"] = 2] = "ANIMATION";\n    })(exports.ParsedPropertyType || (exports.ParsedPropertyType = {}));\n    var ParsedEvent = /** @class */ (function
() {\n        // Regular events have a target\n        // Animation events have a phase\n        function ParsedEvent(name,
targetOrPhase, type, handler, sourceSpan, handlerSpan) {\n            this.name = name;\n            this.targetOrPhase =
targetOrPhase;\n            this.type = type;\n            this.handler = handler;\n            this.sourceSpan = sourceSpan;\n
this.handlerSpan = handlerSpan;\n        }\n        return ParsedEvent;\n    }());\n    /**\n     * ParsedVariable
represents a variable declaration in a microsyntax expression.\n     */\n    var ParsedVariable = /** @class */
(function () {\n        function ParsedVariable(name, value, sourceSpan, keySpan, valueSpan) {\n            this.name =
name;\n            this.value = value;\n
            this.sourceSpan = sourceSpan;\n            this.keySpan = keySpan;\n            this.valueSpan = valueSpan;\n        }\n
        return ParsedVariable;\n    }());\n    var BoundElementProperty = /** @class */ (function () {\n        function
BoundElementProperty(name, type, securityContext, value, unit, sourceSpan, keySpan, valueSpan) {\n            this.name = name;\n
            this.type = type;\n            this.securityContext = securityContext;\n            this.value =
value;\n            this.unit = unit;\n            this.sourceSpan = sourceSpan;\n            this.keySpan = keySpan;\n
            this.valueSpan = valueSpan;\n        }\n        return BoundElementProperty;\n    }());\n    var EventHandlerVars =
/** @class */ (function () {\n        function EventHandlerVars() {\n        }\n        return EventHandlerVars;\n    }());\n    EventHandlerVars.event = variable('$event');\n    var ConvertActionBindingResult = /** @class */
(function () {\n        function ConvertActionBindingResult(\n            /**\n             * Render2 compatible statements,\n            */\n            stmts, \n            /**\n             * Variable name used
with render2 compatible statements.\n            */\n            allowDefault) {\n            this.stmts = stmts;\n
            this.allowDefault = allowDefault;\n            /**\n             * This is bit of a hack. It converts statements which render2

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expects to statements which are\n      * expected by render3.\n      *\n      * Example: `<div
click=\"doSomething($event)\">` will generate:\n      *\n      * Render3:\n      * ```\n      * const
pd_b:any = ((<any>ctx.doSomething($event)) !== false);\n      * return pd_b;\n      * ```\n      *\n      * but render2 expects:\n      * ```\n      * return ctx.doSomething($event);\n      * ```\n      */\n
// TODO(misko): remove this hack once we no longer support ViewEngine.\n
this.render3Stmts = stmts.map(function (statement) {\n      if (statement instanceof DeclareVarStmt &&
statement.name == allowDefault.name &&\n      statement.value instanceof BinaryOperatorExpr) {\n
    var lhs = statement.value.lhs;\n      return new ReturnStatement(lhs.value);\n      }\n
return statement;\n  });\n  }\n  return ConvertActionBindingResult;\n  }());\n  /**\n   * Converts the
given expression AST into an executable output AST, assuming the expression is\n   * used in an action binding
(e.g. an event handler).\n   */\n  function convertActionBinding(localResolver, implicitReceiver, action,
bindingId, interpolationFunction, baseSourceSpan, implicitReceiverAccesses, globals) {\n    if (!localResolver)
{\n      localResolver = new DefaultLocalResolver(globals);\n    }\n    var actionWithoutBuiltins =
convertPropertyBindingBuiltins({\n
    createLiteralArrayConverter: function (argCount) {\n      // Note: no caching for literal arrays in actions.\n
    return function (args) { return literalArr(args); };},\n    createLiteralMapConverter: function
(keys) {\n      // Note: no caching for literal maps in actions.\n      return function (values) {\n
var entries = keys.map(function (k, i) { return ({\n        key: k.key,\n        value: values[i],\n
        quoted: k.quoted,\n      }); });\n      return literalMap(entries);\n    });},\n    createPipeConverter: function (name) {\n      throw new Error(\"Illegal State: Actions are not allowed to
contain pipes. Pipe: \" + name);\n    },\n    }, action);\n    var visitor = new _AstToIrVisitor(localResolver,
implicitReceiver, bindingId, interpolationFunction, baseSourceSpan,
implicitReceiverAccesses);\n    var actionStmts = [];\n    flattenStatements(actionWithoutBuiltins.visit(visitor,
_Mode.Statement), actionStmts);\n    prependTemporaryDecls(visitor.temporaryCount, bindingId, actionStmts);\n
    if (visitor.usesImplicitReceiver) {\n      localResolver.notifyImplicitReceiverUse();\n    }\n    var
lastIndex = actionStmts.length - 1;\n    var preventDefaultVar = null;\n    if (lastIndex >= 0) {\n      var
lastStatement = actionStmts[lastIndex];\n      var returnExpr = convertStmtIntoExpression(lastStatement);\n
      if (returnExpr) {\n        // Note: We need to cast the result of the method call to dynamic,\n        // as it
might be a void method!\n        preventDefaultVar = createPreventDefaultVar(bindingId);\n
      }\n      actionStmts[lastIndex] =\n
      preventDefaultVar.set(returnExpr.cast(DYNAMIC_TYPE).notIdentical(literal(false)))\n
      .toDeclStmt(null, [exports.StmtModifier.Final]);\n    }\n    }\n    return new
ConvertActionBindingResult(actionStmts, preventDefaultVar);\n  }\n  function
convertPropertyBindingBuiltins(converterFactory, ast) {\n    return convertBuiltins(converterFactory, ast);\n  }\n
  var ConvertPropertyBindingResult = /** @class */ (function () {\n    function
ConvertPropertyBindingResult(stmts, currValExpr) {\n      this.stmts = stmts;\n      this.currValExpr =
currValExpr;\n    }\n    return ConvertPropertyBindingResult;\n  }());\n  var BindingForm;\n  (function
(BindingForm) {\n    // The general form of binding expression, supports all expressions.\n
    BindingForm[BindingForm[\"General\"] = 0] = \"General\";\n    // Try to generate a simple binding (no
temporaries or statements)\n    // otherwise generate a general binding\n
    BindingForm[BindingForm[\"TrySimple\"] = 1] = \"TrySimple\";\n    // Inlines assignment
of temporaries into the generated expression. The result may still\n    // have statements attached for declarations
of temporary variables.\n    // This is the only relevant form for Ivy, the other forms are only used in
ViewEngine.\n    BindingForm[BindingForm[\"Expression\"] = 2] = \"Expression\";\n  })(BindingForm ||
(BindingForm = {}));\n  /**\n   * Converts the given expression AST into an executable output AST, assuming
the expression\n   * is used in property binding. The expression has to be preprocessed via\n   *
`convertPropertyBindingBuiltins`.\n   */\n  function convertPropertyBinding(localResolver, implicitReceiver,
expressionWithoutBuiltins, bindingId, form, interpolationFunction) {\n    if (!localResolver) {\n

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localResolver = new DefaultLocalResolver();\n    }\n    var visitor = new _AstToIrVisitor(localResolver,
implicitReceiver, bindingId, interpolationFunction);\n    var outputExpr = expressionWithoutBuiltins.visit(visitor,
_Mode.Expression);\n    var stmts = getStatementsFromVisitor(visitor, bindingId);\n    if
(visitor.usesImplicitReceiver) {\n        localResolver.notifyImplicitReceiverUse();\n    }\n    if
(visitor.temporaryCount === 0 && form == BindingForm.TrySimple) {\n        return new
ConvertPropertyBindingResult([], outputExpr);\n    }\n    else if (form === BindingForm.Expression) {\n
return new ConvertPropertyBindingResult(stmts, outputExpr);\n    }\n    var currValExpr =
createCurrValueExpr(bindingId);\n    stmts.push(currValExpr.set(outputExpr).toDeclStmt(DYNAMIC_TYPE,
[exports.StmtModifier.Final]));\n    return new ConvertPropertyBindingResult(stmts, currValExpr);\n    }\n
/**\n * Given some expression, such as a binding or interpolation expression, and a context expression to\n *
look values up on, visit each facet of the given expression resolving values from the context\n * expression such
that
a list of arguments can be derived from the found values that can be used as\n * arguments to an external update
instruction.\n * \n * @param localResolver The resolver to use to look up expressions by name appropriately\n
* @param contextVariableExpression The expression representing the context variable used to create\n * the
final argument expressions\n * @param expressionWithArgumentsToExtract The expression to visit to figure out
what values need to\n * be resolved and what arguments list to build.\n * @param bindingId A name prefix
used to create temporary variable names if they're needed for the\n * arguments generated\n * @returns An
array of expressions that can be passed as arguments to instruction expressions like\n *
`o.importExpr(R3.propertyInterpolate).callFn(result)`\n * \n function convertUpdateArguments(localResolver,
contextVariableExpression, expressionWithArgumentsToExtract, bindingId) {\n    var visitor = new
_AstToIrVisitor(localResolver,
contextVariableExpression, bindingId, undefined);\n    var outputExpr =
expressionWithArgumentsToExtract.visit(visitor, _Mode.Expression);\n    if (visitor.usesImplicitReceiver) {\n
localResolver.notifyImplicitReceiverUse();\n    }\n    var stmts = getStatementsFromVisitor(visitor,
bindingId);\n    // Removing the first argument, because it was a length for ViewEngine, not Ivy.\n    var args =
outputExpr.args.slice(1);\n    if (expressionWithArgumentsToExtract instanceof Interpolation) {\n        // If
we're dealing with an interpolation of 1 value with an empty prefix and suffix, reduce the\n        // args returned to
just the value, because we're going to pass it to a special instruction.\n        var strings =
expressionWithArgumentsToExtract.strings;\n        if (args.length === 3 && strings[0] === " && strings[1] ===
") {\n            // Single argument interpolate instructions.\n
args = [args[1]];\n        }\n        else if (args.length >= 19) {\n            // 19 or more arguments must be
passed to the `interpolateV`-style instructions, which accept\n            // an array of arguments\n            args =
[literalArr(args)];\n        }\n    }\n    return { stmts: stmts, args: args };\n    }\n    function
getStatementsFromVisitor(visitor, bindingId) {\n        var stmts = [];\n        for (var i = 0; i < visitor.temporaryCount;
i++) {\n            stmts.push(temporaryDeclaration(bindingId, i));\n        }\n        return stmts;\n    }\n    function
convertBuiltins(converterFactory, ast) {\n        var visitor = new _BuiltinAstConverter(converterFactory);\n        return ast.visit(visitor);\n    }\n    function temporaryName(bindingId, temporaryNumber) {\n        return "tmp_" +
bindingId + "_" + temporaryNumber;\n    }\n    function temporaryDeclaration(bindingId, temporaryNumber) {\n
return new DeclareVarStmt(temporaryName(bindingId,
temporaryNumber), NULL_EXPR);\n    }\n    function prependTemporaryDecls(temporaryCount, bindingId,
statements) {\n        for (var i = temporaryCount - 1; i >= 0; i--) {\n
statements.unshift(temporaryDeclaration(bindingId, i));\n        }\n    }\n    var _Mode;\n    (function (_Mode) {\n
_Mode[_Mode["Statement"] = 0] = "Statement";\n    _Mode[_Mode["Expression"] = 1] = "Expression";\n
})(_Mode || (_Mode = {}));\n    function ensureStatementMode(mode, ast) {\n        if (mode !== _Mode.Statement)
{\n            throw new Error("Expected a statement, but saw " + ast);\n        }\n    }\n    function
ensureExpressionMode(mode, ast) {\n        if (mode !== _Mode.Expression) {\n            throw new Error("Expected
an expression, but saw " + ast);\n        }\n    }\n    function convertToStatementIfNeeded(mode, expr) {\n        if

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(mode === _Mode.Statement) {\n      return expr.toStmt();\n    }\n    else {\n      return expr;\n    }\n  }\n  var _BuiltinAstConverter = /** @class */ (function (_super) {\n    __extends(_BuiltinAstConverter, _super);\n    function _BuiltinAstConverter(_converterFactory) {\n      var _this = _super.call(this) || this;\n      _this._converterFactory = _converterFactory;\n      return _this;\n    }\n    _BuiltinAstConverter.prototype.visitPipe = function (ast, context) {\n      var _this = this;\n      var args = __spread([ast.expr], ast.args).map(function (ast) { return ast.visit(_this, context); });\n      return new BuiltinFunctionCall(ast.span, ast.sourceSpan, args, this._converterFactory.createPipeConverter(ast.name, args.length));\n    };\n    _BuiltinAstConverter.prototype.visitLiteralArray = function (ast, context) {\n      var _this = this;\n      var args = ast.expressions.map(function (ast) { return ast.visit(_this, context); });\n      return new BuiltinFunctionCall(ast.span, ast.sourceSpan, args, this._converterFactory.createLiteralArrayConverter(ast.expressions.length));\n    };\n    _BuiltinAstConverter.prototype.visitLiteralMap = function (ast, context) {\n      var _this = this;\n      var args = ast.values.map(function (ast) { return ast.visit(_this, context); });\n      return new BuiltinFunctionCall(ast.span, ast.sourceSpan, args, this._converterFactory.createLiteralMapConverter(ast.keys));\n    };\n    return _BuiltinAstConverter;\n  })(AstTransformer$1));\n  var _AstToIrVisitor = /** @class */ (function () {\n    function _AstToIrVisitor(_localResolver, _implicitReceiver, bindingId, interpolationFunction, baseSourceSpan, implicitReceiverAccesses) {\n      this._localResolver = _localResolver;\n      this._implicitReceiver = _implicitReceiver;\n      this.bindingId = bindingId;\n      this.interpolationFunction = interpolationFunction;\n      this.baseSourceSpan = baseSourceSpan;\n      this.implicitReceiverAccesses = implicitReceiverAccesses;\n      this._nodeMap = new Map();\n      this._resultMap = new Map();\n      this._currentTemporary = 0;\n      this._temporaryCount = 0;\n      this._usesImplicitReceiver = false;\n    }\n    _AstToIrVisitor.prototype.visitUnary = function (ast, mode) {\n      var op;\n      switch (ast.operator) {\n        case '+':\n          op = exports.UnaryOperator.Plus;\n          break;\n        case '-':\n          op = exports.UnaryOperator.Minus;\n          break;\n        default:\n          throw new Error("Unsupported operator \" + ast.operator);\n      }\n      return convertToStatementIfNeeded(mode, new UnaryOperatorExpr(op, this._visit(ast.expr, _Mode.Expression), undefined, this.convertSourceSpan(ast.span)));\n    };\n    _AstToIrVisitor.prototype.visitBinary = function (ast, mode) {\n      var op;\n      switch (ast.operation) {\n        case '+':\n          op = exports.BinaryOperator.Plus;\n          break;\n        case '-':\n          op = exports.BinaryOperator.Minus;\n          break;\n        case '*':\n          op = exports.BinaryOperator.Multiply;\n          break;\n        case '/':\n          op = exports.BinaryOperator.Divide;\n          break;\n        case '%':\n          op = exports.BinaryOperator.Modulo;\n          break;\n        case '&':\n          op = exports.BinaryOperator.And;\n          break;\n        case '||':\n          op = exports.BinaryOperator.Or;\n          break;\n        case '==':\n          op = exports.BinaryOperator.Equals;\n          break;\n        case '!=':\n          op = exports.BinaryOperator.NotEquals;\n          break;\n        case '===':\n          op = exports.BinaryOperator.Identical;\n          break;\n        case '!==':\n          op = exports.BinaryOperator.NotIdentical;\n          break;\n        case '<':\n          op = exports.BinaryOperator.Lower;\n          break;\n        case '>':\n          op = exports.BinaryOperator.Bigger;\n          break;\n        case '<=':\n          op = exports.BinaryOperator.LowerEquals;\n          break;\n        case '>=':\n          op = exports.BinaryOperator.BiggerEquals;\n          break;\n        default:\n          throw new Error("Unsupported operation \" + ast.operation);\n      }\n      return convertToStatementIfNeeded(mode, new BinaryOperatorExpr(op, this._visit(ast.left, _Mode.Expression), this._visit(ast.right, _Mode.Expression), undefined, this.convertSourceSpan(ast.span)));\n    };\n    _AstToIrVisitor.prototype.visitChain = function (ast, mode) {\n      ensureStatementMode(mode, ast);\n      return this.visitAll(ast.expressions, mode);\n    };\n    _AstToIrVisitor.prototype.visitConditional =

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function (ast, mode) {\n      var value = this._visit(ast.condition, _Mode.Expression);\n      return\n      convertToStatementIfNeeded(mode, value.conditional(this._visit(ast.trueExp, _Mode.Expression),\n      this._visit(ast.falseExp, _Mode.Expression), this.convertSourceSpan(ast.span)));\n    };\n    _AstToIrVisitor.prototype.visitPipe = function (ast, mode) {\n      throw new Error("\Illegal state: Pipes should\n      have been converted into functions. Pipe: '" + ast.name);\n    };\n    _AstToIrVisitor.prototype.visitFunctionCall\n    = function (ast, mode) {\n      var convertedArgs = this.visitAll(ast.args,\n      _Mode.Expression);\n      var fnResult;\n      if (ast instanceof BuiltinFunctionCall) {\n        fnResult =\n        ast.converter(convertedArgs);\n      }\n      else {\n        fnResult = this._visit(ast.target,\n        _Mode.Expression)\n        .callFn(convertedArgs, this.convertSourceSpan(ast.span));\n      }\n      return convertToStatementIfNeeded(mode, fnResult);\n    };\n    _AstToIrVisitor.prototype.visitImplicitReceiver = function (ast, mode) {\n      ensureExpressionMode(mode,\n      ast);\n      this.usesImplicitReceiver = true;\n      return this._implicitReceiver;\n    };\n    _AstToIrVisitor.prototype.visitThisReceiver = function (ast, mode) {\n      return this.visitImplicitReceiver(ast,\n      mode);\n    };\n    _AstToIrVisitor.prototype.visitInterpolation = function (ast, mode) {\n      ensureExpressionMode(mode, ast);\n      var args = [literal(ast.expressions.length)];\n      for (var i = 0; i < ast.strings.length - 1; i++) {\n        args.push(literal(ast.strings[i]));\n      }\n      args.push(this._visit(ast.expressions[i], _Mode.Expression));\n      args.push(literal(ast.strings[ast.strings.length - 1]));\n      if (this.interpolationFunction) {\n        return\n        this.interpolationFunction(args);\n      }\n      return ast.expressions.length <= 9 ?\n      importExpr(Identifiers.inlineInterpolate).callFn(args) :\n      importExpr(Identifiers.interpolate).callFn([\n        args[0], literalArr(args.slice(1), undefined, this.convertSourceSpan(ast.span))\n      ]);\n    };\n    _AstToIrVisitor.prototype.visitKeyedRead = function (ast, mode) {\n      var leftMostSafe =\n      this.leftMostSafeNode(ast);\n      if (leftMostSafe) {\n        return this.convertSafeAccess(ast, leftMostSafe,\n        mode);\n      }\n      else {\n        return convertToStatementIfNeeded(mode, this._visit(ast.obj, _Mode.Expression).key(this._visit(ast.key,\n        _Mode.Expression)));\n      }\n    };\n    _AstToIrVisitor.prototype.visitKeyedWrite = function (ast, mode)\n    {\n      var obj = this._visit(ast.obj, _Mode.Expression);\n      var key = this._visit(ast.key,\n      _Mode.Expression);\n      var value = this._visit(ast.value, _Mode.Expression);\n      return\n      convertToStatementIfNeeded(mode, obj.key(key).set(value));\n    };\n    _AstToIrVisitor.prototype.visitLiteralArray = function (ast, mode) {\n      throw new Error("\Illegal State: literal\n      arrays should have been converted into functions");\n    };\n    _AstToIrVisitor.prototype.visitLiteralMap =\n    function (ast, mode) {\n      throw new Error("\Illegal State: literal maps should have been converted into\n      functions");\n    };\n    _AstToIrVisitor.prototype.visitLiteralPrimitive = function (ast, mode)\n    {\n      // For literal values of null, undefined, true, or false allow type interference\n      // to infer the type.\n      var type = ast.value === null || ast.value === undefined || ast.value === true || ast.value === false ?\n      INFERRED_TYPE :\n      undefined;\n      return convertToStatementIfNeeded(mode, literal(ast.value,\n      type, this.convertSourceSpan(ast.span)));\n    };\n    _AstToIrVisitor.prototype._getLocal = function (name,\n    receiver) {\n      var _a;\n      if (((_a = this._localResolver.globals) === null || _a === void 0 ? void 0 : _a.has(name)) && receiver instanceof ThisReceiver) {\n        return null;\n      }\n      return\n      this._localResolver.getLocal(name);\n    };\n    _AstToIrVisitor.prototype.visitMethodCall = function (ast,\n    mode) {\n      if (ast.receiver instanceof ImplicitReceiver && !(ast.receiver instanceof ThisReceiver)\n      && ast.name === '$any')\n      {\n        var args = this.visitAll(ast.args, _Mode.Expression);\n        if (args.length != 1) {\n          throw new Error("\Invalid call to $any, expected 1 argument but received '" + (args.length || 'none')));\n        }\n        return args[0].cast(DYNAMIC_TYPE, this.convertSourceSpan(ast.span));\n      }\n      var\n      leftMostSafe = this.leftMostSafeNode(ast);\n      if (leftMostSafe) {\n        return\n        this.convertSafeAccess(ast, leftMostSafe, mode);\n      }\n      else {\n        var args =\n        this.visitAll(ast.args, _Mode.Expression);\n        var prevUsesImplicitReceiver = this.usesImplicitReceiver;\n      }\n    }

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        var result = null;\n        var receiver = this._visit(ast.receiver, _Mode.Expression);\n        if (receiver\n=== this._implicitReceiver) {\n        var varExpr = this._getLocal(ast.name, ast.receiver);\n        if\n(varExpr) {\n\n        // Restore the previous \"usesImplicitReceiver\" state since the implicit\n        // receiver has\nbeen replaced with a resolved local expression.\n        this.usesImplicitReceiver =\nprevUsesImplicitReceiver;\n        result = varExpr.callFn(args);\n        this.addImplicitReceiverAccess(ast.name);\n        }\n        }\n        if (result == null) {\n        result = receiver.callMethod(ast.name, args, this.convertSourceSpan(ast.span));\n        }\n        return\nconvertToStatementIfNeeded(mode, result);\n        }\n        };\n        _AstToIrVisitor.prototype.visitPrefixNot =\nfunction (ast, mode) {\n        return convertToStatementIfNeeded(mode, not(this._visit(ast.expression,\n        _Mode.Expression)));\n        };\n        _AstToIrVisitor.prototype.visitNonNullAssert = function (ast, mode) {\n        return convertToStatementIfNeeded(mode,\n        assertNotNull(this._visit(ast.expression, _Mode.Expression)));\n        };\n        _AstToIrVisitor.prototype.visitPropertyRead = function (ast, mode) {\n        var leftMostSafe =\nthis.leftMostSafeNode(ast);\n        if (leftMostSafe) {\n        return this.convertSafeAccess(ast, leftMostSafe,\nmode);\n        }\n        else {\n        var result = null;\n        var prevUsesImplicitReceiver =\nthis.usesImplicitReceiver;\n        var receiver = this._visit(ast.receiver, _Mode.Expression);\n        if\n(receiver === this._implicitReceiver) {\n        result = this._getLocal(ast.name, ast.receiver);\n        if\n(result) {\n        // Restore the previous \"usesImplicitReceiver\" state since the implicit\n        // receiver has been replaced with a resolved local expression.\n        this.usesImplicitReceiver =\nprevUsesImplicitReceiver;\n        this.addImplicitReceiverAccess(ast.name);\n        }\n        }\n        if (result == null) {\n        result = receiver.prop(ast.name);\n        }\n        return convertToStatementIfNeeded(mode, result);\n        }\n        };\n        _AstToIrVisitor.prototype.visitPropertyWrite = function (ast, mode) {\n        var receiver =\nthis._visit(ast.receiver, _Mode.Expression);\n        var prevUsesImplicitReceiver = this.usesImplicitReceiver;\n        var varExpr = null;\n        if (receiver === this._implicitReceiver) {\n        var localExpr =\nthis._getLocal(ast.name, ast.receiver);\n        if (localExpr) {\n        if (localExpr instanceof\nReadPropExpr) {\n        // If the local variable is a property read expression, it's a reference\n        // to a 'context.property' value and will be used as the target of the\n        // write\nexpression.\n        varExpr = localExpr;\n        // Restore the previous \"usesImplicitReceiver\"\nstate since the implicit\n        // receiver has been replaced with a resolved local expression.\n        this.usesImplicitReceiver = prevUsesImplicitReceiver;\n        this.addImplicitReceiverAccess(ast.name);\n        }\n        }\n        else {\n        // Otherwise it's an error.\n        var receiver_1 =\nast.name;\n        var value = (ast.value instanceof PropertyRead) ? ast.value.name : undefined;\n        throw new Error(\"Cannot assign value \" + value + \" to template variable \" + receiver_1 + \"\").\n        Template variables are read-only.\");\n        }\n        }\n        }\n        // If no local expression could\nbe produced, use the original receiver's\n        // property as the\ntarget.\n        if (varExpr === null) {\n        varExpr = receiver.prop(ast.name);\n        }\n        return\nconvertToStatementIfNeeded(mode, varExpr.set(this._visit(ast.value, _Mode.Expression)));\n        };\n        _AstToIrVisitor.prototype.visitSafePropertyRead = function (ast, mode) {\n        return\nthis.convertSafeAccess(ast, this.leftMostSafeNode(ast), mode);\n        };\n        _AstToIrVisitor.prototype.visitSafeMethodCall = function (ast, mode) {\n        return this.convertSafeAccess(ast,\nthis.leftMostSafeNode(ast), mode);\n        };\n        _AstToIrVisitor.prototype.visitAll = function (asts, mode) {\n        var _this = this;\n        return asts.map(function (ast) { return _this._visit(ast, mode); });\n        };\n        _AstToIrVisitor.prototype.visitQuote = function (ast, mode) {\n        throw new Error(\"Quotes are not supported\nfor evaluation!\");\n        Statement: \" + ast.uninterpretedExpression + \" located at \" +\nast.location);\n        };\n        _AstToIrVisitor.prototype._visit = function (ast, mode) {\n        var result =\nthis._resultMap.get(ast);\n        if (result)\n        return result;\n        return (this._nodeMap.get(ast) ||

```



```

(ast) {\n
    return null;\n
},\n
visitLiteralArray: function (ast) {\n
    return
null;\n
},\n
visitLiteralMap: function (ast) {\n
    return null;\n
},\n
visitLiteralPrimitive: function (ast) {\n
    return null;\n
},\n
visitMethodCall: function
(ast) {\n
    return visit(this, ast.receiver);\n
},\n
visitPipe: function (ast) {\n
return null;\n
},\n
visitPrefixNot: function (ast) {\n
    return null;\n
},\n
visitNonNullAssert: function (ast) {\n
    return null;\n
},\n
visitPropertyRead: function
(ast) {\n
    return visit(this, ast.receiver);\n
},\n
visitPropertyWrite: function
(ast) {\n
    return null;\n
},\n
visitQuote: function (ast) {\n
    return null;\n
},\n
visitSafeMethodCall: function (ast) {\n
    return visit(this, ast.receiver) || ast;\n
},\n
visitSafePropertyRead: function (ast) {\n
    return visit(this, ast.receiver) || ast;\n
});\n
};\n
// Returns true if the AST includes a method or a pipe indicating that, if the\n
// expression is used as the target of a safe property or method access then\n
// the expression should be stored into
a temporary variable.\n
_AstToIrVisitor.prototype.needsTemporary = function (ast) {\n
    var _this = this;\n
    var visit = function (visitor, ast) {\n
        return ast && (_this._nodeMap.get(ast) || ast).visit(visitor);\n
    };\n
    var visitSome = function (visitor,
ast) {\n
        return ast.some(function (ast) { return visit(visitor, ast); });\n
    };
    return ast.visit({\n
        visitUnary: function (ast) {\n
            return visit(this, ast.expr);\n
        },\n
        visitBinary:
function (ast) {\n
            return visit(this, ast.left) || visit(this, ast.right);\n
        },\n
        visitChain:
function (ast) {\n
            return false;\n
        },\n
        visitConditional: function (ast) {\n
            return visit(this, ast.condition) || visit(this, ast.trueExp) || visit(this, ast.falseExp);\n
        },\n
        visitFunctionCall: function (ast) {\n
            return true;\n
        },\n
        visitImplicitReceiver: function
(ast) {\n
            return false;\n
        },\n
        visitThisReceiver: function (ast) {\n
            return
false;\n
        },\n
        visitInterpolation: function (ast) {\n
            return visitSome(this, ast.expressions);\n
        },\n
        visitKeyedRead: function (ast) {\n
            return false;\n
        },\n
        visitKeyedWrite: function (ast) {\n
            return false;\n
        },\n
        visitLiteralArray: function (ast)
{\n
            return true;\n
        },\n
        visitLiteralMap: function (ast) {\n
            return true;\n
        },\n
        visitLiteralPrimitive: function (ast) {\n
            return false;\n
        },\n
        visitMethodCall: function (ast) {\n
            return true;\n
        },\n
        visitPipe: function (ast) {\n
            return true;\n
        },\n
        visitPrefixNot: function (ast) {\n
            return visit(this,
ast.expression);\n
        },\n
        visitNonNullAssert: function (ast) {\n
            return visit(this, ast.expression);\n
        },\n
        visitPropertyRead: function (ast) {\n
            return false;\n
        },\n
        visitPropertyWrite: function (ast) {\n
            return false;\n
        },\n
        visitQuote: function (ast) {\n
            return false;\n
        },\n
        visitSafeMethodCall: function (ast) {\n
            return true;\n
        },\n
        visitSafePropertyRead: function (ast) {\n
            return false;\n
        });\n
    });\n
    _AstToIrVisitor.prototype.allocateTemporary = function () {\n
        var tempNumber =
this._currentTemporary++;\n
        this._temporaryCount = Math.max(this._currentTemporary,
this._temporaryCount);\n
        return new ReadVarExpr(temporaryName(this.bindingId, tempNumber));\n
    };\n
    _AstToIrVisitor.prototype.releaseTemporary = function (temporary) {\n
        this._currentTemporary--;\n
        if (temporary.name !== temporaryName(this.bindingId, this._currentTemporary))\n
{\n
            throw new Error("Temporary \"" + temporary.name + "\" released out of order");\n
        }\n
    };\n
    /**\n
     * Creates an absolute `ParseSourceSpan` from the relative `ParseSpan`.\n
     * `ParseSpan`
objects are relative to the start of the expression.\n
     * This method converts these to full `ParseSourceSpan`
objects that\n
     * show where the span is within the overall source file.\n
     * @param span the
relative span to convert.\n
     * @returns a `ParseSourceSpan` for the given span or null if no\n
     *
`baseSourceSpan` was provided to this class.\n
     */\n
    _AstToIrVisitor.prototype.convertSourceSpan =
function (span) {\n
        if (this.baseSourceSpan)

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{\n      var start = this.baseSourceSpan.start.moveBy(span.start);\n      var end =\nthis.baseSourceSpan.start.moveBy(span.end);\n      var fullStart =\nthis.baseSourceSpan.fullStart.moveBy(span.start);\n      return new ParseSourceSpan(start, end, fullStart);\n    }\n    else {\n      return null;\n    }\n  };\n  /** Adds the name of an AST to the list of\nimplicit receiver accesses. */\n  _AstToIrVisitor.prototype.addImplicitReceiverAccess = function (name) {\n    if (this.implicitReceiverAccesses) {\n      this.implicitReceiverAccesses.add(name);\n    }\n  };\n  return _AstToIrVisitor;\n  }());\n  function flattenStatements(arg, output) {\n    if (Array.isArray(arg)) {\n      arg.forEach(function (entry) {\n        return flattenStatements(entry, output);\n      });\n    } else {\n      output.push(arg);\n    }\n  }\n  var DefaultLocalResolver\n= /** @class */ (function () {\n    function DefaultLocalResolver(globals) {\n      this.globals = globals;\n    }\n    DefaultLocalResolver.prototype.notifyImplicitReceiverUse = function () {\n    }\n    DefaultLocalResolver.prototype.getLocal = function (name) {\n      if (name ===\nEventHandlerVars.event.name) {\n        return EventHandlerVars.event;\n      }\n      return null;\n    };\n    return DefaultLocalResolver;\n  }());\n  function createCurrValueExpr(bindingId) {\n    return\nvariable(`currVal_${bindingId}`); // fix syntax highlighting: \n  }\n  function\ncreatePreventDefaultVar(bindingId) {\n    return variable(`pd_${bindingId}`);\n  }\n  function\nconvertStmtIntoExpression(stmt) {\n    if (stmt instanceof ExpressionStatement) {\n      return stmt.expr;\n    }\n    else if (stmt instanceof ReturnStatement) {\n      return stmt.value;\n    }\n    return\nnull;\n  }\n  var BuiltinFunctionCall = /** @class */ (function (_super) {\n    __extends(BuiltinFunctionCall,\n_super);\n    function BuiltinFunctionCall(span, sourceSpan, args, converter) {\n      var _this =\n_super.call(this, span, sourceSpan, null, args) || this;\n      _this.args = args;\n      _this.converter =\nconverter;\n      return _this;\n    }\n    return BuiltinFunctionCall;\n  })(FunctionCall);\n  /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\nMIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n  /** This\nfile is a port of shadowCSS from webcomponents.js to TypeScript.\n * Please make sure to keep to edits in\nsync with the source file.\n * Source:\n *\nhttps://github.com/webcomponents/webcomponentsjs/blob/4efecd7e0e/src/ShadowCSS/ShadowCSS.js\n *\n * The original file level comment is reproduced below\n */\n  /** This is a limited shim for ShadowDOM\ncss styling.\n  https://dvcs.w3.org/hg/webcomponents/raw-file/tip/spec/shadow/index.html#styles\n  The\nintention here is to support only the styling features which can be\n  relatively simply implemented. The goal is to\nallow users to avoid the\n  most obvious pitfalls and do so without compromising performance significantly.\n  For ShadowDOM styling that's not covered here, a set of best practices\n  can be provided that should allow users\nto accomplish more complex styling.\n  The following is a list of specific ShadowDOM styling features and a\nbrief\ndiscussion of the approach used to shim.\n  Shimmed features:\n  * :host, :host-context:\nShadowDOM allows styling of the shadowRoot's host\nelement using the :host rule. To shim this feature, the\n:host styles are\n  reformatted and prefixed with a given scope name\nand promoted to a\ndocument level stylesheet.\n  For example, given a scope name of .foo, a rule like\nthis:\n  :host {\n    background: red;\n  }\n  becomes:\n  .foo {\n    background:\nred;\n  }\n  * encapsulation: Styles defined within ShadowDOM, apply only to\ndom inside the\nShadowDOM. Polymer uses one of two techniques to implement\n  this feature.\n  By default, rules are\nprefixed with the host element tag name\n  as a descendant selector. This ensures styling does not leak out of the\n'top'\nof the element's ShadowDOM. For example,\n  div {\n    font-weight: bold;\n  }\n  becomes:\n  x-foo div {\n    font-weight: bold;\n  }\n  becomes:\n  Alternatively, if\nWebComponents.ShadowCSS.strictStyling is set to true then\n  selectors are scoped by adding an attribute\nselector suffix to each\n  simple selector that contains the\n  host element tag name. Each element\n  in the element's ShadowDOM template is also given the scope\nattribute.\n  Thus, these rules match only elements that have the scope attribute.\n  For example, given a scope\nname of x-foo, a rule like this:\n  div {\n    font-weight: bold;\n  }\n  becomes:\n  div[x-foo]

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{\n font-weight: bold;\n }\n\n Note that elements that are dynamically added to a scope must have the scope\n selector added to them manually.\n\n * upper/lower bound encapsulation: Styles which are defined outside a\n shadowRoot should not cross the ShadowDOM boundary and should not apply\n inside a shadowRoot.\n\n This styling behavior is not emulated. Some possible ways to do this that\n were rejected due to complexity and/or performance concerns include: (1) reset\n every possible property for every possible selector for a given scope name;\n (2) re-implement css in javascript.\n\n

As an alternative, users should make sure to use selectors\n specific to the scope in which they are working.\n\n * ::distributed: This behavior is not emulated. It's often not necessary\n to style the contents of a specific insertion point and instead, descendants\n of the host element can be styled selectively. Users can also create an\n extra node around an insertion point and style that node's contents\n via descendent selectors. For example, with a shadowRoot like this:\n\n <style>\n ::content(div) {\n background: red;\n }\n </style>\n <content></content>\n\n could become:\n\n <style>\n /*@polyfill .content-container div * \n ::content(div) {\n background: red;\n }\n </style>\n <div class=\"content-container\">\n <content></content>\n </div>\n\n Note the use of @polyfill in the comment above a ShadowDOM

specific style\n declaration. This is a directive to the styling shim to use the selector\n in comments in lieu of the next selector when running under polyfill.\n\n *\n\n var ShadowCss = /** @class */ (function () {\n function ShadowCss() {\n this.strictStyling = true;\n }\n\n /*\n * Shim some cssText with the given selector. Returns cssText that can\n * be included in the document via WebComponents.ShadowCSS.addCssToDocument(css).\n\n * When strictStyling is true:\n * - selector is the attribute added to all elements inside the host,\n * - hostSelector is the attribute added to the host itself.\n\n *\n\n ShadowCss.prototype.shimCssText = function (cssText, selector, hostSelector) {\n if (hostSelector === void 0) { hostSelector = "; }\n\n var commentsWithHash = extractCommentsWithHash(cssText);\n\n cssText = stripComments(cssText);\n\n cssText = this._insertDirectives(cssText);\n\n var scopedCssText = this._scopeCssText(cssText, selector, hostSelector);\n\n return __spread([scopedCssText], commentsWithHash).join("\\n");\n }\n\n ShadowCss.prototype._insertDirectives = function (cssText) {\n cssText = this._insertPolyfillDirectivesInCssText(cssText);\n\n return this._insertPolyfillRulesInCssText(cssText);\n }\n\n /*\n * Process styles to convert native ShadowDOM rules that will trip\n * up the css parser; we rely on decorating the stylesheet with inert rules.\n\n *\n * For example, we convert this rule:\n\n *\n * polyfill-next-selector { content: 'host menu-item'; }\n\n * ::content menu-item {\n *\n * to this:\n\n *\n * scopeName menu-item {\n *\n **\n\n ShadowCss.prototype._insertPolyfillDirectivesInCssText = function (cssText) {\n // Difference with webcomponents.js: does not handle comments\n\n return cssText.replace(_cssContentNextSelectorRe, function () {\n var m = [];\n\n for (var _i = 0; _i < arguments.length; _i++) {\n m[_i] = arguments[_i];\n }\n\n return m[2] + '{';\n\n });\n\n /*\n * Process styles to add rules which will only apply under the polyfill\n\n *\n * For example, we convert this rule:\n\n *\n * polyfill-rule {\n * content: 'host menu-item';\n * ...\n * }\n\n * to this:\n\n *\n * scopeName menu-item { ... }\n\n *\n **\n\n ShadowCss.prototype._insertPolyfillRulesInCssText = function (cssText) {\n // Difference with webcomponents.js: does not handle comments\n\n return cssText.replace(_cssContentRuleRe, function () {\n var m = [];\n\n for (var _i = 0; _i < arguments.length; _i++) {\n m[_i] = arguments[_i];\n }\n\n var rule = m[0].replace(m[1], "").replace(m[2], "");\n\n return m[4] + rule;\n\n });\n\n /* Ensure styles are scoped. Pseudo-scoping takes a rule like:\n\n *\n * .foo { ... }\n\n *\n * and converts this to\n\n *\n * scopeName .foo { ... }\n\n *\n\n ShadowCss.prototype._scopeCssText = function (cssText, scopeSelector, hostSelector) {\n var unscopedRules = this._extractUnscopedRulesFromCssText(cssText);\n\n // replace :host and :host-context -shadowcsshost and -shadowcsshost respectively\n\n cssText = this._insertPolyfillHostInCssText(cssText);\n\n cssText = this._convertColonHost(cssText);\n\n cssText =

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this._convertColonHostContext(cssText);\n      cssText = this._convertShadowDOMSelectors(cssText);\nif (scopeSelector)\n  {\n    cssText = this._scopeSelectors(cssText, scopeSelector, hostSelector);\n  }\n  cssText =\n  cssText + '\\n' + unscopedRules;\n  return cssText.trim();\n  };\n  /*\n   * Process styles to add rules\n   which will only apply under the polyfill\n   * and do not process via CSSOM. (CSSOM is destructive to rules on\n   rare\n   * occasions, e.g. -webkit-calc on Safari.)\n   * For example, we convert this rule:\n   *\n   * @polyfill-unscoped-rule {\n   *   content: 'menu-item';\n   *   ... }\n   * to this:\n   *\n   * menu-item { ... }\n   */\n  ShadowCss.prototype._extractUnscopedRulesFromCssText = function\n  (cssText) {\n    // Difference with webcomponents.js: does not handle comments\n    var r = '';\n    var\n    m;\n    _cssContentUnscopedRuleRe.lastIndex = 0;\n    while ((m =\n    _cssContentUnscopedRuleRe.exec(cssText))\n    != null) {\n      var rule = m[0].replace(m[2], '').replace(m[1], m[4]);\n      r += rule + '\\n\\n';\n    }\n    return r;\n  };\n  /*\n   * convert a rule like :host(.foo) > .bar { }\n   * to\n   * .foo<scopeName> > .bar\n   */\n  ShadowCss.prototype._convertColonHost = function (cssText) {\n    return this._convertColonRule(cssText, _cssColonHostRe, this._colonHostPartReplacer);\n  };\n  /*\n   * convert a rule like :host-context(.foo) > .bar { }\n   * to\n   * .foo<scopeName> > .bar,\n   .foo scopeName > .bar { }\n   * and\n   * :host-context(.foo:host) .bar { ... }\n   * to\n   * .foo<scopeName> .bar { ... }\n   */\n  ShadowCss.prototype._convertColonHostContext = function (cssText) {\n    return\n    this._convertColonRule(cssText,\n    _cssColonHostContextRe, this._colonHostContextPartReplacer);\n  };\n  ShadowCss.prototype._convertColonRule = function (cssText, regExp, partReplacer) {\n    // m[1] = :host(-\n    context), m[2] = contents of (), m[3] rest of rule\n    return cssText.replace(regExp, function () {\n      var\n      m = [];\n      for (var _i = 0; _i < arguments.length; _i++) {\n        m[_i] = arguments[_i];\n      }\n      if (m[2]) {\n        var parts = m[2].split(',');\n        var r = [];\n        for (var i = 0; i\n        < parts.length; i++) {\n          var p = parts[i].trim();\n          if (!p)\n            break;\n          r.push(partReplacer(_polyfillHostNoCombinator, p, m[3]));\n        }\n        return r.join(',');\n      }\n      else {\n        return _polyfillHostNoCombinator\n        + m[3];\n      }\n    });\n  };\n  ShadowCss.prototype._colonHostContextPartReplacer = function\n  (host, part, suffix) {\n    if (part.indexOf(_polyfillHost) > -1) {\n      return\n      this._colonHostPartReplacer(host, part, suffix);\n    }\n    else {\n      return host + part + suffix + ', '\n      + part + ' ' + host + suffix;\n    }\n  };\n  ShadowCss.prototype._colonHostPartReplacer = function (host,\n  part, suffix) {\n    return host + part.replace(_polyfillHost, '') + suffix;\n  };\n  /*\n   * Convert\n   combinators like ::shadow and pseudo-elements like ::content\n   * by replacing with space.\n   */\n  ShadowCss.prototype._convertShadowDOMSelectors = function (cssText) {\n    return\n    _shadowDOMSelectorsRe.reduce(function (result, pattern) {\n      return result.replace(pattern, ' '); \n    }, cssText);\n  };\n  // change a selector like 'div'\n  to 'name div'\n  ShadowCss.prototype._scopeSelectors = function (cssText, scopeSelector, hostSelector) {\n    var _this = this;\n    return processRules(cssText, function (rule) {\n      var selector = rule.selector;\n      var content = rule.content;\n      if (rule.selector[0] != '@') {\n        selector =\n        _this._scopeSelector(rule.selector, scopeSelector, hostSelector, _this.strictStyling);\n      }\n      else if\n      (rule.selector.startsWith('@media') || rule.selector.startsWith('@supports') ||\n      rule.selector.startsWith('@page') || rule.selector.startsWith('@document')) {\n        content =\n        _this._scopeSelectors(rule.content, scopeSelector, hostSelector);\n      }\n      return new\n      CssRule(selector, content);\n    });\n  };\n  ShadowCss.prototype._scopeSelector = function (selector,\n  scopeSelector, hostSelector,\n  strict) {\n    var _this = this;\n    return selector.split(',')\n      .map(function (part) {\n        return\n        part.trim().split(_shadowDeepSelectors);\n      })\n      .map(function (deepParts) {\n        var _a =

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__read(deepParts), shallowPart = _a[0], otherParts = _a.slice(1);\n        var applyScope = function (shallowPart)
{\n            if (_this._selectorNeedsScoping(shallowPart, scopeSelector)) {\n                return strict ?\n                _this._applyStrictSelectorScope(shallowPart, scopeSelector, hostSelector) :\n                _this._applySelectorScope(shallowPart, scopeSelector, hostSelector);\n            }\n            else {\n                return shallowPart;\n            }\n        };\n        return __spread([applyScope(shallowPart)],\n        otherParts).join(' ');\n    };\n    }.join(', ');\n    }; \n    ShadowCss.prototype._selectorNeedsScoping\n    = function (selector, scopeSelector) {\n        var re = this._makeScopeMatcher(scopeSelector);\n        return\n        !re.test(selector);\n    };\n    ShadowCss.prototype._makeScopeMatcher = function (scopeSelector) {\n        var lre = /\n        var rre = /\n        scopeSelector = scopeSelector.replace(lre, '\\[\\[').replace(rre,\n        '\\]\\]');\n        return new RegExp('^(' + scopeSelector + ')' + _selectorReSuffix, 'm');\n    };\n    ShadowCss.prototype._applySelectorScope = function (selector, scopeSelector, hostSelector) {\n        //\n        Difference from webcomponents.js: scopeSelector could not be an array\n        return\n        this._applySimpleSelectorScope(selector, scopeSelector, hostSelector);\n    };\n    // scope via name and\n    [is=name]\n    ShadowCss.prototype._applySimpleSelectorScope = function (selector, scopeSelector,\n    hostSelector) {\n        // In Android browser, the lastIndex is\n        not reset when the regex is used in String.replace()\n        _polyfillHostRe.lastIndex = 0;\n        if\n        (_polyfillHostRe.test(selector)) {\n            var replaceBy_1 = this.strictStyling ? \"[\" + hostSelector + \"]\" :\n            scopeSelector;\n            return selector\n            .replace(_polyfillHostNoCombinatorRe, function (hnc,\n            selector) {\n                return selector.replace(/([^\n]*)(\n*)(\n*)/, function (_, before, colon, after) {\n                    return before + replaceBy_1 + colon + after;\n                });\n            });\n            .replace(_polyfillHostRe,\n            replaceBy_1 + ' ');\n        }\n        return scopeSelector + ' ' + selector;\n    };\n    // return a selector with\n    [name] suffix on each simple selector\n    // e.g. .foo.bar > .zot becomes .foo[name].bar[name] > .zot[name] /**\n    @internal */\n    ShadowCss.prototype._applyStrictSelectorScope = function (selector, scopeSelector,\n    hostSelector)\n    {\n        var _this = this;\n        var isRe = /\n        scopeSelector =\n        scopeSelector.replace(isRe, function (_) {\n            var parts = [];\n            for (var _i = 1; _i <\n            arguments.length; _i++) {\n                parts[_i - 1] = arguments[_i];\n            }\n            return parts[0];\n        });\n        var attrName = '[' + scopeSelector + ']';\n        var _scopeSelectorPart = function (p) {\n            var\n            scopedP = p.trim();\n            if (!scopedP) {\n                return \"\";\n            }\n            if\n            (p.indexOf(_polyfillHostNoCombinator) > -1) {\n                scopedP = _this._applySimpleSelectorScope(p,\n                scopeSelector, hostSelector);\n            }\n            else {\n                // remove :host since it should be\n                unnecessary\n                var t = p.replace(_polyfillHostRe, \"\");\n                if (t.length > 0) {\n                    var matches = t.match(/([^\n]*)(\n*)(\n*)/);\n                    if (matches) {\n                        scopedP =\n                        matches[1] + attrName + matches[2] + matches[3];\n                    }\n                }\n            }\n            return\n            scopedP;\n        };\n        var safeContent = new SafeSelector(selector);\n        selector =\n        safeContent.content();\n        var scopedSelector = \"\";\n        var startIndex = 0;\n        var res;\n        var sep\n        = /( >|\\+|~(?!=))\\s*/g;\n        // If a selector appears before :host it should not be shimmed as it\n        //\n        matches on ancestor elements and not on elements in the host's shadow\n        // `:host-context(div)` is\n        transformed to\n        // `~shadowcsshost-no-combinatordiv, div ~shadowcsshost-no-combinator`\n        // the\n        `div` is not part of the component in the 2nd selectors and should not be scoped.\n        // Historically `component-\n        tag:host`\n        was matching the component so we also want to preserve\n        // this behavior to avoid breaking legacy apps (it\n        should not match).\n        // The behavior should be:\n        // - `tag:host` -> `tag[h]` (this is to avoid breaking\n        legacy apps, should not match anything)\n        // - `tag :host` -> `tag [h]` (`tag` is not scoped because it's\n        considered part of a\n        // `:host-context(tag)`)\n        var hasHost =\n        selector.indexOf(_polyfillHostNoCombinator) > -1;\n        // Only scope parts after the first `~shadowcsshost-no-\n        combinator` when it is present\n        var shouldScope = !hasHost;\n        while ((res = sep.exec(selector)) !==\n        null) {\n            var separator = res[1];\n            var part_1 = selector.slice(startIndex, res.index).trim();\n
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var nextBlockIndex = 0;\n    var nextQuoteIndex = 0;\n    return inputWithEscapedBlocks.escapedString\n    .replace(_ruleRe, function () {\n        var m = [];\n        for (var _i = 0; _i < arguments.length; _i++) {\n            m[_i] = arguments[_i];\n        }\n        var selector = m[2];\n        var content = ";\n        var suffix =\n        m[4];\n        var contentPrefix = ";\n        if (suffix && suffix.startsWith('{'+ BLOCK_PLACEHOLDER)) {\n            content = inputWithEscapedBlocks.blocks[nextBlockIndex++];\n            suffix =\n            suffix.substring(BLOCK_PLACEHOLDER.length + 1);\n            contentPrefix = '{';\n        }\n        var rule\n        = ruleCallback(new CssRule(selector, content));\n        return "\" + m[1] + rule.selector + m[3] + contentPrefix +\n        rule.content + suffix;\n    });\n    .replace(_quotedRe, function () { return\n    inputWithEscapedQuotes.blocks[nextQuoteIndex++];\n    });\n    }\n    var StringWithEscapedBlocks = /** @class */ (function () {\n        function\n        StringWithEscapedBlocks(escapedString, blocks) {\n            this.escapedString = escapedString;\n            this.blocks\n            = blocks;\n        }\n        return StringWithEscapedBlocks;\n    })();\n    function escapeBlocks(input, charPairs,\n    placeholder) {\n        var resultParts = [];\n        var escapedBlocks = [];\n        var openCharCount = 0;\n        var\n        nonBlockStartIndex = 0;\n        var blockStartIndex = -1;\n        var openChar;\n        var closeChar;\n        for (var i\n        = 0; i < input.length; i++) {\n            var char = input[i];\n            if (char === '\\\\') {\n                i++; \n            }\n            else if (char === closeChar) {\n                openCharCount--;\n                if (openCharCount === 0) {\n                    escapedBlocks.push(input.substring(blockStartIndex, i));\n                    resultParts.push(placeholder);\n                    nonBlockStartIndex = i;\n                    blockStartIndex = -1;\n                    openChar = closeChar = undefined;\n                }\n            }\n            else if (char === openChar) {\n                openCharCount++;\n            }\n            else if\n            (openCharCount === 0 && charPairs.has(char)) {\n                openChar = char;\n                closeChar =\n                charPairs.get(char);\n                openCharCount = 1;\n                blockStartIndex = i + 1;\n                resultParts.push(input.substring(nonBlockStartIndex, blockStartIndex));\n            }\n            if (blockStartIndex\n            !== -1) {\n                escapedBlocks.push(input.substring(blockStartIndex));\n                resultParts.push(placeholder);\n            }\n            else {\n                resultParts.push(input.substring(nonBlockStartIndex));\n            }\n            return new\n            StringWithEscapedBlocks(resultParts.join(""), escapedBlocks);\n        }\n    }\n    /**\n     * @license\n     * Copyright\n     Google LLC All\n     Rights Reserved.\n     *\n     * Use of this source code is governed by an MIT-style license that can be\n     * found\n     in the LICENSE file at https://angular.io/license\n     *\n     var COMPONENT_VARIABLE = '%COMP%';\n     var\n     HOST_ATTR = \"_ngghost-\" + COMPONENT_VARIABLE;\n     var CONTENT_ATTR = \"_ngcontent-\" +\n     COMPONENT_VARIABLE;\n     var StylesCompileDependency = /** @class */ (function () {\n        function\n        StylesCompileDependency(name, moduleUrl, setValue) {\n            this.name = name;\n            this.moduleUrl =\n            moduleUrl;\n            this.setValue = setValue;\n        }\n        return StylesCompileDependency;\n    })();\n    var\n     CompiledStylesheet = /** @class */ (function () {\n        function CompiledStylesheet(outputCtx, stylesVar,\n        dependencies, isShimmed, meta) {\n            this.outputCtx = outputCtx;\n            this.stylesVar = stylesVar;\n            this.dependencies = dependencies;\n            this.isShimmed = isShimmed;\n            this.meta = meta;\n        }\n        return CompiledStylesheet;\n    })();\n    var StyleCompiler = /** @class */ (function () {\n        function\n        StyleCompiler(_urlResolver) {\n            this._urlResolver = _urlResolver;\n            this._shadowCss = new\n            ShadowCss();\n        }\n        StyleCompiler.prototype.compileComponent = function (outputCtx, comp) {\n            var\n            template = comp.template;\n            return this._compileStyles(outputCtx, comp, new\n            CompileStylesheetMetadata({\n                styles: template.styles,\n                styleUrls: template.styleUrls,\n                moduleUrl: identifierModuleUrl(comp.type)\n            }, this.needsStyleShim(comp), true));\n        }\n        StyleCompiler.prototype.compileStyles = function (outputCtx, comp, stylesheet, shim) {\n            if (shim === void\n            0) {\n                shim = this.needsStyleShim(comp);\n            }\n            return this._compileStyles(outputCtx, comp, stylesheet, shim,\n            false);\n        }\n        StyleCompiler.prototype.needsStyleShim =\n        function (comp) {\n            return comp.template.encapsulation === ViewEncapsulation.Emulated;\n        }\n        StyleCompiler.prototype._compileStyles = function (outputCtx, comp, stylesheet, shim, isComponentStylesheet) {\n            var\n            _this = this;\n            var styleExpressions = stylesheet.styles.map(function (plainStyle) {\n                return\n                literal(_this._shimIfNeeded(plainStyle, shim));\n            });\n            var dependencies = [];\n
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stylesheet.styleUrls.forEach(function (styleUrl) {\n          var exprIndex = styleExpressions.length;\n          Note: This placeholder will be filled later.\n          styleExpressions.push(null);\n          dependencies.push(new StylesCompileDependency(getStylesVarName(null), styleUrl, function (value) { return\n          styleExpressions[exprIndex] = outputCtx.importExpr(value); }));\n          });\n          // styles variable contains\n          plain strings and arrays of other styles arrays (recursive),\n          // so we\n          set its type to dynamic.\n          var stylesVar = getStylesVarName(isComponentStylesheet ? comp : null);\n          var stmt = variable(stylesVar)\n          .set(literalArr(styleExpressions, new ArrayType(DYNAMIC_TYPE,\n          [TypeModifier.Const])))\n          .toDeclStmt(null, isComponentStylesheet ? [exports.StmtModifier.Final] : [\n          exports.StmtModifier.Final, exports.StmtModifier.Exported\n          ]);\n          outputCtx.statements.push(stmt);\n          return new CompiledStylesheet(outputCtx, stylesVar, dependencies,\n          shim, stylesheet);\n          });\n          StyleCompiler.prototype._shimIfNeeded = function (style, shim) {\n          return\n          shim ? this._shadowCss.shimCssText(style, CONTENT_ATTR, HOST_ATTR) : style;\n          });\n          return\n          StyleCompiler;\n          }());\n          function getStylesVarName(component) {\n          var result = \"styles\";\n          if\n          (component) {\n          result += \"_\" + identifierName(component.type);\n          }\n          return result;\n          }\n          /**\n          * @license\n          * Copyright Google LLC All Rights Reserved.\n          *\n          * Use of this source code is governed by an MIT-style license that can be\n          * found in the LICENSE file at\n          https://angular.io/license\n          *\n          * A path is an ordered set of elements. Typically a path is to a\n          * particular offset in a source file. The head of the list is the top\n          * most node. The tail is the node that contains the\n          offset directly.\n          *\n          * For example, the expression `a + b + c` might have an ast that looks\n          like:\n          *\n          +\n          * /\n          * a\n          * /\n          * b c\n          *\n          * The path to the node at offset 9 would be `[ '+' at 1-\n          10, '+' at 7-10,\n          * 'c' at 9-10 ]` and the path the node at offset 1 would be\n          * `[ '+' at 1-10, 'a' at 1-2 ]`.\n          *\n          var AstPath = /** @class */ (function () {\n          function AstPath(path, position) {\n          if (position ===\n          void 0) { position = -1; }\n          this.path = path;\n          this.position = position;\n          }\n          Object.defineProperty(AstPath.prototype, \"empty\", {\n          get: function () {\n          return !this.path ||\n          !this.path.length;\n          },\n          enumerable: false,\n          configurable: true\n          });\n          Object.defineProperty(AstPath.prototype, \"head\", {\n          get: function () {\n          return this.path[0];\n          },\n          enumerable: false,\n          configurable: true\n          });\n          Object.defineProperty(AstPath.prototype,\n          \"tail\", {\n          get: function () {\n          return this.path[this.path.length - 1];\n          },\n          enumerable:\n          false,\n          configurable: true\n          });\n          AstPath.prototype.parentOf = function (node) {\n          return\n          node && this.path[this.path.indexOf(node) - 1];\n          };\n          AstPath.prototype.childOf = function\n          (node) {\n          return this.path[this.path.indexOf(node) + 1];\n          };\n          AstPath.prototype.first = function\n          (ctor) {\n          for (var i = this.path.length - 1; i >= 0; i--) {\n          var item = this.path[i];\n          if (item\n          instanceof ctor)\n          return item;\n          }\n          };\n          AstPath.prototype.push = function (node) {\n          this.path.push(node);\n          };\n          AstPath.prototype.pop = function () {\n          return this.path.pop();\n          };\n          return AstPath;\n          }());\n          var NodeWithI18n = /** @class */ (function () {\n          function\n          NodeWithI18n(sourceSpan, i18n) {\n          this.sourceSpan = sourceSpan;\n          this.i18n = i18n;\n          }\n          return NodeWithI18n;\n          }());\n          var Text$3 = /** @class */ (function (_super) {\n          __extends(Text,\n          _super);\n          function Text(value, sourceSpan, i18n) {\n          var _this = _super.call(this, sourceSpan,\n          i18n) || this;\n          _this.value = value;\n          return _this;\n          }\n          Text.prototype.visit = function\n          (visitor, context) {\n          return visitor.visitText(this, context);\n          };\n          return Text;\n          }(NodeWithI18n));\n          var Expansion = /** @class */ (function (_super) {\n          __extends(Expansion, _super);\n          function Expansion(switchValue, type, cases, sourceSpan, switchValueSourceSpan, i18n) {\n          var _this =\n          _super.call(this, sourceSpan, i18n) || this;\n          _this.switchValue = switchValue;\n          _this.type = type;\n          _this.cases = cases;\n          _this.switchValueSourceSpan = switchValueSourceSpan;\n          return _this;\n          }\n          Expansion.prototype.visit = function (visitor, context) {\n          return visitor.visitExpansion(this,\n          context);\n          };\n          return Expansion;\n          }(NodeWithI18n));\n          var ExpansionCase = /** @class */ (function\n          () {\n          function

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ExpansionCase(value, expression, sourceSpan, valueSourceSpan, expSourceSpan) {\n      this.value = value;\n
    this.expression = expression;\n      this.sourceSpan = sourceSpan;\n      this.valueSourceSpan =\n
valueSourceSpan;\n      this.expSourceSpan = expSourceSpan;\n    }\n    ExpansionCase.prototype.visit =\n
function (visitor, context) {\n      return visitor.visitExpansionCase(this, context);\n    };\n    return\n
ExpansionCase;\n  }());\n  var Attribute = /** @class */ (function (_super) {\n    __extends(Attribute,\n
_super);\n    function Attribute(name, value, sourceSpan, valueSpan, i18n) {\n      var _this = _super.call(this,\n
sourceSpan, i18n) || this;\n      _this.name = name;\n      _this.value = value;\n      _this.valueSpan =\n
valueSpan;\n      return _this;\n    }\n    Attribute.prototype.visit = function (visitor, context) {\n\n
return visitor.visitAttribute(this, context);\n\n    }\n    return Attribute;\n  })(NodeWithI18n));\n  var Element$1 = /** @class */ (function (_super) {\n\n
__extends(Element, _super);\n    function Element(name, attrs, children, sourceSpan, startSourceSpan,\n
endSourceSpan, i18n) {\n      if (endSourceSpan === void 0) { endSourceSpan = null; }\n      var _this =\n
_super.call(this, sourceSpan, i18n) || this;\n      _this.name = name;\n      _this.attrs = attrs;\n      _this.children = children;\n      _this.startSourceSpan = startSourceSpan;\n      _this.endSourceSpan =\n
endSourceSpan;\n      return _this;\n    }\n    Element.prototype.visit = function (visitor, context) {\n\n
return visitor.visitElement(this, context);\n    };\n    return Element;\n  })(NodeWithI18n));\n  var Comment =\n
/** @class */ (function () {\n    function Comment(value, sourceSpan) {\n      this.value = value;\n      this.sourceSpan = sourceSpan;\n\n    }\n    Comment.prototype.visit = function (visitor, context) {\n      return visitor.visitComment(this,\n
context);\n    };\n    return Comment;\n  })();\n  function visitAll$1(visitor, nodes, context) {\n    if (context\n
=== void 0) { context = null; }\n    var result = [];\n    var visit = visitor.visit ?\n      function (ast) { return\n
visitor.visit(ast, context) || ast.visit(visitor, context); } :\n      function (ast) { return ast.visit(visitor, context); };\n    nodes.forEach(function (ast) {\n      var astResult = visit(ast);\n      if (astResult) {\n\n
result.push(astResult);\n      }\n    });\n    return result;\n  }\n  var RecursiveVisitor$1 = /** @class */\n
(function () {\n    function RecursiveVisitor() {\n    }\n    RecursiveVisitor.prototype.visitElement = function\n
(ast, context) {\n      this.visitChildren(context, function (visit) {\n        visit(ast.attrs);\n\n        visit(ast.children);\n      });\n    };\n    RecursiveVisitor.prototype.visitAttribute = function (ast,\n
context) { };\n    RecursiveVisitor.prototype.visitText = function (ast, context) { };\n    RecursiveVisitor.prototype.visitComment = function (ast, context) { };\n    RecursiveVisitor.prototype.visitExpansion = function (ast, context) {\n      return this.visitChildren(context,\n
function (visit) {\n        visit(ast.cases);\n      });\n    };\n    RecursiveVisitor.prototype.visitExpansionCase = function (ast, context) { };\n    RecursiveVisitor.prototype.visitChildren = function (context, cb) {\n      var results = [];\n      var t = this;\n      function visit(children) {\n        if (children)\n          results.push(visitAll$1(t, children, context));\n      }\n      cb(visit);\n      return Array.prototype.concat.apply([], results);\n    };\n    return RecursiveVisitor;\n  })();\n  function spanOf(ast) {\n    var start =\n
ast.sourceSpan.start.offset;\n    var end = ast.sourceSpan.end.offset;\n    if (ast instanceof Element$1) {\n\n
if (ast.endSourceSpan) {\n      end = ast.endSourceSpan.end.offset;\n    } else if (ast.children &&\n
ast.children.length) {\n      end = spanOf(ast.children[ast.children.length - 1]).end;\n    }\n  }\n  return { start: start, end: end };\n  }\n  function findNode(nodes, position) {\n    var path = [];\n    var visitor\n
= new /** @class */ (function (_super) {\n      __extends(class_1, _super);\n      function class_1() {\n\n
return _super !== null && _super.apply(this, arguments) || this;\n      }\n      class_1.prototype.visit =\n
function (ast, context) {\n        var span = spanOf(ast);\n        if (span.start <= position && position <\n
span.end)\n        {\n          path.push(ast);\n        }\n        else {\n          // Returning a value here will result in\n
the children being skipped.\n          return true;\n        }\n      };\n      return class_1;\n    })(RecursiveVisitor$1));\n  visitAll$1(visitor, nodes);\n  return new AstPath(path, position);\n  }\n  \n  var\n
TokenType;\n  (function (TokenType) {\n    TokenType[TokenType["TAG_OPEN_START"] = 0] =

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\TAG_OPEN_START\";\n    TokenType[TokenType[\TAG_OPEN_END\"]=1]=\TAG_OPEN_END\";\n
    TokenType[TokenType[\TAG_OPEN_END_VOID\"]=2]=\TAG_OPEN_END_VOID\";\n
TokenType[TokenType[\TAG_CLOSE\"]=3]=\TAG_CLOSE\";\n
TokenType[TokenType[\INCOMPLETE_TAG_OPEN\"]=4]=\INCOMPLETE_TAG_OPEN\";\n
TokenType[TokenType[\TEXT\"]=5]=\TEXT\";\n
TokenType[TokenType[\ESCAPABLE_RAW_TEXT\"]=6]=\ESCAPABLE_RAW_TEXT\";\n
TokenType[TokenType[\RAW_TEXT\"]=7]=\RAW_TEXT\";\n    TokenType[TokenType[\COMMENT_START\"]=8]=
\COMMENT_START\";\n    TokenType[TokenType[\COMMENT_END\"]=9]=\COMMENT_END\";\n
    TokenType[TokenType[\CDATA_START\"]=10]=\CDATA_START\";\n
TokenType[TokenType[\CDATA_END\"]=11]=\CDATA_END\";\n
TokenType[TokenType[\ATTR_NAME\"]=12]=\ATTR_NAME\";\n
TokenType[TokenType[\ATTR_QUOTE\"]=13]=\ATTR_QUOTE\";\n
TokenType[TokenType[\ATTR_VALUE\"]=14]=\ATTR_VALUE\";\n
TokenType[TokenType[\DOC_TYPE\"]=15]=\DOC_TYPE\";\n
TokenType[TokenType[\EXPANSION_FORM_START\"]=16]=\EXPANSION_FORM_START\";\n
TokenType[TokenType[\EXPANSION_CASE_VALUE\"]=17]=\EXPANSION_CASE_VALUE\";\n
TokenType[TokenType[\EXPANSION_CASE_EXP_START\"]=18]=
\EXPANSION_CASE_EXP_START\";\n    TokenType[TokenType[\EXPANSION_CASE_EXP_END\"]=
19]=\EXPANSION_CASE_EXP_END\";\n    TokenType[TokenType[\EXPANSION_FORM_END\"]=
20]=\EXPANSION_FORM_END\";\n    TokenType[TokenType[\EOF\"]=21]=\EOF\";\n
})(TokenType||(TokenType={}));\n    var Token=/** @class */(function() {\n        function Token(type, parts,
sourceSpan) {\n            this.type=type;\n            this.parts=parts;\n            this.sourceSpan=sourceSpan;\n        }\n        return Token;\n    });\n    var TokenError=/** @class */(function(_super) {\n        __extends(TokenError,
_super);\n        function TokenError(errorMsg, tokenType, span) {\n            var _this=_super.call(this, span,
errorMsg)||this;\n            _this.tokenType=tokenType;\n            return _this;\n        }\n        return TokenError;\n    })(ParseError);\n    var TokenizeResult=/** @class */(function() {\n        function TokenizeResult(tokens, errors,
nonNormalizedIcuExpressions) {\n            this.tokens=tokens;\n            this.errors=errors;\n            this.nonNormalizedIcuExpressions=nonNormalizedIcuExpressions;\n        }\n        return TokenizeResult;\n    });\n    function tokenize(source, url, getTagDefinition, options) {\n        if
(options===void 0){options={};}\n        var tokenizer=new _Tokenizer(new ParseSourceFile(source, url),
getTagDefinition, options);\n        tokenizer.tokenize();\n        return new
TokenizeResult(mergeTextTokens(tokenizer.tokens), tokenizer.errors, tokenizer.nonNormalizedIcuExpressions);\n
    }\n    var _CR_OR_CRLF_REGEXP=/\\r\\n?/g;\n    function _unexpectedCharacterErrorMsg(charCode) {\n
var char=charCode===EOF?'EOF':String.fromCharCode(charCode);\n        return "Unexpected character
\\\\"+char+"\\\\";\n    }\n    function _unknownEntityErrorMsg(entitySrc) {\n        return "Unknown entity \\\\"+
entitySrc+"\\\\" - use the \\\\"&#<decimal>;\\\\" or \\\\"&#x<hex>;\\\\" syntax";\n    }\n    function
_unparsableEntityErrorMsg(type, entityStr) {\n        return "Unable to parse entity \\\\"+entityStr
+"\\\\" - \\\\"+type+"\\\\" character reference entities must end with \\\\";\\\\"";\n    }\n    var CharacterReferenceType;\n
(function(CharacterReferenceType) {\n        CharacterReferenceType["HEX"]="hexadecimal";\n
CharacterReferenceType["DEC"]="decimal";\n    })(CharacterReferenceType||(CharacterReferenceType=
{}));\n    var _ControlFlowError=/** @class */(function() {\n        function _ControlFlowError(error) {\n
this.error=error;\n        }\n        return _ControlFlowError;\n    });\n    // See
http://www.w3.org/TR/html51/syntax.html#writing\n    var _Tokenizer=/** @class */(function() {\n        /**\n
* @param _file The html source file being tokenized.\n        * @param _getTagDefinition A function that will
retrieve a tag definition for a given tag name.\n        * @param options Configuration of the tokenization.\n
*/\n        function _Tokenizer(_file, _getTagDefinition, options) {\n            this._getTagDefinition

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    = _getTagDefinition;\n        this._currentTokenStart = null;\n        this._currentTokenType = null;\n
this._expansionCaseStack = [];\n        this._inInterpolation = false;\n        this.tokens = [];\n        this.errors =
[];\n        this.nonNormalizedIcuExpressions = [];\n        this._tokenizeIcu = options.tokenizeExpansionForms ||
false;\n        this._interpolationConfig = options.interpolationConfig ||
DEFAULT_INTERPOLATION_CONFIG;\n        this._leadingTriviaCodePoints = \n
options.leadingTriviaChars && options.leadingTriviaChars.map(function (c) { return c.codePointAt(0) || 0; });\n
    var range = options.range || { endPos: _file.content.length, startPos: 0, startLine: 0, startCol: 0 };\n
this._cursor = options.escapedString ? new EscapedCharacterCursor(_file, range) : \n        new
PlainCharacterCursor(_file, range);\n        this._preserveLineEndings = options.preserveLineEndings
|| false;\n        this._escapedString = options.escapedString || false;\n
this._i18nNormalizeLineEndingsInICUs = options.i18nNormalizeLineEndingsInICUs || false;\n        try {\n
    this._cursor.init();\n        }\n        catch (e) {\n            this.handleError(e);\n        }\n        }\n
_Tokenizer.prototype._processCarriageReturns = function (content) {\n        if (this._preserveLineEndings) {\n
    return content;\n        }\n        // http://www.w3.org/TR/html5/syntax.html#preprocessing-the-input-
stream\n        // In order to keep the original position in the source, we can not\n        // pre-process it.\n        //
Instead CRs are processed right before instantiating the tokens.\n        return
content.replace(_CR_OR_CRLF_REGEXP, '\n');\n        }\n        _Tokenizer.prototype.tokenize = function () {\n
    while (this._cursor.peek() !== $EOF) {\n
        var start = this._cursor.clone();\n        try {\n            if (this._attemptCharCode($LT)) {\n                if
(this._attemptCharCode($BANG)) {\n                    if (this._attemptCharCode($LBACKET)) {\n
                        this._consumeCdata(start);\n                    }\n                    else if (this._attemptCharCode($MINUS)) {\n
                        this._consumeComment(start);\n                    }\n                    else {\n
                        this._consumeDocType(start);\n                    }\n                    }\n                    else if
(this._attemptCharCode($SLASH)) {\n                        this._consumeTagClose(start);\n                    }\n
                    else {\n                        this._consumeTagOpen(start);\n                    }\n                    }\n
                    else if
(! (this._tokenizeIcu &&
this._tokenizeExpansionForm())) {\n                        this._consumeText();\n                    }\n                    }\n
                catch (e) {\n                    this.handleError(e);\n                }\n                }\n                this._beginToken(TokenType.EOF);\n
                this._endToken([]);\n                }\n                /**\n                * @returns whether an ICU token has been created\n                *
                * @internal\n                */\n                _Tokenizer.prototype._tokenizeExpansionForm = function () {\n                    if
(this.isExpansionFormStart()) {\n                        this._consumeExpansionFormStart();\n                        return true;\n                    }\n
                    if (isExpansionCaseStart(this._cursor.peek()) && this._isInExpansionForm()) {\n
                        this._consumeExpansionCaseStart();\n                        return true;\n                    }\n                    if (this._cursor.peek() ===
$RBRACE) {\n                        if (this._isInExpansionCase()) {\n                            this._consumeExpansionCaseEnd();\n
                            return true;\n                        }\n                        if (this._isInExpansionForm()) {\n
                            this._consumeExpansionFormEnd();\n                            return true;\n                        }\n
                    }\n                    }\n                    _Tokenizer.prototype._beginToken = function (type, start) {\n                        if (start === void 0) {\n                            start =
this._cursor.clone();\n                        }\n                        this._currentTokenStart = start;\n                        this._currentTokenType = type;\n                    }\n
                    _Tokenizer.prototype._endToken = function (parts, end) {\n                        if (this._currentTokenStart === null) {\n
                            throw new TokenError('Programming error - attempted to end a token when there was no start to the token',
this._currentTokenType, this._cursor.getSpan(end));\n                        }\n                        if (this._currentTokenType === null) {\n
                            throw new TokenError('Programming error - attempted to end a token which has no token type', null,
this._cursor.getSpan(this._currentTokenStart));\n                        }\n
                        }\n                        var token = new Token(this._currentTokenType, parts,
this._cursor.getSpan(this._currentTokenStart, this._leadingTriviaCodePoints));\n                        this.tokens.push(token);\n
                        this._currentTokenStart = null;\n                        this._currentTokenType = null;\n                        return token;\n                    }\n
                    _Tokenizer.prototype._createError = function (msg, span) {\n                        if (this._isInExpansionForm()) {\n

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msg += "\" (Do you have an unescaped \\\"{\\\" in your template? Use \\\"{ { ' ' } }\\\" to escape it.)\";\n    }\n    var error = new TokenError(msg, this._currentTokenType, span);\n    this._currentTokenType = null;\n    return new _ControlFlowError(error);\n    _Tokenizer.prototype.handleError = function (e) {\n        if (e instanceof CursorError) {\n            e = this._createError(e.msg, this._cursor.getSpan(e.cursor));\n        }\n        if (e instanceof _ControlFlowError) {\n            this.errors.push(e.error);\n        }\n        else {\n            throw e;\n        }\n    }; \n    _Tokenizer.prototype._attemptCharCode = function (charCode) {\n        if (this._cursor.peek() === charCode) {\n            this._cursor.advance();\n            return true;\n        }\n        return false;\n    }; \n    _Tokenizer.prototype._attemptCharCodeCaseInsensitive = function (charCode) {\n        if (compareCharCodeCaseInsensitive(this._cursor.peek(), charCode)) {\n            this._cursor.advance();\n            return true;\n        }\n        return false;\n    }; \n    _Tokenizer.prototype._requireCharCode = function (charCode) {\n        var location = this._cursor.clone();\n        if (!this._attemptCharCode(charCode)) {\n            throw this._createError(_unexpectedCharacterErrorMsg(this._cursor.peek(), this._cursor.getSpan(location)));\n        }\n    }; \n    _Tokenizer.prototype._attemptStr = function (chars) {\n        var len = chars.length;\n        if (this._cursor.charsLeft() < len) {\n            return false;\n        }\n        var initialPosition = this._cursor.clone();\n        for (var i = 0; i < len; i++) {\n            if (!this._attemptCharCode(chars.charCodeAt(i))) {\n                // If attempting to parse the string fails, we want to reset the parser\n                // to where it was before the attempt\n                this._cursor = initialPosition;\n                return false;\n            }\n        }\n        return true;\n    }; \n    _Tokenizer.prototype._attemptStrCaseInsensitive = function (chars) {\n        for (var i = 0; i < chars.length; i++) {\n            if (!this._attemptCharCodeCaseInsensitive(chars.charCodeAt(i))) {\n                return false;\n            }\n        }\n        return true;\n    }; \n    _Tokenizer.prototype._requireStr = function (chars) {\n        var location = this._cursor.clone();\n        if (!this._attemptStr(chars)) {\n            throw this._createError(_unexpectedCharacterErrorMsg(this._cursor.peek(), this._cursor.getSpan(location)));\n        }\n    }; \n    _Tokenizer.prototype._attemptCharCodeUntilFn = function (predicate) {\n        while (!predicate(this._cursor.peek())) {\n            this._cursor.advance();\n        }\n    }; \n    _Tokenizer.prototype._requireCharCodeUntilFn = function (predicate, len) {\n        var start = this._cursor.clone();\n        this._attemptCharCodeUntilFn(predicate);\n        if (this._cursor.diff(start) < len) {\n            throw this._createError(_unexpectedCharacterErrorMsg(this._cursor.peek(), this._cursor.getSpan(start)));\n        }\n    }; \n    _Tokenizer.prototype._attemptUntilChar = function (char) {\n        while (this._cursor.peek() !== char) {\n            this._cursor.advance();\n        }\n    }; \n    _Tokenizer.prototype._readChar = function (decodeEntities) {\n        if (decodeEntities && this._cursor.peek() === $AMPERSAND) {\n            return this._decodeEntity();\n        }\n        else {\n            // Don't rely upon reading directly from `_input` as the actual char value\n            // may have been generated from an escape sequence.\n            var char = String.fromCharCode(this._cursor.peek());\n            this._cursor.advance();\n            return char;\n        }\n    }; \n    _Tokenizer.prototype._decodeEntity = function () {\n        var start = this._cursor.clone();\n        this._cursor.advance();\n        if (this._attemptCharCode($HASH)) {\n            var isHex = this._attemptCharCode($x) || this._attemptCharCode($X);\n            var codeStart = this._cursor.clone();\n            this._attemptCharCodeUntilFn(isDigitEntityEnd);\n            if (this._cursor.peek() !== $SEMICOLON) {\n                // Advance cursor to include the peeked character in the string provided to the error\n                // message.\n                this._cursor.advance();\n            }\n            var entityType = isHex ? CharacterReferenceType.HEX : CharacterReferenceType.DEC;\n            throw this._createError(_unparsableEntityErrorMsg(entityType, this._cursor.getChars(start), this._cursor.getSpan()));\n        }\n        var strNum = this._cursor.getChars(codeStart);\n        this._cursor.advance();\n        try {\n            var charCode = parseInt(strNum, isHex ? 16 : 10);\n            return String.fromCharCode(charCode);\n        }\n        catch (_a) {\n            throw this._createError(_unknownEntityErrorMsg(this._cursor.getChars(start)),

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this._cursor.getSpan());\n          }\n          }\n          else {\n              var nameStart = this._cursor.clone();\n              this._attemptCharCodeUntilFn(isNamedEntityEnd);\n              if (this._cursor.peek() != $SEMICOLON) {\n                  this._cursor = nameStart;\n                  return '&';\n              }\n              var name =\nthis._cursor.getChars(nameStart);\n              this._cursor.advance();\n              var char =\nNAMED_ENTITIES[name];\n              if (!char) {\n                  throw\nthis._createError(_unknownEntityErrorMsg(name), this._cursor.getSpan(start));\n              }\n              return\nchar;\n          }\n      };\n      _Tokenizer.prototype._consumeRawText = function (decodeEntities,\nendMarkerPredicate) {\n          this._beginToken(decodeEntities ? TokenType.ESCAPABLE_RAW_TEXT :\nTokenType.RAW_TEXT);\n          var parts = [];\n          while (true) {\n              var tagCloseStart = this._cursor.clone();\n              var foundEndMarker = endMarkerPredicate();\n              this._cursor = tagCloseStart;\n              if (foundEndMarker) {\n                  break;\n              }\n              parts.push(this._readChar(decodeEntities));\n          }\n          return\nthis._endToken([this._processCarriageReturns(parts.join(""))]);\n      };\n      _Tokenizer.prototype._consumeComment = function (start) {\n          var _this = this;\n          this._beginToken(TokenType.COMMENT_START, start);\n          this._requireCharCode($MINUS);\n          this._endToken([]);\n          this._consumeRawText(false, function () { return _this._attemptStr('-->'); });\n          this._beginToken(TokenType.COMMENT_END);\n          this._requireStr('-->');\n          this._endToken([]);\n      };\n      _Tokenizer.prototype._consumeCdata = function (start) {\n          var _this = this;\n          this._beginToken(TokenType.CDATA_START,\nstart);\n          this._requireStr('CDATA[');\n          this._endToken([]);\n          this._consumeRawText(false,\nfunction () { return _this._attemptStr(']]>'); });\n          this._beginToken(TokenType.CDATA_END);\n          this._requireStr(']]>');\n          this._endToken([]);\n      };\n      _Tokenizer.prototype._consumeDocType =\nfunction (start) {\n          this._beginToken(TokenType.DOC_TYPE, start);\n          var contentStart =\nthis._cursor.clone();\n          this._attemptUntilChar($GT);\n          var content =\nthis._cursor.getChars(contentStart);\n          this._cursor.advance();\n          this._endToken([content]);\n      };\n      _Tokenizer.prototype._consumePrefixAndName = function () {\n          var nameOrPrefixStart =\nthis._cursor.clone();\n          var prefix = ";\n          while (this._cursor.peek() != $COLON &&\n!isPrefixEnd(this._cursor.peek())) {\n              this._cursor.advance();\n          }\n          var nameStart;\n          if (this._cursor.peek() === $COLON) {\n              prefix =\nthis._cursor.getChars(nameOrPrefixStart);\n              this._cursor.advance();\n              nameStart =\nthis._cursor.clone();\n          }\n          else {\n              nameStart = nameOrPrefixStart;\n          }\n          this._requireCharCodeUntilFn(isNameEnd, prefix === " ? 0 : 1);\n          var name =\nthis._cursor.getChars(nameStart);\n          return [prefix, name];\n      };\n      _Tokenizer.prototype._consumeTagOpen = function (start) {\n          var tagName;\n          var prefix;\n          var\nopenTagToken;\n          try {\n              if (!isAsciiLetter(this._cursor.peek())) {\n                  throw\nthis._createError(_unexpectedCharacterErrorMsg(this._cursor.peek()), this._cursor.getSpan(start));\n              }\n              openTagToken = this._consumeTagOpenStart(start);\n              prefix = openTagToken.parts[0];\n              tagName = openTagToken.parts[1];\n              this._attemptCharCodeUntilFn(isNotWhitespace);\n              while (this._cursor.peek() != $SLASH && this._cursor.peek() != $GT &&\nthis._cursor.peek()\n!= $LT) {\n                  this._consumeAttributeName();\n              }\n              this._attemptCharCodeUntilFn(isNotWhitespace);\n              if (this._attemptCharCode($EQ)) {\n                  this._attemptCharCodeUntilFn(isNotWhitespace);\n                  this._consumeAttributeValue();\n              }\n              this._attemptCharCodeUntilFn(isNotWhitespace);\n          }\n          catch (e) {\n              if (e instanceof _ControlFlowError) {\n                  if (openTagToken) {\n                      // We errored before we could close the opening tag, so it is\nincomplete.\n                      openTagToken.type\n= TokenType.INCOMPLETE_TAG_OPEN;\n                  }\n                  else {\n                      // When the start\n            tag is invalid, assume we want a "<" as text.\n                      // Back to back text tokens are merged at the end.\n
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        this._beginToken(TokenType.TEXT, start);\n                this._endToken(['<']);\n            }\n            return;\n        }\n        throw e;\n    }\n    var contentTokenType =\nthis._getTagDefinition(tagName).contentType;\n    if (contentTokenType ===\nexports.TagContentType.RAW_TEXT) {\n        this._consumeRawTextWithTagClose(prefix, tagName,\nfalse);\n    }\n    else if (contentTokenType === exports.TagContentType.ESCAPABLE_RAW_TEXT)\n{\n        this._consumeRawTextWithTagClose(prefix, tagName, true);\n    }\n    }\n    _Tokenizer.prototype._consumeRawTextWithTagClose = function (prefix, tagName,\ndecodeEntities) {\n        var _this = this;\n        var textToken = this._consumeRawText(decodeEntities,\nfunction () {\n            if (!_this._attemptCharCode($LT))\n                return false;\n            if\n(!_this._attemptCharCode($SLASH))\n                return false;\n            _this._attemptCharCodeUntilFn(isNotWhitespace);\n            if (!_this._attemptStrCaseInsensitive(tagName))\n                return false;\n            _this._attemptCharCodeUntilFn(isNotWhitespace);\n            return\n            _this._attemptCharCode($GT);\n        });\n        this._beginToken(TokenType.TAG_CLOSE);\n        this._requireCharCodeUntilFn(function (code) { return code === $GT; }, 3);\n        this._cursor.advance();\n        // Consume the `>`\n        this._endToken([prefix, tagName]);\n    }\n    _Tokenizer.prototype._consumeTagOpenStart = function (start) {\nthis._beginToken(TokenType.TAG_OPEN_START, start);\n        var parts = this._consumePrefixAndName();\n        return this._endToken(parts);\n    }\n    _Tokenizer.prototype._consumeAttributeName = function () {\n        var attrNameStart = this._cursor.peak();\n        if (attrNameStart === $SQ || attrNameStart === $DQ) {\n            throw\nthis._createError(_unexpectedCharacterErrorMsg(attrNameStart), this._cursor.getSpan());\n        }\n        this._beginToken(TokenType.ATTR_NAME);\n        var prefixAndName = this._consumePrefixAndName();\n        this._endToken(prefixAndName);\n    }\n    _Tokenizer.prototype._consumeAttributeValue = function ()\n{\n        var value;\n        if (this._cursor.peak() === $SQ || this._cursor.peak() === $DQ) {\nthis._beginToken(TokenType.ATTR_QUOTE);\n            var quoteChar = this._cursor.peak();\n            this._cursor.advance();\n            this._endToken([String.fromCharCode(quoteChar)]);\n            this._beginToken(TokenType.ATTR_VALUE);\n            var parts = [];\n            while\n            (this._cursor.peak() !== quoteChar) {\n                parts.push(this._readChar(true));\n            }\n            value\n            = parts.join('');\n            this._endToken([this._processCarriageReturns(value)]);\n            this._beginToken(TokenType.ATTR_QUOTE);\n            this._cursor.advance();\n            this._endToken([String.fromCharCode(quoteChar)]);\n        }\n        else {\n            this._beginToken(TokenType.ATTR_VALUE);\n            var valueStart = this._cursor.clone();\n            this._requireCharCodeUntilFn(isNameEnd, 1);\n            value = this._cursor.getChars(valueStart);\n            this._endToken([this._processCarriageReturns(value)]);\n        }\n    }\n    _Tokenizer.prototype._consumeTagOpenEnd = function () {\n        var tokenType =\nthis._attemptCharCode($SLASH) ? TokenType.TAG_OPEN_END_VOID\n: TokenType.TAG_OPEN_END;\n        this._beginToken(tokenType);\n        this._requireCharCode($GT);\n        this._endToken([]);\n    }\n    _Tokenizer.prototype._consumeTagClose = function (start) {\nthis._beginToken(TokenType.TAG_CLOSE, start);\n        this._attemptCharCodeUntilFn(isNotWhitespace);\n        var prefixAndName = this._consumePrefixAndName();\n        this._attemptCharCodeUntilFn(isNotWhitespace);\n        this._requireCharCode($GT);\n        this._endToken(prefixAndName);\n    }\n    _Tokenizer.prototype._consumeExpansionFormStart = function ()\n{\n        this._beginToken(TokenType.EXPANSION_FORM_START);\n        this._requireCharCode($LBRACE);\n        this._endToken([]);\n        this._expansionCaseStack.push(TokenType.EXPANSION_FORM_START);\n        this._beginToken(TokenType.RAW_TEXT);\n        var condition = this._readUntil($COMMA);\n        var\nnormalizedCondition

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= this._processCarriageReturns(condition);\n      if (this._i18nNormalizeLineEndingsInICUs) {\n          // We explicitly want to normalize line endings for this text.\n          this._endToken([normalizedCondition]);\n      }\n      else {\n          // We are not normalizing line endings.\n          var conditionToken = this._endToken([condition]);\n          if (normalizedCondition !== condition) {\n              this.nonNormalizedIcuExpressions.push(conditionToken);\n          }\n      }\n      this._requireCharCode($COMMA);\n      this._attemptCharCodeUntilFn(isNotWhitespace);\n      this._beginToken(Token.Type.RAW_TEXT);\n      var type = this._readUntil($COMMA);\n      this._endToken([type]);\n      this._requireCharCode($COMMA);\n      this._attemptCharCodeUntilFn(isNotWhitespace);\n      };\n      _Tokenizer.prototype._consumeExpansionCaseStart = function () {\n          {\n              this._beginToken(Token.Type.EXPANSION_CASE_VALUE);\n              var value = this._readUntil($LBRACE).trim();\n              this._endToken([value]);\n              this._attemptCharCodeUntilFn(isNotWhitespace);\n              this._beginToken(Token.Type.EXPANSION_CASE_EXP_START);\n              this._requireCharCode($LBRACE);\n              this._endToken([]);\n              this._attemptCharCodeUntilFn(isNotWhitespace);\n              this._expansionCaseStack.push(Token.Type.EXPANSION_CASE_EXP_START);\n          };\n      }\n      _Tokenizer.prototype._consumeExpansionCaseEnd = function () {\n          this._beginToken(Token.Type.EXPANSION_CASE_EXP_END);\n          this._requireCharCode($RBRACE);\n          this._endToken([]);\n          this._attemptCharCodeUntilFn(isNotWhitespace);\n          this._expansionCaseStack.pop();\n      };\n      _Tokenizer.prototype._consumeExpansionFormEnd = function () {\n          {\n              this._beginToken(Token.Type.EXPANSION_FORM_END);\n              this._requireCharCode($RBRACE);\n              this._endToken([]);\n              this._expansionCaseStack.pop();\n          };\n      }\n      _Tokenizer.prototype._consumeText = function () {\n          var start = this._cursor.clone();\n          this._beginToken(Token.Type.TEXT, start);\n          var parts = [];\n          do {\n              if (this._interpolationConfig && this._attemptStr(this._interpolationConfig.start)) {\n                  parts.push(this._interpolationConfig.start);\n                  this._inInterpolation = true;\n              } else if (this._interpolationConfig && this._inInterpolation && this._attemptStr(this._interpolationConfig.end)) {\n                  parts.push(this._interpolationConfig.end);\n                  this._inInterpolation = false;\n              } else {\n                  parts.push(this._readChar(true));\n              }\n          } while (!this._isTextEnd());\n          this._endToken([this._processCarriageReturns(parts.join(""))]);\n      }\n      _Tokenizer.prototype._isTextEnd = function () {\n          if (this._cursor.peek() === $LT || this._cursor.peek() === $EOF) {\n              return true;\n          }\n          if (this._tokenizeIcu && !this._inInterpolation) {\n              if (this.isExpansionFormStart()) {\n                  // start of an expansion form\n                  return true;\n              }\n              if (this._cursor.peek() === $RBRACE && this._isInExpansionCase()) {\n                  // end of and expansion case\n                  return true;\n              }\n          }\n          return false;\n      };\n      _Tokenizer.prototype._readUntil = function (char) {\n          var start = this._cursor.clone();\n          this._attemptUntilChar(char);\n          return this._cursor.getChars(start);\n      };\n      _Tokenizer.prototype._isInExpansionCase = function () {\n          {\n              return this._expansionCaseStack.length > 0 && this._expansionCaseStack[this._expansionCaseStack.length - 1] === Token.Type.EXPANSION_CASE_EXP_START;\n          }\n      }\n      _Tokenizer.prototype._isInExpansionForm = function () {\n          {\n              return this._expansionCaseStack.length > 0 && this._expansionCaseStack[this._expansionCaseStack.length - 1] === Token.Type.EXPANSION_FORM_START;\n          }\n      }\n      _Tokenizer.prototype.isExpansionFormStart = function () {\n          {\n              if (this._cursor.peek() !== $LBRACE) {\n                  return false;\n              }\n              if (this._interpolationConfig) {\n                  var start = this._cursor.clone();\n                  var isInterpolation = this._attemptStr(this._interpolationConfig.start);\n                  this._cursor = start;\n                  return !isInterpolation;\n              }\n          }\n      }\n
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    }\n    return true;\n    };\n    return _Tokenizer;\n
  }());\n  function isNotWhitespace(code) {\n    return !isWhitespace(code) || code === $EOF;\n  }\n
function isNameEnd(code) {\n    return isWhitespace(code) || code === $GT || code === $LT ||\n    code === $SLASH || code === $SQ || code === $DQ || code === $EQ;\n  }\n  function isPrefixEnd(code) {\n    return
(code < $a || $z < code) && (code < $A || $Z < code) &&\n    (code < $0 || code > $9);\n  }\n  function
isDigitEntityEnd(code) {\n    return code == $SEMICOLON || code == $EOF || !isAsciiHexDigit(code);\n  }\n
function isNamedEntityEnd(code) {\n    return code == $SEMICOLON || code == $EOF || !isAsciiLetter(code);\n
  }\n  function isExpansionCaseStart(peek) {\n    return peek !== $RBRACE;\n  }\n  function
compareCharCodeCaseInsensitive(code1, code2) {\n    return toUpperCaseCharCode(code1) ==
toUpperCaseCharCode(code2);\n  }\n  function toUpperCaseCharCode(code) {\n    return code >= $a && code
<=
    $z ? code - $a + $A : code;\n  }\n  function mergeTextTokens(srcTokens) {\n    var dstTokens = [];\n    var
lastDstToken = undefined;\n    for (var i = 0; i < srcTokens.length; i++) {\n      var token = srcTokens[i];\n
    if (lastDstToken && lastDstToken.type == TokenType.TEXT && token.type == TokenType.TEXT) {\n
    lastDstToken.parts[0] += token.parts[0];\n      lastDstToken.sourceSpan.end = token.sourceSpan.end;\n
    }\n    else {\n      lastDstToken = token;\n      dstTokens.push(lastDstToken);\n    }\n  }\n
    return dstTokens;\n  }\n  var PlainCharacterCursor = /** @class */ (function () {\n    function
PlainCharacterCursor(fileOrCursor, range) {\n      if (fileOrCursor instanceof PlainCharacterCursor) {\n
    this.file = fileOrCursor.file;\n      this.input = fileOrCursor.input;\n      this.end = fileOrCursor.end;\n
    }\n
    var state = fileOrCursor.state;\n    // Note: avoid using `{...fileOrCursor.state}` here as that has a severe
    performance penalty.\n    // In ES5 bundles the object spread operator is translated into the `__assign` helper,
    which\n    // is not optimized by VMs as efficiently as a raw object literal. Since this constructor is\n
    // called in tight loops, this difference matters.\n    this.state = {\n      peek: state.peek,\n
    offset: state.offset,\n      line: state.line,\n      column: state.column,\n    };\n  }\n
  else {\n    if (!range) {\n      throw new Error('Programming error: the range argument must be
    provided with a file argument.);\n    }\n    this.file = fileOrCursor;\n    this.input =
    fileOrCursor.content;\n    this.end = range.endPos;\n
    this.state = {\n      peek: -1,\n      offset: range.startPos,\n      line: range.startLine,\n
      column: range.startCol,\n    };\n  }\n  }\n  PlainCharacterCursor.prototype.clone =
  function () {\n    return new PlainCharacterCursor(this);\n  };\n  PlainCharacterCursor.prototype.peek =
  function () {\n    return this.state.peek;\n  };\n  PlainCharacterCursor.prototype.charsLeft = function ()
{\n    return this.end - this.state.offset;\n  };\n  PlainCharacterCursor.prototype.diff = function (other)
{\n    return this.state.offset - other.state.offset;\n  };\n  PlainCharacterCursor.prototype.advance =
  function () {\n    this.advanceState(this.state);\n  };\n  PlainCharacterCursor.prototype.init = function ()
{\n    this.updatePeek(this.state);\n  };\n  PlainCharacterCursor.prototype.getSpan
  = function (start, leadingTriviaCodePoints) {\n    start = start || this;\n    var fullStart = start;\n    if
    (leadingTriviaCodePoints) {\n      while (this.diff(start) > 0 &&
    leadingTriviaCodePoints.indexOf(start.peek()) !== -1) {\n        if (fullStart === start) {\n          start
    = start.clone();\n        }\n        start.advance();\n      }\n    }\n    var startLocation =
    this.locationFromCursor(start);\n    var endLocation = this.locationFromCursor(this);\n    var
    fullStartLocation = fullStart !== start ? this.locationFromCursor(fullStart) : startLocation;\n    return new
    ParseSourceSpan(startLocation, endLocation, fullStartLocation);\n  };\n  PlainCharacterCursor.prototype.getChars = function (start) {\n    return this.input.substring(start.state.offset,
    this.state.offset);\n  };\n  PlainCharacterCursor.prototype.charAt
  = function (pos) {\n    return this.input.charCodeAt(pos);\n  };\n
  PlainCharacterCursor.prototype.advanceState = function (state) {\n    if (state.offset >= this.end) {\n
    this.state = state;\n    throw new CursorError('Unexpected character \\'EOF\\'', this);\n    }\n    var

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currentChar = this.charAt(state.offset);\n      if (currentChar === $LF) {\n          state.line++;\n      }\n      state.column = 0;\n      }\n      else if (!isNewLine(currentChar)) {\n          state.column++;\n      }\n      state.offset++;\n      this.updatePeek(state);\n      };\n      PlainCharacterCursor.prototype.updatePeek =\nfunction (state) {\n    state.peak = state.offset >= this.end ? $EOF : this.charAt(state.offset);\n};\n\nPlainCharacterCursor.prototype.locationFromCursor = function (cursor) {\n    return new\nParseLocation(cursor.file,\n    cursor.state.offset, cursor.state.line, cursor.state.column);\n};\n    return PlainCharacterCursor;\n})();\n\nvar EscapedCharacterCursor = /** @class */ (function (_super) {\n    __extends(EscapedCharacterCursor,\n    _super);\n    function EscapedCharacterCursor(fileOrCursor, range) {\n        var _this = this;\n        if\n(fileOrCursor instanceof EscapedCharacterCursor) {\n            _this = _super.call(this, fileOrCursor) || this;\n        }\n        _this.internalState = Object.assign({}, fileOrCursor.internalState);\n        }\n        else {\n            _this =\n        _super.call(this, fileOrCursor, range) || this;\n        _this.internalState = _this.state;\n        }\n        return\n        _this;\n    }\n    EscapedCharacterCursor.prototype.advance = function () {\n        this.state =\n        this.internalState;\n        _super.prototype.advance.call(this);\n        this.processEscapeSequence();\n    };\n    EscapedCharacterCursor.prototype.init = function () {\n        _super.prototype.init.call(this);\n        this.processEscapeSequence();\n    };\n    EscapedCharacterCursor.prototype.clone = function () {\n        return new EscapedCharacterCursor(this);\n    };\n    EscapedCharacterCursor.prototype.getChars = function\n(start) {\n        var cursor = start.clone();\n        var chars = '';\n        while (cursor.internalState.offset <\n        this.internalState.offset) {\n            chars += String.fromCodePoint(cursor.peak());\n            cursor.advance();\n        }\n        return chars;\n    };\n    /**\n     * Process the escape sequence that starts at the current\n     position in the text.\n     *\n     * This method is called to ensure that `peek` has the unescaped value of escape\n     sequences.\n     */\n    EscapedCharacterCursor.prototype.processEscapeSequence = function () {\n        var\n        _this = this;\n\n        var peek = function () { return _this.internalState.peak; };\n        if (peek() === $BACKSLASH) {\n            // We have hit an escape sequence so we need the internal state to become independent\n            // of the\n            external state.\n            this.internalState = Object.assign({}, this.state);\n            // Move past the backslash\n            this.advanceState(this.internalState);\n            // First check for standard control char sequences\n            if (peek() === $n) {\n                this.state.peak = $LF;\n            }\n            else if (peek() === $r) {\n                this.state.peak = $CR;\n            }\n            else if (peek() === $v) {\n                this.state.peak = $VTAB;\n            }\n            else if (peek() === $t) {\n                this.state.peak = $TAB;\n            }\n            else if\n            (peek() === $b) {\n                this.state.peak\n                = $BSPACE;\n            }\n            else if (peek() === $f) {\n                this.state.peak = $FF;\n            }\n            }\n            // Now consider more complex sequences\n            else if (peek() === $u) {\n                // Unicode code-\n                point sequence\n                this.advanceState(this.internalState); // advance past the `u` char\n                if\n                (peek() === $LBRACE) {\n                    // Variable length Unicode, e.g. `\\x{123}`\n                    this.advanceState(this.internalState); // advance past the `{` char\n                    // Advance past the variable\n                    number of hex digits until we hit a `}` char\n                    var digitStart = this.clone();\n                    var length =\n                    0;\n                    while (peek() !== $RBRACE) {\n                        this.advanceState(this.internalState);\n                        length++;\n                    }\n                    this.state.peak\n                    = this.decodeHexDigits(digitStart, length);\n                }\n                else {\n                    // Fixed length\n                    Unicode, e.g. `\\u1234`\n                    var digitStart = this.clone();\n                    this.advanceState(this.internalState);\n                    this.advanceState(this.internalState);\n                    this.advanceState(this.internalState);\n                    this.state.peak = this.decodeHexDigits(digitStart, 4);\n                }\n            }\n            else if (peek() === $x) {\n                // Hex char code, e.g. `\\x2F`\n                this.advanceState(this.internalState); // advance past the `x` char\n                var digitStart = this.clone();\n                this.advanceState(this.internalState);\n                this.state.peak = this.decodeHexDigits(digitStart, 2);\n            }\n            }\n            else if (isOctalDigit(peek())) {\n
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// Octal char code, e.g. `\\012`,\n          var octal = ";\n          var length = 0;\n          var previous
= this.clone();\n          while (isOctalDigit(peek()) && length < 3) {\n          previous = this.clone();\n          octal += String.fromCharCode(peek());\n          this.advanceState(this.internalState);\n          length++;\n          }\n          this.state.peak = parseInt(octal, 8);\n          // Backup one char\n          this.internalState = previous.internalState;\n          }\n          else if
(isNewLine(this.internalState.peak)) {\n          // Line continuation `` followed by a new line\n          this.advanceState(this.internalState); // advance over the newline\n          this.state = this.internalState;\n          }\n          else {\n          // If none of
the `if` blocks were executed then we just have an escaped normal character.\n          // In that case we just,
effectively, skip the backslash from the character.\n          this.state.peak = this.internalState.peak;\n          }\n          }\n          }\n          EscapedCharacterCursor.prototype.decodeHexDigits = function (start, length) {\n          var hex = this.input.substr(start.internalState.offset, length);\n          var charCode = parseInt(hex, 16);\n          if
(!isNaN(charCode)) {\n          return charCode;\n          }\n          else {\n          start.state =
start.internalState;\n          throw new CursorError('Invalid hexadecimal escape sequence', start);\n          }\n          };\n          return EscapedCharacterCursor;\n          }(PlainCharacterCursor);\n          var CursorError = /** @class */
(function () {\n          function CursorError(msg, cursor) {\n          this.msg = msg;\n          this.cursor = cursor;\n          }\n          return CursorError;\n          }());\n          var TreeError = /** @class */ (function (_super) {\n          __extends(TreeError, _super);\n          function TreeError(elementName, span, msg) {\n          var _this =
_super.call(this, span, msg) || this;\n          _this.elementName = elementName;\n          return _this;\n          }\n          TreeError.create = function (elementName, span, msg) {\n          return new TreeError(elementName, span, msg);\n          };\n          return TreeError;\n          }(ParseError));\n          var ParseTreeResult = /** @class */ (function () {\n          function ParseTreeResult(rootNodes, errors) {\n          this.rootNodes = rootNodes;\n          this.errors = errors;\n          }\n          return ParseTreeResult;\n          }());\n          var Parser = /** @class */ (function () {\n          function
Parser(getTagDefinition) {\n          this.getTagDefinition = getTagDefinition;\n          }\n          Parser.prototype.parse
= function (source, url, options) {\n          var tokenizeResult = tokenize(source, url, this.getTagDefinition, options);\n          var parser = new
_TreeBuilder(tokenizeResult.tokens, this.getTagDefinition);\n          parser.build();\n          return new
ParseTreeResult(parser.rootNodes, tokenizeResult.errors.concat(parser.errors));\n          };\n          return Parser;\n          }());\n          var _TreeBuilder = /** @class */ (function () {\n          function _TreeBuilder(tokens, getTagDefinition) {\n          this.tokens = tokens;\n          this.getTagDefinition = getTagDefinition;\n          this._index = -1;\n          this._elementStack = [];\n          this.rootNodes = [];\n          this.errors = [];\n          this._advance();\n          }\n          _TreeBuilder.prototype.build = function () {\n          while (this._peek.type !== TokenType.EOF) {\n          if
(this._peek.type === TokenType.TAG_OPEN_START ||\n          this._peek.type ===
TokenType.INCOMPLETE_TAG_OPEN) {\n          this._consumeStartTag(this._advance());\n          }\n          else if (this._peek.type ===
TokenType.TAG_CLOSE) {\n          this._consumeEndTag(this._advance());\n          }\n          else if
(this._peek.type === TokenType.CDATA_START) {\n          this._closeVoidElement();\n          this._consumeCdata(this._advance());\n          }\n          else if (this._peek.type ===
TokenType.COMMENT_START) {\n          this._closeVoidElement();\n          this._consumeComment(this._advance());\n          }\n          else if (this._peek.type === TokenType.TEXT ||
this._peek.type === TokenType.RAW_TEXT ||\n          this._peek.type ===
TokenType.ESCAPABLE_RAW_TEXT) {\n          this._closeVoidElement();\n          this._consumeText(this._advance());\n          }\n          else if (this._peek.type ===
TokenType.EXPANSION_FORM_START) {\n          this._consumeExpansion(this._advance());\n          }\n          else {\n          // Skip all other
tokens...\n          this._advance();\n          }\n          }\n          }\n          _TreeBuilder.prototype._advance =
function () {\n          var prev = this._peek;\n          if (this._index < this.tokens.length - 1) {\n          // Note:
there is always an EOF token at the end\n          this._index++;\n          }\n          this._peek =

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this.tokens[this._index];\n      return prev;\n    };\n    _TreeBuilder.prototype._advanceIf = function (type)
{\n    if (this._peek.type === type) {\n      return this._advance();\n    }\n    return null;\n  };\n  _TreeBuilder.prototype._consumeCdata = function (_startToken) {\n
this._consumeText(this._advance());\n    this._advanceIf(TokenType.CDATA_END);\n  };\n  _TreeBuilder.prototype._consumeComment
= function (token) {\n    var text = this._advanceIf(TokenType.RAW_TEXT);\n
this._advanceIf(TokenType.COMMENT_END);\n    var value = text != null ? text.parts[0].trim() : null;\n
this._addToParent(new Comment(value, token.sourceSpan));\n  };\n  _TreeBuilder.prototype._consumeExpansion = function (token) {\n    var switchValue = this._advance();\n
var type = this._advance();\n    var cases = [];\n    // read =\n    while (this._peek.type ===
TokenType.EXPANSION_CASE_VALUE) {\n      var expCase = this._parseExpansionCase();\n      if
(!expCase)\n        return; // error\n      cases.push(expCase);\n    }\n    // read the final }\n
if (this._peek.type !== TokenType.EXPANSION_FORM_END) {\n
this.errors.push(TreeError.create(null, this._peek.sourceSpan, \"Invalid ICU message. Missing '}'.\");\n
return;\n    }\n    var sourceSpan = new ParseSourceSpan(token.sourceSpan.start,
this._peek.sourceSpan.end, token.sourceSpan.fullStart);\n    this._addToParent(new
Expansion(switchValue.parts[0], type.parts[0], cases, sourceSpan, switchValue.sourceSpan));\n
this._advance();\n  };\n  _TreeBuilder.prototype._parseExpansionCase = function () {\n    var value =
this._advance();\n    // read {\n    if (this._peek.type !== TokenType.EXPANSION_CASE_EXP_START)
{\n      this.errors.push(TreeError.create(null, this._peek.sourceSpan, \"Invalid ICU message. Missing '{'.\");\n
return null;\n    }\n    // read until }\n    var start = this._advance();\n    var exp =
this._collectExpansionExpTokens(start);\n    if (!exp)\n      return null;\n    var end =
this._advance();\n    exp.push(new Token(TokenType.EOF, [], end.sourceSpan));\n
// parse everything in between { and }\n    var expansionCaseParser = new _TreeBuilder(exp,
this.getTagDefinition);\n    expansionCaseParser.build();\n    if (expansionCaseParser.errors.length > 0)
{\n      this.errors = this.errors.concat(expansionCaseParser.errors);\n      return null;\n    }\n
var sourceSpan = new ParseSourceSpan(value.sourceSpan.start, end.sourceSpan.end, value.sourceSpan.fullStart);\n
var expSourceSpan = new ParseSourceSpan(start.sourceSpan.start, end.sourceSpan.end,
start.sourceSpan.fullStart);\n    return new ExpansionCase(value.parts[0], expansionCaseParser.rootNodes,
sourceSpan, value.sourceSpan, expSourceSpan);\n  };\n  _TreeBuilder.prototype._collectExpansionExpTokens = function (start) {\n    var exp = [];\n    var
expansionFormStack = [TokenType.EXPANSION_CASE_EXP_START];\n    while (true) {\n      if
(this._peek.type
=== TokenType.EXPANSION_FORM_START ||\n      this._peek.type ===
TokenType.EXPANSION_CASE_EXP_START) {\n        expansionFormStack.push(this._peek.type);\n
      }\n      if (this._peek.type === TokenType.EXPANSION_CASE_EXP_END) {\n        if
(lastOnStack(expansionFormStack, TokenType.EXPANSION_CASE_EXP_START)) {\n
expansionFormStack.pop();\n          if (expansionFormStack.length === 0)\n            return exp;\n
          }\n          else {\n            this.errors.push(TreeError.create(null, start.sourceSpan, \"Invalid
ICU message. Missing '}'.\");\n            return null;\n          }\n          if
(this._peek.type === TokenType.EXPANSION_FORM_END) {\n            if
(lastOnStack(expansionFormStack, TokenType.EXPANSION_FORM_START)) {\n
expansionFormStack.pop();\n              }\n              else {\n                this.errors.push(TreeError.create(null, start.sourceSpan, \"Invalid
ICU message. Missing '}'.\");\n                return null;\n              }\n              if
(this._peek.type === TokenType.EOF) {\n                this.errors.push(TreeError.create(null, start.sourceSpan,
\"Invalid ICU message. Missing '}'.\");\n                return null;\n              }\n
exp.push(this._advance());\n            }\n          };\n    }\n    _TreeBuilder.prototype._consumeText = function (token) {\n

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var text = token.parts[0];\n      if (text.length > 0 && text[0] == "\\n") {\n          var parent =
this._getParentElement();\n      if (parent != null && parent.children.length == 0 &&\nthis.getTagDefinition(parent.name).ignoreFirstLf) {\n          text = text.substring(1);\n      }\n      if (text.length > 0) {\n          this._addToParent(new Text$3(text, token.sourceSpan));\n      }\n};\n_TreeBuilder.prototype._closeVoidElement = function () {\n    var el = this._getParentElement();\n    if (el && this.getTagDefinition(el.name).isVoid) {\n        this._elementStack.pop();\n    }\n};\n_TreeBuilder.prototype._consumeStartTag = function (startTagToken) {\n    var _a =
__read(startTagToken.parts, 2), prefix = _a[0], name = _a[1];\n    var attrs = [];\n    while (this._peek.type
=== TokenType.ATTR_NAME) {\n        attrs.push(this._consumeAttr(this._advance()));\n    }\n    var fullName = this._getElementFullName(prefix, name, this._getParentElement());\n    var selfClosing =
false;\n    // Note: There could have been a tokenizer error\n    // so that we don't get a token for the end
tag...\n    if (this._peek.type
=== TokenType.TAG_OPEN_END_VOID) {\n        this._advance();\n        selfClosing = true;\n    }\n    var tagDef = this.getTagDefinition(fullName);\n    if (!(tagDef.canSelfClose || getNsPrefix(fullName) !==
null || tagDef.isVoid)) {\n        this.errors.push(TreeError.create(fullName, startTagToken.sourceSpan,
"Only void and foreign elements can be self closed \\\\" + startTagToken.parts[1] + "\\\"")); \n    }\n    else if (this._peek.type === TokenType.TAG_OPEN_END) {\n        this._advance();\n        selfClosing = false;\n    }\n    var end = this._peek.sourceSpan.start;\n    var span = new
ParseSourceSpan(startTagToken.sourceSpan.start, end, startTagToken.sourceSpan.fullStart);\n    // Create a
separate `startSpan` because `span` will be modified when there is an `end` span.\n    var startSpan = new
ParseSourceSpan(startTagToken.sourceSpan.start,
end, startTagToken.sourceSpan.fullStart);\n    var el = new Element$1(fullName, attrs, [], span, startSpan,
undefined);\n    this._pushElement(el);\n    if (selfClosing) {\n        // Elements that are self-closed
have their `endSourceSpan` set to the full span, as the\n        // element start tag also represents the end tag.\n        this._popElement(fullName, span);\n    } else if (startTagToken.type ===
TokenType.INCOMPLETE_TAG_OPEN) {\n        // We already know the opening tag is not complete, so it is
unlikely it has a corresponding\n        // close tag. Let's optimistically parse it as a full element and emit an
error.\n        this._popElement(fullName, null);\n        this.errors.push(TreeError.create(fullName, span,
"Opening tag \\\\" + fullName + "\\\" not terminated.\\")); \n    }\n};\n_TreeBuilder.prototype._pushElement = function (el)
{\n    var parentEl = this._getParentElement();\n    if (parentEl &&
this.getTagDefinition(parentEl.name).isClosedByChild(el.name)) {\n        this._elementStack.pop();\n    }\n    this._addToParent(el);\n    this._elementStack.push(el);\n};\n_TreeBuilder.prototype._consumeEndTag = function (endTagToken) {\n    var fullName =
this._getElementFullName(endTagToken.parts[0], endTagToken.parts[1], this._getParentElement());\n    if
(this.getTagDefinition(fullName).isVoid) {\n        this.errors.push(TreeError.create(fullName,
endTagToken.sourceSpan, "Void elements do not have end tags \\\\" + endTagToken.parts[1] + "\\\"")); \n    }\n    else if (!this._popElement(fullName, endTagToken.sourceSpan)) {\n        var errMsg = "Unexpected
closing tag \\\\" + fullName + "\\\". It may happen when the tag has already been closed by another tag. For more
info see https://www.w3.org/TR/html5/syntax.html#closing-elements-that-have-implied-end-tags";\n        this.errors.push(TreeError.create(fullName, endTagToken.sourceSpan, errMsg));\n    }\n};\n/**\n * Closes the nearest element with the tag name `fullName` in the parse tree.\n * `endSourceSpan` is
the span of the closing tag, or null if the element does\n * not have a closing tag (for example, this happens
when an incomplete\n * opening tag is recovered).\n */\n_TreeBuilder.prototype._popElement =
function (fullName, endSourceSpan) {\n    for (var stackIndex = this._elementStack.length - 1; stackIndex >=
0; stackIndex--) {\n        var el = this._elementStack[stackIndex];\n        if (el.name === fullName) {\n
// Record the parse span with the element that is being closed. Any elements that are\n        // removed
from the element stack at this point are closed implicitly, so they

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won't get\n          // an end source span (as there is no explicit closing element).\n
el.endSourceSpan = endSourceSpan;\n          el.sourceSpan.end = endSourceSpan !== null ?
endSourceSpan.end : el.sourceSpan.end;\n          this._elementStack.splice(stackIndex,
this._elementStack.length - stackIndex);\n          return true;\n          }\n          if
(!this.getTagDefinition(el.name).closedByParent) {\n          return false;\n          }\n          }\n
return false;\n          };\n          _TreeBuilder.prototype._consumeAttr = function (attrName) {\n          var fullName =
mergeNsAndName(attrName.parts[0], attrName.parts[1]);\n          var end = attrName.sourceSpan.end;\n          var
value = ";\n          var valueSpan = undefined;\n          if (this._peek.type === TokenType.ATTR_QUOTE) {\n
          this._advance();\n          }\n          if (this._peek.type
=== TokenType.ATTR_VALUE) {\n          var valueToken = this._advance();\n          value =
valueToken.parts[0];\n          end = valueToken.sourceSpan.end;\n          valueSpan =
valueToken.sourceSpan;\n          }\n          if (this._peek.type === TokenType.ATTR_QUOTE) {\n          var
quoteToken = this._advance();\n          end = quoteToken.sourceSpan.end;\n          }\n          return new
Attribute(fullName, value, new ParseSourceSpan(attrName.sourceSpan.start, end, attrName.sourceSpan.fullStart),
valueSpan);\n          };\n          _TreeBuilder.prototype._getParentElement = function () {\n          return
this._elementStack.length > 0 ? this._elementStack[this._elementStack.length - 1] : null;\n          };\n
_TreeBuilder.prototype._addToParent = function (node) {\n          var parent = this._getParentElement();\n          if
(parent !== null) {\n          parent.children.push(node);\n          }\n          else {\n
          this.rootNodes.push(node);\n          }\n          };\n          _TreeBuilder.prototype._getElementFullName =
function (prefix, localName, parentElement) {\n          if (prefix === "") {\n          prefix =
this.getTagDefinition(localName).implicitNamespacePrefix || ";\n          if (prefix === " && parentElement !==
null) {\n          var parentTagName = splitNsName(parentElement.name)[1];\n          var
parentTagDefinition = this.getTagDefinition(parentTagName);\n          if
(!parentTagDefinition.preventNamespaceInheritance) {\n          prefix =
getNsPrefix(parentElement.name);\n          }\n          }\n          }\n          return
mergeNsAndName(prefix, localName);\n          };\n          return _TreeBuilder;\n          }());\n          function
lastOnStack(stack, element) {\n          return stack.length > 0 && stack[stack.length - 1] === element;\n          }\n          var
HtmlParser = /** @class */ (function
(_super) {\n          __extends(HtmlParser, _super);\n          function HtmlParser() {\n          return _super.call(this,
getHtmlTagDefinition) || this;\n          }\n          HtmlParser.prototype.parse = function (source, url, options) {\n
return _super.prototype.parse.call(this, source, url, options);\n          };\n          return HtmlParser;\n          }(Parser));\n
/**\n          * @license\n          * Copyright Google LLC All Rights Reserved.\n          *\n          * Use of this source code is
governed by an MIT-style license that can be\n          * found in the LICENSE file at https://angular.io/license\n          */\n
var PRESERVE_WS_ATTR_NAME = 'ngPreserveWhitespaces';\n          var SKIP_WS_TRIM_TAGS = new
Set(['pre', 'template', 'textarea', 'script', 'style']);\n          // Equivalent to \s with \u00a0 (non-breaking space) excluded.\n
// Based on https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/RegExp\n          var
WS_CHARS = '\\f\\n\\r\\t\\v\\u1680\\u180e\\u2000-\\u200a\\u2028\\u2029\\u202f\\u205f\\u3000\\ufe0f';\n
var NO_WS_REGEXP = new RegExp("[^" + WS_CHARS + "\\s]");\n          var WS_REPLACE_REGEXP = new
RegExp("[^" + WS_CHARS + "\\s]{2,}"', 'g');\n          function hasPreserveWhitespacesAttr(attrs) {\n          return
attrs.some(function (attr) { return attr.name === PRESERVE_WS_ATTR_NAME; });\n          }\n          /**\n          * Angular
Dart introduced &ngsp; as a placeholder for non-removable space, see:\n          * https://github.com/dart-
lang/angular/blob/0bb611387d29d65b5af7f9d2515ab571fd3fbee4/_tests/test/compiler/preserve_whitespace_test.dart
#L25-L32\n          * In Angular Dart &ngsp; is converted to the 0xE500 PUA (Private Use Areas) unicode character\n
* and later on replaced by a space. We are re-implementing the same idea here.\n          */\n          function
replaceNgsp(value) {\n          // lexer is replacing the &ngsp; pseudo-entity with NGSP_UNICODE\n          return
value.replace(new RegExp(NGSP_UNICODE, 'g'), ' ');\n          }\n          /**\n          * This visitor can walk HTML parse
tree and remove / trim text nodes using the following rules:\n          * - consider spaces, tabs and new lines as
whitespace characters;\n          * - drop text nodes consisting of whitespace characters only;\n          * - for all other text

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nodes replace consecutive whitespace characters with one space;\n * - convert pseudo-entity to a single space;\n * \n * Removal and trimming of whitespaces have positive performance impact (less code to generate\n * while compiling templates, faster view creation). At the same time it can be \"destructive\" \n * in some cases (whitespaces can influence layout). Because of the potential of breaking layout\n * this visitor is not activated by default in Angular 5 and people need to explicitly opt-in for\n * whitespace removal. The default option for whitespace removal will be revisited in Angular 6\n * and might be changed to \"on\" by default.\n * \n var WhitespaceVisitor = /** @class */ (function () {\n function WhitespaceVisitor() {\n WhitespaceVisitor.prototype.visitElement = function (element, context) {\n if (SKIP_WS_TRIM_TAGS.has(element.name) || hasPreserveWhitespacesAttr(element.attrs)) {\n // don't descent into elements where we need to preserve whitespaces\n // but still visit all attributes to eliminate one used as a market to preserve WS\n return new Element\$1(element.name, visitAll\$1(this, element.attrs), element.children, element.sourceSpan, element.startSourceSpan, element.endSourceSpan, element.i18n);\n }\n return new Element\$1(element.name, element.attrs, visitAllWithSiblings(this, element.children), element.sourceSpan, element.startSourceSpan, element.endSourceSpan, element.i18n);\n };\n WhitespaceVisitor.prototype.visitAttribute = function (attribute, context) {\n return attribute.name !== PRESERVE_WS_ATTR_NAME ? attribute : null;\n };\n WhitespaceVisitor.prototype.visitText = function (text, context) {\n var isNotBlank = text.value.match(NO_WS_REGEXP);\n var hasExpansionSibling = context && (context.prev instanceof Expansion || context.next instanceof Expansion);\n if (isNotBlank || hasExpansionSibling) {\n return new Text\$3(replaceNgsp(text.value).replace(WS_REPLACE_REGEXP, ' '), text.sourceSpan, text.i18n);\n }\n return null;\n };\n WhitespaceVisitor.prototype.visitComment = function (comment, context) {\n return comment;\n };\n WhitespaceVisitor.prototype.visitExpansion = function (expansion, context) {\n return expansion;\n };\n WhitespaceVisitor.prototype.visitExpansionCase = function (expansionCase, context) {\n return expansionCase;\n };\n return WhitespaceVisitor;\n }());\n function removeWhitespaces(htmlAstWithErrors) {\n return new ParseTreeResult(visitAll\$1(new WhitespaceVisitor(), htmlAstWithErrors.rootNodes), htmlAstWithErrors.errors);\n }\n function visitAllWithSiblings(visitor, nodes) {\n var result = [];\n nodes.forEach(function (ast, i) {\n var context = { prev: nodes[i - 1], next: nodes[i + 1] };\n var astResult = ast.visit(visitor, context);\n if (astResult) {\n result.push(astResult);\n }\n });\n return result;\n }\n\n // http://cldr.unicode.org/index/cldr-spec/plural-rules\n var PLURAL_CASES = ['zero', 'one', 'two', 'few', 'many', 'other'];\n /**\n * Expands special forms into elements.\n * \n * For example,\n * \n * ``\n * { messages.length, plural,\n * =0 { zero}\n * =1 { one}\n * other { more than one }\n * }\n * ``\n * will be expanded into\n * \n * ``\n * <ng-container [ngPlural]=\"messages.length\">\n * <ng-template\n * ngPluralCase=\"=0\">zero</ng-template>\n * <ng-template ngPluralCase=\"=1\">one</ng-template>\n * <ng-template ngPluralCase=\"other\">more than one</ng-template>\n * </ng-container>\n * ``\n * \n function expandNodes(nodes) {\n var expander = new _Expander();\n return new ExpansionResult(visitAll\$1(expander, nodes), expander.isExpanded, expander.errors);\n }\n var ExpansionResult = /** @class */ (function () {\n function ExpansionResult(nodes, expanded, errors) {\n this.nodes = nodes;\n this.expanded = expanded;\n this.errors = errors;\n }\n return ExpansionResult;\n }());\n var ExpansionError = /** @class */ (function (_super) {\n __extends(ExpansionError, _super);\n function ExpansionError(span, errorMsg) {\n return _super.call(this, span, errorMsg) || this;\n }\n return ExpansionError;\n }(ParseError));\n /**\n * Expand expansion forms (plural, select) to directives\n * \n * @internal\n * \n var _Expander = /** @class */ (function () {\n function _Expander() {\n this.isExpanded = false;\n this.errors = [];\n }\n _Expander.prototype.visitElement = function (element, context) {\n return new Element\$1(element.name,

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element.attrs, visitAll$1(this, element.children), element.sourceSpan, element.startSourceSpan,
element.endSourceSpan);\n    };\n    _Expander.prototype.visitAttribute = function (attribute, context) {\n
return attribute;\n    };\n    _Expander.prototype.visitText = function (text, context) {\n        return text;\n
};\n    _Expander.prototype.visitComment = function (comment, context) {\n        return comment;\n    };\n
    _Expander.prototype.visitExpansion = function (icu, context) {\n        this.isExpanded = true;\n        return
icu.type == 'plural' ? _expandPluralForm(icu,
this.errors) : \n        _expandDefaultForm(icu, this.errors);\n    };\n
    _Expander.prototype.visitExpansionCase = function (icuCase, context) {\n        throw new Error('Should not be
reached');\n    };\n    return _Expander;\n    }());\n    // Plural forms are expanded to `NgPlural` and
`NgPluralCase`\s\n    function _expandPluralForm(ast, errors) {\n        var children = ast.cases.map(function (c) {\n
        if (PLURAL_CASES.indexOf(c.value) == -1 && !c.value.match(/^=\d+$/)) {\n            errors.push(new
ExpansionError(c.valueSourceSpan, '"Plural cases should be \\\\'=<number>\\\'" or one of \'' +
PLURAL_CASES.join(', ')');\n        }\n        var expansionResult = expandNodes(c.expression);\n
errors.push.apply(errors, __spread(expansionResult.errors));\n        return new Element$1('"ng-template"', [new
Attribute('ngPluralCase', '\\' + c.value, c.valueSourceSpan)], expansionResult.nodes, c.sourceSpan, c.sourceSpan,
c.sourceSpan);\n    });\n    var switchAttr = new Attribute('[ngPlural]', ast.switchValue,
ast.switchValueSourceSpan);\n    return new Element$1('ng-container', [switchAttr], children, ast.sourceSpan,
ast.sourceSpan, ast.sourceSpan);\n    }\n    // ICU messages (excluding plural form) are expanded to `NgSwitch` and
`NgSwitchCase`\s\n    function _expandDefaultForm(ast, errors) {\n        var children = ast.cases.map(function (c)
{\n            var expansionResult = expandNodes(c.expression);\n            errors.push.apply(errors,
__spread(expansionResult.errors));\n            if (c.value === 'other') {\n                // other is the default case when no
values match\n                return new Element$1('"ng-template"', [new Attribute('ngSwitchDefault', ' ',
c.valueSourceSpan)], expansionResult.nodes, c.sourceSpan, c.sourceSpan, c.sourceSpan);\n            }\n            return
new Element$1('"ng-template"', [new Attribute('ngSwitchCase', '\\' + c.value, c.valueSourceSpan)],
expansionResult.nodes, c.sourceSpan, c.sourceSpan, c.sourceSpan);\n        });\n        var switchAttr = new
Attribute('[ngSwitch]', ast.switchValue, ast.switchValueSourceSpan);\n        return new Element$1('ng-container',
[switchAttr], children, ast.sourceSpan, ast.sourceSpan, ast.sourceSpan);\n    }\n\n    var _a;\n    /**\n     * @license\n
     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style
license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    /**\n     * A segment of
text within the template.\n     */\n    var TextAst = /** @class */ (function () {\n        function TextAst(value,
ngContentIndex, sourceSpan) {\n            this.value = value;\n            this.ngContentIndex = ngContentIndex;\n
this.sourceSpan = sourceSpan;\n        }\n        TextAst.prototype.visit = function (visitor, context) {\n            return
visitor.visitText(this, context);\n        }\n        return TextAst;\n    }());\n    /**\n     * A bound expression within the text of a template.\n     */\n    var
BoundTextAst = /** @class */ (function () {\n        function BoundTextAst(value, ngContentIndex, sourceSpan) {\n
            this.value = value;\n            this.ngContentIndex = ngContentIndex;\n            this.sourceSpan = sourceSpan;\n
        }\n        BoundTextAst.prototype.visit = function (visitor, context) {\n            return visitor.visitBoundText(this,
context);\n        }\n        return BoundTextAst;\n    }());\n    /**\n     * A plain attribute on an element.\n     */\n    var
AttrAst = /** @class */ (function () {\n        function AttrAst(name, value, sourceSpan) {\n            this.name =
name;\n            this.value = value;\n            this.sourceSpan = sourceSpan;\n        }\n        AttrAst.prototype.visit =
function (visitor, context) {\n            return visitor.visitAttr(this, context);\n        }\n        return AttrAst;\n
    }());\n    var BoundPropertyMapping = (_a = {},\n        _a[4 /* Animation */] = 4 /* Animation */,\n        _a[1 /*
Attribute */] = 1 /* Attribute */,\n        _a[2 /* Class */] = 2 /* Class */,\n        _a[0 /* Property */] = 0 /* Property
*/,\n        _a[3 /* Style */] = 3 /* Style */,\n        _a);\n    /**\n     * A binding for an element property (e.g.
`[property]="expression"`) or an animation trigger (e.g. `[@trigger]="stateExp"`) \n     */\n    var
BoundElementPropertyAst = /** @class */ (function () {\n        function BoundElementPropertyAst(name, type,
securityContext, value, unit, sourceSpan) {\n            this.name = name;\n            this.type = type;\n
this.securityContext = securityContext;\n            this.value = value;\n            this.unit = unit;\n

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this.sourceSpan = sourceSpan;\n      this.isAnimation = this.type === 4 /* Animation */;\n    }\n    BoundElementPropertyAst.fromBoundProperty = function (prop)\n    {\n      var type = BoundPropertyMapping[prop.type];\n      return new\n    BoundElementPropertyAst(prop.name, type, prop.securityContext, prop.value, prop.unit, prop.sourceSpan);\n    };\n    BoundElementPropertyAst.prototype.visit = function (visitor, context) {\n      return\n    visitor.visitElementProperty(this, context);\n    };\n    return BoundElementPropertyAst;\n  }());\n  /**\n   * A binding for an element event (e.g. `(event)=\"handler()\"`) or an animation trigger event (e.g.\n   * `(@trigger.phase)=\"callback($event)\"`).\n   */\n  var BoundEventAst = /** @class */ (function () {\n    function BoundEventAst(name, target, phase, handler, sourceSpan, handlerSpan) {\n      this.name = name;\n      this.target = target;\n      this.phase = phase;\n      this.handler = handler;\n      this.sourceSpan =\n    sourceSpan;\n      this.handlerSpan = handlerSpan;\n      this.fullName =\n    BoundEventAst.calcFullName(this.name,\n    this.target, this.phase);\n      this.isAnimation = !!this.phase;\n    }\n    BoundEventAst.calcFullName =\n    function (name, target, phase) {\n      if (target) {\n        return target + \":\" + name;\n      } if\n    (phase) {\n        return \"@\" + name + \".\" + phase;\n      }\n      return name;\n    };\n    BoundEventAst.fromParsedEvent = function (event) {\n      var target = event.type === 0 /* Regular */ ?\n    event.targetOrPhase : null;\n      var phase = event.type === 1 /* Animation */ ? event.targetOrPhase : null;\n      return new BoundEventAst(event.name, target, phase, event.handler, event.sourceSpan, event.handlerSpan);\n    };\n    BoundEventAst.prototype.visit = function (visitor, context) {\n      return visitor.visitEvent(this,\n    context);\n    };\n    return BoundEventAst;\n  }());\n  /**\n   * A reference declaration on an element (e.g. `let someName=\"expression\"`).\n   */\n  var ReferenceAst = /** @class */ (function () {\n    function\n    ReferenceAst(name, value, originalValue, sourceSpan) {\n      this.name = name;\n      this.value = value;\n      this.originalValue = originalValue;\n      this.sourceSpan = sourceSpan;\n    }\n    ReferenceAst.prototype.visit = function (visitor, context) {\n      return visitor.visitReference(this, context);\n    };\n    return ReferenceAst;\n  }());\n  /**\n   * A variable declaration on a <ng-template> (e.g. `var-\n    someName=\"someLocalName\"`).\n   */\n  var VariableAst = /** @class */ (function () {\n    function\n    VariableAst(name, value, sourceSpan, valueSpan) {\n      this.name = name;\n      this.value = value;\n      this.sourceSpan = sourceSpan;\n      this.valueSpan = valueSpan;\n    }\n    VariableAst.fromParsedVariable\n    = function (v) {\n      return new VariableAst(v.name,\n    v.value, v.sourceSpan, v.valueSpan);\n    };\n    VariableAst.prototype.visit = function (visitor, context) {\n      return visitor.visitVariable(this, context);\n    };\n    return VariableAst;\n  }());\n  /**\n   * An element\n    declaration in a template.\n   */\n  var ElementAst = /** @class */ (function () {\n    function\n    ElementAst(name, attrs, inputs, outputs, references, directives, providers, hasViewContainer, queryMatches,\n    children, ngContentIndex, sourceSpan, endSourceSpan) {\n      this.name = name;\n      this.attrs = attrs;\n      this.inputs = inputs;\n      this.outputs = outputs;\n      this.references = references;\n      this.directives\n    = directives;\n      this.providers = providers;\n      this.hasViewContainer = hasViewContainer;\n      this.queryMatches = queryMatches;\n      this.children = children;\n      this.ngContentIndex =\n    ngContentIndex;\n      this.sourceSpan\n    = sourceSpan;\n      this.endSourceSpan = endSourceSpan;\n    }\n    ElementAst.prototype.visit = function\n    (visitor, context) {\n      return visitor.visitElement(this, context);\n    };\n    return ElementAst;\n  }());\n  /**\n   * A <ng-template> element included in an Angular template.\n   */\n  var EmbeddedTemplateAst = /**\n    @class */ (function () {\n    function EmbeddedTemplateAst(attrs, outputs, references, variables, directives,\n    providers, hasViewContainer, queryMatches, children, ngContentIndex, sourceSpan) {\n      this.attrs = attrs;\n      this.outputs = outputs;\n      this.references = references;\n      this.variables = variables;\n      this.directives = directives;\n      this.providers = providers;\n      this.hasViewContainer =\n    hasViewContainer;\n      this.queryMatches = queryMatches;\n      this.children = children;\n      this.ngContentIndex = ngContentIndex;\n    }\n  })

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        this.sourceSpan = sourceSpan;\n    }\n    EmbeddedTemplateAst.prototype.visit = function (visitor,
context) {\n        return visitor.visitEmbeddedTemplate(this, context);\n    };\n    return
EmbeddedTemplateAst;\n }());\n /**\n  * A directive property with a bound value (e.g.
`*ngIf="condition").\n  */\n  var BoundDirectivePropertyAst = /** @class */ (function () {\n    function
BoundDirectivePropertyAst(directiveName, templateName, value, sourceSpan) {\n        this.directiveName =
directiveName;\n        this.templateName = templateName;\n        this.value = value;\n        this.sourceSpan =
sourceSpan;\n    }\n    BoundDirectivePropertyAst.prototype.visit = function (visitor, context) {\n        return
visitor.visitDirectiveProperty(this, context);\n    };\n    return BoundDirectivePropertyAst;\n }());\n /**\n  * A directive declared on an element.\n  */\n  var DirectiveAst
= /** @class */ (function () {\n    function DirectiveAst(directive, inputs, hostProperties, hostEvents,
contentQueryStartId, sourceSpan) {\n        this.directive = directive;\n        this.inputs = inputs;\n        this.hostProperties = hostProperties;\n        this.hostEvents = hostEvents;\n        this.contentQueryStartId =
contentQueryStartId;\n        this.sourceSpan = sourceSpan;\n    }\n    DirectiveAst.prototype.visit = function
(visitor, context) {\n        return visitor.visitDirective(this, context);\n    };\n    return DirectiveAst;\n }());\n /**\n  * A provider declared on an element\n  */\n  var ProviderAst = /** @class */ (function () {\n    function
ProviderAst(token, multiProvider, eager, providers, providerType, lifecycleHooks, sourceSpan, isModule)
{\n        this.token = token;\n        this.multiProvider = multiProvider;\n        this.eager = eager;\n        this.providers = providers;\n        this.providerType = providerType;\n        this.lifecycleHooks = lifecycleHooks;\n        this.sourceSpan =
sourceSpan;\n        this.isModule = isModule;\n    }\n    ProviderAst.prototype.visit = function (visitor,
context) {\n        // No visit method in the visitor for now...\n        return null;\n    };\n    return
ProviderAst;\n }());\n (function (ProviderAstType) {\n
ProviderAstType[ProviderAstType["PublicService"] = 0] = "PublicService";\n
ProviderAstType[ProviderAstType["PrivateService"] = 1] = "PrivateService";\n
ProviderAstType[ProviderAstType["Component"] = 2] = "Component";\n
ProviderAstType[ProviderAstType["Directive"] = 3] = "Directive";\n
ProviderAstType[ProviderAstType["Builtin"] = 4] = "Builtin";\n }) (exports.ProviderAstType ||
(exports.ProviderAstType = {}));\n /**\n  * Position where content is to be projected (instance of `<ng-content>`
in
a template).\n  */\n  var NgContentAst = /** @class */ (function () {\n    function NgContentAst(index,
ngContentIndex, sourceSpan) {\n        this.index = index;\n        this.ngContentIndex = ngContentIndex;\n        this.sourceSpan = sourceSpan;\n    }\n    NgContentAst.prototype.visit = function (visitor, context) {\n
return visitor.visitNgContent(this, context);\n    };\n    return NgContentAst;\n }());\n /**\n  * A visitor
that accepts each node but doesn't do anything. It is intended to be used\n  * as the base class for a visitor that is
only interested in a subset of the node types.\n  */\n  var NullTemplateVisitor = /** @class */ (function () {\n    function
NullTemplateVisitor() {\n    }\n    NullTemplateVisitor.prototype.visitNgContent = function (ast,
context) {\n    };\n    NullTemplateVisitor.prototype.visitEmbeddedTemplate = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitElement
= function (ast, context) {\n    };\n    NullTemplateVisitor.prototype.visitReference = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitVariable = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitEvent = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitElementProperty = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitAttr = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitBoundText = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitText = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitDirective = function (ast, context) {\n    };\n
NullTemplateVisitor.prototype.visitDirectiveProperty = function (ast, context) {\n    };\n    return
NullTemplateVisitor;\n }());\n /**\n  * Base class that can be used to build a visitor that visits each node\n  */

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in an template ast recursively.\n    */\n    var RecursiveTemplateAstVisitor
= /** @class */ (function (_super) {\n    __extends(RecursiveTemplateAstVisitor, _super);\n    function
RecursiveTemplateAstVisitor() {\n        return _super.call(this) || this;\n    }\n    // Nodes with children\nRecursiveTemplateAstVisitor.prototype.visitEmbeddedTemplate = function (ast, context) {\n        return
this.visitChildren(context, function (visit) {\n            visit(ast.attrs);\n            visit(ast.references);\n
visit(ast.variables);\n            visit(ast.directives);\n            visit(ast.providers);\n            visit(ast.children);\n
        });\n    }; \n    RecursiveTemplateAstVisitor.prototype.visitElement = function (ast, context) {\n
return this.visitChildren(context, function (visit) {\n            visit(ast.attrs);\n            visit(ast.inputs);\n
visit(ast.outputs);\n            visit(ast.references);\n
            visit(ast.directives);\n            visit(ast.providers);\n            visit(ast.children);\n        });\n    }; \n
RecursiveTemplateAstVisitor.prototype.visitDirective = function (ast, context) {\n        return
this.visitChildren(context, function (visit) {\n            visit(ast.inputs);\n            visit(ast.hostProperties);\n
            visit(ast.hostEvents);\n        });\n    }; \n    RecursiveTemplateAstVisitor.prototype.visitChildren = function
(context, cb) {\n        var results = [];\n        var t = this;\n        function visit(children) {\n            if
(children && children.length)\n                results.push(templateVisitAll(t, children, context));\n        }\n        cb(visit);\n        return Array.prototype.concat.apply([], results);\n    }; \n    return
RecursiveTemplateAstVisitor;\n    }(NullTemplateVisitor));\n    /**\n    * Visit every node in a list of { @link
TemplateAst}s
with the given { @link TemplateAstVisitor}.\n    */\n    function templateVisitAll(visitor, asts, context) {\n        if
(context === void 0) { context = null; }\n        var result = [];\n        var visit = visitor.visit ?\n        function (ast) {\n            return visitor.visit(ast, context) || ast.visit(visitor, context);\n        } :\n        function (ast) {\n            return ast.visit(visitor,
context);\n        }\n        asts.forEach(function (ast) {\n            var astResult = visit(ast);\n            if (astResult) {\n
result.push(astResult);\n            }\n        });\n        return result;\n    }\n    var ProviderError = /** @class */
(function (_super) {\n        __extends(ProviderError, _super);\n        function ProviderError(message, span) {\n
return _super.call(this, span, message) || this;\n        }\n        return ProviderError;\n    }(ParseError));\n    var
ProviderViewContext = /** @class */ (function () {\n        function ProviderViewContext(reflector,
component) {\n            var _this = this;\n            this.reflector = reflector;\n            this.component = component;\n
            this.errors = [];\n            this.viewQueries = _getViewQueries(component);\n            this.viewProviders = new
Map();\n            component.viewProviders.forEach(function (provider) {\n                if
(!_this.viewProviders.get(tokenReference(provider.token))) == null) {\n
_this.viewProviders.set(tokenReference(provider.token), true);\n                }\n            });\n            return
ProviderViewContext;\n        }();\n        var ProviderElementContext = /** @class */ (function () {\n            function
ProviderElementContext(viewContext, _parent, _isViewRoot, _directiveAsts, attrs, refs, isTemplate,
contentQueryStartId, _sourceSpan) {\n                var _this = this;\n                this.viewContext = viewContext;\n
this._parent = _parent;\n                this._isViewRoot = _isViewRoot;\n                this._directiveAsts
= _directiveAsts;\n                this._sourceSpan = _sourceSpan;\n                this._transformedProviders = new Map();\n
this._seenProviders = new Map();\n                this._queriedTokens = new Map();\n
this.transformedHasViewContainer = false;\n                this._attrs = {};\n                attrs.forEach(function (attrAst) {\n
return _this._attrs[attrAst.name] = attrAst.value;\n                });\n                var directivesMeta = _directiveAsts.map(function
(directiveAst) {\n                    return directiveAst.directive;\n                });\n                this._allProviders =\n                _resolveProvidersFromDirectives(directivesMeta, _sourceSpan, viewContext.errors);\n                this._contentQueries
= _getContentQueries(contentQueryStartId, directivesMeta);\n                Array.from(this._allProviders.values()).forEach(function (provider) {\n
_this._addQueryReadsTo(provider.token, provider.token, _this._queriedTokens);\n                });\n                if
(isTemplate) {\n                    var templateRefId
= createTokenForExternalReference(this.viewContext.reflector, Identifiers.TemplateRef);\n
this._addQueryReadsTo(templateRefId, templateRefId, this._queriedTokens);\n                }\n                refs.forEach(function (refAst) {\n
                    var defaultQueryValue = refAst.value ||\n

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createTokenForExternalReference(_this.viewContext.reflector, Identifiers.ElementRef);\n
_this._addQueryReadsTo({ value: refAst.name }, defaultQueryValue, _this._queriedTokens);\n    });\n    if\n    (this._queriedTokens.get(this.viewContext.reflector.resolveExternalReference(Identifiers.ViewContainerRef))) {\n        this.transformedHasViewContainer = true;\n    }\n    // create the providers that we know are eager\n    first\n    Array.from(this._allProviders.values()).forEach(function (provider) {\n        var eager =\n        provider.eager || _this._queriedTokens.get(tokenReference(provider.token));\n        if\n        (eager) {\n            _this._getOrCreateLocalProvider(provider.providerType, provider.token, true);\n        }\n    });\n    }\n    ProviderElementContext.prototype.afterElement = function () {\n        var _this =\n        this;\n        // collect lazy providers\n        Array.from(this._allProviders.values()).forEach(function (provider)\n        {\n            _this._getOrCreateLocalProvider(provider.providerType, provider.token, false);\n        });\n    });\n    Object.defineProperty(ProviderElementContext.prototype, \"transformProviders\", {\n        get: function () {\n            // Note: Maps keep their insertion order.\n            var lazyProviders = [];\n            var eagerProviders =\n            [];\n            this._transformedProviders.forEach(function (provider) {\n                if (provider.eager) {\n                    eagerProviders.push(provider);\n                }\n                else {\n                    lazyProviders.push(provider);\n                }\n            });\n            return\n            lazyProviders.concat(eagerProviders);\n        },\n        enumerable: false,\n        configurable: true\n    });\n    Object.defineProperty(ProviderElementContext.prototype, \"transformedDirectiveAsts\", {\n        get: function\n        () {\n            var sortedProviderTypes = this.transformProviders.map(function (provider) { return\n            provider.token.identifier; });\n            var sortedDirectives = this._directiveAsts.slice();\n            sortedDirectives.sort(function (dir1, dir2) { return sortedProviderTypes.indexOf(dir1.directive.type) -\n            sortedProviderTypes.indexOf(dir2.directive.type); });\n            return sortedDirectives;\n        },\n        enumerable: false,\n        configurable: true\n    });\n    Object.defineProperty(ProviderElementContext.prototype, \"queryMatches\", {\n        get: function () {\n            var allMatches = [];\n            this._queriedTokens.forEach(function (matches)\n            {\n                allMatches.push.apply(allMatches, __spread(matches));\n            });\n            return\n            allMatches;\n        },\n        enumerable: false,\n        configurable: true\n    });\n    ProviderElementContext.prototype._addQueryReadsTo = function (token, default\Value, queryReadTokens) {\n        this._getQueriesFor(token).forEach(function (query) {\n            var queryValue = query.meta.read ||\n            default\Value;\n            var tokenRef = tokenReference(queryValue);\n            var queryMatches =\n            queryReadTokens.get(tokenRef);\n            if (!queryMatches) {\n                queryMatches = [];\n                queryReadTokens.set(tokenRef, queryMatches);\n            }\n            queryMatches.push({ queryId:\n            query.queryId, value: queryValue });\n        });\n    }\n    ProviderElementContext.prototype._getQueriesFor = function (token) {\n        var result = [];\n        var currentEl = this;\n        var distance = 0;\n        var queries;\n        while (currentEl !== null) {\n            queries = currentEl._contentQueries.get(tokenReference(token));\n            if (queries) {\n                result.push.apply(result, __spread(queries.filter(function (query) { return query.meta.descendants || distance <= 1;\n            }))));\n            }\n            if (currentEl._directiveAsts.length > 0) {\n                distance++;\n            }\n            currentEl = currentEl._parent;\n        }\n        queries =\n        this.viewContext.viewQueries.get(tokenReference(token));\n        if (queries) {\n            result.push.apply(result, __spread(queries));\n        }\n        return result;\n    }\n    ProviderElementContext.prototype._getOrCreateLocalProvider = function\n    (requestingProviderType, token, eager) {\n        var _this = this;\n        var resolvedProvider =\n        this._allProviders.get(tokenReference(token));\n        if (!resolvedProvider ||\n            ((requestingProviderType\n            === exports.ProviderAstType.Directive ||\n            requestingProviderType ===\n            exports.ProviderAstType.PublicService) &&\n            resolvedProvider.providerType ===\n            exports.ProviderAstType.PrivateService) ||\n            ((requestingProviderType ===\n            exports.ProviderAstType.PrivateService ||\n            requestingProviderType ===\n            exports.ProviderAstType.PublicService) &&\n            resolvedProvider.providerType ===

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exports.ProviderAstType.Builtin)) {\n        return null;\n    }\n    var transformedProviderAst =
this._transformedProviders.get(tokenReference(token));\n    if (transformedProviderAst) {\n        return
transformedProviderAst;\n    }\n    if (this._seenProviders.get(tokenReference(token))
!= null) {\n        this.viewContext.errors.push(new ProviderError("\"Cannot instantiate cyclic dependency! \" +
tokenName(token), this._sourceSpan));\n        return null;\n    }\n    this._seenProviders.set(tokenReference(token), true);\n    var transformedProviders =
resolvedProvider.providers.map(function (provider) {\n        var transformedUseValue = provider.useValue;\n        var transformedUseExisting = provider.useExisting;\n        var transformedDeps = undefined;\n        if (provider.useExisting != null) {\n            var existingDiDep =
_this._getDependency(resolvedProvider.providerType, { token: provider.useExisting }, eager);\n            if
(existingDiDep.token != null) {\n                transformedUseExisting = existingDiDep.token;\n            }\n            else {\n                transformedUseExisting
= null;\n                transformedUseValue = existingDiDep.value;\n            }\n        }\n        else if
(provider.useFactory) {\n            var deps = provider.deps || provider.useFactory.diDeps;\n            transformedDeps =\n                deps.map(function (dep) { return
_this._getDependency(resolvedProvider.providerType, dep, eager); });\n        }\n        else if
(provider.useClass) {\n            var deps = provider.deps || provider.useClass.diDeps;\n            transformedDeps =\n                deps.map(function (dep) { return
_this._getDependency(resolvedProvider.providerType, dep, eager); });\n        }\n        return
_this._transformProvider(provider, {\n            useExisting: transformedUseExisting,\n            useValue:
transformedUseValue,\n            deps: transformedDeps\n        });\n    });\n    transformedProviderAst
=\n        _transformProviderAst(resolvedProvider, { eager: eager, providers: transformedProviders });\n    this._transformedProviders.set(tokenReference(token), transformedProviderAst);\n    return
transformedProviderAst;\n};\n    ProviderElementContext.prototype._getLocalDependency = function
(requestingProviderType, dep, eager) {\n        if (eager === void 0) { eager = false; }\n        if (dep.isAttribute)
{\n            var attrValue = this._attrs[dep.token.value];\n            return { isValue: true, value: attrValue == null
? null : attrValue };\n        }\n        if (dep.token != null) {\n            // access builtins\n            if
((requestingProviderType === exports.ProviderAstType.Directive ||\n                requestingProviderType ===
exports.ProviderAstType.Component)) {\n                if (tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.Renderer)
||\n                tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.ElementRef) ||\n                tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.ChangeDetectorRef) ||\n                tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n                    return dep;\n                }\n                if (tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.ViewContainerRef)) {\n                    this.transformedHasViewContainer = true;\n                }\n                // access the injector\n                if (tokenReference(dep.token) ===\nthis.viewContext.reflector.resolveExternalReference(Identifiers.Injector)) {\n                    return dep;\n                }\n                // access providers\n                if
(this._getOrCreateLocalProvider(requestingProviderType, dep.token, eager) != null) {\n                    return dep;\n                }\n                return null;\n            }\n        }\n        ProviderElementContext.prototype._getDependency =
function (requestingProviderType, dep, eager) {\n            if (eager === void 0) { eager = false; }\n            var
currElement = this;\n            var currEager = eager;\n            var result = null;\n            if (!dep.isSkipSelf) {\n                result = this._getLocalDependency(requestingProviderType, dep, eager);\n            }\n            if (dep.isSelf) {\n

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        if (!result && dep.isOptional) {\n            result = { isValue: true, value: null };\n        }\n    }\n    else {\n        // check parent\n        elements\n        while (!result && currElement._parent) {\n            var prevElement = currElement;\n            currElement = currElement._parent;\n            if (prevElement._isViewRoot) {\n                currEager\n                = false;\n            }\n            result =\n            currElement._getLocalDependency(exports.ProviderAstType.PublicService, dep, currEager);\n        }\n        // check @Host restriction\n        if (!result) {\n            if (!dep.isHost ||\n            this.viewContext.component.isHost ||\n            this.viewContext.component.type.reference ===\n            tokenReference(dep.token) ||\n            this.viewContext.viewProviders.get(tokenReference(dep.token)) !=\n            null) {\n                result = dep;\n            }\n            else {\n                result = dep.isOptional ? {\n                isValue: true, value: null } : null;\n            }\n        }\n        if (!result) {\n            this.viewContext.errors.push(new ProviderError("No provider for\n            \" + tokenName(dep.token), this._sourceSpan));\n        }\n        return result;\n    };\n    return\n    ProviderElementContext;\n    }());\n    var NgModuleProviderAnalyzer = /** @class */ (function () {\n        function\n        NgModuleProviderAnalyzer(reflector, ngModule, extraProviders, sourceSpan) {\n            var _this = this;\n            this.reflector = reflector;\n            this._transformedProviders = new Map();\n            this._seenProviders = new\n            Map();\n            this._errors = [];\n            this._allProviders = new Map();\n            ngModule.transitiveModule.modules.forEach(function (ngModuleType) {\n                var ngModuleProvider = {\n                token: { identifier: ngModuleType }, useClass: ngModuleType };\n                _resolveProviders([ngModuleProvider], exports.ProviderAstType.PublicService, true, sourceSpan, _this._errors,\n                _this._allProviders, /* isModule */ true);\n            });\n            _resolveProviders(ngModule.transitiveModule.providers.map(function (entry) { return entry.provider;\n            }).concat(extraProviders), exports.ProviderAstType.PublicService, false, sourceSpan, this._errors,\n            this._allProviders, \n            /* isModule */ false);\n        }\n        NgModuleProviderAnalyzer.prototype.parse =\n        function () {\n            var _this = this;\n            Array.from(this._allProviders.values()).forEach(function (provider)\n            {\n                _this._getOrCreateLocalProvider(provider.token, provider.eager);\n            });\n            if\n            (this._errors.length > 0) {\n                var errorString = this._errors.join("\\n");\n                throw new Error("Provider\n                parse errors:\\n\" + errorString);\n            }\n            // Note: Maps keep their insertion order.\n            var\n            lazyProviders = [];\n            var eagerProviders = [];\n            this._transformedProviders.forEach(function\n            (provider) {\n                if (provider.eager) {\n                    eagerProviders.push(provider);\n                }\n            }\n            else {\n                lazyProviders.push(provider);\n            }\n        });\n        return\n        lazyProviders.concat(eagerProviders);\n    };\n    NgModuleProviderAnalyzer.prototype._getOrCreateLocalProvider = function (token, eager) {\n        var _this =\n        this;\n        var resolvedProvider = this._allProviders.get(tokenReference(token));\n        if (!resolvedProvider)\n        {\n            return null;\n        }\n        var transformedProviderAst =\n        this._transformedProviders.get(tokenReference(token));\n        if (transformedProviderAst) {\n            return\n            transformedProviderAst;\n        }\n        if (this._seenProviders.get(tokenReference(token)) != null) {\n            this._errors.push(new ProviderError("Cannot instantiate cyclic dependency! \" + tokenName(token),\n            resolvedProvider.sourceSpan));\n            return null;\n        }\n        this._seenProviders.set(tokenReference(token), true);\n        var transformedProviders =\n        resolvedProvider.providers.map(function (provider) {\n            var transformedUseValue = provider.useValue;\n            var transformedUseExisting = provider.useExisting;\n            var transformedDeps = undefined;\n            if (provider.useExisting != null) {\n                var existingDiDep = _this._getDependency({ token:\n                provider.useExisting }, eager, resolvedProvider.sourceSpan);\n                if (existingDiDep.token != null) {\n                    transformedUseExisting = existingDiDep.token;\n                }\n                else {\n                    transformedUseExisting = null;\n                    transformedUseValue = existingDiDep.value;\n                }\n            }\n            else if (provider.useFactory) {\n

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        var deps = provider.deps || provider.useFactory.diDeps;\n        transformedDeps =\n
        deps.map(function (dep) { return _this._getDependency(dep, eager, resolvedProvider.sourceSpan); });\n
    }\n    else if (provider.useClass) {\n        var deps = provider.deps || provider.useClass.diDeps;\n
        transformedDeps =\n        deps.map(function (dep) { return _this._getDependency(dep, eager,\n
        resolvedProvider.sourceSpan); });\n        }\n        return _transformProvider(provider, {\n
        useExisting: transformedUseExisting,\n        useValue: transformedUseValue,\n        deps:\n
        transformedDeps\n        });\n        });\n        transformedProviderAst =\n
        _transformProviderAst(resolvedProvider, { eager: eager, providers: transformedProviders });\n
        this._transformedProviders.set(tokenReference(token),\n
        transformedProviderAst);\n        return transformedProviderAst;\n    };\n
    NgModuleProviderAnalyzer.prototype._getDependency = function (dep, eager, requestorSourceSpan) {\n        if\n
        (eager === void 0) { eager = false; }\n        var foundLocal = false;\n        if (!dep.isSkipSelf && dep.token !=\n
        null) {\n            // access the injector\n            if (tokenReference(dep.token) ===\n
            this.reflector.resolveExternalReference(Identifiers.Injector) ||\n            tokenReference(dep.token) ===\n
            this.reflector.resolveExternalReference(Identifiers.ComponentFactoryResolver)) {\n                foundLocal\n
                = true;\n                // access providers\n            }\n            else if (this._getOrCreateLocalProvider(dep.token,\n
            eager) != null) {\n                foundLocal = true;\n            }\n            }\n            return dep;\n        }\n        return\n
        NgModuleProviderAnalyzer;\n    }();\n    function _transformProvider(provider, _a) {\n        var useExisting =\n
        _a.useExisting, useValue = _a.useValue, deps = _a.deps;\n        return {\n            token: provider.token,\n
            useClass: provider.useClass,\n            useExisting: useExisting,\n            useFactory: provider.useFactory,\n
            useValue: useValue,\n            deps: deps,\n            multi: provider.multi\n        };\n    }\n    function\n
    _transformProviderAst(provider, _a) {\n        var eager = _a.eager, providers = _a.providers;\n        return new\n
        ProviderAst(provider.token, provider.multiProvider, provider.eager || eager, providers, provider.providerType,\n
        provider.lifecycleHooks, provider.sourceSpan, provider.isModule);\n    }\n    function\n
    _resolveProvidersFromDirectives(directives, sourceSpan, targetErrors) {\n        var providersByToken = new\n
        Map();\n        directives.forEach(function (directive) {\n            var dirProvider = { token:\n
            { identifier: directive.type }, useClass: directive.type };\n            _resolveProviders([dirProvider],\n
            directive.isComponent ? exports.ProviderAstType.Component : exports.ProviderAstType.Directive, true,\n
            sourceSpan, targetErrors, providersByToken, /* isModule */ false);\n        });\n        // Note: directives need to be\n
        able to overwrite providers of a component!\n        var directivesWithComponentFirst = directives.filter(function\n
        (dir) { return dir.isComponent; }).concat(directives.filter(function (dir) { return !dir.isComponent; }));\n
        directivesWithComponentFirst.forEach(function (directive) {\n            _resolveProviders(directive.providers,\n
            exports.ProviderAstType.PublicService, false, sourceSpan, targetErrors, providersByToken, /* isModule */ false);\n
            _resolveProviders(directive.viewProviders, exports.ProviderAstType.PrivateService, false, sourceSpan,\n
            targetErrors, providersByToken, /* isModule */ false);\n        });\n        return providersByToken;\n
    }\n    function _resolveProviders(providers, providerType, eager, sourceSpan, targetErrors,\n
    targetProvidersByToken, isModule) {\n        providers.forEach(function (provider) {\n            var resolvedProvider =\n
            targetProvidersByToken.get(tokenReference(provider.token));\n            if (resolvedProvider != null &&\n
            !!resolvedProvider.multiProvider !== !!provider.multi) {\n                targetErrors.push(new ProviderError("Mixing\n
            multi and non multi provider is not possible for token '" + tokenName(resolvedProvider.token), sourceSpan));\n
            }\n            if (!resolvedProvider) {\n                var lifecycleHooks = provider.token.identifier &&\n
            provider.token.identifier.lifecycleHooks ?\n
            provider.token.identifier.lifecycleHooks :\n
            [];\n                var isUseValue = !(provider.useClass || provider.useExisting || provider.useFactory);\n
            resolvedProvider = new ProviderAst(provider.token, !!provider.multi,\n
            eager || isUseValue, [provider], providerType, lifecycleHooks, sourceSpan, isModule);\n
            targetProvidersByToken.set(tokenReference(provider.token), resolvedProvider);\n        }\n        else {\n
            if (!provider.multi) {\n                resolvedProvider.providers.length = 0;\n            }\n            resolvedProvider.providers.push(provider);\n        }\n    }\n    }\n    }\n    function _getViewQueries(component) {\n

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// Note: queries start with id 1 so we can use the number in a Bloom filter!\n    var viewQueryId = 1;\n    var\nviewQueries = new Map();\n    if (component.viewQueries) {\n        component.viewQueries.forEach(function\n(query) { return _addQueryToTokenMap(viewQueries, { meta: query, queryId: viewQueryId++ }); });\n    }\n    return viewQueries;\n}\nfunction _getContentQueries(contentQueryStartId, directives) {\n    var\ncontentQueryId = contentQueryStartId;\n\n    var contentQueries = new Map();\n    directives.forEach(function (directive, directiveIndex) {\n        if\n(directive.queries) {\n            directive.queries.forEach(function (query) { return\n_addQueryToTokenMap(contentQueries, { meta: query, queryId: contentQueryId++ }); });\n        }\n    });\n    return contentQueries;\n}\nfunction _addQueryToTokenMap(map, query) {\n    query.meta.selectors.forEach(function (token) {\n        var entry = map.get(tokenReference(token));\n        if\n(!entry) {\n            entry = [];\n            map.set(tokenReference(token), entry);\n        }\n        entry.push(query);\n    });\n}\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\nvar StyleWithImports = /** @class */ (function () {\n    function StyleWithImports(style, styleUrls) {\n        this.style = style;\n        this.styleUrls = styleUrls;\n    }\n    return StyleWithImports;\n})();\nfunction isStyleUrlResolvable(url) {\n    if (url == null || url.length\n=== 0 || url[0] == '/')\n        return false;\n    var schemeMatch =\nurl.match(URL_WITH_SCHEMA_REGEXP);\n    return schemeMatch === null || schemeMatch[1] == 'package'\n|| schemeMatch[1] == 'asset';\n}\n/**\n * Rewrites stylesheets by resolving and removing the @import urls\nthat\n * are either relative or don't have a `package:` scheme\n */\nfunction extractStyleUrls(resolver,\nbaseUrl, cssText) {\n    var foundUrls = [];\n    var modifiedCssText =\ncssText.replace(CSS_STRIPPABLE_COMMENT_REGEXP, "")\n        .replace(CSS_IMPORT_REGEXP,\nfunction () {\n            var m = [];\n            for (var _i = 0; _i < arguments.length; _i++) {\n                m[_i] =\narguments[_i];\n            }\n            var url = m[1] || m[2];\n            if (!isStyleUrlResolvable(url)) {\n                // Do not attempt to resolve\nnon-package absolute URLs with URL\n                // scheme\n                return m[0];\n            }\n            foundUrls.push(resolver.resolve(baseUrl, url));\n            return ";\n        });\n    return new\nStyleWithImports(modifiedCssText, foundUrls);\n}\nvar CSS_IMPORT_REGEXP =\n/@import\\s+(?:url\\(\\)?\\s*(?:\\([^\"]*)\\)(\\s+|\\s*))?[;]?/g;\nvar\nCSS_STRIPPABLE_COMMENT_REGEXP =\n/^\\/\\/*(?:#\\s*(?:sourceURL| sourceMappingURL)=)[\\s\\S]+?\\/\\*/g;\nvar URL_WITH_SCHEMA_REGEXP =\n/^\\([^\":?#]+\\);/;\nvar PROPERTY_PARTS_SEPARATOR = '.';\nvar ATTRIBUTE_PREFIX = 'attr';\nvar\nCLASS_PREFIX = 'class';\nvar STYLE_PREFIX = 'style';\nvar TEMPLATE_ATTR_PREFIX = '*';\nvar\nANIMATE_PROP_PREFIX = 'animate-';\n/**\n * Parses bindings in templates and in the directive host area.\n */\nvar BindingParser\n= /** @class */ (function () {\n    function BindingParser(_exprParser, _interpolationConfig, _schemaRegistry,\npipes, errors) {\n        this._exprParser = _exprParser;\n        this._interpolationConfig = _interpolationConfig;\n        this._schemaRegistry = _schemaRegistry;\n        this.errors = errors;\n        this.pipesByName = null;\n        this._usedPipes = new Map();\n        // When the `pipes` parameter is `null`, do not check for used pipes\n// This is used in IVY when we might not know the available pipes at compile time\nif (pipes) {\n            var pipesByName_1 = new Map();\n            pipes.forEach(function (pipe) { return\npipesByName_1.set(pipe.name, pipe); });\n            this.pipesByName = pipesByName_1;\n        }\n        Object.defineProperty(BindingParser.prototype, \"interpolationConfig\", {\n            get: function () {\n                return this._interpolationConfig;\n            },\n            enumerable: false,\n            configurable: true\n        });\n        BindingParser.prototype.getUsedPipes = function () {\n            return Array.from(this._usedPipes.values());\n        };\n        BindingParser.prototype.createBoundHostProperties = function (dirMeta, sourceSpan) {\n            var _this\n= this;\n            if (dirMeta.hostProperties) {\n                var boundProps_1 = [];\n
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Object.keys(dirMeta.hostProperties).forEach(function (propName) {\n          var expression =
dirMeta.hostProperties[propName];\n          if (typeof expression === 'string') {\n
_this.parsePropertyBinding(propName, expression, true, sourceSpan, sourceSpan.start.offset, undefined, [], \n
// Use the `sourceSpan` for `keySpan`. This isn't, really accurate, but neither is the\n          //
sourceSpan, as it represents the sourceSpan of the host itself rather than
the\n          // source of the host binding (which doesn't exist in the template). Regardless,\n          //
neither of these values are used in Ivy but are only here to satisfy the function\n          // signature. This
should likely be refactored in the future so that `sourceSpan`\n          // isn't being used inaccurately.\n
boundProps_1, sourceSpan);\n          }\n          else {\n          _this._reportError("Value
of the host property binding \\\\" + propName + "\\\" needs to be a string representing an expression but got \\\\" +
expression + "\\\" (" + typeof expression + ")"), sourceSpan);\n          }\n          });\n          return
boundProps_1;\n          }\n          return null;\n          };\n
BindingParser.prototype.createDirectiveHostPropertyAsts = function (dirMeta, elementSelector, sourceSpan) {\n
var _this
= this;\n          var boundProps = this.createBoundHostProperties(dirMeta, sourceSpan);\n          return
boundProps &&\n          boundProps.map(function (prop) { return
_this.createBoundElementProperty(elementSelector, prop); });\n          };\n
BindingParser.prototype.createDirectiveHostEventAsts = function (dirMeta, sourceSpan) {\n          var _this =
this;\n          if (dirMeta.hostListeners) {\n          var targetEvents_1 = [];\n
Object.keys(dirMeta.hostListeners).forEach(function (propName) {\n          var expression =
dirMeta.hostListeners[propName];\n          if (typeof expression === 'string') {\n          // TODO: pass
a more accurate handlerSpan for this event.\n          _this.parseEvent(propName, expression, sourceSpan,
sourceSpan, [], targetEvents_1);\n          }\n          else {\n          _this._reportError("Value of
the host listener
\\\" + propName + "\\\" needs to be a string representing an expression but got \\\" + expression + "\\\" (" +
typeof expression + ")"), sourceSpan);\n          }\n          });\n          return targetEvents_1;\n          }\n
return null;\n          };\n          BindingParser.prototype.parseInterpolation = function (value, sourceSpan) {\n
var sourceInfo = sourceSpan.start.toString();\n          try {\n          var ast =
this._exprParser.parseInterpolation(value, sourceInfo, sourceSpan.start.offset, this._interpolationConfig);\n
if (ast)\n          this._reportExpressionParserErrors(ast.errors, sourceSpan);\n          this._checkPipes(ast,
sourceSpan);\n          return ast;\n          }\n          catch (e) {\n          this._reportError("\\\" + e,
sourceSpan);\n          return this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo,
sourceSpan.start.offset);\n
}\n          };\n          /**\n          * Similar to `parseInterpolation`, but treats the provided string as a single expression\n
* element that would normally appear within the interpolation prefix and suffix ( `{ ` and ` } ` ).\n          * This is
used for parsing the switch expression in ICUs.\n          */\n
BindingParser.prototype.parseInterpolationExpression = function (expression, sourceSpan) {\n          var sourceInfo
= sourceSpan.start.toString();\n          try {\n          var ast =
this._exprParser.parseInterpolationExpression(expression, sourceInfo, sourceSpan.start.offset);\n          if (ast)\n
this._reportExpressionParserErrors(ast.errors, sourceSpan);\n          this._checkPipes(ast,
sourceSpan);\n          return ast;\n          }\n          catch (e) {\n          this._reportError("\\\" + e,
sourceSpan);\n          return this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo,
sourceSpan.start.offset);\n
}\n          };\n          /**\n          * Parses the bindings in a microsyntax expression, and converts them to\n
* `ParsedProperty` or `ParsedVariable`.\n          * @param tplKey template binding name\n          * @param
tplValue template binding value\n          * @param sourceSpan span of template binding relative to entire the
template\n          * @param absoluteValueOffset start of the tplValue relative to the entire template\n          * @param
targetMatchableAttrs potential attributes to match in the template\n          * @param targetProps target property

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bindings in the template\n      * @param targetVars target variables in the template\n      */\n
BindingParser.prototype.parseInlineTemplateBinding = function (tplKey, tplValue, sourceSpan,
absoluteValueOffset, targetMatchableAttrs, targetProps, targetVars, isIvyAst) {\n      var e_1, _a;\n      var
absoluteKeyOffset = sourceSpan.start.offset + TEMPLATE_ATTR_PREFIX.length;\n
      var bindings = this._parseTemplateBindings(tplKey, tplValue, sourceSpan, absoluteKeyOffset,
absoluteValueOffset);\n      try {\n          for (var bindings_1 = __values(bindings), bindings_1_1 =
bindings_1.next(); !bindings_1_1.done; bindings_1_1 = bindings_1.next()) {\n              var binding =
bindings_1_1.value;\n              // sourceSpan is for the entire HTML attribute. bindingSpan is for a particular\n
              // binding within the microsyntax expression so it's more narrow than sourceSpan.\n              var
bindingSpan = moveParseSourceSpan(sourceSpan, binding.sourceSpan);\n              var key =
binding.key.source;\n              var keySpan = moveParseSourceSpan(sourceSpan, binding.key.span);\n
              if (binding instanceof VariableBinding) {\n                  var value = binding.value ? binding.value.source :
'$implicit';\n                  var valueSpan = binding.value ?
moveParseSourceSpan(sourceSpan, binding.value.span) : undefined;\n                  targetVars.push(new
ParsedVariable(key, value, bindingSpan, keySpan, valueSpan));\n              } else if (binding.value) {\n
                  var srcSpan = isIvyAst ? bindingSpan : sourceSpan;\n                  var valueSpan =
moveParseSourceSpan(sourceSpan, binding.value.ast.sourceSpan);\n                  this._parsePropertyAst(key,
binding.value, srcSpan, keySpan, valueSpan, targetMatchableAttrs, targetProps);\n              } else {\n
                  targetMatchableAttrs.push([key, " /* value */"]); \n                  // Since this is a literal attribute
with no RHS, source span should be\n                  // just the key span.\n                  this.parseLiteralAttr(key,
null /* value */, keySpan, absoluteValueOffset, undefined /* valueSpan */, targetMatchableAttrs, targetProps,
keySpan);\n              }\n          }\n      } catch (e_1_1) {\n          e_1 = { error: e_1_1 }; \n      } finally {\n
      try {\n          if (bindings_1_1 && !bindings_1_1.done && (_a = bindings_1.return)) _a.call(bindings_1);\n
      } finally {\n          if (e_1) throw e_1.error; \n      } \n      } \n      /**\n      * Parses the bindings in a
microsyntax expression, e.g.\n      * ```\n      * <tag *tplKey="let value1 = prop; let value2 = localVar">\n
      * ```\n      * \n      * @param tplKey template binding name\n      * @param tplValue template binding value\n
      * @param sourceSpan span of template binding relative to entire the template\n      * @param
absoluteKeyOffset start of the `tplKey`\n      * @param absoluteValueOffset start of the `tplValue`\n      */\n
BindingParser.prototype._parseTemplateBindings = function (tplKey, tplValue, sourceSpan, absoluteKeyOffset,
absoluteValueOffset) {\n      var _this = this;\n      var sourceInfo = sourceSpan.start.toString();\n      try {\n
          var bindingsResult = this._exprParser.parseTemplateBindings(tplKey, tplValue, sourceInfo,
absoluteKeyOffset, absoluteValueOffset);\n          this._reportExpressionParserErrors(bindingsResult.errors,
sourceSpan);\n          bindingsResult.templateBindings.forEach(function (binding) {\n              if
(binding.value instanceof ASTWithSource) {\n                  _this._checkPipes(binding.value, sourceSpan);\n
              }\n          });\n          bindingsResult.warnings.forEach(function (warning) {\n
              _this._reportError(warning, sourceSpan, exports.ParseErrorLevel.WARNING);\n          });\n          return
bindingsResult.templateBindings;\n      } catch (e) {\n          this._reportError("\n" + e,
sourceSpan);\n          return [];\n      }\n      }\n      BindingParser.prototype.parseLiteralAttr = function (name, value, sourceSpan,
absoluteOffset, valueSpan, targetMatchableAttrs, \n      // TODO(atscott): keySpan is only optional here so VE
template parser implementation does not\n      // have to change This should be required when VE is removed.\n
targetProps, keySpan) {\n      if (isAnimationLabel(name)) {\n          name = name.substring(1);\n          if
(value) {\n              this._reportError("Assigning animation triggers via @prop=\\\"exp\\\" attributes with an
expression is invalid." +\n                  "\n      Use property bindings (e.g. [@prop]=\\\"exp\\\") or use an attribute
without a value (e.g. @prop) instead.", sourceSpan, exports.ParseErrorLevel.ERROR);\n          }\n          this._parseAnimation(name, value, sourceSpan, absoluteOffset, keySpan, valueSpan, targetMatchableAttrs,
targetProps);\n      } else {\n

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        targetProps.push(new ParsedProperty(name, this._exprParser.wrapLiteralPrimitive(value, "", absoluteOffset),
exports.ParsedPropertyType.LITERAL_ATTR, sourceSpan, keySpan, valueSpan));\n    }\n    };\n
BindingParser.prototype.parsePropertyBinding = function (name, expression, isHost, sourceSpan, absoluteOffset,
valueSpan, \n    // TODO(atscott): keySpan is only optional here so VE template parser implementation does not\n
    // have to change This should be required when VE is removed.\n    targetMatchableAttrs, targetProps,
keySpan) {\n    if (name.length === 0) {\n        this._reportError("Property name is missing in binding",
sourceSpan);\n    }\n    var isAnimationProp = false;\n    if
(name.startsWith(ANIMATE_PROP_PREFIX)) {\n        isAnimationProp = true;\n        name =
name.substring(ANIMATE_PROP_PREFIX.length);\n    }\n    else if (isAnimationLabel(name)) {\n
isAnimationProp = true;\n        name = name.substring(1);\n    }\n    if (isAnimationProp) {\n
this._parseAnimation(name, expression, sourceSpan, absoluteOffset, keySpan, valueSpan,
targetMatchableAttrs, targetProps);\n    }\n    else {\n        this._parsePropertyAst(name,
this._parseBinding(expression, isHost, valueSpan || sourceSpan, absoluteOffset), sourceSpan, keySpan, valueSpan,
targetMatchableAttrs, targetProps);\n    }\n    };\n
BindingParser.prototype.parsePropertyInterpolation =
function (name, value, sourceSpan, valueSpan, targetMatchableAttrs, \n    // TODO(atscott): keySpan is only
optional here so VE template parser implementation does not\n    // have to change This should be required when
VE is removed.\n    targetProps, keySpan) {\n    var expr = this.parseInterpolation(value, valueSpan ||
sourceSpan);\n    if (expr) {\n        this._parsePropertyAst(name,
expr, sourceSpan, keySpan, valueSpan, targetMatchableAttrs, targetProps);\n        return true;\n    }\n
return false;\n    };\n
BindingParser.prototype._parsePropertyAst = function (name, ast, sourceSpan,
keySpan, valueSpan, targetMatchableAttrs, targetProps) {\n    targetMatchableAttrs.push([name, ast.source]);\n
targetProps.push(new ParsedProperty(name, ast, exports.ParsedPropertyType.DEFAULT, sourceSpan,
keySpan, valueSpan));\n    };\n
BindingParser.prototype._parseAnimation = function (name, expression,
sourceSpan, absoluteOffset, keySpan, valueSpan, targetMatchableAttrs, targetProps) {\n    if (name.length ===
0) {\n        this._reportError('Animation trigger is missing', sourceSpan);\n    }\n    // This will occur
when a @trigger is not paired with an expression.\n    // For animations it is valid to not have an expression
since */void\n    // states
will be applied by angular when the element is attached/detached\n    var ast = this._parseBinding(expression ||
'undefined', false, valueSpan || sourceSpan, absoluteOffset);\n    targetMatchableAttrs.push([name,
ast.source]);\n    targetProps.push(new ParsedProperty(name, ast, exports.ParsedPropertyType.ANIMATION,
sourceSpan, keySpan, valueSpan));\n    };\n
BindingParser.prototype._parseBinding = function (value,
isHostBinding, sourceSpan, absoluteOffset) {\n    var sourceInfo = (sourceSpan && sourceSpan.start ||
'(unknown)').toString();\n    try {\n        var ast = isHostBinding ?\n
this._exprParser.parseSimpleBinding(value, sourceInfo, absoluteOffset, this._interpolationConfig) : \n
this._exprParser.parseBinding(value, sourceInfo, absoluteOffset, this._interpolationConfig);\n        if (ast)\n
this._reportExpressionParserErrors(ast.errors, sourceSpan);\n
this._checkPipes(ast, sourceSpan);\n        return ast;\n    }\n    catch (e) {\n
this._reportError("\n" + e, sourceSpan);\n        return this._exprParser.wrapLiteralPrimitive('ERROR',
sourceInfo, absoluteOffset);\n    }\n    };\n
BindingParser.prototype.createBoundElementProperty =
function (elementSelector, boundProp, skipValidation, mapPropertyName) {\n    if (skipValidation === void 0)
{ skipValidation = false; }\n    if (mapPropertyName === void 0) { mapPropertyName = true; }\n    if
(boundProp.isAnimation) {\n        return new BoundElementProperty(boundProp.name, 4 /* Animation */,
SecurityContext.NONE, boundProp.expression, null, boundProp.sourceSpan, boundProp.keySpan,
boundProp.valueSpan);\n    }\n    var unit = null;\n    var bindingType = undefined;\n    var
boundPropertyName = null;\n    var parts = boundProp.name.split(PROPERTY_PARTS_SEPARATOR);\n
var securityContexts = undefined;\n    // Check for special cases (prefix style, attr, class)\n    if
(parts.length > 1) {\n        if (parts[0] == ATTRIBUTE_PREFIX) {\n            boundPropertyName =
parts.slice(1).join(PROPERTY_PARTS_SEPARATOR);\n            if (!skipValidation) {\n

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this._validatePropertyOrAttributeName(boundPropertyName, boundProp.sourceSpan, true);\n
    securityContexts = calcPossibleSecurityContexts(this._schemaRegistry, elementSelector, boundPropertyName,\n
true);\n
    var nsSeparatorIdx = boundPropertyName.indexOf(':');\n
    if (nsSeparatorIdx > -1) {\n
        var ns = boundPropertyName.substring(0, nsSeparatorIdx);\n
        var name =\n
boundPropertyName.substring(nsSeparatorIdx + 1);\n
        boundPropertyName = mergeNsAndName(ns,\n
name);\n
    }\n
    bindingType = 1 /* Attribute */;\n
    else if (parts[0] ==\n
CLASS_PREFIX) {\n
        boundPropertyName = parts[1];\n
        bindingType = 2 /* Class */;\n
        securityContexts = [SecurityContext.NONE];\n
    }\n
    else if (parts[0] == STYLE_PREFIX)\n
{\n
    unit = parts.length > 2 ? parts[2] : null;\n
    boundPropertyName = parts[1];\n
    bindingType = 3 /* Style */;\n
    securityContexts = [SecurityContext.STYLE];\n
}\n
}\n
    // If not a special case, use the full property name\n
    if (boundPropertyName === null) {\n
        var\n
mappedPropName = this._schemaRegistry.getMappedPropName(boundProp.name);\n
boundPropertyName = mapPropertyName ? mappedPropName : boundProp.name;\n
        securityContexts =\n
calcPossibleSecurityContexts(this._schemaRegistry,\n
elementSelector, mappedPropName, false);\n
        bindingType = 0 /* Property */;\n
        if\n
(!skipValidation) {\n
            this._validatePropertyOrAttributeName(mappedPropName,\n
boundProp.sourceSpan, false);\n
        }\n
    }\n
    return new\n
BoundElementProperty(boundPropertyName, bindingType, securityContexts[0], boundProp.expression, unit,\n
boundProp.sourceSpan, boundProp.keySpan, boundProp.valueSpan);\n
};\n
BindingParser.prototype.parseEvent = function (name, expression, sourceSpan, handlerSpan, targetMatchableAttrs,\n
targetEvents) {\n
    if (name.length === 0) {\n
        this._reportError(\"Event name is missing in binding\",\n
sourceSpan);\n
    }\n
    if (isAnimationLabel(name)) {\n
        name = name.substr(1);\n
        this._parseAnimationEvent(name, expression, sourceSpan, handlerSpan, targetEvents);\n
    }\n
    else {\n
        this._parseRegularEvent(name, expression, sourceSpan, handlerSpan, targetMatchableAttrs, targetEvents);\n
    }\n
};\n
BindingParser.prototype.calcPossibleSecurityContexts = function (selector, propName,\n
isAttribute) {\n
    var prop = this._schemaRegistry.getMappedPropName(propName);\n
    return\n
calcPossibleSecurityContexts(this._schemaRegistry, selector, prop, isAttribute);\n
};\n
BindingParser.prototype._parseAnimationEvent = function (name, expression, sourceSpan, handlerSpan,\n
targetEvents) {\n
    var matches = splitAtPeriod(name, [name, '']);\n
    var eventName = matches[0];\n
    var phase = matches[1].toLowerCase();\n
    if (phase) {\n
        switch (phase) {\n
            case\n
'start':\n
            case 'done':\n
                var ast = this._parseAction(expression, handlerSpan);\n
                targetEvents.push(new ParsedEvent(eventName, phase, 1 /* Animation\n
*/, ast, sourceSpan, handlerSpan));\n
                break;\n
            default:\n
this._reportError(\"The provided animation output phase value '\" + phase + '\" for '\" + eventName + '\"'\n
is not supported (use start or done)\", sourceSpan);\n
                break;\n
        }\n
    }\n
    else {\n
        this._reportError(\"The animation trigger output event ( '@' + eventName + ' ') is missing its phase value\n
name (start or done are currently supported)\", sourceSpan);\n
    }\n
};\n
BindingParser.prototype._parseRegularEvent = function (name, expression, sourceSpan, handlerSpan,\n
targetMatchableAttrs, targetEvents) {\n
    // long format: 'target: eventName'\n
    var _a =\n
__read(splitAtColon(name, [null, name]), 2), target = _a[0], eventName = _a[1];\n
    var ast =\n
this._parseAction(expression, handlerSpan);\n
    targetMatchableAttrs.push([name,\n
ast.source]);\n
    targetEvents.push(new ParsedEvent(eventName, target, 0 /* Regular */, ast, sourceSpan,\n
handlerSpan));\n
    // Don't detect directives for event names for now,\n
    // so don't add the event name to\n
the matchableAttrs\n
};\n
BindingParser.prototype._parseAction = function (value, sourceSpan) {\n
    var sourceInfo = (sourceSpan && sourceSpan.start || '(unknown').toString);\n
    var absoluteOffset =\n
(sourceSpan && sourceSpan.start) ? sourceSpan.start.offset : 0;\n
    try {\n
        var ast =

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this._exprParser.parseAction(value, sourceInfo, absoluteOffset, this._interpolationConfig);\n            if (ast) {\n
                this._reportExpressionParserErrors(ast.errors, sourceSpan);\n            }\n            if (!ast || ast.ast\ninstanceof EmptyExpr) {\n                this._reportError(\"Empty expressions are not allowed\", sourceSpan);\n                return this._exprParser.wrapLiteralPrimitive('ERROR',\nsourceInfo, absoluteOffset);\n            }\n            this._checkPipes(ast, sourceSpan);\n            return ast;\n        }\n        catch (e) {\n            this._reportError(\"\" + e, sourceSpan);\n            return\nthis._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, absoluteOffset);\n        }\n    };\n    BindingParser.prototype._reportError = function (message, sourceSpan, level) {\n        if (level === void 0) {\n            level = exports.ParseErrorLevel.ERROR;\n        }\n        this.errors.push(new ParseError(sourceSpan, message,\nlevel));\n    };\n    BindingParser.prototype._reportExpressionParserErrors = function (errors, sourceSpan) {\n        var e_2, _a;\n        try {\n            for (var errors_1 = __values(errors), errors_1_1 = errors_1.next();\n!errors_1_1.done; errors_1_1 = errors_1.next()) {\n                var error = errors_1_1.value;\n                this._reportError(error.message,\nsourceSpan);\n            }\n        } catch (e_2_1) {\n            e_2 = { error: e_2_1 }; \n        } finally {\n            try {\n                if (errors_1_1 && !errors_1_1.done && (_a = errors_1.return)) _a.call(errors_1);\n            } finally {\n                if (e_2) throw e_2.error;\n            }\n        }\n        // Make sure all the used pipes are known in\n`this.pipesByName`\n        BindingParser.prototype._checkPipes = function (ast, sourceSpan) {\n            var _this =\nthis;\n            if (ast && this.pipesByName) {\n                var collector = new PipeCollector();\n                ast.visit(collector);\n                collector.pipes.forEach(function (ast, pipeName) {\n                    var pipeMeta =\n_this.pipesByName.get(pipeName);\n                    if (!pipeMeta) {\n                        _this._reportError(\"The pipe \"\n+ pipeName + \"\" could not be found\", new ParseSourceSpan(sourceSpan.start.moveBy(ast.span.start),\nsourceSpan.start.moveBy(ast.span.end)));\n                    } else {\n                        _this._usedPipes.set(pipeName, pipeMeta);\n                    }\n                });\n            }\n        };\n        /**\n         * @param propName the name of the property / attribute\n         * @param sourceSpan\n         * @param isAttr true\nwhen binding to an attribute\n         */\n        BindingParser.prototype._validatePropertyOrAttributeName = function\n(propName, sourceSpan, isAttr) {\n            var report = isAttr ? this._schemaRegistry.validateAttribute(propName)\n:;\n            this._schemaRegistry.validateProperty(propName);\n            if (report.error) {\n                this._reportError(report.msg, sourceSpan, exports.ParseErrorLevel.ERROR);\n            }\n        };\n        return\nBindingParser;\n    }();\n    var PipeCollector = /** @class */ (function (_super) {\n        __extends(PipeCollector,\n_super);\n        function PipeCollector() {\n            var _this = _super.apply(this, __spread(arguments)) || this;\n            _this.pipes = new Map();\n            return _this;\n        }\n        PipeCollector.prototype.visitPipe = function (ast,\ncontext) {\n            this.pipes.set(ast.name, ast);\n            ast.exp.visit(this);\n            this.visitAll(ast.args, context);\n            return null;\n        };\n        return PipeCollector;\n    })(RecursiveAstVisitor$1);\n    function\nisAnimationLabel(name) {\n        return name[0] === '@';\n    }\n    function calcPossibleSecurityContexts(registry,\nselector, propName, isAttribute) {\n        var ctxs = [];\n        CssSelector.parse(selector).forEach(function (selector)\n{\n            var elementNames = selector.element ? [selector.element] : registry.allKnownElementNames();\n            var notElementNames = new Set(selector.notSelectors.filter(function (selector) {\n                return\nselector.isElementSelector();\n            })).map(function\n(selector) {\n                return selector.element;\n            });\n            var possibleElementNames = elementNames.filter(function\n(elementName) {\n                return !notElementNames.has(elementName);\n            });\n            ctxs.push.apply(ctxs,\n__spread(possibleElementNames.map(function (elementName) {\n                return registry.securityContext(elementName,\npropName, isAttribute);\n            }));\n        });\n        return ctxs.length === 0 ? [SecurityContext.NONE] : Array.from(new\nSet(ctxs)).sort();\n    };\n    /**\n     * Compute a new ParseSourceSpan based off an original `sourceSpan` by using\n     * absolute offsets from the specified `absoluteSpan`.\n     * @param sourceSpan original source span\n     * @param absoluteSpan absolute source span to move to\n     */\n    function moveParseSourceSpan(sourceSpan,\nabsoluteSpan) {\n        // The difference of two absolute offsets provide the relative offset\n        var startDiff =\nabsoluteSpan.start - sourceSpan.start.offset;\n        var endDiff = absoluteSpan.end - sourceSpan.end.offset;\n    }

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return new ParseSourceSpan(sourceSpan.start.moveBy(startDiff), sourceSpan.end.moveBy(endDiff),
sourceSpan.fullStart.moveBy(startDiff), sourceSpan.details);\n  }\n\n  /**\n   * @license\n   * Copyright
Google LLC All Rights Reserved.\n   *\n   * Use of this source code is governed by an MIT-style license that can
be\n   * found in the LICENSE file at https://angular.io/license\n   */\n  var NG_CONTENT_SELECT_ATTR =
'select';\n  var LINK_ELEMENT = 'link';\n  var LINK_STYLE_REL_ATTR = 'rel';\n  var
LINK_STYLE_HREF_ATTR = 'href';\n  var LINK_STYLE_REL_VALUE = 'stylesheet';\n  var
STYLE_ELEMENT = 'style';\n  var SCRIPT_ELEMENT = 'script';\n  var NG_NON_BINDABLE_ATTR =
'ngNonBindable';\n  var NG_PROJECT_AS = 'ngProjectAs';\n  function preparseElement(ast) {\n    var
selectAttr = null;\n    var hrefAttr = null;\n    var relAttr = null;\n    var nonBindable = false;\n    var
projectAs = '';\n    ast.attrs.forEach(function
(attr) {\n      var lcAttrName = attr.name.toLowerCase();\n      if (lcAttrName ==
NG_CONTENT_SELECT_ATTR) {\n        selectAttr = attr.value;\n      }\n      else if (lcAttrName ==
LINK_STYLE_HREF_ATTR) {\n        hrefAttr = attr.value;\n      }\n      else if (lcAttrName ==
LINK_STYLE_REL_ATTR) {\n        relAttr = attr.value;\n      }\n      else if (attr.name ==
NG_NON_BINDABLE_ATTR) {\n        nonBindable = true;\n      }\n      else if (attr.name ==
NG_PROJECT_AS) {\n        if (attr.value.length > 0) {\n          projectAs = attr.value;\n        }\n      }\n    });\n    selectAttr = normalizeNgContentSelect(selectAttr);\n    var nodeName =
ast.name.toLowerCase();\n    var type = PreparedElementType.OTHER;\n    if (isNgContent(nodeName)) {\n      type = PreparedElementType.NG_CONTENT;\n    }\n    else if (nodeName
== STYLE_ELEMENT) {\n      type = PreparedElementType.STYLE;\n    }\n    else if (nodeName ==
SCRIPT_ELEMENT) {\n      type = PreparedElementType.SCRIPT;\n    }\n    else if (nodeName ==
LINK_ELEMENT && relAttr == LINK_STYLE_REL_VALUE) {\n      type =
PreparedElementType.STYLESHEET;\n    }\n    return new PreparedElement(type, selectAttr, hrefAttr,
nonBindable, projectAs);\n  }\n  var PreparedElementType;\n  (function (PreparedElementType) {\n
PreparedElementType[PreparedElementType["NG_CONTENT"] = 0] = "NG_CONTENT";\n
PreparedElementType[PreparedElementType["STYLE"] = 1] = "STYLE";\n
PreparedElementType[PreparedElementType["STYLESHEET"] = 2] = "STYLESHEET";\n
PreparedElementType[PreparedElementType["SCRIPT"] = 3] = "SCRIPT";\n
PreparedElementType[PreparedElementType["OTHER"] = 4] = "OTHER";\n  })(PreparedElementType ||
(PreparedElementType = {}));\n  var
PreparedElement = /** @class */ (function () {\n    function PreparedElement(type, selectAttr, hrefAttr,
nonBindable, projectAs) {\n      this.type = type;\n      this.selectAttr = selectAttr;\n      this.hrefAttr =
hrefAttr;\n      this.nonBindable = nonBindable;\n      this.projectAs = projectAs;\n    }\n    return
PreparedElement;\n  }());\n  function normalizeNgContentSelect(selectAttr) {\n    if (selectAttr === null ||
selectAttr.length === 0) {\n      return '*';\n    }\n    return selectAttr;\n  }\n\n  var
BIND_NAME_REGEXP = /^(?:(?:((bind-)|(let-)|(ref-#)|(on-)|(bindon-
)|(@)))(.*)$)/;\n  // Group 1 = "bind-" \n  var KW_BIND_IDX = 1;\n
// Group 2 = "let-" \n  var KW_LET_IDX = 2;\n  // Group 3 = "ref-#" \n  var KW_REF_IDX = 3;\n  // Group
4 = "on-" \n  var KW_ON_IDX = 4;\n  // Group 5 = "bindon-" \n  var KW_BINDON_IDX = 5;\n
// Group 6 = "@" \n  var KW_AT_IDX = 6;\n  // Group 7 = the identifier after "bind-", "let-", "ref-#",
"on-", "bindon-" or "@" \n  var IDENT_KW_IDX = 7;\n  // Group 8 = identifier inside [] \n  var
IDENT_BANANA_BOX_IDX = 8;\n  // Group 9 = identifier inside [] \n  var IDENT_PROPERTY_IDX = 9;\n
// Group 10 = identifier inside () \n  var IDENT_EVENT_IDX = 10;\n  var TEMPLATE_ATTR_PREFIX$1 =
'*';\n  var CLASS_ATTR = 'class';\n  var _TEXT_CSS_SELECTOR;\n  function TEXT_CSS_SELECTOR() {\n
if (!_TEXT_CSS_SELECTOR) {\n      _TEXT_CSS_SELECTOR = CssSelector.parse('*')[0];\n    }\n    return
_TEXT_CSS_SELECTOR;\n  }\n  var TemplateParseError = /** @class */ (function (_super) {\n
__extends(TemplateParseError, _super);\n    function TemplateParseError(message, span, level) {\n      return
super.call(this, span, message, level) || this;\n    }\n    return TemplateParseError;\n  })(ParseError);\n  var

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TemplateParseResult = /** @class */ (function () {\n      function TemplateParseResult(templateAst, usedPipes,
errors) {\n          this.templateAst = templateAst;\n          this.usedPipes = usedPipes;\n          this.errors =
errors;\n      }\n      return TemplateParseResult;\n  }());\n  var TemplateParser = /** @class */ (function () {\n
    function TemplateParser(_config, _reflector, _exprParser, _schemaRegistry, _htmlParser, _console, transforms)
{\n        this._config = _config;\n        this._reflector = _reflector;\n        this._exprParser = _exprParser;\n
        this._schemaRegistry = _schemaRegistry;\n        this._htmlParser = _htmlParser;\n        this._console =
_console;\n        this.transforms = transforms;\n    }\n    Object.defineProperty(TemplateParser.prototype,
\'expressionParser\', {\n        get: function () {\n            return this._exprParser;\n        },\n
enumerable: false,\n
        configurable: true\n    });\n    TemplateParser.prototype.parse = function (component, template,
directives, pipes, schemas, templateUrl, preserveWhitespaces) {\n        var _a;\n        var result =
this.tryParse(component, template, directives, pipes, schemas, templateUrl, preserveWhitespaces);\n        var
warnings = result.errors.filter(function (error) { return error.level === exports.ParseErrorLevel.WARNING; });\n
        var errors = result.errors.filter(function (error) { return error.level === exports.ParseErrorLevel.ERROR; });\n
        if (warnings.length > 0) {\n            (_a = this._console) === null || _a === void 0 ? void 0 : _a.warn(\'\'Template
parse warnings:\\n\' + warnings.join(\'\\n\'));\n        }\n        if (errors.length > 0) {\n            var errorString =
errors.join(\'\\n\');\n            throw syntaxError(\'\'Template parse errors:\\n\' + errorString, errors);\n        }\n
return { template:
    result.templateAst, pipes: result.usedPipes };;\n    };;\n    TemplateParser.prototype.tryParse = function
(component, template, directives, pipes, schemas, templateUrl, preserveWhitespaces) {\n        var htmlParseResult
= typeof template === \'string\' ?\n            this._htmlParser.parse(template, templateUrl, {\n
tokenizeExpansionForms: true,\n            interpolationConfig: this.getInterpolationConfig(component)\n        }) : \n            template;\n        if (!preserveWhitespaces) {\n            htmlParseResult =
removeWhitespaces(htmlParseResult);\n        }\n        return
this.tryParseHtml(this.expandHtml(htmlParseResult), component, directives, pipes, schemas);\n    };;\n    TemplateParser.prototype.tryParseHtml = function (htmlAstWithErrors, component, directives, pipes, schemas) {\n
        var result;\n        var errors = htmlAstWithErrors.errors;\n        var usedPipes = [];\n
        if (htmlAstWithErrors.rootNodes.length > 0) {\n            var uniqDirectives =
removeSummaryDuplicates(directives);\n            var uniqPipes = removeSummaryDuplicates(pipes);\n
            var providerViewContext = new ProviderViewContext(this._reflector, component);\n            var
interpolationConfig = undefined;\n            if (component.template && component.template.interpolation) {\n
                interpolationConfig = {\n                    start: component.template.interpolation[0],\n                    end:
component.template.interpolation[1]\n                };\n            }\n            var bindingParser = new
BindingParser(this._exprParser, interpolationConfig, this._schemaRegistry, uniqPipes, errors);\n            var
parseVisitor = new TemplateParseVisitor(this._reflector, this._config, providerViewContext, uniqDirectives,
bindingParser, this._schemaRegistry, schemas, errors);\n            result = visitAll$1(parseVisitor,
htmlAstWithErrors.rootNodes, EMPTY_ELEMENT_CONTEXT);\n            errors.push.apply(errors,
__spread(providerViewContext.errors));\n            usedPipes.push.apply(usedPipes,
__spread(bindingParser.getUsedPipes()));\n        }\n        else {\n            result = [];\n        }\n
this._assertNoReferenceDuplicationOnTemplate(result, errors);\n        if (errors.length > 0) {\n            return
new TemplateParseResult(result, usedPipes, errors);\n        }\n        if (this.transforms) {\n
            this.transforms.forEach(function (transform) {\n                result = templateVisitAll(transform, result);\n
            });\n        }\n        return new TemplateParseResult(result, usedPipes, errors);\n    };;\n    TemplateParser.prototype.expandHtml = function (htmlAstWithErrors, forced) {\n        if (forced === void 0) {\n
forced = false;\n        }\n        var errors = htmlAstWithErrors.errors;\n
        if (errors.length === 0 || forced) {\n            // Transform ICU messages to angular directives\n            var
expandedHtmlAst = expandNodes(htmlAstWithErrors.rootNodes);\n            errors.push.apply(errors,
__spread(expandedHtmlAst.errors));\n            htmlAstWithErrors = new

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ParseTreeResult(expandedHtmlAst.nodes, errors);\n        }\n        return htmlAstWithErrors;\n    };\n\n    TemplateParser.prototype.getInterpolationConfig = function (component) {\n        if (component.template) {\n            return InterpolationConfig.fromArray(component.template.interpolation);\n        }\n        return\n        undefined;\n    };\n    /** @internal */\n\n    TemplateParser.prototype._assertNoReferenceDuplicationOnTemplate = function (result, errors) {\n        var\n        existingReferences = [];\n        result.filter(function (element) { return !!element.references; })\n        .forEach(function (element) { return\n            element.references.forEach(function (reference) {\n                var name = reference.name;\n                if\n                (existingReferences.indexOf(name) < 0) {\n                    existingReferences.push(name);\n                }\n                else {\n                    var error = new TemplateParseError(\"Reference '\\\\'#" + name + "\\\" is defined several\n                    times\", reference.sourceSpan, exports.ParseErrorLevel.ERROR);\n                    errors.push(error);\n                }\n            });\n        });\n        return TemplateParser;\n    }());\n\n    var TemplateParseVisitor = /** @class */ (function ()\n    {\n        function TemplateParseVisitor(reflector, config, providerViewContext, directives, _bindingParser,\n        _schemaRegistry, _schemas, _targetErrors) {\n            var _this = this;\n            this.reflector = reflector;\n            this.config = config;\n            this.providerViewContext = providerViewContext;\n            this._bindingParser =\n            _bindingParser;\n\n            this._schemaRegistry = _schemaRegistry;\n            this._schemas = _schemas;\n            this._targetErrors =\n            _targetErrors;\n            this.selectorMatcher = new SelectorMatcher();\n            this.directivesIndex = new Map();\n            this.ngContentCount = 0;\n            // Note: queries start with id 1 so we can use the number in a Bloom filter!\n            this.contentQueryStartId = providerViewContext.component.viewQueries.length + 1;\n\n            directives.forEach(function (directive, index) {\n                var selector = CssSelector.parse(directive.selector);\n                _this.selectorMatcher.addSelectables(selector, directive);\n                _this.directivesIndex.set(directive,\n                index);\n            });\n\n            TemplateParseVisitor.prototype.visitExpansion = function (expansion, context)\n            {\n                return null;\n            };\n            TemplateParseVisitor.prototype.visitExpansionCase = function\n            (expansionCase, context) {\n                return null;\n            };\n            TemplateParseVisitor.prototype.visitText = function (text, parent) {\n                var\n                ngContentIndex = parent.findNgContentIndex(TEXT_CSS_SELECTOR);\n                var valueNoNgsp =\n                replaceNgsp(text.value);\n                var expr = this._bindingParser.parseInterpolation(valueNoNgsp,\n                text.sourceSpan);\n                return expr ? new BoundTextAst(expr, ngContentIndex, text.sourceSpan) :\n                new TextAst(valueNoNgsp, ngContentIndex, text.sourceSpan);\n            };\n\n            TemplateParseVisitor.prototype.visitAttribute = function (attribute, context) {\n                return new\n                AttrAst(attribute.name, attribute.value, attribute.sourceSpan);\n            };\n\n            TemplateParseVisitor.prototype.visitComment = function (comment, context) {\n                return null;\n            };\n\n            TemplateParseVisitor.prototype.visitElement = function (element, parent) {\n                var _this = this;\n                var\n                queryStartIndex = this.contentQueryStartId;\n\n                var elName = element.name;\n                var preparsedElement = preparsedElement(element);\n                if\n                (preparsedElement.type === PreparsedElementType.SCRIPT ||\n                preparsedElement.type ===\n                PreparsedElementType.STYLE) {\n                    // Skipping <script> for security reasons\n                    // Skipping\n                    <style> as we already processed them\n                    // in the StyleCompiler\n                    return null;\n                }\n                if (preparsedElement.type === PreparsedElementType.STYLESHEET &&\n                isStyleUrlResolvable(preparsedElement.hrefAttr)) {\n                    // Skipping stylesheets with either relative urls or\n                    package scheme as we already processed\n                    // them in the StyleCompiler\n                    return null;\n                }\n                var matchableAttrs = [];\n                var elementOrDirectiveProps = [];\n                var elementOrDirectiveRefs\n                = [];\n                var elementVars = [];\n                var events = [];\n\n                var templateElementOrDirectiveProps = [];\n                var templateMatchableAttrs = [];\n                var\n                templateElementVars = [];\n                var hasInlineTemplates = false;\n                var attrs = [];\n                var\n                isTemplateElement = isNgTemplate(element.name);\n                element.attrs.forEach(function (attr) {\n                    var\n                    parsedVariables = [];\n                    var hasBinding = _this._parseAttr(isTemplateElement, attr, matchableAttrs,\n
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elementOrDirectiveProps, events, elementOrDirectiveRefs, elementVars);\n
elementVars.push.apply(elementVars, __spread(parsedVariables.map(function (v) { return
VariableAst.fromParsedVariable(v); })););\n        var templateValue;\n        var templateKey;\n        var
normalizedName = _this._normalizeAttributeName(attr.name);\n        if
(normalizedName.startsWith(TEMPLATE_ATTR_PREFIX$1)) {\n            templateValue = attr.value;\n
            templateKey = normalizedName.substring(TEMPLATE_ATTR_PREFIX$1.length);\n
            }\n            var hasTemplateBinding = templateValue != null;\n            if (hasTemplateBinding) {\n
            if (hasInlineTemplates) {\n                _this._reportError("Can't have multiple template bindings on one
element. Use only one attribute prefixed with *\"", attr.sourceSpan);\n            }\n            hasInlineTemplates
= true;\n            var parsedVariables_1 = [];\n            var absoluteOffset = (attr.valueSpan ||
attr.sourceSpan).start.offset;\n            _this._bindingParser.parseInlineTemplateBinding(templateKey,
templateValue, attr.sourceSpan, absoluteOffset, templateMatchableAttrs, templateElementOrDirectiveProps,
parsedVariables_1, false /* isIvyAst */);\n            templateElementVars.push.apply(templateElementVars,
__spread(parsedVariables_1.map(function (v) { return VariableAst.fromParsedVariable(v); })););\n
            }\n            if (!hasBinding && !hasTemplateBinding) {\n                // don't include the bindings as
attributes as well in the AST\n                attrs.push(_this.visitAttribute(attr, null));\n
            matchableAttrs.push([attr.name, attr.value]);\n            }\n            }\n            var elementCssSelector =
createElementCssSelector(elName, matchableAttrs);\n            var _b = this._parseDirectives(this.selectorMatcher,
elementCssSelector), directiveMetas = _b.directives, matchElement = _b.matchElement;\n            var references =
[];\n            var boundDirectivePropNames = new Set();\n            var directiveAsts =
this._createDirectiveAsts(isTemplateElement, element.name, directiveMetas, elementOrDirectiveProps,
elementOrDirectiveRefs, element.sourceSpan, references, boundDirectivePropNames);\n            var elementProps =
this._createElementPropertyAsts(element.name, elementOrDirectiveProps, boundDirectivePropNames);\n
            var isViewRoot = parent.isTemplateElement || hasInlineTemplates;\n            var providerContext = new
ProviderElementContext(this.providerViewContext, parent.providerContext, isViewRoot, directiveAsts, attrs,
references, isTemplateElement, queryStartIndex, element.sourceSpan);\n            var children =
visitAll$1(preparedElement.nonBindable ? NON_BINDABLE_VISITOR : this, element.children,
ElementContext.create(isTemplateElement, directiveAsts, isTemplateElement ? parent.providerContext :
providerContext));\n            providerContext.afterElement();\n            // Override the actual selector when the
`ngProjectAs` attribute is provided\n            var projectionSelector = preparedElement.projectAs != " ?\n
CssSelector.parse(preparedElement.projectAs)[0];\n            elementCssSelector;\n            var ngContentIndex =
parent.findNgContentIndex(projectionSelector);\n            var parsedElement;\n            if (preparedElement.type
=== PreparedElementType.NG_CONTENT)\n            {\n                // `` element\n                if (element.children &&
!element.children.every(_isEmptyTextNode)) {\n                    this._reportError("`<ng-content>` element cannot have
content.", element.sourceSpan);\n                }\n                parsedElement = new
NgContentAst(this.ngContentCount++, hasInlineTemplates ? null : ngContentIndex, element.sourceSpan);\n
            }\n            else if (isTemplateElement) {\n                // `` element\n                this._assertAllEventsPublishedByDirectives(directiveAsts, events);\n
                this._assertNoComponentsNorElementBindingsOnTemplate(directiveAsts, elementProps, element.sourceSpan);\n
                parsedElement = new EmbeddedTemplateAst(attrs, events, references, elementVars,
providerContext.transformedDirectiveAsts, providerContext.transformProviders,
providerContext.transformedHasViewContainer, providerContext.queryMatches, children, hasInlineTemplates
? null : ngContentIndex, element.sourceSpan);\n            }\n            else {\n                // element other than `` and ``\n                this._assertElementExists(matchElement, element);\n
                this._assertOnlyOneComponent(directiveAsts, element.sourceSpan);\n                var ngContentIndex_1 =
hasInlineTemplates ? null : parent.findNgContentIndex(projectionSelector);\n                parsedElement = new
ElementAst(elName, attrs, elementProps, events, references, providerContext.transformedDirectiveAsts,

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providerContext.transformProviders, providerContext.transformedHasViewContainer,
providerContext.queryMatches, children, hasInlineTemplates ? null : ngContentIndex_1, element.sourceSpan,
element.endSourceSpan || null);\n        }\n        if (hasInlineTemplates) {\n            // The element as a *-
attribute\n            var templateQueryStartIndex = this.contentQueryStartId;\n            var templateSelector
= createElementCssSelector('ng-template', templateMatchableAttrs);\n            var directives =
this._parseDirectives(this.selectorMatcher, templateSelector).directives;\n            var
templateBoundDirectivePropNames = new Set();\n            var templateDirectiveAsts =
this._createDirectiveAsts(true, elName, directives, templateElementOrDirectiveProps, [], element.sourceSpan, [],
templateBoundDirectivePropNames);\n            var templateElementProps =
this._createElementPropertyAsts(elName, templateElementOrDirectiveProps,
templateBoundDirectivePropNames);\n            this._assertNoComponentsNorElementBindingsOnTemplate(templateDirectiveAsts, templateElementProps,
element.sourceSpan);\n            var templateProviderContext = new
ProviderElementContext(this.providerViewContext, parent.providerContext, parent.isTemplateElement,
templateDirectiveAsts, [], [], true, templateQueryStartIndex, element.sourceSpan);\n            templateProviderContext.afterElement();\n
            parsedElement = new EmbeddedTemplateAst([], [], [], templateElementVars,
templateProviderContext.transformedDirectiveAsts, templateProviderContext.transformProviders,
templateProviderContext.transformedHasViewContainer, templateProviderContext.queryMatches, [parsedElement],
ngContentIndex, element.sourceSpan);\n        }\n        return parsedElement;\n    };\n
TemplateParseVisitor.prototype._parseAttr = function (isTemplateElement, attr, targetMatchableAttrs, targetProps,
targetEvents, targetRefs, targetVars) {\n        var name = this._normalizeAttributeName(attr.name);\n        var
value = attr.value;\n        var srcSpan = attr.sourceSpan;\n        var absoluteOffset = attr.valueSpan ?
attr.valueSpan.start.offset : srcSpan.start.offset;\n        var boundEvents = [];\n        var bindParts =
name.match(BIND_NAME_REGEXP);\n        var hasBinding = false;\n        if (bindParts !== null) {\n
            hasBinding = true;\n            if (bindParts[KW_BIND_IDX] !== null) {\n
                this._bindingParser.parsePropertyBinding(bindParts[IDENT_KW_IDX], value, false, srcSpan, absoluteOffset,
attr.valueSpan, targetMatchableAttrs, targetProps);\n            }\n            else if (bindParts[KW_LET_IDX]) {\n
                if (isTemplateElement) {\n                    var identifier = bindParts[IDENT_KW_IDX];\n
                    this._parseVariable(identifier, value, srcSpan, targetVars);\n                }\n                else {\n
                    this._reportError("\\\\\\"let-\\\\\\" is only supported on ng-template elements.", srcSpan);\n                }\n
                else if (bindParts[KW_REF_IDX]) {\n                    var identifier = bindParts[IDENT_KW_IDX];\n
                    this._parseReference(identifier, value, srcSpan, targetRefs);\n                }\n                else if
(bindParts[KW_ON_IDX]) {\n
                    this._bindingParser.parseEvent(bindParts[IDENT_KW_IDX], value, srcSpan, attr.valueSpan || srcSpan,
targetMatchableAttrs, boundEvents);\n                }\n                else if (bindParts[KW_BINDON_IDX]) {\n
                    this._bindingParser.parsePropertyBinding(bindParts[IDENT_KW_IDX], value, false, srcSpan, absoluteOffset,
attr.valueSpan, targetMatchableAttrs, targetProps);\n                }\n                this._parseAssignmentEvent(bindParts[IDENT_KW_IDX], value, srcSpan, attr.valueSpan || srcSpan,
targetMatchableAttrs, boundEvents);\n                }\n                else if (bindParts[KW_AT_IDX]) {\n
                    this._bindingParser.parseLiteralAttr(name, value, srcSpan, absoluteOffset, attr.valueSpan, targetMatchableAttrs,
targetProps);\n                }\n                else if (bindParts[IDENT_BANANA_BOX_IDX]) {\n
                    this._bindingParser.parsePropertyBinding(bindParts[IDENT_BANANA_BOX_IDX], value, false, srcSpan,
absoluteOffset, attr.valueSpan,
targetMatchableAttrs, targetProps);\n                }\n                this._parseAssignmentEvent(bindParts[IDENT_BANANA_BOX_IDX], value, srcSpan, attr.valueSpan || srcSpan,
targetMatchableAttrs, boundEvents);\n                }\n                else if (bindParts[IDENT_PROPERTY_IDX]) {\n
                    this._bindingParser.parsePropertyBinding(bindParts[IDENT_PROPERTY_IDX], value, false, srcSpan,

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absoluteOffset, attr.valueSpan, targetMatchableAttrs, targetProps);\n          }\n          else if
(bindParts[IDENT_EVENT_IDX]) {\n
this._bindingParser.parseEvent(bindParts[IDENT_EVENT_IDX], value, srcSpan, attr.valueSpan || srcSpan,
targetMatchableAttrs, boundEvents);\n          }\n          else {\n          hasBinding =
this._bindingParser.parsePropertyInterpolation(name, value, srcSpan, attr.valueSpan, targetMatchableAttrs,
targetProps);\n          }\n          if (!hasBinding) {\n          this._bindingParser.parseLiteralAttr(name,
value, srcSpan, absoluteOffset, attr.valueSpan, targetMatchableAttrs, targetProps);\n          }\n
targetEvents.push.apply(targetEvents, __spread(boundEvents.map(function (e) { return
BoundEventAst.fromParsedEvent(e); })));;\n          return hasBinding;\n          };\n
TemplateParseVisitor.prototype._normalizeAttributeName = function (attrName) {\n          return /^data-
/i.test(attrName) ? attrName.substring(5) : attrName;\n          };\n
TemplateParseVisitor.prototype._parseVariable
= function (identifier, value, sourceSpan, targetVars) {\n          if (identifier.indexOf('-') > -1) {\n
this._reportError("\\\\\\"-\\\\\\" is not allowed in variable names\\", sourceSpan);\n          }\n          else if
(identifier.length === 0) {\n          this._reportError("\\Variable does not have a name\\", sourceSpan);\n          }\n
targetVars.push(new VariableAst(identifier, value, sourceSpan));\n          };\n
TemplateParseVisitor.prototype._parseReference
= function (identifier, value, sourceSpan, targetRefs) {\n          if (identifier.indexOf('-') > -1) {\n
this._reportError("\\\\\\"-\\\\\\" is not allowed in reference names\\", sourceSpan);\n          }\n          else if
(identifier.length === 0) {\n          this._reportError("\\Reference does not have a name\\", sourceSpan);\n
}\n          targetRefs.push(new ElementOrDirectiveRef(identifier, value, sourceSpan));\n          };\n
TemplateParseVisitor.prototype._parseAssignmentEvent = function (name, expression, sourceSpan, valueSpan,
targetMatchableAttrs, targetEvents) {\n          this._bindingParser.parseEvent(name + "\\Change\\", expression +
\\"=$event\\", sourceSpan, valueSpan, targetMatchableAttrs, targetEvents);\n          };\n
TemplateParseVisitor.prototype._parseDirectives = function (selectorMatcher, elementCssSelector) {\n          var
_this = this;\n          // Need to sort the directives so that
we get consistent results throughout,\n          // as selectorMatcher uses Maps inside.\n          // Also deduplicate
directives as they might match more than one time!\n          var directives = newArray(this.directivesIndex.size);\n
          // Whether any directive selector matches on the element name\n          var matchElement = false;\n
selectorMatcher.match(elementCssSelector, function (selector, directive) {\n
directives[_this.directivesIndex.get(directive)] = directive;\n          matchElement = matchElement ||
selector.hasElementSelector();\n          });\n          return {\n          directives: directives.filter(function (dir) {
return !!dir; }),\n          matchElement: matchElement,\n          };\n          };\n
TemplateParseVisitor.prototype._createDirectiveAsts = function (isTemplateElement, elementName, directives,
props, elementOrDirectiveRefs, elementSourceSpan, targetReferences, targetBoundDirectivePropNames)
{\n          var _this = this;\n          var matchedReferences = new Set();\n          var component = null;\n
var directiveAsts = directives.map(function (directive) {\n          var sourceSpan = new
ParseSourceSpan(elementSourceSpan.start, elementSourceSpan.end, elementSourceSpan.fullStart, "\\Directive \" +
identifierName(directive.type));\n          if (directive.isComponent) {\n          component = directive;\n
}\n          var directiveProperties = [];\n          var boundProperties =
_this._bindingParser.createDirectiveHostPropertyAsts(directive, elementName, sourceSpan);\n          var
hostProperties = boundProperties.map(function (prop) { return
BoundElementPropertyAst.fromBoundProperty(prop); });\n          // Note: We need to check the host properties
here as well,\n          // as we don't know the element name in the DirectiveWrapperCompiler yet.\n
hostProperties
= _this._checkPropertiesInSchema(elementName, hostProperties);\n          var parsedEvents =
_this._bindingParser.createDirectiveHostEventAsts(directive, sourceSpan);\n
_this._createDirectivePropertyAsts(directive.inputs, props, directiveProperties, targetBoundDirectivePropNames);\n
          elementOrDirectiveRefs.forEach(function (elOrDirRef) {\n          if ((elOrDirRef.value.length === 0

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&& directive.isComponent) ||\n                (elOrDirRef.isReferenceToDirective(directive))) {\n
targetReferences.push(new ReferenceAst(elOrDirRef.name, createTokenForReference(directive.type.reference),
elOrDirRef.value, elOrDirRef.sourceSpan));\n                matchedReferences.add(elOrDirRef.name);\n
}\n        });\n        var hostEvents = parsedEvents.map(function (e) { return
BoundEventAst.fromParsedEvent(e); });\n        var contentQueryStartId = _this.contentQueryStartId;\n
        _this.contentQueryStartId += directive.queries.length;\n        return new DirectiveAst(directive,
directiveProperties, hostProperties, hostEvents, contentQueryStartId, sourceSpan);\n        });\n
elementOrDirectiveRefs.forEach(function (elOrDirRef) {\n        if (elOrDirRef.value.length > 0) {\n
if (!matchedReferences.has(elOrDirRef.name)) {\n                _this._reportError("\There is no directive with
\\\"exportAs\\\" set to \\\"\" + elOrDirRef.value + \"\\\"\", elOrDirRef.sourceSpan);\n        }\n        }\n
        else if (!component) {\n                var refToken = null;\n                if (isTemplateElement) {\n
refToken = createTokenForExternalReference(_this.reflector, Identifiers.TemplateRef);\n                }\n
targetReferences.push(new ReferenceAst(elOrDirRef.name, refToken, elOrDirRef.value,
elOrDirRef.sourceSpan));\n
        }\n        });\n        return directiveAsts;\n    });\n
TemplateParseVisitor.prototype._createDirectivePropertyAsts = function (directiveProperties, boundProps,
targetBoundDirectiveProps, targetBoundDirectivePropNames) {\n        if (directiveProperties) {\n                var
boundPropsByName_1 = new Map();\n                boundProps.forEach(function (boundProp) {\n                var
prevValue = boundPropsByName_1.get(boundProp.name);\n                if (!prevValue || prevValue.isLiteral) {\n
// give [a]=\"b\" a higher precedence than a=\"b\" on the same element\n
boundPropsByName_1.set(boundProp.name, boundProp);\n                }\n        });\n
Object.keys(directiveProperties).forEach(function (dirProp) {\n                var elProp =
directiveProperties[dirProp];\n                var boundProp = boundPropsByName_1.get(elProp);\n
// Bindings are optional, so this binding only needs to be set up if an expression is given.\n                if
(boundProp) {\n                targetBoundDirectivePropNames.add(boundProp.name);\n                if
(!isEmptyExpression(boundProp.expression)) {\n                targetBoundDirectiveProps.push(new
BoundDirectivePropertyAst(dirProp, boundProp.name, boundProp.expression, boundProp.sourceSpan));\n
        }\n        }\n        });\n    });\n
TemplateParseVisitor.prototype._createElementPropertyAsts = function (elementName, props,
boundDirectivePropNames) {\n        var _this = this;\n        var boundElementProps = [];\n
props.forEach(function (prop) {\n                if (!prop.isLiteral && !boundDirectivePropNames.has(prop.name)) {\n
var boundProp = _this._bindingParser.createBoundElementProperty(elementName, prop);\n
boundElementProps.push(BoundElementPropertyAst.fromBoundProperty(boundProp));\n
        }\n        });\n        return this._checkPropertiesInSchema(elementName, boundElementProps);\n    };
TemplateParseVisitor.prototype._findComponentDirectives = function (directives) {\n        return
directives.filter(function (directive) { return directive.directive.isComponent; });\n    };
TemplateParseVisitor.prototype._findComponentDirectiveNames = function (directives) {\n        return
this._findComponentDirectives(directives)\n            .map(function (directive) { return
identifierName(directive.directive.type); });\n    };
TemplateParseVisitor.prototype._assertOnlyOneComponent = function (directives, sourceSpan) {\n        var
componentTypeNames = this._findComponentDirectiveNames(directives);\n        if
(componentTypeNames.length > 1) {\n                this._reportError("\More than one component matched on this
element.\\n\\n"
+\\n                \"\\Make sure that only one component's selector can match a given element.\\n\\n\" +\\n
(\"Conflicting components: \" + componentTypeNames.join(','), sourceSpan);\n        }\n    });\n    /**\n
Make sure that non-angular tags conform to the schemas.\n        *\\n        * Note: An element is considered an
angular tag when at least one directive selector matches the\\n        * tag name.\\n        *\\n        * @param
matchElement Whether any directive has matched on the tag name\\n        * @param element the html element\n

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*/\n    TemplateParseVisitor.prototype._assertElementExists = function (matchElement, element) {\n        var
elName = element.name.replace(/^:xhtml:/, "");\n        if (!matchElement &&
!this._schemaRegistry.hasElement(elName, this._schemas)) {\n            var errorMsg = "\" + elName + \" is not a
known element:\n\"";\n            errorMsg += \"1. If \" + elName + \"
is an Angular component, then verify that it is part of this module.\n\"";\n            if (elName.indexOf('.') > -1) {\n
                errorMsg += \"2. If \" + elName + \" is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA'
to the '@NgModule.schemas' of this component to suppress this message.\n\";\n            }\n            else {\n
                errorMsg += \"2. To allow any element add 'NO_ERRORS_SCHEMA' to the
'@NgModule.schemas' of this component.\n\";\n            }\n            this._reportError(errorMsg,
element.sourceSpan);\n        }\n    };
\n    TemplateParseVisitor.prototype._assertNoComponentsNorElementBindingsOnTemplate = function (directives,
elementProps, sourceSpan) {\n        var _this = this;\n        var componentTypeNames =
this._findComponentDirectiveNames(directives);\n        if (componentTypeNames.length > 0) {\n
            this._reportError(\"Components on an embedded template:
\" + componentTypeNames.join(', '), sourceSpan);\n        }\n        elementProps.forEach(function (prop) {\n
            _this._reportError(\"Property binding \" + prop.name + \" not used by any directive on an embedded template.
Make sure that the property name is spelled correctly and all directives are listed in the
\\\"@NgModule.declarations\\\".\", sourceSpan);\n        });\n    };
\n    TemplateParseVisitor.prototype._assertAllEventsPublishedByDirectives = function (directives, events) {\n
        var _this = this;\n        var allDirectiveEvents = new Set();\n        directives.forEach(function (directive) {\n
            Object.keys(directive.directive.outputs).forEach(function (k) {\n                var eventName =
directive.directive.outputs[k];\n                allDirectiveEvents.add(eventName);\n            });\n        });\n        events.forEach(function (event) {\n
            if (event.target !== null || !allDirectiveEvents.has(event.name))\n            {\n                _this._reportError(\"Event binding \" + event\n                .fullName + \" not emitted by any
directive on an embedded template. Make sure that the event name is spelled correctly and all directives are listed in
the \\\"@NgModule.declarations\\\".\", event.sourceSpan);\n            }\n        });\n    };
\n    TemplateParseVisitor.prototype._checkPropertiesInSchema = function (elementName, boundProps) {\n        var
_this = this;\n        // Note: We can't filter out empty expressions before this method,\n        // as we still want to
validate them!\n        return boundProps.filter(function (boundProp) {\n            if (boundProp.type === 0 /*
Property */ &&
!_this._schemaRegistry.hasProperty(elementName, boundProp.name,
_this._schemas)) {\n                var errorMsg = \"Can't bind to \" + boundProp.name + \" since it isn't a known
property of \" + elementName
+ \"\";\n                if (elementName.startsWith('ng-')) {\n                    errorMsg += \"\n1. If
\" + boundProp\n                    .name + \" is an Angular directive, then add 'CommonModule' to the
'@NgModule.imports' of this component.\" + \"\n2. To allow any property add
'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.\";\n                }\n                else if
(elementName.indexOf('.') > -1) {\n                    errorMsg += \"\n1. If \" + elementName + \"
is an Angular component and it has \" + boundProp.name + \" input, then verify that it is part of this module.\" + \"\n
                (\n2. If \" + elementName + \" is a Web Component then add
'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of this component to suppress this message.\")
+ \"\n3. To allow
any property add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.\";\n                }\n                _this._reportError(errorMsg, boundProp.sourceSpan);\n            }\n            return
!isEmptyExpression(boundProp.value);\n        });\n    };
\n    TemplateParseVisitor.prototype._reportError =
function (message, sourceSpan, level) {\n        if (level === void 0) { level = exports.ParseErrorLevel.ERROR;\n
        }\n        this._targetErrors.push(new ParseError(sourceSpan, message, level));\n        return
        TemplateParseVisitor;\n    }();\n    var NonBindableVisitor = /** @class */ (function () {\n        function
NonBindableVisitor() {\n            NonBindableVisitor.prototype.visitElement = function (ast, parent) {\n

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var preparedElement = prepareElement(ast);\n      if (preparedElement.type ===
PreparedElementType.SCRIPT ||\n      preparedElement.type === PreparedElementType.STYLE ||\n      preparedElement.type === PreparedElementType.STYLESHEET) {\n      // Skipping <script> for
security reasons\n      // Skipping <style> and stylesheets as we already processed them\n      // in the
StyleCompiler\n      return null;\n      }\n      var attrNameAndValues = ast.attrs.map(function (attr) {\n
return [attr.name, attr.value]; });\n      var selector = createElementCssSelector(ast.name,
attrNameAndValues);\n      var ngContentIndex = parent.findNgContentIndex(selector);\n      var children =
visitAll$1(this, ast.children, EMPTY_ELEMENT_CONTEXT);\n      return new ElementAst(ast.name,
visitAll$1(this, ast.attrs), [], [], [], [], false, [], children, ngContentIndex, ast.sourceSpan, ast.endSourceSpan);\n
    };\n    NonBindableVisitor.prototype.visitComment = function (comment, context) {\n      return null;\n
    };\n    NonBindableVisitor.prototype.visitAttribute
= function (attribute, context) {\n      return new AttrAst(attribute.name, attribute.value, attribute.sourceSpan);\n
    };\n    NonBindableVisitor.prototype.visitText = function (text, parent) {\n      var ngContentIndex =
parent.findNgContentIndex(TEXT_CSS_SELECTOR);\n      return new TextAst(text.value, ngContentIndex,
text.sourceSpan);\n    };\n    NonBindableVisitor.prototype.visitExpansion = function (expansion, context) {\n
      return expansion;\n    };\n    NonBindableVisitor.prototype.visitExpansionCase = function (expansionCase,
context) {\n      return expansionCase;\n    };\n    return NonBindableVisitor;\n  }());\n  /**\n   * A
reference to an element or directive in a template. E.g., the reference in this template:\n   *\n   * <div
#myMenu="coolMenu">\n   *   * would be { name: 'myMenu', value: 'coolMenu', sourceSpan: ... }\n   * \n
var ElementOrDirectiveRef = /** @class */ (function ()\n    {\n      function ElementOrDirectiveRef(name, value, sourceSpan) {\n        this.name = name;\n        this.value
= value;\n        this.sourceSpan = sourceSpan;\n      }\n      /** Gets whether this is a reference to the given
directive. */\n      ElementOrDirectiveRef.prototype.isReferenceToDirective = function (directive) {\n        return
splitExportAs(directive.exportAs).indexOf(this.value) !== -1;\n      };\n      return ElementOrDirectiveRef;\n
    }());\n    /** Splits a raw, potentially comma-delimited `exportAs` value into an array of names. */\n    function
splitExportAs(exportAs) {\n      return exportAs ? exportAs.split(',').map(function (e) { return e.trim(); }) : [];\n
    }\n    function splitClasses(classAttrValue) {\n      return classAttrValue.trim().split(/\\s+/g);\n    }\n    var
ElementContext = /** @class */ (function () {\n      function ElementContext(isTemplateElement,
_ngContentIndexMatcher, _wildcardNgContentIndex, providerContext)\n        {\n          this.isTemplateElement = isTemplateElement;\n          this._ngContentIndexMatcher =
_ngContentIndexMatcher;\n          this._wildcardNgContentIndex = _wildcardNgContentIndex;\n          this.providerContext = providerContext;\n        }\n      ElementContext.create = function (isTemplateElement,
directives, providerContext) {\n        var matcher = new SelectorMatcher();\n        var wildcardNgContentIndex
= null;\n        var component = directives.find(function (directive) { return directive.directive.isComponent; });\n
        if (component) {\n          var ngContentSelectors = component.directive.template.ngContentSelectors;\n
          for (var i = 0; i < ngContentSelectors.length; i++) {\n            var selector = ngContentSelectors[i];\n
            if (selector === '*') {\n              wildcardNgContentIndex = i;\n            }\n            else {\n
              matcher.addSelectables(CssSelector.parse(ngContentSelectors[i]),\n                i);\n            }\n          }\n          return new ElementContext(isTemplateElement, matcher,
wildcardNgContentIndex, providerContext);\n        }\n        ElementContext.prototype.findNgContentIndex =
function (selector) {\n          var ngContentIndices = [];\n          this._ngContentIndexMatcher.match(selector,
function (selector, ngContentIndex) {\n            ngContentIndices.push(ngContentIndex);\n          });\n
          ngContentIndices.sort();\n          if (this._wildcardNgContentIndex !== null) {\n
            ngContentIndices.push(this._wildcardNgContentIndex);\n          }\n          return ngContentIndices.length > 0 ?
ngContentIndices[0] : null;\n        };\n        return ElementContext;\n      }());\n      function
createElementCssSelector(elementName, attributes) {\n        var cssSelector = new CssSelector();\n        var
elNameNoNs = splitNsName(elementName)[1];\n

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        cssSelector.setElement(elNameNoNs);\n        for (var i = 0; i < attributes.length; i++) {\n            var attrName =
attributes[i][0];\n            var attrNameNoNs = splitNsName(attrName)[1];\n            var attrValue = attributes[i][1];\n            cssSelector.addAttribute(attrNameNoNs, attrValue);\n            if (attrName.toLowerCase() == CLASS_ATTR)
{\n                var classes = splitClasses(attrValue);\n                classes.forEach(function (className) { return
cssSelector.addClassName(className); });\n            }\n            return cssSelector;\n        }\n        var
EMPTY_ELEMENT_CONTEXT = new ElementContext(true, new SelectorMatcher(), null, null);\n        var
NON_BINDABLE_VISITOR = new NonBindableVisitor();\n        function _isEmptyTextNode(node) {\n            return
node instanceof Text$3 && node.value.trim().length == 0;\n        }\n        function removeSummaryDuplicates(items) {\n
            var map = new Map();\n            items.forEach(function (item) {\n
                if (!map.get(item.type.reference)) {\n                    map.set(item.type.reference, item);\n                }\n            });\n
            return Array.from(map.values());\n        }\n        function isEmptyExpression(ast) {\n            if (ast instanceof
ASTWithSource) {\n                ast = ast.ast;\n            }\n            return ast instanceof EmptyExpr;\n        }\n        /**\n         *
@license\n         * Copyright Google LLC All Rights Reserved.\n         * Use of this source code is governed by an
MIT-style license that can be\n         * found in the LICENSE file at https://angular.io/license\n         */\n         *
Parses string representation of a style and converts it into object literal.\n         * @param value string
representation of style as used in the `style` attribute in HTML.\n         * Example: `color: red; height: auto`.\n         *
@return An array of style property name and value pairs, e.g. `[ 'color', 'red', 'height',\n         * 'auto' ]`\n         */\n
function parse(value) {\n        // we use a string
array here instead of a string map\n        // because a string-map is not guaranteed to retain the\n        // order of the
entries whereas a string array can be\n        // constructed in a [key, value, key, value] format.\n        var styles = [];\n
        var i = 0;\n        var parenDepth = 0;\n        var quote = 0 /* QuoteNone */;\n        var valueStart = 0;\n        var
propStart = 0;\n        var currentProp = null;\n        var valueHasQuotes = false;\n        while (i < value.length) {\n
            var token = value.charCodeAtAt(i++);\n            switch (token) {\n                case 40 /* OpenParen */:\n
parenDepth++;\n                break;\n                case 41 /* CloseParen */:\n                    parenDepth--;\n
                break;\n                case 39 /* QuoteSingle */:\n                    // valueStart needs to be there since prop values don't\n
                    // have quotes in CSS\n                    valueHasQuotes = valueHasQuotes\n                    || valueStart > 0;\n
                    if (quote === 0 /* QuoteNone */) {\n                        quote = 39 /* QuoteSingle */;\n
                    }\n                    else if (quote === 39 /* QuoteSingle */ && value.charCodeAtAt(i - 1) !== 92 /* BackSlash
*/) {\n                        quote = 0 /* QuoteNone */;\n                    }\n                    break;\n                case 34 /*
QuoteDouble */:\n                    // same logic as above\n                    valueHasQuotes = valueHasQuotes || valueStart
> 0;\n                    if (quote === 0 /* QuoteNone */) {\n                        quote = 34 /* QuoteDouble */;\n
                    }\n                    else if (quote === 34 /* QuoteDouble */ && value.charCodeAtAt(i - 1) !== 92 /* BackSlash
*/) {\n                        quote = 0 /* QuoteNone */;\n                    }\n                    break;\n                case 58 /* Colon */:\n
                    if (!currentProp && parenDepth === 0 && quote
=== 0 /* QuoteNone */) {\n                        currentProp = hyphenate(value.substring(propStart, i - 1).trim());\n
                        valueStart = i;\n                    }\n                    break;\n                case 59 /* Semicolon */:\n
                    if
(currentProp && valueStart > 0 && parenDepth === 0 && quote === 0 /* QuoteNone */) {\n                        var
styleVal = value.substring(valueStart, i - 1).trim();\n                        styles.push(currentProp, valueHasQuotes ?
stripUnnecessaryQuotes(styleVal) : styleVal);\n                        propStart = i;\n                        valueStart = 0;\n
                        currentProp = null;\n                        valueHasQuotes = false;\n                    }\n                    break;\n
                }\n            }\n            if (currentProp && valueStart) {\n                var styleVal = value.substr(valueStart).trim();\n
                styles.push(currentProp, valueHasQuotes ? stripUnnecessaryQuotes(styleVal) :
                styleVal);\n            }\n            return styles;\n        }\n        function stripUnnecessaryQuotes(value) {\n            var qS =
value.charCodeAtAt(0);\n            var qE = value.charCodeAtAt(value.length - 1);\n            if (qS == qE && (qS == 39 /*
QuoteSingle */ || qS == 34 /* QuoteDouble */)) {\n                var tempValue = value.substring(1, value.length - 1);\n
                // special case to avoid using a multi-quoted string that was just chomped\n                // (e.g. `font-family:
\"Verdana\", \"sans-serif\")`\n                if (tempValue.indexOf(`\"`) == -1 && tempValue.indexOf(`'`) == -1) {\n
                    value = tempValue;\n                }\n            }\n            return value;\n        }\n        function hyphenate(value) {\n            return

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value\n      .replace(/[a-z][A-Z]/g, function (v) {\n          return v.charAt(0) + '-' + v.charAt(1);\n      })\n      .toLowerCase();\n  }\n\n  var IMPORTANT_FLAG = 'important';\n  /**\n   * Minimum amount of binding slots required in the runtime for style/class bindings.\n   *\n   * Styling in Angular uses up two slots in the runtime LView/TData data structures to\n   * record binding data, property information and metadata.\n   *\n   * When a binding is registered it will place the following information in the `LView`:\n   * slot 1) binding value\n   * slot 2) cached value (all other values collected before it in string form)\n   *\n   * When a binding is registered it will place the following information in the `TData`:\n   * slot 1) prop name\n   * slot 2) binding index that points to the previous style/class binding (and some extra config\n   * values)\n   *\n   * Let's imagine we have a binding that looks like so:\n   * <div [style.width]=\"x\" [style.height]=\"y\">\n   *\n   * Our `LView` and `TData` data-structures look like so:\n   *\n   * typescript\n   * LView = [\n   * // ...\n   * x, // value of x\n   * \"width: x\", \n   *\n   * y, // value of y\n   * \"width: x; height: y\", \n   * // ...\n   * ];\n   *\n   * TData = [\n   * // ...\n   * \"width\", // binding slot 20\n   * 0, \n   * \"height\", \n   * 20, \n   * // ...\n   * ];\n   *\n   * var MIN_STYLING_BINDING_SLOTS_REQUIRED = 2;\n   /**\n   * Produces creation/update instructions for all styling bindings (class and style)\n   *\n   * It also produces the creation instruction to register all initial styling values\n   * (which are all the static class=\"...\" and style=\"...\" attribute values that exist\n   * on an element within a template).\n   *\n   * The builder class below handles producing instructions for the following cases:\n   *\n   * - Static style/class attributes (style=\"...\" and class=\"...\")\n   * - Dynamic style/class map bindings ([style]=\"map\" and [class]=\"map|string\")\n   * - Dynamic style/class property bindings ([style.prop]=\"exp\" and [class.name]=\"exp\")\n   *\n   * Due to the complex relationship of all of these cases, the instructions generated\n   * for these attributes/properties/bindings must be done so in the correct order. The\n   * order which these must be generated is as follows:\n   *\n   * if (createMode) {\n   *   styling(...)\n   * }\n   * if (updateMode) {\n   *   styleMap(...)\n   *   classMap(...)\n   *   styleProp(...)\n   *   classProp(...)\n   * }\n   *\n   * The creation/update methods within the builder class produce these instructions.\n   *\n   * var StylingBuilder = /** @class */ (function () {\n   *   function StylingBuilder(_directiveExpr) {\n   *     this._directiveExpr = _directiveExpr;\n   *     /** Whether or not there are any static styling values present *\n   *     this._hasInitialValues = false;\n   *     /** Whether or not there are any styling bindings present\n   *     * (i.e. `[style]`,\n   *     `[class]`, `[style.prop]` or `[class.name]`)\n   *     *\n   *     this.hasBindings = false;\n   *     this.hasBindingsWithPipes = false;\n   *     /** the input for [class] (if it exists) *\n   *     this._classMapInput = null;\n   *     /** the input for [style] (if it exists) *\n   *     this._styleMapInput = null;\n   *     /** an array of each [style.prop] input *\n   *     this._singleStyleInputs = null;\n   *     /** an array of each [class.name] input *\n   *     this._singleClassInputs = null;\n   *     this._lastStylingInput = null;\n   *     this._firstStylingInput = null;\n   *     // maps are used instead of hash maps because a Map will\n   *     // retain the ordering of the keys\n   *     *\n   *     Represents the location of each style binding in the template\n   *     * (e.g. `<div [style.width]=\"w\" [style.height]=\"h\">` implies\n   *     * that `width=0` and `height=1`)\n   *     *\n   *     this._stylesIndex = new Map();\n   *     /**\n   *     Represents the location of each class binding in the template\n   *     * (e.g. `<div [class.big]=\"b\" [class.hidden]=\"h\">` implies\n   *     * that `big=0` and `hidden=1`)\n   *     *\n   *     this._classesIndex = new Map();\n   *     this._initialStyleValues = [];\n   *     this._initialClassValues = [];\n   *     }\n   *     /**\n   *     Registers a given input to the styling builder to be later used when producing AOT code.\n   *     *\n   *     The code below will only accept the input if it is somehow tied to styling (whether it be\n   *     * style/class bindings or static style/class attributes).\n   *     *\n   *     StylingBuilder.prototype.registerBoundInput = function (input) {\n   *       // [attr.style] or [attr.class] are skipped in the code below,\n   *       // they should not be treated as styling-based bindings since\n   *       // they are intended to be written directly

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to the attr and\n          // will therefore skip all style/class resolution that is present\n          // with style=\\",
[style]=\\\" and [style.prop]=\\\", class=\\\", \n          // [class.prop]=\\\". [class]=\\\" assignments\n          var
binding = null;\n          var name = input.name;\n          switch (input.type) {\n              case 0 /* Property */:\n                  binding = this.registerInputBasedOnName(name, input.value, input.sourceSpan);\n                  break;\n              case 3 /* Style */:\n                  binding = this.registerStyleInput(name, false, input.value, input.sourceSpan,
input.unit);\n                  break;\n              case 2 /* Class */:\n                  binding = this.registerClassInput(name,
false, input.value, input.sourceSpan);\n                  break;\n          }\n          return binding ? true : false;\n      };\n      StylingBuilder.prototype.registerInputBasedOnName = function (name,
expression, sourceSpan) {\n          var binding = null;\n          var prefix = name.substring(0, 6);\n          var
isStyle = name === 'style' || prefix === 'style.' || prefix === 'style!';\n          var isClass = !isStyle && (name ===
'class' || prefix === 'class.' || prefix === 'class!');\n          if (isStyle || isClass) {\n              var isMapBased =
name.charAt(5) !== '.'; // style.prop or class.prop makes this a no\n              var property =
name.substr(isMapBased ? 5 : 6); // the dot explains why there's a +1\n              if (isStyle) {\n                  binding
= this.registerStyleInput(property, isMapBased, expression, sourceSpan);\n              } else {\n                  binding
= this.registerClassInput(property, isMapBased, expression, sourceSpan);\n              }\n          }\n          return binding;\n      };\n      StylingBuilder.prototype.registerStyleInput = function (name, isMapBased, value,
sourceSpan,
suffix) {\n          if (isEmptyExpression(value)) {\n              return null;\n          }\n          name =
normalizePropName(name);\n          var _a = parseProperty(name), property = _a.property, hasOverrideFlag =
_a.hasOverrideFlag, bindingSuffix = _a.suffix;\n          suffix = typeof suffix === 'string' && suffix.length !== 0 ?
suffix : bindingSuffix;\n          var entry = { name: property, suffix: suffix, value: value, sourceSpan: sourceSpan,
hasOverrideFlag: hasOverrideFlag };\n          if (isMapBased) {\n              this._styleMapInput = entry;\n          }\n          else {\n              (this._singleStyleInputs = this._singleStyleInputs || []).push(entry);\n              registerIntoMap(this._stylesIndex, property);\n          }\n          this._lastStylingInput = entry;\n          this._firstStylingInput = this._firstStylingInput || entry;\n          this._checkForPipes(value);\n          this.hasBindings = true;\n          return entry;\n      };\n      StylingBuilder.prototype.registerClassInput = function (name, isMapBased, value,
sourceSpan) {\n          if (isEmptyExpression(value)) {\n              return null;\n          }\n          var _a =
parseProperty(name), property = _a.property, hasOverrideFlag = _a.hasOverrideFlag;\n          var entry = { name:
property, value: value, sourceSpan: sourceSpan, hasOverrideFlag: hasOverrideFlag, suffix: null };\n          if
(isMapBased) {\n              if (this._classMapInput) {\n                  throw new Error('[class] and [className]
bindings cannot be used on the same element simultaneously');\n              }\n              this._classMapInput =
entry;\n          }\n          else {\n              (this._singleClassInputs = this._singleClassInputs || []).push(entry);\n              registerIntoMap(this._classesIndex, property);\n          }\n          this._lastStylingInput = entry;\n          this._firstStylingInput
= this._firstStylingInput || entry;\n          this._checkForPipes(value);\n          this.hasBindings = true;\n          return entry;\n      };\n      StylingBuilder.prototype._checkForPipes = function (value) {\n          if ((value
instanceof ASTWithSource) && (value.ast instanceof BindingPipe)) {\n              this.hasBindingsWithPipes =
true;\n          }\n      };\n      /**\n       * Registers the element's static style string value to the builder.\n       *\n       * @param value the style string (e.g. `width:100px; height:200px;`)\n       */\n      StylingBuilder.prototype.registerStyleAttr = function (value) {\n          this._initialStyleValues = parse(value);\n          this._hasInitialValues = true;\n      };\n      /**\n       * Registers the element's static class string value to the
builder.\n       *\n       * @param value the className string (e.g. `disabled gold zoom`)\n       */\n      StylingBuilder.prototype.registerClassAttr
= function (value) {\n          this._initialClassValues = value.trim().split(/\\s+/g);\n          this._hasInitialValues =
true;\n      };\n      /**\n       * Appends all styling-related expressions to the provided attrs array.\n       *\n       * @param attrs an existing array where each of the styling expressions\n       * will be inserted into.\n       */\n      StylingBuilder.prototype.populateInitialStylingAttrs = function (attrs) {\n          // [CLASS_MARKER, 'foo', 'bar',

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'baz' ...]\n      if (this._initialClassValues.length) {\n          attrs.push(literal(1 /* Classes */));\n          for\n      (var i = 0; i < this._initialClassValues.length; i++) {\n          attrs.push(literal(this._initialClassValues[i]));\n          }\n          }\n          // [STYLE_MARKER, 'width', '200px', 'height', '100px', ...]\n          if\n      (this._initialStyleValues.length) {\n          attrs.push(literal(2 /* Styles */));\n          for (var i = 0; i < this._initialStyleValues.length; i += 2) {\n          attrs.push(literal(this._initialStyleValues[i]), literal(this._initialStyleValues[i + 1]));\n          }\n          }\n      };\n      /**\n      * Builds an instruction with all the expressions and parameters for `elementHostAttrs`\n      *\n      * The instruction generation code below is used for producing the AOT statement code which is\n      * responsible for registering initial styles (within a directive hostBindings' creation block),\n      * as well as any of the provided attribute values, to the directive host element.\n      */\n      StylingBuilder.prototype.assignHostAttrs\n      = function (attrs, definitionMap) {\n          if (this._directiveExpr && (attrs.length || this._hasInitialValues)) {\n          this.populateInitialStylingAttrs(attrs);\n          definitionMap.set('hostAttrs', literalArr(attrs));\n          }\n          };\n          /**\n          * Builds an instruction with all the expressions and parameters for `classMap`\n          *\n          * The instruction data will contain all expressions for `classMap` to function\n          * which includes the `[class]` expression params.\n          */\n          StylingBuilder.prototype.buildClassMapInstruction = function (valueConverter)\n          {\n              if (this._classMapInput) {\n              return this._buildMapBasedInstruction(valueConverter, true,\n              this._classMapInput);\n              }\n              return null;\n          };\n          /**\n          * Builds an instruction with all the expressions and parameters for `styleMap`\n          *\n          * The instruction data will contain all expressions for `styleMap` to function\n          * which includes the `[style]` expression params.\n          */\n          StylingBuilder.prototype.buildStyleMapInstruction = function (valueConverter) {\n              if (this._styleMapInput)\n              {\n                  return this._buildMapBasedInstruction(valueConverter,\n                  false, this._styleMapInput);\n              }\n              return null;\n          };\n          StylingBuilder.prototype._buildMapBasedInstruction = function (valueConverter, isClassBased, stylingInput) {\n              // each styling binding value is stored in the LView\n              // map-based bindings allocate two slots: one for\n              // the\n              // previous binding value and another for the previous\n              // className or style attribute value.\n              var totalBindingSlotsRequired = MIN_STYLING_BINDING_SLOTS_REQUIRED;\n              // these values\n              must be outside of the update block so that they can\n              // be evaluated (the AST visit call) during creation time\n              so that any\n              // pipes can be picked up in time before the template is built\n              var mapValue =\n              stylingInput.value.visit(valueConverter);\n              var reference;\n              if (mapValue instanceof Interpolation) {\n              totalBindingSlotsRequired\n              += mapValue.expressions.length;\n              reference = isClassBased ?\n              getClassMapInterpolationExpression(mapValue) :\n              getStyleMapInterpolationExpression(mapValue);\n              }\n              else {\n              reference = isClassBased ? Identifiers$1.classMap : Identifiers$1.styleMap;\n              }\n              return {\n              reference: reference,\n              calls: [{\n              supportsInterpolation:\n              true,\n              sourceSpan: stylingInput.sourceSpan,\n              allocateBindingSlots:\n              totalBindingSlotsRequired,\n              params: function (convertFn) {\n              var convertResult =\n              convertFn(mapValue);\n              var params = Array.isArray(convertResult) ? convertResult :\n              [convertResult];\n              return params;\n              }\n              }]\n              };\n          }\n          StylingBuilder.prototype._buildSingleInputs\n          = function (reference, inputs, valueConverter, getInterpolationExpressionFn, isClassBased) {\n              var\n              instructions = [];\n              inputs.forEach(function (input) {\n              var previousInstruction =\n              instructions[instructions.length - 1];\n              var value = input.value.visit(valueConverter);\n              var\n              referenceForCall = reference;\n              // each styling binding value is stored in the LView\n              // but there\n              are two values stored for each binding:\n              // 1) the value itself\n              // 2) an intermediate value\n              (concatenation of style up to this point).\n              // We need to store the intermediate value so that we don't\n              allocate\n              // the strings on each CD.\n              var totalBindingSlotsRequired =\n              MIN_STYLING_BINDING_SLOTS_REQUIRED;\n              if (value instanceof Interpolation) {\n              totalBindingSlotsRequired

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+= value.expressions.length;\n                if (getInterpolationExpressionFn) {\n                referenceForCall =
getInterpolationExpressionFn(value);\n                }\n                }\n                var call = {\n                sourceSpan:
input.sourceSpan,\n                allocateBindingSlots: totalBindingSlotsRequired,\n                supportsInterpolation: !!getInterpolationExpressionFn,\n                params: function (convertFn) {\n
// params => stylingProp(propName, value, suffix)\n                var params = [];\n                params.push(literal(input.name));\n                var convertResult = convertFn(value);\n                if
(Array.isArray(convertResult)) {\n                params.push.apply(params, __spread(convertResult));\n
                }\n                else {\n                params.push(convertResult);\n
                }\n                // [style.prop] bindings may use suffix values (e.g. px, em, etc...), therefore,\n
// if that is detected then we need to pass that in as an optional param.\n                if (!isClassBased &&
input.suffix !== null) {\n                params.push(literal(input.suffix));\n                }\n
return params;\n                }\n                };\n                // If we ended up generating a call to the same instruction as
the previous styling property\n                // we can chain the calls together safely to save some bytes, otherwise we
have to generate\n                // a separate instruction call. This is primarily a concern with interpolation instructions\n
                // where we may start off with one `reference`, but end up using another based on the\n                // number
of interpolations.\n                if (previousInstruction && previousInstruction.reference
=== referenceForCall) {\n                previousInstruction.calls.push(call);\n                }\n                else {\n
instructions.push({ reference: referenceForCall, calls: [call] });\n                }\n                });\n                return
instructions;\n                };\n                StylingBuilder.prototype._buildClassInputs = function (valueConverter) {\n                if
(this._singleClassInputs) {\n                return this._buildSingleInputs(Identifiers$1.classProp,
this._singleClassInputs, valueConverter, null, true);\n                }\n                return [];\n                };\n
StylingBuilder.prototype._buildStyleInputs = function (valueConverter) {\n                if (this._singleStyleInputs) {\n
return this._buildSingleInputs(Identifiers$1.styleProp, this._singleStyleInputs, valueConverter,
getStylePropInterpolationExpression, false);\n                }\n                return [];\n                };\n                /**\n                * Constructs all
instructions
                which contain the expressions that will be placed\n                * into the update block of a template function or a directive
hostBindings function.\n                */\n                StylingBuilder.prototype.buildUpdateLevelInstructions = function
(valueConverter) {\n                var instructions = [];\n                if (this.hasBindings) {\n                var styleMapInstruction
= this.buildStyleMapInstruction(valueConverter);\n                if (styleMapInstruction) {\n
instructions.push(styleMapInstruction);\n                }\n                var classMapInstruction =
this.buildClassMapInstruction(valueConverter);\n                if (classMapInstruction) {\n
instructions.push(classMapInstruction);\n                }\n                instructions.push.apply(instructions,
__spread(this._buildStyleInputs(valueConverter)));\n                instructions.push.apply(instructions,
__spread(this._buildClassInputs(valueConverter)));\n                }\n                return
instructions;\n                };\n                return StylingBuilder;\n                }();\n                function registerIntoMap(map, key) {\n                if
(!map.has(key)) {\n                map.set(key, map.size);\n                }\n                }\n                function parseProperty(name) {\n                var
hasOverrideFlag = false;\n                var overrideIndex = name.indexOf(IMPORTANT_FLAG);\n                if (overrideIndex
!== -1) {\n                name = overrideIndex > 0 ? name.substring(0, overrideIndex) : '';\n                hasOverrideFlag =
true;\n                }\n                var suffix = null;\n                var property = name;\n                var unitIndex = name.lastIndexOf('.);\n
if (unitIndex > 0) {\n                suffix = name.substr(unitIndex + 1);\n                property = name.substring(0,
unitIndex);\n                }\n                return { property: property, suffix: suffix, hasOverrideFlag: hasOverrideFlag };\n                }\n
/**\n                * Gets the instruction to generate for an interpolated class map.\n                * @param interpolation An
Interpolation AST\n                */\n                function getClassMapInterpolationExpression(interpolation)
{\n                switch (getInterpolationArgsLength(interpolation)) {\n                case 1:\n                return
Identifiers$1.classMap;\n                case 3:\n                return Identifiers$1.classMapInterpolate1;\n                case 5:\n
return Identifiers$1.classMapInterpolate2;\n                case 7:\n                return
Identifiers$1.classMapInterpolate3;\n                case 9:\n                return Identifiers$1.classMapInterpolate4;\n
case 11:\n                return Identifiers$1.classMapInterpolate5;\n                case 13:\n                return

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Identifiers$1.classMapInterpolate6;\n      case 15:\n          return Identifiers$1.classMapInterpolate7;\n
case 17:\n      return Identifiers$1.classMapInterpolate8;\n      default:\n          return
Identifiers$1.classMapInterpolateV;\n    }\n  }\n  /**\n   * Gets the instruction to generate for an interpolated
style map.\n   * @param interpolation An Interpolation AST\n   */\n  function
getStyleMapInterpolationExpression(interpolation) {\n    switch (getInterpolationArgsLength(interpolation)) {\n
      case 1:\n          return Identifiers$1.styleMap;\n      case 3:\n          return
Identifiers$1.styleMapInterpolate1;\n      case 5:\n          return Identifiers$1.styleMapInterpolate2;\n
      case 7:\n          return Identifiers$1.styleMapInterpolate3;\n      case 9:\n          return
Identifiers$1.styleMapInterpolate4;\n      case 11:\n          return Identifiers$1.styleMapInterpolate5;\n
      case 13:\n          return Identifiers$1.styleMapInterpolate6;\n      case 15:\n          return
Identifiers$1.styleMapInterpolate7;\n      case 17:\n          return Identifiers$1.styleMapInterpolate8;\n
      default:\n          return Identifiers$1.styleMapInterpolateV;\n
    }\n  }\n  /**\n   * Gets the instruction to generate for an interpolated style prop.\n   * @param interpolation
An Interpolation AST\n   */\n  function getStylePropInterpolationExpression(interpolation) {\n    switch
(getInterpolationArgsLength(interpolation)) {\n      case 1:\n          return Identifiers$1.styleProp;\n
      case 3:\n          return Identifiers$1.stylePropInterpolate1;\n      case 5:\n          return
Identifiers$1.stylePropInterpolate2;\n      case 7:\n          return Identifiers$1.stylePropInterpolate3;\n
      case 9:\n          return Identifiers$1.stylePropInterpolate4;\n      case 11:\n          return
Identifiers$1.stylePropInterpolate5;\n      case 13:\n          return Identifiers$1.stylePropInterpolate6;\n
      case 15:\n          return Identifiers$1.stylePropInterpolate7;\n      case 17:\n          return
Identifiers$1.stylePropInterpolate8;\n
      default:\n          return Identifiers$1.stylePropInterpolateV;\n    }\n  }\n  function
normalizePropName(prop) {\n    return hyphenate(prop);\n  }\n  /**\n   * @license\n   * Copyright Google
LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be\n
   * found in the LICENSE file at https://angular.io/license\n   */\n  (function (TokenType) {\n
    TokenType[TokenType["Character"] = 0] = "Character";\n    TokenType[TokenType["Identifier"] = 1] =
"Identifier";\n    TokenType[TokenType["Keyword"] = 2] = "Keyword";\n
    TokenType[TokenType["String"] = 3] = "String";\n    TokenType[TokenType["Operator"] = 4] =
"Operator";\n    TokenType[TokenType["Number"] = 5] = "Number";\n
    TokenType[TokenType["Error"] = 6] = "Error";\n  })(exports.TokenType || (exports.TokenType = {}));\n  var
KEYWORDS = ['var', 'let',
'as', 'null', 'undefined', 'true', 'false', 'if', 'else', 'this'];\n  var Lexer = /** @class */ (function () {\n    function
Lexer() {\n    }\n    Lexer.prototype.tokenize = function (text) {\n      var scanner = new _Scanner(text);\n
      var tokens = [];\n      var token = scanner.scanToken();\n      while (token != null) {\n
        tokens.push(token);\n        token = scanner.scanToken();\n      }\n      return tokens;\n    };\n
    return Lexer;\n  })();\n  var Token$1 = /** @class */ (function () {\n    function Token(index, end, type,
numValue, strValue) {\n      this.index = index;\n      this.end = end;\n      this.type = type;\n
      this.numValue = numValue;\n      this.strValue = strValue;\n    }\n    Token.prototype.isCharacter =
function (code) {\n      return this.type == exports.TokenType.Character && this.numValue == code;\n    };\n
    Token.prototype.isNumber
= function () {\n      return this.type == exports.TokenType.Number;\n    };\n    Token.prototype.isString =
function () {\n      return this.type == exports.TokenType.String;\n    };\n    Token.prototype.isOperator =
function (operator) {\n      return this.type == exports.TokenType.Operator && this.strValue == operator;\n
    };\n    Token.prototype.isIdentifier = function () {\n      return this.type == exports.TokenType.Identifier;\n
    };\n    Token.prototype.isKeyword = function () {\n      return this.type == exports.TokenType.Keyword;\n
    };\n    Token.prototype.isKeywordLet = function () {\n      return this.type == exports.TokenType.Keyword
&& this.strValue == 'let';\n    };\n    Token.prototype.isKeywordAs = function () {\n      return this.type ==
exports.TokenType.Keyword && this.strValue == 'as';\n    };\n    Token.prototype.isKeywordNull = function ()

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case $BAR:\n          return this.scanComplexOperator(start, '|', $BAR, '|');\n          case $NBSP:\n
while (isWhitespace(this.peek))\n          this.advance();\n          return this.scanToken();\n          }\n
this.advance();\n          return this.error("\Unexpected character [" + String.fromCharCode(peek) + "]", 0);\n
);\n  _Scanner.prototype.scanCharacter = function (start, code) {\n          this.advance();\n
return newCharacterToken(start, this.index, code);\n          };\n  _Scanner.prototype.scanOperator =
function (start, str) {\n          this.advance();\n          return newOperatorToken(start, this.index, str);\n          };\n
/**\n   * Tokenize a 2/3 char long operator\n   * \n   * @param start start index in the expression\n   *
@param one first symbol (always part of the operator)\n   * @param twoCode code point for the second
symbol\n   * @param two second symbol (part of the operator when the second code point matches)\n   *
@param threeCode code point for the third symbol\n   * @param three third symbol (part of the operator when
provided and matches source expression)\n   */\n  _Scanner.prototype.scanComplexOperator = function
(start, one, twoCode, two, threeCode, three) {\n          this.advance();\n          var str = one;\n          if (this.peek
== twoCode) {\n
this.advance();\n          str += two;\n          }\n          if (threeCode != null && this.peek == threeCode) {\n
this.advance();\n          str += three;\n          }\n          return newOperatorToken(start, this.index, str);\n
);\n  _Scanner.prototype.scanIdentifier = function () {\n          var start = this.index;\n
this.advance();\n          while (isIdentifierPart(this.peek))\n          this.advance();\n          var str =
this.input.substring(start, this.index);\n          return KEYWORDS.indexOf(str) > -1 ? newKeywordToken(start,
this.index, str) :\n          newIdentifierToken(start, this.index, str);\n          };\n
_Scanner.prototype.scanNumber = function (start) {\n          var simple = (this.index === start);\n
this.advance(); // Skip initial digit.\n          while (true) {\n          if (isDigit(this.peek)) {\n          // Do
nothing.\n
}\n          else if (this.peek == $PERIOD) {\n          simple = false;\n          }\n          else if
(isExponentStart(this.peek)) {\n          this.advance();\n          if (isExponentSign(this.peek))\n
this.advance();\n          if (!isDigit(this.peek))\n          return this.error('Invalid exponent', -1);\n
simple = false;\n          }\n          else {\n          break;\n          }\n          this.advance();\n
}\n          var str = this.input.substring(start, this.index);\n          var value = simple ? parseIntAutoRadix(str) :
parseFloat(str);\n          return newNumberToken(start, this.index, value);\n          };\n
_Scanner.prototype.scanString = function () {\n          var start = this.index;\n          var quote = this.peek;\n
this.advance(); // Skip initial quote.\n          var buffer
= ";\n          var marker = this.index;\n          var input = this.input;\n          while (this.peek != quote) {\n
if (this.peek == $BACKSLASH) {\n          buffer += input.substring(marker, this.index);\n
this.advance();\n          var unescapedCode = void 0;\n          // Workaround for TS2.1-introduced type
strictness\n          this.peek = this.peek;\n          if (this.peek == $u) {\n          // 4 character hex
code for unicode character.\n          var hex = input.substring(this.index + 1, this.index + 5);\n
if (/^[0-9a-f]+$/.test(hex)) {\n          unescapedCode = parseInt(hex, 16);\n          }\n
else {\n          return this.error("\Invalid unicode escape [\\u" + hex + "]", 0);\n          }\n
for (var i = 0; i < 5;\n
i++) {\n          this.advance();\n          }\n          }\n          else {\n
unescapedCode = unescape(this.peek);\n          this.advance();\n          }\n          buffer +=
String.fromCharCode(unescapedCode);\n          marker = this.index;\n          }\n          else if (this.peek
== $EOF) {\n          return this.error('Unterminated quote', 0);\n          }\n          else {\n
this.advance();\n          }\n          }\n          var last = input.substring(marker, this.index);\n
this.advance(); // Skip terminating quote.\n          return newStringToken(start, this.index, buffer + last);\n          };\n
_Scanner.prototype.error = function (message, offset) {\n          var position = this.index + offset;\n          return
newErrorToken(position, this.index, "Lexer Error: " + message
+ " at column " + position + " in expression [" + this.input + "]);\n          };\n          return _Scanner;\n          }());\n
function isIdentifierStart(code) {\n          return ($a <= code && code <= $z) || ($A <= code && code <= $Z) ||\n

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    (code == $_) || (code == $$);\n    }\n    function isIdentifier(input) {\n        if (input.length == 0)\n            return false;\n        var scanner = new _Scanner(input);\n        if (!isIdentifierStart(scanner.peek))\n            return false;\n        scanner.advance();\n        while (scanner.peek !== $EOF) {\n            if (!isIdentifierPart(scanner.peek))\n                return false;\n            scanner.advance();\n        }\n        return true;\n    }\n    function isIdentifierPart(code) {\n        return isAsciiLetter(code) || isDigit(code) || (code == $_) ||\n            (code == $$);\n    }\n    function isExponentStart(code) {\n        return code == $e || code == $E;\n    }\n    function isExponentSign(code) {\n        return code == $MINUS || code == $PLUS;\n    }\n    function isQuote(code) {\n        return code === $SQ ||\n            code === $DQ || code === $BT;\n    }\n    function unescape(code) {\n        switch (code) {\n            case $n:\n                return $LF;\n            case $f:\n                return $FF;\n            case $r:\n                return $CR;\n            case $t:\n                return $TAB;\n            case $v:\n                return $VTAB;\n            default:\n                return code;\n        }\n    }\n    function parseIntAutoRadix(text) {\n        var result = parseInt(text);\n        if (isNaN(result))\n            throw new Error('Invalid integer literal when parsing ' + text);\n        return result;\n    }\n\n    var SplitInterpolation = /** @class */ (function () {\n        function SplitInterpolation(strings, stringSpans, expressions, expressionsSpans, offsets) {\n            this.strings = strings;\n            this.stringSpans = stringSpans;\n            this.expressions = expressions;\n            this.expressionsSpans = expressionsSpans;\n            this.offsets = offsets;\n        }\n        return SplitInterpolation;\n    }());\n\n    var TemplateBindingParseResult = /** @class */ (function () {\n        function TemplateBindingParseResult(templateBindings, warnings, errors) {\n            this.templateBindings = templateBindings;\n            this.warnings = warnings;\n            this.errors = errors;\n        }\n        return TemplateBindingParseResult;\n    }());\n\n    var defaultInterpolateRegExp = _createInterpolateRegExp(DEFAULT_INTERPOLATION_CONFIG);\n    function _getInterpolateRegExp(config) {\n        if (config === DEFAULT_INTERPOLATION_CONFIG)\n            return defaultInterpolateRegExp;\n        else\n            return _createInterpolateRegExp(config);\n    }\n\n    function _createInterpolateRegExp(config) {\n        var pattern = escapeRegExp(config.start) + '([\\s\\S]*?)'\n            + escapeRegExp(config.end);\n        return new RegExp(pattern, 'g');\n    }\n\n    var Parser$1 = /** @class */ (function () {\n        function Parser(_lexer) {\n            this._lexer = _lexer;\n            this.errors = [];\n            this.simpleExpressionChecker = SimpleExpressionChecker;\n        }\n        Parser.prototype.parseAction = function (input, location, absoluteOffset, interpolationConfig) {\n            if (interpolationConfig === void 0) {\n                interpolationConfig = DEFAULT_INTERPOLATION_CONFIG;\n            }\n            this._checkNoInterpolation(input, location, interpolationConfig);\n            var sourceToLex = this._stripComments(input);\n            var tokens = this._lexer.tokenize(this._stripComments(input));\n            var ast = new _ParseAST(input, location, absoluteOffset, tokens, sourceToLex.length, true, this.errors, input.length - sourceToLex.length);\n            ast.parseChain();\n            return new ASTWithSource(ast, input, location, absoluteOffset, this.errors);\n        }\n        Parser.prototype.parseBinding = function (input, location, absoluteOffset, interpolationConfig) {\n            if (interpolationConfig === void 0) {\n                interpolationConfig = DEFAULT_INTERPOLATION_CONFIG;\n            }\n            var ast = this._parseBindingAst(input, location, absoluteOffset, interpolationConfig);\n            return new ASTWithSource(ast, input, location, absoluteOffset, this.errors);\n        }\n        Parser.prototype.checkSimpleExpression = function (ast) {\n            var checker = new this.simpleExpressionChecker();\n            ast.visit(checker);\n            return checker.errors;\n        }\n        Parser.prototype.parseSimpleBinding = function (input, location, absoluteOffset, interpolationConfig) {\n            if (interpolationConfig === void 0) {\n                interpolationConfig = DEFAULT_INTERPOLATION_CONFIG;\n            }\n            var ast = this._parseBindingAst(input, location, absoluteOffset, interpolationConfig);\n            var errors = this.checkSimpleExpression(ast);\n            if (errors.length > 0) {\n                this._reportError('\"Host binding expression cannot contain \" + errors.join(' '), input, location);\n            }\n            return new ASTWithSource(ast, input, location, absoluteOffset, this.errors);\n        }\n        Parser.prototype._reportError = function (message, input, errLocation, ctxLocation) {\n            this.errors.push(new ParserError(message, input, errLocation, ctxLocation));\n        }\n        Parser.prototype._parseBindingAst = function (input, location, absoluteOffset, interpolationConfig) {\n            // Quotes expressions use 3rd-party expression language. We don't want to use\n            // our lexer or parser for that,\n
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so we check for that ahead of time.\n      var quote = this._parseQuote(input, location, absoluteOffset);\n      if (quote != null) {\n        return quote;\n      }\n      this._checkNoInterpolation(input, location,\n      interpolationConfig);\n\n      var sourceToLex = this._stripComments(input);\n      var tokens = this._lexer.tokenize(sourceToLex);\n      return new _ParseAST(input, location, absoluteOffset, tokens, sourceToLex.length, false, this.errors,\n      input.length - sourceToLex.length)\n      .parseChain();\n    };\n    Parser.prototype._parseQuote =\n    function (input, location, absoluteOffset) {\n      if (input == null)\n        return null;\n      var\n      prefixSeparatorIndex = input.indexOf(':');\n      if (prefixSeparatorIndex == -1)\n        return null;\n      var prefix = input.substring(0, prefixSeparatorIndex).trim();\n      if (!isIdentifier(prefix))\n        return\n        null;\n      var uninterpretedExpression = input.substring(prefixSeparatorIndex + 1);\n      var span = new\n      ParseSpan(0, input.length);\n      return new Quote(span, span.toAbsolute(absoluteOffset), prefix,\n      uninterpretedExpression,\n      location);\n    };\n    /**\n     * Parse microsyntax template expression and return a list of bindings or\n     * parsing errors in case the given expression is invalid.\n     *\n     * For example,\n     * ```\n     * <div\n     * ngFor="let item of items">\n     *   ^ ^ absoluteValueOffset for `templateValue`\n     * absoluteKeyOffset for `templateKey`\n     * ```\n     * contains three bindings:\n     * 1. ngFor -> null\n     * 2. item -> NgForOfContext.$implicit\n     * 3. ngForOf -> items\n     *\n     * This is apparent from the de-\n     * sugared template:\n     * ```\n     * <ng-template ngFor let-item [ngForOf]="items">\n     *   @param templateKey name of directive, without the * prefix. For example: ngIf, ngFor\n     *   @param\n     * templateValue RHS of the microsyntax attribute\n     *   @param templateUrl template filename if it's external,\n     *   component filename\n     *   if it's inline\n     *   @param absoluteKeyOffset start of the `templateKey`\n     *   @param absoluteValueOffset\n     *   start of the `templateValue`\n     *   *\n     * Parser.prototype.parseTemplateBindings = function (templateKey,\n     * templateValue, templateUrl, absoluteKeyOffset, absoluteValueOffset) {\n     *   var tokens =\n     *   this._lexer.tokenize(templateValue);\n     *   var parser = new _ParseAST(templateValue, templateUrl,\n     *   absoluteValueOffset, tokens, templateValue.length, false /* parseAction */, this.errors, 0 /* relative offset */);\n     *   return parser.parseTemplateBindings({\n     *     source: templateKey,\n     *     span: new\n     *     AbsoluteSourceSpan(absoluteKeyOffset, absoluteKeyOffset + templateKey.length),\n     *   });\n     * };\n     *\n     * Parser.prototype.parseInterpolation = function (input, location, absoluteOffset, interpolationConfig) {\n     *   if\n     *   (interpolationConfig === void 0) {\n     *     interpolationConfig = DEFAULT_INTERPOLATION_CONFIG;\n     *   }\n     *   var split = this.splitInterpolation(input, location, interpolationConfig);\n     *   if (split == null)\n     *   return null;\n     *   var expressions = [];\n     *   for (var i = 0; i < split.expressions.length; ++i) {\n     *     var\n     *     expressionText = split.expressions[i];\n     *     var sourceToLex = this._stripComments(expressionText);\n     *     var tokens = this._lexer.tokenize(sourceToLex);\n     *     var ast = new _ParseAST(input, location,\n     *     absoluteOffset, tokens, sourceToLex.length, false, this.errors, split.offsets[i] + (expressionText.length -\n     *     sourceToLex.length))\n     *     .parseChain();\n     *     expressions.push(ast);\n     *   }\n     *   return\n     *   this.createInterpolationAst(split.strings, expressions, input, location, absoluteOffset);\n     * };\n     *\n     * /**\n     * Similar to `parseInterpolation`, but treats the provided string as a single expression\n     * * element that would\n     * normally appear\n     * within the interpolation prefix and suffix (`{{` and `}}`).\n     * * This is used for parsing the switch expression in\n     * ICUs.\n     * *\n     * Parser.prototype.parseInterpolationExpression = function (expression, location,\n     * absoluteOffset) {\n     *   var sourceToLex = this._stripComments(expression);\n     *   var tokens =\n     *   this._lexer.tokenize(sourceToLex);\n     *   var ast = new _ParseAST(expression, location, absoluteOffset, tokens,\n     *   sourceToLex.length, /* parseAction */ false, this.errors, 0)\n     *   .parseChain();\n     *   var strings =\n     *   ["", "]; // The prefix and suffix strings are both empty\n     *   return this.createInterpolationAst(strings, [ast],\n     *   expression, location, absoluteOffset);\n     * };\n     *\n     * Parser.prototype.createInterpolationAst = function (strings,\n     * expressions, input, location, absoluteOffset) {\n     *   var span = new ParseSpan(0, input.length);\n     *   var\n     *   interpolation = new Interpolation(span, span.toAbsolute(absoluteOffset),

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strings, expressions);\n        return new ASTWithSource(interpolation, input, location, absoluteOffset,
this.errors);\n    };\n    /**\n     * Splits a string of text into \"raw\" text segments and expressions present in
interpolations in\n     * the string.\n     * Returns `null` if there are no interpolations, otherwise a\n     * `SplitInterpolation` with splits that look like\n     * <raw text> <expression> <raw text> ... <raw text>
<expression> <raw text>\n     */\n    Parser.prototype.splitInterpolation = function (input, location,
interpolationConfig) {\n        if (interpolationConfig === void 0) { interpolationConfig =
DEFAULT_INTERPOLATION_CONFIG; }\n        var strings = [];\n        var expressions = [];\n        var
offsets = [];\n        var stringSpans = [];\n        var expressionSpans = [];\n        var i = 0;\n        var
atInterpolation = false;\n        var
extendLastString = false;\n        var interpStart = interpolationConfig.start, interpEnd =
interpolationConfig.end;\n        while (i < input.length) {\n            if (!atInterpolation) {\n                // parse
until starting {\n                    var start = i;\n                    i = input.indexOf(interpStart, i);\n                    if (i === -1)
{\n                        i = input.length;\n                    }\n                    var part = input.substring(start, i);\n
strings.push(part);\n                    stringSpans.push({ start: start, end: i });\n                    atInterpolation = true;\n
                }\n                else {\n                    // parse from starting {\n                        to ending }\n                    var fullStart = i;\n
var exprStart = fullStart + interpStart.length;\n                    var exprEnd = input.indexOf(interpEnd, exprStart);\n
                    if (exprEnd === -1) {\n
                        // Could not find the end of the interpolation; do not parse an expression.\n                        // Instead we should
extend the content on the last raw string.\n                        atInterpolation = false;\n                        extendLastString =
true;\n                        break;\n                    }\n                    var fullEnd = exprEnd + interpEnd.length;\n
var part = input.substring(exprStart, exprEnd);\n                    if (part.trim().length > 0) {\n
                        expressions.push(part);\n                    }\n                    else {\n                        this._reportError('Blank expressions are
not allowed in interpolated strings', input, \"at column \" + i + \" in\", location);\n
                        expressions.push('$implic');\n                    }\n                    offsets.push(exprStart);\n
expressionSpans.push({ start: fullStart, end: fullEnd });\n                    i = fullEnd;\n
                    atInterpolation = false;\n                }\n            }\n            if (!atInterpolation) {\n                // If we are
now at a text section, add the remaining content as a raw string.\n                if (extendLastString) {\n
strings[strings.length - 1] += input.substring(i);\n                stringSpans[stringSpans.length - 1].end =
input.length;\n                }\n                else {\n                    strings.push(input.substring(i));\n
stringSpans.push({ start: i, end: input.length });\n                }\n                }\n                return expressions.length === 0 ?\n                null :\n                new SplitInterpolation(strings, stringSpans, expressions, expressionSpans, offsets);\n
            }\n        }\n        Parser.prototype.wrapLiteralPrimitive = function (input, location, absoluteOffset) {\n            var span = new
ParseSpan(0, input == null ? 0 : input.length);\n            return new ASTWithSource(new
LiteralPrimitive(span, span.toAbsolute(absoluteOffset), input), input, location, absoluteOffset, this.errors);\n
        };\n        Parser.prototype._stripComments = function (input) {\n            var i = this._commentStart(input);\n
return i != null ? input.substring(0, i).trim() : input;\n        };\n        Parser.prototype._commentStart = function
(input) {\n            var outerQuote = null;\n            for (var i = 0; i < input.length - 1; i++) {\n                var char =
input.charCodeAt(i);\n                var nextChar = input.charCodeAt(i + 1);\n                if (char === $SLASH &&
nextChar === $SLASH && outerQuote == null)\n                    return i;\n                if (outerQuote === char) {\n
                    outerQuote = null;\n                }\n                else if (outerQuote == null && isQuote(char)) {\n
                    outerQuote = char;\n                }\n            }\n            return null;\n        };\n
        Parser.prototype._checkNoInterpolation
= function (input, location, interpolationConfig) {\n            var regexp =
_getInterpolateRegExp(interpolationConfig);\n            var parts = input.split(regexp);\n            if (parts.length > 1)
{\n                this._reportError(\"Got interpolation (\" + interpolationConfig.start + interpolationConfig.end + \")
where expression was expected\", input, \"at column \" + this._findInterpolationErrorColumn(parts, 1,
interpolationConfig) + \" in\", location);\n            }\n        };\n        Parser.prototype._findInterpolationErrorColumn
= function (parts, partInErrIdx, interpolationConfig) {\n            var errLocation = \";\n            for (var j = 0; j <

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partInErrIdx; j++) {\n          errLocation += j % 2 === 0 ?\n          parts[j] :\n          interpolationConfig.start + parts[j] + interpolationConfig.end;\n        }\n        return errLocation.length;\n      };\n      return Parser;\n    }());\n    var IvyParser\n    = /** @class */ (function (_super) {\n      __extends(IvyParser, _super);\n      function IvyParser() {\n        var\n        _this = _super.apply(this, __spread(arguments)) || this;\n        _this.simpleExpressionChecker =\n        IvySimpleExpressionChecker; /\n        return _this;\n      }\n      return IvyParser;\n    })(Parser$1));\n    /**\n    Describes a stateful context an expression parser is in. *\n    var ParseContextFlags;\n    (function\n    (ParseContextFlags) {\n      ParseContextFlags[ParseContextFlags["None"] = 0] = "None";\n      /**\n      * A\n      Writable context is one in which a value may be written to an Ivalue.\n      * For example, after we see a property\n      access, we may expect a write to the\n      * property via the "=" operator.\n      * prop\n      * ^ possible\n      "=" after\n      *\n      ParseContextFlags[ParseContextFlags["Writable"] = 1] = "Writable";\n    })(ParseContextFlags || (ParseContextFlags = {}));\n\n    var _ParseAST = /** @class */ (function () {\n      function _ParseAST(input, location, absoluteOffset, tokens,\n      inputLength, parseAction, errors, offset) {\n        this.input = input;\n        this.location = location;\n        this.absoluteOffset = absoluteOffset;\n        this.tokens = tokens;\n        this.inputLength = inputLength;\n        this.parseAction = parseAction;\n        this.errors = errors;\n        this.offset = offset;\n        this.rparensExpected = 0;\n        this.rbracketsExpected = 0;\n        this.rbracesExpected = 0;\n        this.context = ParseContextFlags.None;\n        // Cache of expression start and input indeces to the absolute source\n        span they map to, used to\n        // prevent creating superfluous source spans in `sourceSpan`.\n        // A serial\n        of the expression start and input index is used for mapping because both are stateful\n        // and may change for\n        subsequent expressions\n        visited by the parser.\n        this.sourceSpanCache = new Map();\n        this.index = 0;\n      }\n      _ParseAST.prototype.peek = function (offset) {\n        var i = this.index + offset;\n        return i <\n        this.tokens.length ? this.tokens[i] : EOF;\n      };\n      Object.defineProperty(_ParseAST.prototype, "next", {\n        get: function () {\n          return this.peek(0);\n        },\n        enumerable: false,\n        configurable:\n        true\n      });\n      Object.defineProperty(_ParseAST.prototype, "atEOF", {\n        /** Whether all the parser\n        input has been processed. *\n        get: function () {\n          return this.index >= this.tokens.length;\n        },\n        enumerable: false,\n        configurable: true\n      });\n      Object.defineProperty(_ParseAST.prototype, "inputIndex", {\n        /**\n        * Index of the next token to be\n        processed, or the end of the last token\n        if all have been\n        * processed.\n        *\n        get: function () {\n          return this.atEOF ?\n          this.currentEndIndex : this.next.index + this.offset;\n        },\n        enumerable: false,\n        configurable:\n        true\n      });\n      Object.defineProperty(_ParseAST.prototype, "currentEndIndex", {\n        /**\n        * End index of the last processed token, or the start of the first token if none have been\n        * processed.\n        *\n        get: function () {\n          if (this.index > 0) {\n            var curToken = this.peek(-1);\n            return curToken.end + this.offset;\n          }\n          // No tokens have been processed yet; return the next\n          token's start or the length of the input\n          // if there is no token.\n          if (this.tokens.length === 0) {\n            return this.inputLength + this.offset;\n          }\n          return this.next.index + this.offset;\n        },\n        enumerable: false,\n        configurable: true\n      });\n      Object.defineProperty(_ParseAST.prototype, "currentAbsoluteOffset", {\n        /**\n        * Returns\n        the absolute offset of the start of the current token.\n        *\n        get: function () {\n          return\n          this.absoluteOffset + this.inputIndex;\n        },\n        enumerable: false,\n        configurable: true\n      });\n      _ParseAST.prototype.span = function (start) {\n        return new ParseSpan(start, this.currentEndIndex);\n      };\n      _ParseAST.prototype.sourceSpan = function (start) {\n        var serial = start + "@" + this.inputIndex;\n        if (!this.sourceSpanCache.has(serial)) {\n          this.sourceSpanCache.set(serial,\n          this.span(start).toAbsolute(this.absoluteOffset));\n        }\n        return this.sourceSpanCache.get(serial);\n      };\n      _ParseAST.prototype.advance = function () {\n        this.index++;\n      };\n      /**\n      Executes a callback in the provided context.\n      *\n      _ParseAST.prototype.withContext = function (context,\n
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        return result;\n        }\n    };\n    _ParseAST.prototype.parseLogicalOr = function () {\n        //\n        var result = this.parseLogicalAnd();\n        while (this.consumeOptionalOperator('|')) {\n            var\n            right = this.parseLogicalAnd();\n            var start = result.span.start;\n            result = new\n            Binary(this.span(start), this.sourceSpan(start), '|', result, right);\n        }\n        return result;\n    };\n    _ParseAST.prototype.parseLogicalAnd = function () {\n        // '&&'\n        var result = this.parseEquality();\n        while (this.consumeOptionalOperator('&&')) {\n            var right = this.parseEquality();\n            var start =\n            result.span.start;\n            result = new Binary(this.span(start), this.sourceSpan(start), '&&', result, right);\n        }\n        return result;\n    };\n    _ParseAST.prototype.parseEquality = function\n    () {\n        // '==', '!=', '===', '!=='\n        var result = this.parseRelational();\n        while (this.next.type ==\n        exports.TokenType.Operator) {\n            var operator = this.next.strValue;\n            switch (operator) {\n                case '==':\n                    case '===':\n                        case '!=':\n                            case '!==':\n                                this.advance();\n                                var right = this.parseRelational();\n                                var start = result.span.start;\n                                result = new Binary(this.span(start), this.sourceSpan(start), operator, result, right);\n                                continue;\n                            }\n                        break;\n                    }\n                return result;\n            };\n        _ParseAST.prototype.parseRelational = function () {\n            // '<', '>', '<=', '>='\n            var result =\n            this.parseAdditive();\n            while (this.next.type == exports.TokenType.Operator) {\n                var operator = this.next.strValue;\n                switch (operator) {\n                    case '<':\n                        case\n                        '>':\n                            case '<=':\n                                case '>=':\n                                    this.advance();\n                                    var right =\n                                    this.parseAdditive();\n                                    var start = result.span.start;\n                                    result = new\n                                    Binary(this.span(start), this.sourceSpan(start), operator, result, right);\n                                    continue;\n                                }\n                            break;\n                        }\n                    return result;\n                };\n        _ParseAST.prototype.parseAdditive = function () {\n            // '+', '-'\n            var result = this.parseMultiplicative();\n            while (this.next.type ==\n            exports.TokenType.Operator) {\n                var operator = this.next.strValue;\n                switch (operator) {\n                    case '+':\n                        case '-':\n                            this.advance();\n                            var right = this.parseMultiplicative();\n                            var start = result.span.start;\n                            result = new Binary(this.span(start), this.sourceSpan(start), operator, result, right);\n                            continue;\n                        }\n                    break;\n                }\n                return result;\n            };\n        _ParseAST.prototype.parseMultiplicative =\n        function () {\n            // '*', '%', '/'\n            var result = this.parsePrefix();\n            while (this.next.type ==\n            exports.TokenType.Operator) {\n                var operator = this.next.strValue;\n                switch (operator) {\n                    case '*':\n                        case '%':\n                            case '/':\n                                this.advance();\n                                var right =\n                                this.parsePrefix();\n                                var start = result.span.start;\n                                result = new Binary(this.span(start),\n                                this.sourceSpan(start),\n                                operator, result, right);\n                                continue;\n                            }\n                        break;\n                    }\n                return result;\n            };\n        _ParseAST.prototype.parsePrefix = function () {\n            if (this.next.type ==\n            exports.TokenType.Operator) {\n                var start = this.inputIndex;\n                var operator =\n                this.next.strValue;\n                var result = void 0;\n                switch (operator) {\n                    case '+':\n                        this.advance();\n                        result = this.parsePrefix();\n                        return Unary.createPlus(this.span(start),\n                        this.sourceSpan(start), result);\n                    case '-':\n                        this.advance();\n                        result =\n                        this.parsePrefix();\n                        return Unary.createMinus(this.span(start), this.sourceSpan(start), result);\n                    case '!':\n                        this.advance();\n                        result = this.parsePrefix();\n                        return new PrefixNot(this.span(start), this.sourceSpan(start),\n                        result);\n                    }\n                }\n                return this.parseCallChain();\n            };\n        _ParseAST.prototype.parseCallChain = function () {\n            var _this = this;\n            var result =\n            this.parsePrimary();\n            var resultStart = result.span.start;\n            while (true) {\n                if\n                (this.consumeOptionalCharacter($PERIOD)) {\n                    result = this.parseAccessMemberOrMethodCall(result,\n                    false);\n                }\n                else if (this.consumeOptionalOperator('?')) {\n                    result =\n                    this.parseAccessMemberOrMethodCall(result, true);\n                }\n                else if\n                (this.consumeOptionalCharacter($LBRACKET)) {\n                    this.withContext(ParseContextFlags.Writable,\n
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function () {\n
    _this.rbracketsExpected++;;\n
    var key = _this.parsePipe();\n
    if (key instanceof EmptyExpr) {\n
        _this.error("\nKey\naccess cannot be empty\n");\n
    }\n
    _this.rbracketsExpected--;\n
    _this.expectCharacter($RBRACKET);\n
    if (_this.consumeOptionalOperator('=')) {\n
        var value = _this.parseConditional();\n
        result = new KeyedWrite(_this.span(resultStart),\n
        _this.sourceSpan(resultStart), result, key, value);\n
    }\n
    else {\n
        result\n
        =\n
        new KeyedRead(_this.span(resultStart), _this.sourceSpan(resultStart), result, key);\n
    }\n
    };\n
    }\n
    else if (this.consumeOptionalCharacter($LPAREN)) {\n
        this.rparensExpected++;;\n
        var args = this.parseCallArguments();\n
        this.rparensExpected--;\n
        this.expectCharacter($RPAREN);\n
        result =\n
        new FunctionCall(this.span(resultStart), this.sourceSpan(resultStart), result, args);\n
    }\n
    else\n
    if (this.consumeOptionalOperator('!')) {\n
        result = new NonNullAssert(this.span(resultStart),\n
        this.sourceSpan(resultStart), result);\n
    }\n
    else {\n
        return result;\n
    }\n
    };\n
    _ParseAST.prototype.parsePrimary = function () {\n
        var start = this.inputIndex;\n
        if\n
        (this.consumeOptionalCharacter($LPAREN)) {\n
            this.rparensExpected++;;\n
            var result =\n
            this.parsePipe();\n
            this.rparensExpected--;\n
            this.expectCharacter($RPAREN);\n
            return\n
            result;\n
        }\n
        else if (this.next.isKeywordNull())\n
        {\n
            this.advance();\n
            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), null);\n
        }\n
        else if (this.next.isKeywordUndefined()) {\n
            this.advance();\n
            return new\n
            LiteralPrimitive(this.span(start), this.sourceSpan(start), void 0);\n
        }\n
        else if\n
        (this.next.isKeywordTrue()) {\n
            this.advance();\n
            return new LiteralPrimitive(this.span(start),\n
            this.sourceSpan(start), true);\n
        }\n
        else if (this.next.isKeywordFalse()) {\n
            this.advance();\n
            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), false);\n
        }\n
        else if\n
        (this.next.isKeywordThis()) {\n
            this.advance();\n
            return new ThisReceiver(this.span(start),\n
            this.sourceSpan(start));\n
        }\n
        else if (this.consumeOptionalCharacter($LBRACKET)) {\n
            this.rbracketsExpected++;;\n
            var elements = this.parseExpressionList($RBRACKET);\n
            this.rbracketsExpected--;\n
            this.expectCharacter($RBRACKET);\n
            return new\n
            LiteralArray(this.span(start), this.sourceSpan(start), elements);\n
        }\n
        else if\n
        (this.next.isCharacter($LBRACE)) {\n
            return this.parseLiteralMap();\n
        }\n
        else if\n
        (this.next.isIdentifier()) {\n
            return this.parseAccessMemberOrMethodCall(new\n
            ImplicitReceiver(this.span(start), this.sourceSpan(start)), false);\n
        }\n
        else if (this.next.isNumber()) {\n
            var value = this.next.toNumber();\n
            this.advance();\n
            return new\n
            LiteralPrimitive(this.span(start), this.sourceSpan(start), value);\n
        }\n
        else if (this.next.isString()) {\n
            var literalValue = this.next.toString();\n
            this.advance();\n
            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), literalValue);\n
        }\n
        else if\n
        (this.index >= this.tokens.length) {\n
            this.error("\nUnexpected end of expression: \n" + this.input);\n
            return new EmptyExpr(this.span(start), this.sourceSpan(start));\n
        }\n
        else {\n
            this.error("\nUnexpected token \n" + this.next);\n
            return new EmptyExpr(this.span(start),\n
            this.sourceSpan(start));\n
        }\n
    };\n
    _ParseAST.prototype.parseExpressionList = function (terminator)\n
    {\n
        var result = [];\n
        if (!this.next.isCharacter(terminator)) {\n
            do {\n
                result.push(this.parsePipe());\n
            } while (this.consumeOptionalCharacter($COMMA));\n
        }\n
        return result;\n
    };\n
    _ParseAST.prototype.parseLiteralMap = function () {\n
        var keys = [];\n
        var values\n
        = [];\n
        var start = this.inputIndex;\n
        this.expectCharacter($LBRACE);\n
        if\n
        (!this.consumeOptionalCharacter($RBRACE)) {\n
            this.rbracesExpected++;;\n
            do {\n
                var quoted = this.next.isString();\n
                var key = this.expectIdentifierOrKeywordOrString();\n
                keys.push({ key: key, quoted: quoted });\n
                this.expectCharacter($COLON);\n
                values.push(this.parsePipe());\n
            } while (this.consumeOptionalCharacter($COMMA));\n
        }\n
    }\n
}

```

```

this.rbracesExpected--;\n          this.expectCharacter($RBRACE);\n          }\n          return new
LiteralMap(this.span(start), this.sourceSpan(start), keys, values);\n          };\n
_ParseAST.prototype.parseAccessMemberOrMethodCall = function (receiver, isSafe) {\n          if (isSafe === void
0) { isSafe = false; }\n          var start = receiver.span.start;\n          var nameStart
= this.inputIndex;\n          var id = this.expectIdentifierOrKeyword();\n          var nameSpan =
this.sourceSpan(nameStart);\n          if (this.consumeOptionalCharacter($LPAREN)) {\n
this.rparensExpected++;\n          var args = this.parseCallArguments();\n
this.expectCharacter($RPAREN);\n          this.rparensExpected--;\n          var span = this.span(start);\n
var sourceSpan = this.sourceSpan(start);\n          return isSafe ? new SafeMethodCall(span, sourceSpan,
nameSpan, receiver, id, args) : \n          new MethodCall(span, sourceSpan, nameSpan, receiver, id, args);\n
}\n          else {\n          if (isSafe) {\n          if (this.consumeOptionalOperator('=')) {\n
this.error('The \'?.\' operator cannot be used in the assignment');\n          return new
EmptyExpr(this.span(start), this.sourceSpan(start));\n
}\n          else {\n          return new SafePropertyRead(this.span(start), this.sourceSpan(start),
nameSpan, receiver, id);\n          }\n          }\n          else {\n          if
(this.consumeOptionalOperator('=')) {\n          if (!this.parseAction) {\n          this.error('Bindings
cannot contain assignments');\n          return new EmptyExpr(this.span(start), this.sourceSpan(start));\n
}\n          var value = this.parseConditional();\n          return new
PropertyWrite(this.span(start), this.sourceSpan(start), nameSpan, receiver, id, value);\n          }\n
else {\n          return new PropertyRead(this.span(start), this.sourceSpan(start), nameSpan, receiver, id);\n
}\n          }\n          }\n          };\n          _ParseAST.prototype.parseCallArguments
= function () {\n          if (this.next.isCharacter($RPAREN))\n          return [];\n          var positionals = [];\n
do {\n          positionals.push(this.parsePipe());\n          } while
(this.consumeOptionalCharacter($COMMA));\n          return positionals;\n          };\n          /**\n          * Parses an
identifier, a keyword, a string with an optional `` in between,\n          * and returns the string along with its absolute
source span.\n          */\n          _ParseAST.prototype.expectTemplateBindingKey = function () {\n          var result =
"";\n          var operatorFound = false;\n          var start = this.currentAbsoluteOffset;\n          do {\n          result
+= this.expectIdentifierOrKeywordOrString();\n          operatorFound = this.consumeOptionalOperator('-');\n
if (operatorFound) {\n          result += '-';\n          }\n          } while (operatorFound);\n          return
{\n
source: result,\n          span: new AbsoluteSourceSpan(start, start + result.length),\n          };\n          };\n
/**\n          * Parse microsyntax template expression and return a list of bindings or\n          * parsing errors in case
the given expression is invalid.\n          *\n          * For example,\n          * ``\n          * <div *ngFor="let item of
items; index as i; trackBy: func">\n          * ``\n          * contains five bindings:\n          * 1. ngFor -> null\n          * 2.
item -> NgForOfContext.$implicit\n          * 3. ngForOf -> items\n          * 4. i -> NgForOfContext.index\n          * 5.
ngForTrackBy -> func\n          *\n          * For a full description of the microsyntax grammar, see\n          *\n
https://gist.github.com/mhevery/d3530294cff2e4a1b3fe15ff75d08855\n          *\n          * @param templateKey name
of the microsyntax directive, like ngIf, ngFor,\n          * without the *, along with its absolute span.\n          */\n
_ParseAST.prototype.parseTemplateBindings
= function (templateKey) {\n          var bindings = [];\n          // The first binding is for the template key itself\n
// In *ngFor="let item of items", key = "ngFor", value = null\n          // In *ngIf="cond | pipe", key =
"ngIf", value = "cond | pipe"\n          bindings.push.apply(bindings,
__spread(this.parseDirectiveKeywordBindings(templateKey))); \n          while (this.index < this.tokens.length) {\n
// If it starts with 'let', then this must be variable declaration\n          var letBinding =
this.parseLetBinding();\n          if (letBinding) {\n          bindings.push(letBinding);\n          }\n
else {\n          // Two possible cases here, either `value "as" key` or\n          // `directive-keyword
expression`. We don't know which case, but both\n          // `value` and `directive-keyword` are template
binding

```



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this.consumeStatementTerminator();\n      var sourceSpan = new AbsoluteSourceSpan(spanStart,
this.currentAbsoluteOffset);\n      return new VariableBinding(sourceSpan, key, value);\n    };\n    /**\n
* Consume the optional
statement terminator: semicolon or comma.\n      */\n    _ParseAST.prototype.consumeStatementTerminator =
function () {\n      this.consumeOptionalCharacter($SEMICOLON) ||
this.consumeOptionalCharacter($COMMA);\n    };\n    /**\n
* Records an error and skips over the token
stream until reaching a recoverable point. See\n      * `this.skip` for more details on token skipping.\n      */\n
_ParseAST.prototype.error = function (message, index) {\n      if (index === void 0) { index = null; }\nthis.errors.push(new ParserError(message, this.input, this.locationText(index), this.location));\n      this.skip();\n    };\n    _ParseAST.prototype.locationText = function (index) {\n      if (index === void 0) { index = null;\n    }\n      if (index == null)\n        index = this.index;\n      return (index < this.tokens.length) ? \"at column\n\" + (this.tokens[index].index + 1) + \" in\" : \"\n      \"\n        \"at the end of the expression\";\n    };\n    /**\n
* Error recovery should skip tokens until it
encounters a recovery point. skip() treats\n      * the end of input and a ';' as unconditionally a recovery point. It
also treats ')',\n      * '}' and ']' as conditional recovery points if one of calling productions is expecting\n      * one
of these symbols. This allows skip() to recover from errors such as '(a.) + 1' allowing\n      * more of the AST to be
retained (it doesn't skip any tokens as the ') is retained because\n      * of the '(' begins an '(' <expr> ')' production).
The recovery points of grouping symbols\n      * must be conditional as they must be skipped if none of the calling
productions are not\n      * expecting the closing token else we will never make progress in the case of an\n      *
extraneous group closing symbol (such as a stray ')'). This is not the case for ';' because\n      * parseChain() is
always the root
production and it expects a ';'.\n      */\n    * Furthermore, the presence of a stateful context can add more
recovery points.\n      * - in a `Writable` context, we are able to recover after seeing the `=` operator, which\n
* signals the presence of an independent rvalue expression following the `=` operator.\n      */\n    * If a
production expects one of these token it increments the corresponding nesting count,\n      * and then decrements it
just prior to checking if the token is in the input.\n      */\n    _ParseAST.prototype.skip = function () {\n      var n = this.next;\n      while (this.index < this.tokens.length && !n.isCharacter($SEMICOLON) &&\n        (this.rparensExpected <= 0 || !n.isCharacter($RPAREN)) &&\n          (this.rbracesExpected <= 0 ||\n            !n.isCharacter($RBRACE)) &&\n            (this.rbracketsExpected <= 0 || !n.isCharacter($RBRACKET)) &&\n              (!(this.context & ParseContextFlags.Writable)\n                || !n.isOperator('='))) {\n        if (this.next.isError()) {\n          this.errors.push(new\nParserError(this.next.toString(), this.input, this.locationText(), this.location));\n        }\n        this.advance();\n        n = this.next;\n      }\n    };\n    return _ParseAST;\n  }();\n  var
SimpleExpressionChecker = /** @class */ (function () {\n    function SimpleExpressionChecker() {\n      this.errors = [];\n    }\n    SimpleExpressionChecker.prototype.visitImplicitReceiver = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitThisReceiver = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitInterpolation = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitLiteralPrimitive = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitPropertyRead = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitPropertyWrite\n      = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitSafePropertyRead = function (ast,\n      context) {\n    };\n    SimpleExpressionChecker.prototype.visitMethodCall = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitSafeMethodCall = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitFunctionCall = function (ast, context) {\n    };\n    SimpleExpressionChecker.prototype.visitLiteralArray = function (ast, context) {\n    }\n    this.visitAll(ast.expressions, context);\n    };\n    SimpleExpressionChecker.prototype.visitLiteralMap =\n      function (ast, context) {\n        this.visitAll(ast.values, context);\n      };\n    SimpleExpressionChecker.prototype.visitUnary = function (ast, context) {\n    };\n

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SimpleExpressionChecker.prototype.visitBinary = function (ast, context) { };
SimpleExpressionChecker.prototype.visitPrefixNot = function (ast, context)
{ };
SimpleExpressionChecker.prototype.visitNonNullAssert = function (ast, context) { };
SimpleExpressionChecker.prototype.visitConditional = function (ast, context) { };
SimpleExpressionChecker.prototype.visitPipe = function (ast, context) {
    this.errors.push('pipes');
};
SimpleExpressionChecker.prototype.visitKeyedRead = function (ast, context) { };
SimpleExpressionChecker.prototype.visitKeyedWrite = function (ast, context) { };
SimpleExpressionChecker.prototype.visitAll = function (asts, context) {
    var _this = this;
    return
    asts.map(function (node) { return node.visit(_this, context); });
};
SimpleExpressionChecker.prototype.visitChain = function (ast, context) { };
SimpleExpressionChecker.prototype.visitQuote = function (ast, context) { };
return
SimpleExpressionChecker;
})();
/**
 * This class implements SimpleExpressionChecker used
in View Engine and performs more strict checks
 * to make sure host bindings do not contain pipes. In View
Engine, having pipes in host bindings is
 * not supported as well, but in some cases (like `!(value | async)`) the
error is not triggered at
 * compile time. In order to preserve View Engine behavior, more strict checks are
introduced for
 * Ivy mode only.
 */
var IvySimpleExpressionChecker = /** @class */ (function (_super)
{
    __extends(IvySimpleExpressionChecker, _super);
    function IvySimpleExpressionChecker() {
        var _this = _super.apply(this, __spread(arguments)) || this;
        _this.errors = [];
        return _this;
    }
    IvySimpleExpressionChecker.prototype.visitPipe = function () {
        this.errors.push('pipes');
    };
    return IvySimpleExpressionChecker;
})(RecursiveAstVisitor$1);

//

//

// ===== STOP - STOP - STOP - STOP - STOP - STOP =====
//

//

// ===== DO NOT EDIT THIS LIST OF SECURITY SENSITIVE PROPERTIES =====
//
// DO NOT EDIT THIS LIST OF SECURITY SENSITIVE PROPERTIES
// WITHOUT A SECURITY REVIEW!
// Reach out to mprobst for details.

//

// Map from tagName|propertyName SecurityContext. Properties applying to all tags use
'*. */
var _SECURITY_SCHEMA;
function SECURITY_SCHEMA() {
    if (!_SECURITY_SCHEMA)
    {
        _SECURITY_SCHEMA = { };
        // Case is insignificant
        below, all element and attribute names are lower-cased for lookup.
        registerContext(SecurityContext.HTML, [
            'iframe|srcdoc',
            '*|innerHTML',
            '*|outerHTML',
        ]);
        registerContext(SecurityContext.STYLE, ['*|style']);
        // NB: no
SCRIPT contexts here, they are never allowed due to the parser stripping them.
        registerContext(SecurityContext.URL, [
            '*|formAction', 'area|href', 'area|ping', 'audio|src', 'a|href',
            'a|ping', 'blockquote|cite', 'body|background', 'del|cite', 'form|action',
            'img|src', 'img|srcset', 'input|src',
            'ins|cite', 'q|cite',
            'source|src', 'source|srcset', 'track|src', 'video|poster', 'video|src',
        ]);
        registerContext(SecurityContext.RESOURCE_URL, [
            'applet|code',
            'applet|codebase',
            'base|href',
            'embed|src',
            'frame|src',
            'head|profile',
            'html|manifest',
            'iframe|src',
            'link|href',
            'media|src',
            'object|codebase',
            'object|data',
            'script|src',
        ]);
    }
    return _SECURITY_SCHEMA;
}
function registerContext(ctx, specs) {
    var
e_1, _a;
    try {
        for (var specs_1 = __values(specs), specs_1_1 = specs_1.next(); !specs_1_1.done;

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specs_1_1 = specs_1.next()) {\n      var spec = specs_1_1.value;\n    _SECURITY_SCHEMA[spec.toLowerCase()] = ctx;\n  }\n} catch (e_1_1) { e_1 = { error: e_1_1\n}; }\nfinally {\n  try {\n    if (specs_1_1 && !specs_1_1.done && (_a = specs_1.return))\n_a.call(specs_1);\n  }\n  finally { if (e_1) throw e_1.error; }\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style\n license that can be found in the LICENSE file at https://angular.io/license\n */\n\nvar\nElementSchemaRegistry = /** @class */(function () {\n  function ElementSchemaRegistry() {}\n  return ElementSchemaRegistry;\n})();\n\nvar BOOLEAN = 'boolean';\nvar NUMBER = 'number';\nvar STRING = 'string';\nvar OBJECT = 'object';\n\n/**\n * This array represents the DOM schema. It encodes inheritance,\n properties, and events.\n *\n * ## Overview\n *\n * Each line represents one kind of element. The `element_inheritance`\n and properties are joined using `element_inheritance|properties` syntax.\n *\n * ## Element Inheritance\n *\n * The `element_inheritance` can be further subdivided as `element1,element2,...^parentElement`. Here the individual elements are separated by `,` (commas).\n Every element in the list has identical properties.\n *\n * An `element` may inherit additional properties from `parentElement`. If no `^parentElement` is specified then `""` (blank)\n element is assumed.\n *\n * NOTE: The blank element inherits from root `[Element]` element, the super element of all elements.\n *\n * NOTE an element prefix such as `svg:` has no special meaning to the schema.\n *\n * ## Properties\n *\n * Each element has a set of properties separated by `,` (commas). Each property can be prefixed by a special character designating its type:\n *\n * - (no prefix): property is a string.\n * - `*`: property represents an event.\n * - `!`: property is a boolean.\n * - `#`: property is a number.\n * - `%`: property is an object.\n *\n * ## Query\n *\n * The class creates an internal squas representation which allows to easily answer the query of\n if\n a given property exist on a given element.\n *\n * NOTE: We don't yet support querying for types or events.\n *\n * NOTE: This schema is auto extracted from `schema_extractor.ts` located in the test folder,\n see dom_element_schema_registry_spec.ts\n //\n\n=====\n//\n\n=====\n\n===== STOP - STOP - STOP - STOP - STOP - STOP =====\n\n//\n\n=====\n\n===== DO NOT EDIT THIS DOM SCHEMA WITHOUT A SECURITY REVIEW!\n\n// Newly added properties must be security reviewed and assigned an appropriate SecurityContext\nin\n// dom_security_schema.ts. Reach out to mprobst & rjamet for details.\n\n//\n\n=====\n\nvar SCHEMA = [\n  [Element]|textContent,%classList,className,id,innerHTML,*beforecopy,*beforecut,*beforepaste,*copy,*cut,*paste,*search,*selectstart,*webkitfullscreenchange,*webkitfullscreenerror,*wheel,outerHTML,#scrollLeft,#scrollTop,sloot' +\n    /* added manually to avoid breaking changes */\n  ,*message,*mozfullscreenchange,*mozfullscreenerror,*mozpointerlockchange,*mozpointerlockerror,*webglcontextcreationerror,*webglcontextlost,*webglcontextrestored',\n  [HTMLElement]^([Element])accessKey,contentEditable,dir,!draggable,!hidden,intertext,lang,*abort,*auxclick,*blurr,*cancel,*canplay,*canplaythrough,*change,*click,*close,*contextmenu,*cuechange,*dblclick,*drag,*dragend,*dragager,*dragleave,*dragover,*dragstart,*drop,*durationchange,*emptied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadeddata,*loadedmetadata,*loadstart,*lostpointercapture,*mo
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usedown,*mouseenter,*mouseleave,*mousemove,*mouseout,*mouseover,*mouseup,*mousewheel,*pause,*play,*p
 laying,*pointercancel,*pointerdown,*pointerenter,*pointerleave,*pointermove,*pointerout,*pointerover,*pointerup,
 *progress,*ratechange,*reset,*resize,*scroll,*seeked,*seeking,*select,*show,*stalled,*submit,*suspend,*timeupdat
 e,*toggle,*volumechange,*waiting,outerText,!spellcheck,%style,#tabIndex,title,!translate',\n
 'abbr,address,article,aside,b,bdi,bdo,cite,code,dd,dfn,dt,em,figcaption,figure,footer,header,i,kbd,main,mark,nav,nosc
 ript,rb,rp,rt,rtc,ruby,s,samp,section,small,strong,sub,sup,u,var,wbr^[HTMLElement]]accessKey,contentEditable,dir,!
 draggable,!hidden,innerText,lang,*abort,*auxclick,*blur,*cancel,*canplay,*canplaythrough,*change,*click,*close,*
 contextmenu,*cuechange,*dblclick,*drag,*dragend,*dragenter,*dragleave,*dragover,*dragstart,*drop,*durationcha
 nge,*emptied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadedd
 ata,*loadedmetadata,*loadstart,*lostpointercapture,*mousedown,*mouseenter,*mouseleave,*mousemove,*mouseou
 t,*mouseover,*mouseup,*mousewheel,*pause,*play,*playing,*pointercancel,*pointerdown,*pointerenter,*pointerle
 ave,*pointermove,*pointerout,*pointerover,*pointerup,*progress,*ratechange,*reset,*resize,*scroll,*seeked,*seekin
 g,*select,*show,*stalled,*submit,*suspend,*timeupdate,*toggle,*volumechange,*waiting,outerText,!spellcheck,%st
 yle,#tabIndex,title,!translate',\n
 'media^[HTMLElement]]!autoplay,!controls,%controlsList,%crossOrigin,#currentTime,!defaultMuted,#defaultPlayb
 ackRate,!disableRemotePlayback,!loop,!muted,*encrypted,*waitingforkey,#playbackRate,preload,src,%srcObject,#
 volume',\n
 ':svg^[HTMLElement]]*abort,*auxclick,*blur,*cancel,*canplay,*canplaythrough,*change,*click,*close,*contextm
 enu,*cuechange,*dblclick,*drag,*dragend,*dragenter,*dragleave,*dragover,*dragstart,*drop,*durationchange,*emp
 tied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadeddata,*loade
 dmetadata,*loadstart,*lostpointercapture,*mousedown,*mouseenter,*mouseleave,*mousemove,*mouseout,*mouseo
 ver,*mouseup,*mousewheel,*pause,*play,*playing,*pointercancel,*pointerdown,*pointerenter,*pointerleave,*point
 ermove,*pointerout,*pointerover,*pointerup,*progress,*ratechange,*reset,*resize,*scroll,*seeked,*seeking,*select,*
 show,*stalled,*submit,*suspend,*timeupdate,*toggle,*volumechange,*waiting,%style,#tabIndex',\n
 ':svg:graphics^:svg:|',\n ':svg:animation^:svg:|*begin,*end,*repeat',\n ':svg:geometry^:svg:|',\n
 ':svg:componentTransferFunction^:svg:|',\n ':svg:gradient^:svg:|',\n ':svg:textContent^:svg:graphics|',\n
 ':svg:textPositioning^:svg:textContent|',\n
 'a^[HTMLElement]]charset,coords,download,hash,host,hostname,href,hreflang,name,password,pathname,ping,port,
 protocol,referrerPolicy,rel,rev,search,shape,target,text,type,username',\n
 'area^[HTMLElement]]alt,coords,download,hash,host,hostname,href,!noHref,password,pathname,ping,port,protocol,
 referrerPolicy,rel,search,shape,target,username',\n 'audio^media|',\n 'br^[HTMLElement]]clear',\n
 'base^[HTMLElement]]href,target',\n
 'body^[HTMLElement]]aLink,background,bgColor,link,*beforeunload,*blur,*error,*focus,*hashchange,*languagec
 hange,*load,*message,*offline,*online,*pagehide,*pageshow,*popstate,*rejectionhandled,*resize,*scroll,*storage,*
 unhandledrejection,*unload,text,vLink',\n
 'button^[HTMLElement]]!autofocus,!disabled,formAction,formEnctype,formMethod,!formNoValidate,formTarget,n
 ame,type,value',\n 'canvas^[HTMLElement]]#height,#width',\n 'content^[HTMLElement]]select',\n
 'dl^[HTMLElement]]!compact',\n 'datalist^[HTMLElement]]',\n 'details^[HTMLElement]]!open',\n
 'dialog^[HTMLElement]]!open,returnValue',\n
 'dir^[HTMLElement]]!compact',\n 'div^[HTMLElement]]align',\n
 'embed^[HTMLElement]]align,height,name,src,type,width',\n 'fieldset^[HTMLElement]]!disabled,name',\n
 'font^[HTMLElement]]color,face,size',\n
 'form^[HTMLElement]]acceptCharset,action,autocomplete,encoding,enctype,method,name,!noValidate,target',\n
 'frame^[HTMLElement]]frameBorder,longDesc,marginHeight,marginWidth,name,!noResize,scrolling,src',\n
 'frameset^[HTMLElement]]cols,*beforeunload,*blur,*error,*focus,*hashchange,*languagechange,*load,*message,*
 offline,*online,*pagehide,*pageshow,*popstate,*rejectionhandled,*resize,*scroll,*storage,*unhandledrejection,*unl
 oad,rows',\n 'hr^[HTMLElement]]align,color,!noShade,size,width',\n 'head^[HTMLElement]]',\n
 'h1,h2,h3,h4,h5,h6^[HTMLElement]]align',\n 'html^[HTMLElement]]version',\n

'iframe^[HTMLInputElement]]align,!allowFullscreen,frameBorder,height,longDesc,marginHeight,marginWidth,name,referrerPolicy,% sandbox,scrolling,src,srcdoc,width',\n

'img^[HTMLInputElement]]align,alt,border,% crossOrigin,#height,#hspace,!isMap,longDesc,lowsrc,name,referrerPolicy,sizes,src,srcset,useMap,#vspace,#width',\n

'input^[HTMLInputElement]]accept,align,alt,autocapitalize,autocomplete,!autofocus,!checked,!defaultChecked,defaultValue,dirName,!disabled,% files,formAction,formEnctype,formMethod,!formNoValidate,formTarget,#height,!incremental,!indeterminate,max,#maxLength,min,#minLength,!multiple,name,pattern,placeholder,!readOnly,!required,selectionDirection,#selectionEnd,#selectionStart,#size,src,step,type,useMap,value,% valueAsDate,#valueAsNumber,#width',\n

'li^[HTMLInputElement]]type,#value',\n

'label^[HTMLInputElement]]htmlFor',\n

'legend^[HTMLInputElement]]align',\n

'link^[HTMLInputElement]]as,charset,% crossOrigin,!disabled,href,hreflang,integrity,media,referrerPolicy,rel,% relList,rev,% sizes,target,type',\n

'map^[HTMLInputElement]]name',\n

'marquee^[HTMLInputElement]]behavior,bgColor,direction,height,#hspace,#loop,#scrollAmount,#scrollDelay,!trueSpeed,#vspace,width',\n

'menu^[HTMLInputElement]]!compact',\n

'meta^[HTMLInputElement]]content,httpEquiv,name,scheme',\n

'meter^[HTMLInputElement]]#high,#low,#max,#min,#optimum,#value',\n

'ins,del^[HTMLInputElement]]cite,dateTime',\n

'ol^[HTMLInputElement]]!compact,!reversed,#start,type',\n

'object^[HTMLInputElement]]align,archive,border,code,codeBase,codeType,data,!declare,height,#hspace,name,standby,type,useMap,#vspace,width',\n

'optgroup^[HTMLInputElement]]!disabled,label',\n

'option^[HTMLInputElement]]!defaultSelected,!disabled,label,!selected,text,value',\n

'output^[HTMLInputElement]]defaultValue,% htmlFor,name,value',\n

'p^[HTMLInputElement]]align',\n

'param^[HTMLInputElement]]name,type,value,valueType',\n

'picture^[HTMLInputElement]]',\n

'pre^[HTMLInputElement]]#width',\n

'progress^[HTMLInputElement]]#max,#value',\n

'q,blockquote,cite^[HTMLInputElement]]',\n

'script^[HTMLInputElement]]!async,charset,% crossOrigin,!defer,event,htmlFor,integrity,src,text,type',\n

'select^[HTMLInputElement]]!autofocus,!disabled,#length,!multiple,name,!required,#selectedIndex,#size,value',\n

'shadow^[HTMLInputElement]]',\n

'slot^[HTMLInputElement]]name',\n

'source^[HTMLInputElement]]media,sizes,src,srcset,type',\n

'span^[HTMLInputElement]]',\n

'style^[HTMLInputElement]]!disabled,media,type',\n

'caption^[HTMLInputElement]]align',\n

'th,td^[HTMLInputElement]]abbr,align,axis,bgColor,ch,chOff,#colSpan,headers,height,!noWrap,#rowSpan,scope,vAlign,width',\n

'col,colgroup^[HTMLInputElement]]align,ch,chOff,#span,vAlign,width',\n

'table^[HTMLInputElement]]align,bgColor,border,% caption,cellPadding,cellSpacing,frame,rules,summary,% tFoot,% tHead,width',\n

'tr^[HTMLInputElement]]align,bgColor,ch,chOff,vAlign',\n

'tfoot,thead,tbody^[HTMLInputElement]]align,ch,chOff,vAlign',\n

'template^[HTMLInputElement]]',\n

'textarea^[HTMLInputElement]]autocapitalize,!autofocus,#cols,defaultValue,dirName,!disabled,#maxLength,#minLength,name,placeholder,!readOnly,!required,#rows,selectionDirection,#selectionEnd,#selectionStart,value,wrap',\n

'title^[HTMLInputElement]]text',\n

'track^[HTMLInputElement]]!default,kind,label,src,srclang',\n

'ul^[HTMLInputElement]]!compact,type',\n

'unknown^[HTMLInputElement]]',\n

'video^media/#height,poster,#width',\n

':svg:a^:svg:graphics',\n

':svg:animate^:svg:animation',\n

':svg:animateMotion^:svg:animation',\n

':svg:animateTransform^:svg:animation',\n

':svg:circle^:svg:geometry',\n

':svg:clipPath^:svg:graphics',\n

':svg:defs^:svg:graphics',\n

':svg:desc^:svg:',\n

':svg:discard^:svg:',\n

':svg:ellipse^:svg:geometry',\n

':svg:feBlend^:svg:',\n

':svg:feColorMatrix^:svg:',\n

':svg:feComponentTransfer^:svg:',\n

':svg:feComposite^:svg:',\n

':svg:feConvolveMatrix^:svg:',\n

':svg:feDiffuseLighting^:svg:',\n

':svg:feDisplacementMap^:svg:',\n

':svg:feDistantLight^:svg:',\n

':svg:feDropShadow^:svg:',\n

':svg:feFlood^:svg:',\n

':svg:feFuncA^:svg:componentTransferFunction',\n

':svg:feFuncB^:svg:componentTransferFunction',\n

':svg:feFuncG^:svg:componentTransferFunction',\n

':svg:feFuncR^:svg:componentTransferFunction',\n

':svg:feGaussianBlur^:svg:',\n

':svg:feImage^:svg:',\n

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'svg:feMerge^:svg:|',\n    'svg:feMergeNode^:svg:|',\n    'svg:feMorphology^:svg:|',\n
'svg:feOffset^:svg:|',\n    'svg:fePointLight^:svg:|',\n    'svg:feSpecularLighting^:svg:|',\n
'svg:feSpotLight^:svg:|',\n    'svg:feTile^:svg:|',\n    'svg:feTurbulence^:svg:|',\n    'svg:filter^:svg:|',\n
'svg:foreignObject^:svg:graphics|',\n    'svg:g^:svg:graphics|',\n    'svg:image^:svg:graphics|',\n
'svg:line^:svg:geometry|',\n    'svg:linearGradient^:svg:gradient|',\n
    'svg:mpath^:svg:|',\n    'svg:marker^:svg:|',\n    'svg:mask^:svg:|',\n    'svg:metadata^:svg:|',\n
'svg:path^:svg:geometry|',\n    'svg:pattern^:svg:|',\n    'svg:polygon^:svg:geometry|',\n
'svg:polyline^:svg:geometry|',\n    'svg:radialGradient^:svg:gradient|',\n    'svg:rect^:svg:geometry|',\n
'svg:svg^:svg:graphics|#currentScale,#zoomAndPan',\n    'svg:script^:svg:type|',\n
'svg:set^:svg:animation|',\n    'svg:stop^:svg:|',\n    'svg:style^:svg:|!disabled,media,title,type|',\n
'svg:switch^:svg:graphics|',\n    'svg:symbol^:svg:|',\n    'svg:tspan^:svg:textPositioning|',\n
'svg:text^:svg:textPositioning|',\n    'svg:textPath^:svg:textContent|',\n    'svg:title^:svg:|',\n
'svg:use^:svg:graphics|',\n    'svg:view^:svg:|#zoomAndPan|',\n    'data^[HTMLElement]|value|',\n
'keygen^[HTMLElement]!|autofocus,challenge,!disabled,form,keytype,name|',\n
    'menuitem^[HTMLElement]|type,label,icon,!disabled,!checked,radiogroup,!default|',\n
'summary^[HTMLElement]|',\n    'time^[HTMLElement]|dateTime|',\n    'svg:cursor^:svg:|',\n ];\n var
_ATTR_TO_PROP = {\n    'class': 'className',\n    'for': 'htmlFor',\n    'formaction': 'formAction',\n
    'innerHTML': 'innerHTML',\n    'readonly': 'readOnly',\n    'tabindex': 'tabIndex',\n };
var
DomElementSchemaRegistry = /** @class */ (function (_super) {\n    __extends(DomElementSchemaRegistry,
    _super);\n    function DomElementSchemaRegistry() {\n        var _this = _super.call(this) || this;\n
        _this._schema = {};\n        SCHEMA.forEach(function (encodedType) {\n            var type = {};\n            var
            _a = __read(encodedType.split('|'), 2), strType = _a[0], strProperties = _a[1];\n            var properties =
            strProperties.split(';');\n            var _b = __read(strType.split('^'),
            2), typeNames = _b[0], superName = _b[1];\n            typeNames.split(',').forEach(function (tag) { return
            _this._schema[tag.toLowerCase()] = type; });\n            var superType = superName &&
            _this._schema[superName.toLowerCase()];\n            if (superType) {\n
            Object.keys(superType).forEach(function (prop) {\n                type[prop] = superType[prop];\n
            });\n            }\n            properties.forEach(function (property) {\n                if (property.length > 0) {\n
            switch (property[0]) {\n                case '*':\n                    // We don't yet support events.\n
                    // If ever allowing to bind to events, GO THROUGH A SECURITY REVIEW, allowing events\n
                    // will\n                    // almost certainly introduce bad XSS vulnerabilities.\n
                    type[property.substring(1)]
                    = EVENT;\n                    break;\n                    case '!':\n                        type[property.substring(1)]
                        = BOOLEAN;\n                        break;\n                    case '#':\n                        type[property.substring(1)] = NUMBER;\n
                        break;\n                    case '%':\n                        type[property.substring(1)] = OBJECT;\n
                        break;\n                    default:\n                        type[property] = STRING;\n
                        }\n                }\n                });\n                return _this;\n
            }\n            DomElementSchemaRegistry.prototype.hasProperty = function (tagName, propName, schemaMetas) {\n
            if (schemaMetas.some(function (schema) { return schema.name === NO_ERRORS_SCHEMA.name; })) {\n
            return true;\n            }\n            if (tagName.indexOf('-') > -1) {\n                if (isNgContainer(tagName) || isNgContent(tagName)) {\n
            return false;\n            }\n            if (schemaMetas.some(function (schema) { return schema.name ===
            CUSTOM_ELEMENTS_SCHEMA.name; })) {\n                // Can't tell now as we don't know which properties a
            custom element will get\n                // once it is instantiated\n                return true;\n            }\n            }\n            var elementProperties = this._schema[tagName.toLowerCase()] || this._schema['unknown'];\n            return
            !!elementProperties[propName];\n            }\n            DomElementSchemaRegistry.prototype.hasElement = function
            (tagName, schemaMetas) {\n                if (schemaMetas.some(function (schema) { return schema.name ===
            NO_ERRORS_SCHEMA.name; })) {\n                    return true;\n                }\n                if (tagName.indexOf('-') > -1) {\n

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        if (isNgContainer(tagName) || isNgContent(tagName))
    {\n        return true;\n    }\n    if (schemaMetas.some(function (schema) { return schema.name
=== CUSTOM_ELEMENTS_SCHEMA.name; })) {\n        // Allow any custom elements\n
return true;\n    }\n    }\n    return !!this._schema[tagName.toLowerCase()];\n    };\n    /**\n    * securityContext returns the security context for the given property on the given DOM tag.\n    * Tag and property name are statically known and cannot change at runtime, i.e. it is not\n    * possible to bind a value into a changing attribute or tag name.\n    * The filtering is based on a list of allowed tags/attributes. All attributes in the schema\n    * above are assumed to have the 'NONE' security context, i.e. that they are safe
inert\n    * string values. Only specific well known attack vectors are assigned their appropriate context.\n
    */\n    DomElementSchemaRegistry.prototype.securityContext = function (tagName, propName, isAttribute)
{\n        if (isAttribute) {\n            // NB: For security purposes, use the mapped property name, not the attribute
name.\n            propName = this.getMappedPropName(propName);\n        }\n        // Make sure comparisons
are case insensitive, so that case differences between attribute and\n        // property names do not have a security
impact.\n        tagName = tagName.toLowerCase();\n        propName = propName.toLowerCase();\n        var
ctx = SECURITY_SCHEMA()[tagName + '|' + propName];\n        if (ctx) {\n            return ctx;\n        }\n
        ctx = SECURITY_SCHEMA()['*' + propName];\n        return ctx ? ctx : SecurityContext.NONE;\n    };\n
    DomElementSchemaRegistry.prototype.getMappedPropName = function (propName) {\n        return
_ATTR_TO_PROP[propName] || propName;\n    };\n
    DomElementSchemaRegistry.prototype.getDefaultComponentElementName = function () {\n        return
'ng-component';\n    };\n
    DomElementSchemaRegistry.prototype.validateProperty = function (name) {\n        if (name.toLowerCase().startsWith('on')) {\n            var msg = \"Binding to event property '\" + name + '\" is
disallowed for security reasons, '\" +\n            (\"please use (\" + name.slice(2) + \")=...\" ) +\n            (\"\\nIf
\" + name + \" is a directive input, make sure the directive is imported by the\" ) +\n            \" current
module.\";\n            return { error: true, msg: msg };\n        }\n        else {\n            return { error: false };\n
        }\n    };\n
    DomElementSchemaRegistry.prototype.validateAttribute = function (name) {\n        if
(name.toLowerCase().startsWith('on')) {\n            var msg = \"Binding to event attribute '\" + name + '\" is
disallowed for
security reasons, '\" +\n            (\"please use (\" + name.slice(2) + \")=...\" );\n            return { error: true, msg:
msg };\n        }\n        else {\n            return { error: false };\n        }\n    };\n
    DomElementSchemaRegistry.prototype.allKnownElementNames = function () {\n        return
Object.keys(this._schema);\n    };\n
    DomElementSchemaRegistry.prototype.normalizeAnimationStyleProperty = function (propName) {\n        return
dashCaseToCamelCase(propName);\n    };\n
    DomElementSchemaRegistry.prototype.normalizeAnimationStyleValue = function (camelCaseProp,
userProvidedProp, val) {\n        var unit = \"\";\n        var strVal = val.toString().trim();\n        var errorMsg =
null;\n        if (_isPixelDimensionStyle(camelCaseProp) && val !== 0 && val !== '0') {\n            if (typeof val
=== 'number') {\n                unit = 'px';\n            }\n            else {\n
                var valAndSuffixMatch = val.match(/^([+]?[\\d\\.]+([a-z]*)$/);\n                if (valAndSuffixMatch
&& valAndSuffixMatch[1].length === 0) {\n                    errorMsg = \"Please provide a CSS unit value for '\" +
userProvidedProp + \":\" + val;\n                }\n            }\n            return { error: errorMsg, value:
strVal + unit };\n        }\n        return DomElementSchemaRegistry;\n    }(ElementSchemaRegistry));\n
    function
_isPixelDimensionStyle(prop) {\n        switch (prop) {\n            case 'width':\n            case 'height':\n            case
'minWidth':\n            case 'minHeight':\n            case 'maxWidth':\n            case 'maxHeight':\n            case 'left':\n
            case 'top':\n            case 'bottom':\n            case 'right':\n            case 'fontSize':\n            case 'outlineWidth':\n
            case 'outlineOffset':\n            case 'paddingTop':\n            case 'paddingLeft':\n
            case 'paddingBottom':\n            case 'paddingRight':\n            case 'marginTop':\n            case 'marginLeft':\n
            case 'marginBottom':\n            case 'marginRight':\n            case 'borderRadius':\n            case 'borderWidth':\n
            case 'borderTopWidth':\n            case 'borderLeftWidth':\n            case 'borderRightWidth':\n            case

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'borderBottomWidth':\n      case 'textIndent':\n      return true;\n      default:\n      return false;\n    }\n  }\n\n  var BIND_NAME_REGEXP$1 = /^(?:(?:(bind-)|(let-)|(ref-#)|(on-)|(bindon-)|(@))(.*)$)/; // Group 1 = \"bind-\" \n  var KW_BIND_IDX$1 = 1;\n  // Group 2 = \"let-\" \n  var KW_LET_IDX$1 = 2;\n  // Group 3 = \"ref-#\" \n  var KW_REF_IDX$1 = 3;\n  // Group 4 = \"on-\" \n  var KW_ON_IDX$1 = 4;\n  // Group 5 = \"bindon-\" \n  var KW_BINDON_IDX$1 = 5;\n  // Group 6 = \"@\" \n\n  var KW_AT_IDX$1 = 6;\n  // Group 7 = the identifier after \"bind-\", \"let-\", \"ref-#\", \"on-\", \"bindon-\" or \"@\" \n  var IDENT_KW_IDX$1 = 7;\n  // Group 8 = identifier inside [] \n  var IDENT_BANANA_BOX_IDX$1 = 8;\n  // Group 9 = identifier inside [] \n  var IDENT_PROPERTY_IDX$1 = 9;\n  // Group 10 = identifier inside () \n  var IDENT_EVENT_IDX$1 = 10;\n\n  var TEMPLATE_ATTR_PREFIX$2 = '*';\n\n  function htmlAstToRender3Ast(htmlNodes, bindingParser) {\n    var transformer = new HtmlAstToIvyAst(bindingParser);\n    var ivyNodes = visitAll$1(transformer, htmlNodes);\n\n    // Errors might originate in either the binding parser or the html to ivy transformer\n    var allErrors = bindingParser.errors.concat(transformer.errors);\n    return {\n      nodes: ivyNodes,\n      errors: allErrors,\n      styleUrls: transformer.styleUrls,\n      styles: transformer.styles,\n      ngContentSelectors: transformer.ngContentSelectors,\n    };\n  }\n\n  var HtmlAstToIvyAst = /** @class */ (function () {\n    function HtmlAstToIvyAst(bindingParser) {\n      this.bindingParser = bindingParser;\n      this.errors = [];\n      this.styles = [];\n      this.styleUrls = [];\n      this.ngContentSelectors = [];\n      this.inI18nBlock = false;\n    }\n\n    // HTML visitor\n    HtmlAstToIvyAst.prototype.visitElement = function (element) {\n      var e_1, _a;\n      var _this = this;\n      var isI18nRootElement = isI18nRootNode(element.i18n);\n      if (isI18nRootElement) {\n        if (this.inI18nBlock) {\n          this.reportError('Cannot mark an element as translatable inside of a translatable section. Please remove the nested i18n marker.', element.sourceSpan);\n        }\n        this.inI18nBlock = true;\n      }\n      var preparedElement = prepareElement(element);\n      if (preparedElement.type === PreparedElementType.SCRIPT) {\n        return null;\n      } else if (preparedElement.type === PreparedElementType.STYLE) {\n        var contents = textContents(element);\n        if (contents !== null) {\n          this.styles.push(contents);\n        }\n        return null;\n      } else if (preparedElement.type === PreparedElementType.STYLESHEET) {\n        if (isStyleUrlResolvable(preparedElement.hrefAttr)) {\n          this.styleUrls.push(preparedElement.hrefAttr);\n        }\n        return null;\n      }\n\n      // Whether the element is a <ng-template>\n      var isTemplateElement = isNgTemplate(element.name);\n      var parsedProperties = [];\n      var boundEvents = [];\n      var variables = [];\n      var references = [];\n      var attributes = [];\n      var i18nAttrsMeta = {};\n      var templateParsedProperties = [];\n      var templateVariables = [];\n      // Whether the element has any *-attribute\n      var elementHasInlineTemplate = false;\n      try {\n        for (var _b = __values(element.attrs), _c = _b.next(); !_c.done; _c = _b.next()) {\n          var attribute = _c.value;\n          var hasBinding = false;\n          var normalizedName = normalizeAttributeName(attribute.name);\n          // `*attr` defines template bindings\n          var isTemplateBinding = false;\n          if (attribute.i18n) {\n            i18nAttrsMeta[attribute.name] = attribute.i18n;\n          }\n          if (normalizedName.startsWith(TEMPLATE_ATTR_PREFIX$2)) {\n            // *-attributes\n            if (elementHasInlineTemplate) {\n              this.reportError('Can't have multiple template bindings on one element. Use only one attribute prefixed with `*`, attribute.sourceSpan);\n            }\n            isTemplateBinding = true;\n            elementHasInlineTemplate = true;\n            var templateValue = attribute.value;\n            var templateKey = normalizedName.substring(TEMPLATE_ATTR_PREFIX$2.length);\n            var parsedVariables = [];\n            var absoluteValueOffset = attribute.valueSpan ? attribute.valueSpan.start.offset : 0;\n            // If there is no value span the attribute does not have a value, like `attr` in\n            // <div

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attr></div>`. In this case, point to one character beyond the last character of\n // the attribute
name.\n attribute.sourceSpan.start.offset + attribute.name.length;\n
this.bindingParser.parseInlineTemplateBinding(templateKey,
templateValue, attribute.sourceSpan, absoluteValueOffset, [], templateParsedProperties, parsedVariables, true /*
isIvyAst */);\n templateVariables.push.apply(templateVariables,
__spread(parsedVariables.map(function (v) { return new Variable(v.name, v.value, v.sourceSpan, v.keySpan,
v.valueSpan); }));\n }\n else {\n // Check for variables, events, property
bindings, interpolation\n hasBinding = this.parseAttribute(isTemplateElement, attribute, [],
parsedProperties, boundEvents, variables, references);\n }\n if (!hasBinding &&
!isTemplateBinding) {\n // don't include the bindings as attributes as well in the AST\n
attributes.push(this.visitAttribute(attribute));\n }\n }\n catch (e_1_1) { e_1 =
{ error: e_1_1 }; }\n finally {\n
try {\n if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n }\n finally {\n
if (e_1) throw e_1.error; }\n }\n var children = visitAll$1(preparedElement.nonBindable ?
NON_BINDABLE_VISITOR$1 : this, element.children);\n var parsedElement;\n if
(preparedElement.type === PreparedElementType.NG_CONTENT) {\n // `<ng-content>`\n if
(element.children &&\n !element.children.every(function (node) { return isEmptyTextNode(node) ||
isCommentNode(node); })) {\n this.reportError("<ng-content> element cannot have content.",
element.sourceSpan);\n }\n var selector = preparedElement.selectAttr;\n var attrs =
element.attrs.map(function (attr) { return _this.visitAttribute(attr); });\n parsedElement = new
Content(selector, attrs, element.sourceSpan, element.i18n);\n
this.ngContentSelectors.push(selector);\n }\n else if (isTemplateElement) {\n //
`<ng-template>`\n var attrs = this.extractAttributes(element.name, parsedProperties, i18nAttrsMeta);\n
parsedElement = new Template(element.name, attributes, attrs.bound, boundEvents, [ /* no template attributes
*/], children, references, variables, element.sourceSpan, element.startSourceSpan, element.endSourceSpan,
element.i18n);\n }\n else {\n var attrs = this.extractAttributes(element.name,
parsedProperties, i18nAttrsMeta);\n parsedElement = new Element(element.name, attributes, attrs.bound,
boundEvents, children, references, element.sourceSpan, element.startSourceSpan, element.endSourceSpan,
element.i18n);\n }\n if (elementHasInlineTemplate) {\n // If this node is an inline-template
(e.g. has *ngFor) then we need to create a template\n
// node that contains this node.\n // Moreover, if the node is an element, then we need to hoist its
attributes to the template\n // node for matching against content projection selectors.\n var attrs =
this.extractAttributes('ng-template', templateParsedProperties, i18nAttrsMeta);\n var templateAttrs_1 =
[];\n attrs.literal.forEach(function (attr) { return templateAttrs_1.push(attr); });\n
attrs.bound.forEach(function (attr) { return templateAttrs_1.push(attr); });\n var hoistedAttrs =
parsedElement instanceof Element ?\n {\n attributes: parsedElement.attributes,\n
inputs: parsedElement.inputs,\n outputs: parsedElement.outputs,\n }\n :\n {\n
attributes: [], inputs: [], outputs: [] };\n // For <ng-template>s with structural directives
on them, avoid passing i18n information to\n // the wrapping template to prevent unnecessary i18n
instructions from being generated. The\n // necessary i18n meta information will be extracted from child
elements.\n var i18n = isTemplateElement && isI18nRootElement ? undefined : element.i18n;\n
// TODO(pk): test for this case\n parsedElement = new Template(parsedElement.name,
hoistedAttrs.attributes, hoistedAttrs.inputs, hoistedAttrs.outputs, templateAttrs_1, [parsedElement], [ /* no
references */], templateVariables, element.sourceSpan, element.startSourceSpan, element.endSourceSpan, i18n);\n
}\n if (isI18nRootElement) {\n this.inI18nBlock = false;\n }\n return
parsedElement;\n }\n HtmlAstToIvyAst.prototype.visitAttribute = function (attribute) {\n return
new TextAttribute(attribute.name, attribute.value, attribute.sourceSpan,

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attribute.valueSpan, attribute.i18n);
};
HtmlAstToIvyAst.prototype.visitText = function (text) {
return this._visitTextWithInterpolation(text.value, text.sourceSpan, text.i18n);
};
HtmlAstToIvyAst.prototype.visitExpansion = function (expansion) {
var _this = this;
if (!expansion.i18n) {
// do not generate Icu in case it was created // outside of i18n block in a
template
return null;
}
if (!isI18nRootNode(expansion.i18n)) {
throw new
Error("Invalid type '" + expansion.i18n.constructor + "' for '" + expansion.i18n + "' property of '" +
expansion.sourceSpan.toString() + "'. Expected a 'Message'");
}
var message =
expansion.i18n;
var vars = {};
var placeholders = {};
// extract VARs from ICUs - we
process them separately while // assembling
resulting message via goog.getMsg function, since // we need to pass them to top-level goog.getMsg call
Object.keys(message.placeholders).forEach(function (key) {
var value =
message.placeholders[key];
if (key.startsWith(I18N_ICU_VAR_PREFIX)) {
// Currently
when the `plural` or `select` keywords in an ICU contain trailing spaces (e.g. // `{count, select , ...}`),
these spaces are also included into the key names in ICU vars // (e.g. `VAR_SELECT `). These
trailing spaces are not desirable, since they will later be // converted into `_` symbols while
normalizing placeholder names, which might lead to // mismatches at runtime (i.e. placeholder will not
be replaced with the correct value).
var formattedKey = key.trim();
var ast =
_this.bindingParser.parseInterpolationExpression(value.text,
value.sourceSpan);
vars[formattedKey] = new BoundText(ast, value.sourceSpan);
}
else {
placeholders[key] = _this._visitTextWithInterpolation(value.text, value.sourceSpan);
}
});
return new Icu(vars, placeholders, expansion.sourceSpan, message);
};
HtmlAstToIvyAst.prototype.visitExpansionCase = function (expansionCase) {
return null;
};
HtmlAstToIvyAst.prototype.visitComment = function (comment) {
return null;
};
// convert
view engine `ParsedProperty` to a format suitable for IVY
HtmlAstToIvyAst.prototype.extractAttributes =
function (elementName, properties, i18nPropsMeta) {
var _this = this;
var bound = [];
var var
literal = [];
properties.forEach(function (prop) {
var i18n = i18nPropsMeta[prop.name];
if (prop.isLiteral) {
literal.push(new TextAttribute(prop.name, prop.expression.source || ",
prop.sourceSpan, undefined, i18n));
}
else {
// Note that validation is skipped
and property mapping is disabled // due to the fact that we need to make sure a given prop is not an
// input of a directive and directive matching happens at runtime.
var bep =
_this.bindingParser.createBoundElementProperty(elementName, prop, /* skipValidation */ true, /*
mapPropertyName */ false);
bound.push(BoundAttribute.fromBoundElementProperty(bep, i18n));
}
});
return { bound: bound, literal: literal };
};
HtmlAstToIvyAst.prototype.parseAttribute = function (isTemplateElement, attribute, matchableAttributes,
parsedProperties, boundEvents, variables, references) {
var
name = normalizeAttributeName(attribute.name);
var value = attribute.value;
var srcSpan =
attribute.sourceSpan;
var absoluteOffset = attribute.valueSpan ? attribute.valueSpan.start.offset :
srcSpan.start.offset;
function createKeySpan(srcSpan, prefix, identifier) {
// We need to adjust
the start location for the keySpan to account for the removed 'data-' // prefix from
`normalizeAttributeName`.
var normalizationAdjustment = attribute.name.length - name.length;
var keySpanStart = srcSpan.start.moveBy(prefix.length + normalizationAdjustment);
var keySpanEnd
= keySpanStart.moveBy(identifier.length);
return new ParseSourceSpan(keySpanStart, keySpanEnd,
keySpanStart, identifier);
}
var bindParts = name.match(BIND_NAME_REGEXP);
var var
hasBinding = false;
if (bindParts) {
hasBinding
= true;
if (bindParts[KW_BIND_IDX$1] != null) {
var identifier =
bindParts[IDENT_KW_IDX$1];
var keySpan = createKeySpan(srcSpan,
bindParts[KW_BIND_IDX$1], identifier);
this.bindingParser.parsePropertyBinding(identifier, value,
false, srcSpan, absoluteOffset, attribute.valueSpan, matchableAttributes, parsedProperties, keySpan);
}
}
}

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        else if (bindParts[KW_LET_IDX$1]) {\n
            identifier = bindParts[IDENT_KW_IDX$1];\n
            bindParts[KW_LET_IDX$1], identifier);\n
            attribute.valueSpan, variables);\n
            }\n
            only supported on ng-template elements.\", srcSpan);\n
        }\n
        }\n
        else if (bindParts[KW_REF_IDX$1]) {\n
            var identifier =\n
            bindParts[IDENT_KW_IDX$1];\n
            this.parseReference(identifier, value, srcSpan, attribute.valueSpan,\n
            references);\n
            }\n
            else if (bindParts[KW_ON_IDX$1]) {\n
                var events = [];\n
                var identifier = bindParts[IDENT_KW_IDX$1];\n
                this.bindingParser.parseEvent(identifier, value,\n
                srcSpan, attribute.valueSpan || srcSpan, matchableAttributes, events);\n
                addEvents(events,\n
                boundEvents);\n
            }\n
            else if (bindParts[KW_BINDON_IDX$1]) {\n
                var identifier =\n
                bindParts[IDENT_KW_IDX$1];\n
                var keySpan = createKeySpan(srcSpan,\n
                bindParts[KW_BINDON_IDX$1], identifier);\n
                this.bindingParser.parsePropertyBinding(identifier,\n
                value, false, srcSpan, absoluteOffset, attribute.valueSpan, matchableAttributes,\n
                parsedProperties, keySpan);\n
                this.parseAssignmentEvent(identifier, value, srcSpan,\n
                attribute.valueSpan, matchableAttributes, boundEvents);\n
            }\n
            else if\n
            (bindParts[KW_AT_IDX$1]) {\n
                var keySpan = createKeySpan(srcSpan, \", name);\n
                this.bindingParser.parseLiteralAttr(name, value, srcSpan, absoluteOffset, attribute.valueSpan, matchableAttributes,\n
                parsedProperties, keySpan);\n
            }\n
            else if (bindParts[IDENT_BANANA_BOX_IDX$1]) {\n
                var keySpan = createKeySpan(srcSpan, '(', bindParts[IDENT_BANANA_BOX_IDX$1]);\n
                this.bindingParser.parsePropertyBinding(bindParts[IDENT_BANANA_BOX_IDX$1], value, false, srcSpan,\n
                absoluteOffset, attribute.valueSpan, matchableAttributes, parsedProperties, keySpan);\n
                this.parseAssignmentEvent(bindParts[IDENT_BANANA_BOX_IDX$1], value, srcSpan, attribute.valueSpan,\n
                matchableAttributes, boundEvents);\n
            }\n
            else if (bindParts[IDENT_PROPERTY_IDX$1]) {\n
                var keySpan =\n
                createKeySpan(srcSpan, '[', bindParts[IDENT_PROPERTY_IDX$1]);\n
                this.bindingParser.parsePropertyBinding(bindParts[IDENT_PROPERTY_IDX$1], value, false, srcSpan,\n
                absoluteOffset, attribute.valueSpan, matchableAttributes, parsedProperties, keySpan);\n
            }\n
            else\n
            if (bindParts[IDENT_EVENT_IDX$1]) {\n
                var events = [];\n
                this.bindingParser.parseEvent(bindParts[IDENT_EVENT_IDX$1], value, srcSpan, attribute.valueSpan || srcSpan,\n
                matchableAttributes, events);\n
                addEvents(events, boundEvents);\n
            }\n
            }\n
            else\n
            {\n
                var keySpan = createKeySpan(srcSpan, \"/* prefix */, name);\n
                hasBinding =\n
                this.bindingParser.parsePropertyInterpolation(name, value, srcSpan, attribute.valueSpan, matchableAttributes,\n
                parsedProperties,\n
                keySpan);\n
            }\n
            return hasBinding;\n
        };\n
        HtmlAstToIvyAst.prototype._visitTextWithInterpolation = function (value, sourceSpan, i18n) {\n
            var\n
            valueNoNgsp = replaceNgsp(value);\n
            var expr = this.bindingParser.parseInterpolation(valueNoNgsp,\n
            sourceSpan);\n
            return expr ? new BoundText(expr, sourceSpan, i18n) : new Text(valueNoNgsp,\n
            sourceSpan);\n
        };\n
        HtmlAstToIvyAst.prototype.parseVariable = function (identifier, value, sourceSpan,\n
        keySpan, valueSpan, variables) {\n
            if (identifier.indexOf('.') > -1) {\n
                this.reportError(\"\"\"-\"\"\" is\n
                not allowed in variable names\", sourceSpan);\n
            }\n
            else if (identifier.length === 0) {\n
                this.reportError(\"\"Variable does not have a name\", sourceSpan);\n
            }\n
            variables.push(new\n
            Variable(identifier, value, sourceSpan, keySpan, valueSpan));\n
        };\n
        HtmlAstToIvyAst.prototype.parseReference\n
        = function (identifier, value, sourceSpan, valueSpan, references) {\n
            if (identifier.indexOf('.') > -1) {\n
                this.reportError(\"\"\"-\"\"\" is not allowed in reference names\", sourceSpan);\n
            }\n
            else if\n
            (identifier.length === 0) {\n
                this.reportError(\"\"Reference does not have a name\", sourceSpan);\n
            }\n
            references.push(new Reference(identifier, value, sourceSpan, valueSpan));\n
        };\n

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HtmlAstToIvyAst.prototype.parseAssignmentEvent = function (name, expression, sourceSpan, valueSpan,
targetMatchableAttrs, boundEvents) {\n      var events = [];\n      this.bindingParser.parseEvent(name +
\"Change\", expression + \"=\"$event\", sourceSpan, valueSpan || sourceSpan, targetMatchableAttrs, events);\n
addEvents(events, boundEvents);\n    };\n    HtmlAstToIvyAst.prototype.reportError = function (message,
sourceSpan, level) {\n      if (level === void
0) { level = exports.ParseErrorLevel.ERROR; }\n      this.errors.push(new ParseError(sourceSpan, message,
level));\n    };\n    return HtmlAstToIvyAst;\n  }());\n  var NonBindableVisitor$1 = /** @class */ (function ()
{\n    function NonBindableVisitor() {\n    }\n    NonBindableVisitor.prototype.visitElement = function (ast)
{\n      var preparedElement = prepareElement(ast);\n      if (preparedElement.type ===
PreparedElementType.SCRIPT ||\n      preparedElement.type === PreparedElementType.STYLE ||\n      preparedElement.type === PreparedElementType.STYLESHEET) {\n        // Skipping <script> for security
reasons\n        // Skipping <style> and stylesheets as we already processed them\n        // in the
StyleCompiler\n        return null;\n      }\n      var children = visitAll$1(this, ast.children, null);\n
return new Element(ast.name, visitAll$1(this, ast.attrs),
\n      /* inputs */ [], /* outputs */ [], children, /* references */ [], ast.sourceSpan, ast.startSourceSpan,
ast.endSourceSpan);\n    };\n    NonBindableVisitor.prototype.visitComment = function (comment) {\n
return null;\n    };\n    NonBindableVisitor.prototype.visitAttribute = function (attribute) {\n      return new
TextAttribute(attribute.name, attribute.value, attribute.sourceSpan, undefined, attribute.i18n);\n    };\n
NonBindableVisitor.prototype.visitText = function (text) {\n      return new Text(text.value, text.sourceSpan);\n
    };\n    NonBindableVisitor.prototype.visitExpansion = function (expansion) {\n      return null;\n    };\n
NonBindableVisitor.prototype.visitExpansionCase = function (expansionCase) {\n      return null;\n    };\n
return NonBindableVisitor;\n  }());\n  var NON_BINDABLE_VISITOR$1 = new NonBindableVisitor$1();\n
function normalizeAttributeName(attrName)
{\n    return /^data-/.test(attrName) ? attrName.substring(5) : attrName;\n  }\n  function addEvents(events,
boundEvents) {\n    boundEvents.push.apply(boundEvents, __spread(events.map(function (e) { return
BoundEvent.fromParsedEvent(e); }));\n  }\n  function isEmptyTextNode(node) {\n    return node instanceof
Text$3 && node.value.trim().length == 0;\n  }\n  function isCommentNode(node) {\n    return node instanceof
Comment;\n  }\n  function textContents(node) {\n    if (node.children.length !== 1 || !(node.children[0]
instanceof Text$3)) {\n      return null;\n    }\n    else {\n      return node.children[0].value;\n    }\n
}\n\n  var TagType;\n  (function (TagType) {\n    TagType[TagType[\"ELEMENT\"] = 0] = \"ELEMENT\";\n
    TagType[TagType[\"TEMPLATE\"] = 1] = \"TEMPLATE\";\n  })(TagType || (TagType = {}));\n  /**\n   *
Generates an object that is used as a shared state between parent
and all child contexts.\n   */\n  function setupRegistry() {\n    return { getUniqueId: getSeqNumberGenerator(),
icus: new Map() };\n  }\n  /**\n   * I18nContext is a helper class which keeps track of all i18n-related aspects\n
* (accumulates placeholders, bindings, etc) between i18nStart and i18nEnd instructions.\n   */\n   * When we enter
a nested template, the top-level context is being passed down\n   * to the nested component, which uses this context
to generate a child instance\n   * of I18nContext class (to handle nested template) and at the end, reconciles it
back\n   * with the parent context.\n   */\n   * @param index Instruction index of i18nStart, which initiates this
context\n   * @param ref Reference to a translation const that represents the content if thus context\n   * @param
level Nestng level defined for child contexts\n   * @param templateIndex Instruction index of a template which
this context belongs to\n   * @param meta Meta
information (id, meaning, description, etc) associated with this context\n   */\n  var I18nContext = /** @class */
(function () {\n    function I18nContext(index, ref, level, templateIndex, meta, registry) {\n      if (level ===
void 0) { level = 0; }\n      if (templateIndex === void 0) { templateIndex = null; }\n      this.index = index;\n
      this.ref = ref;\n      this.level = level;\n      this.templateIndex = templateIndex;\n      this.meta =
meta;\n      this.registry = registry;\n      this.bindings = new Set();\n      this.placeholders = new Map();\n
      this.isEmitted = false;\n      this._unresolvedCtxCount = 0;\n      this._registry = registry ||
      setupRegistry();\n      this.id = this._registry.getUniqueId();\n    }\n    I18nContext.prototype.appendTag =

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function (type, node, index, closed) {\n      if (node.isVoid && closed) {\n          return; // ignore \"close\"\n      }\n      for void tags\n      }\n      var ph = node.isVoid || !closed ? node.startName : node.closeName;\n      var\n      content = { type: type, index: index, ctx: this.id, isVoid: node.isVoid, closed: closed };\n      updatePlaceholderMap(this.placeholders, ph, content);\n      }\n      Object.defineProperty(I18nContext.prototype,\n      \"icus\", {\n          get: function () {\n              return this._registry.icus;\n          },\n          enumerable: false,\n          configurable: true\n      });\n      Object.defineProperty(I18nContext.prototype, \"isRoot\", {\n          get:\n          function () {\n              return this.level === 0;\n          },\n          enumerable: false,\n          configurable: true\n      });\n      Object.defineProperty(I18nContext.prototype, \"isResolved\", {\n          get: function () {\n              return this._unresolvedCtxCount === 0;\n          },\n          enumerable: false,\n          configurable:\n          true\n      });\n      I18nContext.prototype.getSerializedPlaceholders = function () {\n          var result = new\n          Map();\n          this.placeholders.forEach(function (values, key) {\n              return result.set(key,\n              values.map(serializePlaceholderValue));\n          });\n          return result;\n      }\n      // public API to accumulate i18n-\n      related content\n      I18nContext.prototype.appendBinding = function (binding) {\n          this.bindings.add(binding);\n      }\n      I18nContext.prototype.appendIcu = function (name, ref) {\n          updatePlaceholderMap(this._registry.icus, name, ref);\n      }\n      I18nContext.prototype.appendBoundText =\n      function (node) {\n          var _this = this;\n          var phs = assembleBoundTextPlaceholders(node,\n          this.bindings.size, this.id);\n          phs.forEach(function (values, key) {\n              return updatePlaceholderMap.apply(void 0,\n              __spread([_this.placeholders, key], values));\n          });\n      }\n      I18nContext.prototype.appendTemplate\n      = function (node, index) {\n          // add open and close tags at the same time,\n          // since we process nested\n          templates separately\n          this.appendTag(TagType.TEMPLATE, node, index, false);\n          this.appendTag(TagType.TEMPLATE, node, index, true);\n          this._unresolvedCtxCount++;\n      }\n      I18nContext.prototype.appendElement = function (node, index, closed) {\n          this.appendTag(TagType.ELEMENT, node, index, closed);\n      }\n      I18nContext.prototype.appendProjection\n      = function (node, index) {\n          // Add open and close tags at the same time, since `<ng-content>` has no\n          content,\n          // so when we come across `<ng-content>` we can register both open and close tags.\n          //\n          Note: runtime i18n logic doesn't distinguish `<ng-content>` tag placeholders and\n          // regular element tag\n          placeholders, so we generate element placeholders for both types.\n          this.appendTag(TagType.ELEMENT,\n          node, index, false);\n          this.appendTag(TagType.ELEMENT, node, index, true);\n      }\n      /**\n      *\n      Generates an instance of a child context based on the root one,\n      * when we enter a nested template within I18n\n      section.\n      *\n      * @param index Instruction index of corresponding i18nStart, which initiates this context\n      *\n      * @param templateIndex Instruction index of a template which this context belongs to\n      *\n      * @param meta\n      Meta information (id, meaning, description, etc) associated with this context\n      *\n      * @returns\n      I18nContext instance\n      */\n      I18nContext.prototype.forkChildContext = function (index, templateIndex,\n      meta) {\n          return new I18nContext(index, this.ref, this.level + 1, templateIndex, meta, this._registry);\n      }\n      /**\n      *\n      * Reconciles child context into parent one once the end of the i18n block is reached (i18nEnd).\n      *\n      *\n      *\n      @param context Child I18nContext instance to be reconciled with parent context.\n      */\n      I18nContext.prototype.reconcileChildContext = function (context) {\n          var _this = this;\n          // set the right\n          context id for open and close\n          // template tags, so we can use it as sub-block ids\n          ['start',\n          'close'].forEach(function (op) {\n              var key = context.meta[op + \"Name\"];\n              var phs =\n              _this.placeholders.get(key) || [];\n              var tag = phs.find(findTemplateFn(_this.id, context.templateIndex));\n              if (tag) {\n                  tag.ctx = context.id;\n              }\n          });\n          // reconcile placeholders\n          var childPhs = context.placeholders;\n          childPhs.forEach(function (values, key) {\n              var phs =\n              _this.placeholders.get(key);\n              if (!phs) {\n                  _this.placeholders.set(key, values);\n              }\n              return;\n          });\n          // try to find matching template...\n          var tmplIdx =\n          phs.findIndex(findTemplateFn(context.id, context.templateIndex));\n          if (tmplIdx >= 0) {\n              // ...\n              if found - replace it with nested template content\n              var isCloseTag = key.startsWith('CLOSE');\n              var isTemplateTag = key.endsWith('NG-TEMPLATE');\n              if (isTemplateTag) {\n                  //

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current template's content is placed before or after\n
// parent template tag, depending on the
open/close attribute\n
    phs.splice.apply(phs, __spread([tmplIdx + (isCloseTag ? 0 : 1), 0], values));\n
    }\n
    else {\n
        var idx = isCloseTag ? values.length - 1 : 0;\n
        values[idx].tmpl = phs[tmplIdx];\n
        phs.splice.apply(phs, __spread([tmplIdx, 1], values));\n
        }\n
    }\n
    else {\n
        // ... otherwise just append content to placeholder value\n
        phs.push.apply(phs, __spread(values));\n
        }\n
        _this.placeholders.set(key, phs);\n
    });\n
    this._unresolvedCtxCount--;\n
    };\n
    return I18nContext;\n
    }());\n
    /\n
    // Helper methods\n
    /\n
    function wrap(symbol, index, contextId, closed) {\n
        var state = closed ? '/' : '';\n
        return
        wrapI18nPlaceholder(\"\" + state + symbol + index, contextId);\n
    }\n
    function wrapTag(symbol, _a, closed) {\n
        var index = _a.index, ctx = _a.ctx, isVoid = _a.isVoid;\n
        return isVoid ? wrap(symbol, index, ctx) +
        wrap(symbol, index, ctx, true) : wrap(symbol, index, ctx, closed);\n
    }\n
    function findTemplateFn(ctx,
    templateIndex) {\n
        return function (token) { return typeof token === 'object' && token.type ===
        TagType.TEMPLATE
        && token.index === templateIndex && token.ctx === ctx; };\n
    }\n
    function
    serializePlaceholderValue(value) {\n
        var element = function (data, closed) { return wrapTag('#', data, closed);
        };\n
        var template = function (data, closed) { return wrapTag('*', data, closed); };\n
        var projection = function
        (data, closed) { return wrapTag('!', data, closed); };\n
        switch (value.type) {\n
            case
            TagType.ELEMENT:\n
                // close element tag\n
                if (value.closed) {\n
                    return
                    element(value, true) + (value.tmpl ? template(value.tmpl, true) : '');\n
                }\n
                // open element tag that
                also initiates a template\n
                if (value.tmpl) {\n
                    return template(value.tmpl) + element(value) +\n
                    (value.isVoid ? template(value.tmpl, true) : '');\n
                }\n
                return element(value);\n
            case TagType.TEMPLATE:\n
                return template(value, value.closed);\n
            default:\n
                return value;\n
        }\n
    }\n
    /\n
    /\n
    /**\n
    * @license\n
    * Copyright Google LLC All Rights Reserved.\n
    * Use of this source code is governed by
    an MIT-style license that can be\n
    * found in the LICENSE file at https://angular.io/license\n
    */\n
    var
    IcuSerializerVisitor = /** @class */ (function () {\n
        function IcuSerializerVisitor() {\n
        }\n
        IcuSerializerVisitor.prototype.visitText = function (text) {\n
            return text.value;\n
        };\n
        IcuSerializerVisitor.prototype.visitContainer = function (container) {\n
            var _this = this;\n
            return
            container.children.map(function (child) { return child.visit(_this); }).join('');\n
        };\n
        IcuSerializerVisitor.prototype.visitIcu = function (icu) {\n
            var _this = this;\n
            var strCases =
            Object.keys(icu.cases).map(function (k) { return k + '\n
            {\n
            \"\" + icu.cases[k].visit(_this) + \"\n
            }\";\n
            });\n
            var result = \"\" + icu.expressionPlaceholder + \"\n
            {\n
            \"\" + icu.type +
            \"\n
            {\n
            \"\" + strCases.join(' ') + \"\n
            }\";\n
            return result;\n
        };\n
        IcuSerializerVisitor.prototype.visitTagPlaceholder = function (ph) {\n
            var _this = this;\n
            return
            ph.isVoid ?\n
            this.formatPh(ph.startName) :\n
            \"\" + this.formatPh(ph.startName) +
            ph.children.map(function (child) { return child.visit(_this); }).join('') + this.formatPh(ph.closeName);\n
        };\n
        IcuSerializerVisitor.prototype.visitPlaceholder = function (ph) {\n
            return this.formatPh(ph.name);\n
        };\n
        IcuSerializerVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n
            return
            this.formatPh(ph.name);\n
        };\n
        IcuSerializerVisitor.prototype.formatPh = function (value) {\n
            return
            \"\" + formatI18nPlaceholderName(value, /* useCamelCase */ false) + \"\n
            }\";\n
        };\n
        return IcuSerializerVisitor;\n
    }());\n
    var serializer = new IcuSerializerVisitor();\n
    function
    serializeIcuNode(icu) {\n
        return icu.visit(serializer);\n
    }\n
    /\n
    /\n
    /**\n
    * @license\n
    * Copyright Google
    LLC All Rights Reserved.\n
    * Use of this source code is governed by an MIT-style license that can be\n
    * found in the LICENSE file at https://angular.io/license\n
    */\n
    var TAG_TO_PLACEHOLDER_NAMES = {\n
        'A': 'LINK',\n
        'B': 'BOLD_TEXT',\n
        'BR': 'LINE_BREAK',\n
        'EM': 'EMPHASISED_TEXT',\n
        'H1': 'HEADING_LEVEL1',\n
        'H2': 'HEADING_LEVEL2',\n
        'H3': 'HEADING_LEVEL3',\n
        'H4':
        'HEADING_LEVEL4',\n
        'H5': 'HEADING_LEVEL5',\n
        'H6': 'HEADING_LEVEL6',\n
        'HR':
        'HORIZONTAL_RULE',\n
        'I': 'ITALIC_TEXT',\n
        'LI': 'LIST_ITEM',\n
        'LINK': 'MEDIA_LINK',\n

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OL: 'ORDERED_LIST',\n      'P': 'PARAGRAPH',\n      'Q': 'QUOTATION',\n      'S': 'STRIKETHROUGH_TEXT',\n      'SMALL': 'SMALL_TEXT',\n      'SUB': 'SUBSCRIPT',\n      'SUP': 'SUPERSCRIPT',\n      'TBODY': 'TABLE_BODY',\n      'TD': 'TABLE_CELL',\n      'TFOOT': 'TABLE_FOOTER',\n      'TH': 'TABLE_HEADER_CELL',\n      'THEAD': 'TABLE_HEADER',\n      'TR': 'TABLE_ROW',\n      'TT': 'MONOSPACED_TEXT',\n      'U': 'UNDERLINED_TEXT',\n      'UL': 'UNORDERED_LIST',\n    };\n    /**\n     * Creates unique names for placeholder with different content.\n     *\n     * Returns the same placeholder name when the content is identical.\n     */\n    var PlaceholderRegistry = /** @class */\n    (function () {\n        function PlaceholderRegistry() {\n            // Count the occurrence of the base name top\n            generate a unique name\n            this._placeholderNameCounts = {};\n            // Maps signature to placeholder\n            names\n            this._signatureToName = {};\n        }\n\n        PlaceholderRegistry.prototype.getStartTagPlaceholderName = function\n        (tag, attrs, isVoid) {\n            var signature = this._hashTag(tag, attrs, isVoid);\n            if\n            (this._signatureToName[signature]) {\n                return this._signatureToName[signature];\n            }\n            var\n            upperTag = tag.toUpperCase();\n            var baseName = TAG_TO_PLACEHOLDER_NAMES[upperTag] ||\n            \"TAG_\" + upperTag;\n            var name = this._generateUniqueName(isVoid ? baseName : \"START_\" +\n            baseName);\n            this._signatureToName[signature] = name;\n            return name;\n        }\n\n        PlaceholderRegistry.prototype.getCloseTagPlaceholderName = function (tag) {\n            var signature =\n            this._hashClosingTag(tag);\n            if (this._signatureToName[signature]) {\n                return\n            this._signatureToName[signature];\n            }\n            var upperTag = tag.toUpperCase();\n            var baseName =\n            TAG_TO_PLACEHOLDER_NAMES[upperTag] || \"TAG_\" + upperTag;\n            var name =\n            this._generateUniqueName(\"CLOSE_\" + baseName);\n            this._signatureToName[signature] = name;\n            return name;\n        }\n\n        PlaceholderRegistry.prototype.getPlaceholderName = function (name, content) {\n            var upperName =\n            name.toUpperCase();\n            var signature = \"PH: \" + upperName + \"=\" + content;\n            if\n            (this._signatureToName[signature]) {\n                return this._signatureToName[signature];\n            }\n            var\n            uniqueName = this._generateUniqueName(upperName);\n            this._signatureToName[signature] =\n            uniqueName;\n            return uniqueName;\n        }\n\n        PlaceholderRegistry.prototype.getUniquePlaceholder =\n        function (name) {\n            return this._generateUniqueName(name.toUpperCase());\n        }\n\n        // Generate a\n        hash for a tag - does not take attribute order into account\n        PlaceholderRegistry.prototype._hashTag = function\n        (tag, attrs, isVoid) {\n            var start = \"<\" + tag;\n            var strAttrs = Object.keys(attrs).sort().map(function\n            (name) {\n                return \" \" + name + \"=\" + attrs[name];\n            }).join(\"\");\n            var end = isVoid ? '>': '>\" + tag +\n            \">\";\n            return start + strAttrs + end;\n        }\n\n        PlaceholderRegistry.prototype._hashClosingTag =\n        function (tag) {\n            return this._hashTag(\"/\" + tag, {}, false);\n        }\n\n        PlaceholderRegistry.prototype._generateUniqueName = function (base) {\n            var seen =\n            this._placeholderNameCounts.hasOwnProperty(base);\n            if (!seen) {\n                return base;\n            }\n            var id =\n            this._placeholderNameCounts[base];\n            this._placeholderNameCounts[base] = id + 1;\n            return base +\n            \"_\" + id;\n        }\n\n        return PlaceholderRegistry;\n    })();\n\n    /**\n     * @license\n     * Copyright Google\n     LLC All Rights Reserved.\n     *\n     * Use of this source code is governed by an MIT-style license\n     that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    var _expParser = new\n    Parser$1(new Lexer());\n\n    /**\n     * Returns a function converting html nodes to an i18n Message given an\n     interpolationConfig\n     */\n    function createI18nMessageFactory(interpolationConfig) {\n        var visitor = new\n        _I18nVisitor(_expParser, interpolationConfig);\n        return function (nodes, meaning, description, customId,\n        visitNodeFn) {\n            return visitor.toI18nMessage(nodes, meaning, description, customId, visitNodeFn);\n        }\n    }\n\n    function noopVisitNodeFn(_html, i18n) {\n        return i18n;\n    }\n\n    var _I18nVisitor = /** @class */\n    (function () {\n        function _I18nVisitor(_expressionParser, _interpolationConfig) {\n            this._expressionParser =\n            _expressionParser;\n            this._interpolationConfig = _interpolationConfig;\n        }\n\n        _I18nVisitor.prototype.toI18nMessage = function (nodes, meaning, description, customId, visitNodeFn)\n
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{\n      if (meaning === void 0) { meaning = ""; }\n      if (description === void 0) { description = ""; }\n      if (customId === void 0) { customId = ""; }\n      var context = {\n        isIcu: nodes.length === 1 &&\n        nodes[0] instanceof Expansion,\n        icuDepth: 0,\n        placeholderRegistry: new\n        PlaceholderRegistry(),\n        placeholderToContent: {},\n        placeholderToMessage: {},\n        visitNodeFn: visitNodeFn || noopVisitNodeFn,\n      };\n      var i18nodes = visitAll$1(this, nodes, context);\n      return new Message(i18nodes, context.placeholderToContent, context.placeholderToMessage, meaning,\n        description, customId);\n    };\n    _I18nVisitor.prototype.visitElement = function (el, context) {\n      var\n      _a;\n      var children = visitAll$1(this, el.children, context);\n      var attrs = {};\n      el.attrs.forEach(function (attr) {\n        // Do not visit the attributes, translatable ones are top-level ASTs\n        attrs[attr.name] = attr.value;\n      });\n      var isVoid = getHtmlTagDefinition(el.name).isVoid;\n      var startPhName =\n        context.placeholderRegistry.getStartTagPlaceholderName(el.name, attrs, isVoid);\n      context.placeholderToContent[startPhName] = {\n        text: el.startSourceSpan.toString(),\n        sourceSpan: el.startSourceSpan,\n      };\n      var closePhName = ";\n      if (!isVoid) {\n        closePhName = context.placeholderRegistry.getEndTagPlaceholderName(el.name);\n        context.placeholderToContent[closePhName] = {\n          text: "<" + el.name + ">",\n          sourceSpan: (_a = el.endSourceSpan) !== null && _a !== void 0 ? _a : el.sourceSpan,\n        };\n      }\n      var node = new TagPlaceholder(el.name, attrs, startPhName, closePhName, children,\n        isVoid, el.sourceSpan, el.startSourceSpan, el.endSourceSpan);\n      return context.visitNodeFn(el, node);\n    };\n    _I18nVisitor.prototype.visitAttribute = function (attribute, context) {\n      var node =\n        this._visitTextWithInterpolation(attribute.value, attribute.sourceSpan, context);\n      return\n        context.visitNodeFn(attribute, node);\n    };\n    _I18nVisitor.prototype.visitText = function (text, context) {\n      var node = this._visitTextWithInterpolation(text.value, text.sourceSpan, context);\n      return\n        context.visitNodeFn(text, node);\n    };\n    _I18nVisitor.prototype.visitComment = function (comment,\n      context) {\n      return null;\n    };\n    _I18nVisitor.prototype.visitExpansion = function (icu, context) {\n      var _this = this;\n      context.icuDepth++;\n      var i18nIcuCases = {};\n      var i18nIcu = new\n        Icu$1(icu.switchValue, icu.type, i18nIcuCases, icu.sourceSpan);\n      icu.cases.forEach(function (caze) {\n        i18nIcuCases[caze.value] = new\n        Container(caze.expression.map(function (node) { return node.visit(_this, context); }), caze.expSourceSpan);\n      });\n      context.icuDepth--;\n      if (context.isIcu || context.icuDepth > 0) {\n        // Returns an ICU\n        node when:\n          // - the message (vs a part of the message) is an ICU message, or\n          // - the ICU\n        message is nested.\n        var expPh = context.placeholderRegistry.getUniquePlaceholder("VAR_" +\n        icu.type);\n        i18nIcu.expressionPlaceholder = expPh;\n        context.placeholderToContent[expPh] =\n        {\n          text: icu.switchValue,\n          sourceSpan: icu.switchValueSourceSpan,\n        };\n        return context.visitNodeFn(icu, i18nIcu);\n      } else {\n        // Else returns a placeholder\n        // ICU\n        placeholders should not be replaced\n        with their original content but with the their\n        // translations.\n        // TODO(vicb): add a html.Node ->\n        i18n.Message cache to avoid having to re-create the msg\n        var phName =\n        context.placeholderRegistry.getPlaceholderName('ICU', icu.sourceSpan.toString());\n        context.placeholderToMessage[phName] = this.toI18nMessage([icu], "", "", undefined);\n        var node = new\n        IcuPlaceholder(i18nIcu, phName, icu.sourceSpan);\n        return context.visitNodeFn(icu, node);\n      };\n    _I18nVisitor.prototype.visitExpansionCase = function (_icuCase, _context) {\n      throw new\n      Error('Unreachable code');\n    };\n    _I18nVisitor.prototype._visitTextWithInterpolation = function (text,\n      sourceSpan, context) {\n      var splitInterpolation = this._expressionParser.splitInterpolation(text,\n        sourceSpan.start.toString(), this._interpolationConfig);\n      if (!splitInterpolation) {\n        // No expression,\n        return a single text\n        return new Text$1(text, sourceSpan);\n      } else {\n        // Return a group of text +\n        expressions\n        var nodes = [];\n        var container = new Container(nodes, sourceSpan);\n        var _b =\n        this._interpolationConfig, sDelimiter = _b.start, eDelimiter = _b.end;\n        for (var i = 0; i <

```



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'i18n-*' attributes\n                var key = attr.name.slice(I18N_ATTR_PREFIX.length);\n
attrsMeta[key] = attr.value;\n
    }\n                else {\n                        // non-i18n attributes\n                        attrs.push(attr);\n
    }\n                }\n                catch (e_1_1) { e_1 = { error: e_1_1 }; }\n                finally {\n
    try {\n                if (_d && !_d.done && (_a = _c.return)) _a.call(_c);\n                }\n                finally {\n
if (e_1) throw e_1.error; }\n                }\n                // set i18n meta for attributes\n                if
(Object.keys(attrsMeta).length) {\n                try {\n                for (var attrs_1 = __values(attrs), attrs_1_1 =
attrs_1.next(); !attrs_1_1.done; attrs_1_1 = attrs_1.next()) {\n                var attr = attrs_1_1.value;\n
                var meta = attrsMeta[attr.name];\n                // do not create translation for empty attributes\n
                if (meta
                !== undefined && attr.value) {\n                attr.i18n = this._generateI18nMessage([attr], attr.i18n ||
meta);\n                }\n                }\n                catch (e_2_1) { e_2 = { error: e_2_1 };
}\n                finally {\n                try {\n                if (attrs_1_1 && !attrs_1_1.done && (_b =
attrs_1.return)) _b.call(attrs_1);\n                }\n                finally { if (e_2) throw e_2.error; }\n
}\n                }\n                if (!this.keepI18nAttrs) {\n                // update element's attributes,\n                //
keeping only non-i18n related ones\n                element.attrs = attrs;\n                }\n                }\n
visitAll$(this, element.children, element.i18n);\n                return element;\n                };\n
I18nMetaVisitor.prototype.visitExpansion = function (expansion, currentMessage)
{\n                var message;\n                var meta = expansion.i18n;\n                this.hasI18nMeta = true;\n                if (meta
instanceof IcuPlaceholder) {\n                // set ICU placeholder name (e.g. \"ICU_1\"),\n                // generated while
processing root element contents,\n                // so we can reference it when we output translation\n                var
name = meta.name;\n                message = this._generateI18nMessage([expansion], meta);\n                var icu =
icuFromI18nMessage(message);\n                icu.name = name;\n                }\n                else {\n                // ICU is a top
level message, try to use metadata from container element if provided via\n                // `context` argument. Note:
context may not be available for standalone ICUs (without\n                // wrapping element), so fallback to ICU
metadata in this case.\n                message = this._generateI18nMessage([expansion], currentMessage || meta);\n
}\n
                expansion.i18n = message;\n                return expansion;\n                };\n
I18nMetaVisitor.prototype.visitText =
function (text) {\n                return text;\n                };\n
I18nMetaVisitor.prototype.visitAttribute = function (attribute)
{\n                return attribute;\n                };\n
I18nMetaVisitor.prototype.visitComment = function (comment) {\n
return comment;\n                };\n
I18nMetaVisitor.prototype.visitExpansionCase = function (expansionCase) {\n
return expansionCase;\n                };\n
/**\n                * Parse the general form `meta` passed into extract the explicit
metadata needed to create a\n                * `Message`.\n                *\n                * There are three possibilities for the `meta`
variable\n                * 1) a string from an `i18n` template attribute: parse it to extract the metadata values.\n                * 2) a
`Message` from a previous processing pass: reuse the metadata values in the message.\n                * 4) other: ignore this
and
just process the message metadata as normal\n                *\n                * @param meta the bucket that holds information
about the message\n                * @returns the parsed metadata.\n                */\n
I18nMetaVisitor.prototype._parseMetadata = function (meta) {\n                return typeof meta === 'string' ?
parseI18nMeta(meta) : \n                meta instanceof Message ? meta : {};\n                };\n
/**\n                * Generate (or
restore) message id if not specified already.\n                */\n
I18nMetaVisitor.prototype._setMessageId = function
(message, meta) {\n                if (!message.id) {\n                message.id = meta instanceof Message && meta.id ||
decimalDigest(message);\n                }\n                };\n
/**\n                * Update the `message` with a `legacyId` if
necessary.\n                *\n                * @param message the message whose legacy id should be set\n                * @param meta
information about the message being processed\n                */\n
I18nMetaVisitor.prototype._setLegacyIds
= function (message, meta) {\n                if (this.enableI18nLegacyMessageIdFormat) {\n                message.legacyIds
= [computeDigest(message), computeDecimalDigest(message)];\n                }\n                else if (typeof meta !== 'string')
{\n                // This occurs if we are doing the 2nd pass after whitespace removal (see `parseTemplate()`) in\n

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// `packages/compiler/src/render3/view/template.ts`.\n      // In that case we want to reuse the legacy message
generated in the 1st pass (see\n      // `setI18nRefs()`).\n      var previousMessage = meta instanceof
Message ?\n      meta :\n      meta instanceof IcuPlaceholder ? meta.previousMessage : undefined;\n      message.legacyIds = previousMessage ? previousMessage.legacyIds : [];\n      }\n      }\n      return
I18nMetaVisitor;\n      }());\n      /** I18n separators for metadata **/\n      var I18N_MEANING_SEPARATOR = ";\n      var I18N_ID_SEPARATOR = '@@';\n      /**\n      * Parses i18n metas like:\n      * - "@@id",\n      * -
"description[@@id]",\n      * - "meaning|description[@@id]"
      * and returns an object with parsed output.\n      *\n      * @param meta String that represents i18n meta\n      * @returns Object with id, meaning and description
fields\n      */\n      function parseI18nMeta(meta) {\n      var _a, _b;\n      if (meta === void 0) { meta = ""; }\n      var customId;\n      var meaning;\n      var description;\n      meta = meta.trim();\n      if (meta) {\n      var
idIndex = meta.indexOf(I18N_ID_SEPARATOR);\n      var descIndex =
meta.indexOf(I18N_MEANING_SEPARATOR);\n      var meaningAndDesc = void 0;\n      _a =
__read((idIndex > -1) ? [meta.slice(0, idIndex), meta.slice(idIndex + 2)] : [meta, "], 2), meaningAndDesc = _a[0],
customId = _a[1];\n      _b = __read((descIndex > -1) ?\n      [meaningAndDesc.slice(0, descIndex),
meaningAndDesc.slice(descIndex
+ 1)] :\n      ["", meaningAndDesc], 2), meaning = _b[0], description = _b[1];\n      }\n      return { customId:
customId, meaning: meaning, description: description };\n      }\n      // Converts i18n meta information for a message
(id, description, meaning)\n      // to a JsDoc statement formatted as expected by the Closure compiler.\n      function
i18nMetaToJSDoc(meta) {\n      var tags = [];\n      if (meta.description) {\n      tags.push({ tagName: "desc"
/* Desc */, text: meta.description });\n      }\n      if (meta.meaning) {\n      tags.push({ tagName: "meaning"
/* Meaning */, text: meta.meaning });\n      }\n      return tags.length === 0 ? null : jsDocComment(tags);\n      }\n      /** Closure uses `goog.getMsg(message)` to lookup translations */\n      var GOOG_GET_MSG = 'goog.getMsg';\n      function createGoogleGetMsgStatements(variable$1, message, closureVar, params) {\n      var messageString =
serializeI18nMessageForGetMsg(message);\n      var args = [literal(messageString)];\n      if (Object.keys(params).length) {\n      args.push(mapLiteral(params, true));\n      }\n      // **\n      // * @desc description of message\n      // *
@meaning meaning of message\n      // */\n      // const MSG_... = goog.getMsg(..);\n      // I18N_X =
MSG_...;\n      var googGetMsgStmt = closureVar.set(variable(GOOG_GET_MSG).callFn(args)).toConstDecl();\n      var metaComment = i18nMetaToJSDoc(message);\n      if (metaComment !== null) {\n      googGetMsgStmt.addLeadingComment(metaComment);\n      }\n      var i18nAssignmentStmt = new
ExpressionStatement(variable$1.set(closureVar));\n      return [googGetMsgStmt, i18nAssignmentStmt];\n      }\n      /**\n      * This visitor walks over i18n tree and generates its string representation, including ICUs and\n      *
placeholders in `${placeholder}` (for plain messages) or `{PLACEHOLDER}` (inside ICUs) format.\n      */\n      var GetMsgSerializerVisitor = /** @class */ (function () {\n      function GetMsgSerializerVisitor() {\n      }\n      GetMsgSerializerVisitor.prototype.formatPh = function (value) {\n      return `${$` +
formatI18nPlaceholderName(value) + `}`;\n      }\n      GetMsgSerializerVisitor.prototype.visitText = function
(text) {\n      return text.value;\n      }\n      GetMsgSerializerVisitor.prototype.visitContainer = function
(container) {\n      var _this = this;\n      return container.children.map(function (child) { return
child.visit(_this); }).join("");\n      }\n      GetMsgSerializerVisitor.prototype.visitIcu = function (icu) {\n      return serializeIcuNode(icu);\n      }\n      GetMsgSerializerVisitor.prototype.visitTagPlaceholder = function (ph)
{\n      var _this = this;\n      return ph.isVoid ?\n      this.formatPh(ph.startName) :\n      `${`` +
this.formatPh(ph.startName) + ph.children.map(function
(child) { return child.visit(_this); }).join("") + this.formatPh(ph.closeName); }\n      }\n      GetMsgSerializerVisitor.prototype.visitPlaceholder = function (ph) {\n      return this.formatPh(ph.name);\n      }\n      }\n      GetMsgSerializerVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n      return
this.formatPh(ph.name);\n      }\n      }\n      return GetMsgSerializerVisitor;\n      }());\n      var serializerVisitor$1 = new
GetMsgSerializerVisitor();\n      function serializeI18nMessageForGetMsg(message) {\n      return
message.nodes.map(function (node) { return node.visit(serializerVisitor$1, null); }).join("");\n      }\n      function

```



```

createLocalizeStatements(variable, message, params) {\n    var _c = serializeI18nMessageForLocalize(message),
messageParts = _c.messageParts, placeholders = _c.placeholders;\n    var sourceSpan =
getSourceSpan(message);\n    var expressions = placeholders.map(function (ph) { return params[ph.text];
});\n    var localizedString$1 = localizedString(message, messageParts, placeholders, expressions,
sourceSpan);\n    var variableInitialization = variable.set(localizedString$1);\n    return [new
ExpressionStatement(variableInitialization)];\n } \n /**\n  * This visitor walks over an i18n tree, capturing
literal strings and placeholders.\n  *\n  * The result can be used for generating the `$_localize` tagged template
literals.\n  */\n var LocalizeSerializerVisitor = /** @class */ (function () {\n    function
LocalizeSerializerVisitor() {\n    }\n    LocalizeSerializerVisitor.prototype.visitText = function (text, context)
{\n        if (context[context.length - 1] instanceof LiteralPiece) {\n            // Two literal pieces in a row means
that there was some comment node in-between.\n            context[context.length - 1].text += text.value;\n
        }\n        else {\n            context.push(new LiteralPiece(text.value,
text.sourceSpan));\n        }\n    }; \n    LocalizeSerializerVisitor.prototype.visitContainer = function
(container, context) {\n        var _this = this;\n        container.children.forEach(function (child) { return
child.visit(_this, context); });\n    }; \n    LocalizeSerializerVisitor.prototype.visitIcu = function (icu, context)
{\n        context.push(new LiteralPiece(serializeIcuNode(icu), icu.sourceSpan));\n    }; \n
LocalizeSerializerVisitor.prototype.visitTagPlaceholder = function (ph, context) {\n        var _this = this;\n
var _a, _b;\n        context.push(this.createPlaceholderPiece(ph.startName, (_a = ph.startSourceSpan) !== null &&
_a !== void 0 ? _a : ph.sourceSpan));\n        if (!ph.isVoid) {\n            ph.children.forEach(function (child) {
return child.visit(_this, context); });\n            context.push(this.createPlaceholderPiece(ph.closeName, (_b =
ph.endSourceSpan) !== null && _b !== void
0 ? _b : ph.sourceSpan));\n        }\n    }; \n    LocalizeSerializerVisitor.prototype.visitPlaceholder = function
(ph, context) {\n        context.push(this.createPlaceholderPiece(ph.name, ph.sourceSpan));\n    }; \n
LocalizeSerializerVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n
context.push(this.createPlaceholderPiece(ph.name, ph.sourceSpan));\n    }; \n
LocalizeSerializerVisitor.prototype.createPlaceholderPiece = function (name, sourceSpan) {\n        return new
PlaceholderPiece(formatI18nPlaceholderName(name, /* use Camel Case */ false), sourceSpan);\n    }; \n    return
new LocalizeSerializerVisitor();\n } ());\n var serializerVisitor$2 = new LocalizeSerializerVisitor();\n /**\n  *
Serialize an i18n message into two arrays: messageParts and placeholders.\n  *\n  * These arrays will be used to
generate `$_localize` tagged template literals.\n  *\n  * @param message The message to be serialized.\n
    * @returns an object containing the messageParts and placeholders.\n  */\n function
serializeI18nMessageForLocalize(message) {\n    var pieces = [];\n    message.nodes.forEach(function (node) {
return node.visit(serializerVisitor$2, pieces); });\n    return processMessagePieces(pieces);\n } \n function
getSourceSpan(message) {\n    var startNode = message.nodes[0];\n    var endNode =
message.nodes[message.nodes.length - 1];\n    return new ParseSourceSpan(startNode.sourceSpan.start,
endNode.sourceSpan.end, startNode.sourceSpan.fullStart, startNode.sourceSpan.details);\n } \n /**\n  *
Convert the list of serialized MessagePieces into two arrays.\n  *\n  * One contains the literal string pieces and
the other the placeholders that will be replaced by\n  * expressions when rendering `$_localize` tagged template
literals.\n  *\n  * @param pieces The pieces to process.\n  * @returns an object containing the messageParts
and placeholders.\n  */\n function processMessagePieces(pieces) {\n    var messageParts = [];\n    var
placeholders = [];\n    if (pieces[0] instanceof PlaceholderPiece) {\n        // The first piece was a placeholder so
we need to add an initial empty message part.\n
messageParts.push(createEmptyMessagePart(pieces[0].sourceSpan.start));\n    }\n    for (var i = 0; i <
pieces.length; i++) {\n        var part = pieces[i];\n        if (part instanceof LiteralPiece) {\n
messageParts.push(part);\n        }\n        else {\n            placeholders.push(part);\n            if (pieces[i - 1]
instanceof PlaceholderPiece) {\n                // There were two placeholders in a row, so we need to add an empty
message part.\n                messageParts.push(createEmptyMessagePart(pieces[i - 1].sourceSpan.end));\n
            }\n        }\n    }\n    if (pieces[pieces.length - 1] instanceof PlaceholderPiece)

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{\n      // The last piece was a placeholder so we need to add a final empty message part.\n
messageParts.push(createEmptyMessagePart(pieces[pieces.length - 1].sourceSpan.end));\n    }\n    return {\n
messageParts: messageParts, placeholders: placeholders };\n  }\n  function createEmptyMessagePart(location)\n
{\n    return new LiteralPiece("", new ParseSourceSpan(location, location));\n  }\n\n  // Selector attribute name\n
of `<ng-content>`\n  var NG_CONTENT_SELECT_ATTR$1 = 'select';\n  // Attribute name of `ngProjectAs`.\n
var NG_PROJECT_AS_ATTR_NAME = 'ngProjectAs';\n  // Global symbols available only inside event\n
bindings.\n  var EVENT_BINDING_SCOPE_GLOBALS = new Set(['$event']);\n  // List of supported global\n
targets for event listeners\n  var GLOBAL_TARGET_RESOLVERS = new Map([[ 'window',\n
Identifiers$1.resolveWindow], [ 'document', Identifiers$1.resolveDocument], [ 'body', Identifiers$1.resolveBody]]);\n
  var LEADING_TRIVIA_CHARS\n
= [ ' ', '\\n', '\\r', '\\t'];\n  // if (rf & flags) { .. }\n  function renderFlagCheckIfStmt(flags, statements) {\n    return\n
ifStmt(variable(RENDER_FLAGS).bitwiseAnd(literal(flags), null, false), statements);\n  }\n  function\n
prepareEventListenerParameters(eventAst, handlerName, scope) {\n    if (handlerName === void 0) {\n
handlerName = null; }\n    if (scope === void 0) { scope = null; }\n    var type = eventAst.type, name =\n
eventAst.name, target = eventAst.target, phase = eventAst.phase, handler = eventAst.handler;\n    if (target &&\n
!GLOBAL_TARGET_RESOLVERS.has(target)) {\n      throw new Error("Unexpected global target \"" + target\n
+ "\" defined for \"" + name + "\" event.\n      Supported list of global targets: " +\n
Array.from(GLOBAL_TARGET_RESOLVERS.keys()) + ".");\n    }\n    var eventArgumentName =\n
'$event';\n    var implicitReceiverAccesses = new Set();\n    var implicitReceiverExpr = (scope === null ||\n
scope.bindingLevel\n
=== 0) ?\n      variable(CONTEXT_NAME) :\n      scope.getOrCreateSharedContextVar(0);\n    var\n
bindingExpr = convertActionBinding(scope, implicitReceiverExpr, handler, 'b', function () { return\n
error('Unexpected interpolation'); }, eventAst.handlerSpan, implicitReceiverAccesses,\n
EVENT_BINDING_SCOPE_GLOBALS);\n    var statements = [];\n    if (scope) {\n
statements.push.apply(statements, __spread(scope.restoreViewStatement()));\n
statements.push.apply(statements, __spread(scope.variableDeclarations()));\n    }\n
statements.push.apply(statements, __spread(bindingExpr.render3Stmts));\n    var eventName = type === 1 /*\n
Animation */ ? prepareSyntheticListenerName(name, phase) : name;\n    var fnName = handlerName &&\n
sanitizeIdentifier(handlerName);\n    var fnArgs = [];\n    if\n
(implicitReceiverAccesses.has(eventArgumentName)) {\n      fnArgs.push(new FnParam(eventArgumentName,\n
DYNAMIC_TYPE));\n
    }\n    var handlerFn = fn(fnArgs, statements, INFERRED_TYPE, null, fnName);\n    var params =\n
[literal(eventName), handlerFn];\n    if (target) {\n      params.push(literal(false), // `useCapture` flag, defaults\n
to `false`\n      importExpr(GLOBAL_TARGET_RESOLVERS.get(target));\n    }\n    return params;\n
  }\n  function createComponentDefConsts() {\n    return { prepareStatements: [], constExpressions: [] };\n  }\n
var TemplateDefinitionBuilder = /** @class */ (function () {\n    function\n
TemplateDefinitionBuilder(constantPool, parentBindingScope, level, contextName, i18nContext, templateIndex,\n
templateName, directiveMatcher, directives, pipeTypeByName, pipes, _namespace, relativeContextFilePath,\n
i18nUseExternalIds, _constants) {\n      var _this = this;\n      if (level === void 0) { level = 0; }\n      if\n
(_constants === void 0) { _constants = createComponentDefConsts(); }\n      this.constantPool = constantPool;\n
      this.level = level;\n      this.contextName = contextName;\n      this.i18nContext = i18nContext;\n
      this.templateIndex = templateIndex;\n      this.templateName = templateName;\n      this.directiveMatcher\n
= directiveMatcher;\n      this.directives = directives;\n      this.pipeTypeByName = pipeTypeByName;\n
      this.pipes = pipes;\n      this._namespace = _namespace;\n      this.i18nUseExternalIds =\n
i18nUseExternalIds;\n      this._constants = _constants;\n      this._dataIndex = 0;\n
      this._bindingContext = 0;\n      this._prefixCode = [];\n      /**\n      * List of callbacks to generate\n
creation mode instructions. We store them here as we process\n      * the template so bindings in listeners are\n
resolved only once all nodes have been visited.\n      * This ensures all local refs and context variables are

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available for matching.\n

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    */\n        this._creationCodeFns = [];\n        /**\n        * List of callbacks to generate update mode
instructions. We store them here as we process\n        * the template so bindings are resolved only once all nodes
have been visited. This ensures\n        * all local refs and context variables are available for matching.\n
    */\n        this._updateCodeFns = [];\n        /** Index of the currently-selected node. */\n
this._currentIndex = 0;\n        /** Temporary variable declarations generated from visiting pipes, literals, etc. */\n
        this._tempVariables = [];\n        /**\n        * List of callbacks to build nested templates. Nested templates
must not be visited until\n        * after the parent template has finished visiting all of its nodes. This ensures that
all\n        * local ref bindings in nested templates are able to find local ref values if the refs\n        * are defined
after
the template declaration.\n        */\n        this._nestedTemplateFns = [];\n        this._unsupported =
unsupported;\n        // i18n context local to this template\n        this.i18n = null;\n        // Number of slots to
reserve for pureFunctions\n        this._pureFunctionSlots = 0;\n        // Number of binding slots\n
this._bindingSlots = 0;\n        // Projection slots found in the template. Projection slots can distribute projected\n
        // nodes based on a selector, or can just use the wildcard selector to match\n        // all nodes which aren't
matching any selector.\n        this._ngContentReservedSlots = [];\n        // Number of non-default selectors
found in all parent templates of this template. We need to\n        // track it to properly adjust projection slot index
in the `projection` instruction.\n        this._ngContentSelectorsOffset = 0;\n        // Expression that should be
used as implicit
receiver when converting template\n        // expressions to output AST.\n        this._implicitReceiverExpr =
null;\n        // These should be handled in the template or element directly.\n        this.visitReference =
invalid$1;\n        this.visitVariable = invalid$1;\n        this.visitTextAttribute = invalid$1;\n
this.visitBoundAttribute = invalid$1;\n        this.visitBoundEvent = invalid$1;\n        this._bindingScope =
parentBindingScope.nestedScope(level);\n        // Turn the relative context file path into an identifier by replacing
non-alphanumeric\n        // characters with underscores.\n        this.fileBasedI18nSuffix =
relativeContextFilePath.replace(/[^A-Za-z0-9]/g, '_') + '_';\n        this._valueConverter = new
ValueConverter(constantPool, function () { return _this.allocateDataSlot(); }, function (numSlots) { return
_this.allocatePureFunctionSlots(numSlots); }, function (name, localName, slot, value)
{\n            var pipeType = pipeTypeByName.get(name);\n            if (pipeType) {\n
_this.pipes.add(pipeType);\n            }\n            _this._bindingScope.set(_this.level, localName, value);\n
            _this.creationInstruction(null, Identifiers$1.pipe, [literal(slot), literal(name)]);\n        });\n        }\n
TemplateDefinitionBuilder.prototype.buildTemplateFunction = function (nodes, variables,
ngContentSelectorsOffset, i18n) {\n        var _this = this;\n        if (ngContentSelectorsOffset === void 0) {\n
ngContentSelectorsOffset = 0; }\n        this._ngContentSelectorsOffset = ngContentSelectorsOffset;\n        if
(this._namespace !== Identifiers$1.namespaceHTML) {\n            this.creationInstruction(null,
this._namespace);\n        }\n        // Create variable bindings\n        variables.forEach(function (v) { return
_this.registerContextVariables(v); });\n        // Initiate i18n
context in case:\n        // - this template has parent i18n context\n        // - or the template has i18n meta
associated with it,\n        // but it's not initiated by the Element (e.g. <ng-template i18n>)\n        var
initI18nContext = this.i18nContext ||\n        (isI18nRootNode(i18n) && !isSingleI18nIcu(i18n) &&\n
!(isSingleElementTemplate(nodes) && nodes[0].i18n === i18n));\n        var selfClosingI18nInstruction =
hasTextChildrenOnly(nodes);\n        if (initI18nContext) {\n            this.i18nStart(null, i18n,
selfClosingI18nInstruction);\n        }\n        // This is the initial pass through the nodes of this template. In this
pass, we\n        // queue all creation mode and update mode instructions for generation in the second\n        //
pass. It's necessary to separate the passes to ensure local refs are defined before\n        // resolving bindings. We
also count bindings in this pass as we walk
bound expressions.\n        visitAll(this, nodes);\n        // Add total binding count to pure function count so pure
function instructions are\n        // generated with the correct slot offset when update instructions are processed.\n

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    this._pureFunctionSlots += this._bindingSlots;\n        // Pipes are walked in the first pass (to enqueue `pipe()`
creation instructions and\n        // `pipeBind` update instructions), so we have to update the slot offsets manually\n
        // to account for bindings.\n        this._valueConverter.updatePipeSlotOffsets(this._bindingSlots);\n        //
Nested templates must be processed before creation instructions so template()\n        // instructions can be
generated with the correct internal const count.\n        this._nestedTemplateFns.forEach(function
(buildTemplateFn) { return buildTemplateFn(); });\n        // Output the `projectionDef` instruction when some
`<ng-content>` tags are present.\n
        // The `projectionDef` instruction is only emitted for the component template and\n        // is skipped for
nested templates (<ng-template> tags).\n        if (this.level === 0 && this._ngContentReservedSlots.length) {\n
        var parameters = [];\n        // By default the `projectionDef` instructions creates one slot for the
wildcard\n        // selector if no parameters are passed. Therefore we only want to allocate a new\n        //
array for the projection slots if the default projection slot is not sufficient.\n        if
(this._ngContentReservedSlots.length > 1 || this._ngContentReservedSlots[0] !== '*') {\n            var
r3ReservedSlots = this._ngContentReservedSlots.map(function (s) { return s !== '*' ? parseSelectorToR3Selector(s)
: s; });\n            parameters.push(this.constantPool.getConstLiteral(asLiteral(r3ReservedSlots), true));\n
        }\n        // Since we accumulate
ngContent selectors while processing template elements,\n        // we *prepend* `projectionDef` to creation
instructions block, to put it before\n        // any `projection` instructions\n        this.creationInstruction(null,
Identifiers$1.projectionDef, parameters, /* prepend */ true);\n        }\n        if (initI18nContext) {\n
this.i18nEnd(null, selfClosingI18nInstruction);\n        }\n        // Generate all the creation mode instructions
(e.g. resolve bindings in listeners)\n        var creationStatements = this._creationCodeFns.map(function (fn) {
return fn(); });\n        // Generate all the update mode instructions (e.g. resolve property or text bindings)\n
var updateStatements = this._updateCodeFns.map(function (fn) { return fn(); });\n        // Variable declaration
must occur after binding resolution so we can generate context\n        // instructions that build on each other.\n

        // e.g. const b = nextContext().$Simplicit(); const b = nextContext();\n        var creationVariables =
this._bindingScope.viewSnapshotStatements();\n        var updateVariables =
this._bindingScope.variableDeclarations().concat(this._tempVariables);\n        var creationBlock =
creationStatements.length > 0 ?\n            [renderFlagCheckIfStmt(1 /* Create */,
creationVariables.concat(creationStatements))] :\n            [];\n        var updateBlock = updateStatements.length
> 0 ?\n            [renderFlagCheckIfStmt(2 /* Update */, updateVariables.concat(updateStatements))] :\n            [];\n        return fn(\n            // i.e. (rf: RenderFlags, ctx: any)\n            [new FnParam(RENDER_FLAGS,
NUMBER_TYPE), new FnParam(CONTEXT_NAME, null)], __spread(this._prefixCode, creationBlock,
updateBlock), INFERRED_TYPE, null, this.templateName);\n        };\n        // LocalResolver\n
TemplateDefinitionBuilder.prototype.getLocal = function (name)
{\n        return this._bindingScope.get(name);\n        };\n        // LocalResolver\n
TemplateDefinitionBuilder.prototype.notifyImplicitReceiverUse = function () {\n
this._bindingScope.notifyImplicitReceiverUse();\n        };\n        TemplateDefinitionBuilder.prototype.i18nTranslate
= function (message, params, ref, transformFn) {\n        var _c;\n        if (params === void 0) { params = {}; }\n
        var _ref = ref || this.i18nGenerateMainBlockVar();\n        // Closure Compiler requires const names to start
with `MSG_` but disallows any other const to\n        // start with `MSG_`. We define a variable starting with
`MSG_` just for the `goog.getMsg` call\n        var closureVar = this.i18nGenerateClosureVar(message.id);\n
        var statements = getTranslationDeclStmts(message, _ref, closureVar, params, transformFn);\n        (_c =
this._constants.prepareStatements).push.apply(_c, __spread(statements));\n        return
_ref;\n        };\n        TemplateDefinitionBuilder.prototype.registerContextVariables = function (variable$1) {\n
        var scopedName = this._bindingScope.freshReferenceName();\n        var retrievalLevel = this.level;\n        var
lhs = variable(variable$1.name + scopedName);\n        this._bindingScope.set(retrievalLevel, variable$1.name,
lhs, 1 /* CONTEXT */, function (scope, relativeLevel) {\n            var rhs;\n            if (scope.bindingLevel ===

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retrievalLevel) {\n                // e.g. ctx\n                rhs = variable(CONTEXT_NAME);\n                }\nelse {\n                var sharedCtxVar = scope.getSharedContextName(retrievalLevel);\n                // e.g. ctx_r0\nOR x(2);\n                rhs = sharedCtxVar ? sharedCtxVar : generateNextContextExpr(relativeLevel);\n}\n        // e.g. const $item$ = x(2).$implicit;\n        return [lhs.set(rhs.prop(variable$1.value ||\n        IMPLICIT_REFERENCE)).toConstDecl()];\n        });\n        };\n\nTemplateDefinitionBuilder.prototype.i18nAppendBindings = function (expressions) {\n        var _this = this;\n        if (expressions.length > 0) {\n                expressions.forEach(function (expression) { return\n                _this.i18n.appendBinding(expression); });\n        }\n        };\n\nTemplateDefinitionBuilder.prototype.i18nBindProps = function (props) {\n        var _this = this;\n        var\n        bound = {};\n        Object.keys(props).forEach(function (key) {\n                var prop = props[key];\n                if\n        (prop instanceof Text) {\n                bound[key] = literal(prop.value);\n                }\n                else {\n                if\n        var value = prop.value.visit(_this._valueConverter);\n                _this.allocateBindingSlots(value);\n                if\n        (value instanceof Interpolation) {\n                var strings = value.strings, expressions\n                = value.expressions;\n                var _c = _this.i18n, id = _c.id, bindings = _c.bindings;\n                var\n        label = assembleI18nBoundString(strings, bindings.size, id);\n                _this.i18nAppendBindings(expressions);\n                bound[key] = literal(label);\n                }\n                }\n        });\n        return bound;\n        };\n        // Generates top level vars for i18n blocks (i.e. `i18n_N`).\n\nTemplateDefinitionBuilder.prototype.i18nGenerateMainBlockVar = function () {\n        return\n        variable(this.constantPool.uniqueName(TRANSLATION_VAR_PREFIX));\n        };\n        // Generates vars with\n        Closure-specific names for i18n blocks (i.e. `MSG_XXX`).\n\nTemplateDefinitionBuilder.prototype.i18nGenerateClosureVar = function (messageId) {\n        var name;\n        var suffix = this.fileBasedI18nSuffix.toUpperCase();\n        if (this.i18nUseExternalIds) {\n                var\n        prefix = getTranslationConstPrefix("EXTERNAL_");\n                var uniqueSuffix =\n        this.constantPool.uniqueName(suffix);\n                name = "\\" + prefix + sanitizeIdentifier(messageId) + "$" +\n        uniqueSuffix;\n        }\n        else {\n                var prefix = getTranslationConstPrefix(suffix);\n                name\n        = this.constantPool.uniqueName(prefix);\n        }\n        return variable(name);\n        };\n\nTemplateDefinitionBuilder.prototype.i18nUpdateRef = function (context) {\n        var icu = context.icu, meta =\n        context.meta, isRoot = context.isRoot, isResolved = context.isResolved, isEmitted = context.isEmitted;\n        if\n        (isRoot && isResolved && !isEmitted && !isSingleI18nIcu(meta)) {\n                context.isEmitted = true;\n                var placeholders = context.getSerializedPlaceholders();\n                var icuMapping_1 = {};\n                var\n        params_1 = placeholders.size ? placeholdersToParams(placeholders) :\n        {};\n                if (icu.size) {\n                icu.forEach(function (refs, key) {\n                if (refs.length === 1)\n        {\n                // if we have one ICU defined for a given\n                // placeholder - just output its\n        reference\n                params_1[key] = refs[0];\n                }\n                else {\n                //\n        ... otherwise we need to activate post-processing\n                // to replace ICU placeholders with proper\n        values\n                var placeholder = wrapI18nPlaceholder("\\" + I18N_ICU_MAPPING_PREFIX + key);\n                params_1[key] = literal(placeholder);\n                icuMapping_1[key] = literalArr(refs);\n                }\n                });\n                }\n                // translation requires post processing in 2 cases:\n                // - if\n        we have placeholders with multiple\n        values (ex. `START_DIV`: [#1, #2, ...])\n                // - if we have multiple ICUs that refer to the same placeholder\n        name\n                var needsPostprocessing = Array.from(placeholders.values()).some(function (value) { return\n        value.length > 1; }) ||\n                Object.keys(icuMapping_1).length;\n                var transformFn = void 0;\n                if (needsPostprocessing) {\n                transformFn = function (raw) {\n                var args = [raw];\n                if (Object.keys(icuMapping_1).length) {\n                args.push(mapLiteral(icuMapping_1, true));\n                }\n                return instruction(null, Identifiers$.i18nPostprocess, args);\n                };\n                }\n                this.i18nTranslate(meta, params_1, context.ref, transformFn);\n        }\n        };\n\nTemplateDefinitionBuilder.prototype.i18nStart = function (span, meta, selfClosing) {\n
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        if (span === void 0) { span = null; }\n        var index = this.allocateDataSlot();\n        this.i18n =
this.i18nContext ?\n        this.i18nContext.forkChildContext(index, this.templateIndex, meta) : \n        new
I18nContext(index, this.i18nGenerateMainBlockVar(), 0, this.templateIndex, meta);\n        // generate i18nStart
instruction\n        var _c = this.i18n, id = _c.id, ref = _c.ref;\n        var params = [literal(index),
this.addToConsts(ref)];\n        if (id > 0) {\n            // do not push 3rd argument (sub-block id)\n            // into
i18nStart call for top level i18n context\n            params.push(literal(id));\n        }\n        this.creationInstruction(span, selfClosing ? Identifiers$1.i18n : Identifiers$1.i18nStart, params);\n    };\n    TemplateDefinitionBuilder.prototype.i18nEnd = function (span, selfClosing) {\n        var _this = this;\n        if
(span === void 0) { span
= null; }\n        if (!this.i18n) {\n            throw new Error('i18nEnd is executed with no i18n context present');\n        }\n        if (this.i18nContext) {\n            this.i18nContext.reconcileChildContext(this.i18n);\n        }\n        this.i18nUpdateRef(this.i18nContext);\n    }\n    else {\n        this.i18nUpdateRef(this.i18n);\n    }\n    // setup accumulated bindings\n    var _c = this.i18n, index = _c.index, bindings = _c.bindings;\n    if (bindings.size) {\n        var chainBindings_1 = [];\n        bindings.forEach(function (binding) {\n            chainBindings_1.push({ sourceSpan: span, value: function () { return _this.convertPropertyBinding(binding); }
});\n        });\n        // for i18n block, advance to the most recent element index (by taking the current
number of\n        // elements and subtracting one) before invoking `i18nExp` instructions,
to make sure the\n        // necessary lifecycle hooks of components/directives are properly flushed.\n        this.updateInstructionChainWithAdvance(this.getConstCount() - 1, Identifiers$1.i18nExp, chainBindings_1);\n        this.updateInstruction(span, Identifiers$1.i18nApply, [literal(index)]);\n    }\n    if (!selfClosing) {\n        this.creationInstruction(span, Identifiers$1.i18nEnd);\n    }\n    this.i18n = null; // reset local i18n
context\n    };\n    TemplateDefinitionBuilder.prototype.i18nAttributesInstruction = function (nodeIndex, attrs,
sourceSpan) {\n        var _this = this;\n        var hasBindings = false;\n        var i18nAttrArgs = [];\n        var bindings = [];\n        attrs.forEach(function (attr) {\n            var message = attr.i18n;\n            var
converted = attr.value.visit(_this._valueConverter);\n            _this.allocateBindingSlots(converted);\n            if (converted instanceof Interpolation) {\n                var placeholders =
assembleBoundTextPlaceholders(message);\n                var params = placeholdersToParams(placeholders);\n                i18nAttrArgs.push(literal(attr.name), _this.i18nTranslate(message, params));\n            }\n            converted.expressions.forEach(function (expression) {\n                hasBindings = true;\n                bindings.push({\n                    sourceSpan: sourceSpan,\n                    value: function () { return
_this.convertPropertyBinding(expression); },\n                });\n            });\n        });\n        if (bindings.length > 0) {\n            this.updateInstructionChainWithAdvance(nodeIndex, Identifiers$1.i18nExp,
bindings);\n        }\n        if (i18nAttrArgs.length > 0) {\n            var index = literal(this.allocateDataSlot());\n            var
constIndex = this.addToConsts(literalArr(i18nAttrArgs));\n            this.creationInstruction(sourceSpan,
Identifiers$1.i18nAttributes, [index, constIndex]);\n            if (hasBindings) {\n                this.updateInstruction(sourceSpan, Identifiers$1.i18nApply, [index]);\n            }\n        }\n    };\n    TemplateDefinitionBuilder.prototype.getNamespaceInstruction = function (namespaceKey) {\n        switch
(namespaceKey) {\n            case 'math':\n                return Identifiers$1.namespaceMathML;\n            case
'svg':\n                return Identifiers$1.namespaceSVG;\n            default:\n                return
Identifiers$1.namespaceHTML;\n        }\n    };\n    TemplateDefinitionBuilder.prototype.addNamespaceInstruction = function (nsInstruction, element) {\n        this._namespace = nsInstruction;\n        this.creationInstruction(element.startSourceSpan, nsInstruction);\n    };\n\n    /**\n     * Adds an update instruction for an interpolated property or attribute, such as\n     *
`prop="{{ value }}"` or `attr.title="{{ value }}"`\n     */\n    TemplateDefinitionBuilder.prototype.interpolatedUpdateInstruction = function (instruction, elementIndex,
attrName, input, value, params) {\n        var _this = this;\n

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this.updateInstructionWithAdvance(elementIndex, input.sourceSpan, instruction, function () { return
__spread([literal(attrName)], _this.getUpdateInstructionArguments(value), params); });\n    };\n
TemplateDefinitionBuilder.prototype.visitContent = function (ngContent) {\n    var slot =
this.allocateDataSlot();\n    var projectionSlotIdx = this._ngContentSelectorsOffset +
this._ngContentReservedSlots.length;\n    var parameters = [literal(slot)];\n
this._ngContentReservedSlots.push(ngContent.selector);\n    var nonContentSelectAttributes =
ngContent.attributes.filter(function
(attr) { return attr.name.toLowerCase() !== NG_CONTENT_SELECT_ATTR$1; });\n    var attributes =
this.getAttributeExpressions(ngContent.name, nonContentSelectAttributes, [], []);\n    if (attributes.length > 0)
{\n        parameters.push(literal(projectionSlotIdx), literalArr(attributes));\n    }\n    else if
(projectionSlotIdx !== 0) {\n        parameters.push(literal(projectionSlotIdx));\n    }\n
this.creationInstruction(ngContent.sourceSpan, Identifiers$1.projection, parameters);\n    if (this.i18n) {\n
    this.i18n.appendProjection(ngContent.i18n, slot);\n    }\n    };\n
TemplateDefinitionBuilder.prototype.visitElement = function (element) {\n    var e_1, _c;\n    var _this =
this;\n    var _a, _b;\n    var elementIndex = this.allocateDataSlot();\n    var stylingBuilder = new
StylingBuilder(null);\n    var isNonBindableMode =
false;\n    var isI18nRootElement = isI18nRootNode(element.i18n) && !isSingleI18nIcu(element.i18n);\n
    var outputAttrs = [];\n    var _d = __read(splitNsName(element.name), 2), namespaceKey = _d[0],
elementName = _d[1];\n    var isNgContainer$1 = isNgContainer(element.name);\n    try {\n        //
Handle styling, i18n, ngNonBindable attributes\n        for (var _e = __values(element.attributes), _f = _e.next();
!_f.done; _f = _e.next()) {\n            var attr = _f.value;\n            var name = attr.name, value = attr.value;\n
            if (name === NON_BINDABLE_ATTR) {\n                isNonBindableMode = true;\n            }\n
            else if (name === 'style') {\n                stylingBuilder.registerStyleAttr(value);\n            }\n
            else if (name === 'class') {\n                stylingBuilder.registerClassAttr(value);\n            }\n
            else {\n                outputAttrs.push(attr);\n            }\n        }\n
    }\n    catch (e_1_1) { e_1 = { error: e_1_1 }; }\n    finally {\n        try {\n            if (_f && !_f.done && (_c
= _e.return)) _c.call(_e);\n        }\n        finally { if (e_1) throw e_1.error; }\n    }\n    // Match
directives on non i18n attributes\n    this.matchDirectives(element.name, element);\n    // Regular element
or ng-container creation mode\n    var parameters = [literal(elementIndex)];\n    if (!isNgContainer$1) {\n
    parameters.push(literal(elementName));\n    }\n    // Add the attributes\n    var allOtherInputs
= [];\n    var boundI18nAttrs = [];\n    element.inputs.forEach(function (input) {\n        var
stylingInputWasSet = stylingBuilder.registerBoundInput(input);\n
        if (!stylingInputWasSet) {\n            if (input.type === 0 /* Property */ && input.i18n) {\n
            boundI18nAttrs.push(input);\n            }\n            else {\n                allOtherInputs.push(input);\n            }\n
        }\n    });\n    // add attributes for directive and projection matching purposes\n
    var attributes = this.getAttributeExpressions(element.name, outputAttrs, allOtherInputs, element.outputs,
stylingBuilder, [], boundI18nAttrs);\n    parameters.push(this.addAttrsToConsts(attributes));\n    // local
refs (ex.: <div #foo #bar="baz">)\n    var refs = this.prepareRefsArray(element.references);\n
    parameters.push(this.addToConsts(refs));\n    var wasInNamespace = this._namespace;\n    var
currentNamespace = this.getNamespaceInstruction(namespaceKey);\n    // If the namespace is changing now,
include
    an instruction to change it\n    // during element creation.\n    if (currentNamespace !== wasInNamespace)
{\n        this.addNamespaceInstruction(currentNamespace, element);\n    }\n    if (this.i18n) {\n
    this.i18n.appendElement(element.i18n, elementIndex);\n    }\n    // Note that we do not append text node
instructions and ICUs inside i18n section,\n    // so we exclude them while calculating whether current element
has children\n    var hasChildren = (!isI18nRootElement && this.i18n) ?
!hasTextChildrenOnly(element.children) :\n    element.children.length > 0;\n    var
createSelfClosingInstruction = !stylingBuilder.hasBindingsWithPipes &&\n    element.outputs.length === 0

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&& boundI18nAttrs.length === 0 && !hasChildren;\n      var createSelfClosingI18nInstruction =
!createSelfClosingInstruction && hasTextChildrenOnly(element.children);\n      if
(createSelfClosingInstruction)
{\n      this.creationInstruction(element.sourceSpan, isNgContainer$1 ? Identifiers$1.elementContainer :
Identifiers$1.element, trimTrailingNulls(parameters));\n      }\n      else {\n
this.creationInstruction(element.startSourceSpan, isNgContainer$1 ? Identifiers$1.elementContainerStart :
Identifiers$1.elementStart, trimTrailingNulls(parameters));\n      if (isNonBindableMode) {\n
this.creationInstruction(element.startSourceSpan, Identifiers$1.disableBindings);\n      }\n      if
(boundI18nAttrs.length > 0) {\n      this.i18nAttributesInstruction(elementIndex, boundI18nAttrs, (_a =
element.startSourceSpan) !== null && _a !== void 0 ? _a : element.sourceSpan);\n      }\n      //
Generate Listeners (outputs)\n      if (element.outputs.length > 0) {\n      var listeners =
element.outputs.map(function (outputAst) { return ({\n
sourceSpan: outputAst.sourceSpan,\n      params:
_this.prepareListenerParameter(element.name, outputAst, elementIndex)\n      }); });\n
this.creationInstructionChain(Identifiers$1.listener, listeners);\n      }\n      // Note: it's important to keep
i18n/i18nStart instructions after i18nAttributes and\n      // listeners, to make sure i18nAttributes instruction
targets current element at runtime.\n      if (isI18nRootElement) {\n
this.i18nStart(element.startSourceSpan, element.i18n, createSelfClosingI18nInstruction);\n      }\n      }\n
// the code here will collect all update-level styling instructions and add them to the\n      // update block of
the template function AOT code. Instructions like `styleProp`,\n      // `styleMap`, `classMap`, `classProp`\n
// are all generated and assigned in the code
below.\n      var stylingInstructions = stylingBuilder.buildUpdateLevelInstructions(this._valueConverter);\n
var limit = stylingInstructions.length - 1;\n      for (var i = 0; i <= limit; i++) {\n      var instruction_1 =
stylingInstructions[i];\n      this._bindingSlots += this.processStylingUpdateInstruction(elementIndex,
instruction_1);\n      }\n      // the reason why `undefined` is used is because the renderer understands this as
a\n      // special value to symbolize that there is no RHS to this binding\n      // TODO (matsko): revisit this
once FW-959 is approached\n      var emptyValueBindInstruction = literal(undefined);\n      var
propertyBindings = [];\n      var attributeBindings = [];\n      // Generate element input bindings\n
allOtherInputs.forEach(function (input) {\n      var inputType = input.type;\n      if (inputType === 4 /*
Animation */) {\n
var value_1 = input.value.visit(_this._valueConverter);\n      // animation bindings can be
presented in the following formats:\n      // 1. [@binding]="fooExp"\n      // 2.
[@binding]="{ value:fooExp, params:{...} }"\n      // 3. [@binding]\n      // 4. @binding\n
// All formats will be valid for when a synthetic binding is created.\n      // The reasoning for this is
because the renderer should get each\n      // synthetic binding value in the order of the array that they are\n
// defined in...\n      var hasValue_1 = value_1 instanceof LiteralPrimitive ? !!value_1.value :
true;\n      _this.allocateBindingSlots(value_1);\n      propertyBindings.push({\n
name: prepareSyntheticPropertyName(input.name),\n      sourceSpan: input.sourceSpan,\n
value: function () { return hasValue_1 ? _this.convertPropertyBinding(value_1) :
emptyValueBindInstruction; }\n      });\n      }\n      else {\n      // we must skip
attributes with associated i18n context, since these attributes are handled\n      // separately and
corresponding `i18nExp` and `i18nApply` instructions will be generated\n      if (input.i18n)\n
return;\n      var value_2 = input.value.visit(_this._valueConverter);\n      if (value_2 !==
undefined) {\n      var params_2 = [];\n      var _c = __read(splitNsName(input.name), 2),
attrNamespace = _c[0], attrName_1 = _c[1];\n      var isAttributeBinding = inputType === 1 /* Attribute
*/;\n      var sanitizationRef = resolveSanitizationFn(input.securityContext, isAttributeBinding);\n
if (sanitizationRef)\n

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        params_2.push(sanitizationRef);\n                if (attrNamespace) {\n                    var\n                    namespaceLiteral = literal(attrNamespace);\n                    if (sanitizationRef) {\n                        params_2.push(namespaceLiteral);\n                    }\n                    else {\n                        // If there\n                        // wasn't a sanitization ref, we need to add\n                        // an extra param so that we can pass in the\n                        namespace.\n                        params_2.push(literal(null), namespaceLiteral);\n                    }\n                }\n                _this.allocateBindingSlots(value_2);\n                if (inputType === 0 /* Property */) {\n                    if (value_2 instanceof Interpolation) {\n                        // prop="{ {value} }" and friends\n                        _this.interpolatedUpdateInstruction(getPropertyInterpolationExpression(value_2),\n                        elementIndex, attrName_1, input, value_2, params_2);\n                    }\n                    else {\n                        // [prop]="value"\n                        // Collect all the properties so that we can chain into a single function\n                        at the end.\n                        propertyBindings.push({\n                            name: attrName_1,\n                            sourceSpan: input.sourceSpan,\n                            value: function () { return\n                                _this.convertPropertyBinding(value_2); },\n                            params: params_2\n                        });\n                    }\n                    else if (inputType === 1 /* Attribute */) {\n                        if\n                        (value_2 instanceof Interpolation && getInterpolationArgsLength(value_2) > 1) {\n                            // attr.name="text{ {value} }" and friends\n                            _this.interpolatedUpdateInstruction(getAttributeInterpolationExpression(value_2), elementIndex, attrName_1, input,\n                            value_2, params_2);\n                        }\n                        else {\n                            var boundValue_1 =\n                            value_2 instanceof Interpolation ? value_2.expressions[0] : value_2;\n                            // [attr.name]="value" or\n                            attr.name="{ {value} }"\n                            // Collect the attribute bindings so that they can be chained at the\n                            end.\n                            attributeBindings.push({\n                                name: attrName_1,\n                                sourceSpan: input.sourceSpan,\n                                value: function () { return\n                                    _this.convertPropertyBinding(boundValue_1); },\n                                params: params_2\n                            });\n                        }\n                    }\n                    else {\n                        // class prop\n                        _this.updateInstructionWithAdvance(elementIndex, input.sourceSpan, Identifiers$1.classProp, function () {\n                            return __spread([\n                                literal(elementIndex), literal(attrName_1),\n                                _this.convertPropertyBinding(value_2)\n                            ], params_2);\n                        });\n                    }\n                    if (propertyBindings.length > 0) {\n                        this.updateInstructionChainWithAdvance(elementIndex, Identifiers$1.property, propertyBindings);\n                    }\n                    if (attributeBindings.length > 0) {\n                        this.updateInstructionChainWithAdvance(elementIndex,\n                        Identifiers$1.attribute, attributeBindings);\n                    }\n                    // Traverse element child nodes\n                    visitAll(this, element.children);\n                    if (!isI18nRootElement && this.i18n) {\n                        this.i18n.appendElement(element.i18n, elementIndex, true);\n                    }\n                    if (!createSelfClosingInstruction)\n                    {\n                        // Finish element construction mode.\n                        var span = (_b = element.endSourceSpan) !== null &&\n                        _b !== void 0 ? _b : element.sourceSpan;\n                        if (isI18nRootElement) {\n                            this.i18nEnd(span,\n                            createSelfClosingI18nInstruction);\n                        }\n                        if (isNonBindableMode) {\n                            this.creationInstruction(span, Identifiers$1.enableBindings);\n                        }\n                        this.creationInstruction(span,\n                        isNgContainer$1 ? Identifiers$1.elementContainerEnd : Identifiers$1.elementEnd);\n                    }\n                }\n                TemplateDefinitionBuilder.prototype.visitTemplate = function (template) {\n                    var _this = this;\n                    var\n                    _a;\n                    var NG_TEMPLATE_TAG_NAME\n                    = 'ng-template';\n                    var templateIndex = this.allocateDataSlot();\n                    if (this.i18n) {\n                        this.i18n.appendTemplate(template.i18n, templateIndex);\n                    }\n                    var tagName =\n                    sanitizeIdentifier(template.tagName || "");\n                    var contextName = "" + this.contextName + (tagName ? '_' +\n                    tagName : "") + "_" + templateIndex;\n                    var templateName = contextName + "_Template";\n                    var\n                    parameters = [\n                        literal(templateIndex),\n                        variable(templateName)\n                    ];\n                    // We don't care\n                    // about the tag's namespace here, because we infer\n                    // it based on the parent nodes inside the template\n                    instruction.\n                    literal(template.tagName ? splitNsName(template.tagName)[1] : template.tagName),\n
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];\n      // find directives matching on a given <ng-template> node\nthis.matchDirectives(NG_TEMPLATE_TAG_NAME, template);\n      // prepare attributes\n      parameter (including attributes used for directive matching)\n      var attrsExprs =\nthis.getAttributeExpressions(NG_TEMPLATE_TAG_NAME, template.attributes, template.inputs,\ntemplate.outputs, undefined /* styles */, template.templateAttrs);\nparameters.push(this.addAttrsToConsts(attrsExprs));\n      // local refs (ex.: <ng-template #foo>)\n      if\n(template.references && template.references.length) {\n      var refs =\nthis.prepareRefsArray(template.references);\n      parameters.push(this.addToConsts(refs));\nparameters.push(importExpr(Identifiers$1.templateRefExtractor));\n      }\n      // Create the template\nfunction\n      var templateVisitor = new TemplateDefinitionBuilder(this.constantPool, this._bindingScope,\nthis.level + 1, contextName, this.i18n, templateIndex, templateName, this.directiveMatcher, this.directives,\nthis.pipeTypeByName, this.pipes, this._namespace, this.fileBasedI18nSuffix,\nthis.i18nUseExternalIds, this._constants);\n      // Nested templates must not be visited until after their parent\ntemplates have completed\n      // processing, so they are queued here until after the initial pass. Otherwise, we\nwouldn't\n      // be able to support bindings in nested templates to local refs that occur after the\n      //\ntemplate definition. e.g. <div *ngIf=\"showing\">{{ foo }}</div> <div #foo></div>\nthis._nestedTemplateFns.push(function () {\n      var _c;\n      var templateFunctionExpr =\ntemplateVisitor.buildTemplateFunction(template.children, template.variables,\n_this._ngContentReservedSlots.length + _this._ngContentSelectorsOffset, template.i18n);\n_this.constantPool.statements.push(templateFunctionExpr.toDeclStmt(templateName));\n      if\n(templateVisitor._ngContentReservedSlots.length) {\n      (_c =\n_this._ngContentReservedSlots).push.apply(_c, __spread(templateVisitor._ngContentReservedSlots));\n      }\n      });\n      // e.g. template(1, MyComp_Template_1)\nthis.creationInstruction(template.sourceSpan, Identifiers$1.templateCreate, function () {\nparameters.splice(2, 0, literal(templateVisitor.getConstCount()), literal(templateVisitor.getVarCount()));\nreturn trimTrailingNulls(parameters);\n      });\n      // handle property bindings e.g. property('ngForOf',\nctx.items), et al;\n      this.templatePropertyBindings(templateIndex, template.templateAttrs);\n      // Only\nadd normal input/output binding instructions on explicit <ng-template> elements.\n      if (template.tagName\n=== NG_TEMPLATE_TAG_NAME) {\n      var _c = __read(partitionArray(template.inputs, hasI18nMeta),\n2), i18nInputs = _c[0], inputs = _c[1];\n      // Add i18n attributes that may act as inputs to directives. If such\nattributes are present,\n      // generate `i18nAttributes` instruction. Note: we generate it only for explicit <ng-template>\n      //\nelements, in case of inline templates, corresponding instructions will be generated in the\n      // nested\ntemplate function.\n      if (i18nInputs.length > 0) {\n      this.i18nAttributesInstruction(templateIndex,\ni18nInputs, (_a = template.startSourceSpan) !== null && _a !== void 0 ? _a : template.sourceSpan);\n      }\n      // Add the input bindings\n      if (inputs.length > 0) {\nthis.templatePropertyBindings(templateIndex, inputs);\n      }\n      // Generate listeners for directive\noutput\n      if (template.outputs.length > 0) {\n      var listeners = template.outputs.map(function\n(outputAst) { return ({\n      sourceSpan: outputAst.sourceSpan,\n      params:\n_this.prepareListenerParameter('ng_template',\noutputAst, templateIndex)\n}); });\n      this.creationInstructionChain(Identifiers$1.listener,\nlisteners);\n      }\n      }\n      TemplateDefinitionBuilder.prototype.visitBoundText = function\n(text) {\n      var _this = this;\n      if (this.i18n) {\n      var value_3 =\ntext.value.visit(this._valueConverter);\n      this.allocateBindingSlots(value_3);\n      if (value_3\ninstanceof Interpolation) {\n      this.i18n.appendBoundText(text.i18n);\n      }\n      this.i18nAppendBindings(value_3.expressions);\n      }\n      return;\n      }\n      var nodeIndex =\nthis.allocateDataSlot();\n      this.creationInstruction(text.sourceSpan, Identifiers$1.text, [literal(nodeIndex)]);\n      var value = text.value.visit(this._valueConverter);\n      this.allocateBindingSlots(value);\n      if (value

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instanceof
Interpolation) {\n          this.updateInstructionWithAdvance(nodeIndex, text.sourceSpan,
getTextInterpolationExpression(value), function () { return _this.getUpdateInstructionArguments(value); });\n
}\n      else {\n          error("Text nodes should be interpolated and never bound directly.");\n      }\n
};\n      TemplateDefinitionBuilder.prototype.visitText = function (text) {\n          // when a text element is located
within a translatable\n          // block, we exclude this text element from instructions set,\n          // since it will be
captured in i18n content and processed at runtime\n          if (!this.i18n) {\n
this.creationInstruction(text.sourceSpan, Identifiers$.text, [literal(this.allocateDataSlot()), literal(text.value)]);\n
      }\n      }\n      TemplateDefinitionBuilder.prototype.visitIcu = function (icu) {\n          var initWasInvoked =
false;\n          // if an ICU was created
outside of i18n block, we still treat\n          // it as a translatable entity and invoke i18nStart and i18nEnd\n          //
to generate i18n context and the necessary instructions\n          if (!this.i18n) {\n              initWasInvoked = true;\n
              this.i18nStart(null, icu.i18n, true);\n          }\n          var i18n = this.i18n;\n          var vars =
this.i18nBindProps(icu.vars);\n          var placeholders = this.i18nBindProps(icu.placeholders);\n          // output
ICU directly and keep ICU reference in context\n          var message = icu.i18n;\n          // we always need post-
processing function for ICUs, to make sure that:\n          // - all placeholders in a form of {PLACEHOLDER} are
replaced with actual values (note:\n          // `goog.getMsg` does not process ICUs and uses the
`{PLACEHOLDER}` format for placeholders\n          // inside ICUs)\n          // - all ICU vars (such as
`VAR_SELECT` or `VAR_PLURAL`) are replaced with
correct values\n          var transformFn = function (raw) {\n              var params = Object.assign(Object.assign({},
vars), placeholders);\n              var formatted = i18nFormatPlaceholderNames(params, /* useCamelCase */ false);\n
              return instruction(null, Identifiers$.i18nPostprocess, [raw, mapLiteral(formatted, true)]);\n          };\n
          // in case the whole i18n message is a single ICU - we do not need to\n          // create a separate top-level
translation, we can use the root ref instead\n          // and make this ICU a top-level translation\n          // note: ICU
placeholders are replaced with actual values in `i18nPostprocess` function\n          // separately, so we do not pass
placeholders into `i18nTranslate` function.\n          if (isSingleI18nIcu(i18n.meta)) {\n
this.i18nTranslate(message, /* placeholders */ {}, i18n.ref, transformFn);\n          }\n          else {\n              //
output ICU directly
and keep ICU reference in context\n              var ref = this.i18nTranslate(message, /* placeholders */ {}, /* ref */
undefined, transformFn);\n              i18n.appendIcu(icuFromI18nMessage(message).name, ref);\n          }\n
if (initWasInvoked) {\n              this.i18nEnd(null, true);\n          }\n          return null;\n      };\n
TemplateDefinitionBuilder.prototype.allocateDataSlot = function () {\n          return this._dataIndex++;\n      };\n
TemplateDefinitionBuilder.prototype.getConstCount = function () {\n          return this._dataIndex;\n      };\n
TemplateDefinitionBuilder.prototype.getVarCount = function () {\n          return this._pureFunctionSlots;\n      };\n
TemplateDefinitionBuilder.prototype.getConsts = function () {\n          return this._constants;\n      };\n
TemplateDefinitionBuilder.prototype.getNgContentSelectors = function () {\n          return
this._ngContentReservedSlots.length
? \n          this.constantPool.getConstLiteral(asLiteral(this._ngContentReservedSlots), true) : \n          null;\n
      };\n      TemplateDefinitionBuilder.prototype.bindingContext = function () {\n          return "\"" +
this._bindingContext++;\n      };\n      TemplateDefinitionBuilder.prototype.templatePropertyBindings = function
(templateIndex, attrs) {\n          var _this = this;\n          var propertyBindings = [];\n          attrs.forEach(function
(input) {\n              if (input instanceof BoundAttribute) {\n                  var value_4 =
input.value.visit(_this._valueConverter);\n                  if (value_4 !== undefined) {\n
                  _this.allocateBindingSlots(value_4);\n                  if (value_4 instanceof Interpolation) {\n
Params typically contain attribute namespace and value sanitizer, which is applicable\n                  // for
regular HTML elements,
but not applicable for <ng-template> (since props act as\n                  // inputs to directives), so keep params
array empty.\n                  var params = [];\n                  // prop="{ {value} }" case\n

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_this.interpolatedUpdateInstruction(getPropertyInterpolationExpression(value_4), templateIndex, input.name, input,
value_4, params);\n                }\n                else {\n                // [prop]="value" case\n                propertyBindings.push({\n                name: input.name,\n                sourceSpan:
input.sourceSpan,\n                value: function () { return _this.convertPropertyBinding(value_4); }\n                });\n                }\n                }\n                });\n                if (propertyBindings.length > 0) {\n                this.updateInstructionChainWithAdvance(templateIndex,
Identifiers$1.property, propertyBindings);\n                }\n                };\n                // Bindings must only be resolved after all local
refs have been visited, so all\n                // instructions are queued in callbacks that execute once the initial pass has
completed.\n                // Otherwise, we wouldn't be able to support local refs that are defined after their\n                // bindings.
e.g. {{ foo }} <div #foo></div>\n                TemplateDefinitionBuilder.prototype.instructionFn = function (fns, span,
reference, paramsOrFn, prepend) {\n                if (prepend === void 0) { prepend = false; }\n                fns[prepend ?
'unshift' : 'push'](function () {\n                var params = Array.isArray(paramsOrFn) ? paramsOrFn : paramsOrFn();\n                return instruction(span, reference, params).toStmnt();\n                });\n                };\n                TemplateDefinitionBuilder.prototype.processStylingUpdateInstruction = function (elementIndex, instruction) {\n                var _this = this;\n                var allocateBindingSlots = 0;\n                if (instruction) {\n                var calls_1 = [];\n                instruction.calls.forEach(function (call) {\n                allocateBindingSlots += call.allocateBindingSlots;\n                calls_1.push({\n                sourceSpan: call.sourceSpan,\n                value: function () {\n                return call.params(function (value) { return (call.supportsInterpolation && value instanceof Interpolation) ?\n                _this.getUpdateInstructionArguments(value) :\n                _this.convertPropertyBinding(value); });\n                }\n                });\n                });\n                this.updateInstructionChainWithAdvance(elementIndex, instruction.reference, calls_1);\n                }\n                return
allocateBindingSlots;\n                };\n                TemplateDefinitionBuilder.prototype.creationInstruction = function (span,
reference,
paramsOrFn, prepend) {\n                this.instructionFn(this._creationCodeFns, span, reference, paramsOrFn || [],
prepend);\n                };\n                TemplateDefinitionBuilder.prototype.creationInstructionChain = function (reference, calls)
{\n                var span = calls.length ? calls[0].sourceSpan : null;\n                this._creationCodeFns.push(function () {\n                return chainedInstruction(reference, calls.map(function (call) { return call.params(); }), span).toStmnt();\n                });\n                };\n                TemplateDefinitionBuilder.prototype.updateInstructionWithAdvance = function (nodeIndex,
span, reference, paramsOrFn) {\n                this.addAdvanceInstructionIfNecessary(nodeIndex, span);\n                this.updateInstruction(span, reference, paramsOrFn);\n                };\n                TemplateDefinitionBuilder.prototype.updateInstruction = function (span, reference, paramsOrFn) {\n                this.instructionFn(this._updateCodeFns, span, reference, paramsOrFn || []);\n                };\n                TemplateDefinitionBuilder.prototype.updateInstructionChain = function (reference, bindings) {\n                var
span = bindings.length ? bindings[0].sourceSpan : null;\n                this._updateCodeFns.push(function () {\n                var calls = bindings.map(function (property) {\n                var value = property.value();\n                var
fnParams = Array.isArray(value) ? value : [value];\n                if (property.params) {\n                fnParams.push.apply(fnParams, __spread(property.params));\n                }\n                if (property.name) {\n                // We want the property name to always be the first function parameter.\n                fnParams.unshift(literal(property.name));\n                }\n                return fnParams;\n                });\n                return chainedInstruction(reference, calls, span).toStmnt();\n                });\n                };\n                TemplateDefinitionBuilder.prototype.updateInstructionChainWithAdvance
= function (nodeIndex, reference, bindings) {\n                this.addAdvanceInstructionIfNecessary(nodeIndex,
bindings.length ? bindings[0].sourceSpan : null);\n                this.updateInstructionChain(reference, bindings);\n                };\n                TemplateDefinitionBuilder.prototype.addAdvanceInstructionIfNecessary = function (nodeIndex, span) {\n                if (nodeIndex !== this._currentIndex) {\n                var delta = nodeIndex - this._currentIndex;\n                if
(delta < 1) {\n                throw new Error('advance instruction can only go forwards');\n                }\n                this.instructionFn(this._updateCodeFns, span, Identifiers$1.advance, [literal(delta)]);\n                this._currentIndex

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= nodeIndex;\n      }\n      }\n      TemplateDefinitionBuilder.prototype.allocatePureFunctionSlots = function
(numSlots) {\n      var originalSlots = this._pureFunctionSlots;\n      this._pureFunctionSlots
+= numSlots;\n      return originalSlots;\n      };\n
TemplateDefinitionBuilder.prototype.allocateBindingSlots = function (value) {\n      this._bindingSlots += value
instanceof Interpolation ? value.expressions.length : 1;\n      };\n      /**\n      * Gets an expression that refers to
the implicit receiver. The implicit\n      * receiver is always the root level context.\n      */\n
TemplateDefinitionBuilder.prototype.getImplicitReceiverExpr = function () {\n      if
(this._implicitReceiverExpr) {\n      return this._implicitReceiverExpr;\n      }\n      return
this._implicitReceiverExpr = this.level === 0 ?\n      variable(CONTEXT_NAME) :\n      this._bindingScope.getOrCreateSharedContextVar(0);\n      };\n
TemplateDefinitionBuilder.prototype.convertPropertyBinding = function (value) {\n      var _c;\n      var
convertedPropertyBinding = convertPropertyBinding(this, this.getImplicitReceiverExpr(),
value, this.bindingContext(), BindingForm.Expression, function () { return error('Unexpected interpolation'); });\n
      var valExpr = convertedPropertyBinding.currValExpr;\n      (_c = this._tempVariables).push.apply(_c,
__spread(convertedPropertyBinding.stmts));\n      return valExpr;\n      };\n      /**\n      * Gets a list of
argument expressions to pass to an update instruction expression. Also updates\n      * the temp variables state
with temp variables that were identified as needing to be created\n      * while visiting the arguments.\n      *
@param value The original expression we will be resolving an arguments list from.\n      */\n
TemplateDefinitionBuilder.prototype.getUpdateInstructionArguments = function (value) {\n      var _c;\n
      var _d = convertUpdateArguments(this, this.getImplicitReceiverExpr(), value, this.bindingContext()), args =
_d.args, stmts = _d.stmts;\n      (_c
= this._tempVariables).push.apply(_c, __spread(stmts));\n      return args;\n      };\n
TemplateDefinitionBuilder.prototype.matchDirectives = function (elementName, elOrTpl) {\n      var _this =
this;\n      if (this.directiveMatcher) {\n      var selector = createCssSelector(elementName,
getAttrsForDirectiveMatching(elOrTpl));\n      this.directiveMatcher.match(selector, function (cssSelector,
staticType) {\n      _this.directives.add(staticType);\n      });\n      }\n      };\n      /**\n      *
Prepares all attribute expression values for the `TAttributes` array.\n      * \n      * The purpose of this function is
to properly construct an attributes array that\n      * is passed into the `elementStart` (or just `element`) functions.
Because there\n      * are many different types of attributes, the array needs to be constructed in a\n      * special
way so that `elementStart` can properly
evaluate them.\n      * \n      * The format looks like this:\n      * \n      * ```\n      * attrs = [prop, value, prop2,
value2,\n      * PROJECT_AS, selector,\n      * CLASSES, class1, class2,\n      * STYLES, style1, value1,
style2, value2,\n      * BINDINGS, name1, name2, name3,\n      * TEMPLATE, name4, name5, name6,\n      * I18N, name7, name8, ...]\n      * ```\n      * \n      * Note that this function will fully ignore all synthetic
(@foo) attribute values\n      * because those values are intended to always be generated as property instructions.\n      * \n
      TemplateDefinitionBuilder.prototype.getAttributeExpressions = function (elementName,
renderAttributes, inputs, outputs, styles, templateAttrs, boundI18nAttrs) {\n      var e_2, _c;\n      if
(templateAttrs === void 0) { templateAttrs = []; }\n      if (boundI18nAttrs === void 0) { boundI18nAttrs = [];\n
      }\n      var alreadySeen = new
Set();\n      var attrExprs = [];\n      var ngProjectAsAttr;\n      try {\n      for (var
renderAttributes_1 = __values(renderAttributes), renderAttributes_1_1 = renderAttributes_1.next();
!renderAttributes_1_1.done; renderAttributes_1_1 = renderAttributes_1.next()) {\n      var attr =
renderAttributes_1_1.value;\n      if (attr.name === NG_PROJECT_AS_ATTR_NAME) {\n
      ngProjectAsAttr = attr;\n      }\n      // Note that static i18n attributes aren't in the i18n array,\n
      // because they're treated in the same way as regular attributes.\n      if (attr.i18n) {\n
      attrExprs.push(literal(attr.name), this.i18nTranslate(attr.i18n));\n      }\n      else {\n
      attrExprs.push.apply(attrExprs, __spread(getAttributeNameLiterals(attr.name),
[trustedConstAttribute(elementName, attr)]));\n

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        }\n        }\n        }\n        catch (e_2_1) { e_2 = { error: e_2_1 }; }\n        finally {\n
try {\n        if (renderAttributes_1_1 && !renderAttributes_1_1.done && (_c = renderAttributes_1.return))\n        _c.call(renderAttributes_1);\n        }\n        finally { if (e_2) throw e_2.error; }\n        }\n        // Keep\n
ngProjectAs next to the other name, value pairs so we can verify that we match\n        // ngProjectAs marker in the\n
attribute name slot.\n        if (ngProjectAsAttr) {\n        attrExprs.push.apply(attrExprs,\n        __spread(getNgProjectAsLiteral(ngProjectAsAttr));\n        }\n        function addAttrExpr(key, value) {\n        if (typeof key === 'string') {\n        if (!alreadySeen.has(key)) {\n        attrExprs.push.apply(attrExprs, __spread(getAttributeNameLiterals(key));\n        value !== undefined &&\n        attrExprs.push(value);\n        alreadySeen.add(key);\n        }\n        }\n        else {\n        attrExprs.push(literal(key));\n        }\n        }\n        // it's important that this occurs before BINDINGS and\n
TEMPLATE because once `elementStart`\n        // comes across the BINDINGS or TEMPLATE markers then it\n
will continue reading each value as\n        // as single property value cell by cell.\n        if (styles) {\n        styles.populateInitialStylingAttrs(attrExprs);\n        }\n        if (inputs.length || outputs.length) {\n        var\n        attrsLengthBeforeInputs = attrExprs.length;\n        for (var i = 0; i < inputs.length; i++) {\n        var\n        input = inputs[i];\n        // We don't want the animation and attribute bindings in the\n        // attributes\n
array since they aren't used for directive matching.\n        if (input.type\n        !== 4 /* Animation */ && input.type !== 1 /* Attribute */) {\n        addAttrExpr(input.name);\n        }\n        }\n        for (var i = 0; i < outputs.length; i++) {\n        var output = outputs[i];\n        if (output.type !== 1 /* Animation */) {\n        addAttrExpr(output.name);\n        }\n        }\n        // this is a cheap way of adding the marker only after all the input/output\n        // values have been\n
filtered (by not including the animation ones) and added\n        // to the expressions. The marker is important\n
because it tells the runtime\n        // code that this is where attributes without values start...\n        if\n
(attrExprs.length !== attrsLengthBeforeInputs) {\n        attrExprs.splice(attrsLengthBeforeInputs, 0, literal(3\n        /* Bindings */));\n        }\n        }\n        if (templateAttrs.length)\n        {\n        attrExprs.push(literal(4 /* Template */));\n        templateAttrs.forEach(function (attr) { return\n        addAttrExpr(attr.name); });\n        }\n        if (boundI18nAttrs.length) {\n        attrExprs.push(literal(6 /*\n        I18n */));\n        boundI18nAttrs.forEach(function (attr) { return addAttrExpr(attr.name); });\n        }\n        return attrExprs;\n        };\n        TemplateDefinitionBuilder.prototype.addToConsts = function (expression) {\n        if (isNull(expression)) {\n        return TYPED_NULL_EXPR;\n        }\n        var consts =\n        this._constants.constExpressions;\n        // Try to reuse a literal that's already in the array, if possible.\n        for\n
(var i = 0; i < consts.length; i++) {\n        if (consts[i].isEquivalent(expression)) {\n        return\n        literal(i);\n        }\n        }\n        return literal(consts.push(expression) - 1);\n        };\n        TemplateDefinitionBuilder.prototype.addAttrsToConsts = function (attrs) {\n        return attrs.length\n        > 0 ? this.addToConsts(literalArr(attrs)) : TYPED_NULL_EXPR;\n        };\n        TemplateDefinitionBuilder.prototype.prepareRefsArray = function (references) {\n        var _this = this;\n        if (!references || references.length === 0) {\n        return TYPED_NULL_EXPR;\n        }\n        var\n        refsParam = flatten(references.map(function (reference) {\n        var slot = _this.allocateDataSlot();\n        // Generate the update temporary.\n        var variableName = _this._bindingScope.freshReferenceName();\n        var retrievalLevel = _this.level;\n        var lhs = variable(variableName);\n        _this._bindingScope.set(retrievalLevel, reference.name, lhs, 0 /* DEFAULT */, function (scope, relativeLevel) {\n        // e.g. nextContext(2);\n        var nextContextStmt\n        = relativeLevel > 0 ? [generateNextContextExpr(relativeLevel).toStmt()] : [];\n        // e.g. const $foo$ =\n        reference(1);\n        var refExpr = lhs.set(importExpr(Identifiers$1.reference).callFn([literal(slot)]));\n        return nextContextStmt.concat(refExpr.toConstDecl());\n        }, true);\n        return [reference.name,\n        reference.value];\n        }));\n        return asLiteral(refsParam);\n        };\n        TemplateDefinitionBuilder.prototype.prepareListenerParameter = function (tagName, outputAst, index) {\n        var _this = this;\n        return function () {\n        var eventName = outputAst.name;\n        var

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bindingFnName = outputAst.type === 1 /* Animation */ ?\n          // synthetic @listener.foo values are treated
the exact same as are standard listeners\n          prepareSyntheticListenerFunctionName(eventName,
outputAst.phase) :\n
    sanitizeIdentifier(eventName);\n          var handlerName = _this.templateName + \"_\" + tagName + \"_\" +
bindingFnName + \"_\" + index + \"_listener\";\n          var scope =
_this._bindingScope.nestedScope(_this._bindingScope.bindingLevel, EVENT_BINDING_SCOPE_GLOBALS);\n
    return prepareEventListenerParameters(outputAst, handlerName, scope);\n          };\n          };\n    return
TemplateDefinitionBuilder;\n  }());\n  var ValueConverter = /** @class */ (function (_super) {\n
__extends(ValueConverter, _super);\n    function ValueConverter(constantPool, allocateSlot,
allocatePureFunctionSlots, definePipe) {\n        var _this = _super.call(this) || this;\n        _this.constantPool =
constantPool;\n        _this.allocateSlot = allocateSlot;\n        _this.allocatePureFunctionSlots =
allocatePureFunctionSlots;\n        _this.definePipe = definePipe;\n        _this._pipeBindExprs = [];\n    return _this;\n
  })\n  // AstMemoryEfficientTransformer\n  ValueConverter.prototype.visitPipe = function (pipe,
context) {\n    // Allocate a slot to create the pipe\n    var slot = this.allocateSlot();\n    var
slotPseudoLocal = \"PIPE:\" + slot;\n    // Allocate one slot for the result plus one slot per pipe argument\n
var pureFunctionSlot = this.allocatePureFunctionSlots(2 + pipe.args.length);\n    var target = new
PropertyRead(pipe.span, pipe.sourceSpan, pipe.nameSpan, new ImplicitReceiver(pipe.span, pipe.sourceSpan),
slotPseudoLocal);\n    var _c = pipeBindingCallInfo(pipe.args), identifier = _c.identifier, isVarLength =
_c.isVarLength;\n    this.definePipe(pipe.name, slotPseudoLocal, slot, importExpr(identifier));\n    var args
= __spread([pipe.exp], pipe.args);\n    var convertedArgs = isVarLength ?\n    this.visitAll([new
LiteralArray(pipe.span, pipe.sourceSpan, args)]) :\n
    this.visitAll(args);\n    var pipeBindExpr = new FunctionCall(pipe.span, pipe.sourceSpan, target,
__spread([\n    new LiteralPrimitive(pipe.span, pipe.sourceSpan, slot),\n    new
LiteralPrimitive(pipe.span, pipe.sourceSpan, pureFunctionSlot)\n    ], convertedArgs));\n
    this._pipeBindExprs.push(pipeBindExpr);\n    return pipeBindExpr;\n  };\n
  ValueConverter.prototype.updatePipeSlotOffsets = function (bindingSlots) {\n
    this._pipeBindExprs.forEach(function (pipe) {\n      // update the slot offset arg (index 1) to account for
binding slots\n      var slotOffset = pipe.args[1];\n      slotOffset.value += bindingSlots;\n    });\n
  };\n  ValueConverter.prototype.visitLiteralArray = function (array, context) {\n    var _this = this;\n
    return new BuiltinFunctionCall(array.span, array.sourceSpan, this.visitAll(array.expressions), function (values)
{\n      // If the literal has calculated (non-literal) elements transform it into\n      // calls to literal
factories that compose the literal and will cache intermediate\n      // values.\n      var literal =
literalArr(values);\n      return getLiteralFactory(_this.constantPool, literal, _this.allocatePureFunctionSlots);\n
    });\n  };\n  ValueConverter.prototype.visitLiteralMap = function (map, context) {\n    var _this =
this;\n    return new BuiltinFunctionCall(map.span, map.sourceSpan, this.visitAll(map.values), function
(values) {\n      // If the literal has calculated (non-literal) elements transform it into\n      // calls to
literal factories that compose the literal and will cache intermediate\n      // values.\n      var literal =
literalMap(values.map(function (value, index) { return ({ key: map.keys[index].key, value: value, quoted:
map.keys[index].quoted
    }); }));\n      return getLiteralFactory(_this.constantPool, literal, _this.allocatePureFunctionSlots);\n
    });\n  };\n  return ValueConverter;\n})(AstMemoryEfficientTransformer);\n  // Pipes always have at least
one parameter, the value they operate on\n  var pipeBindingIdentifiers = [Identifiers$1.pipeBind1,
Identifiers$1.pipeBind2, Identifiers$1.pipeBind3, Identifiers$1.pipeBind4];\n  function pipeBindingCallInfo(args)
{\n    var identifier = pipeBindingIdentifiers[args.length];\n    return {\n      identifier: identifier ||
Identifiers$1.pipeBindV,\n      isVarLength: !identifier,\n    };\n  }\n  var pureFunctionIdentifiers = [\n
Identifiers$1.pureFunction0, Identifiers$1.pureFunction1, Identifiers$1.pureFunction2, Identifiers$1.pureFunction3,
Identifiers$1.pureFunction4,\n  Identifiers$1.pureFunction5, Identifiers$1.pureFunction6,

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Identifiers$1.pureFunction7, Identifiers$1.pureFunction8\n
  ];\n  function pureFunctionCallInfo(args) {\n    var identifier = pureFunctionIdentifiers[args.length];\n  return {\n    identifier: identifier || Identifiers$1.pureFunctionV,\n    isVarLength: !identifier,\n  };\n}\n  function instruction(span, reference, params) {\n    return importExpr(reference, null, span).callFn(params,\nspan);\n  }\n  // e.g. x(2);\n  function generateNextContextExpr(relativeLevelDiff) {\n    return\nimportExpr(Identifiers$1.nextContext)\n    .callFn(relativeLevelDiff > 1 ? [literal(relativeLevelDiff)] : []);\n  }\n  function getLiteralFactory(constantPool, literal$1, allocateSlots) {\n    var _c =\nconstantPool.getLiteralFactory(literal$1), literalFactory = _c.literalFactory, literalFactoryArguments =\n_c.literalFactoryArguments;\n    // Allocate 1 slot for the result plus 1 per argument\n    var startSlot =\nallocateSlots(1 + literalFactoryArguments.length);\n    var _d =\npureFunctionCallInfo(literalFactoryArguments), identifier = _d.identifier, isVarLength = _d.isVarLength;\n    // Literal factories are pure functions that only need to be re-invoked when the parameters\n    // change.\n    var\nargs = [literal(startSlot), literalFactory];\n    if (isVarLength) {\nargs.push(literalArr(literalFactoryArguments));\n    } else {\nargs.push.apply(args,\n__spread(literalFactoryArguments));\n    }\n    return importExpr(identifier).callFn(args);\n  }\n  /**\n   * Gets an array of literals that can be added to an expression\n   * to represent the name and namespace of an\nattribute. E.g.\n   * `:xlink:href` turns into `[AttributeMarker.NamespaceURI, 'xlink', 'href']`\n   * \n   * @param\nname Name of the attribute, including the namespace.\n   * \n   * function getNameLiterals(name) {\nvar _c = __read(splitNsName(name), 2), attributeNamespace = _c[0], attributeName = _c[1];\n    var nameLiteral = literal(attributeName);\n    if (attributeNamespace) {\n      return [\n        literal(\n/* NamespaceURI */), literal(attributeNamespace), nameLiteral\n      ];\n    }\n    return [nameLiteral];\n  }\n  /** The prefix used to get a shared context in BindingScope's map. */\n  var SHARED_CONTEXT_KEY =\n'$shared_ctx$';\n  var BindingScope = /** @class */ (function () {\n    function BindingScope(bindingLevel,\nparent, globals) {\n      var e_3, _c;\n      if (bindingLevel === void 0) { bindingLevel = 0; }\n      if\n(parent === void 0) { parent = null; }\n      this.bindingLevel = bindingLevel;\n      this.parent = parent;\n      this.globals = globals;\n      /** Keeps a map from local variables to their BindingData. */\n      this.map =\nnew Map();\n      this.referenceNameIndex = 0;\n      this.restoreViewVariable = null;\n      if (globals !==\nundefined)\n        {\n          try {\n            for (var globals_1 = __values(globals), globals_1_1 = globals_1.next();\n!globals_1_1.done; globals_1_1 = globals_1.next()) {\n              var name = globals_1_1.value;\n              this.set(0, name, variable(name));\n            }\n          } catch (e_3_1) {\n            e_3 = { error: e_3_1 };\n          }\n          finally {\n            try {\n              if (globals_1_1 && !globals_1_1.done && (_c =\nglobals_1.return)) _c.call(globals_1);\n            } finally {\n              if (e_3) throw e_3.error;\n            }\n          }\n        }\n      BindingScope.createRootScope = function () {\n        return new BindingScope();\n      };\n      BindingScope.prototype.get = function (name) {\n        var current = this;\n        while (current) {\n          var value = current.map.get(name);\n          if (value !== null) {\n            if (current !== this) {\n              // make a local copy and reset the `declare` state\n              value = {\n                retrievalLevel: value.retrievalLevel,\n                lhs: value.lhs,\n                declareLocalCallback: value.declareLocalCallback,\n                declare: false,\n                priority:\nvalue.priority,\n                localRef: value.localRef\n              };\n              // Cache the value\n              locally.\n                this.map.set(name, value);\n              // Possibly generate a shared context var\n              this.maybeGenerateSharedContextVar(value);\n              this.maybeRestoreView(value.retrievalLevel,\nvalue.localRef);\n            }\n            if (value.declareLocalCallback && !value.declare) {\n              value.declare = true;\n            }\n            return value.lhs;\n          }\n          current = current.parent;\n        }\n      }\n    }\n  });\n  // If we get to this point, we are looking for a property on the top level component\n  // - If level === 0, we are\non the top and don't need to re-declare `ctx`.\n  // - If level > 0, we are in an embedded view. We need to\nretrieve the name of the\n  // local var we used to store the component context, e.g. const $comp$ = x();\n
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return this.bindingLevel === 0 ? null : this.getComponentProperty(name);\n    };\n    /**\n     * Create a
local variable for later reference.\n     */\n     * @param retrievalLevel The level from which this value can be
retrieved\n     * @param name Name of the variable.\n     * @param lhs AST representing the left hand side of
the `let lhs = rhs;`\n     * @param priority The sorting priority of this var\n     * @param declareLocalCallback
The callback to invoke when declaring this local var\n     * @param localRef Whether or not this is a local ref\n
*/\n     BindingScope.prototype.set = function (retrievalLevel, name, lhs, priority /* DEFAULT */,
declareLocalCallback, localRef) {\n         if (priority === void 0) { priority = 0; }\n         if (this.map.has(name))
{\n             if (localRef) {\n                 // Do not throw an error if it's a local ref and do not update existing
value,\n                 // so the first defined ref is always returned.\n                 return this;\n             }\n
error(`The name ` + name + ` is already defined in scope to be ` + this.map.get(name));\n         }\n
this.map.set(name, {\n             retrievalLevel: retrievalLevel,\n             lhs: lhs,\n             declare: false,\n
declareLocalCallback: declareLocalCallback,\n             priority: priority,\n             localRef:
localRef || false\n         });\n         return this;\n     }; // Implemented as part of LocalResolver.\n
BindingScope.prototype.getLocal = function (name) {\n         return this.get(name);\n     }; // Implemented
as part of LocalResolver.\n     BindingScope.prototype.notifyImplicitReceiverUse = function () {\n         if
(this.bindingLevel !== 0) {\n             // Since the implicit receiver is accessed in an embedded view, we need to\n
// ensure that we declare a shared context variable for the current template\n             // in the update
variables.\n             this.map.get(SHARED_CONTEXT_KEY + 0).declare = true;\n         }\n     };\n
BindingScope.prototype.nestedScope = function (level, globals) {\n         var newScope = new
BindingScope(level, this, globals);\n         if (level > 0)\n             newScope.generateSharedContextVar(0);\n
return newScope;\n     };\n
/**\n     * Gets or creates a shared context variable and returns its expression. Note that\n     * this does not
mean that the shared variable will be declared. Variables in the\n     * binding scope will be only declared if they
are used.\n     */\n     BindingScope.prototype.getOrCreateSharedContextVar = function (retrievalLevel) {\n
var bindingKey = SHARED_CONTEXT_KEY + retrievalLevel;\n         if (!this.map.has(bindingKey)) {\n
this.generateSharedContextVar(retrievalLevel);\n         }\n         // Shared context variables are always
generated as `ReadVarExpr`.\n         return this.map.get(bindingKey).lhs;\n     };\n
BindingScope.prototype.getSharedContextName = function (retrievalLevel) {\n         var sharedCtxObj =
this.map.get(SHARED_CONTEXT_KEY + retrievalLevel);\n         // Shared context variables are always
generated as `ReadVarExpr`.\n         return sharedCtxObj && sharedCtxObj.declare
? sharedCtxObj.lhs : null;\n     }; BindingScope.prototype.maybeGenerateSharedContextVar = function
(value) {\n         if (value.priority === 1 /* CONTEXT */ && value.retrievalLevel < this.bindingLevel)
{\n             var sharedCtxObj = this.map.get(SHARED_CONTEXT_KEY + value.retrievalLevel);\n             if
(sharedCtxObj) {\n                 sharedCtxObj.declare = true;\n             }\n             else {\n
this.generateSharedContextVar(value.retrievalLevel);\n             }\n         }\n     };\n
BindingScope.prototype.generateSharedContextVar = function (retrievalLevel) {\n         var lhs =
variable(CONTEXT_NAME + this.freshReferenceName());\n         this.map.set(SHARED_CONTEXT_KEY +
retrievalLevel, {\n             retrievalLevel: retrievalLevel,\n             lhs: lhs,\n             declareLocalCallback:
function (scope, relativeLevel) {\n                 // const ctx_r0
= nextContext(2);\n                 return [lhs.set(generateNextContextExpr(relativeLevel)).toConstDecl()];\n
},\n                 declare: false,\n                 priority: 2 /* SHARED_CONTEXT */,\n                 localRef: false\n
});\n     }; BindingScope.prototype.getComponentProperty = function (name) {\n         var
componentValue = this.map.get(SHARED_CONTEXT_KEY + 0);\n         componentValue.declare = true;\n
this.maybeRestoreView(0, false);\n         return componentValue.lhs.prop(name);\n     };\n
BindingScope.prototype.maybeRestoreView = function (retrievalLevel, localRefLookup) {\n         // We want to
restore the current view in listener fns if:\n         // 1 - we are accessing a value in a parent view, which requires
walking the view tree rather\n         // than using the ctx arg. In this case, the retrieval and binding level will be
different.\n         // 2 - we are looking up a local

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ref, which requires restoring the view where the local\n          // ref is stored\n          if (this.isListenerScope() &&
(retrievalLevel < this.bindingLevel || localRefLookup)) {\n          if (!this.parent.restoreViewVariable) {\n
    // parent saves variable to generate a shared `const $$ = getCurrentView();` instruction\n
this.parent.restoreViewVariable = variable(this.parent.freshReferenceName());\n          }\n
this.restoreViewVariable = this.parent.restoreViewVariable;\n          }\n          }\n
BindingScope.prototype.restoreViewStatement = function () {\n          // restoreView($state$);\n          return
this.restoreViewVariable ?\n          [instruction(null, Identifiers$1.restoreView,
[this.restoreViewVariable]).toStmt()]:\n          [];\n          }\n
BindingScope.prototype.viewSnapshotStatements = function () {\n          // const $state$ = getCurrentView();\n
\n
    var getCurrentViewInstruction = instruction(null, Identifiers$1.getCurrentView, []);\n          return
this.restoreViewVariable ?\n          [this.restoreViewVariable.set(getCurrentViewInstruction).toConstDecl()]:\n          [];\n          }\n
BindingScope.prototype.isListenerScope = function () {\n          return this.parent &&
this.parent.bindingLevel === this.bindingLevel;\n          }\n
BindingScope.prototype.variableDeclarations =
function () {\n          var _this = this;\n          var currentContextLevel = 0;\n          return
Array.from(this.map.values())\n          .filter(function (value) { return value.declare; })\n          .sort(function
(a, b) { return b.retrievalLevel - a.retrievalLevel || b.priority - a.priority; })\n          .reduce(function (stmts, value)
{\n          var levelDiff = _this.bindingLevel - value.retrievalLevel;\n          var currStmts =
value.declareLocalCallback(_this, levelDiff - currentContextLevel);\n
          currentContextLevel = levelDiff;\n          return stmts.concat(currStmts);\n          }, []);\n          }\n
BindingScope.prototype.freshReferenceName = function () {\n          var current = this;\n          // Find the top
scope as it maintains the global reference count\n          while (current.parent)\n          current = current.parent;\n
          var ref = "\" + REFERENCE_PREFIX + current.referenceNameIndex++; \n          return ref;\n          }\n
return BindingScope;\n  }());\n  /**\n   * Creates a `CssSelector` given a tag name and a map of attributes\n
  */\n  function createCssSelector(elementName, attributes) {\n          var cssSelector = new CssSelector();\n          var
elementNameNoNs = splitNsName(elementName)[1];\n          cssSelector.setElement(elementNameNoNs);\n
Object.getOwnPropertyNames(attributes).forEach(function (name) {\n          var nameNoNs =
splitNsName(name)[1];\n
          var value = attributes[name];\n          cssSelector.addAttribute(nameNoNs, value);\n          if
(name.toLowerCase() === 'class') {\n          var classes = value.trim().split(/\s+/);\n
classes.forEach(function (className) { return cssSelector.addClass(className); });\n          }\n          });\n
return cssSelector;\n  }\n  /**\n   * Creates an array of expressions out of an `ngProjectAs` attributes\n
  */\n  which can be added to the instruction parameters.\n  */\n  function getNgProjectAsLiteral(attribute) {\n          //
Parse the attribute value into a CssSelectorList. Note that we only take the\n          // first selector, because we don't
support multiple selectors in ngProjectAs.\n          var parsedR3Selector =
parseSelectorToR3Selector(attribute.value)[0];\n          return [literal(5 /* ProjectAs */,
asLiteral(parsedR3Selector))];\n  }\n  /**\n   * Gets the instruction to generate for an interpolated property\n
  */\n  @param
interpolation An Interpolation AST\n  */\n  function getPropertyInterpolationExpression(interpolation) {\n
switch (getInterpolationArgsLength(interpolation)) {\n          case 1:\n          return
Identifiers$1.propertyInterpolate;\n          case 3:\n          return Identifiers$1.propertyInterpolate1;\n          case
5:\n          return Identifiers$1.propertyInterpolate2;\n          case 7:\n          return
Identifiers$1.propertyInterpolate3;\n          case 9:\n          return Identifiers$1.propertyInterpolate4;\n
case 11:\n          return Identifiers$1.propertyInterpolate5;\n          case 13:\n          return
Identifiers$1.propertyInterpolate6;\n          case 15:\n          return Identifiers$1.propertyInterpolate7;\n
case 17:\n          return Identifiers$1.propertyInterpolate8;\n          default:\n          return
Identifiers$1.propertyInterpolateV;\n

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    }\n }\n /**\n  * Gets the instruction to generate for an interpolated attribute\n  * @param interpolation An
Interpolation AST\n  */\n function getAttributeInterpolationExpression(interpolation) {\n switch
(getInterpolationArgsLength(interpolation)) {\n case 3:\n return
Identifiers$1.attributeInterpolate1;\n case 5:\n return Identifiers$1.attributeInterpolate2;\n
case 7:\n return Identifiers$1.attributeInterpolate3;\n case 9:\n return
Identifiers$1.attributeInterpolate4;\n case 11:\n return Identifiers$1.attributeInterpolate5;\n
case 13:\n return Identifiers$1.attributeInterpolate6;\n case 15:\n return
Identifiers$1.attributeInterpolate7;\n case 17:\n return Identifiers$1.attributeInterpolate8;\n
default:\n return Identifiers$1.attributeInterpolateV;\n
    }\n }\n /**\n  * Gets the instruction to generate for interpolated text.\n  * @param interpolation An
Interpolation AST\n  */\n function getTextInterpolationExpression(interpolation) {\n switch
(getInterpolationArgsLength(interpolation)) {\n case 1:\n return Identifiers$1.textInterpolate;\n
case 3:\n return Identifiers$1.textInterpolate1;\n case 5:\n return
Identifiers$1.textInterpolate2;\n case 7:\n return Identifiers$1.textInterpolate3;\n case 9:\n
return Identifiers$1.textInterpolate4;\n case 11:\n return Identifiers$1.textInterpolate5;\n
case 13:\n return Identifiers$1.textInterpolate6;\n case 15:\n return
Identifiers$1.textInterpolate7;\n case 17:\n return Identifiers$1.textInterpolate8;\n
default:\n return Identifiers$1.textInterpolateV;\n }\n }\n /**\n  * Parse a template into
render3 `Node`s and additional metadata, with no other dependencies.\n  */\n  * @param template text of the
template to parse\n  * @param templateUrl URL to use for source mapping of the parsed template\n  * @param
options options to modify how the template is parsed\n  */\n function parseTemplate(template, templateUrl,
options) {\n if (options === void 0) { options = {}; }\n var interpolationConfig =
options.interpolationConfig, preserveWhitespaces = options.preserveWhitespaces,
enableI18nLegacyMessageIdFormat = options.enableI18nLegacyMessageIdFormat;\n var bindingParser =
makeBindingParser(interpolationConfig);\n var htmlParser = new HtmlParser();\n var parseResult =
htmlParser.parse(template, templateUrl, Object.assign(Object.assign({ leadingTriviaChars:
LEADING_TRIVIA_CHARS }, options), { tokenizeExpansionForms:
true }));\n if (parseResult.errors && parseResult.errors.length > 0) {\n // TODO(ayazhafiz): we may not
always want to bail out at this point (e.g. in\n // the context of a language service).\n return {\n
interpolationConfig: interpolationConfig,\n preserveWhitespaces: preserveWhitespaces,\n
template: template,\n errors: parseResult.errors,\n nodes: [],\n styleUrls: [],\n
styles: [],\n ngContentSelectors: []\n }; }\n var rootNodes = parseResult.rootNodes;\n
// process i18n meta information (scan attributes, generate ids)\n // before we run whitespace removal process,
because existing i18n\n // extraction process (ng extract-i18n) relies on a raw content to generate\n //
message ids\n var i18nMetaVisitor = new I18nMetaVisitor(interpolationConfig, /* keepI18nAttrs
*/ !preserveWhitespaces, enableI18nLegacyMessageIdFormat);\n rootNodes = visitAll$1(i18nMetaVisitor,
rootNodes);\n if (!preserveWhitespaces) {\n rootNodes = visitAll$1(new WhitespaceVisitor(),
rootNodes);\n // run i18n meta visitor again in case whitespaces are removed (because that might affect\n
// generated i18n message content) and first pass indicated that i18n content is present in a\n // template.
During this pass i18n IDs generated at the first pass will be preserved, so we can\n // mimic existing
extraction process (ng extract-i18n)\n if (i18nMetaVisitor.hasI18nMeta) {\n rootNodes =
visitAll$1(new I18nMetaVisitor(interpolationConfig, /* keepI18nAttrs */ false), rootNodes);\n }\n }\n
var _c = htmlAstToRender3Ast(rootNodes, bindingParser), nodes = _c.nodes, errors = _c.errors, styleUrls =
_c.styleUrls, styles = _c.styles, ngContentSelectors = _c.ngContentSelectors;\n
return {\n interpolationConfig: interpolationConfig,\n preserveWhitespaces:
preserveWhitespaces,\n errors: errors.length > 0 ? errors : null,\n template: template,\n nodes:
nodes,\n styleUrls: styleUrls,\n styles: styles,\n ngContentSelectors: ngContentSelectors\n
}; }\n var elementRegistry = new DomElementSchemaRegistry();\n /**\n  * Construct a `BindingParser`

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with a default configuration.\n  */\n  function makeBindingParser(interpolationConfig) {\n    if
(interpolationConfig === void 0) { interpolationConfig = DEFAULT_INTERPOLATION_CONFIG; }\n    return
new BindingParser(new IvyParser(new Lexer()), interpolationConfig, elementRegistry, null, []);\n  }\n  function
resolveSanitizationFn(context, isAttribute) {\n    switch (context) {\n      case SecurityContext.HTML:\n        return importExpr(Identifiers$1.sanitizeHtml);\n        case SecurityContext.SCRIPT:\n          return importExpr(Identifiers$1.sanitizeScript);\n        case
SecurityContext.STYLE:\n          // the compiler does not fill in an instruction for [style.prop?] binding\n
// values because the style algorithm knows internally what props are subject\n          // to sanitization (only
[attr.style] values are explicitly sanitized)\n          return isAttribute ? importExpr(Identifiers$1.sanitizeStyle) :
null;\n        case SecurityContext.URL:\n          return importExpr(Identifiers$1.sanitizeUrl);\n        case
SecurityContext.RESOURCE_URL:\n          return importExpr(Identifiers$1.sanitizeResourceUrl);\n        default:\n          return null;\n    }\n  }\n  function trustedConstAttribute(tagName, attr) {\n    var value =
asLiteral(attr.value);\n    switch (elementRegistry.securityContext(tagName, attr.name, /* isAttribute */ true)) {\n
      case SecurityContext.HTML:\n        return importExpr(Identifiers$1.trustConstantHtml).callFn([value],
attr.valueSpan);\n      case SecurityContext.SCRIPT:\n        return
importExpr(Identifiers$1.trustConstantScript).callFn([value], attr.valueSpan);\n      case
SecurityContext.RESOURCE_URL:\n        return
importExpr(Identifiers$1.trustConstantResourceUrl).callFn([value], attr.valueSpan);\n      default:\n        return value;\n    }\n  }\n  function isSingleElementTemplate(children) {\n    return children.length === 1
&& children[0] instanceof Element;\n  }\n  function isTextNode(node) {\n    return node instanceof Text || node
instanceof BoundText || node instanceof Icu;\n  }\n  function hasTextChildrenOnly(children) {\n    return
children.every(isTextNode);\n  }\n  /** Name of the global variable that is used to determine if we use Closure
translations or not */\n  var NG_I18N_CLOSURE_MODE = 'ngI18nClosureMode';\n  /**\n   * Generate statements that define a given translation message.\n   * \n   * ``\n   * var I18N_1;\n   * if
(typeof ngI18nClosureMode !== undefined && ngI18nClosureMode) {\n   *   var MSG_EXTERNAL_XXX =
goog.getMsg(\n   *     \"Some message with ${interpolation}!\",\n   *     { \"interpolation\":
\"\\uFFFD0\\uFFFD\" }\n   *   );\n   *   I18N_1 = MSG_EXTERNAL_XXX;\n   * }\n   * else {\n   *
I18N_1 = $localize`Some message with ${\"\\uFFFD0\\uFFFD\"}!`;\n   * }\n   * ``\n   * \n   * @param message
The original i18n AST message node\n   * @param variable The variable that will be assigned the translation, e.g.
`I18N_1`.\n   * @param closureVar The variable for Closure `goog.getMsg` calls, e.g.
`MSG_EXTERNAL_XXX`.\n   * @param params Object mapping placeholder names to their values (e.g.\n   * `{\n
\"interpolation\": \"\\uFFFD0\\uFFFD\" }\n   * `).\n   * @param transformFn Optional transformation function that will
be applied to the translation (e.g.\n   * post-processing).\n   * @returns An array of statements that defined a
given translation.\n   */\n  function getTranslationDeclStmts(message, variable, closureVar, params, transformFn)
{\n    if (params === void 0) { params = {}; }\n    var statements = [\n      declareI18nVariable(variable),\n     
ifStmt(createClosureModeGuard(), createGoogleGetMsgStatements(variable, message, closureVar,
i18nFormatPlaceholderNames(params, /* useCamelCase */ true)), createLocalizeStatements(variable, message,
i18nFormatPlaceholderNames(params, /* useCamelCase */ false))),\n    ];\n    if (transformFn) {\n      statements.push(new ExpressionStatement(variable.set(transformFn(variable))));\n    }\n    return statements;\n  }\n  /**\n   * Create the expression that will be used to guard the closure mode block\n   * It is equivalent to:\n
*\n   * ``\n   * typeof ngI18nClosureMode !== undefined
&& ngI18nClosureMode\n   * ``\n   */\n  function createClosureModeGuard() {\n    return
typeof Expr(variable(NG_I18N_CLOSURE_MODE)).notIdentical(literal('undefined', STRING_TYPE))\n    .and(variable(NG_I18N_CLOSURE_MODE));\n  }\n  var EMPTY_ARRAY = [];\n  // This regex
matches any binding names that contain the \"attr.\" prefix, e.g. \"attr.required\"\n  // If there is a match, the first
matching group will contain the attribute name to bind.\n  var ATTR_REGEX = /attr\\.([^\]]+)/;\n  function
baseDirectiveFields(meta, constantPool, bindingParser) {\n    var definitionMap = new DefinitionMap();\n

```

```

var selectors = parseSelectorToR3Selector(meta.selector);\n    // e.g. `type: MyDirective`\n
definitionMap.set('type', meta.internalType);\n    // e.g. `selectors: [{"", 'someDir', ""}]\n    if (selectors.length >
0) {\n        definitionMap.set('selectors', asLiteral(selectors));\n    }\n    if (meta.queries.length
> 0) {\n        // e.g. `contentQueries: (rf, ctx, dirIndex) => { ... }\n        definitionMap.set('contentQueries',
createContentQueriesFunction(meta.queries, constantPool, meta.name));\n    }\n    if (meta.viewQueries.length)
{\n        definitionMap.set('viewQuery', createViewQueriesFunction(meta.viewQueries, constantPool,
meta.name));\n    }\n    // e.g. `hostBindings: (rf, ctx) => { ... }\n    definitionMap.set('hostBindings',
createHostBindingsFunction(meta.host, meta.typeSourceSpan, bindingParser, constantPool, meta.selector || "",
meta.name, definitionMap));\n    // e.g `inputs: {a: 'a'}\n    definitionMap.set('inputs',
conditionallyCreateMapObjectLiteral(meta.inputs, true));\n    // e.g `outputs: {a: 'a'}\n
definitionMap.set('outputs', conditionallyCreateMapObjectLiteral(meta.outputs));\n    if (meta.exportAs !== null)
{\n        definitionMap.set('exportAs', literalArr(meta.exportAs.map(function (e) { return
literal(e); }))); \n    }\n    return definitionMap;\n } \n /**\n  * Add features to the definition map.\n  */\n
function addFeatures(definitionMap, meta) {\n    // e.g. `features: [NgOnChangesFeature]\n    var features =
[];\n    var providers = meta.providers;\n    var viewProviders = meta.viewProviders;\n    if (providers ||
viewProviders) {\n        var args = [providers || new LiteralArrayExpr([])];\n        if (viewProviders) {\n
args.push(viewProviders);\n        }\n
features.push(importExpr(Identifiers$1.ProvidersFeature).callFn(args));\n    }\n    if (meta.usesInheritance) {\n
features.push(importExpr(Identifiers$1.InheritDefinitionFeature));\n    }\n    if (meta.fullInheritance) {\n
features.push(importExpr(Identifiers$1.CopyDefinitionFeature));\n    }\n    if
(meta.lifecycle.usesOnChanges) {\n        features.push(importExpr(Identifiers$1.NgOnChangesFeature));\n
    }\n    if (features.length) {\n        definitionMap.set('features', literalArr(features));\n    }\n } \n /**\n
* Compile a directive for the render3 runtime as defined by the `R3DirectiveMetadata`.\n  */\n function
compileDirectiveFromMetadata(meta, constantPool, bindingParser) {\n    var definitionMap =
baseDirectiveFields(meta, constantPool, bindingParser);\n    addFeatures(definitionMap, meta);\n    var
expression = importExpr(Identifiers$1.defineDirective).callFn([definitionMap.toLiteralMap()]);\n    var
typeParams = createDirectiveTypeParams(meta);\n    var type =
expressionType(importExpr(Identifiers$1.DirectiveDefWithMeta, typeParams));\n    return { expression:
expression, type: type }; \n } \n /**\n  * Compile a component for the render3 runtime as defined by the
`R3ComponentMetadata`.\n  */\n function compileComponentFromMetadata(meta, constantPool, bindingParser)
{\n    var e_1,
_a;\n    var definitionMap = baseDirectiveFields(meta, constantPool, bindingParser);\n
addFeatures(definitionMap, meta);\n    var selector = meta.selector && CssSelector.parse(meta.selector);\n
var firstSelector = selector && selector[0];\n    // e.g. `attr: [{"class", "my.app"}]\n    // This is optional an
only included if the first selector of a component specifies attributes.\n    if (firstSelector) {\n        var
selectorAttributes = firstSelector.getAttrs();\n        if (selectorAttributes.length) {\n
definitionMap.set('attrs', constantPool.getConstLiteral(literalArr(selectorAttributes.map(function (value) { return
value !== null ? literal(value) : literal(undefined); })), \n        /* forceShared */ true));\n    }\n    }\n    //
Generate the CSS matcher that recognize directive\n    var directiveMatcher = null;\n    if
(meta.directives.length > 0) {\n        var matcher = new SelectorMatcher();\n
try {\n            for (var _b = __values(meta.directives), _c = _b.next(); !_c.done; _c = _b.next()) {\n
var _d = _c.value, selector_1 = _d.selector, expression_1 = _d.expression;\n
matcher.addSelectables(CssSelector.parse(selector_1), expression_1);\n            }\n        }\n        catch (e_1_1)
{\n            e_1 = { error: e_1_1 }; \n        }\n        finally {\n            try {\n                if (_c && !_c.done && (_a = _b.return))
_a.call(_b);\n            }\n            finally {\n                if (e_1) throw e_1.error; \n            }\n        }\n        directiveMatcher =
matcher;\n    }\n    // e.g. `template: function MyComponent_Template(_ctx, _cm) { ... }\n    var
templateTypeName = meta.name;\n    var templateName = templateTypeName ? templateTypeName +
`_Template` : null;\n    var directivesUsed = new Set();\n    var pipesUsed = new Set();\n    var

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changeDetection = meta.changeDetection;\n
    var template = meta.template;\n    var templateBuilder = new TemplateDefinitionBuilder(constantPool,
BindingScope.createRootScope(), 0, templateTypeName, null, null, templateName, directiveMatcher,
directivesUsed, meta.pipes, pipesUsed, Identifiers$1.namespaceHTML, meta.relativeContextFilePath,
meta.i18nUseExternalIds);\n    var templateFunctionExpression =
templateBuilder.buildTemplateFunction(template.nodes, []);\n    // We need to provide this so that dynamically
generated components know what\n    // projected content blocks to pass through to the component when it is
instantiated.\n    var ngContentSelectors = templateBuilder.getNgContentSelectors();\n    if
(ngContentSelectors) {\n        definitionMap.set('ngContentSelectors', ngContentSelectors);\n    }\n    // e.g.
`decls: 2`\n    definitionMap.set('decls', literal(templateBuilder.getConstCount()));\n    // e.g. `vars: 2`\n
definitionMap.set('vars', literal(templateBuilder.getVarCount()));\n
    // Generate `consts` section of ComponentDef:\n    // - either as an array:\n    // `consts: [['one', 'two'],
['three', 'four']]`\n    // - or as a factory function in case additional statements are present (to support i18n):\n    //
`consts: function() { var i18n_0; if (ngI18nClosureMode) {...} else {...} return [i18n_0]; }`\n    var _e =
templateBuilder.getConsts(), constExpressions = _e.constExpressions, prepareStatements = _e.prepareStatements;\n
    if (constExpressions.length > 0) {\n        var constsExpr = literalArr(constExpressions);\n        // Prepare
statements are present - turn `consts` into a function.\n        if (prepareStatements.length > 0) {\n
constsExpr = fn([], __spread(prepareStatements, [new ReturnStatement(constsExpr)]));\n        }\n
definitionMap.set('consts', constsExpr);\n    }\n    definitionMap.set('template', templateFunctionExpression);\n
    // e.g. `directives: [MyDirective]`\n    if (directivesUsed.size) {\n        var directivesExpr =
literalArr(Array.from(directivesUsed));\n        if (meta.wrapDirectivesAndPipesInClosure) {\n
directivesExpr = fn([], [new ReturnStatement(directivesExpr)]);\n        }\n        definitionMap.set('directives',
directivesExpr);\n    }\n    // e.g. `pipes: [MyPipe]`\n    if (pipesUsed.size) {\n        var pipesExpr =
literalArr(Array.from(pipesUsed));\n        if (meta.wrapDirectivesAndPipesInClosure) {\n            pipesExpr =
fn([], [new ReturnStatement(pipesExpr)]);\n        }\n        definitionMap.set('pipes', pipesExpr);\n    }\n    if
(meta.encapsulation === null) {\n        meta.encapsulation = ViewEncapsulation.Emulated;\n    }\n    // e.g.
`styles: [str1, str2]`\n    if (meta.styles && meta.styles.length) {\n        var styleValues = meta.encapsulation ==
ViewEncapsulation.Emulated
?\n        compileStyles(meta.styles, CONTENT_ATTR, HOST_ATTR) : meta.styles;\n        var
strings = styleValues.map(function (str) { return constantPool.getConstLiteral(literal(str)); });\n
definitionMap.set('styles', literalArr(strings));\n    }\n    else if (meta.encapsulation ===
ViewEncapsulation.Emulated) {\n        // If there is no style, don't generate css selectors on elements\n
meta.encapsulation = ViewEncapsulation.None;\n    }\n    // Only set view encapsulation if it's not the default
value\n    if (meta.encapsulation !== ViewEncapsulation.Emulated) {\n        definitionMap.set('encapsulation',
literal(meta.encapsulation));\n    }\n    // e.g. `animation: [trigger('123', [])]`\n    if (meta.animations !== null)
{\n        definitionMap.set('data', literalMap([{\n            key: 'animation', value: meta.animations, quoted: false\n        }]));\n
    }\n    // Only set the change detection flag
    if it's defined and it's not the default.\n    if (changeDetection !== null && changeDetection !==
ChangeDetectionStrategy.Default) {\n        definitionMap.set('changeDetection', literal(changeDetection));\n
    }\n    var expression = importExpr(Identifiers$1.defineComponent).callFn([definitionMap.toLiteralMap()]);\n
var typeParams = createDirectiveTypeParams(meta);\n
typeParams.push(stringArrayAsType(meta.template.ngContentSelectors));\n    var type =
expressionType(importExpr(Identifiers$1.ComponentDefWithMeta, typeParams));\n    return { expression:
expression, type: type };\n    }\n    /**\n     * A wrapper around `compileDirective` which depends on render2 global
analysis data as its input\n     * instead of the `R3DirectiveMetadata`.\n     * `R3DirectiveMetadata` is
computed from `CompileDirectiveMetadata` and other statically reflected\n     * information.\n     */\n    function
compileDirectiveFromRender2(outputCtx, directive, reflector,

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bindingParser) {\n    var name = identifierName(directive.type);\n    name || error(`Cannot resolver the name of ` + directive.type);\n    var definitionField = outputCtx.constantPool.propertyNameOf(1 /* Directive */);\n    var meta = directiveMetadataFromGlobalMetadata(directive, outputCtx, reflector);\n    var res = compileDirectiveFromMetadata(meta, outputCtx.constantPool, bindingParser);\n    var factoryRes = compileFactoryFunction(Object.assign(Object.assign({ }, meta), { injectFn: Identifiers$1.directiveInject, target: exports.R3FactoryTarget.Directive }));\n    var ngFactoryDefStatement = new ClassStmt(name, null, [new ClassField('fac', INFERRED_TYPE, [exports.StmtModifier.Static], factoryRes.factory)], [], new ClassMethod(null, [], [], []);\n    var directiveDefStatement = new ClassStmt(name, null, [new ClassField(definitionField, INFERRED_TYPE, [exports.StmtModifier.Static], res.expression)], [], new ClassMethod(null, [], [], []);\n    // Create the partial class to be merged with the actual class.\n    outputCtx.statements.push(ngFactoryDefStatement, directiveDefStatement);\n    }\n    /**\n     * A wrapper around `compileComponent` which depends on render2 global analysis data as its input\n     * instead of the `R3DirectiveMetadata`.\n     * `R3ComponentMetadata` is computed from `CompileDirectiveMetadata` and other statically reflected\n     * information.\n     */\n    function compileComponentFromRender2(outputCtx, component, render3Ast, reflector, bindingParser, directiveTypeBySel, pipeTypeByName) {\n        var name = identifierName(component.type);\n        name || error(`Cannot resolver the name of ` + component.type);\n        var definitionField = outputCtx.constantPool.propertyNameOf(2 /* Component */);\n        var summary = component.toSummary();\n        // Compute the R3ComponentMetadata from the CompileDirectiveMetadata\n        var meta = Object.assign(Object.assign({ }, directiveMetadataFromGlobalMetadata(component, outputCtx, reflector)), { selector: component.selector, template: { nodes: render3Ast.nodes, ngContentSelectors: render3Ast.ngContentSelectors }, directives: [], pipes: typeMapToExpressionMap(pipeTypeByName, outputCtx), viewQueries: queriesFromGlobalMetadata(component.viewQueries, outputCtx), wrapDirectivesAndPipesInClosure: false, styles: (summary.template && summary.template.styles) || EMPTY_ARRAY, encapsulation: (summary.template && summary.template.encapsulation) || ViewEncapsulation.Emulated, interpolation: DEFAULT_INTERPOLATION_CONFIG, animations: null, viewProviders: component.viewProviders.length > 0 ? new WrappedNodeExpr(component.viewProviders) : null, relativeContextFilePath: "", i18nUseExternalIds: true });\n        var res = compileComponentFromMetadata(meta, outputCtx.constantPool, bindingParser);\n        var factoryRes = compileFactoryFunction(Object.assign(Object.assign({ }, meta), { injectFn: Identifiers$1.directiveInject, target: exports.R3FactoryTarget.Directive }));\n        var ngFactoryDefStatement = new ClassStmt(name, null, [new ClassField('fac', INFERRED_TYPE, [exports.StmtModifier.Static], factoryRes.factory)], [], new ClassMethod(null, [], [], []);\n        var componentDefStatement = new ClassStmt(name, null, [new ClassField(definitionField, INFERRED_TYPE, [exports.StmtModifier.Static], res.expression)], [], new ClassMethod(null, [], [], []);\n        // Create the partial class to be merged with the actual class.\n        outputCtx.statements.push(ngFactoryDefStatement, componentDefStatement);\n    }\n    /**\n     * Compute `R3DirectiveMetadata` given `CompileDirectiveMetadata` and a `CompileReflector`.\n     */\n    function directiveMetadataFromGlobalMetadata(directive, outputCtx, reflector) {\n        // The global-analysis based Ivy mode in ngc is no longer utilized/supported.\n        throw new Error('unsupported');\n    }\n    /**\n     * Convert `CompileQueryMetadata` into `R3QueryMetadata`.\n     */\n    function queriesFromGlobalMetadata(queries, outputCtx) {\n        return queries.map(function (query) {\n            var read = null;\n            if (query.read && query.read.identifier) {\n                read = outputCtx.importExpr(query.read.identifier.reference);\n            }\n            return {\n                propertyName: query.propertyName,\n                first: query.first,\n                predicate: selectorsFromGlobalMetadata(query.selectors, outputCtx),\n                descendants: query.descendants,\n                read: read,\n                static: !!query.static\n            };\n        });\n    }\n    /**\n     * Convert `CompileTokenMetadata` for query selectors into either an expression for a predicate\n     * type, or a list of string predicates.\n     */\n    function selectorsFromGlobalMetadata(selectors, outputCtx) {\n        if (selectors.length > 1 || (selectors.length == 1 && selectors[0].value)) {\n            var selectorStrings = selectors.map(function (value) { return value.value; });\n            selectorStrings.some(function (value) { return !value; }) &&\n                error('Found a type among the string selectors expected');\n            return

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outputCtx.constantPool.getConstLiteral(literalArr(selectorStrings.map(function (value) { return literal(value); })));
    }\n    if (selectors.length == 1) {\n        var first = selectors[0];\n        if (first.identifier) {\n
return outputCtx.importExpr(first.identifier.reference);\n        }\n        error('Unexpected query form');\n
return NULL_EXPR;\n    }\n    function prepareQueryParams(query, constantPool) {\n        var parameters =
[getQueryPredicate(query, constantPool), literal(query.descendants)];\n        if (query.read) {\n
parameters.push(query.read);\n        }\n        return parameters;\n    }\n    function
convertAttributesToExpressions(attributes) {\n        var e_2, _a;\n
        var values = [];\n        try {\n            for (var _b = __values(Object.getOwnPropertyNames(attributes)), _c =
_b.next(); !_c.done; _c = _b.next()) {\n                var key = _c.value;\n                var value = attributes[key];\n
                values.push(literal(key), value);\n            }\n            catch (e_2_1) { e_2 = { error: e_2_1 }; }\n            finally {\n
                try {\n                    if (_c && !_c.done && (_a = _b.return)) _a.call(_b);\n                }\n                finally { if (e_2)
throw e_2.error; }\n            }\n            return values;\n        }\n        // Define and update any content queries\n        function
createContentQueriesFunction(queries, constantPool, name) {\n            var e_3, _a;\n            var createStatements = [];\n
            var updateStatements = [];\n            var tempAllocator = temporaryAllocator(updateStatements,
TEMPORARY_NAME);\n            try {\n                for (var queries_1 = __values(queries), queries_1_1 =
queries_1.next(); !queries_1_1.done;\n
                queries_1_1 = queries_1.next()) {\n                    var query = queries_1_1.value;\n                    var queryInstruction =
query.static ? Identifiers$1.staticContentQuery : Identifiers$1.contentQuery;\n                    // creation, e.g.
r3.contentQuery(dirIndex, somePredicate, true, null);\n
                createStatements.push(importExpr(queryInstruction)\n                    .callFn(__spread([variable('dirIndex')],
prepareQueryParams(query, constantPool)));\n                    .toStmt());\n                    // update, e.g.
(r3.queryRefresh(tmp = r3.loadQuery()) && (ctx.someDir = tmp));\n                    var temporary = tempAllocator();\n
                    var getQueryList = importExpr(Identifiers$1.loadQuery).callFn([]);\n                    var refresh =
importExpr(Identifiers$1.queryRefresh).callFn([temporary.set(getQueryList)]);\n                    var updateDirective =
variable(CONTEXT_NAME)\n                    .prop(query.propertyName)\n                    .set(query.first ?
temporary.prop('first')
: temporary);\n                    updateStatements.push(refresh.and(updateDirective).toStmt());\n                }\n            }\n
            catch (e_3_1) { e_3 = { error: e_3_1 }; }\n            finally {\n                try {\n                    if (queries_1_1 &&
!queries_1_1.done && (_a = queries_1.return)) _a.call(queries_1);\n                }\n                finally { if (e_3) throw
e_3.error; }\n            }\n            var contentQueriesFnName = name ? name + \"_ContentQueries\" : null;\n            return
fn([\n                new FnParam(RENDER_FLAGS, NUMBER_TYPE), new FnParam(CONTEXT_NAME, null),\n
                new FnParam('dirIndex', null)\n            ], [\n                renderFlagCheckIfStmt(1 /* Create */, createStatements),\n
renderFlagCheckIfStmt(2 /* Update */, updateStatements)\n            ], INFERRED_TYPE, null,
contentQueriesFnName);\n        }\n        function stringAsType(str) {\n            return expressionType(literal(str));\n        }\n
        function stringMapAsType(map) {\n            var mapValues = Object.keys(map).map(function
(key) {\n                var value = Array.isArray(map[key]) ? map[key][0] : map[key];\n                return {\n                    key:
key,\n                    value: literal(value),\n                    quoted: true,\n                };\n            });\n            return
expressionType(literalMap(mapValues));\n        }\n        function stringArrayAsType(arr) {\n            return arr.length > 0 ?
expressionType(literalArr(arr.map(function (value) { return literal(value); }))) :\n            NONE_TYPE;\n        }\n
        function createDirectiveTypeParams(meta) {\n            // On the type side, remove newlines from the selector as it will
need to fit into a TypeScript\n            // string literal, which must be on one line.\n            var selectorForType =
meta.selector !== null ? meta.selector.replace(/\\n/g, \"\") : null;\n            return [\n
                typeWithParameters(meta.type.type, meta.typeArgumentCount),\n                selectorForType !== null ?
stringAsType(selectorForType) : NONE_TYPE,\n                meta.exportAs
!<= null ? stringArrayAsType(meta.exportAs) : NONE_TYPE,\n                stringMapAsType(meta.inputs),\n
                stringMapAsType(meta.outputs),\n                stringArrayAsType(meta.queries.map(function (q) { return
q.propertyName; })),\n            ];\n        }\n        // Define and update any view queries\n        function
createViewQueriesFunction(viewQueries, constantPool, name) {\n            var createStatements = [];\n            var

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updateStatements = [];\n    var tempAllocator = temporaryAllocator(updateStatements,
TEMPORARY_NAME);\n    viewQueries.forEach(function (query) {\n        var queryInstruction = query.static
? Identifiers$1.staticViewQuery : Identifiers$1.viewQuery;\n        // creation, e.g. r3.viewQuery(somePredicate,
true);\n        var queryDefinition = importExpr(queryInstruction).callFn(prepareQueryParams(query,
constantPool));\n        createStatements.push(queryDefinition.toStmt());\n        // update, e.g.
(r3.queryRefresh(tmp = r3.loadQuery()) &&
(ctx.someDir = tmp));\n        var temporary = tempAllocator();\n        var getQueryList =
importExpr(Identifiers$1.loadQuery).callFn([]);\n        var refresh =
importExpr(Identifiers$1.queryRefresh).callFn([temporary.set(getQueryList)]);\n        var updateDirective =
variable(CONTEXT_NAME)\n        .prop(query.propertyName)\n        .set(query.first ?
temporary.prop('first') : temporary);\n        updateStatements.push(refresh.and(updateDirective).toStmt());\n
});\n    var viewQueryFnName = name ? name + \"_Query\" : null;\n    return fn([new
FnParam(RENDER_FLAGS, NUMBER_TYPE), new FnParam(CONTEXT_NAME, null)], [n
renderFlagCheckIfStmt(1 /* Create */, createStatements),\n    renderFlagCheckIfStmt(2 /* Update */,
updateStatements)\n    ], INFERRED_TYPE, null, viewQueryFnName);\n    }\n    // Return a host binding
function or null if one is not necessary.\n    function createHostBindingsFunction(hostBindingsMetadata,
typeSourceSpan, bindingParser, constantPool, selector, name, definitionMap) {\n        var bindingContext =
variable(CONTEXT_NAME);\n        var styleBuilder = new StylingBuilder(bindingContext);\n        var _a =
hostBindingsMetadata.specialAttributes, styleAttr = _a.styleAttr, classAttr = _a.classAttr;\n        if (styleAttr !==
undefined) {\n            styleBuilder.registerStyleAttr(styleAttr);\n        }\n        if (classAttr !== undefined) {\n
styleBuilder.registerClassAttr(classAttr);\n        }\n        var createStatements = [];\n        var updateStatements =
[];\n        var hostBindingSourceSpan = typeSourceSpan;\n        var directiveSummary =
metadataAsSummary(hostBindingsMetadata);\n        // Calculate host event bindings\n        var eventBindings =
bindingParser.createDirectiveHostEventAsts(directiveSummary, hostBindingSourceSpan);\n        if (eventBindings
&& eventBindings.length) {\n            var listeners = createHostListeners(eventBindings,
name);\n            createStatements.push.apply(createStatements, __spread(listeners));\n        }\n        // Calculate the
host property bindings\n        var bindings = bindingParser.createBoundHostProperties(directiveSummary,
hostBindingSourceSpan);\n        var allOtherBindings = [];\n        // We need to calculate the total amount of binding
slots required by\n        // all the instructions together before any value conversions happen.\n        // Value
conversions may require additional slots for interpolation and\n        // bindings with pipes. These calculates happen
after this block.\n        var totalHostVarsCount = 0;\n        bindings && bindings.forEach(function (binding) {\n
            var stylingInputWasSet = styleBuilder.registerInputBasedOnName(binding.name, binding.expression,
hostBindingSourceSpan);\n            if (stylingInputWasSet) {\n                totalHostVarsCount +=
MIN_STYLING_BINDING_SLOTS_REQUIRED;\n            }\n            else {\n
allOtherBindings.push(binding);\n                totalHostVarsCount++;\n            }\n        });\n        var
valueConverter;\n        var getValueConverter = function () {\n            if (!valueConverter) {\n                var
hostVarsCountFn = function (numSlots) {\n                    var originalVarsCount = totalHostVarsCount;\n
                    totalHostVarsCount += numSlots;\n                    return originalVarsCount;\n                };\n                valueConverter
= new ValueConverter(constantPool, function () { return error('Unexpected node'); }, // new nodes are illegal here\n
                    hostVarsCountFn, function () { return error('Unexpected pipe'); }); // pipes are illegal here\n            }\n
            return valueConverter;\n        };\n        var propertyBindings = [];\n        var attributeBindings = [];\n        var
syntheticHostBindings = [];\n        allOtherBindings.forEach(function (binding) {\n            // resolve literal arrays
and literal objects\n
            var value = binding.expression.visit(getValueConverter());\n            var bindingExpr =
bindingFn(bindingContext, value);\n            var _a = getBindingNameAndInstruction(binding), bindingName =
_a.bindingName, instruction = _a.instruction, isAttribute = _a.isAttribute;\n            var securityContexts =
bindingParser.calcPossibleSecurityContexts(selector, bindingName, isAttribute)\n            .filter(function (context)
{ return context !== SecurityContext.NONE; });\n            var sanitizerFn = null;\n            if

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(securityContexts.length) {\n          if (securityContexts.length === 2 &&\n
securityContexts.indexOf(SecurityContext.URL) > -1 &&\n
securityContexts.indexOf(SecurityContext.RESOURCE_URL) > -1) {\n          // Special case for some URL
attributes (such as \"src\" and \"href\") that may be a part\n          // of different security contexts. In this case
we use special sanitization
function and\n          // select the actual sanitizer at runtime based on a tag name that is provided while\n
// invoking sanitization function.\n          sanitizerFn =
importExpr(Identifiers$1.sanitizeUrlOrResourceUrl);\n          }\n          else {\n          sanitizerFn =
resolveSanitizationFn(securityContexts[0], isAttribute);\n          }\n          }\n          var instructionParams =
[literal(bindingName), bindingExpr.currValExpr];\n          if (sanitizerFn) {\n
instructionParams.push(sanitizerFn);\n          }\n          updateStatements.push.apply(updateStatements,
__spread(bindingExpr.stmts));\n          if (instruction === Identifiers$1.hostProperty) {\n
propertyBindings.push(instructionParams);\n          }\n          else if (instruction === Identifiers$1.attribute) {\n
attributeBindings.push(instructionParams);\n          }\n
else if (instruction === Identifiers$1.syntheticHostProperty) {\n
syntheticHostBindings.push(instructionParams);\n          }\n          else {\n
updateStatements.push(importExpr(instruction).callFn(instructionParams).toStmnt());\n          }\n          });\n          if
(propertyBindings.length > 0) {\n          updateStatements.push(chainedInstruction(Identifiers$1.hostProperty,
propertyBindings).toStmnt());\n          }\n          if (attributeBindings.length > 0) {\n
updateStatements.push(chainedInstruction(Identifiers$1.attribute, attributeBindings).toStmnt());\n          }\n          if
(syntheticHostBindings.length > 0) {\n
updateStatements.push(chainedInstruction(Identifiers$1.syntheticHostProperty, syntheticHostBindings).toStmnt());\n
          }\n          // since we're dealing with directives/components and both have hostBinding\n          // functions, we need
to generate a special hostAttrs instruction that deals\n          // with both
the assignment of styling as well as static attributes to the host\n          // element. The instruction below will instruct
all initial styling (styling\n          // that is inside of a host binding within a directive/component) to be attached\n
// to the host element alongside any of the provided host attributes that were\n          // collected earlier.\n          var
hostAttrs = convertAttributesToExpressions(hostBindingsMetadata.attributes);\n
styleBuilder.assignHostAttrs(hostAttrs, definitionMap);\n          if (styleBuilder.hasBindings) {\n          // finally each
binding that was registered in the statement above will need to be added to\n          // the update block of a
component/directive templateFn/hostBindingsFn so that the bindings\n          // are evaluated and updated for the
element.\n          styleBuilder.buildUpdateLevelInstructions(getValueConverter()).forEach(function (instruction)
{\n          if (instruction.calls.length > 0) {\n
var calls_1 = [];\n          instruction.calls.forEach(function (call) {\n          // we subtract a value
of `1` here because the binding slot was already allocated\n          // at the top of this method when all the
input bindings were counted.\n          totalHostVarsCount +=\n
Math.max(call.allocateBindingSlots - MIN_STYLING_BINDING_SLOTS_REQUIRED, 0);\n
calls_1.push(convertStylingCall(call, bindingContext, bindingFn));\n          });\n
updateStatements.push(chainedInstruction(instruction.reference, calls_1).toStmnt());\n          }\n          });\n
}\n          if (totalHostVarsCount) {\n          definitionMap.set('hostVars', literal(totalHostVarsCount));\n          }\n
if (createStatements.length > 0 || updateStatements.length > 0) {\n          var hostBindingsFnName = name ? name +
\"_HostBindings\" : null;\n
var statements = [];\n          if (createStatements.length > 0) {\n
statements.push(renderFlagCheckIfStmnt(1 /* Create */, createStatements));\n          }\n          if
(updateStatements.length > 0) {\n          statements.push(renderFlagCheckIfStmnt(2 /* Update */,
updateStatements));\n          }\n          return fn([new FnParam(RENDER_FLAGS, NUMBER_TYPE), new
FnParam(CONTEXT_NAME, null)], statements, INFERRED_TYPE, null, hostBindingsFnName);\n          }\n
return null;\n          }\n          function bindingFn(implicit, value) {\n          return convertPropertyBinding(null, implicit,

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value, 'b', BindingForm.Expression, function () { return error('Unexpected interpolation'); });\n } \n function
convertStylingCall(call, bindingContext, bindingFn) {\n return call.params(function (value) { return
bindingFn(bindingContext, value).currValExpr; });\n } \n function getBindingNameAndInstruction(binding) {\n
var bindingName = binding.name;\n
var instruction;\n // Check to see if this is an attr binding or a property binding\n var attrMatches =
bindingName.match(ATTR_REGEX);\n if (attrMatches) {\n bindingName = attrMatches[1];\n
instruction = Identifiers$1.attribute;\n } \n else {\n if (binding.isAnimation) {\n
bindingName = prepareSyntheticPropertyName(bindingName);\n // host bindings that have a synthetic
property (e.g. @foo) should always be rendered\n // in the context of the component and not the parent.
Therefore there is a special\n // compatibility instruction available for this purpose.\n instruction =
Identifiers$1.syntheticHostProperty;\n } \n else {\n instruction = Identifiers$1.hostProperty;\n
} \n } \n return { bindingName: bindingName, instruction: instruction, isAttribute: !!attrMatches }; \n
} \n function
createHostListeners(eventBindings, name) {\n var listeners = [];\n var syntheticListeners = [];\n var
instructions = [];\n eventBindings.forEach(function (binding) {\n var bindingName = binding.name &&
sanitizeIdentifier(binding.name);\n var bindingFnName = binding.type === 1 /* Animation */ ? \n
prepareSyntheticListenerFunctionName(bindingName, binding.targetOrPhase) : \n bindingName;\n
var handlerName = name && bindingName ? name + \"_\" + bindingFnName + \"_HostBindingHandler\" : null;\n
var params = prepareEventListenerParameters(BoundEvent.fromParsedEvent(binding), handlerName);\n
if (binding.type === 1 /* Animation */) {\n syntheticListeners.push(params);\n } \n else {\n
listeners.push(params);\n } \n }); \n if (syntheticListeners.length > 0) {\n
instructions.push(chainedInstruction(Identifiers$1.syntheticHostListener,
syntheticListeners).toStmt()); \n } \n if (listeners.length > 0) {\n
instructions.push(chainedInstruction(Identifiers$1.listener, listeners).toStmt()); \n } \n return instructions;\n
} \n function metadataAsSummary(meta) {\n // clang-format off\n return {\n // This is used by the
BindingParser, which only deals with listeners and properties. There's no\n // need to pass attributes to it.\n
hostAttributes: {}, \n hostListeners: meta.listeners, \n hostProperties: meta.properties, \n }; \n
// clang-format on\n } \n function typeMapToExpressionMap(map, outputCtx) {\n // Convert each map entry
into another entry where the value is an expression importing the type.\n var entries =
Array.from(map).map(function (_a) {\n var _b = __read(_a, 2), key = _b[0], type = _b[1]; \n return
[key, outputCtx.importExpr(type)]; \n
}); \n return new Map(entries); \n } \n var HOST_REG_EXP$1 = /^(?:(\[^\]]+\)|\|)(?:(\[^\]]+\)|\|))$/; \n
function parseHostBindings(host) {\n var e_4, _a; \n var attributes = {}; \n var listeners = {}; \n var
properties = {}; \n var specialAttributes = {}; \n try {\n for (var _b = __values(Object.keys(host)), _c
= _b.next(); !_c.done; _c = _b.next()) {\n var key = _c.value; \n var value = host[key]; \n
var matches = key.match(HOST_REG_EXP$1); \n if (matches === null) {\n switch (key) {\n
case 'class': \n if (typeof value !== 'string') {\n // TODO(alxhub):
make this a diagnostic.\n throw new Error(\"Class binding must be string\"); \n
} \n specialAttributes.classAttr
= value; \n break; \n case 'style': \n if (typeof value !== 'string') {\n
// TODO(alxhub): make this a diagnostic.\n throw new Error(\"Style binding
must be string\"); \n } \n specialAttributes.styleAttr = value; \n
break; \n default: \n if (typeof value === 'string') {\n attributes[key]
= literal(value); \n } \n else {\n attributes[key] = value; \n
} \n } \n } \n else if (matches[1 /* Binding */] != null) {\n if (typeof
value !== 'string') {\n // TODO(alxhub): make this a diagnostic.\n
throw new Error(\"Property binding must be string\"); \n } \n // synthetic properties (the
ones that have a `@` as a prefix)\n // are still treated the same as regular properties. Therefore\n

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// there is no point in storing them in a separate map.\n        properties[matches[1 /* Binding */] = value;\n    }\n    else if (matches[2 /* Event */] != null) {\n        if (typeof value !== 'string') {\n            // TODO(alxhub): make this a diagnostic.\n            throw new Error(\"Event binding must be string\");\n        }\n        listeners[matches[2 /* Event */] = value;\n    }\n    }\n    }\n    catch\n(e_4_1) { e_4 = { error: e_4_1 }; }\n    finally {\n        try {\n            if (_c && !_c.done && (_a =\n            _b.return)) _a.call(_b);\n        }\n        finally\n        {\n            if (e_4) throw e_4.error; }\n        }\n        return { attributes: attributes, listeners: listeners, properties: properties,\n        specialAttributes: specialAttributes }; }\n    }\n    /**\n     * Verifies host bindings and returns the list of errors (if\n     * any). Empty array indicates that a\n     * given set of host bindings has no errors.\n     * @param bindings set\n     * of host bindings to verify.\n     * @param sourceSpan source span where host bindings were defined.\n     * @returns array of errors associated with a given set of host bindings.\n     */\n    function\n    verifyHostBindings(bindings, sourceSpan) {\n        var summary = metadataAsSummary(bindings);\n        // TODO:\n        abstract out host bindings verification logic and use it instead of\n        // creating events and properties ASTs to\n        detect errors (FW-996)\n        var bindingParser = makeBindingParser();\n        bindingParser.createDirectiveHostEventAsts(summary, sourceSpan);\n        bindingParser.createBoundHostProperties(summary,\n        sourceSpan);\n        return bindingParser.errors; }\n    }\n    function compileStyles(styles, selector, hostSelector) {\n        var shadowCss = new ShadowCss();\n        return styles.map(function (style) {\n            return\n            shadowCss.shimCssText(style, selector, hostSelector);\n        }); }\n    }\n    /**\n     * @license\n     * Copyright\n     * Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can\n     * be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    /**\n     * An interface for retrieving\n     * documents by URL that the compiler uses\n     * to load templates.\n     */\n    var ResourceLoader = /** @class */\n    (function () {\n        function ResourceLoader() {\n        }\n        ResourceLoader.prototype.get = function (url) {\n            return\n            \"\";\n        }\n        return ResourceLoader;\n    })();\n    var CompilerFacadeImpl = /** @class */\n    (function () {\n        function CompilerFacadeImpl(jitEvaluator)\n        {\n            if (jitEvaluator === void 0) { jitEvaluator = new JitEvaluator(); }\n            this.jitEvaluator =\n            jitEvaluator;\n            this.R3ResolvedDependencyType = exports.R3ResolvedDependencyType;\n            this.R3FactoryTarget = exports.R3FactoryTarget;\n            this.ResourceLoader = ResourceLoader;\n            this.elementSchemaRegistry = new DomElementSchemaRegistry();\n        }\n        CompilerFacadeImpl.prototype.compilePipe = function (angularCoreEnv, sourceMapUrl, facade) {\n            var\n            metadata = {\n                name: facade.name,\n                type: wrapReference$1(facade.type),\n                internalType: new WrappedNodeExpr(facade.type),\n                typeArgumentCount: facade.typeArgumentCount,\n                deps: convertR3DependencyMetadataArray(facade.deps),\n                pipeName: facade.pipeName,\n                pure: facade.pure,\n            };\n            var res = compilePipeFromMetadata(metadata);\n            return this.jitExpression(res.expression, angularCoreEnv, sourceMapUrl, []);\n        }\n        CompilerFacadeImpl.prototype.compileInjectable = function (angularCoreEnv, sourceMapUrl, facade) {\n            var _a = compileInjectable({\n                name: facade.name,\n                type: wrapReference$1(facade.type),\n                internalType: new WrappedNodeExpr(facade.type),\n                typeArgumentCount:\n                facade.typeArgumentCount,\n                providedIn: computeProvidedIn(facade.providedIn),\n                useClass:\n                wrapExpression(facade, USE_CLASS),\n                useFactory: wrapExpression(facade, USE_FACTORY),\n                useValue: wrapExpression(facade, USE_VALUE),\n                useExisting: wrapExpression(facade,\n                USE_EXISTING),\n                userDeps: convertR3DependencyMetadataArray(facade.userDeps) || undefined,\n            }, expression = _a.expression, statements = _a.statements;\n            return this.jitExpression(expression,\n            angularCoreEnv, sourceMapUrl, statements);\n        }\n        CompilerFacadeImpl.prototype.compileInjector =\n        function (angularCoreEnv, sourceMapUrl, facade) {\n            var meta = {\n                name: facade.name,\n                type: wrapReference$1(facade.type),\n                internalType: new WrappedNodeExpr(facade.type),\n                deps: convertR3DependencyMetadataArray(facade.deps),\n                providers: new\n                WrappedNodeExpr(facade.providers),\n                imports: facade.imports.map(function (i) { return new

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WrappedNodeExpr(i); };\n      };\n      var res = compileInjector(meta);\n      return\n      this.jitExpression(res.expression, angularCoreEnv, sourceMapUrl, res.statements);\n    };\n\n    CompilerFacadeImpl.prototype.compileNgModule = function (angularCoreEnv, sourceMapUrl, facade) {\n      var meta = {\n        type: wrapReference$1(facade.type),\n        internalType: new\n        WrappedNodeExpr(facade.type),\n        adjacentType: new WrappedNodeExpr(facade.type),\n        bootstrap:\n        facade.bootstrap.map(wrapReference$1),\n        declarations: facade.declarations.map(wrapReference$1),\n        imports: facade.imports.map(wrapReference$1),\n        exports: facade.exports.map(wrapReference$1),\n        emitInline: true,\n        containsForwardDecls: false,\n        schemas: facade.schemas ?\n        facade.schemas.map(wrapReference$1) : null,\n        id: facade.id ? new WrappedNodeExpr(facade.id) : null,\n      };\n      var res = compileNgModule(meta);\n      return this.jitExpression(res.expression,\n      angularCoreEnv, sourceMapUrl, []);\n    };\n\n    CompilerFacadeImpl.prototype.compileDirective = function\n    (angularCoreEnv, sourceMapUrl, facade) {\n      var constantPool = new ConstantPool();\n      var\n      bindingParser = makeBindingParser();\n      var meta = convertDirectiveFacadeToMetadata(facade);\n      var res = compileDirectiveFromMetadata(meta, constantPool, bindingParser);\n      return\n      this.jitExpression(res.expression, angularCoreEnv, sourceMapUrl, constantPool.statements);\n    };\n\n    CompilerFacadeImpl.prototype.compileComponent = function (angularCoreEnv, sourceMapUrl, facade) {\n      // The ConstantPool is a requirement of the JIT'er.\n      var constantPool = new ConstantPool();\n      var\n      interpolationConfig = facade.interpolation ?\n      InterpolationConfig.fromArray(facade.interpolation) : \n      DEFAULT_INTERPOLATION_CONFIG;\n      // Parse the template and check for errors.\n      var\n      template = parseTemplate(facade.template, sourceMapUrl, { preserveWhitespaces: facade.preserveWhitespaces,\n      interpolationConfig: interpolationConfig });\n      if (template.errors !== null) {\n        var errors =\n        template.errors.map(function (err) { return err.toString(); }).join(',\n        ');\n        throw new Error("Errors during JIT compilation of template for '" + facade.name + "': '" + errors);\n      }\n      // Compile the component metadata, including template, into an expression.\n      //\n      TODO(alxhub): implement inputs, outputs, queries, etc.\n      var metadata =\n      Object.assign(Object.assign(Object.assign({}, facade), convertDirectiveFacadeToMetadata(facade)), { selector:\n      facade.selector || this.elementSchemaRegistry.getDefaultComponentElementName(), template: template,\n      wrapDirectivesAndPipesInClosure: false, styles: __spread(facade.styles, template.styles), encapsulation:\n      facade.encapsulation, interpolation: interpolationConfig, changeDetection: facade.changeDetection, animations:\n      facade.animations !== null ? new WrappedNodeExpr(facade.animations) : null, viewProviders: facade.viewProviders\n      !== null ? new WrappedNodeExpr(facade.viewProviders) : null, relativeContextFilePath: ",\n      i18nUseExternalIds:\n      true });\n      var res = compileComponentFromMetadata(metadata, constantPool,\n      makeBindingParser(interpolationConfig));\n      var jitExpressionSourceMap = "ng://" + facade.name +\n      ".js";\n      return this.jitExpression(res.expression, angularCoreEnv, jitExpressionSourceMap,\n      constantPool.statements);\n    };\n\n    CompilerFacadeImpl.prototype.compileFactory = function\n    (angularCoreEnv, sourceMapUrl, meta) {\n      var factoryRes = compileFactoryFunction({\n        name:\n        meta.name,\n        type: wrapReference$1(meta.type),\n        internalType: new\n        WrappedNodeExpr(meta.type),\n        typeArgumentCount: meta.typeArgumentCount,\n        deps:\n        convertR3DependencyMetadataArray(meta.deps),\n        injectFn: meta.injectFn === 'directiveInject' ?\n        Identifiers.directiveInject :\n        Identifiers.inject,\n        target: meta.target,\n      });\n      return\n      this.jitExpression(factoryRes.factory,\n      angularCoreEnv, sourceMapUrl, factoryRes.statements);\n    };\n\n    CompilerFacadeImpl.prototype.createParseSourceSpan = function (kind, typeName, sourceUrl) {\n      return\n      r3JitTypeSourceSpan(kind, typeName, sourceUrl);\n    };\n\n    /**\n     * JIT compiles an expression and\n     returns the result of executing that expression.\n     *\n     * @param def the definition which will be compiled\n     and executed to get the value to patch\n     *\n     * @param context an object map of @angular/core symbol names to

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symbols which will be available\n      * in the context of the compiled expression\n      * @param sourceUrl a
URL to use for the source map of the compiled expression\n      * @param preStatements a collection of
statements that should be evaluated before the expression.\n      */\n
CompilerFacadeImpl.prototype.jitExpression = function (def, context, sourceUrl, preStatements) {\n      // The
ConstantPool may contain
Statements which declare variables used in the final expression.\n      // Therefore, its statements need to precede
the actual JIT operation. The final statement is a\n      // declaration of $def which is set to the expression being
compiled.\n      var statements = __spread(preStatements, [\n      new DeclareVarStmt('$def', def,
undefined, [exports.StmtModifier.Exported]),\n      ]);\n      var res =
this.jitEvaluator.evaluateStatements(sourceUrl, statements, new R3JitReflector(context), /* enableSourceMaps */
true);\n      return res['$def'];\n      };\n      return CompilerFacadeImpl;\n      }());\n      var USE_CLASS =
Object.keys({ useClass: null })[0];\n      var USE_FACTORY = Object.keys({ useFactory: null })[0];\n      var
USE_VALUE = Object.keys({ useValue: null })[0];\n      var USE_EXISTING = Object.keys({ useExisting: null
} )[0];\n      var wrapReference$1 = function (value) {\n      var wrapped = new WrappedNodeExpr(value);\n      return { value: wrapped, type: wrapped };\n      };\n      function convertToR3QueryMetadata(facade) {\n
return Object.assign(Object.assign({}, facade), { predicate: Array.isArray(facade.predicate) ? facade.predicate :\n      new WrappedNodeExpr(facade.predicate), read: facade.read ? new WrappedNodeExpr(facade.read) : null,
static: facade.static });\n      }\n      function convertDirectiveFacadeToMetadata(facade) {\n      var
inputsFromMetadata = parseInputOutputs(facade.inputs || []);\n      var outputsFromMetadata =
parseInputOutputs(facade.outputs || []);\n      var propMetadata = facade.propMetadata;\n      var inputsFromType
= {};\n      var outputsFromType = {};\n      var _loop_1 = function (field) {\n      if
(propMetadata.hasOwnProperty(field)) {\n      propMetadata[field].forEach(function (ann) {\n      if
(isInput(ann)) {\n      inputsFromType[field] =\n      ann.bindingPropertyName
? [ann.bindingPropertyName, field] : field;\n      }\n      else if (isOutput(ann)) {\n
outputsFromType[field] = ann.bindingPropertyName || field;\n      }\n      });\n      }\n      };\n      for (var field in propMetadata) {\n      _loop_1(field);\n      }\n      return Object.assign(Object.assign({},
facade), { typeSourceSpan: facade.typeSourceSpan, type: wrapReference$1(facade.type), internalType: new
WrappedNodeExpr(facade.type), deps: convertR3DependencyMetadataArray(facade.deps), host:
extractHostBindings(facade.propMetadata, facade.typeSourceSpan, facade.host), inputs:
Object.assign(Object.assign({}, inputsFromMetadata), inputsFromType), outputs: Object.assign(Object.assign({},
outputsFromMetadata), outputsFromType), queries: facade.queries.map(convertToR3QueryMetadata), providers:
facade.providers != null ? new WrappedNodeExpr(facade.providers) : null, viewQueries:
facade.viewQueries.map(convertToR3QueryMetadata),
fullInheritance: false });\n      }\n      function wrapExpression(obj, property) {\n      if
(obj.hasOwnProperty(property)) {\n      return new WrappedNodeExpr(obj[property]);\n      }\n      else {\n
return undefined;\n      }\n      }\n      function computeProvidedIn(providedIn) {\n      if (providedIn == null ||
typeof providedIn === 'string') {\n      return new LiteralExpr(providedIn);\n      }\n      else {\n      return
new WrappedNodeExpr(providedIn);\n      }\n      }\n      function convertR3DependencyMetadata(facade) {\n
var tokenExpr;\n      if (facade.token === null) {\n      tokenExpr = new LiteralExpr(null);\n      }\n      else if
(facade.resolved === exports.R3ResolvedDependencyType.Attribute) {\n      tokenExpr = new
LiteralExpr(facade.token);\n      }\n      else {\n      tokenExpr = new WrappedNodeExpr(facade.token);\n
}\n      }\n      return {\n      token: tokenExpr,\n      attribute: null,\n      resolved: facade.resolved,\n      host: facade.host,\n
optional: facade.optional,\n      self: facade.self,\n      skipSelf: facade.skipSelf,\n      };\n      }\n      function
convertR3DependencyMetadataArray(facades) {\n      return facades == null ? null :
facades.map(convertR3DependencyMetadata);\n      }\n      function extractHostBindings(propMetadata, sourceSpan,
host) {\n      // First parse the declarations from the metadata.\n      var bindings = parseHostBindings(host || {});\n      // After that check host bindings for errors\n      var errors = verifyHostBindings(bindings, sourceSpan);\n      if

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(errors.length) {\n      throw new Error(errors.map(function (error) { return error.msg; }).join("\n")); \n    } \n
    var _loop_2 = function (field) {\n      if (propMetadata.hasOwnProperty(field)) {\n
propMetadata[field].forEach(function (ann) {\n
      if (isHostBinding(ann)) {\n          bindings.properties[ann.hostPropertyName || field] = field; \n
      } \n
      else if (isHostListener(ann)) {\n          bindings.listeners[ann.eventName || field] =
field + "\"(\" + (ann.args || []).join(',') + \"\")\"; \n          } \n          }); \n          // Next, loop
over the properties of the object, looking for @HostBinding and @HostListener. \n      for (var field in
propMetadata) {\n          _loop_2(field); \n      } \n      return bindings; \n } \n function isHostBinding(value) {\n
      return value.ngMetadataName === 'HostBinding'; \n } \n function isHostListener(value) {\n      return
value.ngMetadataName === 'HostListener'; \n } \n function isInput(value) {\n      return value.ngMetadataName
=== 'Input'; \n } \n function isOutput(value) {\n      return value.ngMetadataName === 'Output'; \n } \n
function
parseInputOutputs(values) {\n      return values.reduce(function (map, value) {\n          var _a =
__read(value.split(','), 2), field = _a[0], property = _a[1]; \n
map[field] = property || field; \n          return map; \n      }, {}); \n } \n function publishFacade(global) {\n      var
ng = global.ng || (global.ng = {}); \n      ng.compilerFacade = new CompilerFacadeImpl(); \n } \n \n /** \n *
@license \n * Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed by an
MIT-style license that can be \n * found in the LICENSE file at https://angular.io/license \n */ \n var
VERSION$1 = new Version('11.0.2'); \n \n /** \n * @license \n * Copyright Google LLC All Rights
Reserved. \n * \n * Use of this source code is governed by an MIT-style license that can be \n * found in the
LICENSE file at https://angular.io/license \n */ \n var CompilerConfig
= /** @class */ (function () {\n      function CompilerConfig(_a) {\n          var _b = _a === void 0 ? {} : _a, _c =
_b.defaultEncapsulation, defaultEncapsulation = _c === void 0 ? ViewEncapsulation.Emulated : _c, _d = _b.useJit,
useJit = _d === void 0 ? true : _d, _e = _b.jitDevMode, jitDevMode = _e === void 0 ? false : _e, _f =
_b.missingTranslation, missingTranslation = _f === void 0 ? null : _f, preserveWhitespaces =
_b.preserveWhitespaces, strictInjectionParameters = _b.strictInjectionParameters; \n          this.defaultEncapsulation
= defaultEncapsulation; \n          this.useJit = !!useJit; \n          this.jitDevMode = !!jitDevMode; \n
this.missingTranslation = missingTranslation; \n          this.preserveWhitespaces =
preserveWhitespacesDefault(noUndefined(preserveWhitespaces)); \n          this.strictInjectionParameters =
strictInjectionParameters === true; \n      } \n      return CompilerConfig; \n }()); \n function
preserveWhitespacesDefault(preserveWhitespacesOption,
defaultSetting) {\n      if (defaultSetting === void 0) { defaultSetting = false; } \n      return
preserveWhitespacesOption === null ? defaultSetting : preserveWhitespacesOption; \n } \n \n var
DirectiveNormalizer = /** @class */ (function () {\n      function DirectiveNormalizer(_resourceLoader,
_urlResolver, _htmlParser, _config) {\n          this._resourceLoader = _resourceLoader; \n          this._urlResolver
= _urlResolver; \n          this._htmlParser = _htmlParser; \n          this._config = _config; \n
this._resourceLoaderCache = new Map(); \n      } \n      DirectiveNormalizer.prototype.clearCache = function () {\n
          this._resourceLoaderCache.clear(); \n      }; \n      DirectiveNormalizer.prototype.clearCacheFor = function
(normalizedDirective) {\n          var _this = this; \n          if (!normalizedDirective.isComponent) {\n
return; \n          } \n          var template = normalizedDirective.template; \n
          this._resourceLoaderCache.delete(template.templateUrl); \n
          template.externalStylesheets.forEach(function (stylesheet) {\n
              _this._resourceLoaderCache.delete(stylesheet.moduleUrl); \n          }); \n      }; \n
DirectiveNormalizer.prototype._fetch = function (url) {\n          var result = this._resourceLoaderCache.get(url); \n
          if (!result) {\n              result = this._resourceLoader.get(url); \n              this._resourceLoaderCache.set(url,
result); \n          } \n          return result; \n      }; \n      DirectiveNormalizer.prototype.normalizeTemplate =
function (prenormData) {\n          var _this = this; \n          if (isDefined(prenormData.template)) {\n
              if
(isDefined(prenormData.templateUrl)) {\n                  throw syntaxError(\"\" + stringify(prenormData)

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.componentType) + \" component cannot define both template and templateUrl\");\n
    }\n    if (typeof prenormData.template !== 'string') {\n        throw syntaxError(\"The template\nspecified for component \" + stringify(prenormData.componentType) + \" is not a string\");\n    }\n    else if (isDefined(prenormData.templateUrl)) {\n        if (typeof prenormData.templateUrl !==\n'string') {\n            throw syntaxError(\"The templateUrl specified for component \" +\nstringify(prenormData.componentType) + \" is not a string\");\n        }\n    } else {\n        throw syntaxError(\"No template specified for component \" + stringify(prenormData.componentType));\n    }\n    if (isDefined(prenormData.preserveWhitespaces) &&\n        typeof\nprenormData.preserveWhitespaces !== 'boolean') {\n        throw syntaxError(\"The preserveWhitespaces option\nfor component \" + stringify(prenormData.componentType) + \" must be a boolean\");\n    }\n    return SyncAsync.then(this._preParseTemplate(prenormData), function (preparsedTemplate) {\nreturn _this._normalizeTemplateMetadata(prenormData, preparsedTemplate); });\n    });\n    DirectiveNormalizer.prototype._preParseTemplate = function (prenormData) {\n        var _this = this;\n        var\n        template;\n        var templateUrl;\n        if (prenormData.template != null) {\n            template =\n            prenormData.template;\n            templateUrl = prenormData.moduleUrl;\n        } else {\n            templateUrl = this._urlResolver.resolve(prenormData.moduleUrl, prenormData.templateUrl);\n            template =\n            this._fetch(templateUrl);\n        }\n        return SyncAsync.then(template, function (template) {\nreturn\n        _this._preparseLoadedTemplate(prenormData, template, templateUrl); });\n    });\n    DirectiveNormalizer.prototype._preparseLoadedTemplate = function (prenormData, template, templateAbsUrl)\n    {\n        var isInline = !!prenormData.template;\n        var interpolationConfig =\n        InterpolationConfig.fromArray(prenormData.interpolation);\n        var templateUrl = templateSourceUrl({\n        reference: prenormData.ngModuleType }, { type: { reference: prenormData.componentType } }, { isInline: isInline,\n        templateUrl: templateAbsUrl });\n        var rootNodesAndErrors = this._htmlParser.parse(template, templateUrl, {\n        tokenizeExpansionForms: true, interpolationConfig: interpolationConfig });\n        if\n        (rootNodesAndErrors.errors.length > 0) {\n            var errorString = rootNodesAndErrors.errors.join(\"\\n\");\n            throw syntaxError(\"Template parse errors:\\n\" + errorString);\n        }\n        var templateMetadataStyles =\n        this._normalizeStylesheet(new CompileStylesheetMetadata({ styles: prenormData.styles, moduleUrl:\n        prenormData.moduleUrl }));\n        var visitor = new TemplatePreparseVisitor();\n        visitAll$1(visitor,\n        rootNodesAndErrors.rootNodes);\n        var templateStyles = this._normalizeStylesheet(new\n        CompileStylesheetMetadata({ styles: visitor.styles, styleUrls: visitor.styleUrls, moduleUrl: templateAbsUrl }));\n        var styles = templateMetadataStyles.styles.concat(templateStyles.styles);\n        var inlineStyleUrls =\n        templateMetadataStyles.styleUrls.concat(templateStyles.styleUrls);\n        var styleUrls = this\n        ._normalizeStylesheet(new CompileStylesheetMetadata({ styleUrls: prenormData.styleUrls, moduleUrl:\n        prenormData.moduleUrl })).styleUrls;\n        return {\n            template: template,\n            templateUrl: templateAbsUrl,\n            isInline: isInline,\n            htmlAst: rootNodesAndErrors,\n            styles: styles,\n            inlineStyleUrls: inlineStyleUrls,\n            styleUrls: styleUrls,\n            ngContentSelectors: visitor.ngContentSelectors,\n        };\n    }\n    DirectiveNormalizer.prototype._normalizeTemplateMetadata = function (prenormData,\n    preparsedTemplate) {\n        var _this = this;\n        return\n        SyncAsync.then(this._loadMissingExternalStylesheets(preparsedTemplate.styleUrls.concat(preparsedTemplate.inlin\n        eStyleUrls)), function (externalStylesheets) {\nreturn _this._normalizeLoadedTemplateMetadata(prenormData,\n        preparsedTemplate, externalStylesheets); });\n    });\n    DirectiveNormalizer.prototype._normalizeLoadedTemplateMetadata = function (prenormData, preparsedTemplate,\n    stylesheets) {\n        var _this = this;\n        // Algorithm:\n        // - produce exactly 1 entry per original\n        styleUrl in\n        // CompileTemplateMetadata.externalStylesheets with all styles inlined\n        // - inline all\n        styles that are referenced by the template into CompileTemplateMetadata.styles.\n        // Reason: be able to\n        determine how many stylesheets there are even without loading\n
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// the template nor the stylesheets, so we can create a stub for TypeScript always synchronously\n      // (as
resource loading may be async)\n      var styles = __spread(preparedTemplate.styles);\nthis._inlineStyles(preparedTemplate.inlineStyleUrls, stylesheets, styles);\n      var styleUrls =
preparedTemplate.styleUrls;\n      var externalStylesheets = styleUrls.map(function (styleUrl) {\n      var
stylesheet = stylesheets.get(styleUrl);\n      var styles = __spread(stylesheet.styles);\n
_this._inlineStyles(stylesheet.styleUrls, stylesheets, styles);\n      return new CompileStylesheetMetadata({
moduleUrl: styleUrl, styles: styles });\n      });\n      var encapsulation = prenormData.encapsulation;\n
if (encapsulation === null) {\n      encapsulation = this._config.defaultEncapsulation;\n      }\n      if
(encapsulation === ViewEncapsulation.Emulated && styles.length
=== 0 &&\n      styleUrls.length === 0) {\n      encapsulation = ViewEncapsulation.None;\n      }\n
      return new CompileTemplateMetadata({\n      encapsulation: encapsulation,\n      template:
preparedTemplate.template,\n      templateUrl: preparedTemplate.templateUrl,\n      htmlAst:
preparedTemplate.htmlAst,\n      styles: styles,\n      styleUrls: styleUrls,\n
ngContentSelectors: preparedTemplate.ngContentSelectors,\n      animations: prenormData.animations,\n
interpolation: prenormData.interpolation,\n      isInline: preparedTemplate.isInline,\n
externalStylesheets: externalStylesheets,\n      preserveWhitespaces:
preserveWhitespacesDefault(prenormData.preserveWhitespaces, this._config.preserveWhitespaces),\n      });\n
      DirectiveNormalizer.prototype._inlineStyles = function
(styleUrls, stylesheets, targetStyles) {\n      var _this = this;\n      styleUrls.forEach(function (styleUrl) {\n
      var stylesheet = stylesheets.get(styleUrl);\n      stylesheet.styles.forEach(function (style) { return
targetStyles.push(style); });\n      _this._inlineStyles(stylesheet.styleUrls, stylesheets, targetStyles);\n
});\n      });\n      DirectiveNormalizer.prototype._loadMissingExternalStylesheets = function (styleUrls,
loadedStylesheets) {\n      var _this = this;\n      if (loadedStylesheets === void 0) { loadedStylesheets = new
Map(); }\n      return SyncAsync.then(SyncAsync.all(styleUrls.filter(function (styleUrl) { return
!loadedStylesheets.has(styleUrl); })), function (styleUrls) {\n      return
SyncAsync.then(_this._fetch(styleUrl), function (loadedStyle) {\n      var stylesheet =
_this._normalizeStylesheet(new CompileStylesheetMetadata({ styles: [loadedStyle], moduleUrl:
styleUrl }));\n      loadedStylesheets.set(styleUrl, stylesheet);\n      return
_this._loadMissingExternalStylesheets(stylesheet.styleUrls, loadedStylesheets);\n      }); })), function (_) {
return loadedStylesheets; });\n      });\n      DirectiveNormalizer.prototype._normalizeStylesheet = function
(stylesheet) {\n      var _this = this;\n      var moduleUrl = stylesheet.moduleUrl;\n      var allStyleUrls =
stylesheet.styleUrls.filter(isStyleUrlResolvable)\n      .map(function (url) { return
_this._urlResolver.resolve(moduleUrl, url); });\n      var allStyles = stylesheet.styles.map(function (style) {\n
      var styleWithImports = extractStyleUrls(_this._urlResolver, moduleUrl, style);\n
allStyleUrls.push.apply(allStyleUrls, __spread(styleWithImports.styleUrls));\n      return
styleWithImports.style;\n      });\n      return new CompileStylesheetMetadata({ styles: allStyles,
styleUrls: allStyleUrls, moduleUrl: moduleUrl });\n      });\n      return DirectiveNormalizer;\n    }());\n    var
TemplatePreparseVisitor = /** @class */ (function () {\n      function TemplatePreparseVisitor() {\n
this.ngContentSelectors = [];\n      this.styles = [];\n      this.styleUrls = [];\n
this.ngNonBindableStackCount = 0;\n      }\n      TemplatePreparseVisitor.prototype.visitElement = function (ast,
context) {\n      var preparedElement = preparseElement(ast);\n      switch (preparedElement.type) {\n
case PreparedElementType.NG_CONTENT:\n      if (this.ngNonBindableStackCount === 0) {\n
this.ngContentSelectors.push(preparedElement.selectAttr);\n      }\n      break;\n
case PreparedElementType.STYLE:\n      var textContent_1 = "";\n
ast.children.forEach(function (child) {\n
      if (child instanceof Text$3) {\n      textContent_1 += child.value;\n      }\n
});\n      this.styles.push(textContent_1);\n      break;\n      case
PreparedElementType.STYLESHEET:\n      this.styleUrls.push(preparedElement.hrefAttr);\n

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break;\n      default:\n      break;\n    }\n    if (preparsedElement.nonBindable) {\n
this.ngNonBindableStackCount++;\n    }\n    visitAll$1(this, ast.children);\n    if
(preparsedElement.nonBindable) {\n      this.ngNonBindableStackCount--;\n    }\n    return null;\n
  };\n  TemplatePreparseVisitor.prototype.visitExpansion = function (ast, context) {\n    visitAll$1(this,
ast.cases);\n  };\n  TemplatePreparseVisitor.prototype.visitExpansionCase = function (ast, context) {\n
    visitAll$1(this, ast.expression);\n  };\n  TemplatePreparseVisitor.prototype.visitComment = function
(ast, context) {\n    return null;\n  };\n  TemplatePreparseVisitor.prototype.visitAttribute = function (ast,
context) {\n    return null;\n  };\n  TemplatePreparseVisitor.prototype.visitText = function (ast, context)
{\n    return null;\n  };\n  return TemplatePreparseVisitor;\n }());\n\n /**\n  * @license\n  *
Copyright Google LLC All Rights Reserved.\n  *\n  * Use of this source code is governed by an MIT-style
license that can be\n  * found in the LICENSE file at https://angular.io/license\n  */\n  var
QUERY_METADATA_IDENTIFIERS = [\n    createViewChild,\n    createViewChildren,\n
createContentChild,\n    createContentChildren,\n  ];\n  /**\n   * Resolve a `Type` for {@link Directive}.\n
*\n   * This interface can be overridden by the application developer
to create custom behavior.\n   *\n   * See {@link Compiler}\n   */\n  var DirectiveResolver = /** @class */
(function () {\n    function DirectiveResolver(_reflector) {\n      this._reflector = _reflector;\n    }\n
DirectiveResolver.prototype.isDirective = function (type) {\n      var typeMetadata =
this._reflector.annotations(resolveForwardRef(type));\n      return typeMetadata &&
typeMetadata.some(isDirectiveMetadata);\n    };\n    DirectiveResolver.prototype.resolve = function (type,
throwIfNotFound) {\n      if (throwIfNotFound === void 0) { throwIfNotFound = true; }\n      var
typeMetadata = this._reflector.annotations(resolveForwardRef(type));\n      if (typeMetadata) {\n        var
metadata = findLast(typeMetadata, isDirectiveMetadata);\n        if (metadata) {\n          var
propertyMetadata = this._reflector.propMetadata(type);\n          var guards = this._reflector.guards(type);\n
          return this._mergeWithPropertyMetadata(metadata, propertyMetadata, guards, type);\n        }\n
      }\n      if (throwIfNotFound) {\n        throw new Error("No Directive annotation found on \"" +
stringify(type));\n      }\n      return null;\n    };\n
DirectiveResolver.prototype._mergeWithPropertyMetadata = function (dm, propertyMetadata, guards,
directiveType) {\n      var inputs = [];\n      var outputs = [];\n      var host = {};\n      var queries =
{};\n      Object.keys(propertyMetadata).forEach(function (propName) {\n        var input =
findLast(propertyMetadata[propName], function (a) { return createInput.isTypeOf(a); });\n        if (input) {\n
          if (input.bindingPropertyName) {\n            inputs.push(propName + \"\": \"\" +
input.bindingPropertyName);\n          }\n          else {\n            inputs.push(propName);\n          }\n
          var output = findLast(propertyMetadata[propName], function (a) { return createOutput.isTypeOf(a); });\n
          if (output) {\n            if (output.bindingPropertyName) {\n              outputs.push(propName + \"\": \"\" +
output.bindingPropertyName);\n            }\n            else {\n              outputs.push(propName);\n            }\n
          }\n          var hostBindings = propertyMetadata[propName].filter(function (a) { return
createHostBinding.isTypeOf(a); });\n          hostBindings.forEach(function (hostBinding) {\n            if
(hostBinding.hostPropertyName) {\n              var startWith = hostBinding.hostPropertyName[0];\n              if
(startWith === '(') {\n                throw new Error("@HostBinding can not bind to events. Use
@HostListener instead.");\n              }\n              else if (startWith === '[') {\n                throw new Error("@HostBinding
parameter should be a property name, 'class.<name>', or 'attr.<name>'.");\n              }\n
              host["[" + hostBinding.hostPropertyName + "]" ] = propName;\n            }\n            else {\n
              host["[" + propName + "]" ] = propName;\n            }\n          });\n          var hostListeners =
propertyMetadata[propName].filter(function (a) { return createHostListener.isTypeOf(a); });\n          hostListeners.forEach(function (hostListener) {\n            var args = hostListener.args || [];\n            host["(\" + hostListener.eventName + \")"] = propName + "\"(\" + args.join(',') + \")\"";\n          });\n          var

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query = findLast(propertyMetadata[propName], function (a) { return
QUERY_METADATA_IDENTIFIERS.some(function
(i) { return i.isTypeOf(a); }); });\n      if (query) {\n          queries[propName] = query;\n      }\n  });\n  return this._merge(dm, inputs, outputs, host, queries, guards, directiveType);\n  };\n  DirectiveResolver.prototype._extractPublicName = function (def) {\n      return splitAtColon(def, [null,
def])[1].trim();\n  };\n  DirectiveResolver.prototype._dedupeBindings = function (bindings) {\n      var
names = new Set();\n      var publicNames = new Set();\n      var reversedResult = [];\n      // go last to
first to allow later entries to overwrite previous entries\n      for (var i = bindings.length - 1; i >= 0; i--) {\n
          var binding = bindings[i];\n          var name = this._extractPublicName(binding);\n
publicNames.add(name);\n          if (!names.has(name)) {\n              names.add(name);\n
reversedResult.push(binding);\n          }\n      }\n      return reversedResult.reverse();\n  };\n  DirectiveResolver.prototype._merge
= function (directive, inputs, outputs, host, queries, guards, directiveType) {\n      var mergedInputs =
this._dedupeBindings(directive.inputs ? directive.inputs.concat(inputs) : inputs);\n      var mergedOutputs =
this._dedupeBindings(directive.outputs ? directive.outputs.concat(outputs) : outputs);\n      var mergedHost =
directive.host ? Object.assign(Object.assign({}, directive.host), host) : host;\n      var mergedQueries =
directive.queries ? Object.assign(Object.assign({}, directive.queries), queries) : queries;\n      if
(createComponent.isTypeOf(directive)) {\n          var comp = directive;\n          return createComponent({\n
selector: comp.selector,\n          inputs: mergedInputs,\n          outputs: mergedOutputs,\n
host: mergedHost,\n          exportAs: comp.exportAs,\n          moduleId: comp.moduleId,\n
queries: mergedQueries,\n          changeDetection: comp.changeDetection,\n          providers:
comp.providers,\n          viewProviders: comp.viewProviders,\n          entryComponents:
comp.entryComponents,\n          template: comp.template,\n          templateUrl: comp.templateUrl,\n
styles: comp.styles,\n          styleUrls: comp.styleUrls,\n          encapsulation:
comp.encapsulation,\n          animations: comp.animations,\n          interpolation: comp.interpolation,\n
preserveWhitespaces: directive.preserveWhitespaces,\n          });\n      }\n      else {\n
return createDirective({\n          selector: directive.selector,\n          inputs: mergedInputs,\n
outputs: mergedOutputs,\n          host: mergedHost,\n          exportAs: directive.exportAs,\n
queries: mergedQueries,\n          providers: directive.providers,\n          guards: guards\n
});\n      }\n      return DirectiveResolver;\n  }();\n  function isDirectiveMetadata(type) {\n
return createDirective.isTypeOf(type) || createComponent.isTypeOf(type);\n  }\n  function findLast(arr,
condition) {\n      for (var i = arr.length - 1; i >= 0; i--) {\n          if (condition(arr[i])) {\n              return arr[i];\n
          }\n      }\n      return null;\n  }\n  /**\n   * An i18n error.\n   */\n  var I18nError = /** @class */
(function (_super) {\n      __extends(I18nError, _super);\n      function I18nError(span, msg) {\n          return
_super.call(this, span, msg) || this;\n      }\n      return I18nError;\n  })(ParseError);\n  \n  var _I18N_ATTR = 'i18n';\n  var _I18N_ATTR_PREFIX = 'i18n-';\n  var
_I18N_COMMENT_PREFIX_REGEXP = /^i18n?:;\n  var MEANING_SEPARATOR = '|';\n  var
ID_SEPARATOR = '@@';\n  var i18nCommentsWarned = false;\n  /**\n   * Extract translatable messages from
an html AST\n   */\n  function extractMessages(nodes, interpolationConfig, implicitTags, implicitAttrs) {\n
var visitor = new _Visitor$2(implicitTags, implicitAttrs);\n      return visitor.extract(nodes, interpolationConfig);\n
  }\n  function mergeTranslations(nodes, translations, interpolationConfig, implicitTags, implicitAttrs) {\n      var
visitor = new _Visitor$2(implicitTags, implicitAttrs);\n      return visitor.merge(nodes, translations,
interpolationConfig);\n  }\n  var ExtractionResult = /** @class */ (function () {\n      function
ExtractionResult(messages, errors) {\n          this.messages = messages;\n          this.errors = errors;\n      }\n
return ExtractionResult;\n  }());\n  var _VisitorMode;\n  (function (_VisitorMode) {\n      _VisitorMode[_VisitorMode["Extract"] = 0] =
"Extract";\n      _VisitorMode[_VisitorMode["Merge"] = 1] = "Merge";\n  })(_VisitorMode || (_VisitorMode =

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= {}));\n  /**\n   * This Visitor is used:\n   * 1. to extract all the translatable strings from an html AST (see
`extract()`),\n   * 2. to replace the translatable strings with the actual translations (see `merge()`)\n   *\n   *
@internal\n   *\n   var _Visitor$2 = /** @class */ (function () {\n       function _Visitor(_implicitTags,
_implicitAttrs) {\n           this._implicitTags = _implicitTags;\n           this._implicitAttrs = _implicitAttrs;\n       }\n
/**\n       * Extracts the messages from the tree\n       */\n       _Visitor.prototype.extract = function (nodes,
interpolationConfig) {\n           var _this = this;\n           this._init(_VisitorMode.Extract, interpolationConfig);\n
           nodes.forEach(function
(node) { return node.visit(_this, null); });\n           if (this._inI18nBlock) {\n
this._reportError(nodes[nodes.length - 1], 'Unclosed block');\n           }\n           return new
ExtractionResult(this._messages, this._errors);\n       };\n       /**\n       * Returns a tree where all translatable
nodes are translated\n       */\n       _Visitor.prototype.merge = function (nodes, translations, interpolationConfig)
{\n           this._init(_VisitorMode.Merge, interpolationConfig);\n           this._translations = translations;\n           //
Construct a single fake root element\n           var wrapper = new Element$1('wrapper', [], nodes, undefined,
undefined, undefined);\n           var translatedNode = wrapper.visit(this, null);\n           if (this._inI18nBlock) {\n
this._reportError(nodes[nodes.length - 1], 'Unclosed block');\n           }\n           return new
ParseTreeResult(translatedNode.children, this._errors);\n       };\n       _Visitor.prototype.visitExpansionCase = function (icuCase, context) {\n           // Parse cases for
translatable html attributes\n           var expression = visitAll$1(this, icuCase.expression, context);\n           if
(this._mode === _VisitorMode.Merge) {\n               return new ExpansionCase(icuCase.value, expression,
icuCase.sourceSpan, icuCase.valueSourceSpan, icuCase.expSourceSpan);\n           }\n       };\n       _Visitor.prototype.visitExpansion = function (icu, context) {\n           this._maybeAddBlockChildren(icu);\n
var wasInIcu = this._inIcu;\n           if (!this._inIcu) {\n               // nested ICU messages should not be extracted but
top-level translated as a whole\n               if (this._isInTranslatableSection) {\n
this._addMessage([icu]);\n               }\n               this._inIcu = true;\n           }\n           var cases = visitAll$1(this,
icu.cases, context);\n           if (this._mode ===
_VisitorMode.Merge) {\n               icu = new Expansion(icu.switchValue, icu.type, cases, icu.sourceSpan,
icu.switchValueSourceSpan);\n               }\n               this._inIcu = wasInIcu;\n               return icu;\n           };\n       _Visitor.prototype.visitComment = function (comment, context) {\n           var isOpening =
_isOpeningComment(comment);\n           if (isOpening && this._isInTranslatableSection) {\n
this._reportError(comment, 'Could not start a block inside a translatable section');\n               return;\n           }\n
var isClosing = _isClosingComment(comment);\n           if (isClosing && !this._inI18nBlock) {\n
this._reportError(comment, 'Trying to close an unopened block');\n               return;\n           }\n           if
(!this._inI18nNode && !this._inIcu) {\n               if (!this._inI18nBlock) {\n                   if (isOpening) {\n
// deprecated from v5 you should use <ng-container
i18n> instead of i18n comments\n                   if (!i18nCommentsWarned && console && console.warn) {\n
i18nCommentsWarned = true;\n                   }\n                   var details = comment.sourceSpan.details ? '\n' +
comment.sourceSpan.details : '\n';\n                   // TODO(ocombe): use a log service once there is a public one
available\n                   console.warn('I18n comments are deprecated, use an <ng-container> element instead
(' + comment.sourceSpan.start + details + '\n)');\n                   }\n                   this._inI18nBlock = true;\n
this._blockStartDepth = this._depth;\n                   this._blockChildren = [];\n                   this._blockMeaningAndDesc =\n                   comment.value.replace(_I18N_COMMENT_PREFIX_REGEXP,
'').trim();\n                   this._openTranslatableSection(comment);\n                   }\n                   }\n
else {\n                   if (isClosing) {\n                       if (this._depth === this._blockStartDepth) {\n
this._closeTranslatableSection(comment, this._blockChildren);\n                           this._inI18nBlock = false;\n
var message = this._addMessage(this._blockChildren, this._blockMeaningAndDesc);\n                           // merge attributes in sections\n                           var nodes = this._translateMessage(comment, message);\n
                           return visitAll$1(this, nodes);\n                           }\n                           else {\n
this._reportError(comment, 'I18N blocks should not cross element boundaries');\n                           return;\n

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    }\n        }\n        }\n        }\n    };\n    _Visitor.prototype.visitText = function (text, context)
{\n    if (this._isInTranslatableSection)
{\n        this._mayBeAddBlockChildren(text);\n        }\n        return text;\n    };\n    _Visitor.prototype.visitElement = function (el, context) {\n        var _this = this;\n    this._mayBeAddBlockChildren(el);\n        this._depth++;\n        var wasInI18nNode = this._inI18nNode;\n        var wasInImplicitNode = this._inImplicitNode;\n        var childNodes = [];\n        var translatedChildNodes =
undefined;\n        // Extract:\n        // - top level nodes with the (implicit) \"i18n\" attribute if not already in a
section\n        // - ICU messages\n        var i18nAttr = _getI18nAttr(el);\n        var i18nMeta = i18nAttr ?
i18nAttr.value : \";\n        var isImplicit = this._implicitTags.some(function (tag) { return el.name === tag; }) &&
!this._inIcu &&\n        !this._isInTranslatableSection;\n        var isTopLevelImplicit = !wasInImplicitNode
&& isImplicit;\n        this._inImplicitNode
= wasInImplicitNode || isImplicit;\n        if (!this._isInTranslatableSection && !this._inIcu) {\n            if
(i18nAttr || isTopLevelImplicit) {\n                this._inI18nNode = true;\n                var message =
this._addMessage(el.children, i18nMeta);\n                translatedChildNodes = this._translateMessage(el,
message);\n            }\n            if (this._mode === _VisitorMode.Extract) {\n                var isTranslatable =
i18nAttr || isTopLevelImplicit;\n                if (isTranslatable)\n                    this._openTranslatableSection(el);\n                visitAll$(this, el.children);\n                if (isTranslatable)\n                    this._closeTranslatableSection(el, el.children);\n            }\n            else {\n                if (i18nAttr ||
isTopLevelImplicit) {\n                    this._reportError(el, 'Could not mark an element as translatable inside a
translatable
section');\n                }\n                if (this._mode === _VisitorMode.Extract) {\n                    // Descend into child
nodes for extraction\n                    visitAll$(this, el.children);\n                }\n                if (this._mode ===
_VisitorMode.Merge) {\n                    var visitNodes = translatedChildNodes || el.children;\n                    visitNodes.forEach(function (child) {\n                        var visited = child.visit(_this, context);\n                        if (visited
&& !_this._isInTranslatableSection) {\n                            // Do not add the children from translatable sections (= i18n
blocks here)\n                            // They will be added later in this loop when the block closes (i.e. on `<!-- /i18n -->`)\n                            childNodes = childNodes.concat(visited);\n                        }\n                    });\n                }\n            }\n            this._visitAttributesOf(el);\n            this._depth--;\n            this._inI18nNode
= wasInI18nNode;\n            this._inImplicitNode = wasInImplicitNode;\n            if (this._mode ===
_VisitorMode.Merge) {\n                var translatedAttrs = this._translateAttributes(el);\n                return new
Element$(el.name, translatedAttrs, childNodes, el.sourceSpan, el.startSourceSpan, el.endSourceSpan);\n            }\n            return null;\n        };\n        _Visitor.prototype.visitAttribute = function (attribute, context) {\n            throw
new Error('unreachable code');\n        };\n        _Visitor.prototype._init = function (mode, interpolationConfig) {\n            this._mode = mode;\n            this._inI18nBlock = false;\n            this._inI18nNode = false;\n            this._depth =
0;\n            this._inIcu = false;\n            this._msgCountAtSectionStart = undefined;\n            this._errors = [];\n            this._messages = [];\n            this._inImplicitNode = false;\n            this._createI18nMessage =
createI18nMessageFactory(interpolationConfig);\n        };\n        // looks for translatable attributes\n        _Visitor.prototype._visitAttributesOf = function (el) {\n            var _this = this;\n            var explicitAttrNameToValue = {};\n            var implicitAttrNames =
this._implicitAttrs[el.name] || [];\n            el.attrs.filter(function (attr) { return
attr.name.startsWith(_I18N_ATTR_PREFIX); })\n                .forEach(function (attr) { return
explicitAttrNameToValue[attr.name.slice(_I18N_ATTR_PREFIX.length)] =\n                    attr.value; });\n            el.attrs.forEach(function (attr) {\n                if (attr.name in explicitAttrNameToValue) {\n                    _this._addMessage([attr], explicitAttrNameToValue[attr.name]);\n                }\n                else if
(implicitAttrNames.some(function (name) { return attr.name === name; })) {\n                    _this._addMessage([attr]);\n                }\n            });\n            // add a translatable message\n            _Visitor.prototype._addMessage = function (ast, msgMeta) {\n                if (ast.length === 0 ||\n                    ast.length ===
1 && ast[0] instanceof Attribute && !ast[0].value) {\n                    // Do not create empty messages\n                    return

```

```

null;\n      }\n      var _a = _parseMessageMeta(msgMeta), meaning = _a.meaning, description =
_a.description, id = _a.id;\n      var message = this._createI18nMessage(ast, meaning, description, id);\n      this._messages.push(message);\n      return message;\n    };\n    // Translates the given message given the
`TranslationBundle`\n    // This is used for translating elements / blocks - see `_translateAttributes` for attributes\n    // no-op when called in extraction mode (returns [])\n    _Visitor.prototype._translateMessage = function (el,
message) {\n      if (message && this._mode === _VisitorMode.Merge) {\n        var nodes =
this._translations.get(message);\n        if (nodes) {\n          return nodes;\n        }\n        this._reportError(el, "Translation unavailable
for message id=\\\"\\\" + this._translations.digest(message) + \"\\\"\\\"");\n        return [];\n      };\n      //
translate the attributes of an element and remove i18n specific attributes\n    _Visitor.prototype._translateAttributes = function (el) {\n      var _this = this;\n      var attributes = el.attrs;\n      var i18nParsedMessageMeta = {};\n      attributes.forEach(function (attr) {\n        if
(attr.name.startsWith(_I18N_ATTR_PREFIX)) {\n          i18nParsedMessageMeta[attr.name.slice(_I18N_ATTR_PREFIX.length)] =\n          _parseMessageMeta(attr.value);\n        }\n      });\n      var translatedAttributes = [];\n      attributes.forEach(function (attr) {\n        if (attr.name === _I18N_ATTR ||
attr.name.startsWith(_I18N_ATTR_PREFIX))\n        {\n          // strip i18n specific attributes\n          return;\n        }\n        if (attr.value &&
attr.value !== " && i18nParsedMessageMeta.hasOwnProperty(attr.name)) {\n          var _a =
i18nParsedMessageMeta[attr.name], meaning = _a.meaning, description = _a.description, id = _a.id;\n          var message = _this._createI18nMessage([attr], meaning, description, id);\n          var nodes =
_this._translations.get(message);\n          if (nodes) {\n            if (nodes.length === 0) {\n              translatedAttributes.push(new Attribute(attr.name, " ", attr.sourceSpan));\n            }\n            else if
(nodes[0] instanceof Text$3) {\n              var value = nodes[0].value;\n              translatedAttributes.push(new Attribute(attr.name, value, attr.sourceSpan));\n            }\n            else {\n              _this._reportError(el, "Unexpected translation for attribute \\\"\\\" + attr.name + \"\\\"\\\" (id=\\\"\\\" + (id || _this._translations.digest(message)) + \"\\\"\\\"));\n            }\n          }\n          else {\n            _this._reportError(el, "Translation unavailable for attribute \\\"\\\" + attr.name + \"\\\"\\\" (id=\\\"\\\" + (id || _this._translations.digest(message)) + \"\\\"\\\"));\n          }\n          else {\n            translatedAttributes.push(attr);\n          }\n        });\n        return translatedAttributes;\n      };\n      /**\n      * Add the node as a child of the block when:\n      * - we are in a block,\n      * - we are not inside a ICU
message (those are handled separately),\n      * - the node is a "direct child" of the block\n      */\n    _Visitor.prototype._maybeAddBlockChildren = function (node) {\n      if (this._inI18nBlock && !this._inIcu && this._depth === this._blockStartDepth) {\n        this._blockChildren.push(node);\n      }\n      /**\n      * Marks the start of a section, see
`_closeTranslatableSection`\n      */\n      _Visitor.prototype._openTranslatableSection = function (node) {\n        if (this._isInTranslatableSection) {\n          this._reportError(node, 'Unexpected section start');\n        }\n        else {\n          this._msgCountAtSectionStart = this._messages.length;\n        }\n      };\n      Object.defineProperty(_Visitor.prototype, "_isInTranslatableSection", {\n        /**\n        * A translatable
section could be:\n        * - the content of translatable element,\n        * - nodes between `<!-- i18n -->` and
`<!-- /i18n -->` comments\n        */\n        get: function () {\n          return this._msgCountAtSectionStart
!== void 0;\n        },\n        enumerable: false,\n        configurable: true\n      });\n      /**\n      * Terminates a section.\n      */\n      * If a section has only one significant children (comments not significant) then we should not\n      * keep
the message from this children:\n      * `<p i18n="meaning|description">{ICU message}</p>` would
produce two messages:\n      * - one for the <p> content with meaning and description,\n      * - another one for
the ICU message.\n      * In this case the last message is discarded as it contains less information (the AST
is\n      * otherwise identical).\n      * Note that we should still keep messages extracted from attributes

```

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inside the section (ie in the\n      * ICU message here)\n      *\n_Visitor.prototype._closeTranslatableSection = function (node, directChildren) {\n      if\n(!this._isInTranslatableSection) {\n      this._reportError(node,\n'Unexpected section end');\n      return;\n      }\n      var startIndex = this._msgCountAtSectionStart;\n      var significantChildren = directChildren.reduce(function (count, node) {\n      return count + (node instanceof\nComment ? 0 : 1); }, 0);\n      if (significantChildren === 1) {\n      for (var i = this._messages.length - 1; i\n>= startIndex; i--) {\n      var ast = this._messages[i].nodes;\n      if (!(ast.length === 1 && ast[0]\ninstanceof Text$1)) {\n      this._messages.splice(i, 1);\n      break;\n      }\n      }\n      this._msgCountAtSectionStart = undefined;\n      }\n      _Visitor.prototype._reportError =\nfunction (node, msg) {\n      this._errors.push(new I18nError(node.sourceSpan, msg));\n      }\n      return\n_Visitor;\n      }());\n      function _isOpeningComment(n) {\n      return !(n instanceof Comment\n&& n.value && n.value.startsWith('i18n'));\n      }\n      function _isClosingComment(n) {\n      return !(n instanceof\nComment && n.value && n.value === 'i18n');\n      }\n      function _getI18nAttr(p) {\n      return\np.attrs.find(function (attr) {\n      return attr.name === _I18N_ATTR; }) || null;\n      }\n      function\n_parseMessageMeta(i18n) {\n      if (!i18n)\n      return { meaning: '', description: '', id: '' };\n      var idIndex =\ni18n.indexOf(ID_SEPARATOR);\n      var descIndex = i18n.indexOf(MEANING_SEPARATOR);\n      var _a =\n__read((idIndex > -1) ? [i18n.slice(0, idIndex), i18n.slice(idIndex + 2)] : [i18n, ''], 2), meaningAndDesc = _a[0], id\n= _a[1];\n      var _b = __read((descIndex > -1) ? [meaningAndDesc.slice(0, descIndex),\nmeaningAndDesc.slice(descIndex + 1)] : ['\n', meaningAndDesc], 2), meaning = _b[0], description = _b[1];\n      return { meaning: meaning, description: description, id: id.trim() };\n      }\n      /\n      *\n      * @license\n      *\n      * Copyright Google LLC All Rights Reserved.\n      *\n      * Use of this source code is governed by an MIT-style\n      license that can be\n      * found in the LICENSE file at https://angular.io/license\n      *\n      var XmlTagDefinition =\n/** @class */ (function () {\n      function XmlTagDefinition() {\n      this.closedByParent = false;\n      this.contentType = exports.TagContentType.PARSABLE_DATA;\n      this.isVoid = false;\n      this.ignoreFirstLf = false;\n      this.canSelfClose = true;\n      this.preventNamespaceInheritance = false;\n      }\n      XmlTagDefinition.prototype.requireExtraParent = function (currentParent) {\n      return false;\n      };\n      XmlTagDefinition.prototype.isClosedByChild = function (name) {\n      return false;\n      };\n      return XmlTagDefinition;\n      }());\n      var _TAG_DEFINITION = new XmlTagDefinition();\n      function\ngetXmlTagDefinition(tagName) {\n      return _TAG_DEFINITION;\n      }\n      }\n      var XmlParser = /** @class */ (function (_super) {\n      __extends(XmlParser, _super);\n      function\nXmlParser() {\n      return _super.call(this, getXmlTagDefinition) || this;\n      }\n      XmlParser.prototype.parse = function (source, url, options) {\n      return _super.prototype.parse.call(this, source,\nurl, options);\n      };\n      return XmlParser;\n      }(Parser));\n      var _VERSION = '1.2';\n      var _XMLNS =\n'urn:oasis:names:tc:xliff:document:1.2';\n      // TODO(vicb): make this a param (s/_/-/)\n      var\n_DEFAULT_SOURCE_LANG = 'en';\n      var _PLACEHOLDER_TAG$1 = 'x';\n      var _MARKER_TAG =\n'mrk';\n      var _FILE_TAG = 'file';\n      var _SOURCE_TAG$1 = 'source';\n      var _SEGMENT_SOURCE_TAG =\n'seg-source';\n      var _ALT_TRANS_TAG = 'alt-trans';\n      var _TARGET_TAG = 'target';\n      var _UNIT_TAG =\n'trans-unit';\n      var _CONTEXT_GROUP_TAG = 'context-group';\n      var _CONTEXT_TAG = 'context';\n      //\n      http://docs.oasis-open.org/xliff/v1.2/os/xliff-core.html\n      // http://docs.oasis-open.org/xliff/v1.2/xliff-profile-html/xliff-profile-html-1.2.html\n      var Xliff = /** @class */\n(function (_super) {\n      __extends(Xliff, _super);\n      function Xliff() {\n      return _super !== null &&\n_super.apply(this, arguments) || this;\n      }\n      Xliff.prototype.write = function (messages, locale) {\n      var\nvisitor = new _WriteVisitor();\n      var transUnits = [];\n      messages.forEach(function (message) {\n      var\n_a;\n      var contextTags = [];\n      message.sources.forEach(function (source) {\n      var\ncontextGroupTag = new Tag(_CONTEXT_GROUP_TAG, { purpose: 'location' });\n      contextGroupTag.children.push(new CR(10), new Tag(_CONTEXT_TAG, { 'context-type': 'sourcefile' }, [new\nText$2(source.filePath)]), new CR(10), new Tag(_CONTEXT_TAG, { 'context-type': 'linenumber' }, [new\nText$2("\\n" + source.startLine)]),

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__spread(nodes.map(function (node) { return node.visit(_this); }));\n    }\n    return _WriteVisitor;\n  }());\n  // TODO(vicb): add error management (structure)\n  // Extract messages as xml nodes from the xliiff file\n  var\n  XliiffParser = /** @class */ (function () {\n    function XliiffParser() {\n      this._locale = null;\n    }\n    XliiffParser.prototype.parse = function (xliiff, url) {\n      this._unitMlString = null;\n      this._msgIdToHtml =\n      {\n        var xml = new XmlParser().parse(xliiff, url);\n        this._errors = xml.errors;\n        visitAll$1(this,\n        xml.rootNodes, null);\n        return {\n          msgIdToHtml: this._msgIdToHtml,\n          errors:\n        this._errors,\n          locale: this._locale,\n        };\n      }\n      XliiffParser.prototype.visitElement = function\n      (element, context) {\n        switch (element.name) {\n          case _UNIT_TAG:\n            this._unitMlString = null;\n            var idAttr = element.attrs.find(function (attr) { return attr.name\n            === 'id'; });\n            if (!idAttr) {\n              this._addError(element, "<" + _UNIT_TAG + "> misses\n            the \"id\" attribute");\n            }\n            else {\n              var id = idAttr.value;\n              if\n            (this._msgIdToHtml.hasOwnProperty(id)) {\n                this._addError(element, "Duplicated translations for\n            msg \" + id);\n              }\n              else {\n                visitAll$1(this, element.children, null);\n                if (typeof this._unitMlString === 'string') {\n                  this._msgIdToHtml[id] =\n                this._unitMlString;\n                }\n                else {\n                  this._addError(element,\n                \"Message \" + id + \" misses a translation");\n                }\n              }\n              break;\n            // ignore those tags\n          case _SOURCE_TAG$1:\n            case _SEGMENT_SOURCE_TAG:\n            case _ALT_TRANS_TAG:\n              break;\n          case _TARGET_TAG:\n            var innerTextStart =\n            element.startSourceSpan.end.offset;\n            var innerTextEnd = element.endSourceSpan.start.offset;\n            var content = element.startSourceSpan.start.file.content;\n            var innerText =\n            content.slice(innerTextStart, innerTextEnd);\n            this._unitMlString = innerText;\n            break;\n          case _FILE_TAG:\n            var localeAttr = element.attrs.find(function (attr) { return attr.name ===\n            'target-language'; });\n            if (localeAttr) {\n              this._locale = localeAttr.value;\n            }\n            visitAll$1(this, element.children, null);\n            break;\n          default:\n            //\n            TODO(vicb): assert file structure, xliiff version\n            // For now only recurse on unhandled nodes\n            visitAll$1(this, element.children, null);\n          }\n        }\n      }\n      XliiffParser.prototype.visitAttribute = function\n      (attribute, context) {\n        XliiffParser.prototype.visitText = function (text, context) {\n          XliiffParser.prototype.visitComment = function (comment, context) {\n            XliiffParser.prototype.visitExpansion\n            = function (expansion, context) {\n              XliiffParser.prototype.visitExpansionCase = function (expansionCase,\n              context) {\n                XliiffParser.prototype._addError = function (node, message) {\n                  this._errors.push(new\n                I18nError(node.sourceSpan, message));\n                }\n                return XliiffParser;\n              }();\n            // Convert ml nodes (xliiff\n            syntax) to i18n\n            nodes\n            var XmlToI18n = /** @class */ (function () {\n              function XmlToI18n() {\n            }\n            XmlToI18n.prototype.convert = function (message, url) {\n              var xmlIcu = new XmlParser().parse(message,\n              url, { tokenizeExpansionForms: true });\n              this._errors = xmlIcu.errors;\n              var i18nNodes =\n              this._errors.length > 0 || xmlIcu.rootNodes.length === 0 ?\n              [] : [].concat.apply([], __spread(visitAll$1(this,\n              xmlIcu.rootNodes)));\n              return {\n                i18nNodes: i18nNodes,\n                errors: this._errors,\n              };\n            }\n            XmlToI18n.prototype.visitText = function (text, context) {\n              return new Text$1(text.value,\n              text.sourceSpan);\n            }\n            XmlToI18n.prototype.visitElement = function (el, context) {\n              if (el.name\n              === _PLACEHOLDER_TAG$1) {\n                var nameAttr = el.attrs.find(function (attr) { return attr.name ===\n                'id'; });\n                if (nameAttr) {\n                  return new Placeholder(" , nameAttr.value, el.sourceSpan);\n                }\n                this._addError(el,\n                "<" + _PLACEHOLDER_TAG$1 + "> misses the \"id\" attribute");\n                return null;\n              }\n              if (el.name === _MARKER_TAG) {\n                return [].concat.apply([], __spread(visitAll$1(this, el.children)));\n              }\n              this._addError(el, "Unexpected tag");\n              return null;\n            }\n            XliiffParser.prototype.visitExpansion = function (icu, context) {\n              var caseMap = {};\n              visitAll$1(this,\n              icu.cases).forEach(function (c) {\n                caseMap[c.value] = new Container(c.nodes, icu.sourceSpan);\n              });\n            }\n          }\n        }\n      }\n    }\n  })();\n
```

```

});\n      return new Icu$1(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n    };\n    XmlToI18n.prototype.visitExpansionCase = function (icuCase, context) {\n      return {\n        value:\n        icuCase.value,\n        nodes:\n        visitAll$1(this, icuCase.expression);\n      };\n    };\n    XmlToI18n.prototype.visitComment = function\n    (comment, context) { };\n    XmlToI18n.prototype.visitAttribute = function (attribute, context) { };\n    XmlToI18n.prototype._addError = function (node, message) {\n      this._errors.push(new\n      I18nError(node.sourceSpan, message));\n    };\n    return XmlToI18n;\n  }());\n  function\n  getContentTypeForTag(tag) {\n    switch (tag.toLowerCase()) {\n      case 'br':\n        return 'lb';\n      case\n      'img':\n        return 'image';\n      default:\n        return \"x-\" + tag;\n    }\n  }\n  var\n  _VERSION$1 = '2.0';\n  var _XMLNS$1 = 'urn:oasis:names:tc:xliff:document:2.0';\n  // TODO(vicb): make this\n  a param (s/_/-/)\n  var _DEFAULT_SOURCE_LANG$1 = 'en';\n  var _PLACEHOLDER_TAG$2 = 'ph';\n  var\n  _PLACEHOLDER_SPANNING_TAG = 'pc';\n  var _MARKER_TAG$1 = 'mrk';\n  var _XLIFF_TAG = 'xliff';\n  var\n  _SOURCE_TAG$2 = 'source';\n  var _TARGET_TAG$1 = 'target';\n  var _UNIT_TAG$1 = 'unit';\n  //\n  http://docs.oasis-open.org/xliff/xliff-core/v2.0/os/xliff-core-v2.0-os.html\n  var Xliff2 = /** @class */ (function\n  (_super) {\n    __extends(Xliff2, _super);\n    function Xliff2() {\n      return _super !== null &&\n      _super.apply(this, arguments) || this;\n    }\n    Xliff2.prototype.write = function (messages, locale) {\n      var visitor = new _WriteVisitor$1();\n      var units = [];\n      messages.forEach(function (message) {\n        var unit = new Tag(_UNIT_TAG$1, { id: message.id });\n        var notes = new Tag('notes');\n        if\n        (message.description || message.meaning) {\n          if (message.description) {\n            notes.children.push(new CR(8), new Tag('note', { category: 'description' }, [new Text$2(message.description)]));\n          }\n          if\n          (message.meaning) {\n            notes.children.push(new CR(8), new Tag('note', { category: 'meaning' }, [new\n            Text$2(message.meaning)]));\n          }\n          message.sources.forEach(function (source)\n          {\n            notes.children.push(new CR(8), new Tag('note', { category: 'location' }, [new\n            Text$2(source.filePath + \"\\n\" + source.startLine + (source.endLine !== source.startLine ? ',' + source.endLine : \"\\n\"))\n            ]));\n          });\n          notes.children.push(new CR(6));\n          unit.children.push(new CR(6),\n          notes);\n          var segment = new Tag('segment');\n          segment.children.push(new CR(8), new\n          Tag(_SOURCE_TAG$2, {}, visitor.serialize(message.nodes)), new CR(6));\n          unit.children.push(new\n          CR(6), segment, new CR(4));\n          units.push(new CR(4), unit);\n        });\n        var file = new Tag('file',\n        { 'original':\n        'ng.template', id: 'ngi18n' }, __spread(units, [new CR(2)]));\n        var xliff = new Tag(_XLIFF_TAG, { version:\n        _VERSION$1, xmlns: _XMLNS$1, srcLang: locale || _DEFAULT_SOURCE_LANG$1 }, [new CR(2), file, new\n        CR()]);\n        return serialize([new\n        Declaration({ version: '1.0', encoding: 'UTF-8' }), new CR(), xliff,\n        new CR()]\n        );\n      };\n      Xliff2.prototype.load = function (content, url) {\n        // xliff to xml nodes\n        var xliff2Parser = new Xliff2Parser();\n        var _a = xliff2Parser.parse(content, url), locale = _a.locale,\n        msgIdToHtml = _a.msgIdToHtml, errors = _a.errors;\n        // xml nodes to i18n nodes\n        var\n        i18nNodesByMsgId = {};\n        var converter = new XmlToI18n$1();\n        Object.keys(msgIdToHtml).forEach(function (msgId) {\n          var _a =\n          converter.convert(msgIdToHtml[msgId], url), i18nNodes = _a.i18nNodes, e = _a.errors;\n          errors.push.apply(errors,\n          __spread(e));\n          i18nNodesByMsgId[msgId] = i18nNodes;\n        });\n        if (errors.length) {\n          throw new Error(\"xliff2 parse errors:\\n\" + errors.join(\"\\n\"));\n        }\n        return { locale: locale,\n        i18nNodesByMsgId: i18nNodesByMsgId };\n      }\n      Xliff2.prototype.digest = function (message) {\n        return decimalDigest(message);\n      }\n      return Xliff2;\n    }(Serializer));\n    var _WriteVisitor$1 = /**\n    @class */ (function () {\n      function _WriteVisitor() {\n      }\n      _WriteVisitor.prototype.visitText = function\n      (text, context) {\n        return [new Text$2(text.value)];\n      }\n      _WriteVisitor.prototype.visitContainer =\n      function (container, context) {\n        var _this = this;\n        var nodes = [];\n        container.children.forEach(function (node) { return nodes.push.apply(nodes, __spread(node.visit(_this))); });\n      }\n    }());\n  }

```



```

(localeAttr) {\n
    this._locale = localeAttr.value;\n
}\n
var versionAttr =
element.attrs.find(function (attr) { return attr.name === 'version'; });\n
if (versionAttr) {\n
var version = versionAttr.value;\n
if (version !== '2.0') {\n
    this._addError(element,
\"The XLIFF file version \" + version + \" is not compatible with XLIFF 2.0 serializer\");\n
}\n
else {\n
    visitAll$1(this, element.children, null);\n
}\n
}\n
break;\n
default:\n
    visitAll$1(this, element.children, null);\n
}\n
};\n
Xliff2Parser.prototype.visitAttribute = function (attribute, context) {\n
Xliff2Parser.prototype.visitText = function (text, context) {\n
Xliff2Parser.prototype.visitComment =
function (comment, context) {\n
Xliff2Parser.prototype.visitExpansion = function (expansion, context) {\n
Xliff2Parser.prototype.visitExpansionCase = function (expansionCase, context) {\n
Xliff2Parser.prototype._addError = function (node, message) {\n
    this._errors.push(new
I18nError(node.sourceSpan, message));\n
};\n
return Xliff2Parser;\n
}());\n
// Convert ml nodes (xliff
syntax) to i18n nodes\n
var XmlToI18n$1 = /**
@class */ (function () {\n
    function XmlToI18n() {\n
}\n
    XmlToI18n.prototype.convert = function
(message, url) {\n
    var xmlIcu = new XmlParser().parse(message, url, { tokenizeExpansionForms: true });\n
    this._errors = xmlIcu.errors;\n
    var i18nNodes = this._errors.length > 0 || xmlIcu.rootNodes.length === 0
?\n
    [] : [].concat.apply([], __spread(visitAll$1(this, xmlIcu.rootNodes)));\n
    return {\n
i18nNodes: i18nNodes,\n
errors: this._errors,\n
};\n
};\n
    XmlToI18n.prototype.visitText =
function (text, context) {\n
    return new Text$1(text.value, text.sourceSpan);\n
};\n
    XmlToI18n.prototype.visitElement = function (el, context) {\n
    var _this = this;\n
    switch (el.name) {\n
case _PLACEHOLDER_TAG$2:\n
    var nameAttr = el.attrs.find(function (attr) { return attr.name
=== 'equiv'; });\n
    if (nameAttr) {\n
        return [new Placeholder(\"\", nameAttr.value, el.sourceSpan)];\n
}\n
    this._addError(el, \"<\" + _PLACEHOLDER_TAG$2 + \"> misses the \"\"equiv\"\" attribute\");\n
    break;\n
case _PLACEHOLDER_SPANNING_TAG:\n
    var startAttr =
el.attrs.find(function (attr) { return attr.name === 'equivStart'; });\n
    var endAttr = el.attrs.find(function
(attr) { return attr.name === 'equivEnd'; });\n
    if (!startAttr) {\n
        this._addError(el, \"<\" +
_PLACEHOLDER_TAG$2 + \"> misses the \"\"equivStart\"\" attribute\");\n
}\n
    else if
(!endAttr) {\n
        this._addError(el, \"<\" + _PLACEHOLDER_TAG$2 + \"> misses the \"\"equivEnd\"\"
attribute\");\n
}\n
    else {\n
        var startId = startAttr.value;\n
        var endId = endAttr.value;\n
        var nodes = [];\n
        return
nodes.concat.apply(nodes, __spread([new Placeholder(\"\", startId, el.sourceSpan)], el.children.map(function (node) {\n
return node.visit(_this, null); })), [new Placeholder(\"\", endId, el.sourceSpan)]);\n
}\n
        break;\n
case _MARKER_TAG$1:\n
        return [].concat.apply([], __spread(visitAll$1(this, el.children)));\n
default:\n
        this._addError(el, \"Unexpected tag\");\n
}\n
    return null;\n
};\n
    XmlToI18n.prototype.visitExpansion = function (icu, context) {\n
    var caseMap = {};\n
    visitAll$1(this,
icu.cases).forEach(function (c) {\n
        caseMap[c.value] = new Container(c.nodes, icu.sourceSpan);\n
});\n
    return new Icu$1(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n
};\n
    XmlToI18n.prototype.visitExpansionCase
= function (icuCase, context) {\n
    return {\n
value: icuCase.value,\n
nodes:
[].concat.apply([], __spread(visitAll$1(this, icuCase.expression))),\n
};\n
};\n
    XmlToI18n.prototype.visitComment = function (comment, context) {\n
    XmlToI18n.prototype.visitAttribute
= function (attribute, context) {\n
    XmlToI18n.prototype._addError = function (node, message) {\n
this._errors.push(new I18nError(node.sourceSpan, message));\n
};\n
return XmlToI18n;\n
}());\n
    function getTypeForTag(tag) {\n
    switch (tag.toLowerCase()) {\n
case 'br':\n
case 'b':\n
case
'i':\n
case 'u':\n
return 'fmt';\n
case 'img':\n
return 'image';\n
case 'a':\n
return 'link';\n
default:\n
return 'other';\n
}\n
}\n
    var _TRANSLATIONS_TAG

```

```

= 'translationbundle';\n  var _TRANSLATION_TAG = 'translation';\n  var _PLACEHOLDER_TAG$3 = 'ph';\n
var Xtb = /** @class */ (function (_super) {\n    __extends(Xtb, _super);\n    function Xtb() {\n        return\n        _super !== null && _super.apply(this, arguments) || this;\n    }\n    Xtb.prototype.write = function (messages,\n    locale) {\n        throw new Error('Unsupported');\n    };\n    Xtb.prototype.load = function (content, url) {\n        // xtb to xml nodes\n        var xtbParser = new XtbParser();\n        var _a = xtbParser.parse(content, url),\n        locale = _a.locale, msgIdToHtml = _a.msgIdToHtml, errors = _a.errors;\n        // xml nodes to i18n nodes\n        var i18nNodesByMsgId = {};\n        var converter = new XmlToI18n$2();\n        // Because we should be able\n        to load xtb files that rely on features not supported by angular,\n        // we need to delay the conversion of html to\n        i18n nodes so that\n        non angular messages are not\n        // converted\n        Object.keys(msgIdToHtml).forEach(function (msgId)\n        {\n            var valueFn = function () {\n                var _a = converter.convert(msgIdToHtml[msgId], url),\n                i18nNodes = _a.i18nNodes, errors = _a.errors;\n                if (errors.length) {\n                    throw new\n                    Error(\"xtb parse errors:\\n\" + errors.join(\"\\n\"));\n                }\n                return i18nNodes;\n            };\n            createLazyProperty(i18nNodesByMsgId, msgId, valueFn);\n        });\n        if (errors.length) {\n            throw new Error(\"xtb parse errors:\\n\" + errors.join(\"\\n\"));\n        }\n        return { locale: locale,\n        i18nNodesByMsgId: i18nNodesByMsgId };\n    };\n    Xtb.prototype.digest = function (message) {\n        return digest$1(message);\n    };\n    Xtb.prototype.createNameMapper = function (message) {\n        return\n        new SimplePlaceholderMapper(message,\n        toPublicName);\n    };\n    return Xtb;\n})(Serializer);\n\nfunction createLazyProperty(messages, id,\nvalueFn) {\n    Object.defineProperty(messages, id, {\n        configurable: true,\n        enumerable: true,\n        get: function () {\n            var value = valueFn();\n            Object.defineProperty(messages, id, { enumerable:\n            true, value: value });\n            return value;\n        },\n        set: function (_)\n        {\n            throw new\n            Error('Could not overwrite an XTB translation');\n        },\n    });\n}\n\n// Extract messages as xml nodes\nfrom the xtb file\nvar XtbParser = /** @class */ (function () {\n    function XtbParser() {\n        this._locale\n        = null;\n    }\n    XtbParser.prototype.parse = function (xtb, url) {\n        this._bundleDepth = 0;\n        this._msgIdToHtml = {};\n        // We can not parse the ICU messages at this point\n        as some messages might not originate\n        // from Angular that could not be lex'd.\n        var xml = new\n        XmlParser().parse(xtb, url);\n        this._errors = xml.errors;\n        visitAll$1(this, xml.rootNodes);\n        return {\n            msgIdToHtml: this._msgIdToHtml,\n            errors: this._errors,\n            locale:\n            this._locale,\n        };\n    }\n    XtbParser.prototype.visitElement = function (element, context) {\n        switch (element.name) {\n            case _TRANSLATIONS_TAG:\n                this._bundleDepth++;\n                if (this._bundleDepth > 1) {\n                    this._addError(element, \"<\" + _TRANSLATIONS_TAG +\n                    \">\n                    elements can not be nested\");\n                }\n                var langAttr = element.attrs.find(function (attr) {\n                    return\n                    attr.name === 'lang';\n                });\n                if (langAttr) {\n                    this._locale = langAttr.value;\n                }\n                visitAll$1(this, element.children, null);\n                this._bundleDepth--;\n                break;\n            case _TRANSLATION_TAG:\n                var idAttr = element.attrs.find(function (attr) {\n                    return\n                    attr.name === 'id';\n                });\n                if (!idAttr) {\n                    this._addError(element, \"<\" +\n                    _TRANSLATION_TAG + \"> misses the '\\\"id\\\"' attribute\");\n                }\n                else {\n                    var id = idAttr.value;\n                    if (this._msgIdToHtml.hasOwnProperty(id)) {\n                        this._addError(element, \"Duplicated translations for msg \" + id);\n                    }\n                    else {\n                        var innerTextStart = element.startSourceSpan.end.offset;\n                        var innerTextEnd =\n                        element.endSourceSpan.start.offset;\n                        var content = element.startSourceSpan.start.file.content;\n                        var innerText = content.slice(innerTextStart, innerTextEnd);\n                        this._msgIdToHtml[id] = innerText;\n                    }\n                }\n                break;\n            default:\n                this._addError(element, 'Unexpected tag');\n        }\n    }\n    XtbParser.prototype.visitAttribute =\n    function (attribute, context) {\n    }\n    XtbParser.prototype.visitText = function (text, context) {\n    }\n    XtbParser.prototype.visitComment = function (comment, context) {\n    }\n    XtbParser.prototype.visitExpansion =\n    function (expansion, context) {\n    }\n    XtbParser.prototype.visitExpansionCase = function (expansionCase,\n
```

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context) { };\n    XtbParser.prototype._addError = function (node, message) {\n        this._errors.push(new\n        I18nError(node.sourceSpan, message));\n    }; \n    return XtbParser;\n    }());\n    // Convert ml nodes (xtb\n    syntax) to\n    i18n nodes\n    var XmlToI18n$2 = /** @class */ (function () {\n        function XmlToI18n() {\n        }\n        XmlToI18n.prototype.convert = function (message, url) {\n            var xmlIcu = new XmlParser().parse(message,\n            url, { tokenizeExpansionForms: true });\n            this._errors = xmlIcu.errors;\n            var i18nNodes =\n            this._errors.length > 0 || xmlIcu.rootNodes.length === 0 ?\n            [] : \n            visitAll$1(this,\n            xmlIcu.rootNodes);\n            return {\n                i18nNodes: i18nNodes,\n                errors: this._errors,\n            };\n            XmlToI18n.prototype.visitText = function (text, context) {\n                return new Text$1(text.value,\n                text.sourceSpan);\n            }; \n            XmlToI18n.prototype.visitExpansion = function (icu, context) {\n                var\n                caseMap = {};\n                visitAll$1(this, icu.cases).forEach(function (c) {\n                    caseMap[c.value] = new\n                    Container(c.nodes, icu.sourceSpan);\n                });\n                return new Icu$1(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n            }; \n            XmlToI18n.prototype.visitExpansionCase = function (icuCase, context) {\n                return {\n                    value:\n                    icuCase.value,\n                    nodes: visitAll$1(this, icuCase.expression),\n                }; \n            }; \n            XmlToI18n.prototype.visitElement = function (el, context) {\n                if (el.name === _PLACEHOLDER_TAG$3)\n                {\n                    var nameAttr = el.attrs.find(function (attr) { return attr.name === 'name'; });\n                    if (nameAttr)\n                    {\n                        return new Placeholder(", nameAttr.value, el.sourceSpan);\n                    }\n                    this._addError(el,\n                    "<" + _PLACEHOLDER_TAG$3 + "> misses the \"name\" attribute");\n                }\n                else {\n                    this._addError(el, "Unexpected tag");\n                }\n                return null;\n            }; \n            XmlToI18n.prototype.visitComment = function (comment, context)\n            { };\n            XmlToI18n.prototype.visitAttribute = function (attribute, context) { };\n            XmlToI18n.prototype._addError = function (node, message) {\n                this._errors.push(new\n                I18nError(node.sourceSpan, message));\n            }; \n            return XmlToI18n;\n        }());\n        /**\n         * A container for\n         translated messages\n         */\n        var TranslationBundle = /** @class */ (function () {\n            function\n            TranslationBundle(_i18nNodesByMsgId, locale, digest, mapperFactory, missingTranslationStrategy, console) {\n                if (_i18nNodesByMsgId === void 0) { _i18nNodesByMsgId = {}; }\n                if (missingTranslationStrategy\n                === void 0) { missingTranslationStrategy = MissingTranslationStrategy.Warning; }\n                this._i18nNodesByMsgId = _i18nNodesByMsgId;\n                this.digest = digest;\n                this.mapperFactory =\n                mapperFactory;\n                this._i18nToHtml = new I18nToHtmlVisitor(_i18nNodesByMsgId, locale, digest,\n                mapperFactory, missingTranslationStrategy, console);\n                \n                // Creates a `TranslationBundle` by parsing the given `content` with the `serializer`\n                TranslationBundle.load = function (content, url, serializer, missingTranslationStrategy, console) {\n                    var _a =\n                    serializer.load(content, url), locale = _a.locale, i18nNodesByMsgId = _a.i18nNodesByMsgId;\n                    var digestFn\n                    = function (m) { return serializer.digest(m); };\n                    var mapperFactory = function (m) { return\n                    serializer.createNameMapper(m); };\n                    return new TranslationBundle(i18nNodesByMsgId, locale, digestFn,\n                    mapperFactory, missingTranslationStrategy, console);\n                }; \n                // Returns the translation as HTML nodes\n                from the given source message.\n                TranslationBundle.prototype.get = function (srcMsg) {\n                    var html =\n                    this._i18nToHtml.convert(srcMsg);\n                    if (html.errors.length) {\n                        throw new\n                        Error(html.errors.join("\\n"));\n                    }\n                    return html.nodes;\n                }; \n                TranslationBundle.prototype.has = function (srcMsg) {\n                    return this.digest(srcMsg) in\n                    this._i18nNodesByMsgId;\n                }; \n                return TranslationBundle;\n            }());\n            var I18nToHtmlVisitor = /**\n            @class */ (function () {\n                function I18nToHtmlVisitor(_i18nNodesByMsgId, _locale, _digest, _mapperFactory,\n                _missingTranslationStrategy, _console) {\n                    if (_i18nNodesByMsgId === void 0) { _i18nNodesByMsgId =\n                    {};\n                    }\n                    this._i18nNodesByMsgId = _i18nNodesByMsgId;\n                    this._locale = _locale;\n                    this._digest = _digest;\n                    this._mapperFactory = _mapperFactory;\n                    this._missingTranslationStrategy =\n                    _missingTranslationStrategy;\n                    this._console = _console;\n                    this._contextStack = [];\n                    this._errors = [];\n                    I18nToHtmlVisitor.prototype.convert = function (srcMsg) {\n
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this._contextStack.length = 0;\n      this._errors.length = 0;\n      //
i18n.toText(\n      var text = this._convertToText(srcMsg);\n      // text to html\n      var url =
srcMsg.nodes[0].sourceSpan.start.file.url;\n      var html = new HtmlParser().parse(text, url, {
tokenizeExpansionForms: true });\n      return {\n      nodes: html.rootNodes,\n      errors:
__spread(this._errors, html.errors),\n      };\n      };\n      I18nToHtmlVisitor.prototype.visitText = function
(text, context) {\n      // `convert()` uses an `HtmlParser` to return `html.Node`s\n      // we should then make
sure that any special characters are escaped\n      return escapeXml(text.value);\n      };\n
I18nToHtmlVisitor.prototype.visitContainer = function (container, context) {\n      var _this = this;\n
return container.children.map(function (n) { return n.visit(_this); }).join("");\n      };\n
I18nToHtmlVisitor.prototype.visitIcu = function (icu, context) {\n
var _this = this;\n      var cases = Object.keys(icu.cases).map(function (k) { return k + "\"{" +
icu.cases[k].visit(_this) + "\"}"; });\n      // TODO(vicb): Once all format switch to using expression
placeholders\n      // we should throw when the placeholder is not in the source message\n      var exp =
this._srcMsg.placeholders.hasOwnProperty(icu.expression) ?\n
this._srcMsg.placeholders[icu.expression].text : \n      icu.expression;\n      return "\"{" + exp + "\", \"" +
icu.type + "\", \"" + cases.join(' ') + "\"}";\n      };\n      I18nToHtmlVisitor.prototype.visitPlaceholder = function (ph,
context) {\n      var phName = this._mapper(ph.name);\n      if
(this._srcMsg.placeholders.hasOwnProperty(phName)) {\n      return
this._srcMsg.placeholders[phName].text;\n      }\n      if
(this._srcMsg.placeholderToMessage.hasOwnProperty(phName)) {\n      return
this._convertToText(this._srcMsg.placeholderToMessage[phName]);\n
      }\n      this._addError(ph, "\"Unknown placeholder '\" + ph.name + '\"");\n      return ";\n      };\n
      // Loaded message contains only placeholders (vs tag and icu placeholders).\n      // However when a translation
can not be found, we need to serialize the source message\n      // which can contain tag placeholders\n
I18nToHtmlVisitor.prototype.visitTagPlaceholder = function (ph, context) {\n      var _this = this;\n      var
tag = "\" + ph.tag;\n      var attrs = Object.keys(ph.attrs).map(function (name) { return name + "\"=\"" +
ph.attrs[name] + "\""; }).join(' '); \n      if (ph.isVoid) {\n      return "\"<" + tag + "\" + attrs + "\"/>";\n
      }\n      var children = ph.children.map(function (c) { return c.visit(_this); }).join("");\n      return "\"<" +
tag + "\" + attrs + "\"/>" + children + "\"<" + tag + "\">";\n      };\n
      // Loaded message contains only placeholders (vs tag and icu placeholders).\n      // However when a translation
can not be found, we need to serialize the source message\n      // which can contain tag placeholders\n
I18nToHtmlVisitor.prototype.visitIcuPlaceholder = function (ph, context) {\n      // An ICU placeholder
references the source message to be serialized\n      return
this._convertToText(this._srcMsg.placeholderToMessage[ph.name]);\n      };\n      /**\n      * Convert a source
message to a translated text string:\n      * - text nodes are replaced with their translation,\n      * - placeholders
are replaced with their content,\n      * - ICU nodes are converted to ICU expressions.\n      */\n
I18nToHtmlVisitor.prototype._convertToText = function (srcMsg) {\n      var _this = this;\n      var id =
this._digest(srcMsg);\n      var mapper = this._mapperFactory ? this._mapperFactory(srcMsg) : null;\n
      var nodes;\n      this._contextStack.push({ msg: this._srcMsg, mapper: this._mapper });\n      this._srcMsg
= srcMsg;\n      if (this._i18nNodesByMsgId.hasOwnProperty(id)) {\n      // When there is a translation use
its nodes as the source\n      // And create a mapper to convert serialized placeholder names to internal
names\n      nodes = this._i18nNodesByMsgId[id];\n      this._mapper = function (name) { return
mapper ? mapper.toInternalName(name) : name; };\n      } else {\n      // When no translation has
been found\n      // - report an error / a warning / nothing,\n      // - use the nodes from the original
message\n      // - placeholders are already internal and need no mapper\n      if
(this._missingTranslationStrategy === MissingTranslationStrategy.Error) {\n      var ctx = this._locale ? "\n
for locale \"" + this._locale + "\"\n

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: ";
    this._addError(srcMsg.nodes[0], "Missing translation for message \\" + id + \\" + ctx);
  }
  else if (this._console && this._missingTranslationStrategy ===
MissingTranslationStrategy.Warning) {
    var ctx = this._locale ? " for locale \\" + this._locale +
\\" : ";
    this._console.warn("Missing translation for message \\" + id + \\" + ctx);
  }
  nodes = srcMsg.nodes;
  this._mapper = function (name) { return name; };
  var text = nodes.map(function (node) { return node.visit(_this); }).join("");
  var context = this._contextStack.pop();
  this._srcMsg = context.msg;
  this._mapper = context.mapper;
  return text;
};
I18nToHtmlVisitor.prototype._addError = function (el, msg) {
  this._errors.push(new I18nError(el.sourceSpan, msg));
};
return I18nToHtmlVisitor;
})();
/**
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 * found in the LICENSE file at https://angular.io/license
 */
var I18NHtmlParser = /** @class */ (function () {
  function I18NHtmlParser(_htmlParser, translations, translationsFormat, missingTranslation, console) {
    if (missingTranslation === void 0) { missingTranslation = MissingTranslationStrategy.Warning; }
    this._htmlParser = _htmlParser;
    if (translations) {
      var serializer = createSerializer(translationsFormat);
      this._translationBundle = TranslationBundle.load(translations, 'i18n', serializer, missingTranslation, console);
    } else {
      this._translationBundle = new TranslationBundle({}, null, digest, undefined, missingTranslation, console);
    }
  }
  I18NHtmlParser.prototype.parse = function (source, url, options) {
    if (options === void 0) { options = {}; }
    var interpolationConfig = options.interpolationConfig || DEFAULT_INTERPOLATION_CONFIG;
    var parseResult = this._htmlParser.parse(source, url, Object.assign({ interpolationConfig: interpolationConfig }, options));
    if (parseResult.errors.length) {
      return new ParseTreeResult(parseResult.rootNodes, parseResult.errors);
    }
    return mergeTranslations(parseResult.rootNodes, this._translationBundle, interpolationConfig, [], {});
  };
  return I18NHtmlParser;
})();
function createSerializer(format) {
  format = (format || 'xlf').toLowerCase();
  switch (format) {
    case 'xmb':
      return new Xmb();
    case 'xtb':
      return new Xtb();
    case 'xliff2':
      return new Xliff2();
    case 'xliff':
      return new Xliff();
    case 'xlf':
      return new Xliff();
    default:
      return new Xliff();
  }
}
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 * found in the LICENSE file at https://angular.io/license
 */
var QUOTED_KEYS = '$quoted$';
function convertValueToOutputAst(ctx, value, type) {
  if (type === void 0) { type = null; }
  return visitValue(value, new _ValueOutputAstTransformer(ctx), type);
}
var _ValueOutputAstTransformer = /** @class */ (function () {
  function _ValueOutputAstTransformer(ctx) {
    this.ctx = ctx;
  }
  _ValueOutputAstTransformer.prototype.visitArray = function (arr, type) {
    var values = [];
    // Note Array.map() must not be used to convert the values because it will
    // skip over empty elements in arrays constructed using `new Array(length)`,
    // resulting in `undefined` elements. This breaks the type
    // guarantee that
    // all values in `o.LiteralArrayExpr` are of type `o.Expression`.
    // See test case in
    `value_util_spec.ts`.
    for (var i = 0; i < arr.length; ++i) {
      values.push(visitValue(arr[i], this, null /* context */));
    }
    return literalArr(values, type);
  };
  _ValueOutputAstTransformer.prototype.visitStringMap = function (map, type) {
    var _this = this;
    var entries = [];
    var quotedSet = new Set(map && map[QUOTED_KEYS]);
    Object.keys(map).forEach(function (key) {
      entries.push(new LiteralMapEntry(key, visitValue(map[key], _this, null), quotedSet.has(key)));
    });
    return new LiteralMapExpr(entries, type);
  };
  _ValueOutputAstTransformer.prototype.visitPrimitive = function (value, type) {
    return literal(value, type);
  };
  _ValueOutputAstTransformer.prototype.visitOther = function (value, type) {
    if (value instanceof Expression) {
      return value;
    } else {
      return this.ctx.importExpr(value);
    }
  }
}

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    };
    return _ValueOutputAstTransformer;
})();

/**
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 * found in the LICENSE file at https://angular.io/license
 */
function mapEntry$1(key, value) {
  return {
    key: key,
    value: value,
    quoted: false
  };
}

var InjectableCompiler = /** @class */ (function () {
  function InjectableCompiler(reflector, alwaysGenerateDef) {
    this.reflector = reflector;
    this.alwaysGenerateDef = alwaysGenerateDef;
    this.tokenInjector = reflector.resolveExternalReference(Identifiers.Injector);
  }

  InjectableCompiler.prototype.depsArray = function (deps, ctx) {
    var _this = this;
    return deps.map(function (dep) {
      var token = dep;
      var args = [token];
      var flags = 0 /* Default */;
      if (Array.isArray(dep)) {
        for (var i = 0; i < dep.length; i++) {
          var v = dep[i];
          if (v) {
            if (v.ngMetadataName === 'Optional') {
              flags |= 8 /* Optional */;
            } else if (v.ngMetadataName === 'SkipSelf') {
              flags |= 4 /* SkipSelf */;
            } else if (v.ngMetadataName === 'Self') {
              flags |= 2 /* Self */;
            }
          }
        }
      } else if (v.ngMetadataName === 'Inject') {
        token = v.token;
      } else {
        token = v;
      }
      var tokenExpr;
      if (typeof token === 'string') {
        tokenExpr = literal(token);
      } else if (token === _this.tokenInjector) {
        tokenExpr = importExpr(Identifiers.INJECTOR);
      } else {
        tokenExpr = ctx.importExpr(token);
      }
      if (flags !== 0 /* Default */) {
        args = [tokenExpr, literal(flags)];
      } else {
        args = [tokenExpr];
      }
      return importExpr(Identifiers.inject).callFn(args);
    });
  };

  InjectableCompiler.prototype.factoryFor = function (injectable, ctx) {
    var retValue;
    if (injectable.useExisting) {
      retValue = importExpr(Identifiers.inject).callFn([ctx.importExpr(injectable.useExisting)]);
    } else if (injectable.useFactory) {
      var deps = injectable.deps || [];
      if (deps.length > 0) {
        retValue = ctx.importExpr(injectable.useFactory).callFn(this.depsArray(deps, ctx));
      } else {
        return ctx.importExpr(injectable.useFactory);
      }
    } else if (injectable.useValue) {
      retValue = convertValueToOutputAst(ctx, injectable.useValue);
    } else {
      var clazz = injectable.useClass || injectable.symbol;
      var depArgs = this.depsArray(this.reflector.parameters(clazz), ctx);
      retValue = new InstantiateExpr(ctx.importExpr(clazz), depArgs);
    }
    return fn([], [new ReturnStatement(retValue)], undefined, undefined, injectable.symbol.name + '_Factory');
  };

  InjectableCompiler.prototype.injectableDef = function (injectable, ctx) {
    var providedIn = NULL_EXPR;
    if (injectable.providedIn !== undefined) {
      if (injectable.providedIn === null) {
        providedIn = NULL_EXPR;
      } else if (typeof injectable.providedIn === 'string') {
        providedIn = literal(injectable.providedIn);
      } else {
        providedIn = ctx.importExpr(injectable.providedIn);
      }
    }
    var def = [mapEntry$1('factory', this.factoryFor(injectable, ctx)), mapEntry$1('token', ctx.importExpr(injectable.type.reference)), mapEntry$1('providedIn', providedIn)];
    return importExpr(Identifiers.defineInjectable).callFn([literalMap(def)]);
  };

  InjectableCompiler.prototype.compile = function (injectable, ctx) {
    if (this.alwaysGenerateDef || injectable.providedIn !== undefined) {
      var className = identifierName(injectable.type);
      var clazz = new ClassStmt(className, null, [new ClassField('prov', INFERRED_TYPE, [exports.StmtModifier.Static], this.injectableDef(injectable, ctx)), [exports.StmtModifier.Static], this.injectableDef(injectable, ctx)), [], new ClassMethod(null, [], [], [ctx.statements.push(clazz)]);
      return InjectableCompiler.call(this, ctx).statements.push(clazz);
    }
    return InjectableCompiler.call(this, ctx).statements.push(clazz);
  };
})();

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*/
var STRIP_SRC_FILE_SUFFIXES = /(\\.ts\\.d\\.ts\\.js\\.jsx\\.tsx)$/;
var GENERATED_FILE = /\.ngfactory\\.\\.ngsummary\\.;/;
var JIT_SUMMARY_FILE = /\.ngsummary\\.;/;
var JIT_SUMMARY_NAME = /NgSummary$/;
function ngfactoryFilePath(filePath, forceSourceFile) {
  if (forceSourceFile === void 0) { forceSourceFile = false; }
  var urlWithSuffix = splitTypescriptSuffix(filePath, forceSourceFile);
  return urlWithSuffix[0] + ".ngfactory/" + normalizeGenFileSuffix(urlWithSuffix[1]);
}
function stripGeneratedFileSuffix(filePath) {
  return filePath.replace(GENERATED_FILE, '.');
}
function isGeneratedFile(filePath) {
  return GENERATED_FILE.test(filePath);
}
function splitTypescriptSuffix(path, forceSourceFile) {
  if (forceSourceFile === void 0) { forceSourceFile = false; }
  if (path.endsWith('.d.ts')) {
    return [path.slice(0, -5), forceSourceFile ? '.ts' : '.d.ts'];
  }
  var lastDot = path.lastIndexOf('.');
  if (lastDot !== -1) {
    return [path.substring(0, lastDot), path.substring(lastDot)];
  }
  return [path, ''];
}
function normalizeGenFileSuffix(srcFileSuffix) {
  return srcFileSuffix === '.tsx' ? '.ts' : srcFileSuffix;
}
function summaryFileName(fileName) {
  var fileNameWithoutSuffix = fileName.replace(STRIP_SRC_FILE_SUFFIXES, '');
  return fileNameWithoutSuffix + ".ngsummary.json";
}
function summaryForJitFileName(fileName, forceSourceFile) {
  if (forceSourceFile === void 0) { forceSourceFile = false; }
  var urlWithSuffix = splitTypescriptSuffix(stripGeneratedFileSuffix(fileName), forceSourceFile);
  return urlWithSuffix[0] + ".ngsummary/" + urlWithSuffix[1];
}
function stripSummaryForJitFileSuffix(filePath) {
  return filePath.replace(JIT_SUMMARY_FILE, '.');
}
function summaryForJitName(symbolName) {
  return symbolName + "NgSummary";
}
function stripSummaryForJitNameSuffix(symbolName) {
  return symbolName.replace(JIT_SUMMARY_NAME, '');
}
var LOWERED_SYMBOL = /\u0275\d+;/;
function isLoweredSymbol(name) {
  return LOWERED_SYMBOL.test(name);
}
function createLoweredSymbol(id) {
  return "\u0275" + id;
}
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 * found in the LICENSE file at https://angular.io/license
 */
var LifecycleHooks;
(function (LifecycleHooks) {
  LifecycleHooks[LifecycleHooks["OnInit"] = 0] = "OnInit";
  LifecycleHooks[LifecycleHooks["OnDestroy"] = 1] = "OnDestroy";
  LifecycleHooks[LifecycleHooks["DoCheck"] = 2] = "DoCheck";
  LifecycleHooks[LifecycleHooks["OnChanges"] = 3] = "OnChanges";
  LifecycleHooks[LifecycleHooks["AfterContentInit"] = 4] = "AfterContentInit";
  LifecycleHooks[LifecycleHooks["AfterContentChecked"] = 5] = "AfterContentChecked";
  LifecycleHooks[LifecycleHooks["AfterViewInit"] = 6] = "AfterViewInit";
  LifecycleHooks[LifecycleHooks["AfterViewChecked"] = 7] = "AfterViewChecked";
})(LifecycleHooks || (LifecycleHooks = {}));
var LIFECYCLE_HOOKS_VALUES = [
  LifecycleHooks.OnInit,
  LifecycleHooks.OnDestroy,
  LifecycleHooks.DoCheck,
  LifecycleHooks.OnChanges,
  LifecycleHooks.AfterContentInit,
  LifecycleHooks.AfterContentChecked,
  LifecycleHooks.AfterViewInit,
  LifecycleHooks.AfterViewChecked
];
function hasLifecycleHook(reflector, hook, token) {
  return reflector.hasLifecycleHook(token, getHookName(hook));
}
function getAllLifecycleHooks(reflector, token) {
  return LIFECYCLE_HOOKS_VALUES.filter(function (hook) {
    return hasLifecycleHook(reflector, hook, token);
  });
}
function getHookName(hook) {
  switch (hook) {
    case LifecycleHooks.OnInit:
      return 'ngOnInit';
    case LifecycleHooks.OnDestroy:
      return 'ngOnDestroy';
    case LifecycleHooks.DoCheck:
      return 'ngDoCheck';
    case LifecycleHooks.OnChanges:
      return 'ngOnChanges';
    case LifecycleHooks.AfterContentInit:
      return 'ngAfterContentInit';
    case LifecycleHooks.AfterContentChecked:
      return 'ngAfterContentChecked';
    case LifecycleHooks.AfterViewInit:
      return 'ngAfterViewInit';
    case LifecycleHooks.AfterViewChecked:
      return 'ngAfterViewChecked';
    default:
      // This default case is not needed by TypeScript compiler,

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    }\n        return this._createProxyClass(dirType, name);\n    };\n
CompileMetadataResolver.prototype.getRendererType = function (dirType) {\n        if (dirType instanceof
StaticSymbol) {\n            return this._staticSymbolCache.get(ngfactoryFilePath(dirType.filePath),
rendererTypeName(dirType));\n        }\n        else {\n            // returning an object as proxy,\n            // that
we fill later during runtime compilation.\n            return {};\n        }\n    };\n
CompileMetadataResolver.prototype.getComponentFactory = function (selector, dirType, inputs, outputs) {\n
if (dirType instanceof StaticSymbol) {\n        return
this._staticSymbolCache.get(ngfactoryFilePath(dirType.filePath), componentFactoryName(dirType));\n    }\n
    else {\n        var hostView = this.getHostComponentViewClass(dirType);\n        // Note:
ngContentSelectors will be filled later
once the template is\n        // loaded.\n        var createComponentFactory =
this._reflector.resolveExternalReference(Identifiers.createComponentFactory);\n        return
createComponentFactory(selector, dirType, hostView, inputs, outputs, []);\n    }\n    };\n
CompileMetadataResolver.prototype.initComponentFactory = function (factory, ngContentSelectors) {\n        var
_a;\n        if (!(factory instanceof StaticSymbol)) {\n            (_a = factory.ngContentSelectors).push.apply(_a,
__spread(ngContentSelectors));\n        }\n    };\n
CompileMetadataResolver.prototype._loadSummary =
function (type, kind) {\n        var typeSummary = this._summaryCache.get(type);\n        if (!typeSummary) {\n
            var summary = this._summaryResolver.resolveSummary(type);\n            typeSummary = summary ?
summary.type : null;\n            this._summaryCache.set(type, typeSummary || null);\n        }\n
        return typeSummary && typeSummary.summaryKind === kind ? typeSummary : null;\n    };\n
CompileMetadataResolver.prototype.getHostComponentMetadata = function (compMeta, hostViewType) {\n
var hostType = this.getHostComponentType(compMeta.type.reference);\n        if (!hostViewType) {\n
hostViewType = this.getHostComponentViewClass(hostType);\n        }\n        // Note: ! is ok here as this
method should only be called with normalized directive\n        // metadata, which always fills in the selector.\n
        var template = CssSelector.parse(compMeta.selector)[0].getMatchingElementTemplate();\n        var
templateUrl = '';\n        var htmlAst = this._htmlParser.parse(template, templateUrl);\n        return
CompileDirectiveMetadata.create({\n            isHost: true,\n            type: { reference: hostType, diDeps: [],
lifecycleHooks: [] },\n            template: new CompileTemplateMetadata({\n
                encapsulation: ViewEncapsulation.None,\n                template: template,\n                templateUrl:
templateUrl,\n                htmlAst: htmlAst,\n                styles: [],\n                styleUrls: [],\n
                ngContentSelectors: [],\n                animations: [],\n                isInline: true,\n                externalStylesheets:
[],\n                interpolation: null,\n                preserveWhitespaces: false,\n            },\n            exportAs:
null,\n            changeDetection: ChangeDetectionStrategy.Default,\n            inputs: [],\n            outputs: [],\n
            host: {},\n            isComponent: true,\n            selector: '*',\n            providers: [],\n
            viewProviders: [],\n            queries: [],\n            guards: {},\n            viewQueries: [],\n
            componentViewType: hostViewType,\n
            rendererType: { id: '__Host__', encapsulation: ViewEncapsulation.None, styles: [], data: {} },\n
            entryComponents: [],\n            componentFactory: null\n        });\n    };\n
CompileMetadataResolver.prototype.loadDirectiveMetadata = function (ngModuleType, directiveType, isSync) {\n
    var _this = this;\n    if (this._directiveCache.has(directiveType)) {\n        return null;\n    }\n
    directiveType = resolveForwardRef(directiveType);\n    var _a =
this.getNonNormalizedDirectiveMetadata(directiveType), annotation = _a.annotation, metadata = _a.metadata;\n
    var createDirectiveMetadata = function (templateMetadata) {\n        var normalizedDirMeta = new
CompileDirectiveMetadata({\n            isHost: false,\n            type: metadata.type,\n
            isComponent: metadata.isComponent,\n            selector: metadata.selector,\n
            exportAs: metadata.exportAs,\n            changeDetection: metadata.changeDetection,\n
            inputs: metadata.inputs,\n            outputs: metadata.outputs,\n            hostListeners:
metadata.hostListeners,\n            hostProperties: metadata.hostProperties,\n            hostAttributes:

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metadata.hostAttributes,\n          providers: metadata.providers,\n          viewProviders:
metadata.viewProviders,\n          queries: metadata.queries,\n          guards: metadata.guards,\n          viewQueries: metadata.viewQueries,\n          entryComponents: metadata.entryComponents,\ncomponentViewType: metadata.componentViewType,\n          rendererType: metadata.rendererType,\n          componentFactory: metadata.componentFactory,\n          template: templateMetadata\n        });\n        if (templateMetadata)\n        {\n            _this.initComponentFactory(metadata.componentFactory, templateMetadata.ngContentSelectors);\n        }\n        _this._directiveCache.set(directiveType, normalizedDirMeta);\n        _this._summaryCache.set(directiveType, normalizedDirMeta.toSummary());\n        return null;\n    };\n    if (metadata.isComponent) {\n        var template = metadata.template;\n        var templateMeta =\n        this._directiveNormalizer.normalizeTemplate({\n            ngModuleType: ngModuleType,\n            componentType: directiveType,\n            moduleUrl: this._reflector.componentModuleUrl(directiveType,\n            annotation),\n            encapsulation: template.encapsulation,\n            template: template.template,\n            templateUrl: template.templateUrl,\n            styles: template.styles,\n            styleUrls:\n            template.styleUrls,\n            animations: template.animations,\n            interpolation: template.interpolation,\n            preserveWhitespaces: template.preserveWhitespaces\n        });\n        if (isPromise(templateMeta) &&\n        isSync) {\n            this._reportError(componentStillLoadingError(directiveType), directiveType);\n        }\n        return null;\n    }\n    return SyncAsync.then(templateMeta, createDirectiveMetadata);\n}\nelse {\n    // directive\n    createDirectiveMetadata(null);\n    return null;\n}\n};\nCompileMetadataResolver.prototype.getNonNormalizedDirectiveMetadata = function (directiveType) {\n    var _this = this;\n    directiveType = resolveForwardRef(directiveType);\n    if (!directiveType) {\n        return null;\n    }\n    var cacheEntry = this._nonNormalizedDirectiveCache.get(directiveType);\n    if (cacheEntry) {\n        return cacheEntry;\n    }\n    var dirMeta =\n    this._directiveResolver.resolve(directiveType, false);\n    if (!dirMeta) {\n        return null;\n    }\n    var nonNormalizedTemplateMetadata = undefined;\n    if (createComponent.isTypeOf(dirMeta)) {\n        // component\n        var compMeta = dirMeta;\n        assertArrayOfStrings('styles', compMeta.styles);\n        assertArrayOfStrings('styleUrls', compMeta.styleUrls);\n        assertInterpolationSymbols('interpolation',\n        compMeta.interpolation);\n        var animations = compMeta.animations;\n        nonNormalizedTemplateMetadata = new CompileTemplateMetadata({\n            encapsulation:\n            noUndefined(compMeta.encapsulation),\n            template: noUndefined(compMeta.template),\n            templateUrl: noUndefined(compMeta.templateUrl),\n            htmlAst: null,\n            styles: compMeta.styles || [],\n            styleUrls: compMeta.styleUrls ||\n            [],\n            animations: animations || [],\n            interpolation: noUndefined(compMeta.interpolation),\n            isInline: !!compMeta.template,\n            externalStylesheets: [],\n            ngContentSelectors: [],\n            preserveWhitespaces: noUndefined(dirMeta.preserveWhitespaces),\n        });\n        var\n        changeDetectionStrategy = null;\n        var viewProviders = [];\n        var entryComponentMetadata = [];\n        var selector = dirMeta.selector;\n        if (createComponent.isTypeOf(dirMeta)) {\n            // Component\n            var compMeta = dirMeta;\n            changeDetectionStrategy = compMeta.changeDetection;\n            if\n            (compMeta.viewProviders) {\n                viewProviders = this._getProvidersMetadata(compMeta.viewProviders,\n                entryComponentMetadata, \"viewProviders for '\" + stringifyType(directiveType) + '\"', [], directiveType);\n            }\n            if (compMeta.entryComponents) {\n                entryComponentMetadata =\n                flattenAndDedupeArray(compMeta.entryComponents)\n                .map(function (type) { return\n                _this._getEntryComponentMetadata(type); })\n                .concat(entryComponentMetadata);\n            }\n            if (!selector) {\n                selector = this._schemaRegistry.getDefaultComponentElementName();\n            }\n        }\n        else {\n            // Directive\n            if (!selector) {\n                selector = null;\n            }\n        }\n        var providers = [];\n        if (dirMeta.providers != null) {\n            providers =\n            this._getProvidersMetadata(dirMeta.providers, entryComponentMetadata, \"providers for

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    \\\"" + stringifyType(directiveType) + \\\"\\\", [], directiveType);\n        }\n        var queries = [];\n        var\nviewQueries = [];\n        if (dirMeta.queries != null) {\n            queries =\nthis._getQueriesMetadata(dirMeta.queries, false, directiveType);\n            viewQueries =\nthis._getQueriesMetadata(dirMeta.queries, true, directiveType);\n        }\n        var metadata =\nCompileDirectiveMetadata.create({\n            isHost: false,\n            selector: selector,\n            exportAs:\nnoUndefined(dirMeta.exportAs),\n            isComponent: !!nonNormalizedTemplateMetadata,\n            type:\nthis._getTypeMetadata(directiveType),\n            template: nonNormalizedTemplateMetadata,\n            changeDetection: changeDetectionStrategy,\n            inputs: dirMeta.inputs || [],\n            outputs:\ndirMeta.outputs || [],\n            host: dirMeta.host || {},\n            providers: providers\n|| [],\n            viewProviders: viewProviders || [],\n            queries: queries || [],\n            guards:\ndirMeta.guards || {},\n            viewQueries: viewQueries || [],\n            entryComponents:\nentryComponentMetadata,\n            componentViewType: nonNormalizedTemplateMetadata ?\nthis.getComponentViewClass(directiveType) : null,\n            rendererType:\nnonNormalizedTemplateMetadata ? this.getRendererType(directiveType) : null,\n            componentFactory:\nnull\n});\n        if (nonNormalizedTemplateMetadata) {\n            metadata.componentFactory =\nthis.getComponentFactory(selector, directiveType, metadata.inputs, metadata.outputs);\n        }\n        cacheEntry = { metadata: metadata, annotation: dirMeta };\n        this._nonNormalizedDirectiveCache.set(directiveType, cacheEntry);\n        return cacheEntry;\n    };\n\n    /**\n     * Gets\n     * the metadata for the given directive.\n     * This assumes `loadNgModuleDirectiveAndPipeMetadata` has been\n     * called first.\n     */\n    CompileMetadataResolver.prototype.getDirectiveMetadata = function (directiveType)\n    {\n        var dirMeta = this._directiveCache.get(directiveType);\n        if (!dirMeta) {\n            this._reportError(syntaxError(\"Illegal state: getDirectiveMetadata can only be called after\nloadNgModuleDirectiveAndPipeMetadata for a module that declares it. Directive '\" + stringifyType(directiveType)\n+ '\".\"), directiveType);\n        }\n        return dirMeta;\n    };\n\n    CompileMetadataResolver.prototype.getDirectiveSummary = function (dirType) {\n        var dirSummary =\nthis._loadSummary(dirType, exports.CompileSummaryKind.Directive);\n        if (!dirSummary) {\n            this._reportError(syntaxError(\"Illegal state: Could not load the summary for directive '\" + stringifyType(dirType) +\n\".\"), dirType);\n        }\n        return dirSummary;\n    };\n\n    CompileMetadataResolver.prototype.isDirective = function\n(type) {\n        return !!this._loadSummary(type, exports.CompileSummaryKind.Directive) ||\nthis._directiveResolver.isDirective(type);\n    };\n\n    CompileMetadataResolver.prototype.isAbstractDirective =\nfunction (type) {\n        var summary = this._loadSummary(type, exports.CompileSummaryKind.Directive);\n        if (summary && !summary.isComponent) {\n            return !summary.selector;\n        }\n        var meta =\nthis._directiveResolver.resolve(type, false);\n        if (meta && !createComponent.isTypeOf(meta)) {\n            return !meta.selector;\n        }\n        return false;\n    };\n\n    CompileMetadataResolver.prototype.isPipe =\nfunction (type) {\n        return !!this._loadSummary(type, exports.CompileSummaryKind.Pipe) ||\nthis._pipeResolver.isPipe(type);\n    };\n\n    CompileMetadataResolver.prototype.isNgModule = function (type) {\n        return\n!!this._loadSummary(type, exports.CompileSummaryKind.NgModule) ||\nthis._ngModuleResolver.isNgModule(type);\n    };\n\n    CompileMetadataResolver.prototype.getNgModuleSummary = function (moduleType, alreadyCollecting) {\n        if (alreadyCollecting === void 0) { alreadyCollecting = null; }\n        var moduleSummary =\nthis._loadSummary(moduleType, exports.CompileSummaryKind.NgModule);\n        if (!moduleSummary) {\n            var moduleMeta = this.getNgModuleMetadata(moduleType, false, alreadyCollecting);\n            moduleSummary = moduleMeta ? moduleMeta.toSummary() : null;\n            if (moduleSummary) {\n                this._summaryCache.set(moduleType, moduleSummary);\n            }\n            return\nmoduleSummary;\n        };\n        /**\n         * Loads the declared directives and pipes of

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an NgModule.\n      */\n      CompileMetadataResolver.prototype.loadNgModuleDirectiveAndPipeMetadata =
function (moduleType, isSync, throwIfNotFound) {\n      var _this = this;\n      if (throwIfNotFound === void
0) { throwIfNotFound = true; }\n      var ngModule = this.getNgModuleMetadata(moduleType,
throwIfNotFound);\n      var loading = [];\n      if (ngModule) {\n
ngModule.declaredDirectives.forEach(function (id) {\n      var promise =
_this.loadDirectiveMetadata(moduleType, id.reference, isSync);\n      if (promise) {\n
loading.push(promise);\n      }\n      });\n      ngModule.declaredPipes.forEach(function (id) {\n
return _this._loadPipeMetadata(id.reference); });\n      }\n      return Promise.all(loading);\n      };\n
CompileMetadataResolver.prototype.getShallowModuleMetadata = function (moduleType) {\n      var
compileMeta
= this._shallowModuleCache.get(moduleType);\n      if (compileMeta) {\n      return compileMeta;\n
}\n      var ngModuleMeta = findLast(this._reflector.shallowAnnotations(moduleType),
createNgModule.isTypeOf);\n      compileMeta = {\n      type: this._getTypeMetadata(moduleType),\n
rawExports: ngModuleMeta.exports,\n      rawImports: ngModuleMeta.imports,\n      rawProviders:
ngModuleMeta.providers,\n      };\n      this._shallowModuleCache.set(moduleType, compileMeta);\n
return compileMeta;\n      };\n      CompileMetadataResolver.prototype.getNgModuleMetadata = function
(moduleType, throwIfNotFound, alreadyCollecting) {\n      var _this = this;\n      if (throwIfNotFound ===
void 0) { throwIfNotFound = true; }\n      if (alreadyCollecting === void 0) { alreadyCollecting = null; }\n
moduleType = resolveForwardRef(moduleType);\n      var
compileMeta = this._ngModuleCache.get(moduleType);\n      if (compileMeta) {\n      return
compileMeta;\n      }\n      var meta = this._ngModuleResolver.resolve(moduleType, throwIfNotFound);\n
if (!meta) {\n      return null;\n      }\n      var declaredDirectives = [];\n      var
exportedNonModuleIdentifiers = [];\n      var declaredPipes = [];\n      var importedModules = [];\n      var
exportedModules = [];\n      var providers = [];\n      var entryComponents = [];\n      var
bootstrapComponents = [];\n      var schemas = [];\n      if (meta.imports) {\n
flattenAndDedupeArray(meta.imports).forEach(function (importedType) {\n      var importedModuleType
= undefined;\n      if (isValidType(importedType)) {\n      importedModuleType =
importedType;\n      }\n      else if (importedType
&& importedType.ngModule) {\n      var moduleWithProviders = importedType;\n
importedModuleType = moduleWithProviders.ngModule;\n      if (moduleWithProviders.providers) {\n
providers.push.apply(providers,
__spread(_this._getProvidersMetadata(moduleWithProviders.providers, entryComponents, "provider for the
NgModule \"" + stringifyType(importedModuleType) + "\", [], importedType));\n      }\n
}\n      if (importedModuleType) {\n      if (_this._checkSelfImport(moduleType,
importedModuleType))\n      return;\n      if (!alreadyCollecting)\n
alreadyCollecting = new Set();\n      if (alreadyCollecting.has(importedModuleType)) {\n
_this._reportError(syntaxError(_this._getTypeDescriptor(importedModuleType) + "\" \" +
stringifyType(importedType)
+ \" \" is imported recursively by the module \"" + stringifyType(moduleType) + "\"."), moduleType);\n
return;\n      }\n      alreadyCollecting.add(importedModuleType);\n      var
importedModuleSummary = _this.getNgModuleSummary(importedModuleType, alreadyCollecting);\n
alreadyCollecting.delete(importedModuleType);\n      if (!importedModuleSummary) {\n
_this._reportError(syntaxError("Unexpected \" + _this._getTypeDescriptor(importedType) + "\" \" +
stringifyType(importedType) + \" \" imported by the module \"" + stringifyType(moduleType) + "\". Please add a
@NgModule annotation.\"), moduleType);\n      return;\n      }\n
importedModules.push(importedModuleSummary);\n      }\n      else {\n
_this._reportError(syntaxError("Unexpected

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value \" + stringifyType(importedType) + \" imported by the module \" + stringifyType(moduleType) + \"\",
moduleType);\n        return;\n    }\n});\n    }\n    if (meta.exports) {\n        flattenAndDedupeArray(meta.exports).forEach(function (exportedType) {\n            if
(!isValidType(exportedType)) {\n                _this._reportError(syntaxError(\"Unexpected value \" +
stringifyType(exportedType) + \" exported by the module \" + stringifyType(moduleType) + \"\", moduleType);\n
                return;\n            }\n            if (!alreadyCollecting)\n                alreadyCollecting = new
Set();\n            if (alreadyCollecting.has(exportedType)) {\n
                _this._reportError(syntaxError(_this._getTypeDescriptor(exportedType) + \" \" + stringify(exportedType) + \" is
exported recursively by
the module \" + stringifyType(moduleType) + \"\", moduleType);\n                return;\n            }\n            alreadyCollecting.add(exportedType);\n            var exportedModuleSummary =
_this.getNgModuleSummary(exportedType, alreadyCollecting);\n            alreadyCollecting.delete(exportedType);\n            if (exportedModuleSummary) {\n
                exportedModules.push(exportedModuleSummary);\n            }\n            else {\n
                exportedNonModuleIdentifiers.push(_this._getIdentifierMetadata(exportedType);\n            }\n            });\n            }\n            // Note: This will be modified later, so we rely on\n            // getting a new instance every time!\n            var transitiveModule = this._getTransitiveNgModuleMetadata(importedModules, exportedModules);\n            if
(meta.declarations) {\n                flattenAndDedupeArray(meta.declarations).forEach(function
(declaredType) {\n                    if (!isValidType(declaredType)) {\n
                        _this._reportError(syntaxError(\"Unexpected value \" + stringifyType(declaredType) + \" declared by the module
\" + stringifyType(moduleType) + \"\", moduleType);\n                        return;\n                    }\n                    var
declaredIdentifier = _this._getIdentifierMetadata(declaredType);\n                    if (_this.isDirective(declaredType))
{\n                        if (_this.isAbstractDirective(declaredType)) {\n
                            _this._reportError(syntaxError(\"Directive \" + stringifyType(declaredType) + \" has no selector, please add it!\"),
declaredType);\n                        }\n                        transitiveModule.addDirective(declaredIdentifier);\n
                        declaredDirectives.push(declaredIdentifier);\n                        _this._addTypeToModule(declaredType,
moduleType);\n                    }\n                    else if (_this.isPipe(declaredType)) {\n                        transitiveModule.addPipe(declaredIdentifier);\n
                        transitiveModule.pipes.push(declaredIdentifier);\n                        declaredPipes.push(declaredIdentifier);\n
                        _this._addTypeToModule(declaredType, moduleType);\n                    }\n                    else {\n
                        _this._reportError(syntaxError(\"Unexpected \" + _this._getTypeDescriptor(declaredType) + \" \" +
stringifyType(declaredType) + \" declared by the module \" + stringifyType(moduleType) + \"\". Please add a
@Pipe/@Directive/@Component annotation.\"), moduleType);\n                        return;\n                    }\n                });\n            }\n            var exportedDirectives = [];\n            var exportedPipes = [];\n            exportedNonModuleIdentifiers.forEach(function (exportedId) {\n                if
(transitiveModule.directivesSet.has(exportedId.reference))
{\n                    exportedDirectives.push(exportedId);\n                    transitiveModule.addExportedDirective(exportedId);\n                }\n                else if
(transitiveModule.pipesSet.has(exportedId.reference)) {\n                    exportedPipes.push(exportedId);\n                    transitiveModule.addExportedPipe(exportedId);\n                }\n                else {\n
                    _this._reportError(syntaxError(\"Can't export \" + _this._getTypeDescriptor(exportedId.reference) + \" \" +
stringifyType(exportedId.reference) + \" from \" + stringifyType(moduleType) + \" as it was neither declared nor
imported!\"), moduleType);\n                    return;\n                }\n            });\n            // The providers of the module
have to go last\n            // so that they overwrite any other provider we already added.\n            if (meta.providers)
{\n                providers.push.apply(providers, __spread(this._getProvidersMetadata(meta.providers,
entryComponents, \"provider for the NgModule \" + stringifyType(moduleType) + \"\", [], moduleType)));\n            }\n            if (meta.entryComponents) {\n                entryComponents.push.apply(entryComponents,
__spread(flattenAndDedupeArray(meta.entryComponents)\n                    .map(function (type) { return

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_this._getEntryComponentMetadata(type); }));\n        }\n        if (meta.bootstrap) {\nflattenAndDedupeArray(meta.bootstrap).forEach(function (type) {\n            if (!isValidType(type)) {\n                _this._reportError(syntaxError("Unexpected value \"" + stringifyType(type) + "\" used in the bootstrap property\nof module \"" + stringifyType(moduleType) + "\""), moduleType);\n                return;\n            }\n            bootstrapComponents.push(_this._getIdentifierMetadata(type));\n        });\n        }\nentryComponents.push.apply(entryComponents, __spread(bootstrapComponents.map(function\n(type) { return _this._getEntryComponentMetadata(type.reference); }));\n        if (meta.schemas) {\nschemas.push.apply(schemas, __spread(flattenAndDedupeArray(meta.schemas));\n        }\n        compileMeta\n= new CompileNgModuleMetadata({\n            type: this._getTypeMetadata(moduleType),\n            providers:\nproviders,\n            entryComponents: entryComponents,\n            bootstrapComponents:\nbootstrapComponents,\n            schemas: schemas,\n            declaredDirectives: declaredDirectives,\nexportedDirectives: exportedDirectives,\n            declaredPipes: declaredPipes,\n            exportedPipes:\nexportedPipes,\n            importedModules: importedModules,\n            exportedModules: exportedModules,\n            transitiveModule: transitiveModule,\n            id: meta.id || null,\n        });\nentryComponents.forEach(function\n(id) { return transitiveModule.addEntryComponent(id); });\n        providers.forEach(function (provider) { return\ntransitiveModule.addProvider(provider, compileMeta.type); });\ntransitiveModule.addModule(compileMeta.type);\n        this._ngModuleCache.set(moduleType, compileMeta);\n        return compileMeta;\n    };\n    CompileMetadataResolver.prototype._checkSelfImport = function\n(moduleType, importedModuleType) {\n        if (moduleType === importedModuleType) {\nthis._reportError(syntaxError("\"\" + stringifyType(moduleType) + \"\" module can't import itself"), moduleType);\n        }\n        return true;\n    };\n    return false;\n};\nCompileMetadataResolver.prototype._getTypeDescriptor = function (type) {\n        if (isValidType(type)) {\n            if (this.isDirective(type)) {\n                return 'directive';\n            }\n            if (this.isPipe(type)) {\n                return 'pipe';\n            }\n            if (this.isNgModule(type)) {\n                return 'module';\n            }\n            if (type.provide) {\n                return 'provider';\n            }\n            return 'value';\n        }\n    };\n    CompileMetadataResolver.prototype._addTypeToModule = function (type, moduleType) {\n        var\noldModule = this._ngModuleOfTypes.get(type);\n        if (oldModule && oldModule !== moduleType) {\n            this._reportError(syntaxError("\"Type \"" + stringifyType(type) + "\" is part of the declarations of 2 modules: \"" +\nstringifyType(oldModule) + "\" and \"" + stringifyType(moduleType) + "\"! \"" +\n                ("Please consider\nmoving \"" + stringifyType(type) + "\" to a higher module that imports \"" + stringifyType(oldModule) + "\" and \"" +\nstringifyType(moduleType) + "\". \"" +\n                ("You can also create a new NgModule that exports and\nincludes \"" + stringifyType(type)\n+ "\" then import that NgModule in \"" + stringifyType(oldModule) + "\" and \"" + stringifyType(moduleType) + "\".")),\nmoduleType);\n            return;\n        }\n        this._ngModuleOfTypes.set(type, moduleType);\n    };\n    CompileMetadataResolver.prototype._getTransitiveNgModuleMetadata = function (importedModules,\nexportedModules) {\n        // collect `providers` / `entryComponents` from all imported and all exported\nmodules\n        var result = new TransitiveCompileNgModuleMetadata();\n        var modulesByToken = new\nMap();\n        importedModules.concat(exportedModules).forEach(function (modSummary) {\n            modSummary.modules.forEach(function (mod) { return result.addModule(mod); });\n            modSummary.entryComponents.forEach(function (comp) { return result.addEntryComponent(comp); });\n            var addedTokens = new Set();\n            modSummary.providers.forEach(function (entry) {\n                var tokenRef = tokenReference(entry.provider.token);\n                var prevModules =\nmodulesByToken.get(tokenRef);\n                if (!prevModules) {\n                    prevModules = new Set();\n                }\n                modulesByToken.set(tokenRef, prevModules);\n                var moduleRef =\nentry.module.reference;\n                // Note: the providers of one module may still contain multiple providers\n                // per token (e.g. for multi providers), and we need to preserve these.\n                if\n(addedTokens.has(tokenRef) || !prevModules.has(moduleRef)) {\n                    prevModules.add(moduleRef);\n                }\n            });\n        });\n    };\n}

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        addedTokens.add(tokenRef);\n                result.addProvider(entry.provider, entry.module);\n    }\n    });\n    });\n    exportedModules.forEach(function (modSummary) {\nmodSummary.exportedDirectives.forEach(function\n    (id) { return result.addExportedDirective(id); });\n        modSummary.exportedPipes.forEach(function (id) {\nreturn result.addExportedPipe(id); });\n    });\n        importedModules.forEach(function (modSummary) {\n        modSummary.exportedDirectives.forEach(function (id) { return result.addDirective(id); });\nmodSummary.exportedPipes.forEach(function (id) { return result.addPipe(id); });\n    });\n        return\nresult;\n    });\n    CompileMetadataResolver.prototype._getIdentifierMetadata = function (type) {\n        type\n= resolveForwardRef(type);\n        return { reference: type }; \n    };\n    CompileMetadataResolver.prototype.isInjectable = function (type) {\n        var annotations =\nthis._reflector.tryAnnotations(type);\n        return annotations.some(function (ann) { return\ncreateInjectable.isTypeOf(ann); });\n    }; \n    CompileMetadataResolver.prototype.getInjectableSummary\n= function (type) {\n        return {\n            summaryKind: exports.CompileSummaryKind.Injectable,\n            type: this._getTypeMetadata(type, null, false)\n        }; \n    };\n    CompileMetadataResolver.prototype.getInjectableMetadata = function (type, dependencies,\nthrowOnUnknownDeps) {\n        if (dependencies === void 0) { dependencies = null; }\n        if\n(throwOnUnknownDeps === void 0) { throwOnUnknownDeps = true; }\n        var typeSummary =\nthis._loadSummary(type, exports.CompileSummaryKind.Injectable);\n        var typeMetadata = typeSummary ?\n            typeSummary.type :\n            this._getTypeMetadata(type, dependencies, throwOnUnknownDeps);\n        var annotations = this._reflector.annotations(type).filter(function (ann) { return createInjectable.isTypeOf(ann);\n});\n        if (annotations.length === 0) {\n            return null;\n        }\n        var meta =\nannotations[annotations.length\n- 1];\n        return {\n            symbol: type,\n            type: typeMetadata,\n            providedIn:\nmeta.providedIn,\n            useValue: meta.useValue,\n            useClass: meta.useClass,\n            useExisting:\nmeta.useExisting,\n            useFactory: meta.useFactory,\n            deps: meta.deps,\n        }; \n    };\n    CompileMetadataResolver.prototype._getTypeMetadata = function (type, dependencies, throwOnUnknownDeps)\n{\n        if (dependencies === void 0) { dependencies = null; }\n        if (throwOnUnknownDeps === void 0) {\nthrowOnUnknownDeps = true; }\n        var identifier = this._getIdentifierMetadata(type);\n        return {\n            reference: identifier.reference,\n            diDeps: this._getDependenciesMetadata(identifier.reference,\ndependencies, throwOnUnknownDeps),\n            lifecycleHooks: getAllLifecycleHooks(this._reflector,\nidentifier.reference),\n        };\n    }; \n    CompileMetadataResolver.prototype._getFactoryMetadata = function (factory,\ndependencies) {\n        if (dependencies === void 0) { dependencies = null; }\n        factory =\nresolveForwardRef(factory);\n        return { reference: factory, diDeps: this._getDependenciesMetadata(factory,\ndependencies) }; \n    }; \n    /**\n     * Gets the metadata for the given pipe.\n     * This assumes\n`loadNgModuleDirectiveAndPipeMetadata` has been called first.\n     */\n    CompileMetadataResolver.prototype.getPipeMetadata = function (pipeType) {\n        var pipeMeta =\nthis._pipeCache.get(pipeType);\n        if (!pipeMeta) {\n            this._reportError(syntaxError("Illegal state:\ngetPipeMetadata can only be called after loadNgModuleDirectiveAndPipeMetadata for a module that declares it.\nPipe \"" + stringifyType(pipeType) + "\"."), pipeType);\n        }\n        return pipeMeta || null;\n    }; \n    CompileMetadataResolver.prototype.getPipeSummary = function (pipeType) {\n        var pipeSummary =\nthis._loadSummary(pipeType, exports.CompileSummaryKind.Pipe);\n        if (!pipeSummary) {\n            this._reportError(syntaxError("Illegal state: Could not load the summary for pipe \"" + stringifyType(pipeType) +\n\"\"."), pipeType);\n        }\n        return pipeSummary;\n    }; \n    CompileMetadataResolver.prototype.getOrLoadPipeMetadata = function (pipeType) {\n        var pipeMeta =\nthis._pipeCache.get(pipeType);\n        if (!pipeMeta) {\n            pipeMeta =\nthis._loadPipeMetadata(pipeType);\n        }\n        return pipeMeta;\n    }; \n    CompileMetadataResolver.prototype._loadPipeMetadata = function (pipeType) {\n        pipeType =

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resolveForwardRef(pipeType);\n        var pipeAnnotation = this._pipeResolver.resolve(pipeType);\n        var\npipeMeta = new CompilePipeMetadata({\n            type: this._getTypeMetadata(pipeType),\n            name: pipeAnnotation.name,\n            pure: !!pipeAnnotation.pure\n        });\nthis._pipeCache.set(pipeType, pipeMeta);\n        this._summaryCache.set(pipeType, pipeMeta.toSummary());\n        return pipeMeta;\n    };\n    CompileMetadataResolver.prototype._getDependenciesMetadata = function\n(typeOrFunc, dependencies, throwOnUnknownDeps) {\n        var _this = this;\n        if (throwOnUnknownDeps\n=== void 0) { throwOnUnknownDeps = true; }\n        var hasUnknownDeps = false;\n        var params =\ndependencies || this._reflector.parameters(typeOrFunc) || [];\n        var dependenciesMetadata =\nparams.map(function (param) {\n            var isAttribute = false;\n            var isHost = false;\n            var\nisSelf = false;\n            var isSkipSelf = false;\n            var isOptional = false;\n            var token = null;\n            if (Array.isArray(param))\n            {\n                param.forEach(function (paramEntry) {\n                    if (createHost.isTypeOf(paramEntry)) {\n                        isHost = true;\n                    }\n                    else if (createSelf.isTypeOf(paramEntry)) {\n                        isSelf = true;\n                    }\n                    else if (createSkipSelf.isTypeOf(paramEntry)) {\n                        isSkipSelf = true;\n                    }\n                    else if (createOptional.isTypeOf(paramEntry)) {\n                        isOptional = true;\n                    }\n                    else if (createAttribute.isTypeOf(paramEntry)) {\n                        isAttribute = true;\n                        token = paramEntry.attributeName;\n                    }\n                    else if (createInject.isTypeOf(paramEntry)) {\n                        token = paramEntry.token;\n                    }\n                    else if (createInjectionToken.isTypeOf(paramEntry) ||\ninstanceof StaticSymbol) {\n                        token = paramEntry;\n                    }\n                    else if\n(isValidType(paramEntry) && token === null) {\n                        token = paramEntry;\n                    }\n                });\n            }\n            else {\n                token = param;\n            }\n            if (token === null) {\n                hasUnknownDeps = true;\n                return {};\n            }\n            return {\n                isAttribute:\nisAttribute,\n                isHost: isHost,\n                isSelf: isSelf,\n                isSkipSelf: isSkipSelf,\n                isOptional: isOptional,\n                token: _this._getTokenMetadata(token)\n            }; \n        });\n        if\n(hasUnknownDeps)\n        {\n            var depsTokens = dependenciesMetadata.map(function (dep) { return dep.token ?\nstringifyType(dep.token) : '?'; }).join(', ');\n            var message = \"Can't resolve all parameters for \" +\nstringifyType(typeOrFunc) + \": (\" + depsTokens + \").\";\n            if (throwOnUnknownDeps ||\nthis._config.strictInjectionParameters) {\n                this._reportError(syntaxError(message), typeOrFunc);\n            }\n        }\n        return dependenciesMetadata;\n    };\n    CompileMetadataResolver.prototype._getTokenMetadata = function (token) {\n        token =\nresolveForwardRef(token);\n        var compileToken;\n        if (typeof token === 'string') {\n            compileToken = { value: token }; \n        }\n        else {\n            compileToken = { identifier: { reference:\ntoken } }; \n        }\n        return compileToken;\n    };\n    CompileMetadataResolver.prototype._getProvidersMetadata\n= function (providers, targetEntryComponents, debugInfo, compileProviders, type) {\n        var _this = this;\n        if (compileProviders === void 0) { compileProviders = []; }\n        providers.forEach(function (provider,\nproviderIdx) {\n            if (Array.isArray(provider)) {\n                _this._getProvidersMetadata(provider,\ntargetEntryComponents, debugInfo, compileProviders);\n            }\n            else {\n                provider =\nresolveForwardRef(provider);\n                var providerMeta = undefined;\n                if (provider && typeof\nprovider === 'object' && provider.hasOwnProperty('provide')) {\n                    _this._validateProvider(provider);\n                    providerMeta = new ProviderMeta(provider.provide, provider);\n                }\n                else if (isValidType(provider)) {\n                    providerMeta = new\nProviderMeta(provider, { useClass: provider\n});\n                }\n                else if (provider === void 0) {\n                    _this._reportError(syntaxError(\"Encountered undefined provider! Usually this means you have a circular\ndependencies. This might be caused by using 'barrel' index.ts files.\"));\n                }\n                return;\n            }\n        });\n    };\n
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else {\n
    var providersInfo = providers\n
    .reduce(function (soFar, seenProvider,
seenProviderIdx) {\n
        if (seenProviderIdx < providerIdx) {\n
            soFar.push(\"\" +
stringifyType(seenProvider));\n
        }\n
        else if (seenProviderIdx === providerIdx) {\n
            soFar.push(\"?\" + stringifyType(seenProvider) + \"?\");\n
        }\n
        else
if (seenProviderIdx === providerIdx + 1) {\n
            soFar.push('...');\n
        }\n
        return soFar;\n
    }, [])\n
    .join(', ');
    _this._reportError(syntaxError(\"Invalid \" + (debugInfo ?\n
        debugInfo : \n
'provider') + \" - only instances of Provider and Type are allowed, got: [\" + providersInfo + \"]\"), type);\n
    return;\n
    }\n
    if (providerMeta.token ===\n
    _this._reflector.resolveExternalReference(Identifiers.ANALYZE_FOR_ENTRY_COMPONENTS)) {\n
        targetEntryComponents.push.apply(targetEntryComponents,
        __spread(_this._getEntryComponentsFromProvider(providerMeta, type));\n
        }\n
        else {\n
            compileProviders.push(_this.getProviderMetadata(providerMeta);\n
            }\n
        }\n
    });\n
    return compileProviders;\n
    };\n
    CompileMetadataResolver.prototype._validateProvider = function
(provider) {\n
        if (provider.hasOwnProperty('useClass') && provider.useClass === null) {\n
            this._reportError(syntaxError(\"Invalid provider for \" + stringifyType(provider.provider) + \". useClass cannot be \"
+ provider.useClass + \".\n
            Usually it happens when:\n
            1. There's a circular dependency (might be
caused by using index.ts (barrel) files).\n
            2. Class was used before it was declared. Use forwardRef in this
case.\");\n
        }\n
        };\n
        CompileMetadataResolver.prototype._getEntryComponentsFromProvider =
function (provider, type) {\n
            var _this = this;\n
            var components = [];\n
            var collectedIdentifiers =
[];\n
            if (provider.useFactory || provider.useExisting || provider.useClass) {\n
                this._reportError(syntaxError(\"The ANALYZE_FOR_ENTRY_COMPONENTS
token only supports useValue!\"), type);\n
                return [];\n
            }\n
            if (!provider.multi) {\n
                this._reportError(syntaxError(\"The ANALYZE_FOR_ENTRY_COMPONENTS token only supports 'multi =
true'!\"), type);\n
                return [];\n
            }\n
            extractIdentifiers(provider.useValue, collectedIdentifiers);\n
            collectedIdentifiers.forEach(function (identifier) {\n
                var entry =
_this._getEntryComponentMetadata(identifier.reference, false);\n
                if (entry) {\n
                    components.push(entry);\n
                }\n
            });\n
            return components;\n
        };\n
        CompileMetadataResolver.prototype._getEntryComponentMetadata = function (dirType, throwIfNotFound) {\n
            if (throwIfNotFound === void 0) { throwIfNotFound = true; }\n
            var dirMeta =
this.getNonNormalizedDirectiveMetadata(dirType);\n
            if (dirMeta && dirMeta.metadata.isComponent) {\n
                return { componentType: dirType, componentFactory: dirMeta.metadata.componentFactory };\n
            }\n
            var dirSummary = this._loadSummary(dirType, exports.CompileSummaryKind.Directive);\n
            if
(dirSummary && dirSummary.isComponent) {\n
                return { componentType: dirType, componentFactory:
dirSummary.componentFactory };\n
            }\n
            if (throwIfNotFound) {\n
                throw
syntaxError(dirType.name + \" cannot be used as an entry component.\");\n
            }\n
            return null;\n
        };\n
        CompileMetadataResolver.prototype._getInjectableTypeMetadata = function (type, dependencies) {\n
            if
(dependencies === void 0) { dependencies = null; }\n
            var typeSummary = this._loadSummary(type,
exports.CompileSummaryKind.Injectable);\n
            if (typeSummary) {\n
                return typeSummary.type;\n
            }\n
            return this._getTypeMetadata(type, dependencies);\n
        };\n
        CompileMetadataResolver.prototype.getProviderMetadata = function (provider) {\n
            var compileDeps =
undefined;\n
            var compileTypeMetadata = null;\n
            var compileFactoryMetadata = null;\n
            var
token = this._getTokenMetadata(provider.token);\n
            if (provider.useClass) {\n
                compileTypeMetadata
= \n
                this._getInjectableTypeMetadata(provider.useClass, provider.dependencies);\n
            }\n
            compileDeps = compileTypeMetadata.diDeps;\n
            if (provider.token === provider.useClass) {\n
                // use the compileTypeMetadata as it contains information about lifecycleHooks...\n
                token = { identifier:
compileTypeMetadata };\n
            }\n
            else if (provider.useFactory) {\n

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compileFactoryMetadata = this._getFactoryMetadata(provider.useFactory, provider.dependencies);\n
compileDeps = compileFactoryMetadata.diDeps;\n
    }\n    return {\n        token: token,\n        useClass: compileTypeMetadata,\n        useValue: provider.useValue,\n        useFactory: compileFactoryMetadata,\n        useExisting:\n        provider.useExisting ? this._getTokenMetadata(provider.useExisting) : undefined,\n        deps: compileDeps,\n        multi: provider.multi\n    };\n    CompileMetadataResolver.prototype._getQueriesMetadata\n    = function (queries, isViewQuery, directiveType) {\n        var _this = this;\n        var res = [];\n        Object.keys(queries).forEach(function (propertyName) {\n            var query = queries[propertyName];\n            if (query.isViewQuery === isViewQuery) {\n                res.push(_this._getQueryMetadata(query, propertyName,\n                directiveType));\n            }\n        });\n        return res;\n    };\n    CompileMetadataResolver.prototype._queryVarBindings\n    = function (selector) {\n        return selector.split(/\\s*,\\s*/);\n    };\n    CompileMetadataResolver.prototype._getQueryMetadata = function (q, propertyName, typeOrFunc) {\n        var\n        _this = this;\n        var selectors;\n        if (typeof q.selector === 'string') {\n            selectors =\n            this._queryVarBindings(q.selector).map(function (varName) { return _this._getTokenMetadata(varName); });\n        }\n        else {\n            if (!q.selector) {\n                this._reportError(syntaxError("\\Can't construct a query\n                for the property '\\\"' + propertyName + '\\\"' of '\\\"' + stringifyType(typeOrFunc) + '\\\"' since the query selector\n                wasn't defined.\\\""), typeOrFunc);\n                selectors = [];\n            }\n            else {\n                selectors =\n                [this._getTokenMetadata(q.selector)];\n            }\n        }\n        return {\n            selectors: selectors,\n            first: q.first,\n            descendants: q.descendants,\n            propertyName: propertyName,\n            read: q.read ? this._getTokenMetadata(q.read) : null,\n            static: q.static\n        };\n    };\n    CompileMetadataResolver.prototype._reportError = function (error, type, otherType) {\n        if\n        (this._errorCollector) {\n            this._errorCollector(error, type);\n            if (otherType) {\n                this._errorCollector(error, otherType);\n            }\n        }\n        else {\n            throw error;\n        }\n    };\n    return CompileMetadataResolver;\n    }();\n    function flattenArray(tree, out) {\n        if (out === void 0)\n        {\n            out = [];\n        }\n        if (tree) {\n            for (var i = 0; i < tree.length; i++) {\n                var item =\n                resolveForwardRef(tree[i]);\n                if (Array.isArray(item)) {\n                    flattenArray(item,\n                    out);\n                }\n                else {\n                    out.push(item);\n                }\n            }\n        }\n        return\n        out;\n    }\n    function dedupeArray(array) {\n        if (array) {\n            return Array.from(new Set(array));\n        }\n        return [];\n    }\n    function flattenAndDedupeArray(tree) {\n        return dedupeArray(flattenArray(tree));\n    }\n    function isValidType(value) {\n        return (value instanceof StaticSymbol) || (value instanceof Type);\n    }\n    function extractIdentifiers(value, targetIdentifiers) {\n        visitValue(value, new _CompileValueConverter(),\n        targetIdentifiers);\n    }\n    var _CompileValueConverter = /** @class */ (function (_super) {\n        __extends(_CompileValueConverter, _super);\n        function _CompileValueConverter() {\n            return _super\n            !== null && _super.apply(this, arguments) || this;\n        }\n        _CompileValueConverter.prototype.visitOther =\n        function (value,\n        targetIdentifiers) {\n            targetIdentifiers.push({ reference: value });\n        }\n        return\n        _CompileValueConverter;\n    }(ValueTransformer));\n    function stringifyType(type) {\n        if (type instanceof\n        StaticSymbol) {\n            return type.name + '\\ in '\\ + type.filePath;\n        }\n        else {\n            return\n            stringify(type);\n        }\n    }\n    /**\n     * Indicates that a component is still being loaded in a synchronous\n     compile.\n     */\n    function componentStillLoadingError(compType) {\n        var error = Error("\\Can't compile\n        synchronously as '\\ + stringify(compType) + '\\ is still being loaded!\\");\n        error[ERROR_COMPONENT_TYPE] = compType;\n        return error;\n    }\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style\n     license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n    function\n    providerDef(ctx,\n    providerAst) {\n        var flags = 0 /* None */;\n        if (!providerAst.eager) {\n            flags |= 4096 /*\n            LazyProvider */;\n        }\n        if (providerAst.providerType === exports.ProviderAstType.PrivateService) {\n

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    flags |= 8192 /* PrivateProvider */;\n    }\n    if (providerAst.isModule) {\n        flags |= 1073741824 /*
TypeModuleProvider */;\n    }\n    providerAst.lifecycleHooks.forEach(function (lifecycleHook) {\n        //
for regular providers, we only support ngOnDestroy\n        if (lifecycleHook === LifecycleHooks.OnDestroy ||\n            providerAst.providerType === exports.ProviderAstType.Directive ||\n            providerAst.providerType
=== exports.ProviderAstType.Component) {\n            flags |= lifecycleHookToNodeFlag(lifecycleHook);\n
        }\n    });\n    var _a = providerAst.multiProvider ?\n        multiProviderDef(ctx, flags, providerAst.providers)
:\n        singleProviderDef(ctx,
    flags, providerAst.providerType, providerAst.providers[0]), providerExpr = _a.providerExpr, providerFlags =
_a.flags, depsExpr = _a.depsExpr;\n    return {\n        providerExpr: providerExpr,\n        flags:
providerFlags,\n        depsExpr: depsExpr,\n        tokenExpr: tokenExpr(ctx, providerAst.token),\n    };\n
}\n    function multiProviderDef(ctx, flags, providers) {\n        var allDepDefs = [];\n        var allParams = [];\n
var exprs = providers.map(function (provider, providerIndex) {\n            var expr;\n            if (provider.useClass) {\n
                var depExprs = convertDeps(providerIndex, provider.deps || provider.useClass.diDeps);\n                expr =
ctx.importExpr(provider.useClass.reference).instantiate(depExprs);\n            }\n            else if (provider.useFactory)
{\n                var depExprs = convertDeps(providerIndex, provider.deps || provider.useFactory.diDeps);\n
                expr = ctx.importExpr(provider.useFactory.reference).callFn(depExprs);\n            }\n            else if (provider.useExisting) {\n                var depExprs = convertDeps(providerIndex, [{ token:
provider.useExisting }]);\n                expr = depExprs[0];\n            }\n            else {\n                expr =
convertValueToOutputAst(ctx, provider.useValue);\n            }\n            return expr;\n        });\n        var
providerExpr = fn(allParams, [new ReturnStatement(literalArr(exprs))], INFERRED_TYPE);\n        return {\n
            providerExpr: providerExpr,\n            flags: flags | 1024 /* TypeFactoryProvider */,\n            depsExpr:
literalArr(allDepDefs)\n        };\n    }\n    function convertDeps(providerIndex, deps) {\n        return
deps.map(function (dep, depIndex) {\n            var paramName = \"p\" + providerIndex + \"_\" + depIndex;\n
            allParams.push(new FnParam(paramName, DYNAMIC_TYPE));\n            allDepDefs.push(depDef(ctx,
dep));\n        });\n        return variable(paramName);\n    });\n    }\n    }\n    function singleProviderDef(ctx, flags, providerType,
providerMeta) {\n        var providerExpr;\n        var deps;\n        if (providerType ===
exports.ProviderAstType.Directive || providerType === exports.ProviderAstType.Component) {\n
            providerExpr = ctx.importExpr(providerMeta.useClass.reference);\n            flags |= 16384 /* TypeDirective */;\n
            deps = providerMeta.deps || providerMeta.useClass.diDeps;\n        }\n        else {\n            if
(providerMeta.useClass) {\n                providerExpr = ctx.importExpr(providerMeta.useClass.reference);\n
                flags |= 512 /* TypeClassProvider */;\n                deps = providerMeta.deps || providerMeta.useClass.diDeps;\n
            }\n            else if (providerMeta.useFactory) {\n                providerExpr =
ctx.importExpr(providerMeta.useFactory.reference);\n                flags |= 1024 /* TypeFactoryProvider */;\n
                deps = providerMeta.deps || providerMeta.useFactory.diDeps;\n            }\n            else if
(providerMeta.useExisting) {\n                providerExpr = NULL_EXPR;\n                flags |= 2048 /*
TypeUseExistingProvider */;\n                deps = [{ token: providerMeta.useExisting }];\n            }\n            else {\n
                providerExpr = convertValueToOutputAst(ctx, providerMeta.useValue);\n                flags |= 256 /*
TypeValueProvider */;\n                deps = [];\n            }\n        }\n        var depsExpr = literalArr(deps.map(function
(dep) { return depDef(ctx, dep); }));\n        return { providerExpr: providerExpr, flags: flags, depsExpr: depsExpr
};\n    }\n    function tokenExpr(ctx, tokenMeta) {\n        return tokenMeta.identifier ?
ctx.importExpr(tokenMeta.identifier.reference) : \n        literal(tokenMeta.value);\n    }\n    function depDef(ctx,
dep) {\n        // Note: the following fields have already been normalized out by provider_analyzer:\n
        // - isAttribute, isHost\n        var expr = dep.isValue ? convertValueToOutputAst(ctx, dep.value) :
tokenExpr(ctx, dep.token);\n        var flags = 0 /* None */;\n        if (dep.isSkipSelf) {\n            flags |= 1 /* SkipSelf
*/;\n        }\n        if (dep.isOptional) {\n            flags |= 2 /* Optional */;\n        }\n        if (dep.isSelf) {\n            flags
|= 4 /* Self */;\n        }\n        if (dep.isValue) {\n            flags |= 8 /* Value */;\n        }\n        return flags === 0 /*
None */ ? expr : literalArr([literal(flags), expr]);\n    }\n    function lifecycleHookToNodeFlag(lifecycleHook) {\n

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var nodeFlag = 0 /* None */;\n      switch (lifecycleHook) {\n          case LifecycleHooks.AfterContentChecked:\n              nodeFlag = 2097152 /* AfterContentChecked */;\n              break;\n          case LifecycleHooks.AfterContentInit:\n              nodeFlag = 1048576 /* AfterContentInit */;\n              break;\n          case LifecycleHooks.AfterViewChecked:\n              nodeFlag = 8388608 /* AfterViewChecked */;\n              break;\n          case LifecycleHooks.AfterViewInit:\n              nodeFlag = 4194304 /* AfterViewInit */;\n              break;\n          case LifecycleHooks.DoCheck:\n              nodeFlag = 262144 /* DoCheck */;\n              break;\n          case LifecycleHooks.OnChanges:\n              nodeFlag = 524288 /* OnChanges */;\n              break;\n          case LifecycleHooks.OnDestroy:\n              nodeFlag = 131072 /* OnDestroy */;\n              break;\n          case LifecycleHooks.OnInit:\n              nodeFlag = 65536 /* OnInit */;\n              break;\n      }\n      return\n      nodeFlag;\n  }\n  function componentFactoryResolverProviderDef(reflector, ctx, flags, entryComponents) {\n      var entryComponentFactories = entryComponents.map(function (entryComponent) {\n          return\n          ctx.importExpr(entryComponent.componentFactory);\n      });\n      var token = createTokenForExternalReference(reflector, Identifiers.ComponentFactoryResolver);\n      var classMeta = {\n          diDeps: [\n              {\n                  isValue: true, value: literalArr(entryComponentFactories),\n                  token: token, isSkipSelf: true, isOptional: true\n              }\n          ],\n          lifecycleHooks: [],\n          reference: reflector.resolveExternalReference(Identifiers.CodegenComponentFactoryResolver)\n      };\n      var _a = singleProviderDef(ctx, flags, exports.ProviderAstType.PrivateService, {\n          token: token,\n          multi: false,\n          useClass: classMeta\n      }), providerExpr = _a.providerExpr, providerFlags = _a.flags,\n      depsExpr = _a.depsExpr;\n      return {\n          providerExpr: providerExpr,\n          flags: providerFlags,\n          depsExpr: depsExpr,\n          tokenExpr: tokenExpr(ctx, token)\n      };\n  }\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style\n   * license that can be found in the LICENSE file at https://angular.io/license\n   */\n  var\n  NgModuleCompileResult = /** @class */ (function () {\n      function\n      NgModuleCompileResult(ngModuleFactoryVar) {\n          this.ngModuleFactoryVar = ngModuleFactoryVar;\n      }\n      return NgModuleCompileResult;\n  })();\n  var LOG_VAR = variable('_l');\n  var NgModuleCompiler\n  = /** @class */ (function () {\n      function NgModuleCompiler(reflector) {\n          this.reflector = reflector;\n      }\n      NgModuleCompiler.prototype.compile = function (ctx, ngModuleMeta, extraProviders) {\n          var\n          sourceSpan = typeSourceSpan('NgModule', ngModuleMeta.type);\n          var entryComponentFactories =\n          ngModuleMeta.transitiveModule.entryComponents;\n          var bootstrapComponents =\n          ngModuleMeta.bootstrapComponents;\n          var\n          providerParser = new NgModuleProviderAnalyzer(this.reflector, ngModuleMeta, extraProviders, sourceSpan);\n          var providerDefs = [componentFactoryResolverProviderDef(this.reflector, ctx, 0 /* None */,\n          entryComponentFactories)]\n          .concat(providerParser.parse().map(function (provider) {\n              return\n              providerDef(ctx, provider);\n          }));\n          var providerExpr = _a.providerExpr,\n          depsExpr = _a.depsExpr, flags = _a.flags, tokenExpr = _a.tokenExpr;\n          return\n          importExpr(Identifiers.moduleProviderDef).callFn([\n              literal(flags), tokenExpr, providerExpr,\n              depsExpr\n          ]);\n          var ngModuleDef =\n          importExpr(Identifiers.moduleDef).callFn([literalArr(providerDefs)]);\n          var ngModuleDefFactory = fn([new\n          FnParam(LOG_VAR.name)], [new ReturnStatement(ngModuleDef)], INFERRED_TYPE);\n          var\n          ngModuleFactoryVar = identifierName(ngModuleMeta.type) + \"NgFactory\";\n          this._createNgModuleFactory(ctx, ngModuleMeta.type.reference,\n          importExpr(Identifiers.createModuleFactory).callFn([\n              ctx.importExpr(ngModuleMeta.type.reference),\n              literalArr(bootstrapComponents.map(function (id) {\n                  return ctx.importExpr(id.reference);\n              })),\n              ngModuleDefFactory\n          ]));\n          if (ngModuleMeta.id) {\n              var id = typeof ngModuleMeta.id\n              === 'string' ? literal(ngModuleMeta.id) :\n              ctx.importExpr(ngModuleMeta.id);\n              var\n              registerFactoryStmt = importExpr(Identifiers.RegisterModuleFactoryFn)\n              .callFn([id,\n              variable(ngModuleFactoryVar)]);\n              ctx.statements.push(registerFactoryStmt);\n          }\n      }\n  })();\n
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    }\n        return new NgModuleCompileResult(ngModuleFactoryVar);\n    }\n\n    NgModuleCompiler.prototype.createStub = function (ctx, ngModuleReference) {\n    this._createNgModuleFactory(ctx,\n    ngModuleReference, NULL_EXPR);\n    }\n\n    NgModuleCompiler.prototype._createNgModuleFactory =\n    function (ctx, reference, value) {\n        var ngModuleFactoryVar = identifierName({ reference: reference }) +\n        \"NgFactory\";\n        var ngModuleFactoryStmt = variable(ngModuleFactoryVar)\n        .set(value)\n        .toDeclStmt(importType(Identifiers.NgModuleFactory, [expressionType(ctx.importExpr(reference))],\n        [TypeModifier.Const]), [exports.StmtModifier.Final, exports.StmtModifier.Exported]);\n    ctx.statements.push(ngModuleFactoryStmt);\n    }\n\n    return NgModuleCompiler;\n    }());\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an\n     * MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     */\n\n    Resolves types to { @link NgModule }.\n    */\n    var NgModuleResolver = /** @class */ (function\n    () {\n        function NgModuleResolver(_reflector) {\n            this._reflector = _reflector;\n        }\n\n        NgModuleResolver.prototype.isNgModule = function (type) {\n            return\n            this._reflector.annotations(type).some(createNgModule.isTypeOf);\n        }\n\n        NgModuleResolver.prototype.resolve = function (type, throwIfNotFound) {\n            if (throwIfNotFound === void\n            0) { throwIfNotFound = true; }\n            var ngModuleMeta = findLast(this._reflector.annotations(type),\n            createNgModule.isTypeOf);\n            if (ngModuleMeta) {\n                return ngModuleMeta;\n            }\n            else {\n                if (throwIfNotFound) {\n                    throw new Error(\"No NgModule metadata found for \" +\n                    stringify(type) + \"'\");\n                }\n                return null;\n            }\n        }\n\n        return NgModuleResolver;\n    }());\n\n    function debugOutputAstAsTypeScript(ast) {\n        var converter = new _TsEmitterVisitor();\n        var ctx = EmitterVisitorContext.createRoot();\n        var asts = Array.isArray(ast) ? ast : [ast];\n        asts.forEach(function (ast) {\n            if (ast instanceof Statement) {\n                ast.visitStatement(converter, ctx);\n            }\n            else if (ast instanceof Expression) {\n                ast.visitExpression(converter, ctx);\n            }\n            else if (ast instanceof Type$1) {\n                ast.visitType(converter, ctx);\n            }\n            else {\n                throw\n                new Error(\"Don't know how to print debug info for \" + ast);\n            }\n        });\n        return ctx.toSource();\n    }\n\n    var TypeScriptEmitter = /** @class */ (function () {\n        function TypeScriptEmitter() {\n        }\n\n        TypeScriptEmitter.prototype.emitStatementsAndContext = function (genFilePath, stmts, preamble,\n        emitSourceMaps, referenceFilter, importFilter) {\n            if (preamble === void 0) { preamble = \"\"; }\n            if (emitSourceMaps === void 0) { emitSourceMaps = true; }\n            var converter = new\n            _TsEmitterVisitor(referenceFilter, importFilter);\n            var ctx = EmitterVisitorContext.createRoot();\n            converter.visitAllStatements(stmts, ctx);\n            var preambleLines = preamble ? preamble.split(\"\\n\") : [];\n            converter.reexports.forEach(function (reexports, exportedModuleName) {\n                var reexportsCode =\n                reexports.map(function (reexport) { return reexport.name + \" as \" + reexport.as; }).join(',');\n                preambleLines.push(\"export {\" + reexportsCode + \"} from \" + exportedModuleName + \"';\");\n            });\n            converter.importsWithPrefixes.forEach(function (prefix, importedModuleName) {\n                // Note: can't write\n                the real word for import as it screws up system.js auto detection...\n                preambleLines.push(\"imp\" +\n                (\"ort * as \" + prefix + \" from \" + importedModuleName +\n                \"';\");\n            });\n            var sm = emitSourceMaps ?\n            ctx.toSourceMapGenerator(genFilePath,\n            preambleLines.length).toJsComment() :\n            \"\";\n            var lines = __spread(preambleLines, [ctx.toSource(),\n            sm]);\n            if (sm) {\n                // always add a newline at the end, as some tools have bugs without it.\n                lines.push(\"\\n\");\n            }\n            ctx.setPreambleLineCount(preambleLines.length);\n            return { sourceText:\n            lines.join(\"\\n\"), context: ctx };\n        }\n\n        TypeScriptEmitter.prototype.emitStatements = function (genFilePath,\n        stmts, preamble) {\n            if (preamble === void 0) { preamble = \"\"; }\n            return\n            this.emitStatementsAndContext(genFilePath, stmts, preamble).sourceText;\n        }\n\n        return\n        TypeScriptEmitter;\n    }());\n\n    var _TsEmitterVisitor = /** @class */ (function (_super) {\n        __extends(_TsEmitterVisitor, _super);\n        function _TsEmitterVisitor(referenceFilter,\n
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importFilter) {\n      var _this = _super.call(this, false) || this;\n      _this.referenceFilter = referenceFilter;\n      _this.importFilter = importFilter;\n      _this.typeExpression = 0;\n      _this.importsWithPrefixes = new\nMap();\n      _this.reexports = new Map();\n      return _this;\n    }\n    _TsEmitterVisitor.prototype.visitType = function (t, ctx, defaultType) {\n      if (defaultType === void 0) {\n        defaultType = 'any';\n      }\n      if (t) {\n        this.typeExpression++;\n        t.visitType(this, ctx);\n        this.typeExpression--;\n      }\n      else {\n        ctx.print(null, defaultType);\n      }\n    };\n    _TsEmitterVisitor.prototype.visitLiteralExpr = function (ast, ctx) {\n      var value = ast.value;\n      if (value\n== null && ast.type !== INFERRED_TYPE) {\n        ctx.print(ast, "(" + value + " as\nany)");\n        return null;\n      }\n      return _super.prototype.visitLiteralExpr.call(this, ast, ctx);\n    };\n    // Temporary workaround to support strictNullCheck enabled consumers of ngc emit.\n    // In SNC\nmode, [] have the type never[], so we cast here to any[].\n    // TODO: narrow the cast to a more explicit type, or\nuse a pattern that does not\n    // start with [].concat. see https://github.com/angular/angular/pull/11846\n    _TsEmitterVisitor.prototype.visitLiteralArrayExpr = function (ast, ctx) {\n      if (ast.entries.length === 0) {\n        ctx.print(ast, ');\n      }\n      var result = _super.prototype.visitLiteralArrayExpr.call(this, ast, ctx);\n      if (ast.entries.length === 0) {\n        ctx.print(ast, ' as any[]);\n      }\n      return result;\n    };\n    _TsEmitterVisitor.prototype.visitExternalExpr = function (ast, ctx) {\n      this._visitIdentifier(ast.value,\nast.typeParams, ctx);\n      return null;\n    };\n    _TsEmitterVisitor.prototype.visitAssertNotNullExpr =\nfunction (ast, ctx) {\n      var result = _super.prototype.visitAssertNotNullExpr.call(this, ast, ctx);\n      ctx.print(ast, '!);\n      return result;\n    };\n    _TsEmitterVisitor.prototype.visitDeclareVarStmt = function\n(stmt, ctx) {\n      if (stmt.hasModifier(exports.StmtModifier.Exported) && stmt.value instanceof ExternalExpr\n&&\n!stmt.type) {\n        // check for a reexport\n        var _a = stmt.value.value, name =\n_a.name, moduleName = _a.moduleName;\n        if (moduleName) {\n          var reexports =\nthis.reexports.get(moduleName);\n          if (!reexports) {\n            reexports = [];\n            this.reexports.set(moduleName, reexports);\n          }\n          reexports.push({ name: name,\nas: stmt.name });\n          return null;\n        }\n        if\n(stmt.hasModifier(exports.StmtModifier.Exported)) {\n          ctx.print(stmt, "export ");\n        }\n        if\n(stmt.hasModifier(exports.StmtModifier.Final)) {\n          ctx.print(stmt, "const");\n        }\n        else {\n          ctx.print(stmt, "var");\n        }\n        ctx.print(stmt, " " + stmt.name);\n        this._printColonType(stmt.type, ctx);\n        if (stmt.value) {\n          ctx.print(stmt, " = ");\n          stmt.value.visitExpression(this, ctx);\n        }\n        ctx.println(stmt, ";");\n        return null;\n      }\n    };\n    _TsEmitterVisitor.prototype.visitWrappedNodeExpr = function (ast, ctx) {\n      throw new Error('Cannot visit a\nWrappedNodeExpr when outputting Typescript.);\n    };\n    _TsEmitterVisitor.prototype.visitCastExpr =\nfunction (ast, ctx)\n{\n      ctx.print(ast, "<");\n      ast.type.visitType(this, ctx);\n      ctx.print(ast, ">");\n      ast.value.visitExpression(this, ctx);\n      ctx.print(ast, ");\n      return null;\n    };\n    _TsEmitterVisitor.prototype.visitInstantiateExpr = function (ast, ctx) {\n      ctx.print(ast, "new ");\n      this.typeExpression++;\n      ast.classExpr.visitExpression(this, ctx);\n      this.typeExpression--;\n      ctx.print(ast, "(");\n      this.visitAllExpressions(ast.args, ctx, ',);\n      ctx.print(ast, ");\n      return\nnull;\n    };\n    _TsEmitterVisitor.prototype.visitDeclareClassStmt = function (stmt, ctx) {\n      var _this =\nthis;\n      ctx.pushClass(stmt);\n      if (stmt.hasModifier(exports.StmtModifier.Exported)) {\n        ctx.print(stmt, "export ");\n      }\n      ctx.print(stmt, "class " + stmt.name);\n      if (stmt.parent !== null) {\n        ctx.print(stmt, " extends ");\n        this.typeExpression++;\n        stmt.parent.visitExpression(this, ctx);\n        this.typeExpression--;\n      }\n      ctx.println(stmt, "\n");\n      ctx.incIndent();\n      stmt.fields.forEach(function (field) { return _this._visitClassField(field, ctx);\n});\n      if (stmt.constructorMethod !== null) {\n        this._visitClassConstructor(stmt, ctx);\n      }\n      stmt.getters.forEach(function (getter) { return _this._visitClassGetter(getter, ctx); });\n      stmt.methods.forEach(function (method) { return _this._visitClassMethod(method, ctx); });\n      ctx.decIndent();\n      ctx.println(stmt, ");\n      ctx.popClass();\n      return null;\n    };\n  }

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_TsEmitterVisitor.prototype._visitClassField = function (field, ctx) {\n      if
(field.hasModifier(exports.StmtModifier.Private))
{\n          // comment out as a workaround for #10967\n          ctx.print(null, '/*private*/');\n      }\n      if (field.hasModifier(exports.StmtModifier.Static)) {\n          ctx.print(null, 'static ');\n      }\n      ctx.print(null, field.name);\n      this._printColonType(field.type, ctx);\n      if (field.initializer) {\n          ctx.print(null, ' = ');\n          field.initializer.visitExpression(this, ctx);\n      }\n      ctx.println(null, ';');\n      }\n      _TsEmitterVisitor.prototype._visitClassGetter = function (getter, ctx) {\n      if
(getter.hasModifier(exports.StmtModifier.Private)) {\n          ctx.print(null, 'private ');\n      }\n      ctx.print(null, 'get ' + getter.name + '()');\n      this._printColonType(getter.type, ctx);\n      ctx.println(null, '{');\n      ctx.incIndent();\n      this.visitAllStatements(getter.body,\n      ctx);\n      ctx.decIndent();\n      ctx.println(null, '}');\n      }\n      _TsEmitterVisitor.prototype._visitClassConstructor = function (stmt, ctx) {\n      ctx.print(stmt,\n      'constructor()');\n      this._visitParams(stmt.constructorMethod.params, ctx);\n      ctx.println(stmt, '{');\n      ctx.incIndent();\n      this.visitAllStatements(stmt.constructorMethod.body, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, '}');\n      }\n      _TsEmitterVisitor.prototype._visitClassMethod =\n      function (method, ctx) {\n      if (method.hasModifier(exports.StmtModifier.Private)) {\n          ctx.print(null,\n      'private ');\n      }\n      ctx.print(null, method.name + '()');\n      this._visitParams(method.params,\n      ctx);\n      ctx.print(null, '{');\n      this._printColonType(method.type, ctx, 'void');\n      ctx.println(null,\n      '{');\n      ctx.incIndent();\n      this.visitAllStatements(method.body, ctx);\n      ctx.decIndent();\n      ctx.println(null, '}');\n      }\n      _TsEmitterVisitor.prototype.visitFunctionExpr = function (ast, ctx) {\n      if (ast.name) {\n          ctx.print(ast, 'function ');\n          ctx.print(ast, ast.name);\n      }\n      ctx.print(ast, '(');\n      this._visitParams(ast.params, ctx);\n      ctx.print(ast, ')');\n      this._printColonType(ast.type, ctx, 'void');\n      if (!ast.name) {\n          ctx.print(ast, ' => ');\n      }\n      ctx.println(ast, '{');\n      ctx.incIndent();\n      this.visitAllStatements(ast.statements, ctx);\n      ctx.decIndent();\n      ctx.print(ast, '}');\n      return null;\n      }\n      _TsEmitterVisitor.prototype.visitDeclareFunctionStmt = function (stmt, ctx) {\n      if
(stmt.hasModifier(exports.StmtModifier.Exported))
{\n          ctx.print(stmt, 'export ');\n      }\n      ctx.print(stmt, 'function ' + stmt.name + '()');\n      this._visitParams(stmt.params, ctx);\n      ctx.print(stmt, '{');\n      this._printColonType(stmt.type, ctx,\n      'void');\n      ctx.println(stmt, '{');\n      ctx.incIndent();\n      this.visitAllStatements(stmt.statements,\n      ctx);\n      ctx.decIndent();\n      ctx.println(stmt, '}');\n      return null;\n      }\n      _TsEmitterVisitor.prototype.visitTryCatchStmt = function (stmt, ctx) {\n      ctx.println(stmt, 'try {\n      ctx.incIndent();\n      this.visitAllStatements(stmt.bodyStmts, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, '} catch (' + CATCH_ERROR_VAR$1.name + ') {\n      ctx.incIndent();\n      var\n      catchStmts = [CATCH_STACK_VAR$1.set(CATCH_ERROR_VAR$1.prop('stack', null)).toDeclStmt(null, [\n      exports.StmtModifier.Final\n      ])].concat(stmt.catchStmts);\n      this.visitAllStatements(catchStmts, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, '}');\n      return\n      null;\n      }\n      _TsEmitterVisitor.prototype.visitBuiltinType = function (type, ctx) {\n      var typeStr;\n      switch (type.name) {\n          case exports.BuiltinTypeName.Bool:\n              typeStr = 'boolean';\n              break;\n          case exports.BuiltinTypeName.Dynamic:\n              typeStr = 'any';\n              break;\n          case exports.BuiltinTypeName.Function:\n              typeStr = 'Function';\n              break;\n          case exports.BuiltinTypeName.Number:\n              typeStr = 'number';\n              break;\n          case\n      exports.BuiltinTypeName.Int:\n              typeStr = 'number';\n              break;\n          case\n      exports.BuiltinTypeName.String:\n              typeStr = 'string';\n              break;\n          case\n      exports.BuiltinTypeName.None:\n              typeStr = 'never';\n              break;\n          default:\n              throw new Error('Unsupported builtin type ' + type.name);\n      }\n      ctx.print(null, typeStr);\n      return null;\n      }\n      _TsEmitterVisitor.prototype.visitExpressionType = function (ast, ctx) {\n      var _this

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= this;\n      ast.value.visitExpression(this, ctx);\n      if (ast.typeParams !== null) {\n        ctx.print(null,\n'<');\n      this.visitAllObjects(function (type) { return _this.visitType(type, ctx); }, ast.typeParams, ctx, ',');\n      ctx.print(null, '>');\n      }\n      return null;\n    };\n    _TsEmitterVisitor.prototype.visitArrayType\n= function (type, ctx) {\n  this.visitType(type.of,\nctx);\n  ctx.print(null, '[');\n  return null;\n  };\n  _TsEmitterVisitor.prototype.visitMapType\n= function (type, ctx) {\n  ctx.print(null, '{[key: string]:}');\n  this.visitType(type.valueType, ctx);\n  ctx.print(null, '}');\n  return null;\n  };\n  _TsEmitterVisitor.prototype.getBuiltinMethodName =\nfunction (method) {\n  var name;\n  switch (method) {\n    case\nexports.BuiltinMethod.ConcatArray:\n      name = 'concat';\n      break;\n    case\nexports.BuiltinMethod.SubscribeObservable:\n      name = 'subscribe';\n      break;\n    case\nexports.BuiltinMethod.Bind:\n      name = 'bind';\n      break;\n    default:\n      throw new Error("Unknown builtin method: " + method);\n  }\n  return name;\n}\n  _TsEmitterVisitor.prototype._visitParams = function (params, ctx) {\n    var _this = this;\n    this.visitAllObjects(function (param) {\n      ctx.print(null, param.name);\n      _this._printColonType(param.type, ctx);\n    }, params, ctx, ',');\n  }\n  _TsEmitterVisitor.prototype._visitIdentifier = function (value, typeParams, ctx) {\n    var _this = this;\n    var name = value.name, moduleName = value.moduleName;\n    if (this.referenceFilter &&\nthis.referenceFilter(value)) {\n      ctx.print(null, '(null as any)');\n      return;\n    }\n    if\n(moduleName && (!this.importFilter || !this.importFilter(value))) {\n      var prefix =\nthis.importsWithPrefixes.get(moduleName);\n      if (prefix == null) {\n        prefix = "i" +\nthis.importsWithPrefixes.size;\n        this.importsWithPrefixes.set(moduleName,\nprefix);\n      }\n      ctx.print(null, prefix + ".");\n    }\n    ctx.print(null, name);\n    if\n(this.typeExpression > 0) {\n      // If we are in a type expression that refers to a generic type then supply\n      // the required type parameters. If there were not enough type parameters\n      // supplied, supply any as\n      the type. Outside a type expression the reference\n      // should not supply type parameters and be treated as a\n      simple value reference\n      // to the constructor function itself.\n      var suppliedParameters =\ntypeParams || [];\n      if (suppliedParameters.length > 0) {\n        ctx.print(null, '<');\n        this.visitAllObjects(function (type) { return type.visitType(_this, ctx); }, typeParams, ctx, ',');\n        ctx.print(null, '>');\n      }\n    }\n    _TsEmitterVisitor.prototype._printColonType\n= function (type, ctx, defaultType) {\n  if (type !== INFERRED_TYPE) {\n    ctx.print(null, ':');\n    this.visitType(type, ctx, defaultType);\n  }\n  };\n  return _TsEmitterVisitor;\n}\n\n(AbstractEmitterVisitor);\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\n/**\n * Resolve a `Type` for {@link Pipe}.\n *\n * This interface can be\n overridden by the application developer to create custom behavior.\n *\n * See {@link Compiler}\n */\nvar PipeResolver = /** @class */ (function () {\n  function PipeResolver(_reflector) {\n    this._reflector =\n_reflector;\n  }\n  PipeResolver.prototype.isPipe = function (type) {\n    var typeMetadata =\nthis._reflector.annotations(resolveForwardRef(type));\n\n    return typeMetadata && typeMetadata.some(createPipe.isTypeOf);\n  }\n\n  /**\n   * Return\n   * {@link Pipe} for a given `Type`.\n   */\n  PipeResolver.prototype.resolve = function (type,\nthrowIfNotFound) {\n    if (throwIfNotFound === void 0) { throwIfNotFound = true; }\n    var metas =\nthis._reflector.annotations(resolveForwardRef(type));\n    if (metas) {\n      var annotation =\nfindLast(metas, createPipe.isTypeOf);\n      if (annotation) {\n        return annotation;\n      }\n    }\n    if (throwIfNotFound) {\n      throw new Error("No Pipe decorator found on '" +\nstringify(type));\n    }\n    return null;\n  }\n\n  return PipeResolver;\n})();\n\n/**\n * Generates code that is used to type check templates.\n */\nvar TypeCheckCompiler = /** @class */ (function () {\n  {\n
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function TypeCheckCompiler(options, reflector) {\n      this.options = options;\n      this.reflector = reflector;\n    }\n    /**\n     * Important notes:\n     * - This must not produce new `import` statements, but only refer to types outside\n     *   of the file via the variables provided via externalReferenceVars.\n     * This allows Typescript to reuse the old program's structure as no imports have changed.\n     * - This must not produce any exports, as this would pollute the .d.ts file\n     * and also violate the point above.\n     */\n    TypeCheckCompiler.prototype.compileComponent = function (componentId, component, template, usedPipes, externalReferenceVars, ctx) {\n      var _this = this;\n      var pipes = new Map();\n      usedPipes.forEach(function (p) { return pipes.set(p.name, p.type.reference); });\n      var embeddedViewCount = 0;\n      var viewBuilderFactory = function (parent, guards) {\n        var embeddedViewIndex = embeddedViewCount++;\n        return new ViewBuilder(_this.options, _this.reflector, externalReferenceVars, parent, component.type.reference, component.isHost, embeddedViewIndex, pipes, guards, ctx, viewBuilderFactory);\n      };\n      var visitor = viewBuilderFactory(null, []);\n      visitor.visitAll([], template);\n      return visitor.build(componentId);\n    };\n    return TypeCheckCompiler;\n  }());\n  var DYNAMIC_VAR_NAME = '_any';\n  var TypeCheckLocalResolver = /** @class */ (function () {\n    function TypeCheckLocalResolver() {\n    }\n    TypeCheckLocalResolver.prototype.notifyImplicitReceiverUse = function () {\n    };\n    TypeCheckLocalResolver.prototype.getLocal = function (name) {\n      if (name === EventHandlerVars.event.name) {\n        // References to the event should not be type-checked.\n        // TODO(chuckj): determine a better type for the event.\n        return variable(DYNAMIC_VAR_NAME);\n      }\n      return null;\n    };\n    return TypeCheckLocalResolver;\n  }());\n  var defaultResolver = new TypeCheckLocalResolver();\n  var ViewBuilder = /** @class */ (function () {\n    function ViewBuilder(options, reflector, externalReferenceVars, parent, component, isHostComponent, embeddedViewIndex, pipes, guards, ctx, viewBuilderFactory) {\n      this.options = options;\n      this.reflector = reflector;\n      this.externalReferenceVars = externalReferenceVars;\n      this.parent = parent;\n      this.component = component;\n      this.isHostComponent = isHostComponent;\n      this.embeddedViewIndex = embeddedViewIndex;\n      this.pipes = pipes;\n      this.guards = guards;\n      this.ctx = ctx;\n      this.viewBuilderFactory = viewBuilderFactory;\n      this.refOutputVars = new Map();\n      this.variables = [];\n      this.children = [];\n      this.updates = [];\n      this.actions = [];\n    }\n    ViewBuilder.prototype.getOutputVar = function (type) {\n      var varName;\n      if (type === this.component && this.isHostComponent) {\n        varName = DYNAMIC_VAR_NAME;\n      }\n      else if (type instanceof StaticSymbol) {\n        varName = this.externalReferenceVars.get(type);\n      }\n      else {\n        varName = DYNAMIC_VAR_NAME;\n      }\n      if (!varName) {\n        throw new Error("Illegal State: referring to a type without a variable " + JSON.stringify(type));\n      }\n      return varName;\n    };\n    ViewBuilder.prototype.getTypeGuardExpressions = function (ast) {\n      var e_1, _a, e_2, _b;\n      var result = __spread(this.guards);\n      try {\n        for (var _c = __values(ast.directives), _d = _c.next(); !_d.done; _d = _c.next()) {\n          var directive = _d.value;\n          try {\n            for (var _e = (e_2 = void 0, __values(directive.inputs)), _f = _e.next(); !_f.done; _f = _e.next()) {\n              var input = _f.value;\n              var guard = directive.directive.guards[input.directiveName];\n              if (guard) {\n                var useIf = guard === 'UseIf';\n                result.push({\n                  guard: guard,\n                  useIf: useIf,\n                  expression: {\n                    context: this.component,\n                    value: input.value,\n                    sourceSpan: input.sourceSpan,\n                  },\n                });\n              }\n            }\n          }\n          catch (e_2_1) {\n            e_2 = { error: e_2_1 }; \n          }\n          finally {\n            try {\n              if (_f && !_f.done && (_b = _e.return)) _b.call(_e);\n            }\n            finally {\n              if (e_2) throw e_2.error; \n            }\n          }\n        }\n      }\n      catch (e_1_1) {\n        e_1 = { error: e_1_1 }; \n      }\n      finally {\n        try {\n          if (_d && !_d.done && (_a = _c.return)) _a.call(_c);\n        }\n        finally {\n          if (e_1) throw e_1.error; \n        }\n      }\n      return result;\n    };\n  }());\n
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ViewBuilder.prototype.visitAll = function (variables, astNodes) {\n      this.variables = variables;\n      templateVisitAll(this, astNodes);\n    };\n    ViewBuilder.prototype.build = function (componentId,\n      targetStatements) {\n      var e_3, _a;\n      var _this = this;\n      if (targetStatements === void 0) { targetStatements = []; }\n      this.children.forEach(function (child) { return child.build(componentId, targetStatements); });\n      var\n      viewStmts = [variable(DYNAMIC_VAR_NAME).set(NULL_EXPR).toDeclStmt(DYNAMIC_TYPE)];\n      var bindingCount = 0;\n      this.updates.forEach(function (expression) {\n        var _a =\n        _this.preprocessUpdateExpression(expression, sourceSpan = _a.sourceSpan, context = _a.context, value =\n        _a.value;\n        var bindingId = \"\" + bindingCount++;\n        var nameResolver = context ===\n        _this.component ? _this : defaultResolver;\n        var _b = convertPropertyBinding(nameResolver,\n        variable(_this.getOutputVar(context)), value, bindingId, BindingForm.General), stmts = _b.stmts, currValExpr =\n        _b.currValExpr;\n        stmts.push(new ExpressionStatement(currValExpr));\n        viewStmts.push.apply(viewStmts, __spread(stmts.map(function\n        (stmt) { return applySourceSpanToStatementIfNeeded(stmt, sourceSpan); }));\n      });\n      this.actions.forEach(function (_a) {\n        var sourceSpan = _a.sourceSpan, context = _a.context, value =\n        _a.value;\n        var bindingId = \"\" + bindingCount++;\n        var nameResolver = context ===\n        _this.component ? _this : defaultResolver;\n        var stmts = convertActionBinding(nameResolver,\n        variable(_this.getOutputVar(context)), value, bindingId).stmts;\n        viewStmts.push.apply(viewStmts,\n        __spread(stmts.map(function (stmt) { return applySourceSpanToStatementIfNeeded(stmt, sourceSpan); }));\n      });\n      if (this.guards.length) {\n        var guardExpression = undefined;\n        try {\n          if\n          (var _b = __values(this.guards), _c = _b.next(); !_c.done; _c = _b.next()) {\n            var guard = _c.value;\n            var _d = this.preprocessUpdateExpression(guard.expression),\n            context = _d.context, value = _d.value;\n            var bindingId = \"\" + bindingCount++;\n            var\n            nameResolver = context === this.component ? this : defaultResolver;\n            // We only support support\n            simple expressions and ignore others as they\n            // are unlikely to affect type narrowing.\n            var _e = convertPropertyBinding(nameResolver, variable(this.getOutputVar(context)), value, bindingId,\n            BindingForm.TrySimple), stmts = _e.stmts, currValExpr = _e.currValExpr;\n            if (stmts.length == 0)\n            {\n              var guardClause = guard.useIf ? currValExpr :\n              this.ctx.importExpr(guard.guard).callFn([currValExpr]);\n              guardExpression = guardExpression ?\n              guardExpression.and(guardClause) : guardClause;\n            }\n          }\n          catch\n          (e_3_1) {\n            e_3 = { error: e_3_1 }; }\n          finally {\n            try {\n              if (_c && !_c.done && (_a =\n              _b.return)) _a.call(_b);\n            }\n            finally { if (e_3) throw e_3.error; }\n          }\n          if\n          (guardExpression) {\n            viewStmts = [new IfStmt(guardExpression, viewStmts)];\n          }\n        }\n        var viewName = \"_View_\" + componentId + \"_\" + this.embeddedViewIndex;\n        var\n        viewFactory = new DeclareFunctionStmt(viewName, [], viewStmts);\n        targetStatements.push(viewFactory);\n        return targetStatements;\n      };\n      ViewBuilder.prototype.visitBoundText = function (ast, context) {\n        var _this = this;\n        var\n        astWithSource = ast.value;\n        var inter = astWithSource.ast;\n        inter.expressions.forEach(function (expr)\n        { return _this.updates.push({ context: _this.component, value: expr, sourceSpan:\n        ast.sourceSpan }); });\n      };\n      ViewBuilder.prototype.visitEmbeddedTemplate = function (ast, context) {\n        this.visitElementOrTemplate(ast);\n        // Note: The old view compiler used to use an `any` type\n        //\n        for the context in any embedded view.\n        // We keep this behavior behind a flag for now.\n        if\n        (this.options.fullTemplateTypeCheck) {\n          // Find any applicable type guards. For example, NgIf has a type\n          guard on ngIf\n          // (see NgIf.ngIfTypeGuard) that can be used to indicate that a template is only\n          // stamped out if ngIf is truthy so any bindings in the template can assume that,\n          // if a nullable type is\n          used for ngIf, that expression is not null or undefined.\n          var guards = this.getTypeGuardExpressions(ast);\n          var childVisitor = this.viewBuilderFactory(this, guards);\n          this.children.push(childVisitor);\n        }\n      }\n    };\n  };\n}

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        childVisitor.visitAll(ast.variables, ast.children);\n        }\n        }\n        ViewBuilder.prototype.visitElement
= function (ast, context) {\n        var _this = this;\n        this.visitElementOrTemplate(ast);\n        var
inputDefs = [];\n        var updateRendererExpressions = [];\n        var outputDefs = [];\n
ast.inputs.forEach(function (inputAst) {\n        _this.updates.push({ context: _this.component, value:
inputAst.value, sourceSpan: inputAst.sourceSpan });\n        });\n        templateVisitAll(this, ast.children);\n
});\n        ViewBuilder.prototype.visitElementOrTemplate = function (ast) {\n        var _this = this;\n
ast.directives.forEach(function (dirAst) {\n        _this.visitDirective(dirAst);\n        });\n
ast.references.forEach(function (ref) {\n        var outputVarType = null;\n        // Note: The old view
compiler used to use an `any` type\n
        // for directives exposed via `exportAs`\n        // We keep this behavior behind a flag for now.\n
        if (ref.value && ref.value.identifier && _this.options.fullTemplateTypeCheck) {\n        outputVarType =
ref.value.identifier.reference;\n        }\n        else {\n        outputVarType =
exports.BuiltinTypeName.Dynamic;\n        }\n        _this.refOutputVars.set(ref.name, outputVarType);\n
        });\n        ast.outputs.forEach(function (outputAst) {\n        _this.actions.push({ context:
_this.component, value: outputAst.handler, sourceSpan: outputAst.sourceSpan });\n        });\n        });\n
ViewBuilder.prototype.visitDirective = function (dirAst) {\n        var _this = this;\n        var dirType =
dirAst.directive.type.reference;\n        dirAst.inputs.forEach(function (input) { return _this.updates.push({ context:
_this.component, value: input.value,
sourceSpan: input.sourceSpan }); });\n        // Note: The old view compiler used to use an `any` type\n        //
for expressions in host properties / events.\n        // We keep this behavior behind a flag for now.\n        if
(this.options.fullTemplateTypeCheck) {\n        dirAst.hostProperties.forEach(function (inputAst) { return
_this.updates.push({ context: dirType, value: inputAst.value, sourceSpan: inputAst.sourceSpan }); });\n
dirAst.hostEvents.forEach(function (hostEventAst) { return _this.actions.push({\n        context: dirType,\n
value: hostEventAst.handler,\n        sourceSpan: hostEventAst.sourceSpan\n        }); });\n
});\n        }\n        ViewBuilder.prototype.notifyImplicitReceiverUse = function () { };\n
ViewBuilder.prototype.getLocal = function (name) {\n        if (name === EventHandlerVars.event.name) {\n
return variable(this.getOutputVar(exports.BuiltinTypeName.Dynamic));\n
        }\n        for (var currBuilder = this; currBuilder; currBuilder = currBuilder.parent) {\n        var
outputVarType = void 0;\n        // check references\n        outputVarType =
currBuilder.refOutputVars.get(name);\n        if (outputVarType === null) {\n        // check variables\n
var varAst = currBuilder.variables.find(function (varAst) { return varAst.name === name; });\n
if (varAst) {\n        outputVarType = exports.BuiltinTypeName.Dynamic;\n        }\n        }\n
        if (outputVarType !== null) {\n        return variable(this.getOutputVar(outputVarType));\n        }\n
        }\n        return null;\n        });\n        ViewBuilder.prototype.pipeOutputVar = function (name) {\n        var
pipe = this.pipes.get(name);\n        if (!pipe) {\n        throw
new Error("Illegal State: Could not find pipe \"" + name + "\" in template of \"" + this.component);\n        }\n
return this.getOutputVar(pipe);\n        });\n        ViewBuilder.prototype.preprocessUpdateExpression = function
(expression) {\n        var _this = this;\n        return {\n        sourceSpan: expression.sourceSpan,\n
context: expression.context,\n        value: convertPropertyBindingBuiltins({\n
createLiteralArrayConverter: function (argCount) { return function (args) {\n        var arr =
literalArr(args);\n        // Note: The old view compiler used to use an `any` type\n        // for
arrays.\n        return _this.options.fullTemplateTypeCheck ? arr : arr.cast(DYNAMIC_TYPE);\n
        };\n        },\n        createLiteralMapConverter: function (keys) { return function (values) {\n        var
entries = keys.map(function
(k, i) { return ({\n        key: k.key,\n        value: values[i],\n        quoted:
k.quoted,\n        }); });\n        }\n        },\n        var map = literalMap(entries);\n        // Note: The old
view compiler used to use an `any` type\n        // for maps.\n        return
_this.options.fullTemplateTypeCheck ? map : map.cast(DYNAMIC_TYPE);\n        });\n        });\n

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createPipeConverter: function (name, argCount) { return function (args) {\n          // Note: The old view
compiler used to use an `any` type\n          // for pipes.\n          var pipeExpr =
_this.options.fullTemplateTypeCheck ?\n          variable(_this.pipeOutputVar(name)) :\nvariable(_this.getOutputVar(exports.BuiltinTypeName.Dynamic));\n          return
pipeExpr.callMethod('transform',
args);\n          }; }\n          }, expression.value)\n          };\n          };\n
ViewBuilder.prototype.visitNgContent = function (ast, context) { };\n          ViewBuilder.prototype.visitText =
function (ast, context) { };\n          ViewBuilder.prototype.visitDirectiveProperty = function (ast, context) { };\n
ViewBuilder.prototype.visitReference = function (ast, context) { };\n          ViewBuilder.prototype.visitVariable =
function (ast, context) { };\n          ViewBuilder.prototype.visitEvent = function (ast, context) { };\n
ViewBuilder.prototype.visitElementProperty = function (ast, context) { };\n          ViewBuilder.prototype.visitAttr =
function (ast, context) { };\n          return ViewBuilder;\n          }());\n          \n          var CLASS_ATTR$1 = 'class';\n          var
STYLE_ATTR = 'style';\n          var IMPLICIT_TEMPLATE_VAR = '$implicit';\n          var ViewCompileResult = /**
@class */ (function () {\n          function ViewCompileResult(viewClassVar, rendererTypeVar)
{\n          this.viewClassVar = viewClassVar;\n          this.rendererTypeVar = rendererTypeVar;\n          }\n
return ViewCompileResult;\n          }());\n          \n          var ViewCompiler = /** @class */ (function () {\n          function
ViewCompiler(_reflector) {\n          this._reflector = _reflector;\n          }\n
ViewCompiler.prototype.compileComponent = function (outputCtx, component, template, styles, usedPipes) {\n
          var _a;\n          var _this = this;\n          var embeddedViewCount = 0;\n          var renderComponentVarName
= undefined;\n          if (!component.isHost) {\n          var template_1 = component.template;\n          var
customRenderData = [];\n          if (template_1.animations && template_1.animations.length) {\n
customRenderData.push(new LiteralMapEntry('animation', convertValueToOutputAst(outputCtx,
template_1.animations), true));\n          }\n          var renderComponentVar
= variable(rendererTypeName(component.type.reference));\n          renderComponentVarName =
renderComponentVar.name;\n          outputCtx.statements.push(renderComponentVar\n
.set(importExpr(Identifiers.createRendererType2).callFn([new LiteralMapExpr([\n          new
LiteralMapEntry('encapsulation', literal(template_1.encapsulation), false),\n          new
LiteralMapEntry('styles', styles, false),\n          new LiteralMapEntry('data', new
LiteralMapExpr(customRenderData), false)\n          ]))\n
.toDeclStmt(importType(Identifiers.RendererType2), [exports.StmtModifier.Final,
exports.StmtModifier.Exported]));\n          }\n          var viewBuilderFactory = function (parent) {\n          var
embeddedViewIndex = embeddedViewCount++;\n          return new ViewBuilder$1(_this._reflector, outputCtx,
parent, component, embeddedViewIndex, usedPipes, viewBuilderFactory);\n          };\n          var visitor = viewBuilderFactory(null);\n          visitor.visitAll([], template);\n          (_a =
outputCtx.statements).push.apply(_a, __spread(visitor.build()));\n          return new
ViewCompileResult(visitor.viewName, renderComponentVarName);\n          };\n          return ViewCompiler;\n          }());\n          \n          var LOG_VAR$1 = variable('_l');\n          var VIEW_VAR = variable('_v');\n          var CHECK_VAR =
variable('_ck');\n          var COMP_VAR = variable('_co');\n          var EVENT_NAME_VAR = variable('en');\n          var
ALLOW_DEFAULT_VAR = variable('ad');\n          var ViewBuilder$1 = /** @class */ (function () {\n          function
ViewBuilder(reflector, outputCtx, parent, component, embeddedViewIndex, usedPipes, viewBuilderFactory) {\n
          this.reflector = reflector;\n          this.outputCtx = outputCtx;\n          this.parent = parent;\n
this.component = component;\n          this.embeddedViewIndex = embeddedViewIndex;\n          this.usedPipes =
usedPipes;\n
          this.viewBuilderFactory = viewBuilderFactory;\n          this.nodes = [];\n          this.purePipeNodeIndices =
Object.create(null);\n          // Need Object.create so that we don't have builtin values...\n          this.refNodeIndices
= Object.create(null);\n          this.variables = [];\n          this.children = [];\n          // TODO(tbosch): The old
view compiler used to use an `any` type\n          // for the context in any embedded view. We keep this behavior for
now\n          // to be able to introduce the new view compiler without too many errors.\n          this.compType =

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this.embeddedViewIndex > 0 ?\n          DYNAMIC_TYPE :\n
expressionType(outputCtx.importExpr(this.component.type.reference));\n          this.viewName =
viewClassName(this.component.type.reference, this.embeddedViewIndex);\n          }\n
ViewBuilder.prototype.visitAll = function (variables, astNodes) {\n          var _this = this;\n
          this.variables = variables;\n          // create the pipes for the pure pipes immediately, so that we know their
indices.\n          if (!this.parent) {\n          this.usedPipes.forEach(function (pipe) {\n          if (pipe.pure)
{\n          _this.purePipeNodeIndices[pipe.name] = _this._createPipe(null, pipe);\n          }\n
});\n          }\n          if (!this.parent) {\n          this.component.viewQueries.forEach(function (query,
queryIndex) {\n          // Note: queries start with id 1 so we can use the number in a Bloom filter!\n
var queryId = queryIndex + 1;\n          var bindingType = query.first ? 0 /* First */ : 1 /* All */;\n
var flags = 134217728 /* TypeViewQuery */ | calcStaticDynamicQueryFlags(query);\n
_this.nodes.push(function () { return ({\n          sourceSpan: null,\n          nodeFlags:
flags,\n          nodeDef: importExpr(Identifiers.queryDef).callFn([\n          literal(flags),
literal(queryId),\n          new LiteralMapExpr([new LiteralMapEntry(query.propertyName,
literal(bindingType), false))\n          ])\n          }); });\n          });\n          }\n
templateVisitAll(this, astNodes);\n          if (this.parent && (astNodes.length === 0 ||
needsAdditionalRootNode(astNodes))) {\n          // if the view is an embedded view, then we need to add an
additional root node in some cases\n          this.nodes.push(function () { return ({\n          sourceSpan:
null,\n          nodeFlags: 1 /* TypeElement */,\n          nodeDef:
importExpr(Identifiers.anchorDef).callFn([\n          literal(0 /* None */), NULL_EXPR, NULL_EXPR,
literal(0)\n          ])\n          }); });\n          });\n          }\n
          ViewBuilder.prototype.build = function (targetStatements) {\n          if (targetStatements === void 0) {\n
targetStatements = []; }\n          this.children.forEach(function (child) { return child.build(targetStatements); });\n
          var _a = this._createNodeExpressions(), updateRendererStmts = _a.updateRendererStmts,
updateDirectivesStmts = _a.updateDirectivesStmts, nodeDefExprs = _a.nodeDefExprs;\n          var
updateRendererFn = this._createUpdateFn(updateRendererStmts);\n          var updateDirectivesFn =
this._createUpdateFn(updateDirectivesStmts);\n          var viewFlags = 0 /* None */;\n          if (!this.parent &&
this.component.changeDetection === ChangeDetectionStrategy.OnPush) {\n          viewFlags |= 2 /* OnPush
*/;\n          }\n          var viewFactory = new DeclareFunctionStmt(this.viewName, [new
FnParam(LOG_VAR$1.name)], [new ReturnStatement(importExpr(Identifiers.viewDef).callFn([\n
literal(viewFlags),\n
          literalArr(nodeDefExprs),\n          updateDirectivesFn,\n          updateRendererFn,\n          ])]),
importType(Identifiers.ViewDefinition), this.embeddedViewIndex === 0 ? [exports.StmtModifier.Exported] : []);\n
          targetStatements.push(viewFactory);\n          return targetStatements;\n          });\n
          ViewBuilder.prototype._createUpdateFn = function (updateStmts) {\n          var updateFn;\n          if
(updateStmts.length > 0) {\n          var preStmts = [];\n          if (!this.component.isHost &&
findReadVarNames(updateStmts).has(COMP_VAR.name)) {\n
preStmts.push(COMP_VAR.set(VIEW_VAR.prop('component')).toDeclStmt(this.compType));\n          }\n
          updateFn = fn([\n          new FnParam(CHECK_VAR.name, INFERRED_TYPE),\n          new
FnParam(VIEW_VAR.name, INFERRED_TYPE)\n          ], __spread(preStmts, updateStmts),
INFERRED_TYPE);\n          }\n
          else {\n          updateFn = NULL_EXPR;\n          }\n          return updateFn;\n          });\n
          ViewBuilder.prototype.visitNgContent = function (ast, context) {\n          // ngContentDef(ngContentIndex:
number, index: number): NodeDef;\n          this.nodes.push(function () { return ({\n          sourceSpan:
ast.sourceSpan,\n          nodeFlags: 8 /* TypeNgContent */,\n          nodeDef:
importExpr(Identifiers.ngContentDef)\n          .callFn([literal(ast.ngContentIndex), literal(ast.index)])\n
}); });\n          });\n          ViewBuilder.prototype.visitText = function (ast, context) {\n          // Static text nodes have
no check function\n          var checkIndex = -1;\n          this.nodes.push(function () { return ({\n

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sourceSpan: ast.sourceSpan,\n          nodeFlags: 2 /* TypeText */,\n          nodeDef:
importExpr(Identifiers.textDef).callFn([\n          literal(checkIndex),\n          literal(ast.ngContentIndex),\n          literalArr([literal(ast.value)]),\n          ])\n    });\n    }\n    ViewBuilder.prototype.visitBoundText = function (ast, context) {\n        var _this = this;\n        var\n        nodeIndex = this.nodes.length;\n        // reserve the space in the nodeDefs array\n        this.nodes.push(null);\n        var astWithSource = ast.value;\n        var inter = astWithSource.ast;\n        var updateRendererExpressions\n        = inter.expressions.map(function (expr, bindingIndex) { return _this._preprocessUpdateExpression({ nodeIndex:\n        nodeIndex, bindingIndex: bindingIndex, sourceSpan: ast.sourceSpan, context: COMP_VAR, value: expr }); });\n        // Check index is the same as the node index during compilation\n        // They might only differ at runtime\n        var checkIndex = nodeIndex;\n        this.nodes[nodeIndex] = function () { return ({\n            sourceSpan:\n            ast.sourceSpan,\n            nodeFlags: 2 /* TypeText */,\n            nodeDef:\n            importExpr(Identifiers.textDef).callFn([\n            literal(checkIndex),\n            literal(ast.ngContentIndex),\n            literalArr(inter.strings.map(function (s) { return literal(s); })),\n            ]),\n            updateRenderer: updateRendererExpressions\n        }); });\n    }\n    ViewBuilder.prototype.visitEmbeddedTemplate = function (ast, context) {\n        var _this = this;\n        var\n        nodeIndex = this.nodes.length;\n        // reserve the space in the nodeDefs array\n        this.nodes.push(null);\n        var _a = this._visitElementOrTemplate(nodeIndex, ast), flags = _a.flags, queryMatchesExpr =\n        _a.queryMatchesExpr, hostEvents = _a.hostEvents;\n        var childVisitor = this.viewBuilderFactory(this);\n        this.children.push(childVisitor);\n        childVisitor.visitAll(ast.variables, ast.children);\n        var childCount = this.nodes.length - nodeIndex - 1;\n        // anchorDef\n        // flags: NodeFlags,\n        matchedQueries: [string, QueryValueType][], ngContentIndex: number,\n        // childCount: number,\n        handleEventFn?: ElementHandleEventFn, templateFactory?:\n        // ViewDefinitionFactory): NodeDef;\n        this.nodes[nodeIndex] = function () { return ({\n            sourceSpan: ast.sourceSpan,\n            nodeFlags: 1 /*\n            TypeElement */ | flags,\n            nodeDef: importExpr(Identifiers.anchorDef).callFn([\n            literal(flags),\n            queryMatchesExpr,\n            literal(ast.ngContentIndex),\n            literal(childCount),\n            _this._createElementHandleEventFn(nodeIndex, hostEvents),\n            variable(childVisitor.viewName),\n            ])\n        }); });\n    }\n    ViewBuilder.prototype.visitElement =\n    function (ast, context)\n    {\n        var _this = this;\n        var nodeIndex = this.nodes.length;\n        // reserve the space in the nodeDefs\n        array so we can add children\n        this.nodes.push(null);\n        // Using a null element name creates an\n        anchor.\n        var elName = isNgContainer(ast.name) ? null : ast.name;\n        var _a =\n        this._visitElementOrTemplate(nodeIndex, ast), flags = _a.flags, usedEvents = _a.usedEvents, queryMatchesExpr =\n        _a.queryMatchesExpr, dirHostBindings = _a.hostBindings, hostEvents = _a.hostEvents;\n        var inputDefs =\n        [];\n        var updateRendererExpressions = [];\n        var outputDefs = [];\n        if (elName) {\n            var\n            hostBindings = ast.inputs\n            .map(function (inputAst) { return ({\n                context: COMP_VAR,\n                inputAst: inputAst,\n                dirAst: null,\n            }); });\n            .concat(dirHostBindings);\n            if\n            (hostBindings.length) {\n                updateRendererExpressions =\n                hostBindings.map(function\n                (hostBinding, bindingIndex) { return _this._preprocessUpdateExpression({\n                    context:\n                    hostBinding.context,\n                    nodeIndex: nodeIndex,\n                    bindingIndex: bindingIndex,\n                    sourceSpan: hostBinding.inputAst.sourceSpan,\n                    value: hostBinding.inputAst.value\n                }); });\n                inputDefs = hostBindings.map(function (hostBinding) { return\n                elementBindingDef(hostBinding.inputAst, hostBinding.dirAst); });\n                outputDefs =\n                usedEvents.map(function (_a) {\n                    var _b = __read(_a, 2), target = _b[0], eventName = _b[1];\n                    return literalArr([literal(target), literal(eventName)]);\n                });\n                templateVisitAll(this,\n                ast.children);\n                var childCount = this.nodes.length - nodeIndex - 1;\n                var compAst = ast.directives.find(function\n                (dirAst) { return dirAst.directive.isComponent; });\n                var compRendererType = NULL_EXPR;\n                var

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compView = NULL_EXPR;\n      if (compAst) {\n          compView =
this.outputCtx.importExpr(compAst.directive.componentViewType);\n          compRendererType =
this.outputCtx.importExpr(compAst.directive.rendererType);\n      }\n      // Check index is the same as the
node index during compilation\n      // They might only differ at runtime\n      var checkIndex = nodeIndex;\n      this.nodes[nodeIndex] = function () { return ({\n          sourceSpan: ast.sourceSpan,\n          nodeFlags:
1 /* TypeElement */ | flags,\n          nodeDef: importExpr(Identifiers.elementDef).callFn([\n
literal(checkIndex),\n          literal(flags),\n          queryMatchesExpr,\n
          literal(ast.ngContentIndex),\n          literal(childCount),\n          literal(elName),\n
          elName ? fixedAttrsDef(ast) : NULL_EXPR,\n          inputDefs.length ? literalArr(inputDefs) :
NULL_EXPR,\n          outputDefs.length ? literalArr(outputDefs) : NULL_EXPR,\n
          _this._createElementHandleEventFn(nodeIndex, hostEvents),\n          compView,\n
          compRendererType,\n          ]),\n          updateRenderer: updateRendererExpressions\n      });\n};\n    ViewBuilder.prototype._visitElementOrTemplate = function (nodeIndex, ast) {\n        var _this = this;\n        var flags = 0 /* None */;\n        if (ast.hasViewContainer) {\n            flags |= 16777216 /* EmbeddedViews */;\n        }\n        var usedEvents = new Map();\n        ast.outputs.forEach(function (event) {\n            var
_a = elementEventNameAndTarget(event, null), name = _a.name, target = _a.target;\n            usedEvents.set(elementEventFullName(target, name), [target, name]);\n        });\n        ast.directives.forEach(function (dirAst) {\n            dirAst.hostEvents.forEach(function (event) {\n                var
_a = elementEventNameAndTarget(event, dirAst), name = _a.name, target = _a.target;\n                usedEvents.set(elementEventFullName(target, name), [target, name]);\n            });\n        });\n        var
hostBindings = [];\n        var hostEvents = [];\n        this._visitComponentFactoryResolverProvider(ast.directives);\n        ast.providers.forEach(function (providerAst) {\n            {\n                var dirAst = undefined;\n                ast.directives.forEach(function (localDirAst) {\n                    if
(localDirAst.directive.type.reference === tokenReference(providerAst.token)) {\n                        dirAst =
localDirAst;\n                    }\n                });\n                if (dirAst) {\n                    var _a = _this._visitDirective(providerAst, dirAst,
ast.references, ast.queryMatches, usedEvents), dirHostBindings = _a.hostBindings, dirHostEvents =
_a.hostEvents;\n                    hostBindings.push.apply(hostBindings, __spread(dirHostBindings));\n                    hostEvents.push.apply(hostEvents, __spread(dirHostEvents));\n                }\n                else {\n                    _this._visitProvider(providerAst, ast.queryMatches);\n                }\n                var queryMatchExprs = [];\n                ast.queryMatches.forEach(function (match) {\n                    var valueType = undefined;\n                    if
(tokenReference(match.value) ===\n                        _this.reflector.resolveExternalReference(Identifiers.ElementRef))\n                    {\n                        valueType = 0 /* ElementRef */;\n                    }\n                    else if (tokenReference(match.value)
===\n                        _this.reflector.resolveExternalReference(Identifiers.ViewContainerRef)) {\n                        valueType = 3 /*
ViewContainerRef */;\n                    }\n                    else if (tokenReference(match.value) ===\n                        _this.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n                        valueType = 2 /* TemplateRef */;\n                    }\n                    if (valueType !== null) {\n                        queryMatchExprs.push(literalArr([literal(match.queryId), literal(valueType)]));\n                    }\n                });\n                ast.references.forEach(function (ref) {\n                    var valueType = undefined;\n                    if (!ref.value) {\n                        valueType = 1 /* RenderElement */;\n                    }\n                    else if (tokenReference(ref.value) ===\n                        _this.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n                        valueType = 2 /* TemplateRef */;\n                    }\n                    if (valueType !== null) {\n                        _this.refNodeIndices[ref.name] = nodeIndex;\n                        queryMatchExprs.push(literalArr([literal(ref.name), literal(valueType)]));\n                    }\n                });\n                ast.outputs.forEach(function (outputAst) {\n                    hostEvents.push({ context: COMP_VAR, eventAst:
outputAst, dirAst: null });\n                });\n                return {\n                    flags: flags,\n                    usedEvents:
Array.from(usedEvents.values()),\n                    queryMatchesExpr: queryMatchExprs.length ?

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literalArr(queryMatchExprs) : NULL_EXPR,\n          hostBindings: hostBindings,\n          hostEvents:
hostEvents\n      };\n      }\n      ViewBuilder.prototype._visitDirective = function (providerAst, dirAst, refs,
queryMatches, usedEvents) {\n          var _this = this;\n          var nodeIndex = this.nodes.length;\n          //
reserve the space in the nodeDefs array so we can add children\n
          this.nodes.push(null);\n          dirAst.directive.queries.forEach(function (query, queryIndex) {\n              var
queryId = dirAst.contentQueryStartId + queryIndex;\n              var flags = 67108864 /* TypeContentQuery */ |
calcStaticDynamicQueryFlags(query);\n              var bindingType = query.first ? 0 /* First */ : 1 /* All */;\n
          _this.nodes.push(function () { return ({\n              sourceSpan: dirAst.sourceSpan,\n              nodeFlags:
flags,\n              nodeDef: importExpr(Identifiers.queryDef).callFn([\n                  literal(flags),
literal(queryId),\n                  new LiteralMapExpr([new LiteralMapEntry(query.propertyName,
literal(bindingType), false)])\n              ]),\n              }); });\n          });\n          // Note: the operation below
might also create new nodeDefs,\n          // but we don't want them to be a child of a directive,\n          // as they
might be a
          provider/pipe on their own.\n          // I.e. we only allow queries as children of directives nodes.\n          var
childCount = this.nodes.length - nodeIndex - 1;\n          var _a = this._visitProviderOrDirective(providerAst,
queryMatches), flags = _a.flags, queryMatchExprs = _a.queryMatchExprs, providerExpr = _a.providerExpr,
depsExpr = _a.depsExpr;\n          refs.forEach(function (ref) {\n              if (ref.value &&
tokenReference(ref.value) === tokenReference(providerAst.token)) {\n                  _this.refNodeIndices[ref.name]
= nodeIndex;\n                  queryMatchExprs.push(literalArr([literal(ref.name), literal(4 /* Provider */)]));\n
          }\n          });\n          if (dirAst.directive.isComponent) {\n              flags |= 32768 /* Component */;\n
          }\n          var inputDefs = dirAst.inputs.map(function (inputAst, inputIndex) {\n              var mapValue =
literalArr([literal(inputIndex), literal(inputAst.directiveName)]);\n
          // Note: it's important to not quote the key so that we can capture renames by minifiers!\n              return
new LiteralMapEntry(inputAst.directiveName, mapValue, false);\n          });\n          var outputDefs = [];\n
          var dirMeta = dirAst.directive;\n          Object.keys(dirMeta.outputs).forEach(function (propName) {\n
          var eventName = dirMeta.outputs[propName];\n          if (usedEvents.has(eventName)) {\n              // Note:
it's important to not quote the key so that we can capture renames by minifiers!\n              outputDefs.push(new
LiteralMapEntry(propName, literal(eventName), false));\n          }\n          });\n          var
updateDirectiveExpressions = [];\n          if (dirAst.inputs.length || (flags & (262144 /* DoCheck */ | 65536 /*
OnInit */) > 0)) {\n              updateDirectiveExpressions =\n                  dirAst.inputs.map(function (input,
bindingIndex) { return _this._preprocessUpdateExpression({\n
                      nodeIndex: nodeIndex,\n                      bindingIndex: bindingIndex,\n                      sourceSpan:
input.sourceSpan,\n                      context: COMP_VAR,\n                      value: input.value\n                  }); });\n
          }\n          var dirContextExpr = importExpr(Identifiers.nodeValue).callFn([VIEW_VAR,
literal(nodeIndex)]);\n          var hostBindings = dirAst.hostProperties.map(function (inputAst) { return ({\n
              context: dirContextExpr,\n              dirAst: dirAst,\n              inputAst: inputAst,\n          }); });\n          var
hostEvents = dirAst.hostEvents.map(function (hostEventAst) { return ({\n              context: dirContextExpr,\n
              eventAst: hostEventAst,\n              dirAst: dirAst,\n          }); });\n          // Check index is the same as the node
index during compilation\n          // They might only differ at runtime\n
          var checkIndex = nodeIndex;\n          this.nodes[nodeIndex] = function () { return ({\n
              sourceSpan: dirAst.sourceSpan,\n              nodeFlags: 16384 /* TypeDirective */ | flags,\n              nodeDef:
importExpr(Identifiers.directiveDef).callFn([\n                  literal(checkIndex),\n                  literal(flags),\n
                  queryMatchExprs.length ? literalArr(queryMatchExprs) : NULL_EXPR,\n                  literal(childCount),\n
                  providerExpr,\n                  depsExpr,\n                  inputDefs.length ? new LiteralMapExpr(inputDefs) :
NULL_EXPR,\n                  outputDefs.length ? new LiteralMapExpr(outputDefs) : NULL_EXPR,\n              ]),\n
              updateDirectives: updateDirectiveExpressions,\n              directive: dirAst.directive.type,\n          }); });\n
          return { hostBindings: hostBindings, hostEvents: hostEvents };\n          }\n
          ViewBuilder.prototype._visitProvider

```

```

= function (providerAst, queryMatches) {\n
this._addProviderNode(this._visitProviderOrDirective(providerAst, queryMatches));\n    };\n
ViewBuilder.prototype._visitComponentFactoryResolverProvider = function (directives) {\n    var
componentDirMeta = directives.find(function (dirAst) { return dirAst.directive.isComponent; });\n    if
(componentDirMeta && componentDirMeta.directive.entryComponents.length) {\n    var _a =
componentFactoryResolverProviderDef(this.reflector, this.outputCtx, 8192 /* PrivateProvider */,
componentDirMeta.directive.entryComponents), providerExpr = _a.providerExpr, depsExpr = _a.depsExpr, flags =
_a.flags, tokenExpr = _a.tokenExpr;\n    this._addProviderNode({\n    providerExpr:
providerExpr,\n    depsExpr: depsExpr,\n    flags: flags,\n    tokenExpr: tokenExpr,\n
    queryMatchExprs: [],\n
    sourceSpan: componentDirMeta.sourceSpan\n    });\n    };\n
ViewBuilder.prototype._addProviderNode = function (data) {\n    // providerDef\n    // flags: NodeFlags,
matchedQueries: [string, QueryValueType][], token:any,\n    // value: any, deps: ([DepFlags, any] | any)[]:
NodeDef;\n    this.nodes.push(function () { return ({\n    sourceSpan: data.sourceSpan,\n
nodeFlags: data.flags,\n    nodeDef: importExpr(Identifiers.providerDef).callFn([\n
literal(data.flags),\n    data.queryMatchExprs.length ? literalArr(data.queryMatchExprs) : NULL_EXPR,\n
    data.tokenExpr, data.providerExpr, data.depsExpr\n    ])\n    }); });\n    };\n
ViewBuilder.prototype._visitProviderOrDirective = function (providerAst, queryMatches) {\n    var flags = 0 /*
None */;\n    var queryMatchExprs = [];\n
    queryMatches.forEach(function (match) {\n    if (tokenReference(match.value) ===
tokenReference(providerAst.token)) {\n    queryMatchExprs.push(literalArr([literal(match.queryId),
literal(4 /* Provider */)]));\n    };\n    };\n    var _a = providerDef(this.outputCtx, providerAst),
providerExpr = _a.providerExpr, depsExpr = _a.depsExpr, providerFlags = _a.flags, tokenExpr = _a.tokenExpr;\n
    return {\n    flags: flags | providerFlags,\n    queryMatchExprs: queryMatchExprs,\n
providerExpr: providerExpr,\n    depsExpr: depsExpr,\n    tokenExpr: tokenExpr,\n
sourceSpan: providerAst.sourceSpan\n    };\n    };\n    ViewBuilder.prototype.getLocal = function (name)
{\n    if (name === EventHandlerVars.event.name) {\n    return EventHandlerVars.event;\n    };\n
    var currViewExpr = VIEW_VAR;\n
    for (var currBuilder = this; currBuilder; currBuilder = currBuilder.parent,\n    currViewExpr =
currViewExpr.prop('parent').cast(DYNAMIC_TYPE)) {\n    // check references\n    var refNodeIndex
= currBuilder.refNodeIndices[name];\n    if (refNodeIndex !== null) {\n    return
importExpr(Identifiers.nodeValue).callFn([currViewExpr, literal(refNodeIndex)]);\n    };\n    // check
variables\n    var varAst = currBuilder.variables.find(function (varAst) { return varAst.name === name; });\n
    if (varAst) {\n    var varValue = varAst.value || IMPLICIT_TEMPLATE_VAR;\n
    return currViewExpr.prop('context').prop(varValue);\n    };\n    };\n    return null;\n    };\n
ViewBuilder.prototype.notifyImplicitReceiverUse = function () {\n    // Not needed in View Engine as View
Engine walks through the generated\n
    // expressions to figure out if the implicit receiver is used and needs\n    // to be generated as part of the
pre-update statements.\n    };\n    ViewBuilder.prototype._createLiteralArrayConverter = function (sourceSpan,
argCount) {\n    if (argCount === 0) {\n    var valueExpr_1 =
importExpr(Identifiers.EMPTY_ARRAY);\n    return function () { return valueExpr_1; };\n    };\n
    var checkIndex = this.nodes.length;\n    this.nodes.push(function () { return ({\n    sourceSpan:
sourceSpan,\n    nodeFlags: 32 /* TypePureArray */,\n    nodeDef:
importExpr(Identifiers.pureArrayDef).callFn([\n    literal(checkIndex),\n    literal(argCount),\n
    ])\n    }); });\n    return function (args) { return callCheckStmt(checkIndex, args); };\n    };\n
ViewBuilder.prototype._createLiteralMapConverter = function
(sourceSpan, keys) {\n    if (keys.length === 0) {\n    var valueExpr_2 =
importExpr(Identifiers.EMPTY_MAP);\n    return function () { return valueExpr_2; };\n    };\n

```

```

var map = literalMap(keys.map(function (e, i) { return (Object.assign(Object.assign({}, e), { value: literal(i) }));
}));\n      var checkIndex = this.nodes.length;\n      this.nodes.push(function () { return ({\nsourceSpan: sourceSpan,\n      nodeFlags: 64 /* TypePureObject */,\n      nodeDef:
importExpr(Identifiers.pureObjectDef).callFn([\n      literal(checkIndex),\n      map,\n      ])\n    }); });\n      return function (args) { return callCheckStmt(checkIndex, args); }; \n    });\n    ViewBuilder.prototype._createPipeConverter = function (expression, name, argCount) {\n      var pipe =
this.usedPipes.find(function (pipeSummary) { return pipeSummary.name
=== name; });\n      if (pipe.pure) {\n        var checkIndex_1 = this.nodes.length;\n        this.nodes.push(function () { return ({\n          sourceSpan: expression.sourceSpan,\n          nodeFlags:
128 /* TypePurePipe */,\n          nodeDef: importExpr(Identifiers.purePipeDef).callFn([\n            literal(checkIndex_1),\n            literal(argCount),\n            ])\n          }); });\n        // find
underlying pipe in the component view\n        var compViewExpr = VIEW_VAR;\n        var compBuilder
= this;\n        while (compBuilder.parent) {\n          compBuilder = compBuilder.parent;\n        }\n        compViewExpr = compViewExpr.prop('parent').cast(DYNAMIC_TYPE);\n        var
pipeNodeIndex = compBuilder.purePipeNodeIndices[name];\n        var pipeValueExpr_1 =
importExpr(Identifiers.nodeValue).callFn([compViewExpr,
        literal(pipeNodeIndex)]);\n        return function (args) { return callUnwrapValue(expression.nodeIndex,
expression.bindingIndex, callCheckStmt(checkIndex_1, [pipeValueExpr_1].concat(args))); }; \n      }\n    else {\n      var nodeIndex = this._createPipe(expression.sourceSpan, pipe);\n      var nodeValueExpr_1
= importExpr(Identifiers.nodeValue).callFn([VIEW_VAR, literal(nodeIndex)]);\n      return function (args) {\n        return callUnwrapValue(expression.nodeIndex, expression.bindingIndex, nodeValueExpr_1.callMethod('transform',
args)); }; \n      }\n    });\n    ViewBuilder.prototype._createPipe = function (sourceSpan, pipe) {\n      var
_this = this;\n      var nodeIndex = this.nodes.length;\n      var flags = 0 /* None */;\n      pipe.type.lifecycleHooks.forEach(function (lifecycleHook) {\n        // for pipes, we only support
ngOnDestroy\n        if (lifecycleHook === LifecycleHooks.OnDestroy)\n        {\n          flags |= lifecycleHookToNodeFlag(lifecycleHook);\n        }\n      });\n      var depExprs
= pipe.type.diDeps.map(function (diDep) { return depDef(_this.outputCtx, diDep); });\n      // function
pipeDef(\n        // flags: NodeFlags, ctor: any, deps: ([DepFlags, any] | any)[]): NodeDef\n        this.nodes.push(function () { return ({\n          sourceSpan: sourceSpan,\n          nodeFlags: 16 /* TypePipe
*/,\n          nodeDef: importExpr(Identifiers.pipeDef).callFn([\n            literal(flags),
_this.outputCtx.importExpr(pipe.type.reference), literalArr(depExprs)\n          ])\n        }); });\n      return
nodeIndex;\n    });\n    /**\n     * For the AST in `UpdateExpression.value`:\n     * - create nodes for pipes,
literal arrays and, literal maps,\n     * - update the AST to replace pipes, literal arrays and, literal maps with calls
to check
    fn.\n     *\n     * WARNING: This might create new nodeDefs (for pipes and literal arrays and literal maps)!\n
    */\n    ViewBuilder.prototype._preprocessUpdateExpression = function (expression) {\n      var _this =
this;\n      return {\n        nodeIndex: expression.nodeIndex,\n        bindingIndex:
expression.bindingIndex,\n        sourceSpan: expression.sourceSpan,\n        context: expression.context,\n
        value: convertPropertyBindingBuiltins({\n          createLiteralArrayConverter: function (argCount) {\n
return _this._createLiteralArrayConverter(expression.sourceSpan, argCount); },\n
        createLiteralMapConverter: function (keys) {\n          return _this._createLiteralMapConverter(expression.sourceSpan,
keys); },\n
        createPipeConverter: function (name, argCount) {\n          return
_this._createPipeConverter(expression, name, argCount); },\n
        }, expression.value)\n      };\n    });\n    ViewBuilder.prototype._createNodeExpressions = function () {\n      var self = this;\n
      var updateBindingCount = 0;\n      var updateRendererStmts = [];\n      var updateDirectivesStmts = [];\n
      var nodeDefExprs = this.nodes.map(function (factory, nodeIndex) {\n        var _a = factory(), nodeDef =
_a.nodeDef, nodeFlags = _a.nodeFlags, updateDirectives = _a.updateDirectives, updateRenderer =
_a.updateRenderer, sourceSpan = _a.sourceSpan;\n        if (updateRenderer) {\n

```

```

updateRendererStmts.push.apply(updateRendererStmts, __spread(createUpdateStatements(nodeIndex, sourceSpan,
updateRenderer, false)));
}
if (updateDirectives) {
updateDirectivesStmts.push.apply(updateDirectivesStmts, __spread(createUpdateStatements(nodeIndex,
sourceSpan, updateDirectives, (nodeFlags & (262144 /* DoCheck */ | 65536 /* OnInit */) > 0)));
}
// We use a comma expression to call the log function before the nodeDef function,
but still use the result of the nodeDef function as the value. // Note: We only add the logger
to elements / text nodes, so we don't generate too much code. var logWithNodeDef =
nodeFlags & 3 /* CatRenderNode */ ? new CommaExpr([LOG_VAR$.callFn().callFn(),
nodeDef]) : nodeDef;
return applySourceSpanToExpressionIfNeeded(logWithNodeDef,
sourceSpan);
});
return { updateRendererStmts: updateRendererStmts, updateDirectivesStmts:
updateDirectivesStmts, nodeDefExprs: nodeDefExprs };
function createUpdateStatements(nodeIndex,
sourceSpan, expressions, allowEmptyExprs) {
var updateStmts = [];
var exprs =
expressions.map(function (_a) {
var sourceSpan
= _a.sourceSpan, context = _a.context, value = _a.value;
var bindingId = "\" +
updateBindingCount++;
var nameResolver = context === COMP_VAR ? self : null;
var
_b = convertPropertyBinding(nameResolver, context, value, bindingId, BindingForm.General), stmts = _b.stmts,
currValExpr = _b.currValExpr;
updateStmts.push.apply(updateStmts, __spread(stmts.map(function
(stmt) { return applySourceSpanToStatementIfNeeded(stmt, sourceSpan); })));
return
applySourceSpanToExpressionIfNeeded(currValExpr, sourceSpan);
});
if (expressions.length
|| allowEmptyExprs) {
updateStmts.push(applySourceSpanToStatementIfNeeded(callCheckStmt(nodeIndex, exprs).toStmt(),
sourceSpan));
}
return updateStmts;
}
}
}
ViewBuilder.prototype._createElementHandleEventFn = function (nodeIndex, handlers)
{
var _this = this;
var handleEventStmts = [];
var handleEventBindingCount = 0;
handlers.forEach(function (_a) {
var context = _a.context, eventAst = _a.eventAst, dirAst = _a.dirAst;
var bindingId = "\" + handleEventBindingCount++;
var nameResolver = context ===
COMP_VAR ? _this : null;
var _b = convertActionBinding(nameResolver, context, eventAst.handler,
bindingId), stmts = _b.stmts, allowDefault = _b.allowDefault;
var trueStmts = stmts;
if
(allowDefault) {
trueStmts.push(ALLOW_DEFAULT_VAR.set(allowDefault.and(ALLOW_DEFAULT_VAR)).toStmt());
}
var _c = elementEventNameAndTarget(eventAst, dirAst), eventTarget = _c.target, eventName =
_c.name;
var fullEventName = elementEventFullName(eventTarget, eventName);
handleEventStmts.push(applySourceSpanToStatementIfNeeded(new
IfStmt(literal(fullEventName).identical(EVENT_NAME_VAR), trueStmts), eventAst.sourceSpan));
});
var handleEventFn;
if (handleEventStmts.length > 0) {
var preStmts =
[ALLOW_DEFAULT_VAR.set(literal(true)).toDeclStmt(BOOL_TYPE)];
if (!this.component.isHost
&& findReadVarNames(handleEventStmts).has(COMP_VAR.name)) {
preStmts.push(COMP_VAR.set(VIEW_VAR.prop('component')).toDeclStmt(this.compType));
}
handleEventFn = fn([
new FnParam(VIEW_VAR.name, INFERRED_TYPE),
new
FnParam(EVENT_NAME_VAR.name, INFERRED_TYPE),
new
FnParam(EventHandlerVars.event.name, INFERRED_TYPE),
], __spread(preStmts, handleEventStmts,
[new ReturnStatement(ALLOW_DEFAULT_VAR)], INFERRED_TYPE));
}
else {
handleEventFn = NULL_EXPR;
}
return handleEventFn;
}
}
ViewBuilder.prototype.visitDirective = function (ast, context) {
}
ViewBuilder.prototype.visitDirectiveProperty = function (ast, context) {
}
ViewBuilder.prototype.visitReference = function (ast, context) {
}
ViewBuilder.prototype.visitVariable =
function (ast, context) {
}
ViewBuilder.prototype.visitEvent = function (ast, context) {
}
ViewBuilder.prototype.visitElementProperty = function (ast, context) {
}
ViewBuilder.prototype.visitAttr =

```

```

function (ast, context) { };\n    return ViewBuilder;\n    }());\n    function needsAdditionalRootNode(astNodes)
{\n    var lastAstNode = astNodes[astNodes.length - 1];\n    if (lastAstNode instanceof EmbeddedTemplateAst)
{\n    return lastAstNode.hasViewContainer;\n    }\n    if (lastAstNode instanceof ElementAst) {\n    if
(isNgContainer(lastAstNode.name) && lastAstNode.children.length) {\n
    return needsAdditionalRootNode(lastAstNode.children);\n    }\n    return
lastAstNode.hasViewContainer;\n    }\n    return lastAstNode instanceof NgContentAst;\n    }\n    function
elementBindingDef(inputAst, dirAst) {\n    var inputType = inputAst.type;\n    switch (inputType) {\n
case 1 /* Attribute */:\n    return literalArr([\n    literal(1 /* TypeElementAttribute */),
literal(inputAst.name),\n    literal(inputAst.securityContext)\n    ]);\n    case 0 /* Property */:\n
    return literalArr([\n    literal(8 /* TypeProperty */), literal(inputAst.name),\n
literal(inputAst.securityContext)\n    ]);\n    case 4 /* Animation */:\n    var bindingType = 8 /*
TypeProperty */ |\n    (dirAst && dirAst.directive.isComponent ? 32 /* SyntheticHostProperty */ : \n
16 /*
SyntheticProperty */);\n    return literalArr([\n    literal(bindingType), literal('@' + inputAst.name),
literal(inputAst.securityContext)\n    ]);\n    case 2 /* Class */:\n    return literalArr([literal(2 /*
TypeElementClass */), literal(inputAst.name), NULL_EXPR]);\n    case 3 /* Style */:\n    return
literalArr([\n    literal(4 /* TypeElementStyle */), literal(inputAst.name), literal(inputAst.unit)\n
]);\n    default:\n    // This default case is not needed by TypeScript compiler, as the switch is
exhaustive.\n    // However Closure Compiler does not understand that and reports an error in typed mode.\n
    // The `throw new Error` below works around the problem, and the unexpected: never variable\n    //
makes sure tsc still checks this code is unreachable.\n    var unexpected = inputType;\n
    throw new Error(`unexpected ` + unexpected);\n    }\n    }\n    function fixedAttrsDef(elementAst) {\n    var
mapResult = Object.create(null);\n    elementAst.attrs.forEach(function (attrAst) {\n
mapResult[attrAst.name] = attrAst.value;\n    });\n    elementAst.directives.forEach(function (dirAst) {\n
Object.keys(dirAst.directive.hostAttributes).forEach(function (name) {\n    var value =
dirAst.directive.hostAttributes[name];\n    var prevValue = mapResult[name];\n    mapResult[name]
= prevValue != null ? mergeAttributeValue(name, prevValue, value) : value;\n    });\n    });\n    // Note:
We need to sort to get a defined output order\n    // for tests and for caching generated artifacts...\n    return
literalArr(Object.keys(mapResult).sort().map(function (attrName) { return literalArr([literal(attrName),
literal(mapResult[attrName])]); }));\n    }\n    function mergeAttributeValue(attrName,
attrValue1, attrValue2) {\n    if (attrName == CLASS_ATTR$1 || attrName == STYLE_ATTR) {\n    return
attrValue1 + ` ` + attrValue2;\n    }\n    else {\n    return attrValue2;\n    }\n    }\n    function
callCheckStmt(nodeIndex, exprs) {\n    if (exprs.length > 10) {\n    return
CHECK_VAR.callFn([VIEW_VAR, literal(nodeIndex), literal(1 /* Dynamic */), literalArr(exprs)]);\n    }\n
else {\n    return CHECK_VAR.callFn(__spread([VIEW_VAR, literal(nodeIndex), literal(0 /* Inline */),
exprs]));\n    }\n    }\n    function callUnwrapValue(nodeIndex, bindingIdx, expr) {\n    return
importExpr(Identifiers.unwrapValue).callFn([VIEW_VAR, literal(nodeIndex), literal(bindingIdx), expr]\n
]);\n    }\n    function elementEventNameAndTarget(eventAst, dirAst) {\n    if (eventAst.isAnimation) {\n
return {\n    name: `@` + eventAst.name + `.` + eventAst.phase,\n
target: dirAst && dirAst.directive.isComponent ? `component` : null\n    };\n    }\n    else {\n
return eventAst;\n    }\n    }\n    function calcStaticDynamicQueryFlags(query) {\n    var flags = 0 /* None */;\n
    // Note: We only make queries static that query for a single item and the user specifically\n    // set the to be
static. This is because of backwards compatibility with the old view compiler...\n    if (query.first &&
query.static) {\n    flags |= 268435456 /* StaticQuery */;\n    }\n    else {\n    flags |= 536870912 /*
DynamicQuery */;\n    }\n    return flags;\n    }\n    function elementEventFullName(target, name) {\n
return target ? target + `:` + name : name;\n    }\n    /**\n    * A container for message extracted from the
templates.\n    */\n    var MessageBundle = /** @class */ (function () {\n    function MessageBundle(_htmlParser,
_implicitTags, _implicitAttrs, _locale)

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{\n      if (_locale === void 0) { _locale = null; }\n      this._htmlParser = _htmlParser;\nthis._implicitTags = _implicitTags;\n      this._implicitAttrs = _implicitAttrs;\n      this._locale = _locale;\n      this._messages = [];\n    }\n    MessageBundle.prototype.updateFromTemplate = function (html, url,\ninterpolationConfig) {\n      var _a;\n      var htmlParserResult = this._htmlParser.parse(html, url, {\ntokenizeExpansionForms: true, interpolationConfig: interpolationConfig });\n      if\n(htmlParserResult.errors.length) {\n        return htmlParserResult.errors;\n      }\n      var\ni18nParserResult = extractMessages(htmlParserResult.rootNodes, interpolationConfig, this._implicitTags,\nthis._implicitAttrs);\n      if (i18nParserResult.errors.length) {\n        return i18nParserResult.errors;\n      }\n      (_a = this._messages).push.apply(_a, __spread(i18nParserResult.messages));\n      return [];\n    }; // Return the message in the internal format\n    // The public (serialized) format\nmight be different, see the `write` method.\n    MessageBundle.prototype.getMessages = function () {\nreturn this._messages;\n    }; MessageBundle.prototype.write = function (serializer, filterSources) {\nvar messages = {};\n      var mapperVisitor = new MapPlaceholderNames(); // Deduplicate messages\nbased on their ID\n      this._messages.forEach(function (message) {\n        var _a;\n        var id =\nserializer.digest(message);\n        if (!messages.hasOwnProperty(id)) {\n          messages[id] = message;\n        }\n        else {\n          (_a = messages[id].sources).push.apply(_a, __spread(message.sources));\n        }\n      }); // Transform placeholder names using the serializer\nmapping\n      var msgList = Object.keys(messages).map(function (id) {\n        var mapper =\nserializer.createNameMapper(messages[id]);\n        var src = messages[id];\n        var nodes = mapper ?\nmapperVisitor.convert(src.nodes, mapper) : src.nodes;\n        var transformedMessage = new Message(nodes,\n{ }, { }, src.meaning, src.description, id);\n        transformedMessage.sources = src.sources;\n        if\n(filterSources) {\n          transformedMessage.sources.forEach(function (source) { return source.filePath =\nfilterSources(source.filePath); });\n        }\n        return transformedMessage;\n      });\n      return\nserializer.write(msgList, this._locale);\n    }; return MessageBundle;\n  }());\n  // Transform an i18n AST\nby renaming the placeholder nodes with the given mapper\n  var MapPlaceholderNames = /** @class */ (function\n(_super) {\n    __extends(MapPlaceholderNames,\n    _super);\n    function MapPlaceholderNames() {\n      return _super !== null && _super.apply(this,\narguments) || this;\n    }\n    MapPlaceholderNames.prototype.convert = function (nodes, mapper) {\n      var\n_this = this;\n      return mapper ? nodes.map(function (n) { return n.visit(_this, mapper); }) : nodes;\n    }; MapPlaceholderNames.prototype.visitTagPlaceholder = function (ph, mapper) {\n      var _this = this;\n      var startName = mapper.toPublicName(ph.startName);\n      var closeName = ph.closeName ?\nmapper.toPublicName(ph.closeName) : ph.closeName;\n      var children = ph.children.map(function (n) { return\nn.visit(_this, mapper); });\n      return new TagPlaceholder(ph.tag, ph.attrs, startName, closeName, children,\nph.isVoid, ph.sourceSpan, ph.startSourceSpan, ph.endSourceSpan);\n    }; MapPlaceholderNames.prototype.visitPlaceholder = function (ph, mapper) {\n      return\nnew Placeholder(ph.value, mapper.toPublicName(ph.name), ph.sourceSpan);\n    }; MapPlaceholderNames.prototype.visitIcuPlaceholder = function (ph, mapper) {\n      return new\nIcuPlaceholder(ph.value, mapper.toPublicName(ph.name), ph.sourceSpan);\n    }; return\nMapPlaceholderNames;\n  })(CloneVisitor);\n  /**\n   * @license\n   * Copyright Google LLC All Rights\nReserved.\n   * Use of this source code is governed by an MIT-style license that can be\n   * found in the\nLICENSE file at https://angular.io/license\n   */\n  var GeneratedFile = /** @class */ (function () {\n    function\nGeneratedFile(srcFileUrl, genFileUrl, sourceOrStmts) {\n      this.srcFileUrl = srcFileUrl;\n      this.genFileUrl = genFileUrl;\n      if (typeof sourceOrStmts === 'string') {\n        this.source =\nsourceOrStmts;\n        this.stmts = null;\n      }\n      else {\n        this.source = null;\n        this.stmts = sourceOrStmts;\n      }\n    }\n    GeneratedFile.prototype.isEquivalent = function\n(other) {\n      if (this.genFileUrl !== other.genFileUrl) {\n        return false;\n      }\n      if\n(this.source) {\n        return this.source === other.source;\n      }\n      if (other.stmts == null) {\n        return false;\n      }\n      // Note: the constructor guarantees that if this.source is not filled,\n      // then

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this.stmts is.\n        return areAllEquivalent(this.stmts, other.stmts);\n    };\n    return GeneratedFile;\n})();\n    function toTypeScript(file, preamble) {\n        if (preamble === void 0) { preamble = ""; }\n        if (!file.stmts) {\n            throw new Error("\Illegal state: No stmts present on GeneratedFile \"" + file.genFileUrl);\n        }\n        return new TypeScriptEmitter().emitStatements(file.genFileUrl, file.stmts, preamble);\n    }\n\n    function listLazyRoutes(moduleMeta, reflector) {\n        var e_1, _a, e_2, _b;\n        var allLazyRoutes = [];\n        try {\n            for (var _c = __values(moduleMeta.transitiveModule.providers), _d = _c.next(); !_d.done; _d = _c.next()) {\n                var _e = _d.value, provider = _e.provider, module = _e.module;\n                if (tokenReference(provider.token) === reflector.ROUTES) {\n                    var loadChildren = _collectLoadChildren(provider.useValue);\n                    try {\n                        for (var loadChildren_1 = (e_2 = void 0, __values(loadChildren)), loadChildren_1_1 = loadChildren_1.next(); !loadChildren_1_1.done; loadChildren_1_1 = loadChildren_1.next()) {\n                            var route = loadChildren_1_1.value;\n                            allLazyRoutes.push(parseLazyRoute(route, reflector, module.reference));\n                        }\n                    } catch (e_2_1) {\n                        e_2 = { error: e_2_1 }\n                    }\n                    finally {\n                        try {\n                            if (loadChildren_1_1 && !loadChildren_1_1.done && (_b = loadChildren_1.return)) _b.call(loadChildren_1);\n                        } finally {\n                            if (e_2) throw e_2.error;\n                        }\n                    }\n                }\n            }\n        } finally {\n            if (e_1) throw e_1.error;\n        }\n        return allLazyRoutes;\n    }\n\n    function _collectLoadChildren(routes, target) {\n        var e_3, _a;\n        if (target === void 0) { target = []; }\n        if (typeof routes === 'string') {\n            target.push(routes);\n        } else if (Array.isArray(routes)) {\n            try {\n                for (var routes_1 = __values(routes), routes_1_1 = routes_1.next(); !routes_1_1.done; routes_1_1 = routes_1.next()) {\n                    var route = routes_1_1.value;\n                    _collectLoadChildren(route, target);\n                }\n            } catch (e_3_1) {\n                e_3 = { error: e_3_1 }\n            }\n            finally {\n                try {\n                    if (routes_1_1 && !routes_1_1.done && (_a = routes_1.return)) _a.call(routes_1);\n                } finally {\n                    if (e_3) throw e_3.error;\n                }\n            }\n            else if (routes.loadChildren) {\n                _collectLoadChildren(routes.loadChildren, target);\n            } else if (routes.children) {\n                _collectLoadChildren(routes.children, target);\n            }\n            return target;\n        }\n    }\n\n    function parseLazyRoute(route, reflector, module) {\n        var _a = __read(route.split('#'), 2), routePath = _a[0], routeName = _a[1];\n        var referencedModule = reflector.resolveExternalReference({\n            moduleName: routePath,\n            name: routeName,\n        }, module ? module.filePath : undefined);\n        return { route: route, module: module || referencedModule, referencedModule: referencedModule }\n    }\n\n    var TS = /^(?!.*\\.d\\.ts$).*.ts$/;\n    var ResolvedStaticSymbol = /** @class */ (function () {\n        function ResolvedStaticSymbol(symbol, metadata) {\n            this.symbol = symbol;\n            this.metadata = metadata;\n        }\n        return ResolvedStaticSymbol;\n    })();\n    var SUPPORTED_SCHEMA_VERSION = 4;\n    /**\n     * This class is responsible for loading metadata per symbol,\n     * and normalizing references between symbols.\n     * Internally, it only uses symbols without members,\n     * and deduces the values for symbols with members based\n     * on these symbols.\n     */\n    var StaticSymbolResolver = /** @class */ (function () {\n        function StaticSymbolResolver(host, staticSymbolCache, summaryResolver, errorRecorder) {\n            this.host = host;\n            this.staticSymbolCache = staticSymbolCache;\n            this.summaryResolver = summaryResolver;\n            this.errorRecorder = errorRecorder;\n            this.metadataCache = new Map();\n            // Note: this will only contain StaticSymbols without members!\n            this.resolvedSymbols = new Map();\n            // Note: this will only contain StaticSymbols without members!\n            this.importAs = new Map();\n            this.symbolResourcePaths = new Map();\n            this.symbolFromFile = new Map();\n            this.knownFileNameToModuleNames = new Map();\n        }\n        StaticSymbolResolver.prototype.resolveSymbol = function (staticSymbol) {\n            if (staticSymbol.members.length > 0) {\n                return this._resolveSymbolMembers(staticSymbol);\n            }\n            // Note: always ask for a summary first,\n            // as we might have read shallow metadata via a .d.ts file\n            var\n
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resultFromSummary = this._resolveSymbolFromSummary(staticSymbol);\n      if (resultFromSummary) {\n
        return resultFromSummary;\n      }\n      var resultFromCache =
this.resolvedSymbols.get(staticSymbol);\n      if (resultFromCache) {\n        return resultFromCache;\n
      }\n      // Note: Some users use libraries that were not compiled with ngc, i.e. they don't\n      // have
summaries, only .d.ts files. So we always need to check both, the summary\n      // and metadata.\n
this._createSymbolsOf(staticSymbol.filePath);\n      return this.resolvedSymbols.get(staticSymbol);\n    };\n
/**\n    * getImportAs produces a symbol that can be used to import the given symbol.\n    * The import
might be different than the symbol if the symbol is exported from\n    * a library with a summary; in which case
we want to import the symbol from the\n    * ngfactory re-export instead
of directly to avoid introducing a direct dependency\n    * on an otherwise indirect dependency.\n    *\n    *
@param staticSymbol the symbol for which to generate a import symbol\n    */\n
StaticSymbolResolver.prototype.getImportAs = function (staticSymbol, useSummaries) {\n      if (useSummaries
=== void 0) { useSummaries = true; }\n      if (staticSymbol.members.length) {\n        var baseSymbol =
this.getStaticSymbol(staticSymbol.filePath, staticSymbol.name);\n        var baseImportAs =
this.getImportAs(baseSymbol, useSummaries);\n        return baseImportAs ?\n
this.getStaticSymbol(baseImportAs.filePath, baseImportAs.name, staticSymbol.members) :\n        null;\n
      }\n      var summarizedFileName = stripSummaryForJitFileSuffix(staticSymbol.filePath);\n      if
(summarizedFileName !== staticSymbol.filePath) {\n        var summarizedName =
stripSummaryForJitNameSuffix(staticSymbol.name);\n
        var baseSymbol = this.getStaticSymbol(summarizedFileName, summarizedName,
staticSymbol.members);\n        var baseImportAs = this.getImportAs(baseSymbol, useSummaries);\n
        return baseImportAs ? this.getStaticSymbol(summaryForJitFileName(baseImportAs.filePath),
summaryForJitName(baseImportAs.name), baseSymbol.members) :\n        null;\n      }\n      var result
= (useSummaries && this.summaryResolver.getImportAs(staticSymbol)) || null;\n      if (!result) {\n
        result = this.importAs.get(staticSymbol);\n      }\n      return result;\n    };\n
/**\n    *
getResourcePath produces the path to the original location of the symbol and should\n    * be used to determine
the relative location of resource references recorded in\n    * symbol metadata.\n    */\n
StaticSymbolResolver.prototype.getResourcePath = function (staticSymbol) {\n
    return this.symbolResourcePaths.get(staticSymbol) || staticSymbol.filePath;\n  };\n
/**\n    *
getTypeArity returns the number of generic type parameters the given symbol\n    * has. If the symbol is not a
type the result is null.\n    */\n    StaticSymbolResolver.prototype.getTypeArity = function (staticSymbol) {\n
    // If the file is a factory/ngsummary file, don't resolve the symbol as doing so would\n    // cause the
metadata for an factory/ngsummary file to be loaded which doesn't exist.\n    // All references to generated
classes must include the correct arity whenever\n    // generating code.\n    if
(isGeneratedFile(staticSymbol.filePath)) {\n      return null;\n    }\n    var resolvedSymbol =
unwrapResolvedMetadata(this.resolveSymbol(staticSymbol));\n    while (resolvedSymbol &&
resolvedSymbol.metadata instanceof StaticSymbol) {\n      resolvedSymbol
= unwrapResolvedMetadata(this.resolveSymbol(resolvedSymbol.metadata));\n    }\n    return
(resolvedSymbol && resolvedSymbol.metadata && resolvedSymbol.metadata.arity) || null;\n  };\n
StaticSymbolResolver.prototype.getKnownModuleName = function (filePath) {\n    return
this.knownFileNameToModuleNames.get(filePath) || null;\n  };\n
StaticSymbolResolver.prototype.recordImportAs = function (sourceSymbol, targetSymbol) {\n
sourceSymbol.assertNoMembers();\n    targetSymbol.assertNoMembers();\n
this.importAs.set(sourceSymbol, targetSymbol);\n  };\n
StaticSymbolResolver.prototype.recordModuleNameForFileName = function (fileName, moduleName) {\n
this.knownFileNameToModuleNames.set(fileName, moduleName);\n  };\n
/**\n    * Invalidate all
information derived from the given file and return the\n    * static symbols contained in the file.\n    *\n    *
@param fileName

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the file to invalidate\n      */\n      StaticSymbolResolver.prototype.invalidateFile = function (fileName) {\n
var e_1, _a;\n      this.metadataCache.delete(fileName);\n      var symbols =\nthis.symbolFromFile.get(fileName);\n      if (!symbols) {\n          return [];\n      }\nthis.symbolFromFile.delete(fileName);\n      try {\n          for (var symbols_1 = __values(symbols),\nsymbols_1_1 = symbols_1.next(); !symbols_1_1.done; symbols_1_1 = symbols_1.next()) {\n              var\nsymbol = symbols_1_1.value;\n              this.resolvedSymbols.delete(symbol);\nthis.importAs.delete(symbol);\n              this.symbolResourcePaths.delete(symbol);\n          }\n      }\n      catch (e_1_1) {\n          e_1 = { error: e_1_1 }; \n      }\n      finally {\n          try {\n              if (symbols_1_1 &&\n!symbols_1_1.done && (_a = symbols_1.return)) _a.call(symbols_1);\n          }\n      }\n      finally {\n          if (e_1) throw e_1.error; \n      }\n      return symbols;\n  }; \n  /**\n@internal */\n  StaticSymbolResolver.prototype.ignoreErrorsFor = function (cb) {\n      var recorder =\nthis.errorRecorder;\n      this.errorRecorder = function () {\n      }; \n      try {\n          return cb(); \n      }\n      finally {\n          this.errorRecorder = recorder;\n      }\n  }; \n\nStaticSymbolResolver.prototype._resolveSymbolMembers = function (staticSymbol) {\n      var members =\nstaticSymbol.members;\n      var baseResolvedSymbol =\nthis.resolveSymbol(this.getStaticSymbol(staticSymbol.filePath, staticSymbol.name)); \n      if\n(!baseResolvedSymbol) {\n          return null;\n      }\n      var baseMetadata =\nunwrapResolvedMetadata(baseResolvedSymbol.metadata);\n      if (baseMetadata instanceof StaticSymbol) {\n\n          return new ResolvedStaticSymbol(staticSymbol, this.getStaticSymbol(baseMetadata.filePath,\nbaseMetadata.name, members)); \n      }\n      else if (baseMetadata && baseMetadata.__symbolic ===\n'class') {\n          if (baseMetadata.statics && members.length === 1) {\n              return new\nResolvedStaticSymbol(staticSymbol, baseMetadata.statics[members[0]]);\n          }\n      }\n      else {\n          var value = baseMetadata;\n          for (var i = 0; i < members.length && value; i++) {\n              value\n= value[members[i]];\n          }\n          return new ResolvedStaticSymbol(staticSymbol, value);\n      }\n      return null;\n  }; \n\n  StaticSymbolResolver.prototype._resolveSymbolFromSummary = function\n(staticSymbol) {\n      var summary = this.summaryResolver.resolveSummary(staticSymbol);\n      return\nsummary ? new ResolvedStaticSymbol(staticSymbol, summary.metadata)\n: null;\n  }; \n\n  /**\n   * getStaticSymbol produces a Type whose metadata is known but whose\nimplementation is not loaded.\n   * All types passed to the StaticResolver should be pseudo-types returned by\nthis method.\n   */\n   * @param declarationFile the absolute path of the file where the symbol is declared\n   * @param name the name of the type.\n   * @param members a symbol for a static member of the named\ntype\n   */\n  StaticSymbolResolver.prototype.getStaticSymbol = function (declarationFile, name, members)\n{\n      return this.staticSymbolCache.get(declarationFile, name, members);\n  }; \n\n  /**\n   *\nhasDecorators checks a file's metadata for the presence of decorators without evaluating the\n   * metadata.\n   */\n   * @param filePath the absolute path to examine for decorators.\n   * @returns true if any class in the\nfile has a decorator.\n   */\n  StaticSymbolResolver.prototype.hasDecorators\n= function (filePath) {\n      var metadata = this.getModuleMetadata(filePath);\n      if (metadata['metadata'])\n{\n          return Object.keys(metadata['metadata']).some(function (metadataKey) {\n              var entry =\nmetadata['metadata'][metadataKey];\n              return entry && entry.__symbolic === 'class' &&\nentry.decorators;\n          });\n      }\n      return false;\n  }; \n\n  StaticSymbolResolver.prototype.getSymbolsOf = function (filePath) {\n      var summarySymbols =\nthis.summaryResolver.getSymbolsOf(filePath);\n      if (summarySymbols) {\n          return\nsummarySymbols;\n      }\n      // Note: Some users use libraries that were not compiled with ngc, i.e. they\ndon't\n      // have summaries, only .d.ts files, but `summaryResolver.isLibraryFile` returns true.\nthis._createSymbolsOf(filePath);\n      return this.symbolFromFile.get(filePath)\n  }\n  || [];\n  }; \n\n  StaticSymbolResolver.prototype._createSymbolsOf = function (filePath) {\n      var e_2, _a,\ne_3, _b;\n      var _this = this;\n      if (this.symbolFromFile.has(filePath)) {\n          return;\n      }\n
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var resolvedSymbols = [];\n      var metadata = this.getModuleMetadata(filePath);\n      if\n(metadata['importAs']) {\n      // Index bundle indices should use the importAs module name defined\n// in the bundle.\n      this.knownFileNameToModuleNames.set(filePath, metadata['importAs']);\n      }\n      // handle the symbols in one of the re-export location\n      if (metadata['exports']) {\n      var _loop_1\n= function (moduleExport) {\n      // handle the symbols in the list of explicitly re-exported symbols.\n      if (moduleExport.export) {\n      moduleExport.export.forEach(function\n(exportSymbol) {\n      var symbolName;\n      if (typeof exportSymbol === 'string') {\n      symbolName = exportSymbol;\n      }\n      else {\n      symbolName = exportSymbol.as;\n      }\n      symbolName =\nunescapeIdentifier(symbolName);\n      var symName = symbolName;\n      if (typeof\nexportSymbol !== 'string') {\n      symName = unescapeIdentifier(exportSymbol.name);\n      }\n      var resolvedModule = _this.resolveModule(moduleExport.from, filePath);\n      if (resolvedModule) {\n      var targetSymbol = _this.getStaticSymbol(resolvedModule,\nsymName);\n      var sourceSymbol = _this.getStaticSymbol(filePath,\nsymbolName);\n      resolvedSymbols.push(_this.createExport(sourceSymbol, targetSymbol));\n      }\n      });\n      }\n      else {\n      // Handle the symbols loaded\nby 'export *' directives.\n      var resolvedModule = this_1.resolveModule(moduleExport.from,\nfilePath);\n      if (resolvedModule && resolvedModule !== filePath) {\n      var\nnestedExports = this_1.getSymbolsOf(resolvedModule);\n      nestedExports.forEach(function\n(targetSymbol) {\n      var sourceSymbol = _this.getStaticSymbol(filePath, targetSymbol.name);\n      resolvedSymbols.push(_this.createExport(sourceSymbol, targetSymbol));\n      });\n      }\n      }\n      }\n      var this_1 = this;\n      try {\n      for (var _c = __values(metadata['exports']), _d = _c.next(); !_d.done; _d = _c.next())\n{\n      var moduleExport = _d.value;\n      _loop_1(moduleExport);\n      }\n      }\n      catch (e_2_1) { e_2 = { error: e_2_1 }; }\n      finally {\n      try {\n      if (_d\n&& !_d.done && (_a = _c.return)) _a.call(_c);\n      }\n      finally { if (e_2) throw e_2.error; }\n      }\n      }\n      // handle the actual metadata. Has to be after the exports\n      // as there might be\ncollisions in the names, and we want the symbols\n      // of the current module to win over reexports.\n      if\n(metadata['metadata']) {\n      // handle direct declarations of the symbol\n      var\ntopLevelSymbolNames_1 = new Set(Object.keys(metadata['metadata']).map(unescapeIdentifier));\n      var origins_1 = metadata['origins'] || {};\n      Object.keys(metadata['metadata']).forEach(function\n(metadataKey) {\n      var symbolMeta = metadata['metadata'][metadataKey];\n      var name =\nunescapeIdentifier(metadataKey);\n      var symbol = _this.getStaticSymbol(filePath, name);\n      var origin = origins_1.hasOwnProperty(metadataKey) && origins_1[metadataKey];\n      if (origin) {\n      // If the symbol is from a bundled index, use the declaration location of the\n      // symbol so\nrelative references (such as './my.html') will be calculated\n      // correctly.\n      var\noriginFilePath = _this.resolveModule(origin, filePath);\n      if (!originFilePath) {\n      _this.reportError(new Error(\"Couldn't resolve original symbol for \" + origin + \" from \"\n+ _this.host.getOutputName(filePath)));}\n      else {\n      _this.symbolResourcePaths.set(symbol, originFilePath);\n      }\n      }\n      resolvedSymbols.push(_this.createResolvedSymbol(symbol, filePath, topLevelSymbolNames_1, symbolMeta));\n      });\n      }\n      var uniqueSymbols = new Set();\n      try {\n      for (var resolvedSymbols_1\n= __values(resolvedSymbols), resolvedSymbols_1_1 = resolvedSymbols_1.next(); !resolvedSymbols_1_1.done;\nresolvedSymbols_1_1 = resolvedSymbols_1.next()) {\n      var resolvedSymbol =\nresolvedSymbols_1_1.value;\n      this.resolvedSymbols.set(resolvedSymbol.symbol, resolvedSymbol);\n      uniqueSymbols.add(resolvedSymbol.symbol);\n      }\n      }\n      catch (e_3_1) { e_3 = {\nerror: e_3_1 }; }\n      finally {\n
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    try {\n
        if (resolvedSymbols_1_1 && !resolvedSymbols_1_1.done && (_b =
resolvedSymbols_1.return)) _b.call(resolvedSymbols_1);\n
    }\n
    finally { if (e_3) throw e_3.error;\n
    }\n
    this.symbolFromFile.set(filePath, Array.from(uniqueSymbols));\n
    }\n
    StaticSymbolResolver.prototype.createResolvedSymbol = function (sourceSymbol, topLevelPath,
topLevelSymbolNames, metadata) {\n
        var _this = this;\n
        // For classes that don't have Angular
summaries / metadata,\n
        // we only keep their arity, but nothing else\n
        // (e.g. their constructor
parameters).\n
        // We do this to prevent introducing deep imports\n
        // as we didn't generate .ngfactory.ts
files with proper reexports.\n
        var isTsFile = TS.test(sourceSymbol.filePath);\n
        if
(this.summaryResolver.isLibraryFile(sourceSymbol.filePath) && !isTsFile && metadata &&\n
metadata['__symbolic'])\n
        === 'class') {\n
            var transformedMeta_1 = { __symbolic: 'class', arity: metadata.arity };\n
            return
new ResolvedStaticSymbol(sourceSymbol, transformedMeta_1);\n
        }\n
        var _originalFileMemo;\n
        var getOriginalName = function () {\n
            if (!_originalFileMemo) {\n
                // Guess what the original
file name is from the reference. If it has a `.d.ts` extension\n
                // replace it with `.ts`. If it already has `.ts`\n
                just leave it in place. If it doesn't have\n
                // .ts or .d.ts, append `.ts`. Also, if it is in `node_modules`, trim
the `node_module`\n
                // location as it is not important to finding the file.\n
                _originalFileMemo =\n
                _this.host.getOutputName(topLevelPath.replace(/((\\.ts)|\\.d\\.ts))/, '.ts')\n
                .replace(/^(.*node_modules[/\\]|, "));\n
            }\n
            return _originalFileMemo;\n
        };\n
        var self = this;\n
        var ReferenceTransformer = /**
@class */ (function (_super) {\n
            __extends(ReferenceTransformer, _super);\n
            function
ReferenceTransformer() {\n
                return _super !== null && _super.apply(this, arguments) || this;\n
            }\n
            ReferenceTransformer.prototype.visitStringMap = function (map, functionParams) {\n
                var
symbolic = map['__symbolic'];\n
                if (symbolic === 'function') {\n
                    var oldLen =
functionParams.length;\n
                    functionParams.push.apply(functionParams, __spread((map['parameters'] ||
[])));\n
                    var result = _super.prototype.visitStringMap.call(this, map, functionParams);\n
                    functionParams.length = oldLen;\n
                    return result;\n
                }\n
                else if (symbolic
=== 'reference') {\n
                    var module = map['module'];\n
                    var name = map['name'] ?
unescapeIdentifier(map['name']) : map['name'];\n
                    if (!name) {\n
                        return null;\n
                    }\n
                    var filePath = void 0;\n
                    if (module) {\n
                        filePath =
self.resolveModule(module, sourceSymbol.filePath);\n
                    }\n
                    if (!filePath) {\n
                        return
{\n
                            __symbolic: 'error',\n
                            message: "\"Could not resolve \"" + module + "\"
relative to \"" + self.host.getMetadataFor(sourceSymbol.filePath) + "\".",\n
                            line: map['line'],\n
                            character: map['character'],\n
                            fileName: getOriginalName()\n
                        };\n
                    }\n
                    return {\n
                        __symbolic: 'resolved',\n
                        symbol:
self.getStaticSymbol(filePath, name),\n
                        line: map['line'],\n
                        character:
map['character'],\n
                        fileName: getOriginalName()\n
                    };\n
                }\n
                else if (functionParams.indexOf(name) >= 0) {\n
                    // reference to a function parameter\n
                    return { __symbolic: 'reference', name: name };\n
                }\n
                else {\n
                    if (topLevelSymbolNames.has(name)) {\n
                        return self.getStaticSymbol(topLevelPath, name);\n
                    }\n
                    // ambient value\n
                    return null;\n
                }\n
            }\n
            else if (symbolic === 'error') {\n
                return Object.assign(Object.assign({}, map), {\n
                    fileName: getOriginalName() });\n
            }\n
            else {\n
                return
_super.prototype.visitStringMap.call(this, map, functionParams);\n
            }\n
        };\n
        return
ReferenceTransformer;\n
    } (ValueTransformer));\n
    var transformedMeta = visitValue(metadata, new
ReferenceTransformer(), []);\n
    var unwrappedTransformedMeta =
unwrapResolvedMetadata(transformedMeta);\n
    if (unwrappedTransformedMeta instanceof StaticSymbol) {\n
        return this.createExport(sourceSymbol, unwrappedTransformedMeta);\n
    }\n
    return new

```

```

ResolvedStaticSymbol(sourceSymbol, transformedMeta);\n    }\n
StaticSymbolResolver.prototype.createExport = function (sourceSymbol, targetSymbol) {\n
sourceSymbol.assertNoMembers();\n
    targetSymbol.assertNoMembers();\n    if (this.summaryResolver.isLibraryFile(sourceSymbol.filePath)
&&\n        this.summaryResolver.isLibraryFile(targetSymbol.filePath)) {\n        // This case is for an ng
library importing symbols from a plain ts library\n        // transitively.\n        // Note: We rely on the fact
that we discover symbols in the direction\n        // from source files to library files\n
this.importAs.set(targetSymbol, this.getImportAs(sourceSymbol) || sourceSymbol);\n    }\n    return new
ResolvedStaticSymbol(sourceSymbol, targetSymbol);\n    };\n
StaticSymbolResolver.prototype.reportError =
function (error, context, path) {\n    if (this.errorRecorder) {\n        this.errorRecorder(error, (context &&
context.filePath) || path);\n    }\n    else {\n        throw error;\n    }\n    };\n    /**\n
    * @param module an absolute path to a module file.\n    */\n
StaticSymbolResolver.prototype.getModuleMetadata = function (module) {\n    var moduleMetadata =
this.metadataCache.get(module);\n    if (!moduleMetadata) {\n        var moduleMetadata =
this.host.getMetadataFor(module);\n        if (moduleMetadata) {\n            var maxVersion_1 = -1;\n
            moduleMetadata.forEach(function (md) {\n                if (md && md['version'] > maxVersion_1) {\n
                    maxVersion_1 = md['version'];\n                    moduleMetadata = md;\n                }\n
            });\n            if (!moduleMetadata) {\n                moduleMetadata =\n                { __symbolic:
'module', version: SUPPORTED_SCHEMA_VERSION, module: module, metadata: { } };\n            }\n
            if (moduleMetadata['version'] != SUPPORTED_SCHEMA_VERSION)\n
            {\n                var errorMessage = moduleMetadata['version'] == 2 ?\n                "Unsupported metadata
version \" + moduleMetadata['version'] + \" for module \" + module + \". This module should be compiled with a
newer version of ngc\" :\n                "Metadata version mismatch for module \" +
this.host.getOutputName(module) + \", found version \" + moduleMetadata['version'] + \", expected \" +
SUPPORTED_SCHEMA_VERSION;\n                this.reportError(new Error(errorMessage));\n            }\n
            this.metadataCache.set(module, moduleMetadata);\n        }\n        return moduleMetadata;\n    };\n
StaticSymbolResolver.prototype.getSymbolByModule = function (module, symbolName, containingFile) {\n
var filePath = this.resolveModule(module, containingFile);\n    if (!filePath) {\n        this.reportError(new
Error("Could not resolve module \" + module + (containingFile ? ' relative to '
+ this.host.getOutputName(containingFile) : ''));\n        return this.getStaticSymbol("ERROR:" + module,
symbolName);\n    }\n    return this.getStaticSymbol(filePath, symbolName);\n    };\n
StaticSymbolResolver.prototype.resolveModule = function (module, containingFile) {\n    try {\n
return this.host.moduleNameToFileName(module, containingFile);\n    }\n    catch (e) {\n
console.error("Could not resolve module \" + module + \" relative to file \" + containingFile);\n
this.reportError(e, undefined, containingFile);\n    }\n    return null;\n    };\n    return
StaticSymbolResolver;\n    }());\n    // Remove extra underscore from escaped identifier.\n    // See
https://github.com/Microsoft/TypeScript/blob/master/src/compiler/utilities.ts\n    function
unescapeIdentifier(identifier) {\n        return identifier.startsWith('__') ? identifier.substr(1) : identifier;\n
    }\n    function unwrapResolvedMetadata(metadata) {\n        if (metadata && metadata.__symbolic === 'resolved')\n
        {\n            return metadata.symbol;\n        }\n        return metadata;\n    }\n\n    function
serializeSummaries(srcFileName, forJitCtx, summaryResolver, symbolResolver, symbols, types,
createExternalSymbolReexports) {\n        if (createExternalSymbolReexports === void 0) {\n
createExternalSymbolReexports = false;\n        }\n        var toJsonSerializer = new ToJsonSerializer(symbolResolver,
summaryResolver, srcFileName);\n        // for symbols, we use everything except for the class metadata itself\n
// (we keep the statics though), as the class metadata is contained in the\n        // CompileTypeSummary.\n
symbols.forEach(function (resolvedSymbol) {\n        return toJsonSerializer.addSummary({ symbol:
resolvedSymbol.symbol, metadata: resolvedSymbol.metadata });\n    });\n    // Add type summaries.\n
types.forEach(function (_a) {\n        var summary

```

```

= _a.summary, metadata = _a.metadata;\n      toJsonSerializer.addSummary({ symbol: summary.type.reference,
metadata: undefined, type: summary });\n    });\n    var _a =
toJsonSerializer.serialize(createExternalSymbolReexports), json = _a.json, exportAs = _a.exportAs;\n    if
(forJitCtx) {\n      var forJitSerializer_1 = new ForJitSerializer(forJitCtx, symbolResolver, summaryResolver);\n      types.forEach(function (_a) {\n        var summary = _a.summary, metadata = _a.metadata;\n        forJitSerializer_1.addSourceType(summary, metadata);\n      });\n      toJsonSerializer.unprocessedSymbolSummariesBySymbol.forEach(function (summary) {\n        if
(summaryResolver.isLibraryFile(summary.symbol.filePath) && summary.type) {\n          forJitSerializer_1.addLibType(summary.type);\n        }\n      });\n      forJitSerializer_1.serialize(exportAs);\n    }\n    return { json: json, exportAs:
exportAs };\n  }\n  function deserializeSummaries(symbolCache, summaryResolver, libraryFileName, json) {\n
    var deserializer = new FromJsonDeserializer(symbolCache, summaryResolver);\n    return
deserializer.deserialize(libraryFileName, json);\n  }\n  function createForJitStub(outputCtx, reference) {\n
return createSummaryForJitFunction(outputCtx, reference, NULL_EXPR);\n  }\n  function
createSummaryForJitFunction(outputCtx, reference, value) {\n    var fnName =
summaryForJitName(reference.name);\n    outputCtx.statements.push(fn([, [new ReturnStatement(value)], new
ArrayType(DYNAMIC_TYPE)).toDeclStmt(fnName, [\n      exports.StmtModifier.Final,
exports.StmtModifier.Exported\n    ]));\n  }\n  var ToJsonSerializer = /** @class */ (function (_super) {\n
__extends(ToJsonSerializer, _super);\n    function ToJsonSerializer(symbolResolver, summaryResolver,
srcFileName) {\n      var _this = _super.call(this) || this;\n      _this.symbolResolver = symbolResolver;\n      _this.summaryResolver = summaryResolver;\n      _this.srcFileName = srcFileName;\n      // Note: This only contains symbols without members.\n      _this.symbols = [];\n      _this.indexBySymbol = new Map();\n      _this.reexportedBy = new Map();\n      // This now contains a `__symbol: number` in the place of\n      // StaticSymbols, but otherwise has the same
shape as the original objects.\n      _this.processedSummaryBySymbol = new Map();\n      _this.processedSummaries = [];\n      _this.unprocessedSymbolSummariesBySymbol = new Map();\n      _this.moduleName = symbolResolver.getKnownModuleName(srcFileName);\n      return _this;\n    }\n    ToJsonSerializer.prototype.addSummary = function (summary) {\n      var _this = this;\n      var
unprocessedSummary = this.unprocessedSymbolSummariesBySymbol.get(summary.symbol);\n      var processedSummary = this.processedSummaryBySymbol.get(summary.symbol);\n      if
(!unprocessedSummary) {\n        unprocessedSummary = { symbol: summary.symbol, metadata: undefined };\n        this.unprocessedSymbolSummariesBySymbol.set(summary.symbol, unprocessedSummary);\n        processedSummary = { symbol: this.processValue(summary.symbol, 0 /* None */) };\n        this.processedSummaries.push(processedSummary);\n        this.processedSummaryBySymbol.set(summary.symbol, processedSummary);\n      }\n      if
(!unprocessedSummary.metadata && summary.metadata) {\n        var metadata_1 = summary.metadata || {};\n        if (metadata_1.__symbolic === 'class') {\n          // For classes, we keep everything except their class
decorators.\n          // We need to keep e.g. the ctor args, method names, method decorators\n          // so
that the class can be extended in another compilation
unit.\n          // We don't keep the class decorators as\n          // 1) they refer to data\n          // that
should not cause a rebuild of downstream compilation units\n          // (e.g. inline templates of @Component,
or @NgModule.declarations)\n          // 2) their data is already captured in TypeSummaries, e.g.
DirectiveSummary.\n          var clone_1 = {};\n          Object.keys(metadata_1).forEach(function
(propName) {\n            if (propName !== 'decorators') {\n              clone_1[propName] =
metadata_1[propName];\n            }\n          });\n          metadata_1 = clone_1;\n        }\n        else if (isCall(metadata_1)) {\n          if (!isFunctionCall(metadata_1) &&
!isMethodCallOnVariable(metadata_1)) {\n            // Don't store complex calls as we won't be able to
simplify them anyways

```

```

later on.\n          metadata_1 = {\n          __symbolic: 'error',\n          message:
'Complex function calls are not supported.',\n          };\n          }\n          }\n          // Note: We
need to keep storing ctor calls for e.g.\n          // `export const x = new InjectionToken(...)`\n
unprocessedSummary.metadata = metadata_1;\n          processedSummary.metadata =
this.processValue(metadata_1, 1 /* ResolveValue */);\n          if (metadata_1 instanceof StaticSymbol &&\n
          this.summaryResolver.isLibraryFile(metadata_1.filePath)) {\n          var declarationSymbol =
this.symbols[this.indexBySymbol.get(metadata_1)];\n          if (!isLoweredSymbol(declarationSymbol.name))
{\n          // Note: symbols that were introduced during codegen in the user file can have a reexport\n
          // if a user
used `export *`. However, we can't rely on this as tsickle will change\n          // `export *` into named
exports, using only the information from the typechecker.\n          // As we introduce the new symbols after
typecheck, Tsickle does not know about them,\n          // and omits them when expanding `export *`.\n
          // So we have to keep reexporting these symbols manually via .ngfactory files.\n
this.reexportedBy.set(declarationSymbol, summary.symbol);\n          }\n          }\n          }\n          if
(!unprocessedSummary.type && summary.type) {\n          unprocessedSummary.type = summary.type;\n
          // Note: We don't add the summaries of all referenced symbols as for the ResolvedSymbols,\n          // as the
type summaries already contain the transitive data that they require\n          // (in a minimal way).\n
processedSummary.type
= this.processValue(summary.type, 0 /* None */);\n          // except for reexported directives / pipes, so we need
to store\n          // their summaries explicitly.\n          if (summary.type.summaryKind ===
exports.CompileSummaryKind.NgModule) {\n          var ngModuleSummary = summary.type;\n
ngModuleSummary.exportedDirectives.concat(ngModuleSummary.exportedPipes).forEach(function (id) {\n
          var symbol = id.reference;\n          if (!_this.summaryResolver.isLibraryFile(symbol.filePath) &&\n
          !_this.unprocessedSymbolSummariesBySymbol.has(symbol)) {\n          var summary_1 =
_this.summaryResolver.resolveSummary(symbol);\n          if (summary_1) {\n
_this.addSummary(summary_1);\n          }\n          }\n          });\n          }\n          }\n
};\n
/**\n * @param createExternalSymbolReexports Whether external static symbols should be re-exported.\n
* This can be enabled if external symbols should be re-exported by the current module in\n * order to
avoid dynamically generated module dependencies which can break strict dependency\n * enforcements (as in
Google3). Read more here: https://github.com/angular/angular/issues/25644\n */
ToJsonSerializer.prototype.serialize = function (createExternalSymbolReexports) {\n          var _this = this;\n
var exportAs = [];\n          var json = JSON.stringify({\n          moduleName: this.moduleName,\n
summaries: this.processedSummaries,\n          symbols: this.symbols.map(function (symbol, index) {\n
          symbol.assertNoMembers();\n          var importAs = undefined;\n          if
(!_this.summaryResolver.isLibraryFile(symbol.filePath)) {\n
          var reexportSymbol = _this.reexportedBy.get(symbol);\n          if (reexportSymbol) {\n          //
In case the given external static symbol is already manually exported by the\n          // user, we just proxy
the external static symbol reference to the manual export.\n          // This ensures that the AOT compiler
imports the external symbol through the\n          // user export and does not introduce another dependency
which is not needed.\n          importAs = _this.indexBySymbol.get(reexportSymbol);\n          }\n
          else if (createExternalSymbolReexports) {\n          // In this case, the given external static
symbol is *not* manually exported by\n          // the user, and we manually create a re-export in the
factory file so that we\n          // don't introduce another module dependency.
This is useful when running within\n          // Bazel so that the AOT compiler does not introduce any
module dependencies\n          // which can break the strict dependency enforcement. (e.g. as in
Google3)\n          // Read more about this here: https://github.com/angular/angular/issues/25644\n
          var summary = _this.unprocessedSymbolSummariesBySymbol.get(symbol);\n          if

```



```

(!summary || !summary.metadata || summary.metadata.__symbolic !== 'interface') {\n
    importAs
    = symbol.name + \"_\" + index;\n
    exportAs.push({ symbol: symbol, exportAs: importAs });\n
    }\n
    }\n
    }\n
    return {\n
        __symbol: index,\n
        name: symbol.name,\n
        filePath: _this.summaryResolver.toSummaryFileName(symbol.filePath,\n
        _this.srcFileName),\n
        importAs: importAs\n
    }; \n
    });\n
    return
    { json: json, exportAs: exportAs }; \n
    }; \n
    ToJsonSerializer.prototype.processValue = function (value, flags)
    {\n
        return visitValue(value, this, flags);\n
    }; \n
    ToJsonSerializer.prototype.visitOther = function
    (value, context) {\n
        if (value instanceof StaticSymbol) {\n
            var baseSymbol =
            this.symbolResolver.getStaticSymbol(value.filePath, value.name);\n
            var index =
            this.visitStaticSymbol(baseSymbol, context);\n
            return { __symbol: index, members: value.members }; \n
        } \n
    }; \n
    /** \n
    * Strip line and character numbers from ngsummaries. \n
    * Emitting them causes
    white spaces changes to retrigger upstream \n
    * recompilations in bazel. \n
    * TODO: find out a way to have
    line and character numbers
    in errors without \n
    * excessive recompilation in bazel. \n
    */ \n
    ToJsonSerializer.prototype.visitStringMap = function (map, context) {\n
        if (map['__symbolic'] ===
        'resolved') {\n
            return visitValue(map['symbol'], this, context); \n
        } \n
        if (map['__symbolic']
        === 'error') {\n
            delete map['line']; \n
            delete map['character']; \n
        } \n
        return
        _super.prototype.visitStringMap.call(this, map, context); \n
    }; \n
    /** \n
    * Returns null if the
    options.resolveValue is true, and the summary for the symbol \n
    * resolved to a type or could not be resolved. \n
    */ \n
    ToJsonSerializer.prototype.visitStaticSymbol = function (baseSymbol, flags) {\n
        var index =
        this.indexBySymbol.get(baseSymbol); \n
        var summary = null; \n
        if (flags & 1 /* ResolveValue */ && \n
        this.summaryResolver.isLibraryFile(baseSymbol.filePath))
        {\n
            if (this.unprocessedSymbolSummariesBySymbol.has(baseSymbol)) {\n
                // the summary for
                this symbol was already added \n
                // -> nothing to do. \n
                return index; \n
            } \n
            summary = this.loadSummary(baseSymbol); \n
            if (summary && summary.metadata instanceof
            StaticSymbol) {\n
                // The summary is a reexport \n
                index =
                this.visitStaticSymbol(summary.metadata, flags); \n
                // reset the summary as it is just a reexport, so we
                don't want to store it. \n
                summary = null; \n
            } \n
            else if (index != null) {\n
                // Note: == on purpose to compare with undefined! \n
                // No summary and the symbol is already added ->
                nothing to do. \n
                return index; \n
            } \n
            // Note: == on purpose to compare with undefined! \n
            if (index
            == null) {\n
                index = this.symbols.length; \n
                this.symbols.push(baseSymbol); \n
            } \n
            this.indexBySymbol.set(baseSymbol, index); \n
            if (summary) {\n
                this.addSummary(summary); \n
            } \n
            return index; \n
        }; \n
        ToJsonSerializer.prototype.loadSummary = function (symbol) {\n
            var summary = this.summaryResolver.resolveSummary(symbol); \n
            if (!summary) {\n
                // some
                symbols might originate from a plain typescript library \n
                // that just exported .d.ts and .metadata.json files,
                i.e. where no summary \n
                // files were created. \n
                var resolvedSymbol =
                this.symbolResolver.resolveSymbol(symbol); \n
                if (resolvedSymbol) {\n
                    summary = { symbol:
                    resolvedSymbol.symbol, metadata: resolvedSymbol.metadata }; \n
                } \n
            } \n
            return summary; \n
        }; \n
        return
        ToJsonSerializer;\n
    }(ValueTransformer)); \n
    var ForJitSerializer = /** @class */ (function () {\n
        function
        ForJitSerializer(outputCtx, symbolResolver, summaryResolver) {\n
            this.outputCtx = outputCtx; \n
            this.symbolResolver = symbolResolver; \n
            this.summaryResolver = summaryResolver; \n
            this.data =
            []; \n
        } \n
        ForJitSerializer.prototype.addSourceType = function (summary, metadata) {\n
            this.data.push({ summary: summary, metadata: metadata, isLibrary: false }); \n
        }; \n
        ForJitSerializer.prototype.addLibType = function (summary) {\n
            this.data.push({ summary: summary,
            metadata: null, isLibrary: true }); \n
        }; \n
        ForJitSerializer.prototype.serialize = function (exportAsArr) {\n
            var e_1, _a, e_2, _b, e_3, _c; \n
            var _this = this; \n
            var exportAsBySymbol = new Map(); \n
            try

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{\n      for (var exportAsArr_1 = __values(exportAsArr), exportAsArr_1_1
= exportAsArr_1.next(); !exportAsArr_1_1.done; exportAsArr_1_1 = exportAsArr_1.next()) {\n          var _d
= exportAsArr_1_1.value, symbol = _d.symbol, exportAs = _d.exportAs;\n
exportAsBySymbol.set(symbol, exportAs);\n          }\n          }\n          catch (e_1_1) { e_1 = { error: e_1_1 };
}\n      finally {\n          try {\n              if (exportAsArr_1_1 && !exportAsArr_1_1.done && (_a =
exportAsArr_1.return)) _a.call(exportAsArr_1);\n          }\n          finally { if (e_1) throw e_1.error; }\n
}\n      var ngModuleSymbols = new Set();\n      try {\n          for (var _e = __values(this.data), _f =
_e.next(); !_f.done; _f = _e.next()) {\n              var _g = _f.value, summary = _g.summary, metadata =
_g.metadata, isLibrary = _g.isLibrary;\n              if (summary.summaryKind ===
exports.CompileSummaryKind.NgModule) {\n                  // collect
the symbols that refer to NgModule classes.\n                  // Note: we can't just rely on
`summary.type.summaryKind` to determine this as\n                  // we don't add the summaries of all referenced
symbols when we serialize type summaries.\n                  // See serializeSummaries for details.\n
ngModuleSymbols.add(summary.type.reference);\n                  var modSummary = summary;\n
try {\n              for (var _h = (_e_3 = void 0, __values(modSummary.modules)), _j = _h.next(); !_j.done; _j =
_h.next()) {\n                  var mod = _j.value;\n
ngModuleSymbols.add(mod.reference);\n                  }\n                  }\n                  catch (e_3_1) { e_3
= { error: e_3_1 }; }\n              finally {\n                  try {\n                      if (_j && !_j.done &&
(_c = _h.return))
_c.call(_h);\n                  }\n                  finally { if (e_3) throw e_3.error; }\n                  }\n
              }\n              if (!isLibrary) {\n                  var fnName =
summaryForJitName(summary.type.reference.name);\n                  createSummaryForJitFunction(this.outputCtx,
summary.type.reference, this.serializeSummaryWithDeps(summary, metadata));\n                  }\n                  }\n
              }\n              catch (e_2_1) { e_2 = { error: e_2_1 }; }\n              finally {\n                  try {\n                      if (_f &&
!_f.done && (_b = _e.return)) _b.call(_e);\n                  }\n                  finally { if (e_2) throw e_2.error; }\n                  }\n
              ngModuleSymbols.forEach(function (ngModuleSymbol) {\n                  if
(_this.summaryResolver.isLibraryFile(ngModuleSymbol.filePath)) {\n                      var exportAs =
exportAsBySymbol.get(ngModuleSymbol) || ngModuleSymbol.name;\n
                      var jitExportAsName = summaryForJitName(exportAs);\n
                      _this.outputCtx.statements.push(variable(jitExportAsName)\n
.set(_this.serializeSummaryRef(ngModuleSymbol))\n                      .toDeclStmt(null,
[exports.StmtModifier.Exported]));\n                  }\n                  });\n                  }\n
ForJitSerializer.prototype.serializeSummaryWithDeps = function (summary, metadata) {\n          var _this = this;\n
          var expressions = [this.serializeSummary(summary)];\n          var providers = [];\n          if (metadata
instanceof CompileNgModuleMetadata) {\n              expressions.push.apply(expressions, __spread(\n              //
For directives / pipes, we only add the declared ones,\n              // and rely on transitively importing NgModules to
get the transitive\n              // summaries.\n              metadata.declaredDirectives.concat(metadata.declaredPipes)\n
              .map(function
(type) { return type.reference; }));\n              // For modules,\n              // we also add the summaries for
modules\n              // from libraries.\n              // This is ok as we produce reexports for all transitive
modules.\n              .concat(metadata.transitiveModule.modules.map(function (type) { return type.reference; }));\n
              .filter(function (ref) { return ref !== metadata.type.reference; }));\n              .map(function (ref) {
return _this.serializeSummaryRef(ref); }));\n              // Note: We don't use `NgModuleSummary.providers`, as
that one is transitive,\n              // and we already have transitive modules.\n              providers =
metadata.providers;\n              }\n              else if (summary.summaryKind ===
exports.CompileSummaryKind.Directive) {\n                  var dirSummary = summary;\n                  providers =
dirSummary.providers.concat(dirSummary.viewProviders);\n

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    }\n    // Note: We can't just refer to the `ngsummary.ts` files for `useClass` providers (as we do for\n    // declaredDirectives / declaredPipes), as we allow\n    // providers without ctor arguments to skip the\n    `@Injectable` decorator,\n    // i.e. we didn't generate .ngsummary.ts files for these.\n    expressions.push.apply(expressions, __spread(providers.filter(function (provider) { return !!provider.useClass;\n    })).map(function (provider) { return _this.serializeSummary({\n        summaryKind:\n    exports.CompileSummaryKind.Injectable,\n        type: provider.useClass\n    }); }));\n    return\n    literalArr(expressions);\n    };\n    ForJitSerializer.prototype.serializeSummaryRef = function (typeSymbol) {\n        var jitImportedSymbol =\n    this.symbolResolver.getStaticSymbol(summaryForJitFileName(typeSymbol.filePath),\n    summaryForJitName(typeSymbol.name));\n    return this.outputCtx.importExpr(jitImportedSymbol);\n    };\n    ForJitSerializer.prototype.serializeSummary = function (data) {\n        var outputCtx =\n    this.outputCtx;\n        var Transformer = /** @class */ (function () {\n            function Transformer() {\n                Transformer.prototype.visitArray = function (arr, context) {\n                    var _this = this;\n                    return literalArr(arr.map(function (entry) { return visitValue(entry, _this, context); }));\n                };\n                Transformer.prototype.visitStringMap = function (map, context) {\n                    var _this = this;\n                    return\n    new LiteralMapExpr(Object.keys(map).map(function (key) { return new LiteralMapEntry(key,\n    visitValue(map[key], _this, context), false); }));\n                };\n                Transformer.prototype.visitPrimitive =\n    function (value, context) {\n                    return literal(value);\n                };\n                Transformer.prototype.visitOther\n    = function (value, context) {\n                    if (value instanceof StaticSymbol) {\n                        return\n    outputCtx.importExpr(value);\n                    } else {\n                        throw new Error("Illegal State:\n    Encountered value '" + value);\n                    };\n                    return Transformer;\n                }();\n                return visitValue(data, new Transformer(), null);\n            };\n            return ForJitSerializer;\n        })();\n        var\n    FromJsonDeserializer = /** @class */ (function (_super) {\n            __extends(FromJsonDeserializer, _super);\n            function FromJsonDeserializer(symbolCache, summaryResolver) {\n                var _this = _super.call(this) || this;\n                _this.symbolCache = symbolCache;\n                _this.summaryResolver = summaryResolver;\n                return _this;\n            }\n            FromJsonDeserializer.prototype.deserialize = function (libraryFileName, json) {\n                var _this = this;\n                var data = JSON.parse(json);\n                var allImportAs = [];\n                this.symbols =\n    data.symbols.map(function (serializedSymbol) { return\n    _this.symbolCache.get(_this.summaryResolver.fromSummaryFileName(serializedSymbol.filePath,\n    libraryFileName), serializedSymbol.name); });\n                data.symbols.forEach(function (serializedSymbol, index)\n    {\n                    var symbol = _this.symbols[index];\n                    var importAs = serializedSymbol.importAs;\n                    if (typeof importAs === 'number') {\n                        allImportAs.push({ symbol: symbol, importAs:\n    _this.symbols[importAs] });\n                    } else if (typeof importAs === 'string') {\n                        allImportAs.push({ symbol: symbol, importAs: _this.symbolCache.get(ngfactoryFilePath(libraryFileName),\n    importAs) });\n                    };\n                    var summaries = visitValue(data.summaries, this, null);\n                    return { moduleName:\n    data.moduleName, summaries: summaries, importAs: allImportAs };\n                });\n                FromJsonDeserializer.prototype.visitStringMap = function (map, context) {\n                    if ('__symbol' in map) {\n                        var baseSymbol = this.symbols[map['__symbol']];\n                        var members = map['members'];\n                        return\n    members.length ? this.symbolCache.get(baseSymbol.filePath, baseSymbol.name, members) :\n    baseSymbol;\n                    } else {\n                        return _super.prototype.visitStringMap.call(this, map, context);\n                    }\n                };\n                return FromJsonDeserializer;\n            }(ValueTransformer));\n            function isCall(metadata) {\n                return\n    metadata && metadata.__symbolic === 'call';\n            }\n            function isFunctionCall(metadata) {\n                return\n    isCall(metadata) && unwrapResolvedMetadata(metadata.expression) instanceof StaticSymbol;\n            }\n            function\n    isMethodCallOnVariable(metadata) {\n                return isCall(metadata)\n    && metadata.expression && metadata.expression.__symbolic === 'select' &&\n    unwrapResolvedMetadata(metadata.expression.expression) instanceof StaticSymbol;\n            }\n            var AotCompiler =

```

```

/** @class */ (function () {
    function AotCompiler(_config, _options, _host, reflector, _metadataResolver,
        _templateParser, _styleCompiler, _viewCompiler, _typeCheckCompiler, _ngModuleCompiler, _injectableCompiler,
        _outputEmitter, _summaryResolver, _symbolResolver) {
        this._config = _config;
        this._options = _options;
        this._host = _host;
        this.reflector = reflector;
        this._metadataResolver = _metadataResolver;
        this._templateParser = _templateParser;
        this._styleCompiler = _styleCompiler;
        this._viewCompiler = _viewCompiler;
        this._typeCheckCompiler = _typeCheckCompiler;
        this._ngModuleCompiler = _ngModuleCompiler;
        this._injectableCompiler = _injectableCompiler;

        this._outputEmitter = _outputEmitter;
        this._summaryResolver = _summaryResolver;
        this._symbolResolver = _symbolResolver;
        this._templateAstCache = new Map();
        this._analyzedFiles = new Map();
        this._analyzedFilesForInjectables = new Map();
    }

    AotCompiler.prototype.clearCache = function () {
        this._metadataResolver.clearCache();
    };

    AotCompiler.prototype.analyzeModulesSync = function (rootFiles) {
        var _this = this;
        var analyzeResult = analyzeAndValidateNgModules(rootFiles, this._host, this._symbolResolver, this._metadataResolver);
        analyzeResult.ngModules.forEach(function (ngModule) {
            return _this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(ngModule.type.reference, true);
        });
        return analyzeResult;
    };

    AotCompiler.prototype.analyzeModulesAsync = function (rootFiles) {
        var _this = this;
        var analyzeResult = analyzeAndValidateNgModules(rootFiles, this._host, this._symbolResolver, this._metadataResolver);
        return Promise.all(analyzeResult.ngModules.map(function (ngModule) {
            return _this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(ngModule.type.reference, false);
        })).then(function () {
            return analyzeResult;
        });
    };

    AotCompiler.prototype._analyzeFile = function (fileName) {
        var analyzedFile = this._analyzedFiles.get(fileName);
        if (!analyzedFile) {
            analyzedFile = analyzeFile(this._host, this._symbolResolver, this._metadataResolver, fileName);
            this._analyzedFiles.set(fileName, analyzedFile);
        }
        return analyzedFile;
    };

    AotCompiler.prototype._analyzeFileForInjectables = function (fileName) {
        var analyzedFile = this._analyzedFilesForInjectables.get(fileName);
        if (!analyzedFile) {
            analyzedFile = analyzeFileForInjectables(this._host, this._symbolResolver, this._metadataResolver, fileName);
            this._analyzedFilesForInjectables.set(fileName, analyzedFile);
        }
        return analyzedFile;
    };

    AotCompiler.prototype.findGeneratedFileNames = function (fileName) {
        var _this = this;
        var genFileNames = [];
        var file = this._analyzeFile(fileName);
        // Make sure we create a .ngfactory if we have a injectable/directive/pipe/NgModule
        // or a reference to a non source file.
        // Note: This is overestimating the required .ngfactory files as the real calculation is harder.
        // Only do this for StubEmitFlags.Basic, as adding a type check block
        // does not change this file (as we generate type check blocks based on NgModules).
        if (this._options.allowEmptyCodegenFiles) {
            // file.directives.length || file.pipes.length || file.injectables.length || file.ngModules.length ||
            // file.exportsNonSourceFiles
            genFileNames.push(ngfactoryFilePath(file.fileName, true));
            if (this._options.enableSummariesForJit) {
                genFileNames.push(summaryForJitFileName(file.fileName, true));
            }
            // file.directives.length || file.pipes.length || file.injectables.length || file.ngModules.length ||
            // file.exportsNonSourceFiles
            var fileSuffix = normalizeGenFileSuffix(splitTypescriptSuffix(file.fileName, true)[1]);
            file.directives.forEach(function (dirSymbol) {
                var compMeta = _this._metadataResolver.getNonNormalizedDirectiveMetadata(dirSymbol).metadata;
                if (!compMeta.isComponent) {
                    return;
                }
                // Note: compMeta is a component and therefore template is non null.
                compMeta.template.styleUrls.forEach(function (styleUrl) {
                    var normalizedUrl = _this._host.resourceNameToFileName(styleUrl, file.fileName);
                    if (!normalizedUrl) {
                        throw syntaxError("Couldn't resolve resource \" + styleUrl + \" relative to \" + file.fileName);
                    }
                    var needsShim = (compMeta.template.encapsulation || _this._config.defaultEncapsulation) ===

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ViewEncapsulation.Emulated);\n          genFileNames.push(_stylesModuleUrl(normalizedUrl, needsShim,\nfileSuffix));\n          if (_this._options.allowEmptyCodegenFiles) {\n\n          genFileNames.push(_stylesModuleUrl(normalizedUrl, !needsShim, fileSuffix));\n          }\n          });\n          return genFileNames;\n          };\n          AotCompiler.prototype.emitBasicStub = function (genFileName,\noriginalFileName) {\n          var outputCtx = this._createOutputContext(genFileName);\n          if\n(genFileName.endsWith('.ngfactory.ts')) {\n\n          if (!originalFileName) {\n          throw new Error(\"Assertion error: require the original file for\n.ngfactory.ts stubs. File: \" + genFileName);\n          }\n          var originalFile =\nthis._analyzeFile(originalFileName);\n          this._createNgFactoryStub(outputCtx, originalFile, 1 /* Basic */);\n          }\n          else if (genFileName.endsWith('.ngsummary.ts')) {\n          if\n(this._options.enableSummariesForJit) {\n          if (!originalFileName) {\n          throw new\nError(\"Assertion error: require the original file for .ngsummary.ts stubs. File: \" + genFileName);\n          }\n          var originalFile = this._analyzeFile(originalFileName);\n          _createEmptyStub(outputCtx);\n          originalFile.ngModules.forEach(function (ngModule) {\n          // create exports that user code can\nreference\n          createForJitStub(outputCtx,\nngModule.type.reference);\n          });\n          }\n          }\n          else if\n(genFileName.endsWith('.ngstyle.ts')) {\n          _createEmptyStub(outputCtx);\n          }\n          // Note: for\nthe stubs, we don't need a property srcFileUrl,\n          // as later on in emitAllImpls we will create the proper\nGeneratedFiles with the\n          // correct srcFileUrl.\n          // This is good as e.g. for .ngstyle.ts files we can't\nderive\n          // the url of components based on the genFileUrl.\n          return\nthis._codegenSourceModule('unknown', outputCtx);\n          };\n          AotCompiler.prototype.emitTypeCheckStub =\nfunction (genFileName, originalFileName) {\n          var originalFile = this._analyzeFile(originalFileName);\n          var outputCtx = this._createOutputContext(genFileName);\n          if (genFileName.endsWith('.ngfactory.ts')) {\n          this._createNgFactoryStub(outputCtx, originalFile,\n2 /* TypeCheck */);\n          }\n          return outputCtx.statements.length > 0 ?\nthis._codegenSourceModule(originalFile.fileName, outputCtx) : null;\n          };\n          AotCompiler.prototype.loadFilesAsync = function (fileNames, tsFiles) {\n          var _this = this;\n          var files\n= fileNames.map(function (fileName) { return _this._analyzeFile(fileName); });\n          var loadingPromises =\n[];\n          files.forEach(function (file) { return file.ngModules.forEach(function (ngModule) { return\nloadingPromises.push(_this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(ngModule.type.reference\n, false)); }); });\n          var analyzedInjectables = tsFiles.map(function (tsFile) { return\n_this._analyzeFileForInjectables(tsFile); });\n          return Promise.all(loadingPromises).then(function (_) { return\n({\n          analyzedModules: mergeAndValidateNgFiles(files),\n          analyzedInjectables:\nanalyzedInjectables,\n          }); });\n          };\n          AotCompiler.prototype.loadFilesSync = function (fileNames, tsFiles) {\n          var\n_this = this;\n          var files = fileNames.map(function (fileName) { return _this._analyzeFile(fileName); });\n          files.forEach(function (file) { return file.ngModules.forEach(function (ngModule) { return\n_this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(ngModule.type.reference, true); }); });\n          var analyzedInjectables = tsFiles.map(function (tsFile) { return _this._analyzeFileForInjectables(tsFile); });\n          return {\n          analyzedModules: mergeAndValidateNgFiles(files),\n          analyzedInjectables:\nanalyzedInjectables,\n          };\n          };\n          AotCompiler.prototype._createNgFactoryStub = function\n(outputCtx, file, emitFlags) {\n          var _this = this;\n          var componentId = 0;\n          file.ngModules.forEach(function (ngModuleMeta, ngModuleIndex) {\n\n          // Note: the code below needs to executed for StubEmitFlags.Basic and StubEmitFlags.TypeCheck,\n// so we don't change the .ngfactory file too much when adding the type-check block.\n          // create exports\nthat user code can reference\n          _this._ngModuleCompiler.createStub(outputCtx,\nngModuleMeta.type.reference);\n          // add references to the symbols from the metadata.\n          // These\ncan be used by the type check block for components,\n          // and they also cause TypeScript to include these

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files into the program too,\n          // which will make them part of the analyzedFiles.\n          var
externalReferences = __spread(ngModuleMeta.transitiveModule.directives.map(function (d) { return d.reference; })),
ngModuleMeta.transitiveModule.pipes.map(function (d) { return d.reference; })),
ngModuleMeta.importedModules.map(function (m) { return m.type.reference; })),
ngModuleMeta.exportedModules.map(function
(m) { return m.type.reference; })), _this._externalIdentifierReferences([Identifiers.TemplateRef,
Identifiers.ElementRef]));\n          var externalReferenceVars = new Map();\n
externalReferences.forEach(function (ref, typeIndex) {\n          externalReferenceVars.set(ref, \"_decl\" +
ngModuleIndex + \"_\" + typeIndex);\n          });\n          externalReferenceVars.forEach(function (varName,
reference) {\n          outputCtx.statements.push(variable(varName))\n
.set(NULL_EXPR.cast(DYNAMIC_TYPE))\n
.toDeclStmt(expressionType(outputCtx.importExpr(reference, /* typeParams */ null, /* useSummaries */ false)));\n
          });\n          if (emitFlags & 2 /* TypeCheck */) {\n          // add the type-check block for all
components of the NgModule\n          ngModuleMeta.declaredDirectives.forEach(function (dirId) {\n
          var compMeta
= _this._metadataResolver.getDirectiveMetadata(dirId.reference);\n          if (!compMeta.isComponent) {\n
          return;\n          }\n          componentId++;\n
_this._createTypeCheckBlock(outputCtx, compMeta.type.reference.name + \"_Host_\" + componentId,
ngModuleMeta, _this._metadataResolver.getHostComponentMetadata(compMeta), [compMeta.type],
externalReferenceVars);\n          _this._createTypeCheckBlock(outputCtx, compMeta.type.reference.name
+ \"_\" + componentId, ngModuleMeta, compMeta, ngModuleMeta.transitiveModule.directives,
externalReferenceVars);\n          });\n          }\n          });\n          if (outputCtx.statements.length === 0)
{\n          _createEmptyStub(outputCtx);\n          }\n          });\n
AotCompiler.prototype._externalIdentifierReferences = function (references) {\n          var e_1, _a;\n          var
result = [];\n
          try {\n          for (var references_1 = __values(references), references_1_1 = references_1.next();
!references_1_1.done; references_1_1 = references_1.next()) {\n          var reference =
references_1_1.value;\n          var token = createTokenForExternalReference(this.reflector, reference);\n
          if (token.identifier) {\n          result.push(token.identifier.reference);\n          }\n          }\n
          catch (e_1_1) { e_1 = { error: e_1_1 }; }\n          finally {\n          try {\n          if
(references_1_1 && !references_1_1.done && (_a = references_1.return)) _a.call(references_1);\n          }\n
          finally { if (e_1) throw e_1.error; }\n          }\n          return result;\n          }\n
AotCompiler.prototype._createTypeCheckBlock = function (ctx, componentId, moduleMeta, compMeta, directives,
externalReferenceVars) {\n
          var _a;\n          var _b = this._parseTemplate(compMeta, moduleMeta, directives), parsedTemplate =
_b.template, usedPipes = _b.pipes;\n          (_a = ctx.statements).push.apply(_a,
__spread(this._typeCheckCompiler.compileComponent(componentId, compMeta, parsedTemplate, usedPipes,
externalReferenceVars, ctx)));\n          }\n          AotCompiler.prototype.emitMessageBundle = function
(analyzeResult, locale) {\n          var _this = this;\n          var errors = [];\n          var htmlParser = new
HtmlParser();\n          // TODO(vicb): implicit tags & attributes\n          var messageBundle = new
MessageBundle(htmlParser, [], {}, locale);\n          analyzeResult.files.forEach(function (file) {\n          var
compMetas = [];\n          file.directives.forEach(function (directiveType) {\n          var dirMeta =
_this._metadataResolver.getDirectiveMetadata(directiveType);\n          if (dirMeta && dirMeta.isComponent)
{\n
          compMetas.push(dirMeta);\n          }\n          });\n          compMetas.forEach(function
(compMeta) {\n          var html = compMeta.template.template;\n          // Template URL points to either
an HTML or TS file depending on whether\n          // the file is used with `templateUrl` or `template`,
respectively.\n          var templateUrl = compMeta.template.templateUrl;\n          var interpolationConfig

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= InterpolationConfig.fromArray(compMeta.template.interpolation);\n      errors.push.apply(errors,\n__spread(messageBundle.updateFromTemplate(html, templateUrl, interpolationConfig));\n    });\n  });\n  if (errors.length) {\n    throw new Error(errors.map(function (e) { return e.toString();\n  }).join("\\n"));\n  }\n  return messageBundle;\n};\n\nAotCompiler.prototype.emitAllPartialModules = function (_a, r3Files)\n{\n  var _this = this;\n  var ngModuleByPipeOrDirective = _a.ngModuleByPipeOrDirective, files =\n  _a.files;\n  var contextMap = new Map();\n  var getContext = function (fileName) {\n    if\n    (!contextMap.has(fileName)) {\n      contextMap.set(fileName, _this._createOutputContext(fileName));\n    }\n    return contextMap.get(fileName);\n  };\n  files.forEach(function (file) {\n    return\n    _this._compilePartialModule(file.fileName, ngModuleByPipeOrDirective, file.directives, file.pipes, file.ngModules,\n    file.injectables, getContext(file.fileName));\n  });\n  r3Files.forEach(function (file) {\n    return\n    _this._compileShallowModules(file.fileName, file.shallowModules, getContext(file.fileName));\n  });\n  return\n  Array.from(contextMap.values())\n    .map(function (context) {\n      return ({\n        fileName:\n        context.genFilePath,\n        statements: __spread(context.constantPool.statements,\n        context.statements);\n      });\n    });\n  });\n  AotCompiler.prototype._compileShallowModules = function\n  (fileName, shallowModules, context) {\n    var _this = this;\n    shallowModules.forEach(function\n    (module) {\n      return compileNgModuleFromRender2(context, module, _this._injectableCompiler);\n    });\n  };\n  AotCompiler.prototype._compilePartialModule = function (fileName, ngModuleByPipeOrDirective, directives,\n  pipes, ngModules, injectables, context) {\n    var _this = this;\n    var errors = [];\n    var\n    schemaRegistry = new DomElementSchemaRegistry();\n    var hostBindingParser = new\n    BindingParser(this._templateParser.expressionParser, DEFAULT_INTERPOLATION_CONFIG, schemaRegistry,\n    [], errors);\n    // Process all components and directives\n    directives.forEach(function (directiveType) {\n      var directiveMetadata = _this._metadataResolver.getDirectiveMetadata(directiveType);\n      if (directiveMetadata.isComponent) {\n        var module =\n        ngModuleByPipeOrDirective.get(directiveType);\n        module ||\n        error("Cannot determine\n        the module for component \"" + identifierName(directiveMetadata.type) + "\"");\n        var htmlAst =\n        directiveMetadata.template.htmlAst;\n        var preserveWhitespaces =\n        directiveMetadata.template.preserveWhitespaces;\n        if (!preserveWhitespaces) {\n          htmlAst\n          = removeWhitespaces(htmlAst);\n        }\n        var render3Ast =\n        htmlAstToRender3Ast(htmlAst.rootNodes, hostBindingParser);\n        // Map of StaticType by directive\n        selectors\n        var directiveTypeBySel_1 = new Map();\n        var directives_1 =\n        module.transitiveModule.directives.map(function (dir) {\n          return\n          _this._metadataResolver.getDirectiveSummary(dir.reference);\n        });\n        directives_1.forEach(function (directive) {\n          if (directive.selector) {\n            directiveTypeBySel_1.set(directive.selector, directive.type.reference);\n          }\n        });\n        // Map of StaticType by pipe names\n        var pipeTypeByName_1 = new Map();\n        var\n        pipes_1 = module.transitiveModule.pipes.map(function (pipe) {\n          return\n          _this._metadataResolver.getPipeSummary(pipe.reference);\n        });\n        pipes_1.forEach(function (pipe) {\n          pipeTypeByName_1.set(pipe.name, pipe.type.reference);\n        });\n        compileComponentFromRender2(context, directiveMetadata, render3Ast, _this.reflector, hostBindingParser,\n        directiveTypeBySel_1, pipeTypeByName_1);\n        }\n        else {\n          compileDirectiveFromRender2(context, directiveMetadata, _this.reflector,\n          hostBindingParser);\n        }\n        }\n        pipes.forEach(function (pipeType) {\n          var\n          pipeMetadata = _this._metadataResolver.getPipeMetadata(pipeType);\n          if (pipeMetadata) {\n            compilePipeFromRender2(context, pipeMetadata, _this.reflector);\n          }\n        });\n        injectables.forEach(function (injectable) {\n          return _this._injectableCompiler.compile(injectable, context);\n        });\n      }\n    });\n    AotCompiler.prototype.emitAllPartialModules2 = function (files) {\n      var _this = this;\n      //\n      Using reduce like this is a select many pattern (where map is a select pattern)\n      return files.reduce(function (r,

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file) {\n
    r.push.apply(r, __spread(_this._emitPartialModule2(file.fileName, file.injectables))); \n
return r;\n
    }, []);\n
    };\n
    AotCompiler.prototype._emitPartialModule2 = function (fileName,
injectables) {\n
    var _this = this;\n
    var context = this._createOutputContext(fileName);\n
injectables.forEach(function (injectable) { return _this._injectableCompiler.compile(injectable, context); });\n
if (context.statements && context.statements.length > 0) {\n
    return [{ fileName: fileName, statements:
__spread(context.constantPool.statements, context.statements) }];\n
    }\n
    return [];\n
    };\n
AotCompiler.prototype.emitAllImpls = function (analyzeResult) {\n
    var _this = this;\n
    var
ngModuleByPipeOrDirective = analyzeResult.ngModuleByPipeOrDirective, files = analyzeResult.files;\n
    var
sourceModules = files.map(function (file) { return _this._compileImplFile(file.fileName,
ngModuleByPipeOrDirective, file.directives, file.pipes, file.ngModules, file.injectables); });\n
    return
flatten(sourceModules);\n
    };\n
    AotCompiler.prototype._compileImplFile = function (srcFileUrl,
ngModuleByPipeOrDirective, directives, pipes, ngModules, injectables) {\n
    var _this = this;\n
    var
fileSuffix = normalizeGenFileSuffix(splitTypescriptSuffix(srcFileUrl, true)[1]);\n
    var generatedFiles = [];\n
    var outputCtx = this._createOutputContext(ngfactoryFilePath(srcFileUrl, true));\n
generatedFiles.push.apply(generatedFiles, __spread(this._createSummary(srcFileUrl, directives, pipes, ngModules,
injectables, outputCtx)));\n
    // compile all ng modules\n
    ngModules.forEach(function (ngModuleMeta)
{ return _this._compileModule(outputCtx, ngModuleMeta); });\n
    // compile components\n
directives.forEach(function (dirType) {\n
    var compMeta =
_this._metadataResolver.getDirectiveMetadata(dirType);\n
    if (!compMeta.isComponent) {\n
return;\n
    }\n
    var ngModule = ngModuleByPipeOrDirective.get(dirType);\n
    if (!ngModule) {\n
throw new Error("Internal Error: cannot determine the module for component
'" + identifierName(compMeta.type) + "'");\n
    }\n
    // compile styles\n
    var
componentStylesheet = _this._styleCompiler.compileComponent(outputCtx, compMeta);\n
    // Note:
compMeta is a component and therefore template is non null.\n
compMeta.template.externalStylesheets.forEach(function (stylesheetMeta) {\n
    // Note: fill non shim and
shim style files as they might\n
    // be shared by component with and without ViewEncapsulation.\n
    var shim = _this._styleCompiler.needsStyleShim(compMeta);\n
generatedFiles.push(_this._codegenStyles(srcFileUrl, compMeta, stylesheetMeta, shim, fileSuffix));\n
    if
(_this._options.allowEmptyCodegenFiles) {\n
    generatedFiles.push(_this._codegenStyles(srcFileUrl,
compMeta, stylesheetMeta, !shim, fileSuffix));\n
    }\n
    });\n
    // compile components\n
    var compViewVars = _this._compileComponent(outputCtx, compMeta, ngModule,
ngModule.transitiveModule.directives, componentStylesheet, fileSuffix);\n
    _this._compileComponentFactory(outputCtx, compMeta, ngModule, fileSuffix);\n
    });\n
    if
(outputCtx.statements.length > 0 || this._options.allowEmptyCodegenFiles) {\n
    var srcModule =
this._codegenSourceModule(srcFileUrl, outputCtx);\n
    generatedFiles.unshift(srcModule);\n
    }\n
    return generatedFiles;\n
    };\n
    AotCompiler.prototype._createSummary = function (srcFileName,
directives, pipes, ngModules, injectables, ngFactoryCtx) {\n
    var _this = this;\n
    var symbolSummaries
= this._symbolResolver.getSymbolsOf(srcFileName)\n
    .map(function (symbol) { return
_this._symbolResolver.resolveSymbol(symbol);
});\n
    var typeData = __spread(ngModules.map(function (meta) { return ({\n
summary:
_this._metadataResolver.getNgModuleSummary(meta.type.reference),\n
metadata:
_this._metadataResolver.getNgModuleMetadata(meta.type.reference)\n
}); })), directives.map(function (ref) {
return ({\n
summary: _this._metadataResolver.getDirectiveSummary(ref),\n
metadata:
_this._metadataResolver.getDirectiveMetadata(ref)\n
}); })), pipes.map(function (ref) { return ({\n
summary: _this._metadataResolver.getPipeSummary(ref),\n
metadata:
_this._metadataResolver.getPipeMetadata(ref)\n
}); })), injectables.map(function (ref) { return ({\n
summary: _this._metadataResolver.getInjectableSummary(ref.symbol),\n
metadata:

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_this._metadataResolver.getInjectableSummary(ref.symbol).type\n    }); });\n    var forJitOutputCtx
= this._options.enableSummariesForJit ?\n
this._createOutputContext(summaryForJitFileName(srcFileName, true)) : \n    null;\n    var _a =
serializeSummaries(srcFileName, forJitOutputCtx, this._summaryResolver, this._symbolResolver,
symbolSummaries, typeData, this._options.createExternalSymbolFactoryReexports), json = _a.json, exportAs =
_a.exportAs;\n    exportAs.forEach(function (entry) {\n
ngFactoryCtx.statements.push(variable(entry.exportAs).set(ngFactoryCtx.importExpr(entry.symbol)).toDeclStmt(nu
ll, [\n    exports.StmtModifier.Exported\n    ]));\n    });\n    var summaryJson = new
GeneratedFile(srcFileName, summaryFileName(srcFileName), json);\n    var result = [summaryJson];\n
if (forJitOutputCtx) {\n    result.push(this._codegenSourceModule(srcFileName, forJitOutputCtx));\n
}\n    return result;\n    };\n    AotCompiler.prototype._compileModule
= function (outputCtx, ngModule) {\n    var providers = [];\n    if (this._options.locale) {\n    var
normalizedLocale = this._options.locale.replace(/_/g, '-');\n    providers.push({\n    token:
createTokenForExternalReference(this.reflector, Identifiers.LOCALE_ID),\n    useValue:
normalizedLocale,\n    });\n    }\n    if (this._options.i18nFormat) {\n    providers.push({\n
token: createTokenForExternalReference(this.reflector, Identifiers.TRANSLATIONS_FORMAT),\n
useValue: this._options.i18nFormat\n    });\n    }\n
this._ngModuleCompiler.compile(outputCtx, ngModule, providers);\n    };\n
AotCompiler.prototype._compileComponentFactory = function (outputCtx, compMeta, ngModule, fileSuffix) {\n
var hostMeta = this._metadataResolver.getHostComponentMetadata(compMeta);\n
var hostViewFactoryVar = this._compileComponent(outputCtx, hostMeta, ngModule, [compMeta.type],
null, fileSuffix)\n    .viewClassVar;\n    var compFactoryVar =
componentFactoryName(compMeta.type.reference);\n    var inputsExprs = [];\n    for (var propName in
compMeta.inputs) {\n    var templateName = compMeta.inputs[propName];\n    // Don't quote so that
the key gets minified...\n    inputsExprs.push(new LiteralMapEntry(propName, literal(templateName),
false));\n    }\n    var outputsExprs = [];\n    for (var propName in compMeta.outputs) {\n
var templateName = compMeta.outputs[propName];\n    // Don't quote so that the key gets minified...\n
outputsExprs.push(new LiteralMapEntry(propName, literal(templateName), false));\n    }\n
outputCtx.statements.push(variable(compFactoryVar)\n
.set(importExpr(Identifiers.createComponentFactory).callFn([\n
    literal(compMeta.selector), outputCtx.importExpr(compMeta.type.reference),\n
variable(hostViewFactoryVar), new LiteralMapExpr(inputsExprs),\n    new
LiteralMapExpr(outputsExprs),\n    literalArr(compMeta.template.ngContentSelectors.map(function
(selector) { return literal(selector); })))\n    ]))\n
.toDeclStmt(importType(Identifiers.ComponentFactory,
[expressionType(outputCtx.importExpr(compMeta.type.reference))], [TypeModifier.Const]),
[exports.StmtModifier.Final, exports.StmtModifier.Exported]));\n    };\n
AotCompiler.prototype._compileComponent = function (outputCtx, compMeta, ngModule, directiveIdentifiers,
componentStyles, fileSuffix) {\n    var _a = this._parseTemplate(compMeta, ngModule, directiveIdentifiers),
parsedTemplate = _a.template, usedPipes = _a.pipes;\n    var stylesExpr = componentStyles ?
variable(componentStyles.stylesVar)
: literalArr([]);\n    var viewResult = this._viewCompiler.compileComponent(outputCtx, compMeta,
parsedTemplate, stylesExpr, usedPipes);\n    if (componentStyles) {\n
_resolveStyleStatements(this._symbolResolver, componentStyles, this._styleCompiler.needsStyleShim(compMeta),
fileSuffix);\n    }\n    return viewResult;\n    };\n    AotCompiler.prototype._parseTemplate = function
(compMeta, ngModule, directiveIdentifiers) {\n    var _this = this;\n    if
(this._templateAstCache.has(compMeta.type.reference)) {\n    return
this._templateAstCache.get(compMeta.type.reference);\n    }\n    var preserveWhitespaces =

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compMeta.template.preserveWhitespaces;\n      var directives = directiveIdentifiers.map(function (dir) { return
_this._metadataResolver.getDirectiveSummary(dir.reference); });\n      var pipes =
ngModule.transitiveModule.pipes.map(function (pipe) { return
_this._metadataResolver.getPipeSummary(pipe.reference);
});\n      var result = this._templateParser.parse(compMeta, compMeta.template.htmlAst, directives, pipes,
ngModule.schemas, templateUrl(ngModule.type, compMeta, compMeta.template), preserveWhitespaces);\n      this._templateAstCache.set(compMeta.type.reference, result);\n      return result;\n    };\n    AotCompiler.prototype._createOutputContext = function (genFilePath) {\n      var _this = this;\n      var
importExpr$1 = function (symbol, typeParams, useSummaries) {\n        if (typeParams === void 0) {\n          typeParams = null;\n        }\n        if (useSummaries === void 0) {\n          useSummaries = true;\n        }\n        if (!(symbol
instanceof StaticSymbol)) {\n          throw new Error("Internal error: unknown identifier \"" +
JSON.stringify(symbol));\n        }\n        var arity = _this._symbolResolver.getTypeArity(symbol) || 0;\n        var _a = _this._symbolResolver.getImportAs(symbol,
useSummaries) || symbol, filePath = _a.filePath, name = _a.name, members = _a.members;\n        var
importModule = _this._fileNameToModuleName(filePath, genFilePath);\n        // It should be good enough to
compare filePath to genFilePath and if they are equal\n        // there is a self reference. However, ngfactory files
generate to .ts but their\n        // symbols have .d.ts so a simple compare is insufficient. They should be
canonical\n        // and is tracked by #17705.\n        var selfReference =
_this._fileNameToModuleName(genFilePath, genFilePath);\n        var moduleName = importModule ===
selfReference ? null : importModule;\n        // If we are in a type expression that refers to a generic type then
supply\n        // the required type parameters. If there were not enough type parameters\n        // supplied,
supply any as the type. Outside a type expression the
reference\n        // should not supply type parameters and be treated as a simple value reference\n        // to
the constructor function itself.\n        var suppliedTypeParams = typeParams || [];\n        var
missingTypeParamsCount = arity - suppliedTypeParams.length;\n        var allTypeParams =
suppliedTypeParams.concat(new Array(missingTypeParamsCount, DYNAMIC_TYPE));\n        return
members.reduce(function (expr, memberName) { return expr.prop(memberName); }, importExpr(new
ExternalReference(moduleName, name, null), allTypeParams));\n      };\n      return { statements: [],
genFilePath: genFilePath, importExpr: importExpr$1, constantPool: new ConstantPool() };\n    };\n    AotCompiler.prototype._fileNameToModuleName = function (importedFilePath, containingFilePath) {\n      return this._summaryResolver.getKnownModuleName(importedFilePath) ||\n      this._symbolResolver.getKnownModuleName(importedFilePath)\n      ||\n      this._host.fileNameToModuleName(importedFilePath, containingFilePath);\n    };\n    AotCompiler.prototype._codegenStyles = function (srcFileUrl, compMeta, stylesheetMetadata, isShimmed,
fileSuffix) {\n      var outputCtx = this._createOutputContext(_stylesModuleUrl(stylesheetMetadata.moduleUrl,
isShimmed, fileSuffix));\n      var compiledStylesheet = this._styleCompiler.compileStyles(outputCtx,
compMeta, stylesheetMetadata, isShimmed);\n      _resolveStyleStatements(this._symbolResolver,
compiledStylesheet, isShimmed, fileSuffix);\n      return this._codegenSourceModule(srcFileUrl, outputCtx);\n    };\n    AotCompiler.prototype._codegenSourceModule = function (srcFileUrl, ctx) {\n      return new
GeneratedFile(srcFileUrl, ctx.genFilePath, ctx.statements);\n    };\n    AotCompiler.prototype.listLazyRoutes =
function (entryRoute, analyzedModules) {\n      var e_2, _a, e_3, _b;\n      var self
= this;\n      if (entryRoute) {\n        var symbol = parseLazyRoute(entryRoute,
this.reflector).referencedModule;\n        return visitLazyRoute(symbol);\n      } else if
(analyzedModules) {\n        var allLazyRoutes = [];\n        try {\n          for (var _c =
__values(analyzedModules.ngModules), _d = _c.next(); !_d.done; _d = _c.next()) {\n            var ngModule =
_d.value;\n            var lazyRoutes = listLazyRoutes(ngModule, this.reflector);\n            try {\n              for (var lazyRoutes_1 = (e_3 = void 0, __values(lazyRoutes)), lazyRoutes_1_1 = lazyRoutes_1.next();
!lazyRoutes_1_1.done; lazyRoutes_1_1 = lazyRoutes_1.next()) {\n                var lazyRoute =

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lazyRoutes_1_1.value;\n                                allLazyRoutes.push(lazyRoute);\n                                }\n}\n        catch (e_3_1)\n    {\n        e_3 = { error: e_3_1 }; }\n        finally {\n            try {\n                if\n(lazyRoutes_1_1 && !lazyRoutes_1_1.done && (_b = lazyRoutes_1.return)) _b.call(lazyRoutes_1);\n            }\n            finally { if (e_3) throw e_3.error; }\n        }\n    }\n    catch (e_2_1) {\n        e_2 = { error: e_2_1 }; }\n        finally {\n            try {\n                if (_d && !_d.done\n&& (_a = _c.return)) _a.call(_c);\n            }\n            finally { if (e_2) throw e_2.error; }\n        }\n        return allLazyRoutes;\n    }\n    else {\n        throw new Error(\"Either route or analyzedModules\nhas to be specified!\");\n    }\n    function visitLazyRoute(symbol, seenRoutes, allLazyRoutes) {\n        var e_4, _a;\n        if (seenRoutes\n==== void 0) {\n            seenRoutes = new Set();\n        }\n        if (allLazyRoutes === void 0) {\n            allLazyRoutes = [];\n        }\n        // Support pointing to default exports, but stop recursing there,\n        // as the StaticReflector does not yet\nsupport default exports.\n        if (seenRoutes.has(symbol) || !symbol.name) {\n            return\nallLazyRoutes;\n        }\n        seenRoutes.add(symbol);\n        var lazyRoutes =\nlistLazyRoutes(self._metadataResolver.getNgModuleMetadata(symbol, true), self.reflector);\n        try {\n            for (var lazyRoutes_2 = __values(lazyRoutes), lazyRoutes_2_1 = lazyRoutes_2.next();\n!lazyRoutes_2_1.done;\n            lazyRoutes_2_1 = lazyRoutes_2.next()) {\n                var lazyRoute = lazyRoutes_2_1.value;\n                allLazyRoutes.push(lazyRoute);\n                visitLazyRoute(lazyRoute.referencedModule, seenRoutes,\nallLazyRoutes);\n            }\n        }\n        catch (e_4_1) {\n            e_4 = { error: e_4_1 }; }\n        finally {\n            try {\n                if (lazyRoutes_2_1 && !lazyRoutes_2_1.done && (_a = lazyRoutes_2.return))\n_a.call(lazyRoutes_2);\n            }\n            finally { if (e_4) throw e_4.error; }\n        }\n        return allLazyRoutes;\n    }\n};\nreturn AotCompiler;\n})();\nfunction _createEmptyStub(outputCtx) {\n    // Note: We need to\nproduce at least one import statement so that\n    // TypeScript knows that the file is an es6 module. Otherwise our\ngenerated\n    // exports / imports won't be emitted properly by TypeScript.\noutputCtx.statements.push(importExpr(Identifiers.ComponentFactory).toStmt());\n}\nfunction\n_resolveStyleStatements(symbolResolver, compileResult, needsShim, fileSuffix) {\n    compileResult.dependencies.forEach(function (dep) {\n        dep.setValue(symbolResolver.getStaticSymbol(_stylesModuleUrl(dep.moduleUrl,\nneedsShim, fileSuffix), dep.name));\n    });\n}\nfunction _stylesModuleUrl(stylesheetUrl, shim, suffix) {\n    return \"\" + stylesheetUrl + (shim ? '.shim': '') + \".ngstyle\" + suffix;\n}\nfunction\nanalyzeNgModules(fileNames, host, staticSymbolResolver, metadataResolver) {\n    var files =\n_analyzeFilesIncludingNonProgramFiles(fileNames, host, staticSymbolResolver, metadataResolver);\n    return\nmergeAnalyzedFiles(files);\n}\nfunction analyzeAndValidateNgModules(fileNames, host,\nstaticSymbolResolver, metadataResolver) {\n    return validateAnalyzedModules(analyzeNgModules(fileNames,\nhost, staticSymbolResolver, metadataResolver));\n}\nfunction validateAnalyzedModules(analyzedModules)\n{\n    if (analyzedModules.symbolsMissingModule && analyzedModules.symbolsMissingModule.length) {\n        var messages = analyzedModules.symbolsMissingModule.map(function\n(s) {\n            return \"Cannot determine the module for class \" + s.name + \" in \" + s.filePath + \"! Add \" + s.name + \" to\nthe NgModule to fix it.\";\n        });\n        throw syntaxError(messages.join(\"\\n\"));\n    }\n    return\nanalyzedModules;\n}\n// Analyzes all of the program files,\n// including files that are not part of the\nprogram\n// but are referenced by an NgModule.\nfunction\n_analyzeFilesIncludingNonProgramFiles(fileNames, host, staticSymbolResolver, metadataResolver) {\n    var\nseenFiles = new Set();\n    var files = [];\n    var visitFile = function (fileName) {\n        if\n(seenFiles.has(fileName) || !host.isSourceFile(fileName)) {\n            return false;\n        }\n        seenFiles.add(fileName);\n        var analyzedFile = analyzeFile(host, staticSymbolResolver, metadataResolver,\nfileName);\n        files.push(analyzedFile);\n        analyzedFile.ngModules.forEach(function (ngModule) {\n
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ngModule.transitiveModule.modules.forEach(function (modMeta) { return visitFile(modMeta.reference.filePath);
});\n    });\n    });\n    fileNames.forEach(function (fileName) { return visitFile(fileName); });\n    return
files;\n  }\n  function analyzeFile(host, staticSymbolResolver, metadataResolver, fileName) {\n    var
abstractDirectives = [];\n    var directives = [];\n    var pipes = [];\n    var injectables = [];\n    var
ngModules = [];\n    var hasDecorators = staticSymbolResolver.hasDecorators(fileName);\n    var
exportsNonSourceFiles = false;\n    var isDeclarationFile = fileName.endsWith('.d.ts');\n    // Don't analyze .d.ts
files that have no decorators as a shortcut\n    // to speed up the analysis. This prevents us from\n    // resolving
the references in these files.\n    // Note: exportsNonSourceFiles is only needed when compiling with
summaries,\n    // which is not the case when .d.ts files are
treated as input files.\n    if (!isDeclarationFile || hasDecorators) {\n
staticSymbolResolver.getSymbolsOf(fileName).forEach(function (symbol) {\n      var resolvedSymbol =
staticSymbolResolver.resolveSymbol(symbol);\n      var symbolMeta = resolvedSymbol.metadata;\n
if (!symbolMeta || symbolMeta.__symbolic === 'error') {\n        return;\n      }\n      var
isNgSymbol = false;\n      if (symbolMeta.__symbolic === 'class') {\n        if
(metadataResolver.isDirective(symbol)) {\n          isNgSymbol = true;\n          // This directive
either has a selector or doesn't. Selector-less directives get tracked\n          // in abstractDirectives, not
directives. The compiler doesn't deal with selector-less\n          // directives at all, really, other than to
persist their metadata. This is done so that\n          //
apps will have an easier time migrating to Ivy, which requires the selector-less\n          // annotations to be
applied.\n          if (!metadataResolver.isAbstractDirective(symbol)) {\n            // The directive is
an ordinary directive.\n            directives.push(symbol);\n          }\n          else {\n
// The directive has no selector and is an "abstract" directive, so track it\n            // accordingly.\n
abstractDirectives.push(symbol);\n          }\n        }\n      }\n      else if
(metadataResolver.isPipe(symbol)) {\n        isNgSymbol = true;\n        pipes.push(symbol);\n
      }\n      else if (metadataResolver.isNgModule(symbol)) {\n        var ngModule =
metadataResolver.getNgModuleMetadata(symbol, false);\n
        if (ngModule) {\n          isNgSymbol = true;\n
ngModules.push(ngModule);\n        }\n      }\n      else if
(metadataResolver.isInjectable(symbol)) {\n        isNgSymbol = true;\n        var injectable =
metadataResolver.getInjectableMetadata(symbol, null, false);\n        if (injectable) {\n
injectables.push(injectable);\n        }\n      }\n      if (!isNgSymbol) {\n
exportsNonSourceFiles =\n        exportsNonSourceFiles || isValueExportingNonSourceFile(host,
symbolMeta);\n      }\n    });\n  }\n  return {\n    fileName: fileName,\n    directives:
directives,\n    abstractDirectives: abstractDirectives,\n    pipes: pipes,\n    ngModules:
ngModules,\n    injectables: injectables,\n    exportsNonSourceFiles: exportsNonSourceFiles,\n  };\n
}\n  function analyzeFileForInjectables(host, staticSymbolResolver, metadataResolver, fileName) {\n    var
injectables = [];\n    var shallowModules = [];\n    if (staticSymbolResolver.hasDecorators(fileName)) {\n
staticSymbolResolver.getSymbolsOf(fileName).forEach(function (symbol) {\n      var resolvedSymbol =
staticSymbolResolver.resolveSymbol(symbol);\n      var symbolMeta = resolvedSymbol.metadata;\n
if (!symbolMeta || symbolMeta.__symbolic === 'error') {\n        return;\n      }\n      if
(symbolMeta.__symbolic === 'class') {\n        if (metadataResolver.isInjectable(symbol)) {\n
var injectable = metadataResolver.getInjectableMetadata(symbol, null, false);\n        if (injectable) {\n
injectables.push(injectable);\n        }\n      }\n      else if
(metadataResolver.isNgModule(symbol)) {\n        var module =
metadataResolver.getShallowModuleMetadata(symbol);\n        if (module) {\n
shallowModules.push(module);\n        }\n      }\n    });\n  }\n  return {\n
fileName: fileName, injectables: injectables, shallowModules: shallowModules };\n  }\n  function

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isValueExportingNonSourceFile(host, metadata) {\n      var exportsNonSourceFiles = false;\n      var Visitor = /**
@class */ (function () {\n      function Visitor() {\n      }\n      Visitor.prototype.visitArray = function (arr,
context) {\n      var _this = this;\n      arr.forEach(function (v) { return visitValue(v, _this, context); });\n
      });\n      Visitor.prototype.visitStringMap
= function (map, context) {\n      var _this = this;\n      Object.keys(map).forEach(function (key) {
return visitValue(map[key], _this, context); });\n      });\n      Visitor.prototype.visitPrimitive = function
(value, context) {\n      Visitor.prototype.visitOther = function (value, context) {\n      if (value
instanceof StaticSymbol && !host.isSourceFile(value.filePath)) {\n      exportsNonSourceFiles = true;\n
      }\n      });\n      return Visitor;\n      }());\n      visitValue(metadata, new Visitor(), null);\n      return
exportsNonSourceFiles;\n      }\n      function mergeAnalyzedFiles(analyzedFiles) {\n      var allNgModules = [];\n
      var ngModuleByPipeOrDirective = new Map();\n      var allPipesAndDirectives = new Set();\n
      analyzedFiles.forEach(function (af) {\n      af.ngModules.forEach(function (ngModule) {\n
      allNgModules.push(ngModule);\n
      ngModule.declaredDirectives.forEach(function (d) { return ngModuleByPipeOrDirective.set(d.reference,
ngModule); });\n      ngModule.declaredPipes.forEach(function (p) { return
ngModuleByPipeOrDirective.set(p.reference, ngModule); });\n      });\n      af.directives.forEach(function (d)
{ return allPipesAndDirectives.add(d); });\n      af.pipes.forEach(function (p) { return
allPipesAndDirectives.add(p); });\n      });\n      var symbolsMissingModule = [];\n
      allPipesAndDirectives.forEach(function (ref) {\n      if (!ngModuleByPipeOrDirective.has(ref)) {\n
      symbolsMissingModule.push(ref);\n      }\n      });\n      return {\n      ngModules: allNgModules,\n
      ngModuleByPipeOrDirective: ngModuleByPipeOrDirective,\n      symbolsMissingModule:
symbolsMissingModule,\n      files: analyzedFiles\n      };\n      }\n      function mergeAndValidateNgFiles(files)
{\n      return validateAnalyzedModules(mergeAnalyzedFiles(files));\n
      }\n      var FORMATTED_MESSAGE = 'ngFormattedMessage';\n      function indentStr(level) {\n      if (level
<= 0)\n      return '';\n      if (level < 6)\n      return [' ', ' ', ' ', ' ', ' ', ' '][level];\n      var half =
indentStr(Math.floor(level / 2));\n      return half + half + (level % 2 === 1 ? ' ': '');\n      }\n      function
formatChain(chain, indent) {\n      var e_1, _a;\n      if (indent === void 0) { indent = 0; }\n      if (!chain)\n
      return '';\n      var position = chain.position ?\n      chain.position.fileName + \"(\" + (chain.position.line + 1) +
\", \" + (chain.position.column + 1) + \")\" :\n      '';\n      var prefix = position && indent === 0 ? position + \"
\": \" \";\n      var postfix = position && indent !== 0 ? \" at \" + position : \" \";\n      var message = \"\" + prefix +
chain.message + postfix;\n      if (chain.next) {\n      try {\n
      for (var _b = __values(chain.next), _c = _b.next(); !_c.done; _c = _b.next()) {\n      var kid = _c.value;\n
      message += \"\\n\" + formatChain(kid, indent + 2);\n      }\n      }\n      catch (e_1_1) { e_1 = {
error: e_1_1 }; }\n      finally {\n      try {\n      if (_c && !_c.done && (_a = _b.return))
_a.call(_b);\n      }\n      finally { if (e_1) throw e_1.error; }\n      }\n      }\n      return \"\" +
indentStr(indent) + message;\n      }\n      function formattedError(chain) {\n      var message = formatChain(chain) +
\"\\n\";\n      var error = syntaxError(message);\n      error[FORMATTED_MESSAGE] = true;\n      error.chain =
chain;\n      error.position = chain.position;\n      return error;\n      }\n      function isFormattedError(error) {\n
      return !!error[FORMATTED_MESSAGE];\n      }\n      var ANGULAR_CORE = '@angular/core';\n      var
ANGULAR_ROUTER = '@angular/router';\n
      var HIDDEN_KEY = /^\\$.*\\$$/;\n      var IGNORE = {\n      __symbolic: 'ignore'\n      };\n      var USE_VALUE$1
= 'useValue';\n      var PROVIDE = 'provide';\n      var REFERENCE_SET = new Set([USE_VALUE$1, 'useFactory',
'data', 'id', 'loadChildren']);\n      var TYPEGUARD_POSTFIX = 'TypeGuard';\n      var USE_IF = 'UseIf';\n      function
shouldIgnore(value) {\n      return value && value.__symbolic === 'ignore';\n      }\n      /**\n      * A static reflector
implements enough of the Reflector API that is necessary to compile\n      * templates statically.\n      */\n      var
StaticReflector = /** @class */ (function () {\n      function StaticReflector(summaryResolver, symbolResolver,
knownMetadataClasses, knownMetadataFunctions, errorRecorder) {\n      var _this = this;\n      if
(knownMetadataClasses === void 0) { knownMetadataClasses = []; }\n      if (knownMetadataFunctions ===

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void 0) { knownMetadataFunctions = []; }
    this.summaryResolver = summaryResolver;
    this.symbolResolver = symbolResolver;
    this.errorRecorder = errorRecorder;
this.annotationCache = new Map();
this.shallowAnnotationCache = new Map();
this.propertyCache = new Map();
this.parameterCache = new Map();
this.methodCache = new Map();
this.staticCache = new Map();
this.conversionMap = new Map();
this.resolvedExternalReferences = new Map();
this.annotationForParentClassWithSummaryKind = new Map();
this.initializeConversionMap();
knownMetadataClasses.forEach(function (kc) { return
_this._registerDecoratorOrConstructor(_this.getStaticSymbol(kc.filePath, kc.name), kc.ctor); });
knownMetadataFunctions.forEach(function (kf) { return _this._registerFunction(_this.getStaticSymbol(kf.filePath,
kf.name), kf.fn); });
this.annotationForParentClassWithSummaryKind.set(exports.CompileSummaryKind.Directive,
[createDirective, createComponent]);
this.annotationForParentClassWithSummaryKind.set(exports.CompileSummaryKind.Pipe, [createPipe]);
this.annotationForParentClassWithSummaryKind.set(exports.CompileSummaryKind.NgModule,
[createNgModule]);
this.annotationForParentClassWithSummaryKind.set(exports.CompileSummaryKind.Injectable, [createInjectable,
createPipe, createDirective, createComponent, createNgModule]);
StaticReflector.prototype.componentModuleUrl = function (typeOrFunc) {
    var staticSymbol =
this.findSymbolDeclaration(typeOrFunc);
    return this.symbolResolver.getResourcePath(staticSymbol);
};
/**
 * Invalidate the specified `symbols` on program change.
 * @param symbols
 */
StaticReflector.prototype.invalidateSymbols = function (symbols) {
    var e_1, _a;
    try {
for (var symbols_1 = __values(symbols),
symbols_1_1 = symbols_1.next(); !symbols_1_1.done; symbols_1_1 = symbols_1.next()) {
    var
symbol = symbols_1_1.value;
    this.annotationCache.delete(symbol);
this.shallowAnnotationCache.delete(symbol);
this.propertyCache.delete(symbol);
this.parameterCache.delete(symbol);
this.methodCache.delete(symbol);
this.staticCache.delete(symbol);
this.conversionMap.delete(symbol);
}
}
catch (e_1_1) { e_1 = { error: e_1_1 }; }
finally {
    try {
        if (symbols_1_1 &&
!symbols_1_1.done && (_a = symbols_1.return)) _a.call(symbols_1);
    }
    finally { if (e_1)
throw e_1.error; }
}
}
StaticReflector.prototype.resolveExternalReference = function (ref,
containingFile) {
    var key = undefined;
    if (!containingFile) {
        key = ref.moduleName + ":" + ref.name;
    }
    var declarationSymbol_1 = this.resolvedExternalReferences.get(key);
    if (declarationSymbol_1)
return declarationSymbol_1;
    var refSymbol =
this.symbolResolver.getSymbolByModule(ref.moduleName, ref.name, containingFile);
    var
declarationSymbol = this.findSymbolDeclaration(refSymbol);
    if (!containingFile) {
this.symbolResolver.recordModuleNameForFileName(refSymbol.filePath, ref.moduleName);
this.symbolResolver.recordImportAs(declarationSymbol, refSymbol);
}
    if (key) {
this.resolvedExternalReferences.set(key, declarationSymbol);
}
    return declarationSymbol;
};
StaticReflector.prototype.findDeclaration = function (moduleUrl, name, containingFile) {
    return this.findSymbolDeclaration(this.symbolResolver.getSymbolByModule(moduleUrl, name,
containingFile));
};
StaticReflector.prototype.tryFindDeclaration = function (moduleUrl, name,
containingFile) {
    var _this = this;
    return this.symbolResolver.ignoreErrorsFor(function () { return
_this.findDeclaration(moduleUrl, name, containingFile); });
};
StaticReflector.prototype.findSymbolDeclaration = function (symbol) {
    var resolvedSymbol =
this.symbolResolver.resolveSymbol(symbol);
    if (resolvedSymbol) {
        var resolvedMetadata =
resolvedSymbol.metadata;
        if (resolvedMetadata && resolvedMetadata.__symbolic === 'resolved') {
            resolvedMetadata = resolvedMetadata.symbol;
        }
        if (resolvedMetadata instanceof

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StaticSymbol) {\n                return this.findSymbolDeclaration(resolvedSymbol.metadata);\n            }\n        }\n        return symbol;\n    };\n    StaticReflector.prototype.tryAnnotations = function (type) {\n        var originalRecorder = this.errorRecorder;\n        this.errorRecorder = function (error, fileName) {\n            try\n            {\n                return this.annotations(type);\n            }\n            finally {\n                this.errorRecorder =\n                originalRecorder;\n            }\n        };\n        StaticReflector.prototype.annotations = function (type) {\n            var\n            _this = this;\n            return this._annotations(type, function (type, decorators) {\n                return _this.simplify(type,\n                decorators);\n            }, this.annotationCache);\n        };\n        StaticReflector.prototype.shallowAnnotations = function (type)\n        {\n            var _this = this;\n            return this._annotations(type, function (type, decorators) {\n                return\n                _this.simplify(type, decorators, true);\n            }, this.shallowAnnotationCache);\n        };\n    }\n    StaticReflector.prototype._annotations\n    = function (type, simplify, annotationCache) {\n        var annotations = annotationCache.get(type);\n        if\n        (!annotations) {\n            annotations = [];\n            var classMetadata = this.getTypeMetadata(type);\n            var\n            parentType = this.findParentType(type, classMetadata);\n            if (parentType) {\n                var\n                parentAnnotations = this.annotations(parentType);\n                annotations.push.apply(annotations,\n                __spread(parentAnnotations));\n            }\n            var ownAnnotations_1 = [];\n            if\n            (classMetadata['decorators']) {\n                ownAnnotations_1 = simplify(type, classMetadata['decorators']);\n                if (ownAnnotations_1) {\n                    annotations.push.apply(annotations,\n                    __spread(ownAnnotations_1));\n                }\n            }\n            if (parentType &&\n            !this.summaryResolver.isLibraryFile(type.filePath) &&\n            this.summaryResolver.isLibraryFile(parentType.filePath)) {\n                var summary =\n                this.summaryResolver.resolveSummary(parentType);\n                if (summary && summary.type) {\n                    var\n                    requiredAnnotationTypes =\n                    this.annotationForParentClassWithSummaryKind.get(summary.type.summaryKind);\n                    var\n                    typeHasRequiredAnnotation = requiredAnnotationTypes.some(function (requiredType) {\n                        return\n                        ownAnnotations_1.some(function (ann) {\n                            return requiredType.isTypeOf(ann);\n                        });\n                    });\n                    if\n                    (!typeHasRequiredAnnotation) {\n                        this.reportError(formatMetadataError(metadataError("\nClass\n" +\n                        type.name + "\n in\n" + type.filePath + "\n extends from a\n" +\n                        exports.CompileSummaryKind[summary.type.summaryKind] + "\n in another compilation unit\nwithout duplicating\nthe decorator",\n                        /* summary */ undefined, "\nPlease add a\n" +\n                        requiredAnnotationTypes.map(function (type) {\n                            return type.ngMetadataName;\n                        })\n                        .join(' or ') + "\n decorator to the class\n"), type, type);\n                    }\n                }\n                annotationCache.set(type, annotations.filter(function (ann) {\n                    return\n                    !!ann;\n                }));\n            }\n            return annotations;\n        };\n        StaticReflector.prototype.propMetadata = function (type) {\n            var _this =\n            this;\n            var propMetadata = this.propertyCache.get(type);\n            if (!propMetadata) {\n                var\n                classMetadata = this.getTypeMetadata(type);\n                propMetadata = {};\n                var\n                parentType =\n                this.findParentType(type, classMetadata);\n                if (parentType) {\n                    var\n                    parentPropMetadata_1 =\n                    this.propMetadata(parentType);\n                    Object.keys(parentPropMetadata_1).forEach(function (parentProp)\n                    {\n                        propMetadata[parentProp] = parentPropMetadata_1[parentProp];\n                    });\n                }\n                var\n                members_1 = classMetadata['members'] || [];\n                Object.keys(members_1).forEach(function (propName) {\n                    var\n                    propData = members_1[propName];\n                    var\n                    prop = propData\n                    .find(function (a) {\n                        return a['__symbolic'] ==\n                        'property' ||\n                        a['__symbolic'] ==\n                        'method';\n                    });\n                    var\n                    decorators = [];\n                    // hasOwnProperty() is used here to\n                    make sure we do not look up methods\n                    // on `Object.prototype`\n                    if (propMetadata ===\n                    null || propMetadata ===\n                    void 0 ? void 0 : propMetadata.hasOwnProperty(propName)) {\n                        decorators.push.apply(decorators,\n                        __spread(propMetadata[propName]));\n                    }\n                    propMetadata[propName] =\n                    decorators;\n                    if (prop && prop['decorators']) {\n                        decorators.push.apply(decorators,\n                        __spread(_this.simplify(type,\n
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prop['decorators']));\n                }\n                });\n                this.propertyCache.set(type, propMetadata);\n\n}\n    return propMetadata;\n    };\n    StaticReflector.prototype.parameters = function (type) {\n        var\n        _this = this;\n        if (!(type instanceof StaticSymbol)) {\n            this.reportError(new Error(\"parameters\nreceived \" + JSON.stringify(type) + \" which is not a StaticSymbol\"), type);\n            return [];\n        }\n        try {\n            var parameters_1 = this.parameterCache.get(type);\n            if (!parameters_1) {\n                var\n                classMetadata = this.getTypeMetadata(type);\n                var parentType = this.findParentType(type,\n                classMetadata);\n                var members = classMetadata ? classMetadata['members'] : null;\n                var\n                ctorData = members ? members['__ctor__'] : null;\n                if (ctorData)\n                {\n                    var ctor = ctorData.find(function (a) { return a['__symbolic'] == 'constructor'; });\n                    var rawParameterTypes = ctor['parameters'] || [];\n                    var parameterDecorators_1 = this.simplify(type,\n                    ctor['parameterDecorators'] || []);\n                    parameters_1 = [];\n                    rawParameterTypes.forEach(function (rawParamType, index) {\n                        var nestedResult = [];\n                        var paramType = _this.trySimplify(type, rawParamType);\n                        if (paramType)\n                        {\n                            nestedResult.push(paramType);\n                            var decorators = parameterDecorators_1 ?\n                            parameterDecorators_1[index] : null;\n                            if (decorators) {\n                                nestedResult.push.apply(nestedResult, __spread(decorators));\n                            }\n                            parameters_1.push(nestedResult);\n                        }\n                    });\n                    }\n                else if (parentType) {\n                    parameters_1 =\n                    this.parameters(parentType);\n                }\n                if (!parameters_1) {\n                    parameters_1 = [];\n                }\n                this.parameterCache.set(type, parameters_1);\n                }\n            return\n            parameters_1;\n        }\n        catch (e) {\n            console.error(\"Failed on type \" + JSON.stringify(type) +\n            \" with error \" + e);\n            throw e;\n        }\n    };\n    StaticReflector.prototype._methodNames =\n    function (type) {\n        var methodNames = this.methodCache.get(type);\n        if (!methodNames) {\n            var classMetadata = this.getTypeMetadata(type);\n            methodNames = {};\n            var parentType =\n            this.findParentType(type, classMetadata);\n            if (parentType) {\n                var parentMethodNames_1 = this._methodNames(parentType);\n                Object.keys(parentMethodNames_1).forEach(function (parentProp) {\n                    methodNames[parentProp] =\n                    parentMethodNames_1[parentProp];\n                });\n            }\n            var members_2 =\n            classMetadata['members'] || {};\n            Object.keys(members_2).forEach(function (propName) {\n                var propData = members_2[propName];\n                var isMethod = propData.some(function (a) { return\n                a['__symbolic'] == 'method'; });\n                methodNames[propName] = methodNames[propName] || isMethod;\n            });\n            this.methodCache.set(type, methodNames);\n        }\n        return methodNames;\n    };\n    StaticReflector.prototype._staticMembers = function (type) {\n        var staticMembers =\n        this.staticCache.get(type);\n        if (!staticMembers) {\n            var classMetadata\n            = this.getTypeMetadata(type);\n            var staticMemberData = classMetadata['statics'] || {};\n            staticMembers = Object.keys(staticMemberData);\n            this.staticCache.set(type, staticMembers);\n        }\n        return staticMembers;\n    };\n    StaticReflector.prototype.findParentType = function (type,\n    classMetadata) {\n        var parentType = this.trySimplify(type, classMetadata['extends']);\n        if (parentType\n        instanceof StaticSymbol) {\n            return parentType;\n        }\n    };\n    StaticReflector.prototype.hasLifecycleHook = function (type, lcProperty) {\n        if (!(type instanceof\n        StaticSymbol)) {\n            this.reportError(new Error(\"hasLifecycleHook received \" + JSON.stringify(type) + \"\n            which is not a StaticSymbol\"), type);\n        }\n        try {\n            return\n            !!this._methodNames(type)[lcProperty];\n        }\n        catch (e) {\n            console.error(\"Failed on type \" + JSON.stringify(type) + \" with error \" + e);\n            throw e;\n        }\n    };\n    StaticReflector.prototype.guards = function (type) {\n        var e_2, _a;\n        if (!(type instanceof\n        StaticSymbol)) {\n            this.reportError(new Error(\"guards received \" + JSON.stringify(type) + \" which is not\n            a StaticSymbol\"), type);\n            return {};\n        }\n        var staticMembers = this._staticMembers(type);\n        var result = {};\n        try {\n            for (var staticMembers_1 = __values(staticMembers),\n
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staticMembers_1_1 = staticMembers_1.next(); !staticMembers_1_1.done; staticMembers_1_1 =
staticMembers_1.next()) {\n          var name = staticMembers_1_1.value;\n          if
(name.endsWith(TYPEGUARD_POSTFIX)) {\n          var property = name.substr(0, name.length -
TYPEGUARD_POSTFIX.length);\n          var value =
void 0;\n          if (property.endsWith(USE_IF)) {\n          property = name.substr(0,
property.length - USE_IF.length);\n          value = USE_IF;\n          }\n          else {\n
          value = this.getStaticSymbol(type.filePath, type.name, [name]);\n          }\n
result[property] = value;\n          }\n          }\n          catch (e_2_1) { e_2 = { error: e_2_1 }; }\n
          finally {\n          try {\n          if (staticMembers_1_1 && !staticMembers_1_1.done && (_a =
staticMembers_1.return)) _a.call(staticMembers_1);\n          }\n          finally { if (e_2) throw e_2.error; }\n
          }\n          return result;\n          };\n          StaticReflector.prototype._registerDecoratorOrConstructor = function
(type, ctor) {\n          this.conversionMap.set(type, function (context,
args) { return new (ctor.bind.apply(ctor, __spread([void 0], args)))(); });\n          }\n
StaticReflector.prototype._registerFunction = function (type, fn) {\n          this.conversionMap.set(type, function
(context, args) { return fn.apply(undefined, args); });\n          }\n
StaticReflector.prototype.initializeConversionMap = function () {\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Injectable'), createInjectable);\n
this.injectionToken = this.findDeclaration(ANGULAR_CORE, 'InjectionToken');\n          this.opaqueToken =
this.findDeclaration(ANGULAR_CORE, 'OpaqueToken');\n          this.ROUTES =
this.tryFindDeclaration(ANGULAR_ROUTER, 'ROUTES');\n
this.ANALYZE_FOR_ENTRY_COMPONENTS =\n          this.findDeclaration(ANGULAR_CORE,
'ANALYZE_FOR_ENTRY_COMPONENTS');\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Host'), createHost);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Self'), createSelf);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'SkipSelf'), createSkipSelf);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Inject'), createInject);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Optional'), createOptional);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Attribute'), createAttribute);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'ContentChild'),
createContentChild);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'ContentChildren'), createContentChildren);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'ViewChild'), createViewChild);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'ViewChildren'),
createViewChildren);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Input'), createInput);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Output'), createOutput);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Pipe'), createPipe);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'HostBinding'), createHostBinding);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'HostListener'),
createHostListener);\n          this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE,
'Directive'), createDirective);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Component'), createComponent);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'NgModule'),
createNgModule);\n          // Note: Some metadata classes can be used
directly with Provider.deps.\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Host'), createHost);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Self'), createSelf);\n

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this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'SkipSelf'), createSkipSelf);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Optional'), createOptional);\n
};\n    /**\n    * getStaticSymbol produces a Type whose metadata is known but whose implementation is not\n    loaded.\n    * All types passed to the StaticResolver should be pseudo-types returned by this method.\n    *\n    * @param declarationFile the absolute path of the file where the symbol is declared\n    * @param name the\n    name of the type.\n    */\n    StaticReflector.prototype.getStaticSymbol = function (declarationFile, name,\n    members) {\n        return this.symbolResolver.getStaticSymbol(declarationFile,\n        name, members);\n    };\n    /**\n    * Simplify but discard any errors\n    */\n    StaticReflector.prototype.trySimplify = function (context, value) {\n        var originalRecorder =\n        this.errorRecorder;\n        this.errorRecorder = function (error, fileName) { };\n        var result =\n        this.simplify(context, value);\n        this.errorRecorder = originalRecorder;\n        return result;\n    };\n    /** @internal */\n    StaticReflector.prototype.simplify = function (context, value, lazy) {\n        if (lazy ===\n        void 0) { lazy = false; }\n        var self = this;\n        var scope = BindingScope$1.empty;\n        var calling =\n        new Map();\n        var rootContext = context;\n        function simplifyInContext(context, value, depth,\n        references) {\n            function resolveReferenceValue(staticSymbol) {\n                var resolvedSymbol =\n                self.symbolResolver.resolveSymbol(staticSymbol);\n                return resolvedSymbol ? resolvedSymbol.metadata : null;\n            }\n            function\n            simplifyEagerly(value) {\n                return simplifyInContext(context, value, depth, 0);\n            }\n            function simplifyLazily(value) {\n                return simplifyInContext(context, value, depth, references + 1);\n            }\n            function simplifyNested(nestedContext, value) {\n                if (nestedContext === context) {\n                    // If the context hasn't changed let the exception propagate unmodified.\n                    return\n                    simplifyInContext(nestedContext, value, depth + 1, references);\n                }\n                try {\n                    return simplifyInContext(nestedContext, value, depth + 1, references);\n                }\n                catch (e) {\n                    if (isMetadataError(e)) {\n                        // Propagate the message text up but add a message to the chain that explains how we got\n                        // here.\n                        // e.chain implies e.symbol\n                        var summaryMsg = e.chain ?\n                        'references \\\" + e.symbol.name + '\\\" : errorSummary(e);\n                        var summary = '\\\" +\n                        nestedContext.name + '\\\" + summaryMsg;\n                        var chain = { message: summary, position:\n                        e.position, next: e.chain };\n                        // TODO(chuckj): retrieve the position information indirectly from the\n                        collectors node\n                        // map if the metadata is from a .ts file.\n                        self.error({\n                            message: e.message,\n                            advise: e.advise,\n                            context: e.context,\n                            chain: chain,\n                            symbol: nestedContext\n                            }, context);\n                    }\n                    else {\n                        // It is probably an internal\n                        error.\n                        throw e;\n                    }\n                }\n            }\n            function\n            simplifyCall(functionSymbol, targetFunction, args, targetExpression) {\n                if (targetFunction &&\n                targetFunction['__symbolic'] == 'function') {\n                    if (calling.get(functionSymbol)) {\n                        self.error({\n                            message: 'Recursion is not supported',\n                            summary: '\\\"called \\\" +\n                            functionSymbol.name + '\\\" recursively',\n                            value: targetFunction\n                        },\n                        functionSymbol);\n                    }\n                    try {\n                        var value_1 = targetFunction['value'];\n                        if (value_1\n                        && (depth != 0 || value_1.__symbolic != 'error')) {\n                            var parameters =\n                            targetFunction['parameters'];\n                            var defaults = targetFunction.defaults;\n                            args\n                            = args.map(function (arg) { return simplifyNested(context, arg); });\n                            .map(function (arg) {\n                                return shouldIgnore(arg) ? undefined : arg;\n                            });\n                            if (defaults && defaults.length > args.length)\n                                {\n                                    args.push.apply(args, __spread(defaults.slice(args.length).map(function (value) { return\n                                    simplify(value); }));\n                                }\n                                calling.set(functionSymbol, true);\n                                var functionScope = BindingScope$1.build();\n                                for (var i = 0; i < parameters.length; i++) {\n                                    functionScope.define(parameters[i], args[i]);\n                                }\n                            }\n                        }\n                    }\n                }\n            }\n        }\n    }\n
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    }\n
    try {\n
        scope = functionScope.done();\n
        result_1 =\n
simplifyNested(functionSymbol, value_1);\n
    }\n
    finally {\n
        scope = oldScope;\n
    }\n
    return result_1;\n
}\n
}\n
    finally {\n
        calling.delete(functionSymbol);\n
    }\n
}\n
    if (depth === 0) {\n
        // If depth is 0 we are evaluating the top level expression that is
describing element\n
        // decorator. In this case, it is a decorator we don't understand, such
as a custom\n
        // non-angular decorator, and we should just ignore it.\n
        return
IGNORE;\n
    }\n
    var position = undefined;\n
    if (targetExpression &&
targetExpression.__symbolic === 'resolved') {\n
        var line = targetExpression.line;\n
        var
character = targetExpression.character;\n
        var fileName = targetExpression.fileName;\n
        if (fileName !== null && line !== null && character !== null) {\n
            position = { fileName: fileName,
line: line, column: character }; \n
        }\n
        }\n
        self.error({\n
            message:
FUNCTION_CALL_NOT_SUPPORTED,\n
            context: functionSymbol,\n
            value:
targetFunction,\n
            position: position\n
        }, context);\n
    }\n
    function simplify(expression) {\n
        var e_3, _a, e_4, _b;\n
        if
(isPrimitive(expression)) {\n
            return expression;\n
        }\n
        if
(Array.isArray(expression)) {\n
            var result_2 = [];\n
            try {\n
                for (var
expression_1 = __values(expression), expression_1_1 = expression_1.next(); !expression_1_1.done; expression_1_1
= expression_1.next()) {\n
                    var item = expression_1_1.value;\n
                    // Check for a
spread expression\n
                    if (item && item.__symbolic === 'spread') {\n
                        // We
call with references as 0 because we require the actual value and cannot\n
                        // tolerate a
reference here.\n
                        var spreadArray = simplifyEagerly(item.expression);\n
                        if (Array.isArray(spreadArray)) {\n
                            try {\n
                                for (var spreadArray_1 = (e_4 = void 0, __values(spreadArray)), spreadArray_1_1 = spreadArray_1.next();
!spreadArray_1_1.done; spreadArray_1_1 = spreadArray_1.next()) {\n
                                    var spreadItem
= spreadArray_1_1.value;\n
                                    result_2.push(spreadItem);\n
                                }\n
                                catch (e_4_1) { e_4 = { error: e_4_1 }; }\n
                            }\n
                        }\n
                        finally {\n
                            try {\n
                                if (spreadArray_1_1 &&
!spreadArray_1_1.done && (_b = spreadArray_1.return)) _b.call(spreadArray_1);\n
                            }\n
                        }\n
                    }\n
                }\n
            }\n
            finally { if (e_4) throw e_4.error; }\n
        }\n
        }\n
        continue;\n
    }\n
    }\n
    var value_2 = simplify(item);\n
    if (shouldIgnore(value_2)) {\n
        continue;\n
    }\n
    result_2.push(value_2);\n
    }\n
    }\n
    catch (e_3_1) { e_3 = { error: e_3_1
}; }\n
    finally {\n
        try {\n
            if (expression_1_1 &&
!expression_1_1.done && (_a = expression_1.return)) _a.call(expression_1);\n
        }\n
    }\n
    finally { if (e_3) throw e_3.error; }\n
    }\n
    return result_2;\n
}\n
    if (expression instanceof StaticSymbol) {\n
        // Stop simplification at builtin
symbols or if we are in a reference context and\n
        // the symbol doesn't have members.\n
        if (expression === self.injectionToken || self.conversionMap.has(expression) ||\n
        (references > 0
&& !expression.members.length)) {\n
            return expression;\n
        }\n
        else {\n
            var staticSymbol = expression;\n
            var declarationValue =
resolveReferenceValue(staticSymbol);\n
            if (declarationValue !== null) {\n
                return
simplifyNested(staticSymbol, declarationValue);\n
            }\n
            else {\n
                return staticSymbol;\n
            }\n
        }\n
    }\n
    }\n
    if (expression) {\n
        if (expression['__symbolic']) {\n
            var staticSymbol = void 0;\n
            switch (expression['__symbolic']) {\n
                case

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'binop':\n
    var left = simplify(expression['left']);\n
    if\n
    (shouldIgnore(left))\n
        return left;\n
    var right =\n
    simplify(expression['right']);\n
    if (shouldIgnore(right))\n
        return\n
    right;\n
    switch (expression['operator']) {\n
        case '&&':\n
            return left && right;\n
        case '||':\n
            return left || right;\n
        case '|':\n
            return left | right;\n
        case '^':\n
            return left ^ right;\n
        case '&':\n
            return left &\n
    right;\n
        case '==':\n
            return left == right;\n
        case '!=':\n
            return left != right;\n
        case '===':\n
            return left === right;\n
        case '!==':\n
            return left !== right;\n
        case '<':\n
            return left < right;\n
        case '>':\n
            return left > right;\n
        case '<=':\n
            return left <= right;\n
        case '>=':\n
            return left >= right;\n
        case '<<':\n
            return left << right;\n
        case '>>':\n
            return left >> right;\n
        case '+':\n
            return left + right;\n
        case '-':\n
            return left - right;\n
        case '*':\n
            return left *\n
    / right;\n
        case '/':\n
            return left /\n
    right;\n
        case '%':\n
            return left % right;\n
    }\n
    return null;\n
    case 'if':\n
        var condition =\n
        simplify(expression['condition']);\n
        return condition ? simplify(expression['thenExpression'])\n
    : \n
        simplify(expression['elseExpression']);\n
    case 'pre':\n
        var operand = simplify(expression['operand']);\n
        if (shouldIgnore(operand))\n
            return operand;\n
        switch (expression['operator']) {\n
            case '+':\n
                return operand;\n
            case '-':\n
                return -operand;\n
            case '!':\n
                return\n
            !operand;\n
            case '~':\n
                return ~operand;\n
        }\n
        return null;\n
        case 'index':\n
            var indexTarget =\n
            simplifyEagerly(expression['expression']);\n
            var index =\n
            simplifyEagerly(expression['index']);\n
            if (indexTarget && isPrimitive(index))\n
                return indexTarget[index];\n
            return null;\n
            case 'select':\n
                var selectContext = context;\n
                var selectTarget = simplify(expression['expression']);\n
                if (selectTarget\n
            instanceof StaticSymbol) {\n
                    var members = selectTarget.members.concat(member);\n
                    selectContext =\n
                    self.getStaticSymbol(selectTarget.filePath,\n
            selectTarget.name, members);\n
                    var declarationValue =\n
                    resolveReferenceValue(selectContext);\n
                    if (declarationValue != null) {\n
                        return simplifyNested(selectContext, declarationValue);\n
                    }\n
                }\n
            else {\n
                return selectContext;\n
            }\n
        }\n
        if (selectTarget\n
    && isPrimitive(member))\n
            return simplifyNested(selectContext, selectTarget[member]);\n
        return null;\n
        case 'reference':\n
            // Note: This only has\n
            to deal with variable references, as symbol references have\n
            // been converted into\n
            'resolved'\n
            // in the StaticSymbolResolver.\n
            var name =\n
            expression['name'];\n
            var localValue = scope.resolve(name);\n
            if\n
            (localValue != BindingScope$1.missing) {\n
                return localValue;\n
            }\n

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break;\n
return simplify(expression.symbol);\n
}\n
catch (e) {\n
// If an error is reported
evaluating the symbol record the position of the\n
// reference in the error so it can\n
// be reported in the error message generated from the exception.\n
if
(isMetadataError(e) && expression.fileName != null &&\n
expression.line != null &&\n
expression.character != null) {\n
e.position = {\n
fileName:\n
expression.fileName,\n
line: expression.line,\n
column:\n
expression.character\n
};\n
}\n
throw e;\n
}\n
case 'class':\n
return context;\n
case\n
case 'function':\n
return context;\n
case\n
case 'call':\n
// Determine if the function is a built-in conversion\n
staticSymbol = simplifyInContext(context, expression['expression'], depth + 1, /* references */\n
0);\n
if (staticSymbol instanceof StaticSymbol) {\n
if (staticSymbol\n
=== self.injectionToken || staticSymbol === self.opaqueToken) {\n
// if somebody calls\n
new InjectionToken, don't create an InjectionToken,\n
// but rather return the symbol\n
to which the InjectionToken is assigned to.\n
// OpaqueToken is supported too as it is\n
required by the language service to\n
// support v4 and prior versions of Angular.\n
return context;\n
}\n
var argExpressions =\n
expression['arguments'] || [];\n
var converter = self.conversionMap.get(staticSymbol);\n
if (converter) {\n
var args = argExpressions.map(function (arg) {\n
.map(function (arg) {\n
return\n
return simplifyNested(context, arg); })\n
shouldIgnore(arg) ? undefined : arg; });\n
return converter(context, args);\n
}\n
}\n
else {\n
// Determine if the function is one we can simplify.\n
var targetFunction = resolveReferenceValue(staticSymbol);\n
return\n
simplifyCall(staticSymbol, targetFunction, argExpressions, expression['expression']);\n
}\n
}\n
return IGNORE;\n
case 'error':\n
var message = expression.message;\n
if (expression['line'] != null) {\n
self.error({\n
message: message,\n
context:\n
expression.context,\n
value: expression,\n
position:\n
{\n
fileName: expression['fileName'],\n
line:\n
expression['line'],\n
column: expression['character']\n
}, context);\n
}\n
else {\n
self.error({ message: message, context: expression.context }, context);\n
}\n
return IGNORE;\n
case 'ignore':\n
return expression;\n
}\n
return null;\n
}\n
return mapStringMap(expression, function\n
(value, name) {\n
if (REFERENCE_SET.has(name)) {\n
if (name === USE_VALUE$1 && PROVIDE in expression) {\n
// If this is a provider\n
expression, check for special tokens that need the value\n
// during analysis.\n
var provide = simplify(expression.provide);\n
if (provide === self.ROUTES || provide ==\n
self.ANALYZE_FOR_ENTRY_COMPONENTS) {\n
return simplify(value);\n
}\n
}\n
return simplifyLazily(value);\n
}\n
return simplify(value);\n
});\n
}\n
return IGNORE;\n
}\n
return simplify(value);\n
}\n
var result;\n
try {\n
result = simplifyInContext(context,\n
value, 0, lazy ?\n
1 : 0);\n
}\n
catch (e) {\n
if (this.errorRecorder) {\n
this.reportError(e, context);\n
}\n
else {\n
throw formatMetadataError(e, context);\n
}\n
}\n
if

```

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(shouldIgnore(result)) {\n          return undefined;\n        }\n        return result;\n      };\n
StaticReflector.prototype.getTypeMetadata = function (type) {\n      var resolvedSymbol =
this.symbolResolver.resolveSymbol(type);\n      return resolvedSymbol && resolvedSymbol.metadata ?
resolvedSymbol.metadata :\n      { __symbolic: 'class' };\n    };\n    StaticReflector.prototype.reportError
= function (error, context, path) {\n      if (this.errorRecorder) {\n
this.errorRecorder(formatMetadataError(error, context), (context && context.filePath) || path);\n      }\n
else {\n      throw error;\n    }\n    };\n    StaticReflector.prototype.error = function (_a, reportingContext) {\n      var message =
_a.message, summary = _a.summary, advise = _a.advise, position = _a.position, context = _a.context, value =
_a.value, symbol = _a.symbol, chain = _a.chain;\n      this.reportError(metadataError(message, summary, advise,
position, symbol, context, chain), reportingContext);\n    };\n    return StaticReflector;\n  }());\n  var
METADATA_ERROR = 'ngMetadataError';\n  function metadataError(message, summary, advise, position,
symbol, context, chain) {\n    var error = syntaxError(message);\n    error[METADATA_ERROR] = true;\n
if (advise)\n      error.advise = advise;\n    if (position)\n      error.position = position;\n    if (summary)\n
      error.summary = summary;\n    if (context)\n      error.context = context;\n    if (chain)\n
      error.chain = chain;\n    if (symbol)\n      error.symbol = symbol;\n    return error;\n  }\n  function isMetadataError(error) {\n    return
!!error[METADATA_ERROR];\n  }\n  var REFERENCE_TO_NONEXPORTED_CLASS = 'Reference to non-
exported class';\n  var VARIABLE_NOT_INITIALIZED = 'Variable not initialized';\n  var
DESTRUCTURE_NOT_SUPPORTED = 'Destructuring not supported';\n  var COULD_NOT_RESOLVE_TYPE
= 'Could not resolve type';\n  var FUNCTION_CALL_NOT_SUPPORTED = 'Function call not supported';\n  var
REFERENCE_TO_LOCAL_SYMBOL = 'Reference to a local symbol';\n  var LAMBDA_NOT_SUPPORTED =
'Lambda not supported';\n  function expandedMessage(message, context) {\n    switch (message) {\n      case
REFERENCE_TO_NONEXPORTED_CLASS:\n        if (context && context.className) {\n
return \"References to a non-exported class are not supported in decorators but \" + context.className + \" was
referenced.\";\n        }\n        break;\n      case VARIABLE_NOT_INITIALIZED:\n        return 'Only initialized variables and constants can be
referenced in decorators because the value of this variable is needed by the template compiler';\n      case
DESTRUCTURE_NOT_SUPPORTED:\n        return 'Referencing an exported destructured variable or
constant is not supported in decorators and this value is needed by the template compiler';\n      case
COULD_NOT_RESOLVE_TYPE:\n        if (context && context.typeName) {\n          return \"Could not
resolve type \" + context.typeName;\n        }\n        break;\n      case
FUNCTION_CALL_NOT_SUPPORTED:\n        if (context && context.name) {\n          return
\"Function calls are not supported in decorators but \" + context.name + \" was called\";\n        }\n
return 'Function calls are not supported in decorators';\n      case REFERENCE_TO_LOCAL_SYMBOL:\n
if (context
&& context.name) {\n        return \"Reference to a local (non-exported) symbols are not supported in
decorators but \" + context.name + \" was referenced\";\n      }\n      break;\n      case
LAMBDA_NOT_SUPPORTED:\n        return \"Function expressions are not supported in decorators\";\n    }\n
return message;\n  }\n  function messageAdvise(message, context) {\n    switch (message) {\n      case
REFERENCE_TO_NONEXPORTED_CLASS:\n        if (context && context.className) {\n
return \"Consider exporting \" + context.className + \"\";\n        }\n        break;\n      case
DESTRUCTURE_NOT_SUPPORTED:\n        return 'Consider simplifying to avoid destructuring';\n      case
REFERENCE_TO_LOCAL_SYMBOL:\n        if (context && context.name) {\n          return
\"Consider exporting \" + context.name + \"\";\n        }\n        break;\n      case LAMBDA_NOT_SUPPORTED:\n        return \"Consider changing the function
expression into an exported function\";\n    }\n    return undefined;\n  }\n  function errorSummary(error) {\n
if (error.summary) {\n    return error.summary;\n  }\n  switch (error.message) {\n    case

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REFERENCE_TO_NONEXPORTED_CLASS:\n          if (error.context && error.context.className) {\n
    return \"references non-exported class \" + error.context.className;\n          }\n          break;\n
case VARIABLE_NOT_INITIALIZED:\n          return 'is not initialized';\n          case
DESTRUCTURE_NOT_SUPPORTED:\n          return 'is a destructured variable';\n          case
COULD_NOT_RESOLVE_TYPE:\n          return 'could not be resolved';\n          case
FUNCTION_CALL_NOT_SUPPORTED:\n          if (error.context && error.context.name) {\n
    return \"calls \" + error.context.name + \"\";\n          }\n          return \"calls a function\";\n          case
REFERENCE_TO_LOCAL_SYMBOL:\n          if (error.context && error.context.name) {\n          return
\"references local variable \" + error.context.name;\n          }\n          return \"references a local variable\";\n
    }\n    return 'contains the error';\n    }\n    function mapStringMap(input, transform) {\n    if (!input)\n    return {};\n    var result = {};\n    Object.keys(input).forEach(function (key) {\n    var value =
    transform(input[key], key);\n    if (!shouldIgnore(value)) {\n    if (HIDDEN_KEY.test(key)) {\n
        Object.defineProperty(result, key, { enumerable: false, configurable: true, value: value });\n    }\n
    else {\n    result[key] = value;\n    }\n    }\n    });\n
    return result;\n    }\n    function isPrimitive(o) {\n    return o === null || (typeof o !== 'function' && typeof o !==
    'object');\n    }\n    var BindingScope$1 = /** @class */ (function () {\n    function BindingScope() {\n    }\n
    BindingScope.build = function () {\n    var current = new Map();\n    return {\n    define: function
    (name, value) {\n    current.set(name, value);\n    return this;\n    },\n    done:
    function () {\n    return current.size > 0 ? new PopulatedScope(current) : BindingScope.empty;\n
    }\n    };\n    return BindingScope;\n    }());\n    BindingScope$1.missing = {};\n
    BindingScope$1.empty = { resolve: function (name) { return BindingScope$1.missing; } };\n    var PopulatedScope
    = /** @class */ (function (_super) {\n    __extends(PopulatedScope, _super);\n    function
    PopulatedScope(bindings) {\n
        var _this = _super.call(this) || this;\n        _this.bindings = bindings;\n        return _this;\n    }\n
    PopulatedScope.prototype.resolve = function (name) {\n    return this.bindings.has(name) ?
    this.bindings.get(name) : BindingScope$1.missing;\n    };\n    return PopulatedScope;\n
    }(BindingScope$1));\n    function formatMetadataMessageChain(chain, advise) {\n    var expanded =
    expandedMessage(chain.message, chain.context);\n    var nesting = chain.symbol ? \" in \" + chain.symbol.name
    + \"\" : \"\";\n    var message = \"\" + expanded + nesting;\n    var position = chain.position;\n    var next =
    chain.next ?\n    formatMetadataMessageChain(chain.next, advise) :\n    advise ? { message: advise } :
    undefined;\n    return { message: message, position: position, next: next ? [next] : undefined };\n    }\n    function
    formatMetadataError(e, context) {\n    if (isMetadataError(e)) {\n
        // Produce a formatted version of the and leaving enough information in the original error\n        // to recover the
        formatting information to eventually produce a diagnostic error message.\n        var position = e.position;\n
        var chain = {\n        message: \"Error during template compile of \" + context.name + \"\", \n        position:
        position,\n        next: { message: e.message, next: e.chain, context: e.context, symbol: e.symbol }\n        };\n
        var advise = e.advise || messageAdvise(e.message, e.context);\n        return
        formattedError(formatMetadataMessageChain(chain, advise));\n    }\n    return e;\n    }\n    /**\n
    * @license\n    * Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an
    MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    var
    AotSummaryResolver = /** @class */ (function () {\n
        function AotSummaryResolver(host, staticSymbolCache) {\n        this.host = host;\n
        this.staticSymbolCache = staticSymbolCache;\n        // Note: this will only contain StaticSymbols without
        members!\n        this.summaryCache = new Map();\n        this.loadedFilePaths = new Map();\n        // Note:
        this will only contain StaticSymbols without members!\n        this.importAs = new Map();\n
        this.knownFileNameToModuleNames = new Map();\n    }\n    AotSummaryResolver.prototype.isLibraryFile =
    function (filePath) {\n    // Note: We need to strip the .ngfactory. file path,\n    // so this method also works
    for generated files\n    // (for which host.isSourceFile will always return false).\n    return

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!this.host.isSourceFile(stripGeneratedFileSuffix(filePath));\n    };\n
AotSummaryResolver.prototype.toSummaryFileName = function (filePath, referringSrcFileName) {\n    return
this.host.toSummaryFileName(filePath,
referringSrcFileName);\n    };\n    AotSummaryResolver.prototype.fromSummaryFileName = function
(fileName, referringLibFileName) {\n    return this.host.fromSummaryFileName(fileName,
referringLibFileName);\n    };\n    AotSummaryResolver.prototype.resolveSummary = function (staticSymbol)
{\n    var rootSymbol = staticSymbol.members.length ?\nthis.staticSymbolCache.get(staticSymbol.filePath, staticSymbol.name) :\n    staticSymbol;\n    var
summary = this.summaryCache.get(rootSymbol);\n    if (!summary) {\n
this._loadSummaryFile(staticSymbol.filePath);\n    summary = this.summaryCache.get(staticSymbol);\n
    }\n    return (rootSymbol === staticSymbol && summary) || null;\n    };\n
AotSummaryResolver.prototype.getSymbolsOf = function (filePath) {\n    if (this._loadSummaryFile(filePath))
{\n    return Array.from(this.summaryCache.keys()).filter(function
(symbol) { return symbol.filePath === filePath; });\n    }\n    return null;\n    };\n
AotSummaryResolver.prototype.getImportAs = function (staticSymbol) {\n
staticSymbol.assertNoMembers();\n    return this.importAs.get(staticSymbol);\n    };\n    /**\n    *
Converts a file path to a module name that can be used as an `import`.\n    */\n
AotSummaryResolver.prototype.getKnownModuleName = function (importedFilePath) {\n    return
this.knownFileNameToModuleNames.get(importedFilePath) || null;\n    };\n
AotSummaryResolver.prototype.addSummary = function (summary) {\n
this.summaryCache.set(summary.symbol, summary);\n    };\n
AotSummaryResolver.prototype._loadSummaryFile = function (filePath) {\n    var _this = this;\n    var
hasSummary = this.loadedFilePaths.get(filePath);\n    if (hasSummary != null) {\n
return hasSummary;\n    }\n    var json = null;\n    if (this.isLibraryFile(filePath)) {\n    var
summaryFilePath = summaryFileName(filePath);\n    try {\n    json =
this.host.loadSummary(summaryFilePath);\n    }\n    catch (e) {\n    console.error("\nError
loading summary file\n" + summaryFilePath);\n    throw e;\n    }\n    }\n    hasSummary =
json != null;\n    this.loadedFilePaths.set(filePath, hasSummary);\n    if (json) {\n    var _a =
deserializeSummaries(this.staticSymbolCache, this, filePath, json), moduleName = _a.moduleName, summaries =
_a.summaries, importAs = _a.importAs;\n    summaries.forEach(function (summary) { return
_this.summaryCache.set(summary.symbol, summary); });\n    if (moduleName) {\n
this.knownFileNameToModuleNames.set(filePath, moduleName);\n
    }\n    importAs.forEach(function (importAs) {\n    _this.importAs.set(importAs.symbol,
importAs.importAs);\n    });\n    }\n    return hasSummary;\n    };\n    return
AotSummaryResolver;\n    }());\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n
*\n    * Use of this source code is governed by an MIT-style license that can be\n    * found in the LICENSE file at
https://angular.io/license\n    */\n    function createAotUrlResolver(host) {\n    return {\n    resolve: function
(basePath, url) {\n    var filePath = host.resourceNameToFileName(url, basePath);\n    if (!filePath)
{\n    throw syntaxError("\nCouldn't resolve resource\n" + url + "\n" from\n" + basePath);\n    }\n
return filePath;\n    }\n    };\n    }\n    /**\n    * Creates a new AotCompiler based on options and a host.\n
*/\n    function createAotCompiler(compilerHost, options, errorCollector) {\n    var translations =
options.translations || [];\n    var urlResolver = createAotUrlResolver(compilerHost);\n    var symbolCache =
new StaticSymbolCache();\n    var summaryResolver = new AotSummaryResolver(compilerHost,
symbolCache);\n    var symbolResolver = new StaticSymbolResolver(compilerHost, symbolCache,
summaryResolver);\n    var staticReflector = new StaticReflector(summaryResolver, symbolResolver, [], [],
errorCollector);\n    var htmlParser;\n    if (!!options.enableIvy) {\n    // Ivy handles i18n at the compiler
level so we must use a regular parser\n    htmlParser = new HtmlParser();\n    }\n    else {\n
htmlParser = new I18NHtmlParser(new HtmlParser(), translations, options.i18nFormat, options.missingTranslation,

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console);\n    }\n    var config = new CompilerConfig({\n        defaultEncapsulation:
ViewEncapsulation.Emulated,\n
        useJit: false,\n        missingTranslation: options.missingTranslation,\n        preserveWhitespaces:
options.preserveWhitespaces,\n        strictInjectionParameters: options.strictInjectionParameters,\n    });\n
var normalizer = new DirectiveNormalizer({ get: function (url) { return compilerHost.loadResource(url); } },
urlResolver, htmlParser, config);\n    var expressionParser = new Parser$1(new Lexer());\n    var
elementSchemaRegistry = new DomElementSchemaRegistry();\n    var tmplParser = new TemplateParser(config,
staticReflector, expressionParser, elementSchemaRegistry, htmlParser, console, []);\n    var resolver = new
CompileMetadataResolver(config, htmlParser, new NgModuleResolver(staticReflector), new
DirectiveResolver(staticReflector), new PipeResolver(staticReflector), summaryResolver, elementSchemaRegistry,
normalizer, console, symbolCache, staticReflector, errorCollector);\n    // TODO(vicb): do not pass
options.i18nFormat here\n    var viewCompiler = new ViewCompiler(staticReflector);\n    var
typeCheckCompiler = new TypeCheckCompiler(options, staticReflector);\n    var compiler = new
AotCompiler(config, options, compilerHost, staticReflector, resolver, tmplParser, new StyleCompiler(urlResolver),
viewCompiler, typeCheckCompiler, new NgModuleCompiler(staticReflector), new
InjectableCompiler(staticReflector, !!options.enableIvy), new TypeScriptEmitter(), summaryResolver,
symbolResolver);\n    return { compiler: compiler, reflector: staticReflector };\n    }\n\n    var SummaryResolver =
/** @class */ (function () {\n        function SummaryResolver() {\n        }\n        return SummaryResolver;\n    }());\n    var JitSummaryResolver = /** @class */ (function () {\n        function JitSummaryResolver() {\n
this._summaries = new Map();\n        }\n        JitSummaryResolver.prototype.isLibraryFile = function () {\n
return false;\n        };\n        JitSummaryResolver.prototype.toSummaryFileName
= function (fileName) {\n            return fileName;\n        };\n
JitSummaryResolver.prototype.fromSummaryFileName = function (fileName) {\n            return fileName;\n
        };\n        JitSummaryResolver.prototype.resolveSummary = function (reference) {\n            return
this._summaries.get(reference) || null;\n        };\n        JitSummaryResolver.prototype.getSymbolsOf = function () {\n
return [];\n        };\n        JitSummaryResolver.prototype.getImportAs = function (reference) {\n            return
reference;\n        };\n        JitSummaryResolver.prototype.getKnownModuleName = function (fileName) {\n
return null;\n        };\n        JitSummaryResolver.prototype.addSummary = function (summary) {\n
this._summaries.set(summary.symbol, summary);\n        };\n        return JitSummaryResolver;\n    }());\n\n    function interpretStatements(statements, reflector) {\n        var ctx = new
_ExecutionContext(null, null, null, new Map());\n        var visitor = new StatementInterpreter(reflector);\n        visitor.visitAllStatements(statements, ctx);\n        var result = {};\n        ctx.exports.forEach(function (exportName)
{\n            result[exportName] = ctx.vars.get(exportName);\n        });\n        return result;\n    }\n    function
_executeFunctionStatements(varNames, varValues, statements, ctx, visitor) {\n        var childCtx =
ctx.createChildWithLocalVars();\n        for (var i = 0; i < varNames.length; i++) {\n
childCtx.vars.set(varNames[i], varValues[i]);\n        }\n        var result = visitor.visitAllStatements(statements,
childCtx);\n        return result ? result.value : null;\n    }\n    var _ExecutionContext = /** @class */ (function () {\n
function _ExecutionContext(parent, instance, className, vars) {\n        this.parent = parent;\n
this.instance = instance;\n        this.className = className;\n        this.vars
= vars;\n        this.exports = [];\n    }\n    _ExecutionContext.prototype.createChildWithLocalVars = function
() {\n        return new _ExecutionContext(this, this.instance, this.className, new Map());\n    };\n    return
_ExecutionContext;\n    }());\n    var ReturnValue = /** @class */ (function () {\n        function ReturnValue(value)
{\n            this.value = value;\n        }\n        return ReturnValue;\n    }());\n    function
createDynamicClass(_classStmt, _ctx, _visitor) {\n        var propertyDescriptors = {};\n
_classStmt.getters.forEach(function (getter) {\n            // Note: use `function` instead of arrow function to capture
`this`\n            propertyDescriptors[getter.name] = {\n                configurable: false,\n                get: function () {\n
var instanceCtx = new _ExecutionContext(_ctx, this, _classStmt.name, _ctx.vars);\n                return
_executeFunctionStatements([], [], getter.body,

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instanceCtx, _visitor);\n        }\n    });\n    _classStmt.methods.forEach(function (method) {\n        var paramNames = method.params.map(function (param) { return param.name; });\n        // Note: use\n`function` instead of arrow function to capture `this`\n        propertyDescriptors[method.name] = {\n            writable: false,\n            configurable: false,\n            value: function () {\n                var args = [];\n                for (var _i = 0; _i < arguments.length; _i++) {\n                    args[_i] = arguments[_i];\n                }\n                var instanceCtx = new _ExecutionContext(_ctx, this, _classStmt.name, _ctx.vars);\n                return\n                _executeFunctionStatements(paramNames, args, method.body, instanceCtx, _visitor);\n            }\n        });\n        var ctorParamNames = _classStmt.constructorMethod.params.map(function (param) { return param.name;\n        });\n        // Note: use `function` instead of arrow function to capture `this`\n        var ctor = function () {\n            var _this = this;\n            var args = [];\n            for (var _i = 0; _i < arguments.length; _i++) {\n                args[_i] =\n                arguments[_i];\n            }\n            var instanceCtx = new _ExecutionContext(_ctx, this, _classStmt.name,\n            _ctx.vars);\n            _classStmt.fields.forEach(function (field) {\n                _this[field.name] = undefined;\n            });\n            _executeFunctionStatements(ctorParamNames, args, _classStmt.constructorMethod.body, instanceCtx,\n            _visitor);\n        };\n        var superClass = _classStmt.parent ? _classStmt.parent.visitExpression(_visitor, _ctx) :\n        Object;\n        ctor.prototype = Object.create(superClass.prototype, propertyDescriptors);\n        return ctor;\n    });\n    var StatementInterpreter = /** @class */ (function () {\n        function StatementInterpreter(reflector) {\n            this.reflector\n            = reflector;\n        }\n        StatementInterpreter.prototype.debugAst = function (ast) {\n            return\n            debugOutputAstAsTypeScript(ast);\n        };\n        StatementInterpreter.prototype.visitDeclareVarStmt = function\n        (stmt, ctx) {\n            var initialValue = stmt.value ? stmt.value.visitExpression(this, ctx) : undefined;\n            ctx.vars.set(stmt.name, initialValue);\n            if (stmt.hasModifier(exports.StmtModifier.Exported)) {\n                ctx.exports.push(stmt.name);\n            }\n            return null;\n        };\n        StatementInterpreter.prototype.visitWriteVarExpr = function (expr, ctx) {\n            var value =\n            expr.value.visitExpression(this, ctx);\n            var currCtx = ctx;\n            while (currCtx != null) {\n                if\n                (currCtx.vars.has(expr.name)) {\n                    currCtx.vars.set(expr.name, value);\n                    return value;\n                }\n                currCtx = currCtx.parent;\n            }\n            throw new Error("Not declared variable " + expr.name);\n        };\n        StatementInterpreter.prototype.visitWrappedNodeExpr = function (ast, ctx) {\n            throw new Error('Cannot\n            interpret a WrappedNodeExpr.);\n        };\n        StatementInterpreter.prototype.visitTypeofExpr = function (ast, ctx)\n        {\n            throw new Error('Cannot interpret a TypeofExpr);\n        };\n        StatementInterpreter.prototype.visitReadVarExpr = function (ast, ctx) {\n            var varName = ast.name;\n            if (ast.builtin != null) {\n                switch (ast.builtin) {\n                    case exports.BuiltinVar.Super:\n                        return Object.getPrototypeOf(ctx.instance);\n                    case exports.BuiltinVar.This:\n                        return\n                        ctx.instance;\n                    case exports.BuiltinVar.CatchError:\n                        varName =\n                        CATCH_ERROR_VAR$2;\n                        break;\n                    case exports.BuiltinVar.CatchStack:\n                        varName = CATCH_STACK_VAR$2;\n                        break;\n                    default:\n                        throw new Error("Unknown builtin variable " + ast.builtin);\n                }\n            }\n            var currCtx = ctx;\n            while (currCtx != null) {\n                if (currCtx.vars.has(varName)) {\n                    return\n                    currCtx.vars.get(varName);\n                }\n                currCtx = currCtx.parent;\n            }\n            throw new\n            Error("Not declared variable " + varName);\n        };\n        StatementInterpreter.prototype.visitWriteKeyExpr =\n        function (expr, ctx) {\n            var receiver = expr.receiver.visitExpression(this, ctx);\n            var index =\n            expr.index.visitExpression(this, ctx);\n            var value = expr.value.visitExpression(this, ctx);\n            receiver[index] = value;\n            return value;\n        };\n        StatementInterpreter.prototype.visitWritePropExpr\n        = function (expr, ctx) {\n            var receiver = expr.receiver.visitExpression(this, ctx);\n            var value =\n            expr.value.visitExpression(this, ctx);\n            receiver[expr.name] = value;\n            return value;\n        };\n        StatementInterpreter.prototype.visitInvokeMethodExpr = function (expr, ctx) {\n            var receiver =\n            expr.receiver.visitExpression(this, ctx);\n            var args = this.visitAllExpressions(expr.args, ctx);\n            var\n            result;\n            if (expr.builtin != null) {\n                switch (expr.builtin) {\n                    case

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exports.BuiltinMethod.ConcatArray:\n                result = receiver.concat.apply(receiver, __spread(args));\n                break;\n                case exports.BuiltinMethod.SubscribeObservable:\n                result =\nreceiver.subscribe({ next: args[0] });\n                break;\n                case exports.BuiltinMethod.Bind:\n                result = receiver.bind.apply(receiver, __spread(args));\n                break;\n                default:\n                throw new Error(\"Unknown builtin method \" + expr.builtin);\n                }\n                else {\n                result = receiver[expr.name].apply(receiver, args);\n                }\n                return result;\n                };\nStatementInterpreter.prototype.visitInvokeFunctionExpr = function (stmt, ctx) {\n                var args =\nthis.visitAllExpressions(stmt.args, ctx);\n                var fnExpr = stmt.fn;\n                if (fnExpr instanceof ReadVarExpr\n&& fnExpr.builtin === exports.BuiltinVar.Super) {\n                ctx.instance.constructor.prototype.constructor.apply(ctx.instance, args);\n                return null;\n                }\n                else {\n                var fn = stmt.fn.visitExpression(this, ctx);\n                return fn.apply(null, args);\n                }\n                };\nStatementInterpreter.prototype.visitReturnStmt\n= function (stmt, ctx) {\n                return new ReturnValue(stmt.value.visitExpression(this, ctx));\n                };\nStatementInterpreter.prototype.visitDeclareClassStmt = function (stmt, ctx) {\n                var clazz =\ncreateDynamicClass(stmt, ctx, this);\n                ctx.vars.set(stmt.name, clazz);\n                if\n(stmt.hasModifier(exports.StmtModifier.Exported)) {\n                ctx.exports.push(stmt.name);\n                }\n                return null;\n                };\nStatementInterpreter.prototype.visitExpressionStmt = function (stmt, ctx) {\n                return stmt.expr.visitExpression(this, ctx);\n                };\nStatementInterpreter.prototype.visitIfStmt = function\n(stmt, ctx) {\n                var condition = stmt.condition.visitExpression(this, ctx);\n                if (condition) {\n                return this.visitAllStatements(stmt.trueCase, ctx);\n                }\n                else if (stmt.falseCase != null) {\n                return this.visitAllStatements(stmt.falseCase,\n                ctx);\n                }\n                return null;\n                };\nStatementInterpreter.prototype.visitTryCatchStmt = function\n(stmt, ctx) {\n                try {\n                return this.visitAllStatements(stmt.bodyStmts, ctx);\n                }\n                catch\n(e) {\n                var childCtx = ctx.createChildWithLocalVars();\n                childCtx.vars.set(CATCH_ERROR_VAR$2, e);\n                childCtx.vars.set(CATCH_STACK_VAR$2, e.stack);\n                return this.visitAllStatements(stmt.catchStmts, childCtx);\n                }\n                };\nStatementInterpreter.prototype.visitThrowStmt = function (stmt, ctx) {\n                throw\nstmt.error.visitExpression(this, ctx);\n                };\nStatementInterpreter.prototype.visitInstantiateExpr = function\n(ast, ctx) {\n                var args = this.visitAllExpressions(ast.args, ctx);\n                var clazz =\nast.classExpr.visitExpression(this, ctx);\n                return new (clazz.bind.apply(clazz,\n                __spread([void 0], args)))();\n                };\nStatementInterpreter.prototype.visitLiteralExpr = function (ast, ctx) {\n                return ast.value;\n                };\nStatementInterpreter.prototype.visitLocalizedString = function (ast, context)\n{\n                return null;\n                };\nStatementInterpreter.prototype.visitExternalExpr = function (ast, ctx) {\n                return this.reflector.resolveExternalReference(ast.value);\n                };\nStatementInterpreter.prototype.visitConditionalExpr = function (ast, ctx) {\n                if\n(ast.condition.visitExpression(this, ctx)) {\n                return ast.trueCase.visitExpression(this, ctx);\n                }\n                else if (ast.falseCase != null) {\n                return ast.falseCase.visitExpression(this, ctx);\n                }\n                return\nnull;\n                };\nStatementInterpreter.prototype.visitNotExpr = function (ast, ctx) {\n                return\n!ast.condition.visitExpression(this, ctx);\n                };\nStatementInterpreter.prototype.visitAssertNotNullExpr = function (ast, ctx) {\n                return\nast.condition.visitExpression(this, ctx);\n                };\nStatementInterpreter.prototype.visitCastExpr = function (ast,\nctx) {\n                return ast.value.visitExpression(this, ctx);\n                };\nStatementInterpreter.prototype.visitFunctionExpr = function (ast, ctx) {\n                var paramNames =\nast.params.map(function (param) { return param.name; });\n                return _declareFn(paramNames, ast.statements,\n                ctx, this);\n                };\nStatementInterpreter.prototype.visitDeclareFunctionStmt = function (stmt, ctx) {\n                var paramNames = stmt.params.map(function (param) { return param.name; });\n                ctx.vars.set(stmt.name,\n                _declareFn(paramNames, stmt.statements, ctx, this));\n                if (stmt.hasModifier(exports.StmtModifier.Exported))\n{\n                ctx.exports.push(stmt.name);\n                }\n                return null;\n                };\n
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};\n    StatementInterpreter.prototype.visitUnaryOperatorExpr = function (ast, ctx) {\n        var _this = this;\n        var rhs = function () { return ast.expr.visitExpression(_this, ctx); };\n        switch (ast.operator) {\n        case exports.UnaryOperator.Plus:\n            return +rhs();\n        case exports.UnaryOperator.Minus:\n            return -rhs();\n        default:\n            throw new Error(\"Unknown operator \" + ast.operator);\n        }\n    };\n    StatementInterpreter.prototype.visitBinaryOperatorExpr = function (ast, ctx) {\n        var _this = this;\n        var lhs = function () { return ast.lhs.visitExpression(_this, ctx); };\n        var rhs = function () { return ast.rhs.visitExpression(_this, ctx); };\n        switch (ast.operator) {\n        case exports.BinaryOperator.Equals:\n            return lhs() == rhs();\n        case exports.BinaryOperator.Idential:\n            return lhs() === rhs();\n        case exports.BinaryOperator.NotEquals:\n            return lhs() != rhs();\n        case exports.BinaryOperator.NotIdentical:\n            return lhs() !== rhs();\n        case exports.BinaryOperator.And:\n            return lhs() && rhs();\n        case exports.BinaryOperator.Or:\n            return lhs() || rhs();\n        case exports.BinaryOperator.Plus:\n            return lhs() + rhs();\n        case exports.BinaryOperator.Minus:\n            return lhs() - rhs();\n        case exports.BinaryOperator.Divide:\n            return lhs() / rhs();\n        case exports.BinaryOperator.Multiply:\n            return lhs() * rhs();\n        case exports.BinaryOperator.Modulo:\n            return lhs() % rhs();\n        case exports.BinaryOperator.Lower:\n            return lhs() < rhs();\n        case exports.BinaryOperator.LowerEquals:\n            return lhs() <= rhs();\n        case exports.BinaryOperator.Bigger:\n            return lhs() > rhs();\n        case exports.BinaryOperator.BiggerEquals:\n            return lhs() >= rhs();\n        default:\n            throw new Error(\"Unknown operator \" + ast.operator);\n        }\n    };\n    StatementInterpreter.prototype.visitReadPropExpr = function (ast, ctx) {\n        var result;\n        var receiver = ast.receiver.visitExpression(this, ctx);\n        result = receiver[ast.name];\n        return result;\n    };\n    StatementInterpreter.prototype.visitReadKeyExpr = function (ast, ctx) {\n        var receiver = ast.receiver.visitExpression(this, ctx);\n        var prop = ast.index.visitExpression(this, ctx);\n        return receiver[prop];\n    };\n    StatementInterpreter.prototype.visitLiteralArrayExpr = function (ast, ctx) {\n        return this.visitAllExpressions(ast.entries, ctx);\n    };\n    StatementInterpreter.prototype.visitLiteralMapExpr = function (ast, ctx) {\n        var _this = this;\n        var result = {};\n        ast.entries.forEach(function (entry) {\n            return result[entry.key] = entry.value.visitExpression(_this, ctx);\n        });\n        return result;\n    };\n    StatementInterpreter.prototype.visitCommaExpr = function (ast, context) {\n        var values = this.visitAllExpressions(ast.parts, context);\n        return values[values.length - 1];\n    };\n    StatementInterpreter.prototype.visitAllExpressions = function (expressions, ctx) {\n        var _this = this;\n        return expressions.map(function (expr) {\n            return expr.visitExpression(_this, ctx);\n        });\n    };\n    StatementInterpreter.prototype.visitAllStatements = function (statements, ctx) {\n        for (var i = 0; i < statements.length; i++) {\n            var stmt = statements[i];\n            var val = stmt.visitStatement(this, ctx);\n            if (val instanceof ReturnValue) {\n                return val;\n            }\n        }\n        return null;\n    };\n    return StatementInterpreter;\n})(\n    function _declareFn(varNames, statements, ctx, visitor) {\n        return function () {\n            var args = [];\n            for (var _i = 0; _i < arguments.length; _i++) {\n                args[_i] = arguments[_i];\n            }\n            return _executeFunctionStatements(varNames, args, statements, ctx, visitor);\n        };\n    }\n    var CATCH_ERROR_VAR$2 = 'error';\n    var CATCH_STACK_VAR$2 = 'stack';\n    /**\n     * @license\n     * Copyright Google LLC All Rights Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the LICENSE file at https://angular.io/license\n     *\n     * An internal module of the Angular compiler that begins with component types,\n     * extracts templates, and eventually produces a compiled version of the component\n     * ready for linking into an application.\n     * @security When compiling templates at runtime, you must ensure that the entire template

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comes\n    * from a trusted source. Attacker-controlled data introduced by a template could expose your\n    *
application to XSS risks. For more detail, see the [Security Guide](http://g.co/ng/security).\n    */\n    var
JitCompiler = /** @class */ (function () {\n        function JitCompiler(_metadataResolver, _templateParser,
_styleCompiler, _viewCompiler, _ngModuleCompiler, _summaryResolver, _reflector, _jitEvaluator,
_compilerConfig, _console, getExtraNgModuleProviders) {\n            this._metadataResolver =
_metadataResolver;\n            this._templateParser = _templateParser;\n            this._styleCompiler =
_styleCompiler;\n
            this._viewCompiler = _viewCompiler;\n            this._ngModuleCompiler = _ngModuleCompiler;\n
this._summaryResolver = _summaryResolver;\n            this._reflector = _reflector;\n            this._jitEvaluator =
_jitEvaluator;\n            this._compilerConfig = _compilerConfig;\n            this._console = _console;\n
this.getExtraNgModuleProviders = getExtraNgModuleProviders;\n            this._compiledTemplateCache = new
Map();\n            this._compiledHostTemplateCache = new Map();\n            this._compiledDirectiveWrapperCache =
new Map();\n            this._compiledNgModuleCache = new Map();\n            this._sharedStylesheetCount = 0;\n
            this._addedAotSummaries = new Set();\n        }\n        JitCompiler.prototype.compileModuleSync = function
(moduleType) {\n            return SyncAsync.assertSync(this._compileModuleAndComponents(moduleType, true));\n
        };\n        JitCompiler.prototype.compileModuleAsync = function (moduleType)
{\n            return Promise.resolve(this._compileModuleAndComponents(moduleType, false));\n
        };\n        JitCompiler.prototype.compileModuleAndAllComponentsSync = function (moduleType) {\n            return
SyncAsync.assertSync(this._compileModuleAndAllComponents(moduleType, true));\n
        };\n        JitCompiler.prototype.compileModuleAndAllComponentsAsync = function (moduleType) {\n            return
Promise.resolve(this._compileModuleAndAllComponents(moduleType, false));\n
        };\n        JitCompiler.prototype.getComponentFactory = function (component) {\n            var summary =
this._metadataResolver.getDirectiveSummary(component);\n            return summary.componentFactory;\n
        };\n        JitCompiler.prototype.loadAotSummaries = function (summaries) {\n            this.clearCache();\n
this._addAotSummaries(summaries);\n
        };\n        JitCompiler.prototype._addAotSummaries = function (fn) {\n            if (this._addedAotSummaries.has(fn))
{\n                return;\n
            }\n            this._addedAotSummaries.add(fn);\n            var summaries = fn();\n            for (var i = 0; i < summaries.length; i++) {\n                var entry = summaries[i];\n                if (typeof entry ===
'function') {\n                    this._addAotSummaries(entry);\n
                }\n                else {\n                    var summary
= entry;\n                    this._summaryResolver.addSummary({ symbol: summary.type.reference, metadata: null,
type: summary });\n
                }\n
            }\n            JitCompiler.prototype.hasAotSummary = function (ref)
{\n                return !!this._summaryResolver.resolveSummary(ref);\n
            };\n            JitCompiler.prototype._filterJitIdentifiers = function (ids) {\n                var _this = this;\n                return
ids.map(function (mod) { return mod.reference; }).filter(function (ref) { return !_this.hasAotSummary(ref); });\n
            };\n            JitCompiler.prototype._compileModuleAndComponents
= function (moduleType, isSync) {\n                var _this = this;\n                return
SyncAsync.then(this._loadModules(moduleType, isSync), function () {\n                    _this._compileComponents(moduleType, null);\n                    return _this._compileModule(moduleType);\n
                });\n
            };\n            JitCompiler.prototype._compileModuleAndAllComponents = function (moduleType, isSync) {\n                var _this = this;\n                return SyncAsync.then(this._loadModules(moduleType, isSync), function () {\n                    var componentFactories = [];\n                    _this._compileComponents(moduleType, componentFactories);\n                    return {\n                        ngModuleFactory: _this._compileModule(moduleType),\n                        componentFactories:
componentFactories\n                    };\n
                });\n
            };\n            JitCompiler.prototype._loadModules = function
(mainModule, isSync) {\n                var _this = this;\n                var loading = [];\n                var mainNgModule = this._metadataResolver.getNgModuleMetadata(mainModule);\n                // Note: for runtime compilation, we want to transitively compile all modules,\n                // so we also need to load
the declared directives / pipes for all nested modules.\n                this._filterJitIdentifiers(mainNgModule.transitiveModule.modules).forEach(function (nestedNgModule) {\n

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// getNgModuleMetadata only returns null if the value passed in is not an NgModule\n      var moduleMeta =
_this._metadataResolver.getNgModuleMetadata(nestedNgModule);\n
_this._filterJitIdentifiers(moduleMeta.declaredDirectives).forEach(function (ref) {\n      var promise =
_this._metadataResolver.loadDirectiveMetadata(moduleMeta.type.reference, ref, isSync);\n      if (promise)
{\n          loading.push(promise);\n      }\n      });\n
_this._filterJitIdentifiers(moduleMeta.declaredPipes)\n      .forEach(function (ref) { return _this._metadataResolver.getOrLoadPipeMetadata(ref); });\n      });\n
return SyncAsync.all(loading);\n      });\n      JitCompiler.prototype._compileModule = function
(moduleType) {\n      var ngModuleFactory = this._compiledNgModuleCache.get(moduleType);\n      if
(!ngModuleFactory) {\n      var moduleMeta =
this._metadataResolver.getNgModuleMetadata(moduleType);\n      // Always provide a bound Compiler\n
      var extraProviders = this.getExtraNgModuleProviders(moduleMeta.type.reference);\n      var outputCtx =
createOutputContext();\n      var compileResult = this._ngModuleCompiler.compile(outputCtx, moduleMeta,
extraProviders);\n      ngModuleFactory = this._interpretOrJit(ngModuleJitUrl(moduleMeta),
outputCtx.statements)[compileResult.ngModuleFactoryVar];\n
this._compiledNgModuleCache.set(moduleMeta.type.reference,
ngModuleFactory);\n      }\n      return ngModuleFactory;\n      }; \n      /**\n      * @internal\n      */\n
      JitCompiler.prototype._compileComponents = function (mainModule, allComponentFactories) {\n      var
_this = this;\n      var ngModule = this._metadataResolver.getNgModuleMetadata(mainModule);\n      var
moduleByJitDirective = new Map();\n      var templates = new Set();\n      var transJitModules =
this._filterJitIdentifiers(ngModule.transitiveModule.modules);\n      transJitModules.forEach(function
(localMod) {\n      var localModuleMeta = _this._metadataResolver.getNgModuleMetadata(localMod);\n
      _this._filterJitIdentifiers(localModuleMeta.declaredDirectives).forEach(function (dirRef) {\n
moduleByJitDirective.set(dirRef, localModuleMeta);\n      var dirMeta =
_this._metadataResolver.getDirectiveMetadata(dirRef);\n      if
(dirMeta.isComponent) {\n      templates.add(_this._createCompiledTemplate(dirMeta,
localModuleMeta));\n      if (allComponentFactories) {\n      var template =
_this._createCompiledHostTemplate(dirMeta.type.reference, localModuleMeta);\n
templates.add(template);\n      allComponentFactories.push(dirMeta.componentFactory);\n
      }\n      }\n      });\n      });\n      transJitModules.forEach(function (localMod) {\n
var localModuleMeta = _this._metadataResolver.getNgModuleMetadata(localMod);\n
_this._filterJitIdentifiers(localModuleMeta.declaredDirectives).forEach(function (dirRef) {\n      var
dirMeta = _this._metadataResolver.getDirectiveMetadata(dirRef);\n      if (dirMeta.isComponent) {\n
dirMeta.entryComponents.forEach(function (entryComponentType)
{\n      var moduleMeta = moduleByJitDirective.get(entryComponentType.componentType);\n
      templates.add(_this._createCompiledHostTemplate(entryComponentType.componentType,
moduleMeta));\n      });\n      }\n      });\n      localModuleMeta.entryComponents.forEach(function (entryComponentType) {\n      if
(!_this.hasAotSummary(entryComponentType.componentType)) {\n      var moduleMeta =
moduleByJitDirective.get(entryComponentType.componentType);\n
templates.add(_this._createCompiledHostTemplate(entryComponentType.componentType, moduleMeta));\n
      }\n      });\n      });\n      templates.forEach(function (template) { return
_this._compileTemplate(template); });\n      });\n      JitCompiler.prototype.clearCacheFor = function (type) {\n
this._compiledNgModuleCache.delete(type);\n
      this._metadataResolver.clearCacheFor(type);\n      this._compiledHostTemplateCache.delete(type);\n
      var compiledTemplate = this._compiledTemplateCache.get(type);\n      if (compiledTemplate) {\n
this._compiledTemplateCache.delete(type);\n      }\n      });\n      JitCompiler.prototype.clearCache = function
() {\n      // Note: don't clear the _addedAotSummaries, as they don't change!\n

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this._metadataResolver.clearCache();\n      this._compiledTemplateCache.clear();\nthis._compiledHostTemplateCache.clear();\n      this._compiledNgModuleCache.clear();\n    };\nJitCompiler.prototype._createCompiledHostTemplate = function (compType, ngModule) {\n    if (!ngModule)\n    {\n      throw new Error("Component \" + stringify(compType) + \" is not part of any NgModule or the\nmodule has not been imported into your module.\");\n    }\n    var compiledTemplate =\n    this._compiledHostTemplateCache.get(compType);\n    if (!compiledTemplate) {\n      var compMeta =\n    this._metadataResolver.getDirectiveMetadata(compType);\n      assertComponent(compMeta);\n      var\n    hostMeta = this._metadataResolver.getHostComponentMetadata(compMeta,\n    compMeta.componentFactory.viewDefFactory);\n      compiledTemplate =\n    new\n    CompiledTemplate(true, compMeta.type, hostMeta, ngModule, [compMeta.type]);\n    this._compiledHostTemplateCache.set(compType, compiledTemplate);\n    }\n    return\n    compiledTemplate;\n  };\n  JitCompiler.prototype._createCompiledTemplate = function (compMeta,\n  ngModule) {\n    var compiledTemplate = this._compiledTemplateCache.get(compMeta.type.reference);\n    if (!compiledTemplate) {\n      assertComponent(compMeta);\n      compiledTemplate = new\n    CompiledTemplate(false, compMeta.type, compMeta, ngModule, ngModule.transitiveModule.directives);\n      this._compiledTemplateCache.set(compMeta.type.reference, compiledTemplate);\n    }\n    return compiledTemplate;\n  };\n  JitCompiler.prototype._compileTemplate = function (template) {\n    var _this = this;\n    if (template.isCompiled) {\n      return;\n    }\n    var compMeta =\n    template.compMeta;\n    var externalStylesheetsByModuleUrl = new Map();\n    var outputContext =\n    createOutputContext();\n    var componentStylesheet = this._styleCompiler.compileComponent(outputContext,\n    compMeta);\n    compMeta.template.externalStylesheets.forEach(function (stylesheetMeta) {\n      var\n    compiledStylesheet = _this._styleCompiler.compileStyles(createOutputContext(), compMeta, stylesheetMeta);\n      externalStylesheetsByModuleUrl.set(stylesheetMeta.moduleUrl, compiledStylesheet);\n    });\n    this._resolveStylesCompileResult(componentStylesheet,\n    externalStylesheetsByModuleUrl);\n    var pipes = template.ngModule.transitiveModule.pipes.map(function\n    (pipe) { return _this._metadataResolver.getPipeSummary(pipe.reference); });\n    var _a =\n    this._parseTemplate(compMeta, template.ngModule, template.directives),\n    parsedTemplate = _a.template, usedPipes\n    = _a.pipes;\n    var compileResult = this._viewCompiler.compileComponent(outputContext, compMeta,\n    parsedTemplate, variable(componentStylesheet.stylesVar), usedPipes);\n    var evalResult =\n    this._interpretOrJit(templateJitUrl(template.ngModule.type, template.compMeta), outputContext.statements);\n    var viewClass = evalResult[compileResult.viewClassVar];\n    var rendererType =\n    evalResult[compileResult.rendererTypeVar];\n    template.compiled(viewClass, rendererType);\n  };\n  JitCompiler.prototype._parseTemplate = function (compMeta, ngModule, directiveIdentifiers) {\n    var _this = this;\n    // Note: ! is ok here as components always have a template.\n    var\n    preserveWhitespaces = compMeta.template.preserveWhitespaces;\n    var directives =\n    directiveIdentifiers.map(function (dir) { return _this._metadataResolver.getDirectiveSummary(dir.reference); });\n    var pipes = ngModule.transitiveModule.pipes.map(function (pipe) { return\n    _this._metadataResolver.getPipeSummary(pipe.reference); });\n    return this._templateParser.parse(compMeta,\n    compMeta.template.htmlAst, directives, pipes, ngModule.schemas, templateUrl(ngModule.type, compMeta,\n    compMeta.template), preserveWhitespaces);\n  };\n  JitCompiler.prototype._resolveStylesCompileResult =\n    function (result, externalStylesheetsByModuleUrl) {\n    var _this = this;\n    result.dependencies.forEach(function (dep, i) {\n      var nestedCompileResult =\n    externalStylesheetsByModuleUrl.get(dep.moduleUrl);\n      var nestedStylesArr\n    = _this._resolveAndEvalStylesCompileResult(nestedCompileResult, externalStylesheetsByModuleUrl);\n      dep.setValue(nestedStylesArr);\n    });\n  };\n  JitCompiler.prototype._resolveAndEvalStylesCompileResult = function (result, externalStylesheetsByModuleUrl)\n    {\n    this._resolveStylesCompileResult(result, externalStylesheetsByModuleUrl);\n    return\n    this._interpretOrJit(sharedStylesheetJitUrl(result.meta, this._sharedStylesheetCount++),

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result.outputCtx.statements)[result.stylesVar];\n    };\n    JitCompiler.prototype._interpretOrJit = function
(sourceUrl, statements) {\n    if (!this._compilerConfig.useJit) {\n    return
interpretStatements(statements, this._reflector);\n    }\n    else {\n    return
this._jitEvaluator.evaluateStatements(sourceUrl, statements, this._reflector, this._compilerConfig.jitDevMode);\n
    }\n    };\n    return JitCompiler;\n
    }());\n    var CompiledTemplate = /** @class */ (function () {\n    function CompiledTemplate(isHost,
compType, compMeta, ngModule, directives) {\n    this.isHost = isHost;\n    this.compType =
compType;\n    this.compMeta = compMeta;\n    this.ngModule = ngModule;\n    this.directives =
directives;\n    this._viewClass = null;\n    this.isCompiled = false;\n    }\n    CompiledTemplate.prototype.compiled = function (viewClass, rendererType) {\n    this._viewClass =
viewClass;\n    this.compMeta.componentViewType.setDelegate(viewClass);\n    for (var prop in
rendererType) {\n    this.compMeta.rendererType[prop] = rendererType[prop];\n    }\n
this.isCompiled = true;\n    };\n    return CompiledTemplate;\n    }());\n    function assertComponent(meta) {\n
    if (!meta.isComponent) {\n    throw new Error("Could not compile \"" + identifierName(meta.type)
+ "\" because it is not a component.");\n    }\n    }\n    function createOutputContext() {\n    var importExpr$1
= function (symbol) { return importExpr({ name: identifierName(symbol), moduleName: null, runtime: symbol });\n
};\n    return { statements: [], genFilePath: "", importExpr: importExpr$1, constantPool: new ConstantPool() };\n
}\n\n /**\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  *\n  * Use of this source code
is governed by an MIT-style license that can be\n  * found in the LICENSE file at https://angular.io/license\n
*/\n  /**\n  * Provides access to reflection data about symbols that the compiler needs.\n  */\n  var
CompileReflector = /** @class */ (function () {\n    function CompileReflector() {\n    }\n    return
CompileReflector;\n    }());\n\n /**\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  *\n
  * Use of this source code is governed by an MIT-style
  license that can be\n  * found in the LICENSE file at https://angular.io/license\n  */\n  /**\n  * Create a
  { @link UrlResolver} with no package prefix.\n  */\n  function createUrlResolverWithoutPackagePrefix() {\n
return new UrlResolver();\n  }\n  function createOfflineCompileUrlResolver() {\n    return new
UrlResolver('.');\n  }\n  var UrlResolver = /** @class */ (function () {\n    function
UrlResolverImpl(_packagePrefix) {\n    if (_packagePrefix === void 0) { _packagePrefix = null; }\n
this._packagePrefix = _packagePrefix;\n    }\n    /**\n     * Resolves the `url` given the `baseUrl`:\n     * -
when the `url` is null, the `baseUrl` is returned,\n     * - if `url` is relative ('path/to/here', './path/to/here'), the
resolved url is a combination of\n     * `baseUrl` and `url`,\n     * - if `url` is absolute (it has a scheme: 'http://',
'https://' or start with '/'), the `url` is\n     * returned
as is (ignoring the `baseUrl`)\n     */\n    UrlResolverImpl.prototype.resolve = function (baseUrl, url) {\n
var resolvedUrl = url;\n    if (baseUrl != null && baseUrl.length > 0) {\n    resolvedUrl =
_resolveUrl(baseUrl, resolvedUrl);\n    }\n    var resolvedParts = _split(resolvedUrl);\n    var prefix =
this._packagePrefix;\n    if (prefix != null && resolvedParts != null &&\n
resolvedParts[_ComponentIndex.Scheme] == 'package') {\n    var path =
resolvedParts[_ComponentIndex.Path];\n    prefix = prefix.replace(/\\/+/g, "/");\n    path =
path.replace(/^\\/+/g, "/");\n    return prefix + "/" + path;\n    }\n    return resolvedUrl;\n    };\n
return UrlResolverImpl;\n    }());\n\n /**\n  * Extract the scheme of a URL.\n  */\n  function getUrlScheme(url)
{\n    var match = _split(url);\n    return (match && match[_ComponentIndex.Scheme])
|| "";\n  }\n  // The code below is adapted from Traceur:\n  // https://github.com/google/traceur-
compiler/blob/9511c1dafa972bf0de1202a8a863bad02f0f95a8/src/runtime/url.js\n  /**\n  * Builds a URI string
from already-encoded parts.\n  *\n  * No encoding is performed. Any component may be omitted as either null
or\n  * undefined.\n  *\n  * @param opt_scheme The scheme such as 'http'.  

  * @param opt_userInfo The user name before the '@'.  

  * @param opt_domain The domain such as 'www.google.com', already\n  * URI-
encoded.  

  * @param opt_port The port number.  

  * @param opt_path The path, already URI-encoded. If it is
not\n  * empty, it must begin with a slash.  

  * @param opt_queryData The URI-encoded query data.\n  *

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@param opt_fragment The URI-encoded fragment identifier.\n    * @return The fully combined URI.\n    */\n
function _buildFromEncodedParts(opt_scheme, opt_userInfo, opt_domain, opt_port,
    opt_path, opt_queryData, opt_fragment) {\n    var out = [];\n    if (opt_scheme != null) {\n
out.push(opt_scheme + ':');\n    }\n    if (opt_domain != null) {\n        out.push('//');\n        if (opt_userInfo
!= null) {\n            out.push(opt_userInfo + '@');\n        }\n        out.push(opt_domain);\n        if (opt_port
!= null) {\n            out.push(': ' + opt_port);\n        }\n    }\n    if (opt_path != null) {\n
out.push(opt_path);\n    }\n    if (opt_queryData != null) {\n        out.push('? ' + opt_queryData);\n    }\n
if (opt_fragment != null) {\n        out.push('# ' + opt_fragment);\n    }\n    return out.join('');\n    }\n    /**\n
* A regular expression for breaking a URI into its component parts.\n    * \n    * { @link
http://www.gbiv.com/protocols/uri/rfc/rfc3986.html#RFC2234 } says\n    * As the \"first-match-wins\" algorithm is
identical to the
\"greedy\" \n    * disambiguation method used by POSIX regular expressions, it is natural and\n    * commonplace
to use a regular expression for parsing the potential five\n    * components of a URI reference.\n    * \n    * The
following line is the regular expression for breaking-down a\n    * well-formed URI reference into its
components.\n    * \n    * <pre>\n    * ^([^\s:/#?+;:)?(?:/[^\s:/#?+;:)]?([^\s:/#?+;:)]?(\.?)?)? \n    * 12      3 4
5   6 7   8 9\n    * </pre>\n    * \n    * The numbers in the second line above are only to assist readability;
they\n    * indicate the reference points for each subexpression (i.e., each paired\n    * parenthesis). We refer to the
value matched for subexpression <n> as $<n>.\n    * For example, matching the above expression to\n    * <pre>\n
* http://www.ics.uci.edu/pub/ietf/uri/#Related\n    * </pre>\n    * results in the following subexpression
matches:\n    * <pre>\n    * $1 = http:\n
* $2 = http\n    * $3 = //www.ics.uci.edu\n    * $4 = www.ics.uci.edu\n    * $5 = /pub/ietf/uri/\n    * $6
= <undefined>\n    * $7 = <undefined>\n    * $8 = #Related\n    * $9 = Related\n    * </pre>\n    * where
<undefined> indicates that the component is not present, as is the\n    * case for the query component in the above
example. Therefore, we can\n    * determine the value of the five components as\n    * <pre>\n    * scheme =
$2\n    * authority = $4\n    * path = $5\n    * query = $7\n    * fragment = $9\n    * </pre>\n    * \n
* The regular expression has been modified slightly to expose the\n    * userInfo, domain, and port separately from
the authority.\n    * The modified version yields\n    * <pre>\n    * $1 = http      scheme\n    * $2 =
<undefined>      userInfo -\n    * $3 = www.ics.uci.edu      domain | authority\n    * $4 = <undefined>      port
-\n
* $5 = /pub/ietf/uri/      path\n    * $6 = <undefined>      query without ?\n    * $7 = Related      fragment
without #\n    * </pre>\n    * @internal\n    */\n    var _splitRe = new RegExp('^ +\n    '(?:' +\n    '([^\s:/#?+;:)]? +\n
// scheme - ignore special characters\n    // used by other URL parts such as :, \n    // ?, /, #, and .\n    ')?' +\n
'(:/' +\n    '([^\s:/#?+;:)]? +\n    // userInfo\n    '([\\w\\d\\-\\.\\u0100-\\u0fff.%]*)' +\n    // domain - restrict to
letters,\n    // digits, dashes, dots, percent\n    // escapes, and unicode characters.\n    '(:?([0-9]+))?' +\n    // port\n    ')?' +\n
'([^\s:/#?+;:)]? +\n    // path\n    '(:?\\|?([^\s:/#?+;:)]? +\n    // query\n    '(:?#(.*))?' +\n    // fragment\n    '$');\n
/**\n    * The index of each URI component in the return value of goog.uri.utils.split.\n    * @enum {number}\n
*/\n    var _ComponentIndex;\n    (function (_ComponentIndex) {\n
_ComponentIndex[_ComponentIndex["Scheme"]
= 1] = \"Scheme\";\n    _ComponentIndex[_ComponentIndex["UserInfo"] = 2] = \"UserInfo\";\n
_ComponentIndex[_ComponentIndex["Domain"] = 3] = \"Domain\";\n
_ComponentIndex[_ComponentIndex["Port"] = 4] = \"Port\";\n
_ComponentIndex[_ComponentIndex["Path"] = 5] = \"Path\";\n
_ComponentIndex[_ComponentIndex["QueryData"] = 6] = \"QueryData\";\n
_ComponentIndex[_ComponentIndex["Fragment"] = 7] = \"Fragment\";\n    })(_ComponentIndex ||
(_ComponentIndex = {}));\n    /**\n    * Splits a URI into its component parts.\n    * \n    * Each component can be
accessed via the component indices; for example:\n    * <pre>\n    *
goog.uri.utils.split(someStr)[goog.uri.utils.ComponentIndex.QUERY_DATA];\n    * </pre>\n    * \n    * @param
uri The URI string to examine.\n    * @return Each component still URI-encoded.\n    * \n    * Each component that is

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present will contain the encoded value, whereas\n    *    components
that are not present will be undefined or empty, depending\n    *    on the browser's regular expression
implementation. Never null, since\n    *    arbitrary strings may still look like path names.\n    */\n    function
_split(uri) {\n        return uri.match(_splitRe);\n    }\n    /**\n    * Removes dot segments in given path component,
as described in\n    * RFC 3986, section 5.2.4.\n    */\n    * @param path A non-empty path component.\n    *
@return Path component with removed dot segments.\n    */\n    function _removeDotSegments(path) {\n        if
(path == '/')\n            return '/';\n        var leadingSlash = path[0] == '/' ? '/' : '';\n        var trailingSlash =
path[path.length - 1] === '/' ? '/' : '';\n        var segments = path.split('/');\n        var out = [];\n        var up = 0;\n        for (var pos = 0; pos < segments.length; pos++) {\n            var segment = segments[pos];\n            switch (segment)
{\n                case '':\n                    break;\n                case '..':\n                    if (out.length > 0) {\n                        out.pop();\n                    }\n                    else {\n                        up++;\n                    }\n                    break;\n                default:\n                    out.push(segment);\n            }\n            if (leadingSlash == '') {\n                while (up-- > 0) {\n                    out.unshift('..');\n                }\n                if (out.length === 0)\n                    out.push('.');\n            }\n            return leadingSlash +
out.join('/') + trailingSlash;\n        }\n        /**\n        * Takes an array of the parts from split and canonicalizes the path
part\n        * and then joins all the parts.\n        */\n        function _joinAndCanonicalizePath(parts) {\n            var path =
parts[_ComponentIndex.Path];\n            path = path == null ? '' : _removeDotSegments(path);\n            parts[_ComponentIndex.Path] = path;\n            return _buildFromEncodedParts(parts[_ComponentIndex.Scheme],
parts[_ComponentIndex.UserInfo], parts[_ComponentIndex.Domain], parts[_ComponentIndex.Port], path,
parts[_ComponentIndex.QueryData], parts[_ComponentIndex.Fragment]);\n        }\n        /**\n        * Resolves a URL.\n        * @param base The URL acting as the base URL.\n        * @param to The URL to resolve.\n        */\n        function
_resolveUrl(base, url) {\n            var parts = _split(encodeURI(url));\n            var baseParts = _split(base);\n            if
(parts[_ComponentIndex.Scheme] != null) {\n                return _joinAndCanonicalizePath(parts);\n            }\n            else
{\n                parts[_ComponentIndex.Scheme] = baseParts[_ComponentIndex.Scheme];\n            }\n            for (var i =
_ComponentIndex.Scheme; i <= _ComponentIndex.Port; i++) {\n                if (parts[i] == null) {\n                    parts[i] =
baseParts[i];\n                }\n            }\n            if (parts[_ComponentIndex.Path][0] == '/') {\n                return
_joinAndCanonicalizePath(parts);\n            }\n            var path = baseParts[_ComponentIndex.Path];\n            if (path == null)\n                path = '';\n            var
index = path.lastIndexOf('/');\n            path = path.substring(0, index + 1) + parts[_ComponentIndex.Path];\n            parts[_ComponentIndex.Path] = path;\n            return _joinAndCanonicalizePath(parts);\n        }\n        var Extractor = /**
@class */ (function () {\n            function Extractor(host, staticSymbolResolver, messageBundle, metadataResolver)
{\n                this.host = host;\n                this.staticSymbolResolver = staticSymbolResolver;\n                this.messageBundle
= messageBundle;\n                this.metadataResolver = metadataResolver;\n            }\n            Extractor.prototype.extract =
function (rootFiles) {\n                var _this = this;\n                var _a = analyzeAndValidateNgModules(rootFiles, this.host,
this.staticSymbolResolver, this.metadataResolver), files = _a.files, ngModules = _a.ngModules;\n                return
Promise\n                    .all(ngModules.map(function
                    (ngModule) {\n                        return _this.metadataResolver.loadNgModuleDirectiveAndPipeMetadata(ngModule.type.reference,
false); \n                    })))\n                    .then(function () {\n                        var errors = [];\n                        files.forEach(function (file) {\n                            var compMetas = [];\n                            file.directives.forEach(function (directiveType) {\n                                var
dirMeta = _this.metadataResolver.getDirectiveMetadata(directiveType);\n                                if (dirMeta &&
dirMeta.isComponent) {\n                                    compMetas.push(dirMeta);\n                                }\n                            });\n                            compMetas.forEach(function (compMeta) {\n                                var html = compMeta.template.template;\n                                // Template URL points to either an HTML or TS file depending on\n                                // whether the file is used
with `templateUrl:` or `template:`\n                                // respectively.\n                                var templateUrl = compMeta.template.templateUrl;\n                                var interpolationConfig =
InterpolationConfig.fromArray(compMeta.template.interpolation);\n                                errors.push.apply(errors,
__spread(_this.messageBundle.updateFromTemplate(html, templateUrl, interpolationConfig));\n                            });\n                            if (errors.length) {\n                                throw new Error(errors.map(function (e) { return e.toString();

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}).join('\n'));\n        }\n        return _this.messageBundle;\n    });\n    };\n    Extractor.create =
function (host, locale) {\n        var htmlParser = new HtmlParser();\n        var urlResolver =
createAotUrlResolver(host);\n        var symbolCache = new StaticSymbolCache();\n        var summaryResolver
= new AotSummaryResolver(host, symbolCache);\n        var staticSymbolResolver = new
StaticSymbolResolver(host, symbolCache, summaryResolver);\n
        var staticReflector = new StaticReflector(summaryResolver, staticSymbolResolver);\n        var config = new
CompilerConfig({ defaultEncapsulation: ViewEncapsulation.Emulated, useJit: false });\n        var normalizer =
new DirectiveNormalizer({ get: function (url) { return host.loadResource(url); } }, urlResolver, htmlParser,
config);\n        var elementSchemaRegistry = new DomElementSchemaRegistry();\n        var resolver = new
CompileMetadataResolver(config, htmlParser, new NgModuleResolver(staticReflector), new
DirectiveResolver(staticReflector), new PipeResolver(staticReflector), summaryResolver, elementSchemaRegistry,
normalizer, console, symbolCache, staticReflector);\n        // TODO(vicb): implicit tags & attributes\n        var
messageBundle = new MessageBundle(htmlParser, [], {}, locale);\n        var extractor = new Extractor(host,
staticSymbolResolver, messageBundle, resolver);\n        return { extractor: extractor, staticReflector:
staticReflector
};\n    };\n    return Extractor;\n    }());\n\n    /**\n     * @license\n     * Copyright Google LLC All Rights
Reserved.\n     * Use of this source code is governed by an MIT-style license that can be\n     * found in the
LICENSE file at https://angular.io/license\n     */\n\n    /**\n     * Processes `Target`s with a given set of directives
and performs a binding operation, which\n     * returns an object similar to TypeScript's `ts.TypeChecker` that
contains knowledge about the\n     * target.\n     */\n    var R3TargetBinder = /** @class */ (function () {\n
function R3TargetBinder(directiveMatcher) {\n        this.directiveMatcher = directiveMatcher;\n    }\n
    /**\n     * Perform a binding operation on the given `Target` and return a `BoundTarget` which contains\n     *
metadata about the types referenced in the template.\n     */\n    R3TargetBinder.prototype.bind = function
(target) {\n        if (!target.template)\n
        {\n            // TODO(alxhub): handle targets which contain things like HostBindings, etc.\n            throw new
Error('Binding without a template not yet supported');\n        }\n        // First, parse the template into a `Scope`
structure. This operation captures the syntactic\n        // scopes in the template and makes them available for later
use.\n        var scope = Scope.apply(target.template);\n        // Use the `Scope` to extract the entities present at
every level of the template.\n        var templateEntities = extractTemplateEntities(scope);\n        // Next,
perform directive matching on the template using the `DirectiveBinder`. This returns:\n        // - directives: Map
of nodes (elements & ng-templates) to the directives on them.\n        // - bindings: Map of inputs, outputs, and
attributes to the directive/element that claims\n        // them. TODO(alxhub): handle multiple directives
claiming an input/output/etc.\n
        // - references: Map of #references to their targets.\n        var _b = DirectiveBinder.apply(target.template,
this.directiveMatcher), directives = _b.directives, bindings = _b.bindings, references = _b.references;\n        //
Finally, run the TemplateBinder to bind references, variables, and other entities within the\n        // template. This
extracts all the metadata that doesn't depend on directive matching.\n        var _c =
TemplateBinder.apply(target.template, scope), expressions = _c.expressions, symbols = _c.symbols, nestingLevel =
_c.nestingLevel, usedPipes = _c.usedPipes;\n        return new R3BoundTarget(target, directives, bindings,
references, expressions, symbols, nestingLevel, templateEntities, usedPipes);\n    };\n    return
R3TargetBinder;\n    }());\n\n    /**\n     * Represents a binding scope within a template.\n     */\n    /**\n     * Any variables,
references, or other named entities declared within the template will\n
     * be captured and available by name in `namedEntities`. Additionally, child templates will\n     * be analyzed and
have their child `Scope`s available in `childScopes`.\n     */\n    var Scope = /** @class */ (function () {\n
function Scope(parentScope, template) {\n        this.parentScope = parentScope;\n        this.template =
template;\n    }\n    /**\n     * Named members of the `Scope`, such as `Reference`s or `Variable`s.\n     */\n
    this.namedEntities = new Map();\n    /**\n     * Child `Scope`s for immediately nested
`Template`s.\n     */\n    this.childScopes = new Map();\n    }\n    Scope.newRootScope = function ()

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{\n      return new Scope(null, null);\n    };\n    /**\n     * Process a template (either as a `Template` sub-  

template with variables, or a plain array of\n     * template `Node`s) and construct its `Scope`. \n     */\n
Scope.apply = function (template)
{\n      var scope = Scope.newRootScope();\n      scope.ingest(template);\n      return scope;\n    };\n
/**\n     * Internal method to process the template and populate the `Scope`. \n     */\n
Scope.prototype.ingest = function (template) {\n      var _this = this;\n      if (template instanceof Template)
{\n        // Variables on an <ng-template> are defined in the inner scope.\n
template.variables.forEach(function (node) { return _this.visitVariable(node); });\n        // Process the nodes of  

the template.\n        template.children.forEach(function (node) { return node.visit(_this); });\n      }\n
else {\n        // No overarching `Template` instance, so process the nodes directly.\n
template.forEach(function (node) { return node.visit(_this); });\n      }\n    };
Scope.prototype.visitElement = function (element) {\n
  var _this = this;\n      // `Element`s in the template may have `Reference`s which are captured in the scope.\n
  element.references.forEach(function (node) { return _this.visitReference(node); });\n      // Recurse into the  

`Element`s children.\n      element.children.forEach(function (node) { return node.visit(_this); });\n    };
Scope.prototype.visitTemplate = function (template) {\n      var _this = this;\n      // References on a <ng-  

template> are defined in the outer scope, so capture them before\n      // processing the template's child scope.\n
  template.references.forEach(function (node) { return _this.visitReference(node); });\n      // Next, create an  

inner scope and process the template within it.\n      var scope = new Scope(this, template);\n
  scope.ingest(template);\n      this.childScopes.set(template, scope);\n    };
Scope.prototype.visitVariable  

= function  

(variable) {\n      // Declare the variable if it's not already.\n      this.maybeDeclare(variable);\n    };
Scope.prototype.visitReference = function (reference) {\n      // Declare the variable if it's not already.\n
  this.maybeDeclare(reference);\n    };
Scope.prototype.visitContent = function  

(content) {\n      Scope.prototype.visitBoundAttribute = function (attr) {\n      };
Scope.prototype.visitBoundEvent = function (event) {\n      };
Scope.prototype.visitBoundText = function (text) {\n      };
Scope.prototype.visitText = function (text) {\n      };
Scope.prototype.visitTextAttribute = function (attr) {\n      };
Scope.prototype.visitIcu = function (icu) {\n      };
Scope.prototype.maybeDeclare = function (thing) {\n
  // Declare something with a name, as long as that name isn't taken.\n      if  

(!this.namedEntities.has(thing.name)) {\n      this.namedEntities.set(thing.name,  

thing);\n      }\n    };
/**\n     * Look up a variable within this `Scope`. \n     * This can  

recurse into a parent `Scope` if it's available.\n     */\n
Scope.prototype.lookup = function (name) {\n      if  

(this.namedEntities.has(name)) {\n      // Found in the local scope.\n      return  

this.namedEntities.get(name);\n      }\n      else if (this.parentScope !== null) {\n      // Not in the local  

scope, but there's a parent scope so check there.\n      return this.parentScope.lookup(name);\n      }\n
else {\n      // At the top level and it wasn't found.\n      return null;\n      }\n    };
/**\n     *  

Get the child scope for a `Template`. \n     * This should always be defined.\n     */\n
Scope.prototype.getChildScope = function (template) {\n      var res = this.childScopes.get(template);\n
  if (res === undefined) {\n      throw new Error(`Assertion error: child scope for ` + template + ` not  

found`);\n      }\n      return res;\n    };
/**\n     * Processes a template and  

matches directives on nodes (elements and templates). \n     * Usually used via the static `apply()` method.\n
*/\n
var DirectiveBinder = /** @class */ (function () {\n      function DirectiveBinder(matcher, directives,  

bindings, references) {\n      this.matcher = matcher;\n      this.directives = directives;\n      this.bindings =  

bindings;\n      this.references = references;\n      }\n      /**\n       * Process a template (list of `Node`s) and  

perform directive matching against each node.\n       * @param template the list of template `Node`s to  

match (recursively).\n       * @param selectorMatcher a `SelectorMatcher` containing the  

directives that are in scope for\n       * this template.\n       * @returns three maps which contain information  

about directives in the template: the\n       * `directives` map which lists directives matched on each node, the

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`bindings` map which\n      * indicates which directives claimed which bindings (inputs, outputs, etc), and the
`references`\n      * map which resolves #references (`Reference`s) within the template to the named directive or\n
      * template node.\n      */\n      DirectiveBinder.apply = function (template, selectorMatcher) {\n          var
directives = new Map();\n          var bindings = new Map();\n          var references = new Map();\n          var
matcher = new DirectiveBinder(selectorMatcher, directives, bindings, references);\n
matcher.ingest(template);\n          return { directives: directives, bindings: bindings, references: references };\n
};\n      DirectiveBinder.prototype.ingest = function (template)
{\n          var _this = this;\n          template.forEach(function (node) { return node.visit(_this); });\n      };\n
DirectiveBinder.prototype.visitElement = function (element) {\n          this.visitElementOrTemplate(element.name,
element);\n      };\n      DirectiveBinder.prototype.visitTemplate = function (template) {\n
this.visitElementOrTemplate('ng-template', template);\n      };\n
DirectiveBinder.prototype.visitElementOrTemplate = function (elementName, node) {\n          var _this = this;\n
      // First, determine the HTML shape of the node for the purpose of directive matching.\n          // Do this by
building up a `CssSelector` for the node.\n          var cssSelector = createCssSelector(elementName,
getAttrsForDirectiveMatching(node));\n          // Next, use the `SelectorMatcher` to get the list of directives on the
node.\n          var directives = [];\n          this.matcher.match(cssSelector, function (_,
directive) { return directives.push(directive); });\n          if (directives.length > 0) {\n
this.directives.set(node, directives);\n          }\n          // Resolve any references that are created on this node.\n
node.references.forEach(function (ref) {\n          var dirTarget = null;\n          // If the reference expression
is empty, then it matches the "primary" directive on the node\n          // (if there is one). Otherwise it matches
the host node itself (either an element or\n          // <ng-template> node).\n          if (ref.value.trim() === "")
{\n          // This could be a reference to a component if there is one.\n          dirTarget =
directives.find(function (dir) { return dir.isComponent; }) || null;\n          } else {\n          // This
should be a reference to a directive exported via exportAs.\n          dirTarget =\n
directives.find(function (dir) { return dir.exportAs !== null && dir.exportAs.some(function (value) { return
value === ref.value; }); }) ||\n          null;\n          // Check if a matching directive was found.\n
if (dirTarget === null) {\n          // No matching directive was found - this reference points to an
unknown target. Leave it\n          // unmapped.\n          return;\n          }\n          }\n
if (dirTarget !== null) {\n          // This reference points to a directive.\n          _this.references.set(ref, {
directive: dirTarget, node: node });\n          } else {\n          // This reference points to the node
itself.\n          _this.references.set(ref, node);\n          }\n          }\n          var setAttributeBinding =
function (attribute, ioType) {\n          var
dir = directives.find(function (dir) { return dir[ioType].hasBindingPropertyName(attribute.name); });\n
var binding = dir !== undefined ? dir : node;\n          _this.bindings.set(attribute, binding);\n          };\n          //
Node inputs (bound attributes) and text attributes can be bound to an\n          // input on a directive.\n
node.inputs.forEach(function (input) { return setAttributeBinding(input, 'inputs'); });\n
node.attributes.forEach(function (attr) { return setAttributeBinding(attr, 'inputs'); });\n          if (node instanceof
Template) {\n          node.templateAttrs.forEach(function (attr) { return setAttributeBinding(attr, 'inputs'); });\n
          }\n          // Node outputs (bound events) can be bound to an output on a directive.\n
node.outputs.forEach(function (output) { return setAttributeBinding(output, 'outputs'); });\n          // Recurse into
the node's children.\n          node.children.forEach(function
(child) { return child.visit(_this); });\n          }\n          // Unused visitors.\n
DirectiveBinder.prototype.visitContent = function (content) {\n          }\n          DirectiveBinder.prototype.visitVariable =
function (variable) {\n          }\n          DirectiveBinder.prototype.visitReference = function (reference) {\n          }\n
DirectiveBinder.prototype.visitTextAttribute = function (attribute) {\n          }\n
DirectiveBinder.prototype.visitBoundAttribute = function (attribute) {\n          }\n
DirectiveBinder.prototype.visitBoundEvent = function (attribute) {\n          }\n
DirectiveBinder.prototype.visitBoundAttributeOrEvent = function (node) {\n          }\n

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DirectiveBinder.prototype.visitText = function (text) { };
DirectiveBinder.prototype.visitBoundText = function (text) { };
DirectiveBinder.prototype.visitIcu = function (icu) { };
return DirectiveBinder;
})();
/**
 * Processes a template and extract metadata about expressions and symbols
 * within.
 * This is a companion to the `DirectiveBinder` that doesn't require knowledge of directives
 * matched within the template in order to operate.
 * Expressions are visited by the superclass `RecursiveAstVisitor`, with custom logic provided by overridden methods from that visitor.
 * var
TemplateBinder = /** @class */ (function (_super) {
    __extends(TemplateBinder, _super);
    function TemplateBinder(bindings, symbols, usedPipes, nestingLevel, scope, template, level) {
        var _this = _super.call(this) || this;
        _this.bindings = bindings;
        _this.symbols = symbols;
        _this.usedPipes = usedPipes;
        _this.nestingLevel = nestingLevel;
        _this.scope = scope;
        _this.template = template;
        _this.level = level;
        _this.pipesUsed = [];
        // Save a bit of processing time by constructing this closure in advance.
        _this.visitNode = function (node) { return node.visit(_this); };
        return _this;
    }
    // This method is defined to reconcile the type of TemplateBinder since both RecursiveAstVisitor and Visitor define the visit() method in their interfaces.
    TemplateBinder.prototype.visit = function (node, context) {
        if (node instanceof AST) {
            node.visit(this, context);
        } else {
            node.visit(this);
        }
    };
    /**
     * Process a template and extract metadata about expressions and symbols within.
     * @param template the nodes of the template to process
     * @param scope the `Scope` of the template being processed.
     * @returns three maps which contain metadata about the template: `expressions` which interprets special `AST` nodes in expressions as pointing to references or variables declared within the template, `symbols` which maps those variables and references to the nested `Template` which declares them, if any, and `nestingLevel` which associates each `Template` with an integer nesting level (how many levels deep within the template structure the `Template` is), starting at 1.
     */
TemplateBinder.apply = function (template, scope) {
    var expressions = new Map();
    var symbols = new Map();
    var nestingLevel = new Map();
    var usedPipes = new Set();
    // The top-level template has nesting level 0.
    var binder = new TemplateBinder(expressions, symbols, usedPipes, nestingLevel, scope, template instanceof Template ? template : null, 0);
    binder.ingest(template);
    return { expressions: expressions, symbols: symbols, nestingLevel: nestingLevel, usedPipes: usedPipes };
};
TemplateBinder.prototype.ingest = function (template) {
    if (template instanceof Template) {
        // For <ng-template>s, process only variables and child nodes. Inputs, outputs, templateAttrs, and references were all processed in the scope of the containing template.
        template.variables.forEach(this.visitNode);
        template.children.forEach(this.visitNode);
        // Set the nesting level.
        this.nestingLevel.set(template, this.level);
    } else {
        // Visit each node from the top-level template.
        template.forEach(this.visitNode);
    }
};
TemplateBinder.prototype.visitElement = function (element) {
    // Visit the inputs, outputs, and children of the element.
    element.inputs.forEach(this.visitNode);
    element.outputs.forEach(this.visitNode);
    element.children.forEach(this.visitNode);
};
TemplateBinder.prototype.visitTemplate = function (template) {
    // First, visit inputs, outputs and template attributes of the template node.
    template.inputs.forEach(this.visitNode);
    template.outputs.forEach(this.visitNode);
    template.templateAttrs.forEach(this.visitNode);
    // References are also evaluated in the outer context.
    template.references.forEach(this.visitNode);
    // Next, recurse into the template using its scope, and bumping the nesting level up by one.
    var childScope = this.scope.getChildScope(template);
    var binder = new TemplateBinder(this.bindings, this.symbols, this.usedPipes, this.nestingLevel, childScope, template, this.level + 1);
    binder.ingest(template);
};
TemplateBinder.prototype.visitVariable = function (variable) {
    // Register the `Variable` as a symbol in the current `Template`.
    if

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    (this.template !== null) {\n        this.symbols.set(variable, this.template);\n    }\n};\n
TemplateBinder.prototype.visitReference = function (reference) {\n    // Register the `Reference` as a symbol in
the current `Template`.\n    if (this.template !== null) {\n        this.symbols.set(reference, this.template);\n    }\n};\n// Unused template visitors\nTemplateBinder.prototype.visitText = function (text) {\n};\n
TemplateBinder.prototype.visitContent = function (content) {\n};\n
TemplateBinder.prototype.visitTextAttribute = function (attribute) {\n};\n
TemplateBinder.prototype.visitIcu =
function (icu) {\n    var _this = this;\n    Object.keys(icu.vars).forEach(function (key) {\n        return
icu.vars[key].visit(_this);\n    });\n    Object.keys(icu.placeholders).forEach(function (key) {\n        return
icu.placeholders[key].visit(_this);\n    });\n};\n// The remaining
visitors are concerned with processing AST expressions within template bindings\n
TemplateBinder.prototype.visitBoundAttribute = function (attribute) {\n    attribute.value.visit(this);\n};\n
TemplateBinder.prototype.visitBoundEvent = function (event) {\n    event.handler.visit(this);\n};\n
TemplateBinder.prototype.visitBoundText = function (text) {\n    text.value.visit(this);\n};\n
TemplateBinder.prototype.visitPipe = function (ast, context) {\n    this.usedPipes.add(ast.name);\n    return
_super.prototype.visitPipe.call(this, ast, context);\n};\n// These five types of AST expressions can refer to
expression roots, which could be variables\n// or references in the current scope.\n
TemplateBinder.prototype.visitPropertyRead = function (ast, context) {\n    this.maybeMap(context, ast,
ast.name);\n    return _super.prototype.visitPropertyRead.call(this,
ast, context);\n};\n
TemplateBinder.prototype.visitSafePropertyRead = function (ast, context) {\n
this.maybeMap(context, ast, ast.name);\n    return _super.prototype.visitSafePropertyRead.call(this, ast,
context);\n};\n
TemplateBinder.prototype.visitPropertyWrite = function (ast, context) {\n
this.maybeMap(context, ast, ast.name);\n    return _super.prototype.visitPropertyWrite.call(this, ast, context);\n};\n
TemplateBinder.prototype.visitMethodCall = function (ast, context) {\n    this.maybeMap(context,
ast, ast.name);\n    return _super.prototype.visitMethodCall.call(this, ast, context);\n};\n
TemplateBinder.prototype.visitSafeMethodCall = function (ast, context) {\n    this.maybeMap(context, ast,
ast.name);\n    return _super.prototype.visitSafeMethodCall.call(this, ast, context);\n};\n
TemplateBinder.prototype.maybeMap = function (scope,
ast, name) {\n    // If the receiver of the expression isn't the `ImplicitReceiver`, this isn't the root of an\n
// `AST` expression that maps to a `Variable` or `Reference`.\n    if (!(ast.receiver instanceof ImplicitReceiver))\n    {\n        return;\n    }\n    // Check whether the name exists in the current scope. If so, map it.
Otherwise, the name is\n    // probably a property on the top-level component context.\n    var target =
this.scope.lookup(name);\n    if (target !== null) {\n        this.bindings.set(ast, target);\n    }\n};\n
    return TemplateBinder;\n})(RecursiveAstVisitor$1);\n/**\n * Metadata container for a `Target` that
allows queries for specific bits of metadata.\n * See `BoundTarget` for documentation on the individual
methods.\n */\nvar R3BoundTarget = /** @class */ (function () {\n    function R3BoundTarget(target,
directives,
bindings, references, exprTargets, symbols, nestingLevel, templateEntities, usedPipes) {\n        this.target =
target;\n        this.directives = directives;\n        this.bindings = bindings;\n        this.references = references;\n        this.exprTargets = exprTargets;\n        this.symbols = symbols;\n        this.nestingLevel = nestingLevel;\n        this.templateEntities = templateEntities;\n        this.usedPipes = usedPipes;\n    }\n
R3BoundTarget.prototype.getEntitiesInTemplateScope = function (template) {\n    var _a;\n    return (_a =
this.templateEntities.get(template)) !== null && _a !== void 0 ? _a : new Set();\n};\n
R3BoundTarget.prototype.getDirectivesOfNode = function (node) {\n    return this.directives.get(node) ||
null;\n};\n
R3BoundTarget.prototype.getReferenceTarget = function (ref) {\n    return
this.references.get(ref) || null;\n};\n
R3BoundTarget.prototype.getConsumerOfBinding
= function (binding) {\n    return this.bindings.get(binding) || null;\n};\n
R3BoundTarget.prototype.getExpressionTarget = function (expr) {\n    return this.exprTargets.get(expr) ||
null;\n};\n
R3BoundTarget.prototype.getTemplateOfSymbol = function (symbol) {\n    return

```

```

this.symbols.get(symbol) || null;\n    };\n    R3BoundTarget.prototype.getNestingLevel = function (template)
{\n    return this.nestingLevel.get(template) || 0;\n    };\n    R3BoundTarget.prototype.getUsedDirectives =
function () {\n    var set = new Set();\n    this.directives.forEach(function (dirs) { return
dirs.forEach(function (dir) { return set.add(dir); }); });\n    return Array.from(set.values());\n    };\n    R3BoundTarget.prototype.getUsedPipes = function () {\n    return Array.from(this.usedPipes);\n    };\n    return R3BoundTarget;\n    }());\n    function extractTemplateEntities(rootScope) {\n    var e_1, _b, e_2, _c;\n    var entityMap = new Map();\n    function extractScopeEntities(scope) {\n    if (entityMap.has(scope.template)) {\n    return
entityMap.get(scope.template);\n    }\n    var currentEntities = scope.namedEntities;\n    var
templateEntities;\n    if (scope.parentScope !== null) {\n    templateEntities = new
Map(__spread(extractScopeEntities(scope.parentScope), currentEntities));\n    }\n    else {\n
templateEntities = new Map(currentEntities);\n    }\n    entityMap.set(scope.template, templateEntities);\n
    return templateEntities;\n    }\n    var scopesToProcess = [rootScope];\n    while
(scopesToProcess.length > 0) {\n    var scope = scopesToProcess.pop();\n    try {\n    for (var _d =
(e_1 = void 0, __values(scope.childScopes.values())),
_e = _d.next(); !_e.done; _e = _d.next()) {\n    var childScope = _e.value;\n
scopesToProcess.push(childScope);\n    }\n    }\n    catch (e_1_1) { e_1 = { error: e_1_1 }; }\n
finally {\n    try {\n    if (_e && !_e.done && (_b = _d.return)) _b.call(_d);\n    }\n
finally { if (e_1) throw e_1.error; }\n    }\n    extractScopeEntities(scope);\n    }\n    var
templateEntities = new Map();\n    try {\n    for (var entityMap_1 = __values(entityMap), entityMap_1_1 =
entityMap_1.next(); !entityMap_1_1.done; entityMap_1_1 = entityMap_1.next()) {\n    var _f =
__read(entityMap_1_1.value, 2), template = _f[0], entities = _f[1];\n    templateEntities.set(template, new
Set(entities.values()));\n    }\n    }\n    catch (e_2_1) { e_2 = { error: e_2_1 }; }\n    finally {\n    try
{\n
    if (entityMap_1_1 && !entityMap_1_1.done && (_c = entityMap_1.return)) _c.call(entityMap_1);\n
    }\n    finally { if (e_2) throw e_2.error; }\n    }\n    return templateEntities;\n    }\n\n    /**\n    *
@license\n    * Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an
MIT-style license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    // This file
only reexports content of the `src` folder. Keep it that way.\n    // This function call has a global side effects and
publishes the compiler into global namespace for\n    // the late binding of the Compiler to the @angular/core for jit
compilation.\n    publishFacade(_global);\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights
Reserved.\n    * Use of this source code is governed by an MIT-style license that can be\n    * found in the
LICENSE file at https://angular.io/license\n\n    */\n    // This file only reexports content of the `src` folder. Keep it that way.\n\n    /**\n    * @license\n    *
Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an MIT-style
license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n\n    /**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    * Use of this source code is governed by an MIT-style
license that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n\n    exports.AST = AST;\n    exports.ASTWithName = ASTWithName;\n    exports.ASTWithSource = ASTWithSource;\n    exports.AbsoluteSourceSpan = AbsoluteSourceSpan;\n    exports.AotCompiler = AotCompiler;\n    exports.AotSummaryResolver = AotSummaryResolver;\n    exports.ArrayType = ArrayType;\n    exports.AssertNotNull = AssertNotNull;\n    exports.AstMemoryEfficientTransformer =
AstMemoryEfficientTransformer;\n    exports.AstPath = AstPath;\n    exports.AstTransformer = AstTransformer$1;\n    exports.AttrAst = AttrAst;\n    exports.Attribute = Attribute;\n    exports.Binary = Binary;\n    exports.BinaryOperatorExpr = BinaryOperatorExpr;\n    exports.BindingPipe =
BindingPipe;\n    exports.BoundDirectivePropertyAst = BoundDirectivePropertyAst;\n    exports.BoundElementProperty = BoundElementProperty;\n    exports.BoundElementPropertyAst =
BoundElementPropertyAst;\n    exports.BoundEventAst = BoundEventAst;\n    exports.BoundTextAst =

```



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BoundTextAst;\n  exports.BuiltinType = BuiltinType;\n  exports.CONTENT_ATTR = CONTENT_ATTR;\n  exports.CUSTOM_ELEMENTS_SCHEMA = CUSTOM_ELEMENTS_SCHEMA;\n  exports.CastExpr =
CastExpr;\n  exports.Chain = Chain;\n  exports.ClassField = ClassField;\n  exports.ClassMethod =
ClassMethod;\n  exports.ClassStmt = ClassStmt;\n  exports.CommaExpr = CommaExpr;\n  exports.Comment =
Comment;\n  exports.CompileDirectiveMetadata = CompileDirectiveMetadata;\n  exports.CompileMetadataResolver
= CompileMetadataResolver;\n  exports.CompileNgModuleMetadata = CompileNgModuleMetadata;\n  exports.CompilePipeMetadata = CompilePipeMetadata;\n  exports.CompileReflector = CompileReflector;\n  exports.CompileShallowModuleMetadata = CompileShallowModuleMetadata;\n  exports.CompileStylesheetMetadata = CompileStylesheetMetadata;\n  exports.CompileTemplateMetadata =
CompileTemplateMetadata;\n  exports.CompiledStylesheet = CompiledStylesheet;\n  exports.CompilerConfig =
CompilerConfig;\n  exports.Conditional = Conditional;\n  exports.ConditionalExpr = ConditionalExpr;\n  exports.ConstantPool = ConstantPool;\n  exports.CssSelector = CssSelector;\n  exports.DEFAULT_INTERPOLATION_CONFIG = DEFAULT_INTERPOLATION_CONFIG;\n  exports.DYNAMIC_TYPE = DYNAMIC_TYPE;\n  exports.DeclareFunctionStmt = DeclareFunctionStmt;\n  exports.DeclareVarStmt = DeclareVarStmt;\n  exports.DirectiveAst = DirectiveAst;\n  exports.DirectiveNormalizer = DirectiveNormalizer;\n  exports.DirectiveResolver = DirectiveResolver;\n  exports.DomElementSchemaRegistry =
DomElementSchemaRegistry;\n  exports.EOF = EOF;\n  exports.ERROR_COMPONENT_TYPE =
ERROR_COMPONENT_TYPE;\n  exports.Element = Element$1;\n  exports.ElementAst = ElementAst;\n  exports.ElementSchemaRegistry = ElementSchemaRegistry;\n  exports.EmbeddedTemplateAst =
EmbeddedTemplateAst;\n  exports.EmitterVisitorContext = EmitterVisitorContext;\n  exports.EmptyExpr =
EmptyExpr;\n  exports.Expansion = Expansion;\n  exports.ExpansionCase = ExpansionCase;\n  exports.Expression = Expression;\n  exports.ExpressionBinding = ExpressionBinding;\n  exports.ExpressionStatement = ExpressionStatement;\n  exports.ExpressionType = ExpressionType;\n  exports.ExternalExpr = ExternalExpr;\n  exports.ExternalReference = ExternalReference;\n  exports.Extractor =
Extractor;\n  exports.FunctionCall = FunctionCall;\n  exports.FunctionExpr = FunctionExpr;\n  exports.GeneratedFile
= GeneratedFile;\n  exports.HOST_ATTR = HOST_ATTR;\n  exports.HtmlParser = HtmlParser;\n  exports.HtmlTagDefinition = HtmlTagDefinition;\n  exports.I18NHtmlParser = I18NHtmlParser;\n  exports.Identifiers = Identifiers;\n  exports.IfStmt = IfStmt;\n  exports.ImplicitReceiver = ImplicitReceiver;\n  exports.InstantiateExpr = InstantiateExpr;\n  exports.Interpolation = Interpolation;\n  exports.InterpolationConfig
= InterpolationConfig;\n  exports.InvokeFunctionExpr = InvokeFunctionExpr;\n  exports.InvokeMethodExpr =
InvokeMethodExpr;\n  exports.IvyParser = IvyParser;\n  exports.JSDocComment = JSDocComment;\n  exports.JitCompiler = JitCompiler;\n  exports.JitEvaluator = JitEvaluator;\n  exports.JitSummaryResolver =
JitSummaryResolver;\n  exports.KeyedRead = KeyedRead;\n  exports.KeyedWrite = KeyedWrite;\n  exports.LeadingComment = LeadingComment;\n  exports.Lexer = Lexer;\n  exports.LiteralArray =
LiteralArray;\n  exports.LiteralArrayExpr = LiteralArrayExpr;\n  exports.LiteralExpr = LiteralExpr;\n  exports.LiteralMap = LiteralMap;\n  exports.LiteralMapExpr =
LiteralMapExpr;\n  exports.LiteralPrimitive = LiteralPrimitive;\n  exports.LocalizedString = LocalizedString;\n  exports.MapType = MapType;\n  exports.MessageBundle = MessageBundle;\n  exports.MethodCall =
MethodCall;\n  exports.NAMED_ENTITIES = NAMED_ENTITIES;\n  exports.NGSP_UNICODE =
NGSP_UNICODE;\n  exports.NONE_TYPE = NONE_TYPE;\n  exports.NO_ERRORS_SCHEMA =
NO_ERRORS_SCHEMA;\n  exports.NgContentAst = NgContentAst;\n  exports.NgModuleCompiler =
NgModuleCompiler;\n  exports.NgModuleResolver = NgModuleResolver;\n  exports.NodeWithI18n =
NodeWithI18n;\n  exports.NonNullAssert = NonNullAssert;\n  exports.NotExpr = NotExpr;\n  exports.NullTemplateVisitor = NullTemplateVisitor;\n  exports.ParseError = ParseError;\n  exports.ParseLocation
= ParseLocation;\n  exports.ParseSourceFile = ParseSourceFile;\n  exports.ParseSourceSpan

```

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= ParseSourceSpan;\n  exports.ParseSpan = ParseSpan;\n  exports.ParseTreeResult = ParseTreeResult;\n
exports.ParsedEvent = ParsedEvent;\n  exports.ParsedProperty = ParsedProperty;\n  exports.ParsedVariable =
ParsedVariable;\n  exports.Parser = Parser$1;\n  exports.ParserError = ParserError;\n  exports.PipeResolver =
PipeResolver;\n  exports.PrefixNot = PrefixNot;\n  exports.PropertyRead = PropertyRead;\n
exports.PropertyWrite = PropertyWrite;\n  exports.ProviderAst = ProviderAst;\n  exports.ProviderMeta =
ProviderMeta;\n  exports Quote = Quote;\n  exports.R3BoundTarget = R3BoundTarget;\n  exports.R3Identifiers
= Identifiers$1;\n  exports.R3TargetBinder = R3TargetBinder;\n  exports.ReadKeyExpr = ReadKeyExpr;\n
exports.ReadPropExpr = ReadPropExpr;\n  exports.ReadVarExpr = ReadVarExpr;\n  exports.RecursiveAstVisitor
= RecursiveAstVisitor$1;\n  exports.RecursiveTemplateAstVisitor = RecursiveTemplateAstVisitor;\n
exports.RecursiveVisitor =
RecursiveVisitor$1;\n  exports.ReferenceAst = ReferenceAst;\n  exports.ResolvedStaticSymbol =
ResolvedStaticSymbol;\n  exports.ResourceLoader = ResourceLoader;\n  exports.ReturnStatement =
ReturnStatement;\n  exports.STRING_TYPE = STRING_TYPE;\n  exports.SafeMethodCall = SafeMethodCall;\n
exports.SafePropertyRead = SafePropertyRead;\n  exports.SelectorContext = SelectorContext;\n
exports.SelectorListContext = SelectorListContext;\n  exports.SelectorMatcher = SelectorMatcher;\n
exports.Serializer = Serializer;\n  exports.SplitInterpolation = SplitInterpolation;\n  exports.Statement =
Statement;\n  exports.StaticReflector = StaticReflector;\n  exports.StaticSymbol = StaticSymbol;\n
exports.StaticSymbolCache = StaticSymbolCache;\n  exports.StaticSymbolResolver = StaticSymbolResolver;\n
exports.StyleCompiler = StyleCompiler;\n  exports.StylesCompileDependency = StylesCompileDependency;\n
exports.SummaryResolver = SummaryResolver;\n  exports.TemplateBindingParseResult
= TemplateBindingParseResult;\n  exports.TemplateParseError = TemplateParseError;\n
exports.TemplateParseResult = TemplateParseResult;\n  exports.TemplateParser = TemplateParser;\n
exports.Text = Text$3;\n  exports.TextAst = TextAst;\n  exports.ThisReceiver = ThisReceiver;\n
exports.ThrowStmt = ThrowStmt;\n  exports.TmplAstBoundAttribute = BoundAttribute;\n
exports.TmplAstBoundEvent = BoundEvent;\n  exports.TmplAstBoundText = BoundText;\n
exports.TmplAstContent = Content;\n  exports.TmplAstElement = Element;\n  exports.TmplAstIcu = Icu;\n
exports.TmplAstRecursiveVisitor = RecursiveVisitor;\n  exports.TmplAstReference = Reference;\n
exports.TmplAstTemplate = Template;\n  exports.TmplAstText = Text;\n  exports.TmplAstTextAttribute =
TextAttribute;\n  exports.TmplAstVariable = Variable;\n  exports.Token = Token$1;\n
exports.TransitiveCompileNgModuleMetadata = TransitiveCompileNgModuleMetadata;\n  exports.TreeError
= TreeError;\n  exports.TryCatchStmt = TryCatchStmt;\n  exports.Type = Type$1;\n  exports.TypeScriptEmitter
= TypeScriptEmitter;\n  exports.TypeofExpr = TypeofExpr;\n  exports.Unary = Unary;\n
exports.UnaryOperatorExpr = UnaryOperatorExpr;\n  exports.UrlResolver = UrlResolver;\n  exports.VERSION =
VERSION$1;\n  exports.VariableAst = VariableAst;\n  exports.VariableBinding = VariableBinding;\n
exports.Version = Version;\n  exports.ViewCompiler = ViewCompiler;\n  exports.WrappedNodeExpr =
WrappedNodeExpr;\n  exports.WriteKeyExpr = WriteKeyExpr;\n  exports.WritePropExpr = WritePropExpr;\n
exports.WriteVarExpr = WriteVarExpr;\n  exports.Xliff = Xliff;\n  exports.Xliff2 = Xliff2;\n  exports.Xmb =
Xmb;\n  exports.XmlParser = XmlParser;\n  exports.Xtb = Xtb;\n  exports._ParseAST = _ParseAST;\n
exports.analyzeAndValidateNgModules = analyzeAndValidateNgModules;\n  exports.analyzeFile = analyzeFile;\n
exports.analyzeFileForInjectables = analyzeFileForInjectables;\n
exports.analyzeNgModules = analyzeNgModules;\n  exports.collectExternalReferences =
collectExternalReferences;\n  exports.compileComponentFromMetadata = compileComponentFromMetadata;\n
exports.compileDirectiveFromMetadata = compileDirectiveFromMetadata;\n  exports.compileFactoryFunction =
compileFactoryFunction;\n  exports.compileInjectable = compileInjectable;\n  exports.compileInjector =
compileInjector;\n  exports.compileNgModule = compileNgModule;\n  exports.compilePipeFromMetadata =
compilePipeFromMetadata;\n  exports.componentFactoryName = componentFactoryName;\n
exports.computeMsgId = computeMsgId;\n  exports.core = core;\n  exports.createAotCompiler =
createAotCompiler;\n  exports.createAotUrlResolver = createAotUrlResolver;\n

```


* /compiler-11-0-2-tgz/package/fesm2015/testing.js
* /compiler-11-0-2-tgz/package/fesm2015/compiler.js

MIT

No license file was found, but licenses were detected in source scan.

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{ "version": 3, "file": "compiler.js", "sources": [ "../../../../packages/compiler/src/ml_parser/tags.ts", "../../../../packages/compiler/src/ml_parser/html_tags.ts", "../../../../packages/compiler/src/selector.ts", "../../../../packages/compiler/src/core.ts", "../../../../packages/compiler/src/output/output_ast.ts", "../../../../packages/compiler/src/util.ts", "../../../../packages/compiler/src/constant_pool.ts", "../../../../packages/compiler/src/identifiers.ts", "../../../../packages/compiler/src/aot/static_symbol.ts", "../../../../packages/compiler/src/compile_metadata.ts", "../../../../packages/compiler/src/render3/r3_identifiers.ts", "../../../../packages/compiler/src/render3/util.ts", "../../../../packages/compiler/src/render3/r3_ast.ts", "../../../../packages/compiler/src/i18n/i18n_ast.ts", "../../../../packages/compiler/src/i18n/big_integer.ts", "../../../../packages/compiler/src/i18n/digest.ts", "../../../../packages/compiler/src/i18n/serializers/serializer.ts", 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ckages/compiler/src/output/value_util.ts","../..../..../packages/compiler/src/injectable_compiler.ts","../..../..../pa
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kages/compiler/index.ts"],"sourcesContent":["/**\n
```

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'brvbar': '\u00A6',\n 'bull': '\u2022',\n 'cap': '\u2229',\n 'Ccedil': '\u00C7',\n 'ccedil': '\u00E7',\n 'cedil': '\u00B8',\n 'cent': '\u00A2',\n 'Chi': '\u0397',\n 'chi': '\u03C7',\n 'circ': '\u02C6',\n 'clubs': '\u2663',\n 'cong': '\u2245',\n 'copy': '\u00A9',\n 'crarr': '\u21B5',\n 'cup': '\u222A',\n 'curren': '\u00A4',\n 'dagger': '\u2020',\n 'Dagger': '\u2021',\n 'darr': '\u2193',\n 'dArr': '\u21D3',\n 'deg': '\u00B0',\n 'Delta': '\u0394',\n 'delta': '\u03B4',\n 'diams': '\u2666',\n 'divide': '\u00F7',\n 'Eacute': '\u00C9',\n 'eacute': '\u00E9',\n 'Ecirc': '\u00CA',\n 'ecirc': '\u00EA',\n 'Egrave': '\u00C8',\n 'egrave': '\u00E8',\n 'empty': '\u2205',\n 'emsp': '\u2003',\n 'ensp': '\u2002',\n 'Epsilon': '\u0395',\n 'epsilon': '\u03B5',\n 'equiv': '\u2261',\n 'Eta': '\u0397',\n 'eta': '\u03B7',\n 'ETH': '\u00D0',\n 'eth': '\u00F0',\n 'Euml': '\u00CB',\n 'euml': '\u00EB',\n 'euro': '\u20AC',\n 'exist': '\u2203',\n 'fnof': '\u0192',\n 'forall': '\u2200',\n 'frac12': '\u00BD',\n 'frac14': '\u00BC',\n 'frac34': '\u00BE',\n 'frasl': '\u2044',\n 'Gamma': '\u0393',\n 'gamma': '\u03B3',\n 'ge': '\u2265',\n 'gt': '>',\n 'harr': '\u2194',\n 'hArr': '\u21D4',\n 'hearts': '\u2665',\n 'hellip': '\u2026',\n 'Iacute': '\u00CD',\n 'iacute': '\u00ED',\n 'Icirc': '\u00CE',\n 'icirc': '\u00EE',\n 'iexcl': '\u00A1',\n 'Igrave': '\u00CC',\n 'igrave': '\u00EC',\n 'image': '\u2111',\n 'infin': '\u221E',\n 'int': '\u222B',\n 'Iota': '\u0399',\n 'iota': '\u03B9',\n 'iquest': '\u00BF',\n 'isin': '\u2208',\n 'Iuml': '\u00CF',\n 'iuml': '\u00EF',\n 'Kappa': '\u039A',\n 'kappa': '\u03BA',\n 'Lambda': '\u039B',\n 'lambda': '\u03BB',\n 'lang': '\u27E8',\n 'laquo': '\u00AB',\n 'larr': '\u2190',\n 'lArr': '\u21D0',\n 'lceil': '\u2308',\n 'ldquo': '\u201C',\n 'le': '\u2264',\n 'lfloor': '\u230A',\n 'lowast': '\u2217',\n 'loz': '\u25CA',\n 'lrm': '\u200E',\n 'lsquo': '\u2018',\n 'lt': '<',\n 'macr': '\u00AF',\n 'mdash': '\u2014',\n 'micro': '\u00B5',\n 'middot': '\u00B7',\n 'minus': '\u2212',\n 'Mu': '\u039C',\n 'mu': '\u03BC',\n 'nabla': '\u2207',\n 'nbsp': '\u00A0',\n 'ndash': '\u2013',\n 'ne': '\u2260',\n 'ni': '\u220B',\n 'not': '\u00AC',\n 'notin': '\u2209',\n 'nsub': '\u2284',\n 'Ntilde': '\u00D1',\n 'ntilde': '\u00F1',\n 'Nu': '\u039D',\n 'nu': '\u03BD',\n 'Oacute': '\u00D3',\n 'oacute': '\u00F3',\n 'Ocirc': '\u00D4',\n 'ocirc': '\u00F4',\n 'Oelig': '\u0152',\n 'oelig': '\u0153',\n 'Ograve': '\u00D2',\n 'ograve': '\u00F2',\n 'oline': '\u203E',\n 'Omega': '\u0399',\n 'omega': '\u03C9',\n 'Omicron': '\u039F',\n 'omicron': '\u03BF',\n 'oplus': '\u2295',\n 'or': '\u2228',\n 'ordf': '\u00AA',\n 'ordm': '\u00BA',\n 'Oslash': '\u00D8',\n 'oslash': '\u00F8',\n 'Otilde': '\u00D5',\n 'otilde': '\u00F5',\n 'otimes': '\u2297',\n 'Ouml': '\u00D6',\n 'ouml': '\u00F6',\n 'para': '\u00B6',\n 'permil': '\u2030',\n 'perp': '\u22A5',\n 'Phi': '\u0396',\n 'phi': '\u03C6',\n 'Pi': '\u0398',\n 'pi': '\u03C0',\n 'piv': '\u03D6',\n 'plusmn': '\u00B1',\n 'pound': '\u00A3',\n 'prime': '\u2032',\n 'Prime': '\u2033',\n 'prod': '\u220F',\n 'prop': '\u221D',\n 'Psi': '\u0398',\n 'psi': '\u03C8',\n 'quot': '\u0022',\n 'radic': '\u221A',\n 'rang': '\u27E9',\n 'raquo': '\u00BB',\n 'rarr': '\u2192',\n 'rArr': '\u21D2',\n 'rceil': '\u2309',\n 'rdquo': '\u201D',\n 'real': '\u211C',\n 'reg': '\u00AE',\n 'rfloor': '\u230B',\n 'Rho': '\u0391',\n 'rho': '\u03C1',\n 'rlm': '\u200F',\n 'rsquo': '\u201A',\n 'rsquo': '\u2019',\n 'sbquo': '\u201A',\n 'Scaron': '\u0160',\n 'scaron': '\u0161',\n 'sdot': '\u22C5',\n 'sect': '\u00A7',\n 'shy': '\u00AD',\n 'Sigma': '\u0393',\n 'sigma': '\u03C3',\n 'sigmaf': '\u03C2',\n 'sim': '\u223C',\n 'spades': '\u2660',\n 'sub': '\u2282',\n 'sube': '\u2286',\n 'sum': '\u2211',\n 'sup': '\u2283',\n 'sup1': '\u00B9',\n 'sup2': '\u00B2',\n 'sup3': '\u00B3',\n 'supe': '\u2287',\n 'szlig': '\u00DF',\n 'Tau': '\u0394',\n 'tau': '\u03C4',\n 'there4': '\u2234',\n 'Theta': '\u0398',\n 'theta': '\u03B8',\n 'thetasym': '\u03D1',\n 'thinsp': '\u2009',\n 'THORN': '\u00DE',\n 'thorn': '\u00FE',\n 'tilde': '\u02DC',\n 'times': '\u00D7',\n 'trade': '\u2122',\n 'Uacute': '\u00DA',\n 'uacute': '\u00FA',\n 'uarr': '\u2191',\n 'uArr': '\u21D1',\n 'Ucirc': '\u00DB',\n 'ucirc': '\u00FB',\n 'Ugrave': '\u00D9',\n 'ugrave': '\u00F9',\n 'uml': '\u00A8',\n 'upsih': '\u03D2',\n 'Upsilon': '\u0395',\n 'upsilon': '\u03C5',\n 'Uuml': '\u00DC',\n 'uuml': '\u00FC',\n 'weierp': '\u2118',\n 'Xi': '\u039E',\n 'xi': '\u03BE',\n 'Yacute': '\u00DD',\n 'yacute': '\u00FD',\n 'yen': '\u00A5',\n 'yuml': '\u00FF',\n 'Yuml': '\u0178',\n
'Zeta': '\u0396',\n 'zeta': '\u03B6',\n 'zwj': '\u200D',\n 'zwnj': '\u200C',\n};\n\n// The &ngsp; pseudo-entity is denoting a space. see:\n// https://github.com/dart-lang/angular/blob/0bb611387d29d65b5af7f9d2515ab571fd3fbee4/_tests/test/compiler/preserve_whitespace_test.dart\n\nexport const NGSP_UNICODE = '\uE500';\n\nconst NAMED_ENTITIES['ngsp'] = NGSP_UNICODE;\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport

```

{TagContentType, TagDefinition} from './tags';\n\nexport class HtmlTagDefinition implements TagDefinition {\n
private closedByChildren: {[key: string]: boolean} = {};\n\n closedByParent: boolean = false;\n
implicitNamespacePrefix: string|null;\n contentType: TagContentType;\n isVoid: boolean;\n ignoreFirstLf:
boolean;\n canSelfClose: boolean = false;\n preventNamespaceInheritance: boolean;\n\n
  constructor({\n    closedByChildren,\n    implicitNamespacePrefix,\n    contentType =
TagContentType.PARSABLE_DATA,\n    closedByParent = false,\n    isVoid = false,\n    ignoreFirstLf = false,\n
preventNamespaceInheritance = false\n  }): {\n    closedByChildren?: string[],\n    closedByParent?: boolean,\n
implicitNamespacePrefix?: string,\n    contentType?: TagContentType,\n    isVoid?: boolean,\n    ignoreFirstLf?:
boolean,\n    preventNamespaceInheritance?: boolean\n  } = {}) {\n    if (closedByChildren &&
closedByChildren.length > 0) {\n      closedByChildren.forEach(tagName => this.closedByChildren[tagName] =
true);\n    }\n    this.isVoid = isVoid;\n    this.closedByParent = closedByParent || isVoid;\n
    this.implicitNamespacePrefix = implicitNamespacePrefix || null;\n    this.contentType = contentType;\n
    this.ignoreFirstLf = ignoreFirstLf;\n    this.preventNamespaceInheritance = preventNamespaceInheritance;\n  }\n\n
  isClosedByChild(name: string): boolean {\n    return
    this.isVoid || name.toLowerCase() in this.closedByChildren;\n  }\n}\n\nlet _DEFAULT_TAG_DEFINITION!:
HtmlTagDefinition;\n\n// see http://www.w3.org/TR/html51/syntax.html#optional-tags\n// This implementation
does not fully conform to the HTML5 spec.\n\nlet TAG_DEFINITIONS!: {[key: string]:
HtmlTagDefinition};\n\nexport function getHtmlTagDefinition(tagName: string): HtmlTagDefinition {\n  if
(!TAG_DEFINITIONS) {\n    _DEFAULT_TAG_DEFINITION = new HtmlTagDefinition();\n
    TAG_DEFINITIONS = {\n      'base': new HtmlTagDefinition({isVoid: true}),\n      'meta': new
HtmlTagDefinition({isVoid: true}),\n      'area': new HtmlTagDefinition({isVoid: true}),\n      'embed': new
HtmlTagDefinition({isVoid: true}),\n      'link': new HtmlTagDefinition({isVoid: true}),\n      'img': new
HtmlTagDefinition({isVoid: true}),\n      'input': new HtmlTagDefinition({isVoid: true}),\n      'param': new
HtmlTagDefinition({isVoid: true}),\n      'hr': new HtmlTagDefinition({isVoid: true}),\n      'br': new
HtmlTagDefinition({isVoid: true}),\n      'source': new HtmlTagDefinition({isVoid: true}),\n      'track': new
HtmlTagDefinition({isVoid: true}),\n      'wbr': new HtmlTagDefinition({isVoid: true}),\n      'p': new
HtmlTagDefinition({\n        closedByChildren: [\n          'address', 'article', 'aside', 'blockquote', 'div', 'dl',
'fieldset',\n          'footer', 'form', 'h1', 'h2', 'h3', 'h4', 'h5',\n          'h6', 'header', 'hgroup', 'hr',
'main', 'nav', 'ol',\n          'p', 'pre', 'section', 'table', 'ul'\n        ],\n        closedByParent: true\n      }),\n      'thead': new HtmlTagDefinition({closedByChildren: ['tbody', 'tfoot']}),\n      'tbody': new
HtmlTagDefinition({closedByChildren: ['tbody', 'tfoot'], closedByParent: true}),\n      'tfoot': new
HtmlTagDefinition({closedByChildren: ['tbody'], closedByParent: true}),\n      'tr': new
HtmlTagDefinition({closedByChildren: ['tr'], closedByParent: true}),\n      'td': new
HtmlTagDefinition({closedByChildren: ['td', 'th'], closedByParent: true}),\n      'th': new
HtmlTagDefinition({closedByChildren: ['td', 'th'], closedByParent: true}),\n      'col': new
HtmlTagDefinition({isVoid: true}),\n      'svg': new HtmlTagDefinition({implicitNamespacePrefix: 'svg'}),\n
      'foreignObject': new HtmlTagDefinition({\n        // Usually the implicit namespace here would be redundant since it
will be inherited from\n        // the parent `svg`, but we have to do it for `foreignObject`, because the way the
parser\n        // works is that the parent node of an end tag is its own start tag which means that\n        // the
`preventNamespaceInheritance` on `foreignObject` would have it default to the\n        // implicit namespace which is
`html`, unless specified otherwise.\n        implicitNamespacePrefix: 'svg',\n        // We want to prevent children of
foreignObject from inheriting its namespace, because\n        // the point of the element is to allow nodes from other
namespaces to be inserted.\n        preventNamespaceInheritance: true,\n      }),\n      'math': new
HtmlTagDefinition({implicitNamespacePrefix: 'math'}),\n      'li': new HtmlTagDefinition({closedByChildren: ['li'],
closedByParent: true}),\n      'dt': new HtmlTagDefinition({closedByChildren: ['dt', 'dd']}),\n      'dd': new
HtmlTagDefinition({closedByChildren: ['dt', 'dd'], closedByParent: true}),\n      'rb': new HtmlTagDefinition(\n
        {\n          closedByChildren: ['rb', 'rt', 'rtc', 'rp'],\n          closedByParent: true\n        },\n      )\n      'rt': new HtmlTagDefinition(\n
        {\n          closedByChildren: ['rb', 'rt', 'rtc', 'rp'],\n          closedByParent: true\n        },\n      )\n      'rtc': new

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HtmlTagDefinition({closedByChildren: ['rb', 'rtc', 'rp'], closedByParent: true})),\n    'rp': new HtmlTagDefinition(\n
    {closedByChildren: ['rt', 'rtc', 'rp'], closedByParent: true})),\n    'optgroup': new
HtmlTagDefinition({closedByChildren: ['optgroup'], closedByParent: true})),\n    'option':\n        new
HtmlTagDefinition({closedByChildren:
    ['option', 'optgroup'], closedByParent: true})),\n    'pre': new HtmlTagDefinition({ignoreFirstLf: true})),\n
    'listing': new HtmlTagDefinition({ignoreFirstLf: true})),\n    'style': new HtmlTagDefinition({contentType:
    TagContentType.RAW_TEXT})),\n    'script': new HtmlTagDefinition({contentType:
    TagContentType.RAW_TEXT})),\n    'title': new HtmlTagDefinition({contentType:
    TagContentType.ESCAPABLE_RAW_TEXT})),\n    'textarea': new HtmlTagDefinition(\n        {contentType:
    TagContentType.ESCAPABLE_RAW_TEXT, ignoreFirstLf: true})),\n    ];\n    }\n    // We have to make both a case-
    sensitive and a case-insensitive lookup, because\n    // HTML tag names are case insensitive, whereas some SVG tags
    are case sensitive.\n    return TAG_DEFINITIONS[tag_name] ?? TAG_DEFINITIONS[tag_name.toLowerCase()] ??\n        _DEFAULT_TAG_DEFINITION;\n    }\n    },"/**\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    *\n    * Use of this source code is governed by an MIT-style license
    that can be\n    * found in the LICENSE file at https://angular.io/license\n    */\n    import {getHtmlTagDefinition} from
    './ml_parser/html_tags';\n    const _SELECTOR_REGEXP = new RegExp(\n        '^(?:\n        // 1:
        \":not(\n            '([\\s\\w\\#?])[-\\s\\w]+)' + // 2: \"tag\"; 3: \".\" \"#\";\n            // \"-\" should appear first in the regexp
        below as FF31 parses \"[-\\s\\w]\" as a range\n            // 4: attribute; 5: attribute_string; 6: attribute_value\n            '(?:\n                ([\\s\\w\\#?])(?:\n                    ([\\s\\w\\#?])\n                )\n            )\n        )\n        // 7: \"\";\n        '([\\s\\w\\#?])(?:\n            ([\\s\\w\\#?])\n        )\n        // 8: \",\";\n        'g');\n    }\n    /**\n     * These
    offsets should match the match-groups
    in ` _SELECTOR_REGEXP ` offsets.\n    */\n    enum SelectorRegexp {\n        ALL = 0, // The whole match\n        NOT = 1,\n        TAG = 2,\n        PREFIX = 3,\n        ATTRIBUTE = 4,\n        ATTRIBUTE_STRING = 5,\n        ATTRIBUTE_VALUE = 6,\n        NOT_END = 7,\n        SEPARATOR = 8,\n    }\n    /**\n     * A css selector contains an element name,\n     * css classes and
    attribute/value pairs with the purpose\n     * of selecting subsets out of them.\n     */\n    export class CssSelector {\n        element: string | null = null;\n        classNames: string[] = [];\n        /**\n         * The selectors are encoded in pairs where:\n         * -
    even locations are attribute names\n         * - odd locations are attribute values.\n         */\n        /**\n         * Example:\n         * Selector:
    `[key1=value1][key2]` would parse to:\n         * ```\n         * ['key1', 'value1', 'key2', '']\n         * ```\n         */\n        attrs: string[] = [];\n        notSelectors: CssSelector[] = [];\n        static parse(selector: string): CssSelector[] {\n            const results: CssSelector[] =
    [];\n            const _addResult = (res: CssSelector[], cssSel: CssSelector) => {\n                if (cssSel.notSelectors.length > 0 && !cssSel.element && cssSel.classNames.length == 0 &&\n                cssSel.attrs.length == 0) {\n                    cssSel.element = '*';\n                }\n                res.push(cssSel);\n            }\n            let cssSelector = new
    CssSelector();\n            let match: string[] | null;\n            let current = cssSelector;\n            let inNot = false;\n            _SELECTOR_REGEXP.lastIndex = 0;\n            while (match = _SELECTOR_REGEXP.exec(selector)) {\n                if
    (match[SelectorRegexp.NOT]) {\n                    if (inNot) {\n                        throw new Error('Nesting :not in a selector is not
    allowed');\n                    }\n                    inNot = true;\n                    current = new CssSelector();\n                    cssSelector.notSelectors.push(current);\n                }\n                const tag = match[SelectorRegexp.TAG];\n                if (tag) {\n                    const prefix = match[SelectorRegexp.PREFIX];\n                    if (prefix === '#') {\n                        // #hash\n                        current.addAttribute('id', tag.substr(1));\n                    } else if (prefix === '.') {\n                        // Class\n                        current.addClassName(tag.substr(1));\n                    } else {\n                        // Element\n                        current.setElement(tag);\n                    }\n                }\n                const attribute =
    match[SelectorRegexp.ATTRIBUTE];\n                if (attribute) {\n                    current.addAttribute(attribute,\n                    match[SelectorRegexp.ATTRIBUTE_VALUE]);\n                }\n                if (match[SelectorRegexp.NOT_END]) {\n                    inNot
    = false;\n                    current = cssSelector;\n                }\n                if (match[SelectorRegexp.SEPARATOR]) {\n                    if (inNot) {\n                        throw new Error('Multiple selectors in :not are not supported');\n                    }\n                    _addResult(results, cssSelector);\n                    cssSelector = current = new CssSelector();\n                }\n            }\n            _addResult(results, cssSelector);\n            return results;\n        }\n        isElementSelector(): boolean {\n            return this.hasElementSelector() && this.classNames.length == 0 &&

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this.attrs.length == 0 &&\n      this.notSelectors.length === 0;\n }\n\n hasElementSelector(): boolean {\n  return
!!this.element;\n }\n\n setElement(element:
string|null = null) {\n  this.element = element;\n }\n\n /** Gets a template string for an element that matches the
selector. */\n getMatchingElementTemplate(): string {\n  const tagName = this.element || 'div';\n  const classAttr
= this.classNames.length > 0 ? `class="${this.classNames.join(' ')}"` : ";\n\n  let attrs = ";\n  for (let i = 0; i <
this.attrs.length; i += 2) {\n    const attrName = this.attrs[i];\n    const attrValue = this.attrs[i + 1] !== " ?
`= "${this.attrs[i + 1]}"` : ";\n    attrs += ` ${attrName} ${attrValue}`;\n  }\n\n  return
getHtmlTagDefinition(tagName).isVoid ? `<${tagName} ${classAttr} ${attrs}/>` :
`<${tagName} ${classAttr} ${attrs}></${tagName}>`;\n }\n\n getAttrs(): string[] {\n  const result: string[] = [];\n
if (this.classNames.length > 0) {\n  result.push('class', this.classNames.join(' '));\n }\n  return
result.concat(this.attrs);\n }\n\n addAttribute(name:
string, value: string = "") {\n  this.attrs.push(name, value && value.toLowerCase() || "");\n }\n\n
addClassName(name: string) {\n  this.classNames.push(name.toLowerCase());\n }\n\n toString(): string {\n  let
res: string = this.element || ";\n  if (this.classNames) {\n    this.classNames.forEach(klass => res += `.${klass}`);\n
}\n  if (this.attrs) {\n    for (let i = 0; i < this.attrs.length; i += 2) {\n      const name = this.attrs[i];\n      const
value = this.attrs[i + 1];\n      res += ` ${name} ${value ? '=' + value : "}`;\n    }\n  }\n
this.notSelectors.forEach(notSelector => res += `:not(${notSelector})`);\n  return res;\n }\n\n /**\n * Reads a
list of CssSelectors and allows to calculate which ones\n * are contained in a given CssSelector.\n */\nexport class
SelectorMatcher<T = any> {\n  static createNotMatcher(notSelectors: CssSelector[]): SelectorMatcher<null> {\n
const notMatcher = new SelectorMatcher<null>();\n  notMatcher.addSelectable(notSelectors,
null);\n  return notMatcher;\n }\n\n private _elementMap = new Map<string, SelectorContext<T>[]>();\n private
_elementPartialMap = new Map<string, SelectorMatcher<T>>();\n private _classMap = new Map<string,
SelectorContext<T>[]>();\n private _classPartialMap = new Map<string, SelectorMatcher<T>>();\n private
_attrValueMap = new Map<string, Map<string, SelectorContext<T>[]>>();\n private _attrValuePartialMap = new
Map<string, Map<string, SelectorMatcher<T>>>());\n private _listContexts: SelectorListContext[] = [];\n\n
addSelectable(cssSelectors: CssSelector[], callbackCtx?: T) {\n  let listContext: SelectorListContext = null!;\n
if (cssSelectors.length > 1) {\n    listContext = new SelectorListContext(cssSelectors);\n
this._listContexts.push(listContext);\n  }\n  for (let i = 0; i < cssSelectors.length; i++) {\n
this._addSelectable(cssSelectors[i], callbackCtx as T, listContext);\n  }\n\n /**\n * Add an object that can
be found later on by calling `match`\n * @param cssSelector A css selector\n * @param callbackCtx An opaque
object that will be given to the callback of the `match` function\n */\n private _addSelectable(\n  cssSelector:
CssSelector, callbackCtx: T, listContext: SelectorListContext) {\n  let matcher: SelectorMatcher<T> = this;\n
const element = cssSelector.element;\n  const classNames = cssSelector.classNames;\n  const attrs =
cssSelector.attrs;\n  const selectable = new SelectorContext(cssSelector, callbackCtx, listContext);\n\n  if
(element) {\n    const isTerminal = attrs.length === 0 && classNames.length === 0;\n    if (isTerminal) {\n
this._addTerminal(matcher._elementMap, element, selectable);\n    } else {\n      matcher =
this._addPartial(matcher._elementPartialMap, element);\n    }\n\n    if (classNames) {\n      for (let i = 0; i <
classNames.length; i++) {\n        const isTerminal = attrs.length === 0 && i === classNames.length
- 1;\n        const className = classNames[i];\n        if (isTerminal) {\n          this._addTerminal(matcher._classMap,
className, selectable);\n        } else {\n          matcher = this._addPartial(matcher._classPartialMap, className);\n
}\n      }\n\n      if (attrs) {\n        for (let i = 0; i < attrs.length; i += 2) {\n          const isTerminal = i ===
attrs.length - 2;\n          const name = attrs[i];\n          const value = attrs[i + 1];\n          if (isTerminal) {\n
const terminalMap = matcher._attrValueMap;\n          let terminalValuesMap = terminalMap.get(name);\n          if
(!terminalValuesMap) {\n            terminalValuesMap = new Map<string, SelectorContext<T>[]>();\n
terminalMap.set(name, terminalValuesMap);\n          }\n          this._addTerminal(terminalValuesMap, value,
selectable);\n        } else {\n          const partialMap = matcher._attrValuePartialMap;\n          let partialValuesMap =
partialMap.get(name);\n          if

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!this.listContext.alreadyMatched)) {\n    if (this.listContext) {\n        this.listContext.alreadyMatched = true;\n    }\n    callback(this.selector, this.cbContext);\n    }\n    return result;\n    }\n}\n\n", "/*\n * @license\n * Copyright\n * Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n// Attention:\n// This file duplicates types and\n// values from @angular/core\n// so that we are able to make @angular/compiler independent of @angular/core.\n// This is important to prevent a build cycle, as @angular/core needs to\n// be compiled with the compiler.\n\nimport\n  {CssSelector} from './selector';\n\nexport interface Inject {\n  token: any;\n}\n\nexport const createInject =\n  makeMetadataFactory<Inject>('Inject', (token: any) => ({token}));\n\nexport const createInjectionToken =\n  makeMetadataFactory<object>(\n    'InjectionToken', (desc: string) => ({_desc: desc, prov: undefined}));\n\nexport\n  interface Attribute {\n    attributeName: string;\n  }\n\nexport const createAttribute =\n  makeMetadataFactory<Attribute>('Attribute', (attributeName: string) => ({attributeName}));\n\nexport interface Query {\n  descendants: boolean;\n  first: boolean;\n  read: any;\n  isViewQuery: boolean;\n  selector: any;\n  static?:\n    boolean;\n}\n\nexport const createContentChildren = makeMetadataFactory<Query>(\n  'ContentChildren',\n  (selector?: any, data: any = {}) =>\n    ({selector, first: false, isViewQuery: false, descendants: false,\n    ...data}));\n\nexport const createContentChild = makeMetadataFactory<Query>(\n  'ContentChild',\n  (selector?:\n    any, data: any\n    = {}) =>\n    ({selector, first: true, isViewQuery: false, descendants: true, ...data}));\n\nexport const\n  createViewChildren = makeMetadataFactory<Query>(\n  'ViewChildren',\n  (selector?: any, data: any = {}) =>\n    ({selector, first: false, isViewQuery: true, descendants: true, ...data}));\n\nexport const createViewChild =\n  makeMetadataFactory<Query>(\n  'ViewChild',\n  (selector: any, data: any) =>\n    ({selector, first: true,\n    isViewQuery: true, descendants: true, ...data}));\n\nexport interface Directive {\n  selector?: string;\n  inputs?:\n    string[];\n  outputs?:\n    string[];\n  host?: {[key: string]: string};\n  providers?:\n    Provider[];\n  exportAs?:\n    string;\n  queries?:\n    {[key: string]: any};\n  guards?:\n    {[key: string]: any};\n}\n\nexport const createDirective =\n  makeMetadataFactory<Directive>('Directive', (dir: Directive = {}) => dir);\n\nexport interface Component extends\n  Directive {\n    changeDetection?:\n      ChangeDetectionStrategy;\n    viewProviders?:\n      Provider[];\n    moduleId?:\n      string;\n    templateUrl?:\n      string;\n    template?:\n      string;\n    styleUrls?:\n      string[];\n    styles?:\n      string[];\n    animations?:\n      any[];\n    encapsulation?:\n      ViewEncapsulation;\n    interpolation?:\n      [string, string];\n    entryComponents?:\n      Array<Type|any[]>;\n    preserveWhitespaces?:\n      boolean;\n  }\n\nexport enum ViewEncapsulation {\n  Emulated = 0,\n  // Historically the 1 value was for `Native` encapsulation which has been removed as of v11.\n  None = 2,\n  ShadowDom = 3\n}\n\nexport enum ChangeDetectionStrategy {\n  OnPush = 0,\n  Default = 1\n}\n\nexport const\n  createComponent = makeMetadataFactory<Component>(\n  'Component', (c: Component = {}) =>\n    ({changeDetection: ChangeDetectionStrategy.Default, ...c}));\n\nexport interface Pipe {\n  name: string;\n  pure?:\n    boolean;\n}\n\nexport const createPipe = makeMetadataFactory<Pipe>('Pipe', (p: Pipe) => ({pure: true,\n    ...p}));\n\nexport interface Input {\n  bindingPropertyName?:\n    string;\n}\n\nexport const createInput =\n  makeMetadataFactory<Input>('Input',\n    (bindingPropertyName?: string) => ({bindingPropertyName}));\n\nexport interface Output {\n  bindingPropertyName?:\n    string;\n}\n\nexport const createOutput = makeMetadataFactory<Output>(\n  'Output',\n  (bindingPropertyName?: string) => ({bindingPropertyName}));\n\nexport interface HostBinding {\n  hostPropertyName?:\n    string;\n}\n\nexport const createHostBinding = makeMetadataFactory<HostBinding>(\n  'HostBinding', (hostPropertyName?: string) => ({hostPropertyName}));\n\nexport interface HostListener {\n  eventName?:\n    string;\n  args?:\n    string[];\n}\n\nexport const createHostListener =\n  makeMetadataFactory<HostListener>(\n  'HostListener', (eventName?: string, args?: string[]) => ({eventName,\n    args}));\n\nexport interface NgModule {\n  providers?:\n    Provider[];\n  declarations?:\n    Array<Type|any[]>;\n  imports?:\n    Array<Type|ModuleWithProviders|any[]>;\n  exports?:\n    Array<Type|any[]>;\n  entryComponents?:\n    Array<Type|any[]>;\n  bootstrap?:\n    Array<Type|any[]>;\n  schemas?:\n    Array<SchemaMetadata|any[]>;\n  id?:\n    string;\n}\n\nexport const createNgModule =\n  makeMetadataFactory<NgModule>('NgModule', (ngModule:\n    NgModule) => ngModule);\n\nexport interface ModuleWithProviders {\n  ngModule: Type;\n  providers?:\n    Provider[];\n}\n\nexport interface Injectable {\n  providedIn?:\n    Type|'root'|any;\n  useClass?:\n    Type|any;\n}

```

```

useExisting?: Type|any;\n useValue?: any;\n useFactory?: Type|any;\n deps?: Array<Type|any[]>;\n}\n\nexport
const createInjectable = \n  makeMetadataFactory('Injectable', (injectable: Injectable = {}) => injectable);\n\nexport
interface SchemaMetadata {\n  name: string;\n}\n\nexport const CUSTOM_ELEMENTS_SCHEMA:
SchemaMetadata = {\n  name: 'custom-elements'\n};\n\nexport const NO_ERRORS_SCHEMA: SchemaMetadata =
{\n  name: 'no-errors-schema'\n};\n\nexport const createOptional = makeMetadataFactory('Optional');\n\nexport const
createSelf = makeMetadataFactory('Self');\n\nexport const createSkipSelf = makeMetadataFactory('SkipSelf');\n\nexport
const createHost = makeMetadataFactory('Host');\n\nexport
interface Type extends Function {\n  new(...args: any[]): any;\n}\n\nexport const Type = Function;\n\nexport enum
SecurityContext {\n  NONE = 0,\n  HTML = 1,\n  STYLE = 2,\n  SCRIPT = 3,\n  URL = 4,\n  RESOURCE_URL =
5,\n}\n\nexport type Provider = any;\n\nexport const enum NodeFlags {\n  None = 0,\n  TypeElement = 1 << 0,\n
TypeText = 1 << 1,\n  ProjectedTemplate = 1 << 2,\n  CatRenderNode = TypeElement | TypeText,\n
TypeNgContent = 1 << 3,\n  TypePipe = 1 << 4,\n  TypePureArray = 1 << 5,\n  TypePureObject = 1 << 6,\n
TypePurePipe = 1 << 7,\n  CatPureExpression = TypePureArray | TypePureObject | TypePurePipe,\n
TypeValueProvider = 1 << 8,\n  TypeClassProvider = 1 << 9,\n  TypeFactoryProvider = 1 << 10,\n
TypeUseExistingProvider = 1 << 11,\n  LazyProvider = 1 << 12,\n  PrivateProvider = 1 << 13,\n  TypeDirective = 1
<< 14,\n  Component = 1 << 15,\n  CatProviderNoDirective = \n    TypeValueProvider | TypeClassProvider |
TypeFactoryProvider | TypeUseExistingProvider,\n
  CatProvider = CatProviderNoDirective | TypeDirective,\n  OnInit = 1 << 16,\n  OnDestroy = 1 << 17,\n  DoCheck
= 1 << 18,\n  OnChanges = 1 << 19,\n  AfterContentInit = 1 << 20,\n  AfterContentChecked = 1 << 21,\n
  AfterViewInit = 1 << 22,\n  AfterViewChecked = 1 << 23,\n  EmbeddedViews = 1 << 24,\n  ComponentView = 1
<< 25,\n  TypeContentQuery = 1 << 26,\n  TypeViewQuery = 1 << 27,\n  StaticQuery = 1 << 28,\n  DynamicQuery
= 1 << 29,\n  TypeModuleProvider = 1 << 30,\n  CatQuery = TypeContentQuery | TypeViewQuery,\n\n  // mutually
exclusive values...\n  Types = CatRenderNode | TypeNgContent | TypePipe | CatPureExpression | CatProvider |
CatQuery\n}\n\nexport const enum DepFlags {\n  None = 0,\n  SkipSelf = 1 << 0,\n  Optional = 1 << 1,\n  Self = 1
<< 2,\n  Value = 1 << 3,\n}\n\n/**\n * Injection flags for DI.\n */\nexport const enum InjectFlags {\n  Default =
0,\n\n  /**\n   * Specifies that an injector should retrieve a dependency from any injector until reaching the\n   * host
element
of the current component. (Only used with Element Injector)\n   *\n   Host = 1 << 0,\n\n   /** Don't descend into
ancestors of the node requesting injection. *\n   Self = 1 << 1,\n\n   /** Skip the node that is requesting injection. *\n
  SkipSelf = 1 << 2,\n\n   /** Inject `defaultValue` instead if token not found. *\n   Optional = 1 << 3,\n}\n\nexport
const enum ArgumentType {\n  Inline = 0,\n  Dynamic = 1\n}\n\nexport const enum BindingFlags {\n
  TypeElementAttribute = 1 << 0,\n  TypeElementClass = 1 << 1,\n  TypeElementStyle = 1 << 2,\n  TypeProperty = 1
<< 3,\n  SyntheticProperty = 1 << 4,\n  SyntheticHostProperty = 1 << 5,\n  CatSyntheticProperty =
SyntheticProperty | SyntheticHostProperty,\n\n  // mutually exclusive values...\n  Types = TypeElementAttribute |
TypeElementClass | TypeElementStyle | TypeProperty\n}\n\nexport const enum QueryBindingType {\n  First = 0,\n
  All = 1\n}\n\nexport const enum QueryValueType {\n  ElementRef = 0,\n  RenderElement = 1,\n  TemplateRef =
2,\n  ViewContainerRef
= 3,\n  Provider = 4\n}\n\nexport const enum ViewFlags {\n  None = 0,\n  OnPush = 1 << 1,\n}\n\nexport enum
MissingTranslationStrategy {\n  Error = 0,\n  Warning = 1,\n  Ignore = 2,\n}\n\nexport interface
MetadataFactory<T> {\n  (...args: any[]): T;\n  isTypeOf(obj: any): obj is T;\n  ngMetadataName:
string;\n}\n\nfunction makeMetadataFactory<T>(name: string, props?: (...args: any[]) => T): MetadataFactory<T>
{\n  // This must be declared as a function, not a fat arrow, so that ES2015 devmode produces code\n  // that works
with the static_reflector.ts in the ViewEngine compiler.\n  // In particular, `_registerDecoratorOrConstructor`
assumes that the value returned here can be\n  // new'ed.\n  function factory(...args: any[]) {\n    const values = props
? props(...args) : {};\n    return {\n      ngMetadataName: name,\n      ...values,\n    };\n  }\n  (factory as
any).isTypeOf = (obj: any) => obj && obj.ngMetadataName === name;\n  (factory as any).ngMetadataName =
name;\n}

```

```

return factory as any;\n\n\nexport interface Route {\n  children?: Route[];\n  loadChildren?:
string|Type|any;\n}\n\n/**\n * Flags used to generate R3-style CSS Selectors. They are pasted from\n *
core/src/render3/projection.ts because they cannot be referenced directly.\n */\nexport const enum SelectorFlags {\n
/** Indicates this is the beginning of a new negative selector *\n NOT = 0b0001,\n\n /** Mode for matching
attributes *\n ATTRIBUTE = 0b0010,\n\n /** Mode for matching tag names *\n ELEMENT = 0b0100,\n\n /**
Mode for matching class names *\n CLASS = 0b1000,\n}\n\n// These are a copy the CSS types from
core/src/render3/interfaces/projection.ts\n// They are duplicated here as they cannot be directly referenced from
core.\nexport type R3CssSelector = (string|SelectorFlags)[];\nexport type R3CssSelectorList =
R3CssSelector[];\n\nfunction parserSelectorToSimpleSelector(selector: CssSelector): R3CssSelector {\n  const
classes = selector.classNames && selector.classNames.length
?\n    [SelectorFlags.CLASS, ...selector.classNames] :\n    [];\n  const elementName = selector.element &&
selector.element !== '*' ? selector.element : '';\n  return [elementName, ...selector.attrs, ...classes];\n}\n\nfunction
parserSelectorToNegativeSelector(selector: CssSelector): R3CssSelector {\n  const classes = selector.classNames
&& selector.classNames.length ?\n    [SelectorFlags.CLASS, ...selector.classNames] :\n    [];\n  if
(selector.element) {\n    return [\n      SelectorFlags.NOT | SelectorFlags.ELEMENT, selector.element,
...selector.attrs, ...classes\n    ];\n  } else if (selector.attrs.length) {\n    return [SelectorFlags.NOT |
SelectorFlags.ATTRIBUTE, ...selector.attrs, ...classes];\n  } else {\n    return selector.classNames &&
selector.classNames.length ?\n      [SelectorFlags.NOT | SelectorFlags.CLASS, ...selector.classNames] :\n      [];\n
}\n}\n\nfunction parserSelectorToR3Selector(selector: CssSelector): R3CssSelector {\n  const positive =
parserSelectorToSimpleSelector(selector);\n  const negative: R3CssSelectorList = selector.notSelectors &&
selector.notSelectors.length ?\n    selector.notSelectors.map(notSelector =>
parserSelectorToNegativeSelector(notSelector)) :\n    [];\n  return positive.concat(...negative);\n}\n\nexport
function parseSelectorToR3Selector(selector: string|null): R3CssSelectorList {\n  return selector ?
CssSelector.parse(selector).map(parserSelectorToR3Selector) : [];\n}\n\n// Pasted from render3/interfaces/definition
since it cannot be referenced directly\n\n/**\n * Flags passed into template functions to determine which blocks (i.e.
creation, update)\n * should be executed.\n *\n * Typically, a template runs both the creation block and the update
block on initialization and\n * subsequent runs only execute the update block. However, dynamically created views
require that\n * the creation block be executed separately from the update block (for backwards compat).\n
*/\nexport const enum RenderFlags
{\n  /* Whether to run the creation block (e.g. create elements and directives) *\n  Create = 0b01,\n\n  /* Whether
to run the update block (e.g. refresh bindings) *\n  Update = 0b10\n}\n\n// Pasted from
render3/interfaces/node.ts\n\n/**\n * A set of marker values to be used in the attributes arrays. These markers indicate
that some\n * items are not regular attributes and the processing should be adapted accordingly.\n */\nexport const
enum AttributeMarker {\n  /**\n   * Marker indicates that the following 3 values in the attributes array are:\n   *
namespaceUri, attributeName, attributeValue\n   * in that order.\n   *\n   * NamespaceURI = 0,\n\n   /**\n   * Signals
class declaration.\n   *\n   * Each value following `Classes` designates a class name to include on the element.\n   *
\n   * ## Example:\n   *\n   * Given:\n   * ```\n   * <div class="foo bar baz">...</div>\n   * ```\n   * the generated
code is:\n   * ```\n   * var _c1 = [AttributeMarker.Classes, 'foo', 'bar', 'baz'];\n   *
\n   * ```\n   *\n   * Classes = 1,\n\n   /**\n   * Signals style declaration.\n   *\n   * Each pair of values following `Styles`
designates a style name and value to include on the\n   * element.\n   * ## Example:\n   *\n   * Given:\n   * ```\n   *
<div style="width:100px; height:200px; color:red">...</div>\n   * ```\n   * the generated code is:\n   * ```\n   *
var _c1 = [AttributeMarker.Styles, 'width', '100px', 'height', '200px', 'color', 'red'];\n   *
\n   * ```\n   *\n   * Styles = 2,\n\n   /**\n   * Signals that the following attribute names were extracted from input or output bindings.\n   *\n   * For
example, given the following HTML:\n   *\n   * ```\n   * <div moo="car" [foo]="exp" (bar)="doSth()">\n   *
\n   * ```\n   * the generated code is:\n   * ```\n   * var _c1 = ['moo', 'car', AttributeMarker.Bindings, 'foo',
'bar'];\n   *
\n   * ```\n   *\n   * Bindings = 3,\n\n   /**\n   * Signals that the following attribute names were hoisted from an
inline-template declaration.\n   *\n

```

* For example, given the following HTML:

```
<div *ngFor="let value of values; trackBy:trackBy" dirA [dirB]="value">
```

the generated code for the `template()` instruction would include:

```
['dirA', AttributeMarker.Bindings, 'dirB', AttributeMarker.Template, 'ngFor', 'ngForOf', 'ngForTrackBy', 'let-value']
```

while the generated code for the `element()` instruction inside the template function would include:

```
['dirA', AttributeMarker.Bindings, 'dirB']
```

Template = 4, Signals that the following attribute is `ngProjectAs` and its value is a parsed `CssSelector`.

For example, given the following HTML:

```
<h1 attr="value" ngProjectAs="[title]">
```

the generated code for the `element()` instruction would include:

```
['attr', 'value', AttributeMarker.ProjectAs, ['title', '']]
```

ProjectAs = 5, Signals that the following attribute will be translated by runtime

For example, given the following HTML:

```
<div moo="car" foo="value" i18n-foo [bar]="binding" i18n-bar>
```

the generated code is:

```
var _c1 = ['moo', 'car', AttributeMarker.I18n, 'foo', 'bar'];
```

I18n = 6, "/* @license Copyright Google LLC All Rights Reserved. Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license */

```
import { ParseSourceSpan } from '../parse_util';
import { I18nMeta } from '../render3/view/i18n/meta';
export enum TypeModifier {
  Const
}
export abstract class Type {
  constructor(public modifiers: TypeModifier[] = []) {}
  abstract visitType(visitor: TypeVisitor, context: any): any;
  hasModifier(modifier: TypeModifier): boolean {
    return this.modifiers.indexOf(modifier) !== -1;
  }
}
export enum BuiltinTypeName {
  Dynamic,
  Bool,
  String,
  Int,
  Number,
  Function,
  Inferred,
  None
}
export class BuiltinType extends Type {
  constructor(public name: BuiltinTypeName, modifiers?: TypeModifier[]) {
    super(modifiers);
  }
  visitType(visitor: TypeVisitor, context: any): any {
    return visitor.visitBuiltinType(this, context);
  }
}
export class ExpressionType extends Type {
  constructor(public value: Expression, modifiers?: TypeModifier[], public typeParams: Type[] | null = null) {
    super(modifiers);
  }
  visitType(visitor: TypeVisitor, context: any): any {
    return visitor.visitExpressionType(this, context);
  }
}
export class ArrayType extends Type {
  constructor(public of: Type, modifiers?: TypeModifier[]) {
    super(modifiers);
  }
  visitType(visitor: TypeVisitor, context: any): any {
    return visitor.visitArrayType(this, context);
  }
}
export class MapType extends Type {
  constructor(public valueType: Type | null, modifiers?: TypeModifier[]) {
    super(modifiers);
    this.valueType = valueType || null;
  }
  visitType(visitor: TypeVisitor, context: any): any {
    return visitor.visitMapType(this, context);
  }
}
export const DYNAMIC_TYPE = new BuiltinType(BuiltinTypeName.Dynamic);
export const INFERRED_TYPE = new BuiltinType(BuiltinTypeName.Inferred);
export const BOOL_TYPE = new BuiltinType(BuiltinTypeName.Bool);
export const INT_TYPE = new BuiltinType(BuiltinTypeName.Int);
export const NUMBER_TYPE = new BuiltinType(BuiltinTypeName.Number);
export const STRING_TYPE = new BuiltinType(BuiltinTypeName.String);
export const FUNCTION_TYPE = new BuiltinType(BuiltinTypeName.Function);
export const NONE_TYPE = new BuiltinType(BuiltinTypeName.None);
export interface TypeVisitor {
  visitBuiltinType(type: BuiltinType, context: any): any;
  visitExpressionType(type: ExpressionType, context: any): any;
  visitArrayType(type: ArrayType, context: any): any;
  visitMapType(type: MapType, context: any): any;
}
export enum UnaryOperator {
  Minus,
  Plus
}
export enum BinaryOperator {
  Equals,
  NotEquals,
  Identical,
  NotIdentical,
  Minus,
  Plus,
  Divide,
  Multiply,
  Modulo,
  And,
  Or,
  BitwiseAnd,
  Lower,
  LowerEquals,
  Bigger,
  BiggerEquals
}
export function nullSafeIsEquivalent<T> extends {isEquivalent(other: T): boolean} {
  base: T | null, other: T | null {
    if (base == null || other == null) {
      return base == other;
    }
    return base.isEquivalent(other);
  }
}
export function areAllEquivalent<T> extends {isEquivalent(other: T): boolean} {
  base: T[], other: T[] {
    const len = base.length;
    if (len !== other.length) {
      return false;
    }
    for (let i = 0; i < len; i++) {
      if (!base[i].isEquivalent(other[i])) {
        return false;
      }
    }
  }
}

```

```

    }\n return true;\n}\n\nexport abstract class Expression {\n  public type: Type|null;\n  public sourceSpan: ParseSourceSpan|null;\n\n  constructor(type: Type|null|undefined, sourceSpan?: ParseSourceSpan|null) {\n    this.type = type || null;\n    this.sourceSpan = sourceSpan || null;\n  }\n\n  abstract visitExpression(visitor: ExpressionVisitor, context: any): any;\n\n  /**\n   * Calculates whether this expression produces the same value as the given expression.\n   * Note: We don't check Types nor ParseSourceSpans nor function arguments.\n   */\n  abstract isEquivalent(e: Expression): boolean;\n\n  /**\n   * Return true if the expression is constant.\n   */\n  abstract isConstant(): boolean;\n\n  prop(name: string, sourceSpan?: ParseSourceSpan|null): ReadPropExpr {\n    return new ReadPropExpr(this, name, null, sourceSpan);\n  }\n\n  key(index: Expression, type?: Type|null, sourceSpan?: ParseSourceSpan|null): ReadKeyExpr {\n    return new ReadKeyExpr(this, index, type, sourceSpan);\n  }\n\n  callMethod(name: string|BuiltinMethod, params: Expression[], sourceSpan?: ParseSourceSpan|null): InvokeMethodExpr {\n    return new InvokeMethodExpr(this, name, params, null, sourceSpan);\n  }\n\n  callFn(params: Expression[], sourceSpan?: ParseSourceSpan|null, pure?: boolean): InvokeFunctionExpr {\n    return new InvokeFunctionExpr(this, params, null, sourceSpan, pure);\n  }\n\n  instantiate(params: Expression[], type?: Type|null, sourceSpan?: ParseSourceSpan|null): InstantiateExpr {\n    return new InstantiateExpr(this, params, type, sourceSpan);\n  }\n\n  conditional(trueCase: Expression, falseCase: Expression|null = null, sourceSpan?: ParseSourceSpan|null): ConditionalExpr {\n    return new ConditionalExpr(this, trueCase, falseCase, null, sourceSpan);\n  }\n\n  equals(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Equals, this, rhs, null, sourceSpan);\n  }\n\n  notEquals(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.NotEquals, this, rhs, null, sourceSpan);\n  }\n\n  identical(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Idential, this, rhs, null, sourceSpan);\n  }\n\n  notIdentical(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.NotIdentical, this, rhs, null, sourceSpan);\n  }\n\n  minus(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Minus, this, rhs, null, sourceSpan);\n  }\n\n  plus(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Plus, this, rhs, null, sourceSpan);\n  }\n\n  divide(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Divide, this, rhs, null, sourceSpan);\n  }\n\n  multiply(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Multiply, this, rhs, null, sourceSpan);\n  }\n\n  modulo(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Modulo, this, rhs, null, sourceSpan);\n  }\n\n  and(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.And, this, rhs, null, sourceSpan);\n  }\n\n  bitwiseAnd(rhs: Expression, sourceSpan?: ParseSourceSpan|null, parens: boolean = true): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.BitwiseAnd, this, rhs, null, sourceSpan, parens);\n  }\n\n  or(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Or, this, rhs, null, sourceSpan);\n  }\n\n  lower(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Lower, this, rhs, null, sourceSpan);\n  }\n\n  lowerEquals(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.LowerEquals, this, rhs, null, sourceSpan);\n  }\n\n  bigger(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.Bigger, this, rhs, null, sourceSpan);\n  }\n\n  biggerEquals(rhs: Expression, sourceSpan?: ParseSourceSpan|null): BinaryOperatorExpr {\n    return new BinaryOperatorExpr(BinaryOperator.BiggerEquals, this, rhs, null, sourceSpan);\n  }\n\n  isBlank(sourceSpan?: ParseSourceSpan|null): Expression {\n    // Note: We use equals by purpose here to compare to null and undefined in JS.\n    // We use the typed null to allow strictNullChecks to narrow types.\n    return

```



```

= null;\n    this.builtin = <BuiltinMethod>method;\n    }\n }\n\n isEquivalent(e: Expression): boolean {\n    return
e instanceof InvokeMethodExpr && this.receiver.isEquivalent(e.receiver) &&\n    this.name === e.name &&
this.builtin === e.builtin && areAllEquivalent(this.args, e.args);\n }\n\n isConstant() {\n    return false;\n }\n\n
visitExpression(visitor: ExpressionVisitor, context: any): any {\n    return visitor.visitInvokeMethodExpr(this,
context);\n }\n}\n\n\nexport class InvokeFunctionExpr extends Expression {\n    constructor(\n        public fn:
Expression, public args: Expression[], type?: Type|null,\n        sourceSpan?: ParseSourceSpan|null, public pure =
false) {\n        super(type, sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e instanceof
InvokeFunctionExpr && this.fn.isEquivalent(e.fn) &&\n        areAllEquivalent(this.args, e.args) && this.pure ===
e.pure;\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor:
ExpressionVisitor, context: any): any {\n        return visitor.visitInvokeFunctionExpr(this, context);\n
    }\n}\n\n\nexport class InstantiateExpr extends Expression {\n    constructor(\n        public classExpr: Expression,
public args: Expression[], type?: Type|null,\n        sourceSpan?: ParseSourceSpan|null) {\n        super(type,
sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e instanceof InstantiateExpr &&
this.classExpr.isEquivalent(e.classExpr) &&\n        areAllEquivalent(this.args, e.args);\n    }\n\n    isConstant() {\n
        return false;\n    }\n\n    visitExpression(visitor: ExpressionVisitor, context: any): any {\n        return
visitor.visitInstantiateExpr(this, context);\n    }\n}\n\n\nexport class LiteralExpr extends Expression {\n
    constructor(\n        public value: number|string|boolean|null|undefined, type?: Type|null,\n        sourceSpan?:
ParseSourceSpan|null) {\n        super(type, sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e
instanceof
LiteralExpr && this.value === e.value;\n    }\n\n    isConstant() {\n        return true;\n    }\n\n    visitExpression(visitor:
ExpressionVisitor, context: any): any {\n        return visitor.visitLiteralExpr(this, context);\n    }\n}\n\n\nexport abstract
class MessagePiece {\n    constructor(public text: string, public sourceSpan: ParseSourceSpan) {\n    }\n}\n\nexport class
LiteralPiece extends MessagePiece {\n}\n\nexport class PlaceholderPiece extends MessagePiece {\n}\n\nexport class
LocalizedString extends Expression {\n    constructor(\n        readonly metaBlock: I18nMeta, readonly messageParts:
LiteralPiece[],\n        readonly placeholderNames: PlaceholderPiece[], readonly expressions: Expression[],\n        sourceSpan?: ParseSourceSpan|null) {\n        super(STRING_TYPE, sourceSpan);\n    }\n\n    isEquivalent(e:
Expression): boolean {\n        // return e instanceof LocalizedString && this.message === e.message;\n        return
false;\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor: ExpressionVisitor,
context: any): any {\n        return visitor.visitLocalizedString(this, context);\n    }\n\n    /**\n     * Serialize the given
`meta` and `messagePart` into `\"cooked\"` and `\"raw\"` strings that can be used\n     * in a `$localize` tagged string. The
format of the metadata is the same as that parsed by\n     * `parseI18nMeta`().\n     * \n     * @param meta The metadata
to serialize\n     * @param messagePart The first part of the tagged string\n     * \n     * serializeI18nHead():
CookedRawString {\n        const MEANING_SEPARATOR = '|';\n        const ID_SEPARATOR = '@@';\n        const
LEGACY_ID_INDICATOR = '';\n\n        let metaBlock = this.metaBlock.description || '';\n        if
(this.metaBlock.meaning) {\n            metaBlock =
`${this.metaBlock.meaning}${MEANING_SEPARATOR}${metaBlock}`;\n        }\n        if (this.metaBlock.customId)
{\n            metaBlock = `${metaBlock}${ID_SEPARATOR}${this.metaBlock.customId}`;\n        }\n        if
(this.metaBlock.legacyIds) {\n            this.metaBlock.legacyIds.forEach(legacyId => {\n                metaBlock =
`${metaBlock}${LEGACY_ID_INDICATOR}${legacyId}`;\n            });\n        }\n        return createCookedRawString(\n            metaBlock, this.messageParts[0].text,
this.getMessagePartSourceSpan(0);\n        }\n\n        getMessagePartSourceSpan(i: number): ParseSourceSpan|null {\n
            return this.messageParts[i]?.sourceSpan ?? this.sourceSpan;\n        }\n\n        getPlaceholderSourceSpan(i: number):
ParseSourceSpan {\n            return this.placeholderNames[i]?.sourceSpan ?? this.expressions[i]?.sourceSpan ??\n            this.sourceSpan;\n        }\n\n        /**\n         * Serialize the given `placeholderName` and `messagePart` into `\"cooked\"` and
`\"raw\"` strings that\n         * can be used in a `$localize` tagged string.\n         * \n         * @param placeholderName The
placeholder name to serialize\n         * @param messagePart The following message string after this placeholder\n         * \n
serializeI18nTemplatePart(partIndex: number): CookedRawString {\n            const placeholderName =
this.placeholderNames[partIndex - 1].text;\n            const messagePart = this.messageParts[partIndex];\n

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return createCookedRawString(\n        placeholderName, messagePart.text,\nthis.getMessagePartSourceSpan(partIndex));\n }\n}\n\n/**\n * A structure to hold the cooked and raw strings of a\n template literal element, along with its\n * source-span range.\n */\nexport interface CookedRawString {\n cooked:\n string;\n raw: string;\n range: ParseSourceSpan|null;\n}\n\nconst escapeSlashes = (str: string): string =>\n str.replace(/\\\\/g, '\\\\\\\\');\nconst escapeStartingColon = (str: string): string => str.replace(/^:/, '\\\\:');\nconst\n escapeColons = (str: string): string => str.replace(/:/g, '\\\\:');\nconst escapeForMessagePart = (str: string): string\n=>\n    str.replace(/`/g, '\\\\`').replace(/\$/g, '\\\\$');\n\n/**\n * Creates a `{cooked, raw}` object from the\n `metaBlock` and `messagePart`.\n *\n * The `raw` text must have various character sequences escaped:\n * * `\\` would otherwise indicate that the next character is a control character.\n * * `\"` and `{` are template\n string control sequences that would otherwise prematurely indicate\n * the end of a message part.\n * * `:` inside\n a metablock would prematurely indicate the end of the metablock.\n * * `@` at the start of a messagePart with no\n metablock would erroneously indicate the start of a\n * metablock.\n * * `@param metaBlock` Any metadata that\n should be prepended to the string\n * @param messagePart The message part of the string\n */\nfunction\n createCookedRawString(\n    metaBlock: string, messagePart: string, range: ParseSourceSpan|null):\n CookedRawString {\n    if (metaBlock === '') {\n        return {\n            cooked: messagePart,\n            raw:\n                escapeForMessagePart(escapeStartingColon(escapeSlashes(messagePart))),\n            range,\n        };\n    } else {\n        return\n        {\n            cooked: `${metaBlock}${messagePart}`, \n            raw: escapeForMessagePart(\n                `${escapeColons(escapeSlashes(metaBlock))}${escapeSlashes(messagePart)}`),\n            range,\n        };\n    }\n}\n\nexport class ExternalExpr extends\n Expression {\n    constructor(\n        public value: ExternalReference, type?: Type|null, public typeParams: Type[]|null\n        = null,\n        sourceSpan?: ParseSourceSpan|null) {\n        super(type, sourceSpan);\n    }\n\n    isEquivalent(e:\n Expression): boolean {\n        return e instanceof ExternalExpr && this.value.name === e.value.name &&\n        this.value.moduleName === e.value.moduleName && this.value.runtime === e.value.runtime;\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor: ExpressionVisitor, context: any): any {\n        return\n        visitor.visitExternalExpr(this, context);\n    }\n}\n\nexport class ExternalReference {\n    constructor(public\n        moduleName: string|null, public name: string|null, public runtime?: any|null) {\n    }\n    // Note: no isEquivalent\n method here as we use this as an interface too.\n}\n\nexport class ConditionalExpr extends Expression {\n    public\n        trueCase: Expression;\n\n    constructor(\n        public condition: Expression, trueCase: Expression, public\n        falseCase: Expression|null = null,\n        type?: Type|null, sourceSpan?: ParseSourceSpan|null) {\n        super(type ||\n        trueCase.type, sourceSpan);\n        this.trueCase = trueCase;\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return\n        e instanceof ConditionalExpr && this.condition.isEquivalent(e.condition) &&\n        this.trueCase.isEquivalent(e.trueCase) && nullSafeIsEquivalent(this.falseCase, e.falseCase);\n    }\n\n    isConstant()\n {\n        return false;\n    }\n\n    visitExpression(visitor: ExpressionVisitor, context: any): any {\n        return\n        visitor.visitConditionalExpr(this, context);\n    }\n}\n\nexport class NotExpr extends Expression {\n    constructor(public condition: Expression, sourceSpan?: ParseSourceSpan|null) {\n        super(BOOL_TYPE,\n        sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e instanceof NotExpr &&\n        this.condition.isEquivalent(e.condition);\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor:\n ExpressionVisitor, context: any):\n any {\n        return visitor.visitNotExpr(this, context);\n    }\n}\n\nexport class AssertNotNull extends Expression {\n    constructor(public condition: Expression, sourceSpan?: ParseSourceSpan|null) {\n        super(condition.type,\n        sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e instanceof AssertNotNull &&\n        this.condition.isEquivalent(e.condition);\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor:\n ExpressionVisitor, context: any):\n any {\n        return visitor.visitAssertNotNullExpr(this, context);\n    }\n}\n\nexport\n class CastExpr extends Expression {\n    constructor(public value: Expression, type?: Type|null, sourceSpan?:\n ParseSourceSpan|null) {\n        super(type, sourceSpan);\n    }\n\n    isEquivalent(e: Expression): boolean {\n        return e\n        instanceof CastExpr && this.value.isEquivalent(e.value);\n    }\n\n    isConstant() {\n        return false;\n    }\n\n    visitExpression(visitor: ExpressionVisitor, context: any): any {\n        return visitor.visitCastExpr(this,
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context);\n }\n}\n\nexport class FnParam {\n  constructor(public name: string, public type: Type|null = null)
{\n}\n\n  isEquivalent(param: FnParam): boolean {\n    return this.name === param.name;\n }\n}\n\n\nexport class
FunctionExpr extends Expression {\n  constructor(\n    public params: FnParam[], public statements: Statement[],
type?: Type|null,\n    sourceSpan?: ParseSourceSpan|null, public name?: string|null) {\n    super(type,
sourceSpan);\n }\n\n  isEquivalent(e: Expression): boolean {\n    return e instanceof FunctionExpr &&
areAllEquivalent(this.params, e.params) &&\n      areAllEquivalent(this.statements, e.statements);\n }\n}\n\n
isConstant() {\n    return false;\n }\n\n  visitExpression(visitor: ExpressionVisitor, context: any): any {\n    return
visitor.visitFunctionExpr(this, context);\n }\n\n  toDeclStmt(name: string, modifiers?: StmtModifier[]):
DeclareFunctionStmt {\n    return new DeclareFunctionStmt(\n      name, this.params, this.statements, this.type,
modifiers, this.sourceSpan);\n }\n}\n\n\nexport class UnaryOperatorExpr extends Expression {\n  constructor(\n
public operator: UnaryOperator, public expr: Expression, type?: Type|null,\n    sourceSpan?: ParseSourceSpan|null,
public parens: boolean = true) {\n    super(type || NUMBER_TYPE, sourceSpan);\n }\n\n  isEquivalent(e:
Expression): boolean {\n    return e instanceof UnaryOperatorExpr && this.operator === e.operator &&\n
this.expr.isEquivalent(e.expr);\n }\n\n  isConstant() {\n    return false;\n }\n\n  visitExpression(visitor:
ExpressionVisitor, context: any): any {\n    return visitor.visitUnaryOperatorExpr(this, context);\n }\n}\n\n\nexport
class BinaryOperatorExpr extends Expression {\n  public lhs: Expression;\n  constructor(\n    public operator:
BinaryOperator, lhs: Expression, public rhs: Expression, type?: Type|null,\n    sourceSpan?: ParseSourceSpan|null,
public parens: boolean = true) {\n    super(type || lhs.type, sourceSpan);\n    this.lhs
= lhs;\n }\n\n  isEquivalent(e: Expression): boolean {\n    return e instanceof BinaryOperatorExpr && this.operator
=== e.operator &&\n      this.lhs.isEquivalent(e.lhs) && this.rhs.isEquivalent(e.rhs);\n }\n\n  isConstant() {\n
return false;\n }\n\n  visitExpression(visitor: ExpressionVisitor, context: any): any {\n    return
visitor.visitBinaryOperatorExpr(this, context);\n }\n}\n\n\nexport class ReadPropExpr extends Expression {\n
constructor(\n    public receiver: Expression, public name: string, type?: Type|null,\n    sourceSpan?:
ParseSourceSpan|null) {\n    super(type, sourceSpan);\n }\n\n  isEquivalent(e: Expression): boolean {\n    return e
instanceof ReadPropExpr && this.receiver.isEquivalent(e.receiver) &&\n      this.name === e.name;\n }\n\n  isConstant() {\n
return false;\n }\n\n  visitExpression(visitor: ExpressionVisitor, context: any): any {\n    return
visitor.visitReadPropExpr(this, context);\n }\n\n  set(value: Expression): WritePropExpr
{\n    return new WritePropExpr(this.receiver, this.name, value, null, this.sourceSpan);\n }\n}\n\n\nexport class
ReadKeyExpr extends Expression {\n  constructor(\n    public receiver: Expression, public index: Expression,
type?: Type|null,\n    sourceSpan?: ParseSourceSpan|null) {\n    super(type, sourceSpan);\n }\n\n  isEquivalent(e:
Expression): boolean {\n    return e instanceof ReadKeyExpr && this.receiver.isEquivalent(e.receiver) &&\n
this.index.isEquivalent(e.index);\n }\n\n  isConstant() {\n    return false;\n }\n\n  visitExpression(visitor:
ExpressionVisitor, context: any): any {\n    return visitor.visitReadKeyExpr(this, context);\n }\n\n  set(value:
Expression): WriteKeyExpr {\n    return new WriteKeyExpr(this.receiver, this.index, value, null, this.sourceSpan);\n
}\n}\n\n\nexport class LiteralArrayExpr extends Expression {\n  public entries: Expression[];\n  constructor(entries:
Expression[], type?: Type|null, sourceSpan?: ParseSourceSpan|null) {\n    super(type,
sourceSpan);\n    this.entries = entries;\n }\n\n  isConstant() {\n    return this.entries.every(e => e.isConstant());\n
}\n\n  isEquivalent(e: Expression): boolean {\n    return e instanceof LiteralArrayExpr &&
areAllEquivalent(this.entries, e.entries);\n }\n\n  visitExpression(visitor: ExpressionVisitor, context: any): any {\n
return visitor.visitLiteralArrayExpr(this, context);\n }\n}\n\n\nexport class LiteralMapEntry {\n  constructor(public
key: string, public value: Expression, public quoted: boolean) {\n }\n\n  isEquivalent(e: LiteralMapEntry): boolean {\n
return this.key === e.key && this.value.isEquivalent(e.value);\n }\n }\n\n\nexport class LiteralMapExpr extends
Expression {\n  public valueType: Type|null = null;\n  constructor(\n    public entries: LiteralMapEntry[], type?:
MapType|null, sourceSpan?: ParseSourceSpan|null) {\n    super(type, sourceSpan);\n    if (type) {\n
this.valueType = type.valueType;\n    }\n }\n\n  isEquivalent(e: Expression): boolean {\n
return e instanceof LiteralMapExpr && areAllEquivalent(this.entries, e.entries);\n }\n\n  isConstant() {\n    return
this.entries.every(e => e.value.isConstant());\n }\n\n  visitExpression(visitor: ExpressionVisitor, context: any): any
{\n    return visitor.visitLiteralMapExpr(this, context);\n }\n }\n\n\nexport class CommaExpr extends Expression {\n

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constructor(public parts: Expression[], sourceSpan?: ParseSourceSpan|null) {\n  super(parts[parts.length - 1].type,
sourceSpan);\n }\n\n isEquivalent(e: Expression): boolean {\n  return e instanceof CommaExpr &&
areAllEquivalent(this.parts, e.parts);\n }\n\n isConstant() {\n  return false;\n }\n\n visitExpression(visitor:
ExpressionVisitor, context: any): any {\n  return visitor.visitCommaExpr(this, context);\n }\n}\n\nexport interface
ExpressionVisitor {\n  visitReadVarExpr(ast: ReadVarExpr, context: any): any;\n  visitWriteVarExpr(expr:
WriteVarExpr, context: any): any;\n  visitWriteKeyExpr(expr: WriteKeyExpr, context:
any): any;\n  visitWritePropExpr(expr: WritePropExpr, context: any): any;\n  visitInvokeMethodExpr(ast:
InvokeMethodExpr, context: any): any;\n  visitInvokeFunctionExpr(ast: InvokeFunctionExpr, context: any): any;\n
visitInstantiateExpr(ast: InstantiateExpr, context: any): any;\n  visitLiteralExpr(ast: LiteralExpr, context: any):
any;\n  visitLocalizedString(ast: LocalizedString, context: any): any;\n  visitExternalExpr(ast: ExternalExpr,
context: any): any;\n  visitConditionalExpr(ast: ConditionalExpr, context: any): any;\n  visitNotExpr(ast: NotExpr,
context: any): any;\n  visitAssertNotNullExpr(ast: AssertNotNull, context: any): any;\n  visitCastExpr(ast: CastExpr,
context: any): any;\n  visitFunctionExpr(ast: FunctionExpr, context: any): any;\n  visitUnaryOperatorExpr(ast:
UnaryOperatorExpr, context: any): any;\n  visitBinaryOperatorExpr(ast: BinaryOperatorExpr, context: any): any;\n
visitReadPropExpr(ast: ReadPropExpr, context: any): any;\n  visitReadKeyExpr(ast: ReadKeyExpr,
context: any): any;\n  visitLiteralArrayExpr(ast: LiteralArrayExpr, context: any): any;\n  visitLiteralMapExpr(ast:
LiteralMapExpr, context: any): any;\n  visitCommaExpr(ast: CommaExpr, context: any): any;\n
visitWrappedNodeExpr(ast: WrappedNodeExpr<any>, context: any): any;\n  visitTypeofExpr(ast: TypeofExpr,
context: any): any;\n}\n\nexport const THIS_EXPR = new ReadVarExpr(BuiltinVar.This, null, null);\nexport const
SUPER_EXPR = new ReadVarExpr(BuiltinVar.Super, null, null);\nexport const CATCH_ERROR_VAR = new
ReadVarExpr(BuiltinVar.CatchError, null, null);\nexport const CATCH_STACK_VAR = new
ReadVarExpr(BuiltinVar.CatchStack, null, null);\nexport const NULL_EXPR = new LiteralExpr(null, null,
null);\nexport const TYPED_NULL_EXPR = new LiteralExpr(null, INFERRED_TYPE, null);\n\n\n///
Statements\nexport enum StmtModifier {\n  Final,\n  Private,\n  Exported,\n  Static,\n}\n\nexport class
LeadingComment {\n  constructor(public text: string, public multiline: boolean, public trailingNewline:
boolean) {\n }\n  toString() {\n  return this.multiline ? `${this.text}` : this.text;\n }\n}\n\nexport class
JSDocComment extends LeadingComment {\n  constructor(public tags: JSDocTag[]) {\n  super("/* multiline */
true, /* trailingNewline */ true);\n }\n  toString(): string {\n  return serializeTags(this.tags);\n }\n}\n\nexport
abstract class Statement {\n  constructor(\n    public modifiers: StmtModifier[] = [], public sourceSpan:
ParseSourceSpan|null = null,\n    public leadingComments?: LeadingComment[]) {\n }\n  /**\n   * Calculates whether
this statement produces the same value as the given statement.\n   * Note: We don't check Types nor
ParseSourceSpans nor function arguments.\n   */\n  abstract isEquivalent(stmt: Statement): boolean;\n\n  abstract
visitStatement(visitor: StatementVisitor, context: any): any;\n\n  hasModifier(modifier: StmtModifier): boolean {\n
return this.modifiers.indexOf(modifier) !== -1;\n }\n\n  addLeadingComment(leadingComment:
LeadingComment):
void {\n  this.leadingComments = this.leadingComments ?? [];\n
this.leadingComments.push(leadingComment);\n }\n}\n\n\nexport class DeclareVarStmt extends Statement {\n
public type: Type|null;\n  constructor(\n    public name: string, public value?: Expression, type?: Type|null,
modifiers?: StmtModifier[],\n    sourceSpan?: ParseSourceSpan|null, leadingComments?: LeadingComment[]) {\n
super(modifiers, sourceSpan, leadingComments);\n  this.type = type || (value && value.type) || null;\n }\n
isEquivalent(stmt: Statement): boolean {\n  return stmt instanceof DeclareVarStmt && this.name === stmt.name
&&\n    (this.value ? !stmt.value && this.value.isEquivalent(stmt.value) : !stmt.value);\n }\n
visitStatement(visitor: StatementVisitor, context: any): any {\n  return visitor.visitDeclareVarStmt(this, context);\n
}\n}\n\nexport class DeclareFunctionStmt extends Statement {\n  public type: Type|null;\n  constructor(\n    public
name: string, public params:
FnParam[], public statements: Statement[],\n    type?: Type|null, modifiers?: StmtModifier[], sourceSpan?:
ParseSourceSpan|null,\n    leadingComments?: LeadingComment[]) {\n  super(modifiers, sourceSpan,
leadingComments);\n  this.type = type || null;\n }\n  isEquivalent(stmt: Statement): boolean {\n  return stmt

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instanceof DeclareFunctionStmt && areAllEquivalent(this.params, stmt.params) &&\n
areAllEquivalent(this.statements, stmt.statements);\n }\n visitStatement(visitor: StatementVisitor, context: any):
any {\n return visitor.visitDeclareFunctionStmt(this, context);\n }\n}\n\nexport class ExpressionStatement
extends Statement {\n constructor(\n public expr: Expression, sourceSpan?: ParseSourceSpan|null,\n leadingComments?: LeadingComment[]) {\n super([], sourceSpan, leadingComments);\n }\n isEquivalent(stmt:
Statement): boolean {\n return stmt instanceof ExpressionStatement && this.expr.isEquivalent(stmt.expr);\n }\n
visitStatement(visitor:
StatementVisitor, context: any): any {\n return visitor.visitExpressionStmt(this, context);\n }\n}\n\nexport class
ReturnStatement extends Statement {\n constructor(\n public value: Expression, sourceSpan:
ParseSourceSpan|null = null,\n leadingComments?: LeadingComment[]) {\n super([], sourceSpan,
leadingComments);\n }\n isEquivalent(stmt: Statement): boolean {\n return stmt instanceof ReturnStatement &&
this.value.isEquivalent(stmt.value);\n }\n visitStatement(visitor: StatementVisitor, context: any): any {\n return
visitor.visitReturnStmt(this, context);\n }\n}\n\nexport class AbstractClassPart {\n constructor(public type:
Type|null = null, public modifiers: StmtModifier[] = []) {\n hasModifier(modifier: StmtModifier): boolean {\n
return this.modifiers.indexOf(modifier) !== -1;\n }\n}\n\nexport class ClassField extends AbstractClassPart {\n
constructor(\n public name: string, type?: Type|null, modifiers?: StmtModifier[],\n public
initializer?: Expression) {\n super(type, modifiers);\n }\n isEquivalent(f: ClassField) {\n return this.name ===
f.name;\n }\n}\n\nexport class ClassMethod extends AbstractClassPart {\n constructor(\n public name:
string|null, public params: FnParam[], public body: Statement[],\n type?: Type|null, modifiers?: StmtModifier[])
{\n super(type, modifiers);\n }\n isEquivalent(m: ClassMethod) {\n return this.name === m.name &&
areAllEquivalent(this.body, m.body);\n }\n}\n\nexport class ClassGetter extends AbstractClassPart {\n
constructor(\n public name: string, public body: Statement[], type?: Type|null, modifiers?: StmtModifier[]) {\n
super(type, modifiers);\n }\n isEquivalent(m: ClassGetter) {\n return this.name === m.name &&
areAllEquivalent(this.body, m.body);\n }\n}\n\nexport class ClassStmt extends Statement {\n constructor(\n
public name: string, public parent: Expression|null, public fields: ClassField[],\n public getters:
ClassGetter[], public constructorMethod: ClassMethod,\n public methods: ClassMethod[], modifiers?:
StmtModifier[], sourceSpan?: ParseSourceSpan|null,\n leadingComments?: LeadingComment[]) {\n
super(modifiers, sourceSpan, leadingComments);\n }\n isEquivalent(stmt: Statement): boolean {\n return stmt
instanceof ClassStmt && this.name === stmt.name &&\n nullSafeIsEquivalent(this.parent, stmt.parent) &&\n
areAllEquivalent(this.fields, stmt.fields) &&\n areAllEquivalent(this.getters, stmt.getters) &&\n
this.constructorMethod.isEquivalent(stmt.constructorMethod) &&\n areAllEquivalent(this.methods,
stmt.methods);\n }\n visitStatement(visitor: StatementVisitor, context: any): any {\n return
visitor.visitDeclareClassStmt(this, context);\n }\n}\n\nexport class IfStmt extends Statement {\n constructor(\n
public condition: Expression, public trueCase: Statement[],\n public falseCase: Statement[] = [], sourceSpan?:
ParseSourceSpan|null,\n leadingComments?: LeadingComment[]) {\n super([], sourceSpan, leadingComments);\n }\n
isEquivalent(stmt: Statement): boolean {\n return stmt instanceof IfStmt &&
this.condition.isEquivalent(stmt.condition) &&\n areAllEquivalent(this.trueCase, stmt.trueCase) &&\n
areAllEquivalent(this.falseCase, stmt.falseCase);\n }\n visitStatement(visitor: StatementVisitor, context: any): any
{\n return visitor.visitIfStmt(this, context);\n }\n}\n\nexport class TryCatchStmt extends Statement {\n
constructor(\n public bodyStmts: Statement[], public catchStmts: Statement[],\n sourceSpan:
ParseSourceSpan|null = null, leadingComments?: LeadingComment[]) {\n super([], sourceSpan,
leadingComments);\n }\n isEquivalent(stmt: Statement): boolean {\n return stmt instanceof TryCatchStmt &&
areAllEquivalent(this.bodyStmts, stmt.bodyStmts) &&\n areAllEquivalent(this.catchStmts, stmt.catchStmts);\n
}\n visitStatement(visitor: StatementVisitor,
context: any): any {\n return visitor.visitTryCatchStmt(this, context);\n }\n}\n\nexport class ThrowStmt
extends Statement {\n constructor(\n public error: Expression, sourceSpan: ParseSourceSpan|null = null,\n
leadingComments?: LeadingComment[]) {\n super([], sourceSpan, leadingComments);\n }\n isEquivalent(stmt:

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ThrowStmt): boolean {\n  return stmt instanceof TryCatchStmt && this.error.isEquivalent(stmt.error);\n }\n\nvisitStatement(visitor: StatementVisitor, context: any): any {\n  return visitor.visitThrowStmt(this, context);\n}\n\n}\n\n\nexport interface StatementVisitor {\n  visitDeclareVarStmt(stmt: DeclareVarStmt, context: any): any;\n  visitDeclareFunctionStmt(stmt: DeclareFunctionStmt, context: any): any;\n  visitExpressionStmt(stmt: ExpressionStatement, context: any): any;\n  visitReturnStmt(stmt: ReturnStatement, context: any): any;\n  visitDeclareClassStmt(stmt: ClassStmt, context: any): any;\n  visitIfStmt(stmt: IfStmt, context: any): any;\n  visitTryCatchStmt(stmt: TryCatchStmt, context: any): any;\n  visitThrowStmt(stmt: ThrowStmt, context: any): any;\n}\n\n\nexport class AstTransformer implements StatementVisitor, ExpressionVisitor {\n  transformExpr(expr: Expression, context: any): Expression {\n    return expr;\n  }\n\n  transformStmt(stmt: Statement, context: any): Statement {\n    return stmt;\n  }\n\n  visitReadVarExpr(ast: ReadVarExpr, context: any): any {\n    return this.transformExpr(ast, context);\n  }\n\n  visitWrappedNodeExpr(ast: WrappedNodeExpr<any>, context: any): any {\n    return this.transformExpr(ast, context);\n  }\n\n  visitTypeofExpr(expr: TypeofExpr, context: any): any {\n    return this.transformExpr(\n      new TypeofExpr(expr.expr.visitExpression(this, context), expr.type, expr.sourceSpan),\n      context);\n  }\n\n  visitWriteVarExpr(expr: WriteVarExpr, context: any): any {\n    return this.transformExpr(\n      new WriteVarExpr(\n        expr.name, expr.value.visitExpression(this, context),\n        expr.type, expr.sourceSpan),\n      context);\n  }\n\n  visitWriteKeyExpr(expr: WriteKeyExpr, context: any): any {\n    return this.transformExpr(\n      new WriteKeyExpr(\n        expr.receiver.visitExpression(this, context),\n        expr.index.visitExpression(this, context),\n        expr.value.visitExpression(this, context), expr.type,\n        expr.sourceSpan),\n      context);\n  }\n\n  visitWritePropExpr(expr: WritePropExpr, context: any): any {\n    return this.transformExpr(\n      new WritePropExpr(\n        expr.receiver.visitExpression(this, context), expr.name,\n        expr.value.visitExpression(this, context), expr.type, expr.sourceSpan),\n      context);\n  }\n\n  visitInvokeMethodExpr(ast: InvokeMethodExpr, context: any): any {\n    const method = ast.builtin || ast.name;\n    return this.transformExpr(\n      new InvokeMethodExpr(\n        ast.receiver.visitExpression(this, context),\n        method!,\n        this.visitAllExpressions(ast.args, context),\n        ast.type, ast.sourceSpan),\n      context);\n  }\n\n  visitInvokeFunctionExpr(ast: InvokeFunctionExpr, context: any): any {\n    return this.transformExpr(\n      new InvokeFunctionExpr(\n        ast.fn.visitExpression(this, context),\n        this.visitAllExpressions(ast.args, context),\n        ast.type, ast.sourceSpan),\n      context);\n  }\n\n  visitInstantiateExpr(ast: InstantiateExpr, context: any): any {\n    return this.transformExpr(\n      new InstantiateExpr(\n        ast.classExpr.visitExpression(this, context),\n        this.visitAllExpressions(ast.args, context),\n        ast.type, ast.sourceSpan),\n      context);\n  }\n\n  visitLiteralExpr(ast: LiteralExpr, context: any): any {\n    return this.transformExpr(ast, context);\n  }\n\n  visitLocalizedString(ast: LocalizedString, context: any): any {\n    return this.transformExpr(\n      new LocalizedString(\n        ast.metaBlock, ast.messageParts,\n        ast.placeholderNames,\n        this.visitAllExpressions(ast.expressions, context),\n        ast.sourceSpan),\n      context);\n  }\n\n  visitExternalExpr(ast: ExternalExpr, context: any): any {\n    return this.transformExpr(ast, context);\n  }\n\n  visitConditionalExpr(ast: ConditionalExpr, context: any): any {\n    return this.transformExpr(\n      new ConditionalExpr(\n        ast.condition.visitExpression(this, context),\n        ast.trueCase.visitExpression(this, context),\n        ast.falseCase!.visitExpression(this, context), ast.type,\n        ast.sourceSpan),\n      context);\n  }\n\n  visitNotExpr(ast: NotExpr, context: any): any {\n    return this.transformExpr(\n      new NotExpr(ast.condition.visitExpression(this, context), ast.sourceSpan),\n      context);\n  }\n\n  visitAssertNotNullExpr(ast: AssertNotNull, context: any): any {\n    return this.transformExpr(\n      new AssertNotNull(ast.condition.visitExpression(this, context), ast.sourceSpan),\n      context);\n  }\n\n  visitCastExpr(ast: CastExpr, context: any): any {\n    return this.transformExpr(\n      new CastExpr(ast.value.visitExpression(this, context), ast.type, ast.sourceSpan),\n      context);\n  }\n\n  visitFunctionExpr(ast: FunctionExpr, context: any): any {\n    return this.transformExpr(\n      new FunctionExpr(\n        ast.params, this.visitAllStatements(ast.statements, context),\n        ast.type, ast.sourceSpan),\n      context);\n  }\n\n  visitUnaryOperatorExpr(ast: UnaryOperatorExpr, context: any): any {\n    return this.transformExpr(\n      new UnaryOperatorExpr(\n        ast.operator, ast.expr.visitExpression(this, context),\n        ast.type, ast.sourceSpan),\n      context);\n  }\n}

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context);\n }\n\n visitBinaryOperatorExpr(ast: BinaryOperatorExpr, context: any): any {\n  return
this.transformExpr(\n    new BinaryOperatorExpr(\n      ast.operator, ast.lhs.visitExpression(this, context),\n      ast.rhs.visitExpression(this, context), ast.type, ast.sourceSpan),\n    context);\n }\n\n visitReadPropExpr(ast:
ReadPropExpr, context: any): any
{\n  return this.transformExpr(\n    new ReadPropExpr(\n      ast.receiver.visitExpression(this, context),
ast.name, ast.type, ast.sourceSpan),\n    context);\n }\n\n visitReadKeyExpr(ast: ReadKeyExpr, context: any):
any {\n  return this.transformExpr(\n    new ReadKeyExpr(\n      ast.receiver.visitExpression(this, context),
ast.index.visitExpression(this, context),\n      ast.type, ast.sourceSpan),\n    context);\n }\n\n
visitLiteralArrayExpr(ast: LiteralArrayExpr, context: any): any {\n  return this.transformExpr(\n    new
LiteralArrayExpr(\n      this.visitAllExpressions(ast.entries, context), ast.type, ast.sourceSpan),\n    context);\n }\n\n
visitLiteralMapExpr(ast: LiteralMapExpr, context: any): any {\n  const entries = ast.entries.map(\n
(entry): LiteralMapEntry => new LiteralMapEntry(\n    entry.key, entry.value.visitExpression(this, context),
entry.quoted));\n  const mapType = new MapType(ast.valueType);\n
return this.transformExpr(new LiteralMapExpr(entries, mapType, ast.sourceSpan), context);\n }\n\n
visitCommaExpr(ast: CommaExpr, context: any): any {\n  return this.transformExpr(\n    new
CommaExpr(this.visitAllExpressions(ast.parts, context), ast.sourceSpan), context);\n }\n\n
visitAllExpressions(exprs: Expression[], context: any): Expression[] {\n  return exprs.map(expr =>
expr.visitExpression(this, context));\n }\n\n visitDeclareVarStmt(stmt: DeclareVarStmt, context: any): any {\n
const value = stmt.value && stmt.value.visitExpression(this, context);\n  return this.transformStmt(\n    new
DeclareVarStmt(\n      stmt.name, value, stmt.type, stmt.modifiers, stmt.sourceSpan, stmt.leadingComments),\n
context);\n }\n\n visitDeclareFunctionStmt(stmt: DeclareFunctionStmt, context: any): any {\n  return
this.transformStmt(\n    new DeclareFunctionStmt(\n      stmt.name, stmt.params,
this.visitAllStatements(stmt.statements, context), stmt.type,\n
stmt.modifiers, stmt.sourceSpan, stmt.leadingComments),\n    context);\n }\n\n visitExpressionStmt(stmt:
ExpressionStatement, context: any): any {\n  return this.transformStmt(\n    new ExpressionStatement(\n
stmt.expr.visitExpression(this, context), stmt.sourceSpan, stmt.leadingComments),\n    context);\n }\n\n
visitReturnStmt(stmt: ReturnStatement, context: any): any {\n  return this.transformStmt(\n    new
ReturnStatement(\n      stmt.value.visitExpression(this, context), stmt.sourceSpan, stmt.leadingComments),\n
context);\n }\n\n visitDeclareClassStmt(stmt: ClassStmt, context: any): any {\n  const parent =
stmt.parent!.visitExpression(this, context);\n  const getters = stmt.getters.map(\n    getter => new ClassGetter(\n
getter.name, this.visitAllStatements(getter.body, context), getter.type,\n    getter.modifiers));\n  const
ctorMethod = stmt.constructorMethod &&\n    new ClassMethod(stmt.constructorMethod.name,
stmt.constructorMethod.params,\n      this.visitAllStatements(stmt.constructorMethod.body, context),\n
stmt.constructorMethod.type, stmt.constructorMethod.modifiers);\n  const methods =
stmt.methods.map(\n    method => new ClassMethod(\n      method.name, method.params,
this.visitAllStatements(method.body, context), method.type,\n      method.modifiers));\n  return
this.transformStmt(\n    new ClassStmt(\n      stmt.name, parent, stmt.fields, getters, ctorMethod, methods,
stmt.modifiers,\n      stmt.sourceSpan),\n    context);\n }\n\n visitIfStmt(stmt: IfStmt, context: any): any {\n
return this.transformStmt(\n    new IfStmt(\n      stmt.condition.visitExpression(this, context),\n
this.visitAllStatements(stmt.trueCase, context),\n      this.visitAllStatements(stmt.falseCase, context),
stmt.sourceSpan,\n      stmt.leadingComments),\n    context);\n }\n\n visitTryCatchStmt(stmt: TryCatchStmt, context: any): any {\n  return this.transformStmt(\n
new TryCatchStmt(\n      this.visitAllStatements(stmt.bodyStmts, context),\n
this.visitAllStatements(stmt.catchStmts, context), stmt.sourceSpan,\n      stmt.leadingComments),\n    context);\n }\n\n visitThrowStmt(stmt: ThrowStmt, context: any): any {\n  return this.transformStmt(\n
new ThrowStmt(\n      stmt.error.visitExpression(this, context), stmt.sourceSpan, stmt.leadingComments),\n
context);\n }\n\n visitAllStatements(stmts: Statement[], context: any): Statement[] {\n  return stmts.map(stmt =>
stmt.visitStatement(this, context));\n }\n}\n\n\nexport class RecursiveAstVisitor implements StatementVisitor,

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ExpressionVisitor {
  visitType(ast: Type, context: any): any {
    return ast;
  }
  visitExpression(ast: Expression, context: any): any {
    if (ast.type) {
      ast.type.visitType(this, context);
    }
    return ast;
  }
  visitBuiltinType(type: BuiltinType, context: any): any {
    return this.visitType(type, context);
  }
  visitExpressionType(type: ExpressionType, context: any): any {
    type.value.visitExpression(this, context);
    if (type.typeParams != null) {
      type.typeParams.forEach(param => this.visitType(param, context));
    }
    return this.visitType(type, context);
  }
  visitArrayType(type: ArrayType, context: any): any {
    return this.visitType(type, context);
  }
  visitMapType(type: MapType, context: any): any {
    return this.visitType(type, context);
  }
  visitWrappedNodeExpr(ast: WrappedNodeExpr<any>, context: any): any {
    return ast;
  }
  visitTypeofExpr(ast: TypeofExpr, context: any): any {
    return this.visitExpression(ast, context);
  }
  visitReadVarExpr(ast: ReadVarExpr, context: any): any {
    return this.visitExpression(ast, context);
  }
  visitWriteVarExpr(ast: WriteVarExpr, context: any): any {
    ast.value.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitWriteKeyExpr(ast: WriteKeyExpr, context: any): any {
    ast.receiver.visitExpression(this, context);
    ast.index.visitExpression(this, context);
    ast.value.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitWritePropExpr(ast: WritePropExpr, context: any): any {
    ast.receiver.visitExpression(this, context);
    ast.value.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitInvokeMethodExpr(ast: InvokeMethodExpr, context: any): any {
    ast.receiver.visitExpression(this, context);
    this.visitAllExpressions(ast.args, context);
    return this.visitExpression(ast, context);
  }
  visitInvokeFunctionExpr(ast: InvokeFunctionExpr, context: any): any {
    ast.fn.visitExpression(this, context);
    this.visitAllExpressions(ast.args, context);
    return this.visitExpression(ast, context);
  }
  visitInstantiateExpr(ast: InstantiateExpr, context: any): any {
    ast.classExpr.visitExpression(this, context);
    this.visitAllExpressions(ast.args, context);
    return this.visitExpression(ast, context);
  }
  visitLiteralExpr(ast: LiteralExpr, context: any): any {
    return this.visitExpression(ast, context);
  }
  visitLocalizedString(ast: LocalizedString, context: any): any {
    return this.visitExpression(ast, context);
  }
  visitExternalExpr(ast: ExternalExpr, context: any): any {
    if (ast.typeParams) {
      ast.typeParams.forEach(type => type.visitType(this, context));
    }
    return this.visitExpression(ast, context);
  }
  visitConditionalExpr(ast: ConditionalExpr, context: any): any {
    ast.condition.visitExpression(this, context);
    ast.trueCase.visitExpression(this, context);
    ast.falseCase?.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitNotExpr(ast: NotExpr, context: any): any {
    ast.condition.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitAssertNotNullExpr(ast: AssertNotNull, context: any): any {
    ast.condition.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitCastExpr(ast: CastExpr, context: any): any {
    ast.value.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitFunctionExpr(ast: FunctionExpr, context: any): any {
    this.visitAllStatements(ast.statements, context);
    return this.visitExpression(ast, context);
  }
  visitUnaryOperatorExpr(ast: UnaryOperatorExpr, context: any): any {
    ast.expr.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitBinaryOperatorExpr(ast: BinaryOperatorExpr, context: any): any {
    ast.lhs.visitExpression(this, context);
    ast.rhs.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitReadPropExpr(ast: ReadPropExpr, context: any): any {
    ast.receiver.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitReadKeyExpr(ast: ReadKeyExpr, context: any): any {
    ast.receiver.visitExpression(this, context);
    ast.index.visitExpression(this, context);
    return this.visitExpression(ast, context);
  }
  visitLiteralArrayExpr(ast: LiteralArrayExpr, context: any): any {
    this.visitAllExpressions(ast.entries, context);
    return this.visitExpression(ast, context);
  }
  visitLiteralMapExpr(ast: LiteralMapExpr, context: any): any {
    ast.entries.forEach((entry) => entry.value.visitExpression(this, context));
    return this.visitExpression(ast, context);
  }
  visitCommaExpr(ast: CommaExpr, context: any): any {
    this.visitAllExpressions(ast.parts, context);
    return this.visitExpression(ast, context);
  }
  visitAllExpressions(exprs: Expression[], context: any): void {
    exprs.forEach(expr =>

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expr.visitExpression(this,
  context));\n }\n\n visitDeclareVarStmt(stmt: DeclareVarStmt, context: any): any {\n   if (stmt.value) {\n     stmt.value.visitExpression(this, context);\n   }\n   if (stmt.type) {\n     stmt.type.visitType(this, context);\n   }\n   return stmt;\n }\n\n visitDeclareFunctionStmt(stmt: DeclareFunctionStmt, context: any): any {\n   this.visitAllStatements(stmt.statements, context);\n   if (stmt.type) {\n     stmt.type.visitType(this, context);\n   }\n   return stmt;\n }\n\n visitExpressionStmt(stmt: ExpressionStatement, context: any): any {\n   stmt.expr.visitExpression(this, context);\n   return stmt;\n }\n\n visitReturnStmt(stmt: ReturnStatement, context: any): any {\n   stmt.value.visitExpression(this, context);\n   return stmt;\n }\n\n visitDeclareClassStmt(stmt: ClassStmt, context: any): any {\n   stmt.parent!.visitExpression(this, context);\n   stmt.getters.forEach(getter => this.visitAllStatements(getter.body, context));\n   if (stmt.constructorMethod) {\n     this.visitAllStatements(stmt.constructorMethod.body, context);\n   }\n   stmt.methods.forEach(method => this.visitAllStatements(method.body, context));\n   return stmt;\n }\n\n visitIfStmt(stmt: IfStmt, context: any): any {\n   stmt.condition.visitExpression(this, context);\n   this.visitAllStatements(stmt.trueCase, context);\n   this.visitAllStatements(stmt.falseCase, context);\n   return stmt;\n }\n\n visitTryCatchStmt(stmt: TryCatchStmt, context: any): any {\n   this.visitAllStatements(stmt.bodyStmts, context);\n   this.visitAllStatements(stmt.catchStmts, context);\n   return stmt;\n }\n\n visitThrowStmt(stmt: ThrowStmt, context: any): any {\n   stmt.error.visitExpression(this, context);\n   return stmt;\n }\n\n visitAllStatements(stmts: Statement[], context: any): void {\n   stmts.forEach(stmt => stmt.visitStatement(this, context));\n }\n\n\nexport function findReadVarNames(stmts: Statement[]): Set<string> {\n  const visitor = new _ReadVarVisitor();\n  visitor.visitAllStatements(stmts, null);\n  return visitor.varNames;\n}\n\nclass _ReadVarVisitor extends RecursiveAstVisitor {\n  varNames = new Set<string>();\n  visitDeclareFunctionStmt(stmt: DeclareFunctionStmt, context: any): any {\n    // Don't descend into nested functions\n    return stmt;\n  }\n  visitDeclareClassStmt(stmt: ClassStmt, context: any): any {\n    // Don't descend into nested classes\n    return stmt;\n  }\n  visitReadVarExpr(ast: ReadVarExpr, context: any): any {\n    if (ast.name) {\n      this.varNames.add(ast.name);\n    }\n    return null;\n  }\n}\n\nexport function collectExternalReferences(stmts: Statement[]): ExternalReference[] {\n  const visitor = new _FindExternalReferencesVisitor();\n  visitor.visitAllStatements(stmts, null);\n  return visitor.externalReferences;\n}\n\nclass _FindExternalReferencesVisitor extends RecursiveAstVisitor {\n  externalReferences: ExternalReference[] = [];\n  visitExternalExpr(e: ExternalExpr, context: any) {\n    this.externalReferences.push(e.value);\n\n    return super.visitExternalExpr(e, context);\n  }\n}\n\nexport function applySourceSpanToStatementIfNeeded(\n  stmt: Statement, sourceSpan: ParseSourceSpan|null): Statement {\n  if (!sourceSpan) {\n    return stmt;\n  }\n  const transformer = new _ApplySourceSpanTransformer(sourceSpan);\n  return stmt.visitStatement(transformer, null);\n}\n\nexport function applySourceSpanToExpressionIfNeeded(\n  expr: Expression, sourceSpan: ParseSourceSpan|null): Expression {\n  if (!sourceSpan) {\n    return expr;\n  }\n  const transformer = new _ApplySourceSpanTransformer(sourceSpan);\n  return expr.visitExpression(transformer, null);\n}\n\nclass _ApplySourceSpanTransformer extends AstTransformer {\n  constructor(private sourceSpan: ParseSourceSpan) {\n    super();\n  }\n  private _clone(obj: any): any {\n    const clone = Object.create(obj.constructor.prototype);\n    for (let prop of Object.keys(obj)) {\n      clone[prop] = obj[prop];\n    }\n    return clone;\n  }\n\n  transformExpr(expr: Expression, context: any): Expression {\n    if (!expr.sourceSpan) {\n      expr = this._clone(expr);\n      expr.sourceSpan = this.sourceSpan;\n    }\n    return expr;\n  }\n\n  transformStmt(stmt: Statement, context: any): Statement {\n    if (!stmt.sourceSpan) {\n      stmt = this._clone(stmt);\n      stmt.sourceSpan = this.sourceSpan;\n    }\n    return stmt;\n  }\n}\n\nexport function leadingComment(\n  text: string, multiline: boolean = false, trailingNewline: boolean = true): LeadingComment {\n  return new LeadingComment(text, multiline, trailingNewline);\n}\n\nexport function jsDocComment(tags: JSDocTag[] = []): JSDocComment {\n  return new JSDocComment(tags);\n}\n\nexport function variable(\n  name: string, type?: Type|null, sourceSpan?: ParseSourceSpan|null): ReadVarExpr {\n  return new ReadVarExpr(name, type, sourceSpan);\n}\n\nexport function importExpr(\n  id: ExternalReference, typeParams: Type[]|null = null, sourceSpan?: ParseSourceSpan|null):

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ExternalExpr {\n return new ExternalExpr(id, null, typeParams, sourceSpan);\n}\n\nexport function importType(\n
id: ExternalReference, typeParams?: Type[]|null,\n typeModifiers?: TypeModifier[]): ExpressionType|null {\n
return id != null ? expressionType(importExpr(id, typeParams, null), typeModifiers) : null;\n}\n\nexport function
expressionType(\n expr: Expression, typeModifiers?: TypeModifier[], typeParams?: Type[]|null): ExpressionType
{\n return new ExpressionType(expr, typeModifiers, typeParams);\n}\n\nexport function typeOfExpr(expr:
Expression) {\n return new TypeOfExpr(expr);\n}\n\nexport function literalArr(\n values: Expression[], type?:
Type|null, sourceSpan?: ParseSourceSpan|null): LiteralArrayExpr {\n return new LiteralArrayExpr(values, type,
sourceSpan);\n}\n\nexport function literalMap(\n values: {key: string, quoted: boolean, value: Expression}[],\n
type: MapType|null = null): LiteralMapExpr {\n return new LiteralMapExpr(\n
values.map(e => new LiteralMapEntry(e.key, e.value, e.quoted)), type, null);\n}\n\nexport function unary(\n
operator: UnaryOperator, expr: Expression, type?: Type,\n sourceSpan?: ParseSourceSpan|null):
UnaryOperatorExpr {\n return new UnaryOperatorExpr(operator, expr, type, sourceSpan);\n}\n\nexport function
not(expr: Expression, sourceSpan?: ParseSourceSpan|null): NotExpr {\n return new NotExpr(expr,
sourceSpan);\n}\n\nexport function assertNotNull(expr: Expression, sourceSpan?: ParseSourceSpan|null):
AssertNotNull {\n return new AssertNotNull(expr, sourceSpan);\n}\n\nexport function fn(\n params: FnParam[],
body: Statement[], type?: Type|null, sourceSpan?: ParseSourceSpan|null,\n name?: string|null): FunctionExpr {\n
return new FunctionExpr(params, body, type, sourceSpan, name);\n}\n\nexport function ifStmt(\n condition:
Expression, thenClause: Statement[], elseClause?: Statement[],\n sourceSpan?: ParseSourceSpan,
leadingComments?: LeadingComment[]) {\n return
new IfStmt(condition, thenClause, elseClause, sourceSpan, leadingComments);\n}\n\nexport function literal(\n
value: any, type?: Type|null, sourceSpan?: ParseSourceSpan|null): LiteralExpr {\n return new LiteralExpr(value,
type, sourceSpan);\n}\n\nexport function localizedString(\n metaBlock: I18nMeta, messageParts: LiteralPiece[],
placeholderNames: PlaceholderPiece[],\n expressions: Expression[], sourceSpan?: ParseSourceSpan|null):
LocalizedString {\n return new LocalizedString(metaBlock, messageParts, placeholderNames, expressions,
sourceSpan);\n}\n\nexport function isNull(exp: Expression): boolean {\n return exp instanceof LiteralExpr &&
exp.value === null;\n}\n\n// The list of JSDoc tags that we currently support. Extend it if needed.\nexport const
enum JSDocTagName {\n Desc = 'desc',\n Id = 'id',\n Meaning = 'meaning',\n}\n\n/*\n * TypeScript has an API
for JSDoc already, but it's not exposed.\n * https://github.com/Microsoft/TypeScript/issues/7393\n * For now we
create
types that are similar to theirs so that migrating\n * to their API will be easier. See e.g. `ts.JSDocTag` and
`ts.JSDocComment`.\n *\nexport type JSDocTag = {\n // `tagName` is e.g. `\"param\"` in an `@param` declaration\n
tagName: JSDocTagName|string,\n // Any remaining text on the tag, e.g. the description\n text?: string,\n}\n\n//
no `tagName` for plain text documentation that occurs before any `@param` lines\n tagName?: undefined, text:
string,\n}\n\n/*\n * Serializes a `Tag` into a string.\n * Returns a string like `\" @foo {bar} baz\"` (note the leading
whitespace before `@foo`).\n *\nfunction tagToString(tag: JSDocTag): string {\n let out = \";\n if (tag.tagName)
{\n out += `@${tag.tagName}`;\n }\n if (tag.text) {\n if (tag.text.match(/\\|\\|\\|\\|\\|\\|/)) {\n throw new
Error('JSDoc text cannot contain `\"/\"` and `\"*/\"`');\n }\n out += ' ' + tag.text.replace(/@/g, '\\|\\|\\|@');\n }\n return
out;\n}\n\nfunction serializeTags(tags: JSDocTag[]): string {\n
if (tags.length === 0) return \";\n\n if (tags.length === 1 && tags[0].tagName && !tags[0].text) {\n // The
JSDOC comment is a single simple tag: e.g. `/** @tagname */`.\n return `*${tagToString(tags[0])}`;\n }\n\n let
out = `*\n';\n for (const tag of tags) {\n out += ' *';\n // If the tagToString is multi-line, insert `\" * \"` prefixes on
lines.\n out += tagToString(tag).replace(/\\n/g, '\\n * '); \n out += '\\n';\n }\n out += ' *';\n return out;\n}\n\n`/**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ConstantPool}
from './constant_pool';\n\nimport * as o from './output/output_ast';\nimport {ParseError} from './parse_util';\n\nconst
DASH_CASE_REGEXP = /-+([a-z0-9])/g;\n\nexport function dashCaseToCamelCase(input: string): string {\n
return input.replace(DASH_CASE_REGEXP, (...m: any[]) => m[1].toUpperCase());\n}\n\nexport

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function splitAtColon(input: string, defaultValues: string[]): string[] {\n return _splitAt(input, ':',
defaultValues);\n}\n\nexport function splitAtPeriod(input: string, defaultValues: string[]): string[] {\n return
_splitAt(input, '.', defaultValues);\n}\n\nfunction _splitAt(input: string, character: string, defaultValues: string[]):
string[] {\n const characterIndex = input.indexOf(character);\n if (characterIndex === -1) return defaultValues;\n
return [input.slice(0, characterIndex).trim(), input.slice(characterIndex + 1).trim()];\n}\n\nexport function
visitValue(value: any, visitor: ValueVisitor, context: any): any {\n if (Array.isArray(value)) {\n return
visitor.visitArray(<any[]>value, context);\n }\n\n if (isStrictStringMap(value)) {\n return
visitor.visitStringMap(<{[key: string]: any}>value, context);\n }\n\n if (value === null || typeof value === 'string' ||
typeof value === 'number' ||\n    typeof value === 'boolean') {\n return
visitor.visitPrimitive(value, context);\n }\n\n return visitor.visitOther(value, context);\n}\n\nexport function
isDefined(val: any): boolean {\n return val !== null && val !== undefined;\n}\n\nexport function
noUndefined<T>(val: T|undefined): T {\n return val === undefined ? null! : val;\n}\n\nexport interface
ValueVisitor {\n visitArray(arr: any[], context: any): any;\n visitStringMap(map: {[key: string]: any}, context:
any): any;\n visitPrimitive(value: any, context: any): any;\n visitOther(value: any, context: any): any;\n}\n\nexport
class ValueTransformer implements ValueVisitor {\n visitArray(arr: any[], context: any): any {\n return
arr.map(value => visitValue(value, this, context));\n }\n visitStringMap(map: {[key: string]: any}, context: any):
any {\n const result: {[key: string]: any} = {};\n Object.keys(map).forEach(key => {\n result[key] =
visitValue(map[key], this, context);\n });\n return result;\n }\n visitPrimitive(value: any, context:
any): any {\n return value;\n }\n visitOther(value: any, context: any): any {\n return value;\n }\n}\n\nexport
type SyncAsync<T> = T|Promise<T>;\n\nexport const SyncAsync = {\n assertSync: <T>(value: SyncAsync<T>):
T => {\n if (isPromise(value)) {\n throw new Error('Illegal state: value cannot be a promise');\n }\n return
value;\n },\n then: <T, R>(value: SyncAsync<T>, cb: (value: T) => R | Promise<R> | SyncAsync<R>):\n
SyncAsync<R> => {\n return isPromise(value) ? value.then(cb) : cb(value);\n },\n all:
<T>(syncAsyncValues: SyncAsync<T>[]): SyncAsync<T>[] => {\n return syncAsyncValues.some(isPromise) ?
Promise.all(syncAsyncValues) : syncAsyncValues as T[];\n }\n};\n\nexport function error(msg: string): never {\n
throw new Error('Internal Error: ${msg}');\n}\n\nexport function syntaxError(msg: string, parseErrors?:
ParseError[]): Error {\n const error = Error(msg);\n (error as any)[ERROR_SYNTAX_ERROR] = true;\n if
(parseErrors) (error
as any)[ERROR_PARSE_ERRORS] = parseErrors;\n return error;\n}\n\nconst ERROR_SYNTAX_ERROR =
'ngSyntaxError';\nconst ERROR_PARSE_ERRORS = 'ngParseErrors';\n\nexport function isSyntaxError(error:
Error): boolean {\n return (error as any)[ERROR_SYNTAX_ERROR];\n}\n\nexport function getParseErrors(error:
Error): ParseError[] {\n return (error as any)[ERROR_PARSE_ERRORS] || [];\n}\n\n// Escape characters that have
a special meaning in Regular Expressions\nexport function escapeRegExp(s: string): string {\n return
s.replace(/([. * + ? ^ = ! $ { } () [ \ ] \\/ \\ \\\\$])/g, '\\\\$1');\n}\n\nconst STRING_MAP_PROTO =
Object.getPrototypeOf({});\nfunction isStrictStringMap(obj: any): boolean {\n return typeof obj === 'object' &&
obj !== null && Object.getPrototypeOf(obj) === STRING_MAP_PROTO;\n}\n\nexport type Byte =
number;\n\nexport function utf8Encode(str: string): Byte[] {\n let encoded: Byte[] = [];\n for (let index = 0; index <
str.length; index++) {\n let codePoint = str.charCodeAt(index);\n\n // decode surrogate\n // see https://mathiasbynens.be/notes/javascript-encoding#surrogate-formulae\n if
(codePoint >= 0xd800 && codePoint <= 0xdbff && str.length > (index + 1)) {\n const low =
str.charCodeAt(index + 1);\n if (low >= 0xdc00 && low <= 0xdfff) {\n index++;\n codePoint =
((codePoint - 0xd800) << 10) + low - 0xdc00 + 0x10000;\n }\n }\n\n if (codePoint <= 0x7f) {\n
encoded.push(codePoint);\n } else if (codePoint <= 0x7ff) {\n encoded.push(((codePoint >> 6) & 0x1f) | 0xc0,
(codePoint & 0x3f) | 0x80);\n } else if (codePoint <= 0xffff) {\n encoded.push(\n (codePoint >> 12) |
0xe0, ((codePoint >> 6) & 0x3f) | 0x80, (codePoint & 0x3f) | 0x80);\n } else if (codePoint <= 0x1fffff) {\n
encoded.push(\n ((codePoint >> 18) & 0x07) | 0xf0, ((codePoint >> 12) & 0x3f) | 0x80,\n ((codePoint >>
6) & 0x3f) | 0x80, (codePoint & 0x3f) | 0x80);\n }\n }\n\n return encoded;\n}\n\nexport interface

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OutputContext {\n  genFilePath: string;\n  statements: o.Statement[];\n  constantPool: ConstantPool;\n  importExpr(reference: any, typeParams?: o.Type[]|null, useSummaries?: boolean): o.Expression;\n}\n\nexport
function stringify(token: any): string {\n  if (typeof token === 'string') {\n    return token;\n  }\n  if
(Array.isArray(token)) {\n    return '[' + token.map(stringify).join(', ') + ']';\n  }\n  if (token === null) {\n    return '' +
token;\n  }\n  if (token.overriddenName) {\n    return `${token.overriddenName}`;\n  }\n  if (token.name) {\n
return `${token.name}`;\n  }\n  if (!token.toString) {\n    return 'object';\n  }\n  // WARNING: do not try to
`JSON.stringify(token)` here\n  // see https://github.com/angular/angular/issues/23440\n  const res =
token.toString();\n  if (res === null) {\n    return '' + res;\n  }\n  const newLineIndex = res.indexOf("\n");\n  return
newLineIndex === -1 ? res : res.substring(0, newLineIndex);\n}\n\n/**\n * Lazily retrieves
the reference value from a forwardRef.\n */\nexport function resolveForwardRef(type: any): any {\n  if (typeof type
=== 'function' && type.hasOwnProperty('__forward_ref__')) {\n    return type();\n  } else {\n    return type;\n
}\n}\n\n/**\n * Determine if the argument is shaped like a Promise\n */\nexport function isPromise<T = any>(obj:
any): obj is Promise<T> {\n  // allow any Promise/A+ compliant thenable.\n  // It's up to the caller to ensure that
obj.then conforms to the spec\n  return !!obj && typeof obj.then === 'function';\n}\n\nexport class Version {\n
  public readonly major: string;\n  public readonly minor: string;\n  public readonly patch: string;\n\n  constructor(public full: string) {\n    const splits = full.split('.');\n    this.major = splits[0];\n    this.minor = splits[1];\n
    this.patch = splits.slice(2).join('.');\n  }\n}\n\nexport interface Console {\n  log(message: string): void;\n
  warn(message: string): void;\n}\n\n\ndeclare var WorkerGlobalScope: any;\n\n
CommonJS / Node have global context exposed as `\"global\"` variable.\n// We don't want to include the whole
node.d.ts this this compilation unit so we'll just fake\n// the global `\"global\"` var for now.\ndeclare var global:
any;\nconst __window = typeof window !== 'undefined' && window;\nconst __self = typeof self !== 'undefined'
&& typeof WorkerGlobalScope !== 'undefined' && self;\nconst
__global = typeof global !== 'undefined' && global;\n\n// Check __global first, because in Node tests both __global
and __window may be defined and __global\n// should be __global in that case.\nconst _global: {[name: string]: any}
= __global || __window || __self;\nexport { _global as global };\n\nexport function newArray<T = any>(size:
number): T[];\nexport function newArray<T>(size: number, value: T): T[];\nexport function newArray<T>(size:
number, value?: T): T[] {\n  const list: T[] = [];\n  for (let i = 0; i < size; i++) {\n    list.push(value!);\n  }\n  return
list;\n}\n\n/**\n * Partitions a given array into 2 arrays, based on a boolean value returned by the condition\n *
function.\n * @param arr Input array that should be partitioned\n * @param conditionFn Condition function that
is called for each item in a given array and returns a\n * boolean value.\n */\nexport function partitionArray<T, F =
T>(arr: (T|F)[], conditionFn: (value: T|F) => boolean): [T[], F[]] {\n  const truthy: T[] = [];\n  const falsy: F[] =
[];\n  for (const item of arr) {\n    (conditionFn(item) ? truthy : falsy).push(item as any);\n  }\n  return [truthy,
falsy];\n}\n\n\"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport * as o from './output/output_ast';\nimport {error, OutputContext} from './util';\n\nconst
CONSTANT_PREFIX = '_c';\n\n/**\n * `ConstantPool` tries to reuse literal factories
when two or more literals are identical.\n * We determine whether literals are identical by creating a key out of their
AST using the\n * `KeyVisitor`. This constant is used to replace dynamic expressions which can't be safely\n *
converted into a key. E.g. given an expression `{foo: bar()}`, since we don't know what\n * the result of `bar` will
be, we create a key that looks like `{foo: <unknown>}`. Note\n * that we use a variable, rather than something like
`null` in order to avoid collisions.\n */\nconst UNKNOWN_VALUE_KEY = o.variable('<unknown>');\n\nexport
const enum DefinitionKind {\n  Injector,\n  Directive,\n  Component,\n  Pipe\n}\n\n/**\n * Context to use when
producing a key.\n * This ensures we see the constant not the reference variable when producing\n * a key.\n */\nconst KEY_CONTEXT = {};\n\n/**\n * Generally all primitive values are excluded from the `ConstantPool`,
but there is an exclusion\n * for strings that reach a certain length threshold. This constant defines
the length threshold for\n * strings.\n */\nconst POOL_INCLUSION_LENGTH_THRESHOLD_FOR_STRINGS =
50;\n\n/**\n * A node that is a place-holder that allows the node to be replaced when the actual\n * node is known.\n
*/\n * This allows the constant pool to change an expression from a direct reference to\n * a constant to a shared

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constant. It returns a fix-up node that is later allowed to
 * change the referenced expression.
class
FixupExpression extends o.Expression {
  private original: o.Expression;
  // TODO(issue/24571): remove '!'.
  shared!: boolean;
  constructor(public resolved: o.Expression) {
    super(resolved.type);
    this.original = resolved;
  }
  visitExpression(visitor: o.ExpressionVisitor, context: any): any {
    if (context === KEY_CONTEXT) {
      // When producing a key we want to traverse the constant not the
      // variable used to refer to it.
      return this.original.visitExpression(visitor, context);
    } else {
      return this.resolved.visitExpression(visitor, context);
    }
  }
  isEquivalent(e: o.Expression): boolean {
    return e instanceof FixupExpression && this.resolved.isEquivalent(e.resolved);
  }
  isConstant(): boolean {
    return true;
  }
  fixup(expression: o.Expression) {
    this.resolved = expression;
    this.shared = true;
  }
}
// A constant pool allows a code emitter to share constant in an output context.
// The constant pool also supports sharing access to ivy definitions references.
export class ConstantPool {
  statements: o.Statement[] = [];
  private literals = new Map<string, FixupExpression>();
  private literalFactories = new Map<string, o.Expression>();
  private injectorDefinitions = new Map<any, FixupExpression>();
  private directiveDefinitions = new Map<any, FixupExpression>();
  private componentDefinitions = new Map<any, FixupExpression>();
  private pipeDefinitions = new Map<any, FixupExpression>();
  private nextNameIndex = 0;
  constructor(private readonly isClosureCompilerEnabled: boolean = false) {}
  getConstLiteral(literal: o.Expression, forceShared?: boolean): o.Expression {
    if ((literal instanceof o.LiteralExpr && !isLongStringLiteral(literal)) ||
        literal instanceof FixupExpression) {
      // Do not put simple literals into the constant pool or try to produce a constant for a
      // reference to a constant.
      return literal;
    }
    const key = this.keyOf(literal);
    let fixup = this.literals.get(key);
    let newValue = false;
    if (!fixup) {
      fixup = new FixupExpression(literal);
      this.literals.set(key, fixup);
      newValue = true;
    }
    if ((!newValue && !fixup.shared) || (newValue && forceShared)) {
      // Replace the expression with a variable
      const name = this.freshName();
      let definition: o.WriteVarExpr;
      let usage: o.Expression;
      if (this.isClosureCompilerEnabled && isLongStringLiteral(literal)) {
        // For string literals, Closure will always inline the string at
        // all usages, duplicating it each time. For large strings, this
        // unnecessarily bloats bundle size. To work around this restriction, we
        // wrap the string in a function, and call that function for each usage.
        // This tricks Closure into using inline logic for functions instead of
        // string literals. Function calls are only inlined if the body is small
        // enough to be worth it. By doing this, very large strings will be
        // shared across multiple usages, rather than duplicating the string at
        // each usage site.
        // const myStr = function() { return "very very very long string"; };
        // const usage1 = myStr();
        // const usage2 = myStr();
        definition = o.variable(name).set(new o.FunctionExpr([], // Params.
                                                             [], // Statements.
                                                             new o.ReturnStatement(literal),
                                                             ),
                                         );
        usage = o.variable(name).callFn([]);
      } else {
        // Just declare and use the variable directly, without a function call
        // indirection. This saves a few bytes and avoids an unnecessary call.
        definition = o.variable(name).set(literal);
        usage = o.variable(name);
      }
      this.statements.push(definition.toDeclStmt(o.INFERRED_TYPE, [o.StmtModifier.Final]));
      fixup.fixup(usage);
    }
    return fixup;
  }
  getDefinition(type: any, kind: DefinitionKind, ctx: OutputContext, forceShared: boolean = false): o.Expression {
    const definitions = this.definitionsOf(kind);
    let fixup = definitions.get(type);
    let newValue = false;
    if (!fixup) {
      const property = this.propertyNameOf(kind);
      fixup = new FixupExpression(ctx.importExpr(type).prop(property));
      definitions.set(type, fixup);
      newValue = true;
    }
    if ((!newValue && !fixup.shared) || (newValue && forceShared)) {
      const name = this.freshName();
      this.statements.push(
        o.variable(name).set(fixup.resolved).toDeclStmt(o.INFERRED_TYPE, [o.StmtModifier.Final]);
      );
      fixup.fixup(o.variable(name));
    }
    return fixup;
  }
  getLiteralFactory(literal: o.LiteralArrayExpr|o.LiteralMapExpr): {
    literalFactory: o.Expression,
    literalFactoryArguments: o.Expression[]
  } {
    // Create a pure function that builds an array of a mix of constant and variable expressions
    if (literal instanceof o.LiteralArrayExpr) {
      const argumentsForKey = literal.entries.map(e => e.isConstant() ? e :

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UNKNOWN_VALUE_KEY);\n    const key = this.keyOf(o.literalArr(argumentsForKey));\n    return
this._getLiteralFactory(key, literal.entries, entries => o.literalArr(entries));\n  } else {\n    const expressionForKey
= o.literalMap(\n      literal.entries.map(e => ({\n        key: e.key,\n        value: e.value.isConstant() ? e.value : UNKNOWN_VALUE_KEY,\n        quoted:
e.quoted\n      }));\n    const key = this.keyOf(expressionForKey);\n    return
this._getLiteralFactory(\n      key, literal.entries.map(e => e.value),\n      entries =>
o.literalMap(entries.map((value, index) => ({\n        key: literal.entries[index].key,\n        value,\n        quoted: literal.entries[index].quoted\n      })))));\n  }\n}\n\n private _getLiteralFactory(\n  key: string, values: o.Expression[], resultMap:
(parameters: o.Expression[]) => o.Expression):\n  {\n    literalFactory: o.Expression, literalFactoryArguments:
o.Expression[]\n  } {\n    let literalFactory = this.literalFactories.get(key);\n    const literalFactoryArguments =
values.filter((e => !e.isConstant()));\n    if (!literalFactory) {\n      const resultExpressions = values.map(\n        (e, index) => e.isConstant() ?
this.getConstLiteral(e, true) : o.variable(`a${index}`));\n      const parameters =\n      resultExpressions.filter(isVariable).map(e => new o.FnParam(e.name!, o.DYNAMIC_TYPE));\n      const
pureFunctionDeclaration =\n        o.fn(parameters, [new o.ReturnStatement(resultMap(resultExpressions))],
o.INFERRED_TYPE);\n      const name = this.freshName();\n      this.statements.push(\n
o.variable(name).set(pureFunctionDeclaration).toDeclStmt(o.INFERRED_TYPE, [\n        o.StmtModifier.Final\n      ]));\n      literalFactory = o.variable(name);\n      this.literalFactories.set(key, literalFactory);\n    }\n    return
{literalFactory, literalFactoryArguments};\n  }\n\n /**\n   * Produce a unique name.\n   * The name might be
unique among different prefixes if any of the prefixes end in\n   * a digit so the prefix should be a constant string
(not based on user input) and\n   * must not end in a digit.\n   */\n   uniqueName(prefix: string): string {\n    return
`${prefix}${this.nextNameIndex++}`;\n  }\n\n private definitionsOf(kind: DefinitionKind): Map<any,
FixupExpression> {\n    switch (kind) {\n      case DefinitionKind.Component:\n        return
this.componentDefinitions;\n      case DefinitionKind.Directive:\n        return this.directiveDefinitions;\n      case
DefinitionKind.Injector:\n        return this.injectorDefinitions;\n      case DefinitionKind.Pipe:\n        return
this.pipeDefinitions;\n    }\n    error(`Unknown definition kind ${kind}`);\n    return this.componentDefinitions;\n  }\n\n public propertyNameOf(kind: DefinitionKind): string {\n    switch (kind) {\n      case
DefinitionKind.Component:\n        return 'cmp';\n      case DefinitionKind.Directive:\n        return 'dir';\n      case
DefinitionKind.Injector:\n        return 'inj';\n      case DefinitionKind.Pipe:\n        return 'pipe';\n    }\n    error(`Unknown definition kind ${kind}`);\n    return '<unknown>';\n  }\n\n private freshName(): string {\n
return this.uniqueName(CONSTANT_PREFIX);\n  }\n\n private keyOf(expression: o.Expression) {\n    return
expression.visitExpression(new KeyVisitor(), KEY_CONTEXT);\n  }\n\n /**\n   * Visitor used to determine if 2
expressions are equivalent and can be shared in the\n   * `ConstantPool`.\n   * When the id (string) generated by the
visitor is equal, expressions are considered equivalent.\n   */\n   class KeyVisitor implements o.ExpressionVisitor {\n
visitLiteralExpr(ast: o.LiteralExpr): string {\n    return `${typeof ast.value === 'string' ? '"' + ast.value + '"' :
ast.value}`;\n  }\n\n visitLiteralArrayExpr(ast: o.LiteralArrayExpr, context: object): string {\n    return
`${ast.entries.map(entry => entry.visitExpression(this, context)).join(',')}`;\n  }\n\n visitLiteralMapExpr(ast:
o.LiteralMapExpr, context: object): string {\n    const mapKey = (entry: o.LiteralMapEntry)
=> {\n      const quote = entry.quoted ? '"' : '';\n      return `${quote}${entry.key}${quote}`;\n    };\n    const
mapEntry = (entry: o.LiteralMapEntry) =>\n      `${mapKey(entry)}:${entry.value.visitExpression(this,
context)}`;\n    return `${ast.entries.map(mapEntry).join(',')}`;\n  }\n\n visitExternalExpr(ast: o.ExternalExpr):
string {\n    return ast.value.moduleName ? `EX:${ast.value.moduleName}:${ast.value.name}` :\n      `EX:${ast.value.runtime.name}`;\n  }\n\n visitReadVarExpr(node: o.ReadVarExpr) {\n    return
`VAR:${node.name}`;\n  }\n\n visitTypeofExpr(node: o.TypeofExpr, context: any): string {\n    return
`TYPEOF:${node.expr.visitExpression(this, context)}`;\n  }\n\n visitWrappedNodeExpr = invalid;\n
visitWriteVarExpr = invalid;\n visitWriteKeyExpr = invalid;\n visitWritePropExpr = invalid;\n
visitInvokeMethodExpr = invalid;\n visitInvokeFunctionExpr = invalid;\n visitInstantiateExpr = invalid;\n

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visitConditionalExpr = invalid;\n
  visitNotExpr = invalid;\n  visitAssertNotNullExpr = invalid;\n  visitCastExpr = invalid;\n  visitFunctionExpr =
invalid;\n  visitUnaryOperatorExpr = invalid;\n  visitBinaryOperatorExpr = invalid;\n  visitReadPropExpr =
invalid;\n  visitReadKeyExpr = invalid;\n  visitCommaExpr = invalid;\n  visitLocalizedString =
invalid;\n}\n\nfunction invalid<T>(this: o.ExpressionVisitor, arg: o.Expression|o.Statement): never {\n  throw new
Error(\n    'Invalid state: Visitor ${this.constructor.name} doesn't handle ${arg.constructor.name}');\n}\n\nfunction
isVariable(e: o.Expression): e is o.ReadVarExpr {\n  return e instanceof o.ReadVarExpr;\n}\n\nfunction
isLongStringLiteral(expr: o.Expression): boolean {\n  return expr instanceof o.LiteralExpr && typeof expr.value
=== 'string' &&\n    expr.value.length >=
POOL_INCLUSION_LENGTH_THRESHOLD_FOR_STRINGS;\n}\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that
can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileTokenMetadata} from
'./compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport * as o from
'./output/output_ast';\n\nconst CORE = '@angular/core';\n\nexport class Identifiers {\n  static
ANALYZE_FOR_ENTRY_COMPONENTS: o.ExternalReference = {\n    name:
'ANALYZE_FOR_ENTRY_COMPONENTS',\n    moduleName: CORE,\n  };\n  static ElementRef:
o.ExternalReference = {\n    name: 'ElementRef', moduleName: CORE;\n  };\n  static NgModuleRef: o.ExternalReference =
{\n    name: 'NgModuleRef', moduleName: CORE;\n  };\n  static ViewContainerRef: o.ExternalReference = {\n    name:
'ViewContainerRef', moduleName: CORE;\n  };\n  static ChangeDetectorRef: o.ExternalReference = {\n    name:
'ChangeDetectorRef',\n    moduleName: CORE,\n  };\n  static QueryList: o.ExternalReference = {\n    name:
'QueryList', moduleName: CORE;\n  };\n  static TemplateRef: o.ExternalReference = {\n    name: 'TemplateRef',
moduleName: CORE;\n  };\n  static Renderer2:
o.ExternalReference = {\n    name: 'Renderer2', moduleName: CORE;\n  };\n  static CodegenComponentFactoryResolver:
o.ExternalReference = {\n    name: 'CodegenComponentFactoryResolver',\n    moduleName: CORE,\n  };\n  static
ComponentFactoryResolver: o.ExternalReference = {\n    name: 'ComponentFactoryResolver',\n    moduleName:
CORE,\n  };\n  static ComponentFactory: o.ExternalReference = {\n    name: 'ComponentFactory', moduleName:
CORE;\n  };\n  static ComponentRef: o.ExternalReference = {\n    name: 'ComponentRef', moduleName: CORE;\n  };\n  static
NgModuleFactory: o.ExternalReference = {\n    name: 'NgModuleFactory', moduleName: CORE;\n  };\n  static
createModuleFactory: o.ExternalReference = {\n    name: 'cmf',\n    moduleName: CORE,\n  };\n  static
moduleDef: o.ExternalReference = {\n    name: 'mod',\n    moduleName: CORE,\n  };\n  static
moduleProviderDef: o.ExternalReference = {\n    name: 'mpd',\n    moduleName: CORE,\n  };\n  static
RegisterModuleFactoryFn: o.ExternalReference = {\n    name: 'registerModuleFactory',\n    moduleName: CORE,\n  };\n  static inject: o.ExternalReference = {\n    name: 'inject', moduleName: CORE;\n  };\n  static directiveInject: o.ExternalReference = {\n    name: 'directiveInject', moduleName: CORE;\n  };\n  static INJECTOR:
o.ExternalReference = {\n    name: 'INJECTOR', moduleName: CORE;\n  };\n  static Injector: o.ExternalReference =
{\n    name: 'Injector', moduleName: CORE;\n  };\n  static defineInjectable: o.ExternalReference = {\n    name: 'defineInjectable',
moduleName: CORE;\n  };\n  static InjectableDef: o.ExternalReference = {\n    name: 'InjectableDef', moduleName:
CORE;\n  };\n  static ViewEncapsulation: o.ExternalReference = {\n    name: 'ViewEncapsulation',\n    moduleName:
CORE,\n  };\n  static ChangeDetectionStrategy: o.ExternalReference = {\n    name: 'ChangeDetectionStrategy',\n    moduleName:
CORE,\n  };\n  static SecurityContext: o.ExternalReference = {\n    name: 'SecurityContext',\n    moduleName:
CORE,\n  };\n  static LOCALE_ID: o.ExternalReference = {\n    name: 'LOCALE_ID', moduleName:
CORE;\n  };\n  static TRANSLATIONS_FORMAT: o.ExternalReference = {\n    name:
'TRANSLATIONS_FORMAT',\n    moduleName: CORE,\n  };\n  static inlineInterpolate: o.ExternalReference =
{\n    name: 'inlineInterpolate',\n    moduleName: CORE,\n  };\n  static interpolate: o.ExternalReference = {\n    name:
'interpolate', moduleName: CORE;\n  };\n  static EMPTY_ARRAY: o.ExternalReference = {\n    name: 'EMPTY_ARRAY',
moduleName: CORE;\n  };\n  static EMPTY_MAP: o.ExternalReference = {\n    name: 'EMPTY_MAP', moduleName:
CORE;\n  };\n  static Renderer: o.ExternalReference = {\n    name: 'Renderer', moduleName: CORE;\n  };\n  static viewDef:
o.ExternalReference = {\n    name: 'vid', moduleName: CORE;\n  };\n  static elementDef: o.ExternalReference = {\n    name:

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'eld', moduleName: CORE});\n static anchorDef: o.ExternalReference = {name: 'and', moduleName: CORE});\n
static textDef: o.ExternalReference = {name: 'ted', moduleName: CORE});\n static directiveDef:
o.ExternalReference = {name: 'did', moduleName: CORE});\n static providerDef: o.ExternalReference
= {name: 'prd', moduleName: CORE});\n static queryDef: o.ExternalReference = {name: 'qud', moduleName:
CORE});\n static pureArrayDef: o.ExternalReference = {name: 'pad', moduleName: CORE});\n static
pureObjectDef: o.ExternalReference = {name: 'pod', moduleName: CORE});\n static purePipeDef:
o.ExternalReference = {name: 'ppd', moduleName: CORE});\n static pipeDef: o.ExternalReference = {name: 'pid',
moduleName: CORE});\n static nodeValue: o.ExternalReference = {name: 'nov', moduleName: CORE});\n static
ngContentDef: o.ExternalReference = {name: 'ncd', moduleName: CORE});\n static unwrapValue:
o.ExternalReference = {name: 'unv', moduleName: CORE});\n static createRendererType2: o.ExternalReference =
{name: 'crt', moduleName: CORE});\n // type only\n static RendererType2: o.ExternalReference = {\n name:
'RendererType2',\n moduleName: CORE,\n\n }; \n // type only\n static ViewDefinition: o.ExternalReference =
{\n name: 'ViewDefinition',\n moduleName: CORE,\n
};\n static createComponentFactory: o.ExternalReference = {name: 'ccf', moduleName: CORE});\n static
setClassMetadata: o.ExternalReference = {name: 'setClassMetadata', moduleName: CORE});\n\n\nexport function
createTokenForReference(reference: any): CompileTokenMetadata {\n return {identifier: {reference:
reference}};\n}\n\nexport function createTokenForExternalReference(\n reflector: CompileReflector, reference:
o.ExternalReference): CompileTokenMetadata {\n return
createTokenForReference(reflector.resolveExternalReference(reference));\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\n * A token representing the a reference to a
static type.\n *\n * This token is unique for a filePath and name and can be used as a hash table key.\n */\nexport
class StaticSymbol {\n constructor(public filePath: string,
public name: string, public members: string[]) {} \n\n assertNoMembers() {\n if (this.members.length) {\n
throw new Error(\n `Illegal state: symbol without members expected, but got ${JSON.stringify(this)}.`);\n
}\n }\n}\n\n/**\n * A cache of static symbol used by the StaticReflector to return the same symbol for the\n * same
symbol values.\n */\nexport class StaticSymbolCache {\n private cache = new Map<string, StaticSymbol>();\n\n
get(declarationFile: string, name: string, members?: string[]): StaticSymbol {\n members = members || [];\n
const memberSuffix = members.length ? `.${members.join('.')}` : '';\n const key =
`"${declarationFile}"`.${name}${memberSuffix}`;\n let result = this.cache.get(key);\n if (!result) {\n result
= new StaticSymbol(declarationFile, name, members);\n this.cache.set(key, result);\n }\n return result;\n
}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {StaticSymbol} from './aot/static_symbol';\nimport {ChangeDetectionStrategy, SchemaMetadata,
Type, ViewEncapsulation} from './core';\nimport {LifecycleHooks} from './lifecycle_reflector';\nimport
{ParseTreeResult as HtmlParseTreeResult} from './ml_parser/parser';\nimport {splitAtColon, stringify} from
'./util';\n\n// group 0: "[prop] or (event) or @trigger"\n// group 1: "prop" from "[prop]" \n// group 2: "event"
from "(event)" \n// group 3: "@trigger" from "@trigger"\nconst HOST_REG_EXP =
/^(?:\?(?:\|([^\|]+)\|)\|)?(?:\|([^\|]+)\|)\|)(\|@[-\w]+)$/;\n\nexport function sanitizeIdentifier(name: string): string {\n
return name.replace(/\\W/g, '_');\n}\n\nlet _anonymousTypeIndex = 0;\n\nexport function
identifierName(compileIdentifier: CompileIdentifierMetadata|null|undefined): string|\n null {\n if
(!compileIdentifier || !compileIdentifier.reference)
{\n return null;\n }\n const ref = compileIdentifier.reference;\n if (ref instanceof StaticSymbol) {\n return
ref.name;\n }\n if (ref['__anonymousType']) {\n return ref['__anonymousType'];\n }\n\n let identifier =
stringify(ref);\n if (identifier.indexOf('(') >= 0) {\n // case: anonymous functions!\n identifier =
`anonymous_${_anonymousTypeIndex++}`;\n ref['__anonymousType'] = identifier;\n } else {\n identifier =
sanitizeIdentifier(identifier);\n }\n return identifier;\n}\n\nexport function identifierModuleUrl(compileIdentifier:
CompileIdentifierMetadata): string {\n const ref = compileIdentifier.reference;\n if (ref instanceof StaticSymbol)

```



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{\n  return ref.filePath;\n }\n // Runtime type\n return `.${stringify(ref)}`\n}\n\n\nexport function
viewClassName(compType: any, embeddedTemplateIndex: number): string {\n return
`View_${identifierName({reference: compType})}_${embeddedTemplateIndex}`;\n}\n\n\nexport function
rendererTypeName(compType: any):
string {\n return `RenderType_${identifierName({reference: compType})}`;\n}\n\n\nexport function
hostViewClassName(compType: any): string {\n return `HostView_${identifierName({reference:
compType})}`;\n}\n\n\nexport function componentFactoryName(compType: any): string {\n return
`${identifierName({reference: compType})}NgFactory`;\n}\n\n\nexport interface ProxyClass {\n
setDelegate(delegate: any): void;\n}\n\n\nexport interface CompileIdentifierMetadata {\n reference:
any;\n}\n\n\nexport enum CompileSummaryKind {\n Pipe,\n Directive,\n NgModule,\n Injectable\n}\n\n\n/**\n * A
CompileSummary is the data needed to use a directive / pipe / module\n * in other modules / components. However,
this data is not enough to compile\n * the directive / module itself.\n */\n\n\nexport interface CompileTypeSummary {\n
summaryKind: CompileSummaryKind|null;\n type: CompileTypeMetadata;\n}\n\n\nexport interface
CompileDiDependencyMetadata {\n isAttribute?: boolean;\n isSelf?: boolean;\n isHost?: boolean;\n
isSkipSelf?: boolean;\n isOptional?: boolean;\n isValue?: boolean;\n token?: CompileTokenMetadata;\n value?:
any;\n}\n\n\nexport interface CompileProviderMetadata {\n token: CompileTokenMetadata;\n useClass?:
CompileTypeMetadata;\n useValue?: any;\n useExisting?: CompileTokenMetadata;\n useFactory?:
CompileFactoryMetadata;\n deps?: CompileDiDependencyMetadata[];\n multi?: boolean;\n}\n\n\nexport interface
CompileFactoryMetadata extends CompileIdentifierMetadata {\n diDeps: CompileDiDependencyMetadata[];\n
reference: any;\n}\n\n\nexport function tokenName(token: CompileTokenMetadata) {\n return token.value != null ?
sanitizeIdentifier(token.value) : identifierName(token.identifier);\n}\n\n\nexport function tokenReference(token:
CompileTokenMetadata) {\n if (token.identifier != null) {\n return token.identifier.reference;\n } else {\n return
token.value;\n }\n}\n\n\nexport interface CompileTokenMetadata {\n value?: any;\n identifier?:
CompileIdentifierMetadata|CompileTypeMetadata;\n}\n\n\nexport
interface CompileInjectableMetadata {\n symbol: StaticSymbol;\n type: CompileTypeMetadata;\n\n providedIn?:
StaticSymbol;\n\n useValue?: any;\n useClass?: StaticSymbol;\n useExisting?: StaticSymbol;\n useFactory?:
StaticSymbol;\n deps?: any[];\n}\n\n\n/**\n * Metadata regarding compilation of a type.\n */\n\n\nexport interface
CompileTypeMetadata extends CompileIdentifierMetadata {\n diDeps: CompileDiDependencyMetadata[];\n
lifecycleHooks: LifecycleHooks[];\n reference: any;\n}\n\n\nexport interface CompileQueryMetadata {\n selectors:
Array<CompileTokenMetadata>;\n descendants: boolean;\n first: boolean;\n propertyName: string;\n read:
CompileTokenMetadata;\n static?: boolean;\n}\n\n\n/**\n * Metadata about a stylesheet\n */\n\n\nexport class
CompileStylesheetMetadata {\n moduleUrl: string|null;\n styles: string[];\n styleUrls: string[];\n constructor(\n
{moduleUrl, styles, styleUrls};\n {moduleUrl?: string, styles?: string[], styleUrls?:
string[]}) = {} {\n this.moduleUrl = moduleUrl || null;\n this.styles = _normalizeArray(styles);\n this.styleUrls
= _normalizeArray(styleUrls);\n }\n}\n\n\n/**\n * Summary Metadata regarding compilation of a template.\n */\n\n\nexport interface CompileTemplateSummary {\n ngContentSelectors: string[];\n encapsulation:
ViewEncapsulation|null;\n styles: string[];\n animations: any[]|null;\n}\n\n\n/**\n * Metadata regarding compilation
of a template.\n */\n\n\nexport class CompileTemplateMetadata {\n encapsulation: ViewEncapsulation|null;\n
template: string|null;\n templateUrl: string|null;\n htmlAst: HtmlParseTreeResult|null;\n isInline: boolean;\n
styles: string[];\n styleUrls: string[];\n externalStylesheets: CompileStylesheetMetadata[];\n animations: any[];\n
ngContentSelectors: string[];\n interpolation: [string, string]|null;\n preserveWhitespaces: boolean;\n
constructor({\n encapsulation,\n template,\n templateUrl,\n htmlAst,\n styles,\n styleUrls,\n
externalStylesheets,\n animations,\n ngContentSelectors,\n interpolation,\n isInline,\n
preserveWhitespaces\n }): {\n encapsulation: ViewEncapsulation|null,\n template: string|null,\n templateUrl:
string|null,\n htmlAst: HtmlParseTreeResult|null,\n styles: string[],\n styleUrls: string[],\n
externalStylesheets: CompileStylesheetMetadata[],\n ngContentSelectors: string[],\n animations: any[],\n
interpolation: [string, string]|null,\n isInline: boolean,\n preserveWhitespaces: boolean\n }) {\n
this.encapsulation = encapsulation;\n this.template = template;\n this.templateUrl = templateUrl;\n

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this.htmlAst = htmlAst;\n  this.styles = _normalizeArray(styles);\n  this.styleUrls = _normalizeArray(styleUrls);\n  this.externalStyleSheets = _normalizeArray(externalStyleSheets);\n  this.animations = animations ?
flatten(animations) : [];\n  this.ngContentSelectors = ngContentSelectors || [];\n  if (interpolation &&
interpolation.length !== 2) {\n    throw new Error('interpolation' should have a start and an end symbol.);\n  }\n  this.interpolation = interpolation;\n  this.isInline = isInline;\n  this.preserveWhitespaces = preserveWhitespaces;\n}\n\n toSummary(): CompileTemplateSummary {\n  return {\n    ngContentSelectors: this.ngContentSelectors,\n    encapsulation: this.encapsulation,\n    styles: this.styles,\n    animations: this.animations\n  };\n}\n\n\nexport
interface CompileEntryComponentMetadata {\n  componentType: any;\n  componentFactory:
StaticSymbol|object;\n}\n\n// Note: This should only use interfaces as nested data types\n// as we need to be able to
serialize this from/to JSON!\n\nexport interface CompileDirectiveSummary extends CompileTypeSummary {\n  type:
CompileTypeMetadata;\n  isComponent: boolean;\n  selector: string|null;\n  exportAs: string|null;\n  inputs: {[key:
string]: string};\n  outputs: {[key: string]: string};\n  hostListeners: {[key: string]:
string};\n  hostProperties: {[key: string]: string};\n  hostAttributes: {[key: string]: string};\n  providers:
CompileProviderMetadata[];\n  viewProviders: CompileProviderMetadata[];\n  queries: CompileQueryMetadata[];\n
guards: {[key: string]: any};\n  viewQueries: CompileQueryMetadata[];\n  entryComponents:
CompileEntryComponentMetadata[];\n  changeDetection: ChangeDetectionStrategy|null;\n  template:
CompileTemplateSummary|null;\n  componentViewType: StaticSymbol|ProxyClass|null;\n  rendererType:
StaticSymbol|object|null;\n  componentFactory: StaticSymbol|object|null;\n}\n\n/**\n * Metadata regarding
compilation of a directive.\n */\n\nexport class CompileDirectiveMetadata {\n  static create({\n    isHost,\n    type,\n    isComponent,\n    selector,\n    exportAs,\n    changeDetection,\n    inputs,\n    outputs,\n    host,\n    providers,\n    viewProviders,\n    queries,\n    guards,\n    viewQueries,\n    entryComponents,\n    template,\n    componentViewType,\n    rendererType,\n    componentFactory\n  }): {\n    isHost: boolean,\n    type: CompileTypeMetadata,\n    isComponent: boolean,\n    selector: string|null,\n    exportAs: string|null,\n    changeDetection: ChangeDetectionStrategy|null,\n    inputs:
string[],\n    outputs: string[],\n    host: {[key: string]: string},\n    providers: CompileProviderMetadata[],\n    viewProviders: CompileProviderMetadata[],\n    queries: CompileQueryMetadata[],\n    guards: {[key: string]:
any};\n    viewQueries: CompileQueryMetadata[],\n    entryComponents: CompileEntryComponentMetadata[],\n    template: CompileTemplateMetadata,\n    componentViewType: StaticSymbol|ProxyClass|null,\n    rendererType:
StaticSymbol|object|null,\n    componentFactory: StaticSymbol|object|null,\n  }): CompileDirectiveMetadata {\n    const hostListeners: {[key: string]: string} = {};\n    const hostProperties: {[key: string]: string} = {};\n    const
hostAttributes: {[key: string]: string} = {};\n    if (host !== null) {\n      Object.keys(host).forEach(key
=> {\n        const value = host[key];\n        const matches = key.match(HOST_REG_EXP);\n        if (matches ===
null) {\n          hostAttributes[key] = value;\n        } else if (matches[1] !== null) {\n          hostProperties[matches[1]]
= value;\n        } else if (matches[2] !== null) {\n          hostListeners[matches[2]] = value;\n        }\n      });\n    }\n    const inputsMap: {[key: string]: string} = {};\n    if (inputs !== null) {\n      inputs.forEach((bindConfig: string) =>
{\n        // canonical syntax: `dirProp: elProp`\n        // if there is no `:` , use dirProp = elProp\n        const parts =
splitAtColon(bindConfig, [bindConfig, bindConfig]);\n        inputsMap[parts[0]] = parts[1];\n      });\n    }\n    const
outputsMap: {[key: string]: string} = {};\n    if (outputs !== null) {\n      outputs.forEach((bindConfig: string) => {\n
        // canonical syntax: `dirProp: elProp`\n        // if there is no `:` , use dirProp = elProp\n        const parts
= splitAtColon(bindConfig, [bindConfig, bindConfig]);\n        outputsMap[parts[0]] = parts[1];\n      });\n    }\n    return new CompileDirectiveMetadata({\n      isHost,\n      type,\n      isComponent: !!isComponent,\n      selector,\n      exportAs,\n      changeDetection,\n      inputs: inputsMap,\n      outputs: outputsMap,\n      hostListeners,\n      hostProperties,\n      hostAttributes,\n      providers,\n      viewProviders,\n      queries,\n      guards,\n      viewQueries,\n      entryComponents,\n      template,\n      componentViewType,\n      rendererType,\n      componentFactory,\n    });\n  }\n\n  isHost: boolean;\n  type: CompileTypeMetadata;\n  isComponent: boolean;\n  selector: string|null;\n  exportAs: string|null;\n  changeDetection: ChangeDetectionStrategy|null;\n  inputs: {[key:
string]: string};\n  outputs: {[key: string]: string};\n  hostListeners: {[key: string]: string};\n  hostProperties: {[key:
string]: string};\n  hostAttributes: {[key: string]: string};\n}

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providers: CompileProviderMetadata[];\n viewProviders: CompileProviderMetadata[];\n queries:
CompileQueryMetadata[];\n guards: {[key: string]: any};\n viewQueries: CompileQueryMetadata[];\n
entryComponents: CompileEntryComponentMetadata[];\n\n template: CompileTemplateMetadata|null;\n\n
componentViewType: StaticSymbol|ProxyClass|null;\n rendererType: StaticSymbol|object|null;\n
componentFactory: StaticSymbol|object|null;\n\n constructor({\n isHost,\n type,\n isComponent,\n
selector,\n exportAs,\n changeDetection,\n inputs,\n outputs,\n hostListeners,\n hostProperties,\n
hostAttributes,\n providers,\n viewProviders,\n queries,\n guards,\n viewQueries,\n entryComponents,\n
template,\n componentViewType,\n rendererType,\n componentFactory\n }): {\n isHost: boolean,\n type:
CompileTypeMetadata,\n isComponent: boolean,\n selector: string|null,\n exportAs: string|null,\n
changeDetection: ChangeDetectionStrategy|null,\n
  inputs: {[key: string]: string},\n  outputs: {[key: string]: string},\n  hostListeners: {[key: string]: string},\n
  hostProperties: {[key: string]: string},\n  hostAttributes: {[key: string]: string},\n  providers:
CompileProviderMetadata[],\n  viewProviders: CompileProviderMetadata[],\n  queries:
CompileQueryMetadata[],\n  guards: {[key: string]: any},\n  viewQueries: CompileQueryMetadata[],\n
  entryComponents: CompileEntryComponentMetadata[],\n  template: CompileTemplateMetadata|null,\n
  componentViewType: StaticSymbol|ProxyClass|null,\n  rendererType: StaticSymbol|object|null,\n
  componentFactory: StaticSymbol|object|null,\n }) {\n  this.isHost = !!isHost;\n  this.type = type;\n
  this.isComponent = isComponent;\n  this.selector = selector;\n  this.exportAs = exportAs;\n
  this.changeDetection = changeDetection;\n  this.inputs = inputs;\n  this.outputs = outputs;\n  this.hostListeners =
  hostListeners;\n  this.hostProperties
= hostProperties;\n  this.hostAttributes = hostAttributes;\n  this.providers = _normalizeArray(providers);\n
  this.viewProviders = _normalizeArray(viewProviders);\n  this.queries = _normalizeArray(queries);\n  this.guards
= guards;\n  this.viewQueries = _normalizeArray(viewQueries);\n  this.entryComponents =
_normalizeArray(entryComponents);\n  this.template = template;\n\n  this.componentViewType =
componentViewType;\n  this.rendererType = rendererType;\n  this.componentFactory = componentFactory;\n
}\n\n toSummary(): CompileDirectiveSummary {\n  return {\n    summaryKind:
CompileSummaryKind.Directive,\n    type: this.type,\n    isComponent: this.isComponent,\n    selector:
this.selector,\n    exportAs: this.exportAs,\n    inputs: this.inputs,\n    outputs: this.outputs,\n    hostListeners:
this.hostListeners,\n    hostProperties: this.hostProperties,\n    hostAttributes: this.hostAttributes,\n    providers:
this.providers,\n
    viewProviders: this.viewProviders,\n    queries: this.queries,\n    guards: this.guards,\n    viewQueries:
this.viewQueries,\n    entryComponents: this.entryComponents,\n    changeDetection: this.changeDetection,\n
    template: this.template && this.template.toSummary(),\n    componentViewType: this.componentViewType,\n
    rendererType: this.rendererType,\n    componentFactory: this.componentFactory\n  };\n }\n\n\nexport interface
CompilePipeSummary extends CompileTypeSummary {\n  type: CompileTypeMetadata;\n  name: string;\n  pure:
boolean;\n}\n\nexport class CompilePipeMetadata {\n  type: CompileTypeMetadata;\n  name: string;\n  pure:
boolean;\n\n  constructor({type, name, pure}: {\n  type: CompileTypeMetadata,\n  name: string,\n  pure:
boolean,\n }) {\n    this.type = type;\n    this.name = name;\n    this.pure = !!pure;\n  }\n\n  toSummary():
CompilePipeSummary {\n    return {\n      summaryKind: CompileSummaryKind.Pipe,\n      type: this.type,\n
      name: this.name,\n      pure: this.pure\n    };\n  }\n}\n\n\n// Note: This should only use interfaces as nested data
types\n// as we need to be able to serialize this from/to JSON!\nexport interface CompileNgModuleSummary
extends CompileTypeSummary {\n  type: CompileTypeMetadata;\n\n  // Note: This is transitive over the exported
modules.\n  exportedDirectives: CompileIdentifierMetadata[];\n\n  // Note: This is transitive over the exported
modules.\n  exportedPipes: CompileIdentifierMetadata[];\n\n  // Note: This is transitive.\n  entryComponents:
CompileEntryComponentMetadata[];\n\n  // Note: This is transitive.\n  providers: {provider:
CompileProviderMetadata, module: CompileIdentifierMetadata[]};\n\n  // Note: This is transitive.\n  modules:
CompileTypeMetadata[];\n}\n\n\nexport class CompileShallowModuleMetadata {\n  // TODO(issue/24571): remove
'!\n  type!: CompileTypeMetadata;\n\n  rawExports: any;\n  rawImports: any;\n  rawProviders: any;\n}\n\n\n**\n *
```

Metadata regarding compilation

```
of a module.\n *^\\nexport class CompileNgModuleMetadata {\n  type: CompileTypeMetadata;\n  declaredDirectives: CompileIdentifierMetadata[];\n  exportedDirectives: CompileIdentifierMetadata[];\n  declaredPipes: CompileIdentifierMetadata[];\n  exportedPipes: CompileIdentifierMetadata[];\n  entryComponents: CompileEntryComponentMetadata[];\n  bootstrapComponents: CompileIdentifierMetadata[];\n  providers: CompileProviderMetadata[];\n  importedModules: CompileNgModuleSummary[];\n  exportedModules: CompileNgModuleSummary[];\n  schemas: SchemaMetadata[];\n  id: string|null;\n  transitiveModule: TransitiveCompileNgModuleMetadata;\n  constructor({\n    type,\n    providers,\n    declaredDirectives,\n    exportedDirectives,\n    declaredPipes,\n    exportedPipes,\n    entryComponents,\n    bootstrapComponents,\n    importedModules,\n    exportedModules,\n    schemas,\n    transitiveModule,\n    id\n  }): {\n    type: CompileTypeMetadata,\n    providers: CompileProviderMetadata[],\n    declaredDirectives: CompileIdentifierMetadata[],\n    exportedDirectives: CompileIdentifierMetadata[],\n    declaredPipes: CompileIdentifierMetadata[],\n    exportedPipes: CompileIdentifierMetadata[],\n    entryComponents: CompileEntryComponentMetadata[],\n    bootstrapComponents: CompileIdentifierMetadata[],\n    importedModules: CompileNgModuleSummary[],\n    exportedModules: CompileNgModuleSummary[],\n    transitiveModule: TransitiveCompileNgModuleMetadata,\n    schemas: SchemaMetadata[],\n    id: string|null\n  }) {\n    this.type = type || null;\n    this.declaredDirectives = _normalizeArray(declaredDirectives);\n    this.exportedDirectives = _normalizeArray(exportedDirectives);\n    this.declaredPipes = _normalizeArray(declaredPipes);\n    this.exportedPipes = _normalizeArray(exportedPipes);\n    this.providers = _normalizeArray(providers);\n    this.entryComponents = _normalizeArray(entryComponents);\n    this.bootstrapComponents = _normalizeArray(bootstrapComponents);\n    this.importedModules = _normalizeArray(importedModules);\n    this.exportedModules = _normalizeArray(exportedModules);\n    this.schemas = _normalizeArray(schemas);\n    this.id = id || null;\n    this.transitiveModule = transitiveModule || null;\n  }\n  toSummary(): CompileNgModuleSummary {\n    const module = this.transitiveModule!;\n    return {\n      summaryKind: CompileSummaryKind.NgModule,\n      type: this.type,\n      entryComponents: module.entryComponents,\n      providers: module.providers,\n      modules: module.modules,\n      exportedDirectives: module.exportedDirectives,\n      exportedPipes: module.exportedPipes\n    };\n  }\n}\n\nexport class TransitiveCompileNgModuleMetadata {\n  directivesSet = new Set<any>();\n  directives: CompileIdentifierMetadata[] = [];\n  exportedDirectivesSet = new Set<any>();\n  exportedDirectives: CompileIdentifierMetadata[] = [];\n  pipesSet = new Set<any>();\n  pipes: CompileIdentifierMetadata[] = [];\n  exportedPipesSet = new Set<any>();\n  exportedPipes: CompileIdentifierMetadata[] = [];\n  modulesSet = new Set<any>();\n  modules: CompileTypeMetadata[] = [];\n  entryComponentsSet = new Set<any>();\n  entryComponents: CompileEntryComponentMetadata[] = [];\n  providers: {provider: CompileProviderMetadata, module: CompileIdentifierMetadata}[] = [];\n  addProvider(provider: CompileProviderMetadata, module: CompileIdentifierMetadata) {\n    this.providers.push({provider: provider, module: module});\n  }\n  addDirective(id: CompileIdentifierMetadata) {\n    if (!this.directivesSet.has(id.reference)) {\n      this.directivesSet.add(id.reference);\n      this.directives.push(id);\n    }\n  }\n  addExportedDirective(id: CompileIdentifierMetadata) {\n    if (!this.exportedDirectivesSet.has(id.reference)) {\n      this.exportedDirectivesSet.add(id.reference);\n      this.exportedDirectives.push(id);\n    }\n  }\n  addPipe(id: CompileIdentifierMetadata) {\n    if (!this.pipesSet.has(id.reference)) {\n      this.pipesSet.add(id.reference);\n      this.pipes.push(id);\n    }\n  }\n  addExportedPipe(id: CompileIdentifierMetadata) {\n    if (!this.exportedPipesSet.has(id.reference)) {\n      this.exportedPipesSet.add(id.reference);\n      this.exportedPipes.push(id);\n    }\n  }\n  addModule(id: CompileTypeMetadata) {\n    if (!this.modulesSet.has(id.reference)) {\n      this.modulesSet.add(id.reference);\n      this.modules.push(id);\n    }\n  }\n  addEntryComponent(ec: CompileEntryComponentMetadata) {\n    if (!this.entryComponentsSet.has(ec.componentType)) {\n      this.entryComponentsSet.add(ec.componentType);\n      this.entryComponents.push(ec);\n    }\n  }\n}\n\nfunction _normalizeArray(obj: any[]|undefined|null): any[] {\n
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return obj || [];
}

export class ProviderMeta {
  token: any;
  useClass: Type | null;
  useValue: any;
  useExisting: any;
  useFactory: Function | null;
  dependencies: Object[] | null;
  multi: boolean;

  constructor(
    token: any,
    {useClass, useValue, useExisting, useFactory,
      deps, multi}: {
      useClass?: Type,
      useValue?: any,
      useExisting?: any,
      useFactory?: Function | null,
      deps?: Object[] | null,
      multi?: boolean
    }) {
    this.token = token;
    this.useClass = useClass || null;
    this.useValue = useValue;
    this.useExisting = useExisting;
    this.useFactory = useFactory || null;
    this.dependencies = deps || null;
    this.multi = !!multi;
  }
}

export function flatten<T>(list: Array<T | T[]>):
  T[] {
  return list.reduce(
    (flat: any[], item: T | T[]): T[] => {
      const flatItem = Array.isArray(item) ? flatten(item) :
      item;
      return (<T[]>flat).concat(flatItem);
    }, []);
}

function jitSourceUrl(url: string) {
  // Note: We need
  // 3 "\" so that ng shows up as a separate domain
  // in the chrome dev tools.
  return url.replace(/(w+:\/\/[w:-
  ]+)?(\/+)?/, 'ng:///');
}

export function templateSourceUrl(
  ngModuleType: CompileIdentifierMetadata,
  compMeta: {type: CompileIdentifierMetadata},
  templateMeta: {isInline: boolean, templateUrl: string | null}) {
  let url: string;
  if (templateMeta.isInline) {
    if (compMeta.type.reference instanceof StaticSymbol) {
      // Note: a .ts file might contain multiple components
      // with inline templates,
      // so we need to give them unique urls, as these will be used for sourcemaps.
      url =
        `${compMeta.type.reference.filePath}.${compMeta.type.reference.name}.html`;
    } else {
      url =
        `${identifierName(ngModuleType)}/${identifierName(compMeta.type)}.html`;
    }
  } else {
    url =
      templateMeta.templateUrl!;
  }
  return compMeta.type.reference instanceof StaticSymbol ? url :
  jitSourceUrl(url);
}

export function sharedStylesheetJitUrl(
  meta: CompileStylesheetMetadata, id: number) {
  const pathParts = meta.moduleUrl!.split(/\\/g);
  const baseName = pathParts[pathParts.length - 1];
  return
  jitSourceUrl(`css/${id}${baseName}.ngstyle.js`);
}

export function ngModuleJitUrl(
  moduleMeta: CompileNgModuleMetadata):
  string {
  return jitSourceUrl(
    `${identifierName(moduleMeta.type)}/module.ngfactory.js`);
}

export function
  templateJitUrl(
    ngModuleType: CompileIdentifierMetadata, compMeta: CompileDirectiveMetadata):
  string {
  return jitSourceUrl(
    `${identifierName(ngModuleType)}/${identifierName(compMeta.type)}.ngfactory.js`);
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license
 * that can be found in the LICENSE file at https://angular.io/license
 */
import * as o from
  '../output/output_ast';

const CORE = '@angular/core';

export class Identifiers {
  /* Methods */
  static
  NEW_METHOD = 'factory';
  static TRANSFORM_METHOD = 'transform';
  static PATCH_DEPS =
    'patchedDeps';
  /* Instructions */
  static namespaceHTML: o.ExternalReference = {name: 'namespaceHTML',
    moduleName: CORE};
  static namespaceMathML: o.ExternalReference = {name: 'namespaceMathML',
    moduleName: CORE};
  static namespaceSVG: o.ExternalReference = {name: 'namespaceSVG', moduleName:
    CORE};
  static element: o.ExternalReference = {name: 'element', moduleName: CORE};
  static elementStart: o.ExternalReference = {name: 'elementStart', moduleName: CORE};
  static elementEnd:
    o.ExternalReference = {name: 'elementEnd', moduleName: CORE};
  static advance: o.ExternalReference =
    {name: 'advance', moduleName: CORE};
  static syntheticHostProperty:
    o.ExternalReference = {name:
    'syntheticHostProperty', moduleName: CORE};
  static syntheticHostListener:
    o.ExternalReference =
    {name: 'syntheticHostListener', moduleName: CORE};
  static attribute: o.ExternalReference = {name:
    'attribute', moduleName: CORE};
  static attributeInterpolate1:
    o.ExternalReference = {name:
    'attributeInterpolate1', moduleName: CORE};
  static attributeInterpolate2:
    o.ExternalReference = {name:
    'attributeInterpolate2', moduleName:
    CORE};
  static attributeInterpolate3:
    o.ExternalReference = {name: 'attributeInterpolate3', moduleName:
    CORE};
  static attributeInterpolate4:
    o.ExternalReference = {name: 'attributeInterpolate4', moduleName:
    CORE};
  static attributeInterpolate5:
    o.ExternalReference = {name: 'attributeInterpolate5', moduleName:
    CORE};
  static attributeInterpolate6:
    o.ExternalReference = {name: 'attributeInterpolate6', moduleName:
    CORE};
  static attributeInterpolate7:
    o.ExternalReference = {name: 'attributeInterpolate7', moduleName:
    CORE};
  static attributeInterpolate8:
    o.ExternalReference = {name: 'attributeInterpolate8', moduleName:

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CORE};\n static attributeInterpolateV:\n    o.ExternalReference = {name: 'attributeInterpolateV', moduleName:
CORE};\n\n static classProp: o.ExternalReference = {name: 'classProp', moduleName: CORE};\n\n static
elementContainerStart:\n    o.ExternalReference = {name: 'elementContainerStart',
moduleName: CORE};\n\n static elementContainerEnd:\n    o.ExternalReference = {name:
'elementContainerEnd', moduleName: CORE};\n\n static elementContainer: o.ExternalReference = {name:
'elementContainer', moduleName: CORE};\n\n static styleMap: o.ExternalReference = {name: 'styleMap',
moduleName: CORE};\n\n static styleMapInterpolate1:\n    o.ExternalReference = {name: 'styleMapInterpolate1',
moduleName: CORE};\n\n static styleMapInterpolate2:\n    o.ExternalReference = {name: 'styleMapInterpolate2',
moduleName: CORE};\n\n static styleMapInterpolate3:\n    o.ExternalReference = {name: 'styleMapInterpolate3',
moduleName: CORE};\n\n static styleMapInterpolate4:\n    o.ExternalReference = {name: 'styleMapInterpolate4',
moduleName: CORE};\n\n static styleMapInterpolate5:\n    o.ExternalReference = {name: 'styleMapInterpolate5',
moduleName: CORE};\n\n static styleMapInterpolate6:\n    o.ExternalReference = {name: 'styleMapInterpolate6',
moduleName: CORE};\n\n
static styleMapInterpolate7:\n    o.ExternalReference = {name: 'styleMapInterpolate7', moduleName: CORE};\n\n
static styleMapInterpolate8:\n    o.ExternalReference = {name: 'styleMapInterpolate8', moduleName: CORE};\n\n
static styleMapInterpolateV:\n    o.ExternalReference = {name: 'styleMapInterpolateV', moduleName: CORE};\n\n
static classMap: o.ExternalReference = {name: 'classMap', moduleName: CORE};\n\n static
classMapInterpolate1:\n    o.ExternalReference = {name: 'classMapInterpolate1', moduleName: CORE};\n\n static
classMapInterpolate2:\n    o.ExternalReference = {name: 'classMapInterpolate2', moduleName: CORE};\n\n static
classMapInterpolate3:\n    o.ExternalReference = {name: 'classMapInterpolate3', moduleName: CORE};\n\n static
classMapInterpolate4:\n    o.ExternalReference = {name: 'classMapInterpolate4', moduleName: CORE};\n\n static
classMapInterpolate5:\n    o.ExternalReference = {name: 'classMapInterpolate5', moduleName: CORE};\n\n static
classMapInterpolate6:\n    o.ExternalReference = {name: 'classMapInterpolate6', moduleName: CORE};\n\n static
classMapInterpolate7:\n    o.ExternalReference = {name: 'classMapInterpolate7', moduleName: CORE};\n\n static
classMapInterpolate8:\n    o.ExternalReference = {name: 'classMapInterpolate8', moduleName: CORE};\n\n static
classMapInterpolateV:\n    o.ExternalReference = {name: 'classMapInterpolateV', moduleName: CORE};\n\n\n
static styleProp: o.ExternalReference = {name: 'styleProp', moduleName: CORE};\n\n static
stylePropInterpolate1:\n    o.ExternalReference = {name: 'stylePropInterpolate1', moduleName: CORE};\n\n static
stylePropInterpolate2:\n    o.ExternalReference = {name: 'stylePropInterpolate2', moduleName: CORE};\n\n static
stylePropInterpolate3:\n    o.ExternalReference = {name: 'stylePropInterpolate3', moduleName: CORE};\n\n static
stylePropInterpolate4:\n    o.ExternalReference = {name: 'stylePropInterpolate4', moduleName: CORE};\n\n static
stylePropInterpolate5:\n    o.ExternalReference = {name: 'stylePropInterpolate5', moduleName: CORE};\n\n static
stylePropInterpolate6:\n    o.ExternalReference = {name: 'stylePropInterpolate6', moduleName: CORE};\n\n static
stylePropInterpolate7:\n    o.ExternalReference = {name: 'stylePropInterpolate7', moduleName: CORE};\n\n static
stylePropInterpolate8:\n    o.ExternalReference = {name: 'stylePropInterpolate8', moduleName: CORE};\n\n static
stylePropInterpolateV:\n    o.ExternalReference = {name: 'stylePropInterpolateV', moduleName: CORE};\n\n\n
static nextContext: o.ExternalReference = {name: 'nextContext', moduleName: CORE};\n\n static templateCreate:
o.ExternalReference = {name: 'template', moduleName: CORE};\n\n static text: o.ExternalReference = {name:
'text', moduleName: CORE};\n\n static enableBindings: o.ExternalReference = {name: 'enableBindings',
moduleName: CORE};\n\n static disableBindings: o.ExternalReference = {name: 'disableBindings', moduleName:
CORE};\n\n\n static getCurrentView: o.ExternalReference = {name: 'getCurrentView', moduleName: CORE};\n\n\n
static textInterpolate: o.ExternalReference = {name: 'textInterpolate', moduleName: CORE};\n\n static
textInterpolate1: o.ExternalReference = {name: 'textInterpolate1', moduleName: CORE};\n\n static textInterpolate2:
o.ExternalReference = {name: 'textInterpolate2', moduleName: CORE};\n\n static textInterpolate3:
o.ExternalReference = {name: 'textInterpolate3', moduleName: CORE};\n\n static textInterpolate4:
o.ExternalReference = {name: 'textInterpolate4', moduleName: CORE};\n\n static textInterpolate5:
o.ExternalReference = {name: 'textInterpolate5', moduleName: CORE};\n\n static textInterpolate6:
o.ExternalReference = {name: 'textInterpolate6', moduleName: CORE};\n\n static textInterpolate7:

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o.ExternalReference = {name: 'textInterpolate7', moduleName: CORE};\n static textInterpolate8:
o.ExternalReference = {name: 'textInterpolate8', moduleName: CORE};\n static
textInterpolateV: o.ExternalReference = {name: 'textInterpolateV', moduleName: CORE};\n\n static restoreView:
o.ExternalReference = {name: 'restoreView', moduleName: CORE};\n\n static pureFunction0: o.ExternalReference
= {name: 'pureFunction0', moduleName: CORE};\n static pureFunction1: o.ExternalReference = {name:
'pureFunction1', moduleName: CORE};\n static pureFunction2: o.ExternalReference = {name: 'pureFunction2',
moduleName: CORE};\n static pureFunction3: o.ExternalReference = {name: 'pureFunction3', moduleName:
CORE};\n static pureFunction4: o.ExternalReference = {name: 'pureFunction4', moduleName: CORE};\n static
pureFunction5: o.ExternalReference = {name: 'pureFunction5', moduleName: CORE};\n static pureFunction6:
o.ExternalReference = {name: 'pureFunction6', moduleName: CORE};\n static pureFunction7: o.ExternalReference
= {name: 'pureFunction7', moduleName: CORE};\n static pureFunction8: o.ExternalReference = {name:
'pureFunction8', moduleName:
CORE};\n static pureFunctionV: o.ExternalReference = {name: 'pureFunctionV', moduleName: CORE};\n\n static
pipeBind1: o.ExternalReference = {name: 'pipeBind1', moduleName: CORE};\n static pipeBind2:
o.ExternalReference = {name: 'pipeBind2', moduleName: CORE};\n static pipeBind3: o.ExternalReference =
{name: 'pipeBind3', moduleName: CORE};\n static pipeBind4: o.ExternalReference = {name: 'pipeBind4',
moduleName: CORE};\n static pipeBindV: o.ExternalReference = {name: 'pipeBindV', moduleName: CORE};\n\n
static hostProperty: o.ExternalReference = {name: 'hostProperty', moduleName: CORE};\n\n static property:
o.ExternalReference = {name: 'property', moduleName: CORE};\n\n static propertyInterpolate:\n
o.ExternalReference = {name: 'propertyInterpolate', moduleName: CORE};\n static propertyInterpolate1:\n
o.ExternalReference = {name: 'propertyInterpolate1', moduleName: CORE};\n static propertyInterpolate2:\n
o.ExternalReference = {name: 'propertyInterpolate2',
moduleName: CORE};\n static propertyInterpolate3:\n o.ExternalReference = {name: 'propertyInterpolate3',
moduleName: CORE};\n static propertyInterpolate4:\n o.ExternalReference = {name: 'propertyInterpolate4',
moduleName: CORE};\n static propertyInterpolate5:\n o.ExternalReference = {name: 'propertyInterpolate5',
moduleName: CORE};\n static propertyInterpolate6:\n o.ExternalReference = {name: 'propertyInterpolate6',
moduleName: CORE};\n static propertyInterpolate7:\n o.ExternalReference = {name: 'propertyInterpolate7',
moduleName: CORE};\n static propertyInterpolate8:\n o.ExternalReference = {name: 'propertyInterpolate8',
moduleName: CORE};\n static propertyInterpolateV:\n o.ExternalReference = {name: 'propertyInterpolateV',
moduleName: CORE};\n\n static i18n: o.ExternalReference = {name: 'i18n', moduleName: CORE};\n static
i18nAttributes: o.ExternalReference = {name: 'i18nAttributes', moduleName: CORE};\n
static i18nExp: o.ExternalReference = {name: 'i18nExp', moduleName: CORE};\n static i18nStart:
o.ExternalReference = {name: 'i18nStart', moduleName: CORE};\n static i18nEnd: o.ExternalReference = {name:
'i18nEnd', moduleName: CORE};\n static i18nApply: o.ExternalReference = {name: 'i18nApply', moduleName:
CORE};\n static i18nPostprocess: o.ExternalReference = {name: 'i18nPostprocess', moduleName: CORE};\n\n
static pipe: o.ExternalReference = {name: 'pipe', moduleName: CORE};\n\n static projection: o.ExternalReference
= {name: 'projection', moduleName: CORE};\n static projectionDef: o.ExternalReference = {name: 'projectionDef',
moduleName: CORE};\n\n static reference: o.ExternalReference = {name: 'reference', moduleName: CORE};\n\n
static inject: o.ExternalReference = {name: 'inject', moduleName: CORE};\n\n static injectAttribute:
o.ExternalReference = {name: 'injectAttribute', moduleName: CORE};\n\n static injectPipeChangeDetectorRef:\n
o.ExternalReference
= {name: 'injectPipeChangeDetectorRef', moduleName: CORE};\n\n static directiveInject: o.ExternalReference =
{name: 'directiveInject', moduleName: CORE};\n static invalidFactory: o.ExternalReference = {name:
'invalidFactory', moduleName: CORE};\n static invalidFactoryDep: o.ExternalReference = {name:
'invalidFactoryDep', moduleName: CORE};\n\n static templateRefExtractor:\n o.ExternalReference = {name:
'templateRefExtractor', moduleName: CORE};\n\n static resolveWindow: o.ExternalReference = {name:
'resolveWindow', moduleName: CORE};\n static resolveDocument: o.ExternalReference = {name:
'resolveDocument', moduleName: CORE};\n static resolveBody: o.ExternalReference = {name: 'resolveBody',

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moduleName: CORE});\n\n static defineComponent: o.ExternalReference = {name: 'defineComponent',
moduleName: CORE});\n\n static setComponentScope: o.ExternalReference = {name: 'setComponentScope',
moduleName: CORE});\n\n static ComponentDefWithMeta: o.ExternalReference
= {\n  name: 'ComponentDefWithMeta',\n  moduleName: CORE,\n };}\n\n static FactoryDef:
o.ExternalReference = {\n  name: 'FactoryDef',\n  moduleName: CORE,\n };}\n\n static defineDirective:
o.ExternalReference = {\n  name: 'defineDirective',\n  moduleName: CORE,\n };}\n\n static
DirectiveDefWithMeta: o.ExternalReference = {\n  name: 'DirectiveDefWithMeta',\n  moduleName: CORE,\n
};}\n\n static InjectorDef: o.ExternalReference = {\n  name: 'InjectorDef',\n  moduleName: CORE,\n
};}\n\n static defineInjector: o.ExternalReference = {\n  name: 'defineInjector',\n  moduleName: CORE,\n
};}\n\n static
NgModuleDefWithMeta: o.ExternalReference = {\n  name: 'NgModuleDefWithMeta',\n  moduleName: CORE,\n
};}\n\n static ModuleWithProviders: o.ExternalReference = {\n  name: 'ModuleWithProviders',\n  moduleName:
CORE,\n };}\n\n static defineNgModule: o.ExternalReference = {name: 'defineNgModule', moduleName:
CORE});\n\n static setNgModuleScope:
o.ExternalReference = {name: 'setNgModuleScope', moduleName: CORE});\n\n static PipeDefWithMeta:
o.ExternalReference = {name: 'PipeDefWithMeta', moduleName: CORE});\n\n static definePipe:
o.ExternalReference = {name: 'definePipe', moduleName: CORE});\n\n static queryRefresh: o.ExternalReference =
{name: 'queryRefresh', moduleName: CORE};\n\n static viewQuery: o.ExternalReference = {name: 'viewQuery',
moduleName: CORE};\n\n static staticViewQuery: o.ExternalReference = {name: 'staticViewQuery', moduleName:
CORE};\n\n static staticContentQuery: o.ExternalReference = {name: 'staticContentQuery', moduleName: CORE};\n\n
static loadQuery: o.ExternalReference = {name: 'loadQuery', moduleName: CORE};\n\n static contentQuery:
o.ExternalReference = {name: 'contentQuery', moduleName: CORE};\n\n static NgOnChangesFeature:
o.ExternalReference = {name: 'NgOnChangesFeature', moduleName: CORE};\n\n static InheritDefinitionFeature:\n
o.ExternalReference = {name: 'InheritDefinitionFeature',
moduleName: CORE});\n\n static CopyDefinitionFeature:\n  o.ExternalReference = {name:
'CopyDefinitionFeature', moduleName: CORE};\n\n static ProvidersFeature: o.ExternalReference = {name:
'ProvidersFeature', moduleName: CORE};\n\n static listener: o.ExternalReference = {name: 'listener',
moduleName: CORE};\n\n static getFactoryOf: o.ExternalReference = {\n  name: 'getFactoryOf',\n
moduleName: CORE,\n };}\n\n static getInheritedFactory: o.ExternalReference = {\n  name:
'getInheritedFactory',\n  moduleName: CORE,\n };}\n\n // sanitization-related functions\n\n static sanitizeHtml:
o.ExternalReference = {name: 'sanitizeHtml', moduleName: CORE};\n\n static sanitizeStyle: o.ExternalReference =
{name: 'sanitizeStyle', moduleName: CORE};\n\n static sanitizeResourceUrl:\n  o.ExternalReference = {name:
'sanitizeResourceUrl', moduleName: CORE};\n\n static sanitizeScript: o.ExternalReference = {name: 'sanitizeScript',
moduleName: CORE};\n\n
static sanitizeUrl: o.ExternalReference = {name: 'sanitizeUrl', moduleName: CORE};\n\n static
sanitizeUrlOrResourceUrl:\n  o.ExternalReference = {name: 'sanitizeUrlOrResourceUrl', moduleName:
CORE};\n\n static trustConstantHtml: o.ExternalReference = {name: 'trustConstantHtml', moduleName: CORE};\n\n
static trustConstantScript:\n  o.ExternalReference = {name: 'trustConstantScript', moduleName: CORE};\n\n static
trustConstantResourceUrl:\n  o.ExternalReference = {name: 'trustConstantResourceUrl', moduleName:
CORE};\n\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {StaticSymbol} from '../aot/static_symbol';\nimport * as o from '../output/output_ast';\nimport
{OutputContext} from '../util';\n\n/**\n * Convert an object map with `Expression` values into a
`LiteralMapExpr`.\n *\nexport function mapToMapExpression(map:
[[key: string]: o.Expression|undefined]): o.LiteralMapExpr {\n  const result = Object.keys(map).map(\n    key =>
({\n      key,\n      // The assertion here is because really TypeScript doesn't allow us to express that if the\n      //
key is present, it will have a value, but this is true in reality.\n      value: map[key]!,\n      quoted: false,\n    }));\n  return o.literalMap(result);\n}\n\n/**\n * Convert metadata into an `Expression` in the given `OutputContext`.\n *\n * This operation will handle arrays, references to symbols, or literal `null` or `undefined`.\n *\nexport function

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convertMetaToOutput(meta: any, ctx: OutputContext): o.Expression {\n if (Array.isArray(meta)) {\n return  
o.literalArr(meta.map(entry => convertMetaToOutput(entry, ctx))); \n } \n if (meta instanceof StaticSymbol) {\n  
return ctx.importExpr(meta); \n } \n if (meta == null) {\n return o.literal(meta); \n } \n \n throw new Error(`Internal  
error: Unsupported or unknown  
  
metadata: ${meta}`); \n} \n \n \n \n export function typeWithParameters(type: o.Expression, numParams: number):  
o.ExpressionType {\n if (numParams === 0) {\n return o.expressionType(type); \n } \n const params: o.Type[] =  
[]; \n for (let i = 0; i < numParams; i++) {\n params.push(o.DYNAMIC_TYPE); \n } \n return  
o.expressionType(type, undefined, params); \n} \n \n \n \n export interface R3Reference {\n value: o.Expression; \n type:  
o.Expression; \n} \n \n \n \n const ANIMATE_SYMBOL_PREFIX = '@'; \n export function  
prepareSyntheticPropertyName(name: string) {\n return  
`${ANIMATE_SYMBOL_PREFIX}${name}`; \n} \n \n \n \n export function prepareSyntheticListenerName(name: string,  
phase: string) {\n return `${ANIMATE_SYMBOL_PREFIX}${name}.${phase}`; \n} \n \n \n \n export function  
isSyntheticPropertyOrListener(name: string) {\n return name.charAt(0) ==  
ANIMATE_SYMBOL_PREFIX; \n} \n \n \n \n export function getSyntheticPropertyName(name: string) {\n // this will  
strip out listener phase values... \n // @foo.start => @foo \n const i = name.indexOf('.'); \n  
name = i > 0 ? name.substring(0, i) : name; \n if (name.charAt(0) !== ANIMATE_SYMBOL_PREFIX) {\n name  
= ANIMATE_SYMBOL_PREFIX + name; \n } \n return name; \n} \n \n \n \n export function  
prepareSyntheticListenerFunctionName(name: string, phase: string) {\n return  
`animation_${name}_${phase}`; \n} \n \n \n \n export function jitOnlyGuardedExpression(expr: o.Expression):  
o.Expression {\n const ngJitMode = new o.ExternalExpr({name: 'ngJitMode', moduleName: null}); \n const  
jitFlagNotDefined = new o.BinaryOperatorExpr(\n o.BinaryOperator.Identical, new o.TypeOfExpr(ngJitMode),  
o.literal('undefined')); \n const jitFlagUndefinedOrTrue = new o.BinaryOperatorExpr(\n o.BinaryOperator.Or,  
jitFlagNotDefined, ngJitMode, /* type */ undefined, \n /* sourceSpan */ undefined, true); \n return new  
o.BinaryOperatorExpr(o.BinaryOperator.And, jitFlagUndefinedOrTrue, expr); \n} \n \n \n \n export function  
wrapReference(value: any): R3Reference {\n const wrapped = new o.WrappedNodeExpr(value); \n  
return {value: wrapped, type: wrapped}; \n} \n "/*\n * @license\n * Copyright Google LLC All Rights  
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the  
LICENSE file at https://angular.io/license\n */\nimport {SecurityContext} from '../core';\nimport {AST,  
BindingType, BoundElementProperty, ParsedEvent, ParsedEventType} from '../expression_parser/ast';\nimport  
{I18nMeta} from './i18n/i18n_ast';\nimport {ParseSourceSpan} from './parse_util'; \n \n export interface Node {\n  
sourceSpan: ParseSourceSpan; \n visit<Result>(visitor: Visitor<Result>): Result; \n} \n \n \n export class Text  
implements Node {\n constructor(public value: string, public sourceSpan: ParseSourceSpan) {} \n  
visit<Result>(visitor: Visitor<Result>): Result {\n return visitor.visitText(this); \n } \n} \n \n \n \n export class BoundText  
implements Node {\n constructor(public value: AST, public sourceSpan: ParseSourceSpan, public i18n?:  
I18nMeta) {} \n visit<Result>(visitor: Visitor<Result>):  
Result {\n return visitor.visitBoundText(this); \n } \n} \n \n \n \n export class TextAttribute implements Node {\n  
constructor(\n public name: string, public value: string, public sourceSpan: ParseSourceSpan, \n public  
valueSpan?: ParseSourceSpan, public i18n?: I18nMeta) {} \n visit<Result>(visitor: Visitor<Result>): Result {\n  
return visitor.visitTextAttribute(this); \n } \n} \n \n \n \n export class BoundAttribute implements Node {\n  
constructor(\n public name: string, public type: BindingType, public securityContext: SecurityContext, \n public value: AST,  
public unit: string|null, public sourceSpan: ParseSourceSpan, \n readonly keySpan: ParseSourceSpan, public  
valueSpan: ParseSourceSpan|undefined, \n public i18n: I18nMeta|undefined) {} \n \n static  
fromBoundElementProperty(prop: BoundElementProperty, i18n?: I18nMeta): BoundAttribute {\n if  
(prop.keySpan === undefined) {\n throw new Error(\n `Unexpected state: keySpan must be defined for  
bound attributes but was not for ${\n prop.name}: ${prop.sourceSpan}`); \n } \n return new  
BoundAttribute(\n prop.name, prop.type, prop.securityContext, prop.value, prop.unit, prop.sourceSpan, \n  
prop.keySpan, prop.valueSpan, i18n); \n } \n} \n \n \n \n visit<Result>(visitor: Visitor<Result>): Result {\n return  
visitor.visitBoundAttribute(this); \n } \n} \n \n \n \n export class BoundEvent implements Node {\n constructor(\n public
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name: string, public type: ParsedEventType, public handler: AST,\n    public target: string|null, public phase:
string|null, public sourceSpan: ParseSourceSpan,\n    public handlerSpan: ParseSourceSpan) {} \n\n static
fromParsedEvent(event: ParsedEvent) {\n    const target: string|null = event.type === ParsedEventType.Regular ?
event.targetOrPhase : null;\n    const phase: string|null =\n        event.type === ParsedEventType.Animation ?
event.targetOrPhase : null;\n    return new BoundEvent(\n        event.name, event.type, event.handler,
target, phase, event.sourceSpan, event.handlerSpan);\n } \n\n visit<Result>(visitor: Visitor<Result>): Result {\n
return visitor.visitBoundEvent(this);\n } \n} \n\nexport class Element implements Node {\n    constructor(\n        public
name: string, public attributes: TextAttribute[], public inputs: BoundAttribute[],\n        public outputs: BoundEvent[],
public children: Node[], public references: Reference[],\n        public sourceSpan: ParseSourceSpan, public
startSourceSpan: ParseSourceSpan,\n        public endSourceSpan: ParseSourceSpan|null, public i18n?: I18nMeta)
{} \n    visit<Result>(visitor: Visitor<Result>): Result {\n        return visitor.visitElement(this);\n    } \n} \n\nexport class
Template implements Node {\n    constructor(\n        public tagName: string, public attributes: TextAttribute[], public
inputs: BoundAttribute[],\n        public outputs: BoundEvent[], public templateAttrs:
(BoundAttribute|TextAttribute)[],\n        public children: Node[], public references: Reference[], public
variables: Variable[],\n        public sourceSpan: ParseSourceSpan, public startSourceSpan: ParseSourceSpan,\n        public endSourceSpan: ParseSourceSpan|null, public i18n?: I18nMeta) {} \n    visit<Result>(visitor:
Visitor<Result>): Result {\n        return visitor.visitTemplate(this);\n    } \n} \n\nexport class Content implements Node
{\n    readonly name = 'ng-content';\n    constructor(\n        public selector: string, public attributes: TextAttribute[],\n        public sourceSpan: ParseSourceSpan, public i18n?: I18nMeta) {} \n    visit<Result>(visitor: Visitor<Result>): Result
{\n        return visitor.visitContent(this);\n    } \n} \n\nexport class Variable implements Node {\n    constructor(\n        public name: string, public value: string, public sourceSpan: ParseSourceSpan,\n        readonly keySpan:
ParseSourceSpan, public valueSpan?: ParseSourceSpan) {} \n    visit<Result>(visitor: Visitor<Result>): Result {\n
return visitor.visitVariable(this);\n } \n} \n\nexport class Reference implements Node {\n    constructor(\n        public name: string, public value: string, public sourceSpan: ParseSourceSpan,\n        public valueSpan?:
ParseSourceSpan) {} \n    visit<Result>(visitor: Visitor<Result>): Result {\n        return visitor.visitReference(this);\n    } \n} \n\nexport class Icu implements Node {\n    constructor(\n        public vars: {[name: string]: BoundText},\n        public placeholders: {[name: string]: Text|BoundText}, public sourceSpan: ParseSourceSpan,\n        public i18n?:
I18nMeta) {} \n    visit<Result>(visitor: Visitor<Result>): Result {\n        return visitor.visitIcu(this);\n    } \n} \n\nexport
interface Visitor<Result = any> {\n    // Returning a truthy value from `visit()` will prevent `visitAll()` from the call
to the typed\n    // method and result returned will become the result included in `visitAll()`'s result array.\n    visit?(node: Node): Result;\n    visitElement(element: Element): Result;\n    visitTemplate(template: Template):
Result;\n    visitContent(content: Content): Result;\n    visitVariable(variable:
Variable): Result;\n    visitReference(reference: Reference): Result;\n    visitTextAttribute(attribute: TextAttribute):
Result;\n    visitBoundAttribute(attribute: BoundAttribute): Result;\n    visitBoundEvent(attribute: BoundEvent):
Result;\n    visitText(text: Text): Result;\n    visitBoundText(text: BoundText): Result;\n    visitIcu(icu: Icu):
Result;\n} \n\nexport class NullVisitor implements Visitor<void> {\n    visitElement(element: Element): void {} \n    visitTemplate(template: Template): void {} \n    visitContent(content: Content): void {} \n    visitVariable(variable:
Variable): void {} \n    visitReference(reference: Reference): void {} \n    visitTextAttribute(attribute: TextAttribute):
void {} \n    visitBoundAttribute(attribute: BoundAttribute): void {} \n    visitBoundEvent(attribute: BoundEvent): void
{} \n    visitText(text: Text): void {} \n    visitBoundText(text: BoundText): void {} \n    visitIcu(icu: Icu): void
{} \n} \n\nexport class RecursiveVisitor implements Visitor<void> {\n    visitElement(element:
Element): void {\n        visitAll(this, element.attributes);\n        visitAll(this, element.children);\n        visitAll(this,
element.references);\n    } \n    visitTemplate(template: Template): void {\n        visitAll(this, template.attributes);\n        visitAll(this, template.children);\n        visitAll(this, template.references);\n        visitAll(this, template.variables);\n    } \n    visitContent(content: Content): void {} \n    visitVariable(variable: Variable): void {} \n    visitReference(reference:
Reference): void {} \n    visitTextAttribute(attribute: TextAttribute): void {} \n    visitBoundAttribute(attribute:
BoundAttribute): void {} \n    visitBoundEvent(attribute: BoundEvent): void {} \n    visitText(text: Text): void {} \n    visitBoundText(text: BoundText): void {} \n    visitIcu(icu: Icu): void {} \n} \n\nexport class TransformVisitor

```

```

implements Visitor<Node> {
  visitElement(element: Element): Node {
    const newAttributes = transformAll(this, element.attributes);
    const newInputs = transformAll(this, element.inputs);
    const newOutputs = transformAll(this, element.outputs);
    const newChildren = transformAll(this, element.children);
    const newReferences = transformAll(this, element.references);
    if (newAttributes !== element.attributes || newInputs !== element.inputs || newOutputs !== element.outputs || newChildren !== element.children || newReferences !== element.references) {
      return new Element(
        element.name,
        newAttributes,
        newInputs,
        newOutputs,
        newChildren,
        newReferences,
        element.sourceSpan,
        element.startSourceSpan,
        element.endSourceSpan);
    }
    return element;
  }

  visitTemplate(template: Template): Node {
    const newAttributes = transformAll(this, template.attributes);
    const newInputs = transformAll(this, template.inputs);
    const newOutputs = transformAll(this, template.outputs);
    const newTemplateAttrs = transformAll(this, template.templateAttrs);
    const newChildren = transformAll(this, template.children);
    const newReferences = transformAll(this, template.references);
    const newVariables = transformAll(this, template.variables);
    if (newAttributes !== template.attributes || newInputs !== template.inputs || newOutputs !== template.outputs || newTemplateAttrs !== template.templateAttrs || newChildren !== template.children || newReferences !== template.references || newVariables !== template.variables) {
      return new Template(
        template.tagName,
        newAttributes,
        newInputs,
        newOutputs,
        newTemplateAttrs,
        newChildren,
        newReferences,
        newVariables,
        template.sourceSpan,
        template.startSourceSpan,
        template.endSourceSpan);
    }
    return template;
  }

  visitContent(content: Content): Node {
    return content;
  }

  visitVariable(variable: Variable): Node {
    return variable;
  }

  visitReference(reference: Reference): Node {
    return reference;
  }

  visitTextAttribute(attribute: TextAttribute): Node {
    return attribute;
  }

  visitBoundAttribute(attribute: BoundAttribute): Node {
    return attribute;
  }

  visitBoundEvent(attribute: BoundEvent): Node {
    return attribute;
  }

  visitText(text: Text): Node {
    return text;
  }

  visitBoundText(text: BoundText): Node {
    return text;
  }

  visitIcu(icu: Icu): Node {
    return icu;
  }
}

export function visitAll<Result>(visitor: Visitor<Result>, nodes: Node[]): Result[] {
  const result: Result[] = [];
  if (visitor.visit) {
    for (const node of nodes) {
      const newNode = visitor.visit(node) || node.visit(visitor);
    }
  } else {
    for (const node of nodes) {
      const newNode = node.visit(visitor);
      if (newNode) {
        result.push(newNode);
      }
    }
  }
  return result;
}

export function transformAll<Result extends Node>(
  visitor: Visitor<Node>,
  nodes: Result[]): Result[] {
  const result: Result[] = [];
  let changed = false;
  for (const node of nodes) {
    const newNode = node.visit(visitor);
    if (newNode) {
      result.push(newNode as Result);
    }
    changed = changed || newNode !== node;
  }
  return changed ? result : nodes;
}

/**
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 */
import {ParseSourceSpan} from './parse_util';

/**
 * Describes the text contents of a placeholder as it appears in an ICU expression, including its source span information.
 */
export interface MessagePlaceholder {
  /** The text contents of the placeholder */
  text: string;
  /** The source span of the placeholder */
  sourceSpan: ParseSourceSpan;
}

export class Message {
  sources: MessageSpan[];
  id: string = this.customId;
  /** The ids to use if there are no custom id and if `LegacyMessageIdFormat` is not empty */
  legacyIds: string[] = [];

  /**
   * @param nodes message AST
   * @param placeholders maps placeholder names to static content and their source spans
   * @param placeholderToMessage maps placeholder names to messages (used for nested ICU messages)
   * @param meaning
   * @param description
   * @param customId
   */
  constructor(
    public nodes: Node[],
    public placeholders: {[phName: string]: MessagePlaceholder},
    public placeholderToMessage: {[phName: string]: Message},
    public meaning: string,
    public description: string,
    public customId: string) {
    if (nodes.length) {
      this.sources = [
        {
          filePath: nodes[0].sourceSpan.start.file.url,
          startLine: nodes[0].sourceSpan.start.line + 1,
          startCol: nodes[0].sourceSpan.start.col + 1,
          endLine: nodes[nodes.length - 1].sourceSpan.end.line + 1,
          endCol: nodes[0].sourceSpan.start.col + 1
        }
      ];
    } else

```

```
\n    this.sources = [];\n    }\n  }\n}\n\n// line and columns indexes are 1 based\nexport\ninterface MessageSpan {\n  filePath: string;\n  startLine: number;\n  startCol: number;\n  endLine: number;\n  endCol: number;\n}\n\n\nexport interface Node {\n  sourceSpan: ParseSourceSpan;\n  visit(visitor: Visitor, context?:\nany): any;\n}\n\n\nexport class Text implements Node {\n  constructor(public value: string, public sourceSpan:\nParseSourceSpan) {}\n\n  visit(visitor: Visitor, context?: any): any {\n    return visitor.visitText(this, context);\n  }\n}\n\n\n// TODO(vicb): do we really need this node (vs an array) ?\nexport class Container implements Node {\n  constructor(public children: Node[], public sourceSpan: ParseSourceSpan) {}\n\n  visit(visitor: Visitor, context?:\nany): any {\n    return visitor.visitContainer(this, context);\n  }\n}\n\n\nexport class Icu implements Node {\n  //\n  TODO(issue/24571): remove '!.\n  public expressionPlaceholder!: string;\n  constructor(\n    public expression:\nstring, public type: string, public cases: {[k: string]: Node},\n    public\nsourceSpan: ParseSourceSpan) {}\n\n  visit(visitor: Visitor, context?: any): any {\n    return visitor.visitIcu(this,\ncontext);\n  }\n}\n\n\nexport class TagPlaceholder implements Node {\n  constructor(\n    public tag: string, public\nattrs: {[k: string]: string}, public startName: string,\n    public closeName: string, public children: Node[], public\nisVoid: boolean,\n    // TODO sourceSpan should cover all (we need a startSourceSpan and endSourceSpan)\n    public sourceSpan: ParseSourceSpan, public startSourceSpan: ParseSourceSpan|null,\n    public endSourceSpan:\nParseSourceSpan|null) {}\n\n  visit(visitor: Visitor, context?: any): any {\n    return visitor.visitTagPlaceholder(this,\ncontext);\n  }\n}\n\n\nexport class Placeholder implements Node {\n  constructor(public value: string, public name:\nstring, public sourceSpan: ParseSourceSpan) {}\n\n  visit(visitor: Visitor, context?: any): any {\n    return\nvisitor.visitPlaceholder(this, context);\n  }\n}\n\n\nexport class IcuPlaceholder\nimplements Node {\n  /** Used to capture a message computed from a previous processing pass (see\n`setI18nRefs()`). */\n  previousMessage?: Message;\n  constructor(public value: Icu, public name: string, public\nsourceSpan: ParseSourceSpan) {}\n\n  visit(visitor: Visitor, context?: any): any {\n    return\nvisitor.visitIcuPlaceholder(this, context);\n  }\n}\n\n\n/**\n * Each HTML node that is affect by an i18n tag will also\nhave an `i18n` property that is of type\n * `I18nMeta`.\n * This information is either a `Message`, which indicates it\nis the root of an i18n message, or a\n * `Node`, which indicates is it part of a containing `Message`.\n */\nexport\ntype I18nMeta = Message|Node;\n\nexport interface Visitor {\n  visitText(text: Text, context?: any): any;\n  visitContainer(container: Container, context?: any): any;\n  visitIcu(icu: Icu, context?: any): any;\n  visitTagPlaceholder(ph: TagPlaceholder, context?: any): any;\n  visitPlaceholder(ph: Placeholder, context?: any):\nany;\n  visitIcuPlaceholder(ph:\nIcuPlaceholder, context?: any): any;\n}\n\n\n// Clone the AST\nexport class CloneVisitor implements Visitor {\n  visitText(text: Text, context?: any): Text {\n    return new Text(text.value, text.sourceSpan);\n  }\n\n  visitContainer(container: Container, context?: any): Container {\n    const children = container.children.map(n =>\nn.visit(this, context));\n    return new Container(children, container.sourceSpan);\n  }\n\n  visitIcu(icu: Icu, context?:\nany): Icu {\n    const cases: {[k: string]: Node} = {};\n    Object.keys(icu.cases).forEach(key => cases[key] =\nicu.cases[key].visit(this, context));\n    const msg = new Icu(icu.expression, icu.type, cases, icu.sourceSpan);\n    msg.expressionPlaceholder = icu.expressionPlaceholder;\n    return msg;\n  }\n\n  visitTagPlaceholder(ph:\nTagPlaceholder, context?: any): TagPlaceholder {\n    const children = ph.children.map(n => n.visit(this,\ncontext));\n    return new TagPlaceholder(\n      ph.tag, ph.attrs, ph.startName,\n      ph.closeName, children, ph.isVoid, ph.sourceSpan,\n      ph.startSourceSpan, ph.endSourceSpan);\n  }\n\n  visitPlaceholder(ph: Placeholder, context?: any): Placeholder {\n    return new Placeholder(ph.value, ph.name,\nph.sourceSpan);\n  }\n\n  visitIcuPlaceholder(ph: IcuPlaceholder, context?: any): IcuPlaceholder {\n    return new\nIcuPlaceholder(ph.value, ph.name, ph.sourceSpan);\n  }\n}\n\n\n// Visit all the nodes recursively\nexport class\nRecurseVisitor implements Visitor {\n  visitText(text: Text, context?: any): any {\n    }\n\n  visitContainer(container:\nContainer, context?: any): any {\n    container.children.forEach(child => child.visit(this));\n  }\n\n  visitIcu(icu: Icu,\ncontext?: any): any {\n    Object.keys(icu.cases).forEach(k => {\n      icu.cases[k].visit(this);\n    });\n  }\n\n  visitTagPlaceholder(ph: TagPlaceholder, context?: any): any {\n    ph.children.forEach(child => child.visit(this));\n  }\n\n  visitPlaceholder(ph: Placeholder, context?: any): any {\n    }\n\n  visitIcuPlaceholder(ph:
```

```

IcuPlaceholder, context?: any): any {}
}

/**
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 * found in the LICENSE file at
 * https://angular.io/license
 */

/**
 * Represents a big integer using a buffer of its individual digits, with the least
 * significant digit stored at the beginning of the array (little endian).
 *
 * For performance reasons, each instance is mutable. The addition operation can be done in-place
 * to reduce memory pressure of allocation for the digits array.
 */
export class BigInteger {
  static zero(): BigInteger {
    return new BigInteger([0]);
  }

  static one(): BigInteger {
    return new BigInteger([1]);
  }

  /**
   * Creates a big integer using its individual digits in little endian storage.
   */
  private constructor(private readonly digits: number[]) {}

  /**
   * Creates a clone of this instance.
   */
  clone():
    BigInteger {
    return new BigInteger(this.digits.slice());
  }

  /**
   * Returns a new big integer with the sum of `this` and `other` as its value. This does not mutate `this` but instead returns a new instance, unlike
   * `addToSelf`.
   */
  add(other: BigInteger): BigInteger {
    const result = this.clone();
    result.addToSelf(other);
    return result;
  }

  /**
   * Adds `other` to the instance itself, thereby mutating its value.
   */
  addToSelf(other: BigInteger): void {
    const maxNrOfDigits = Math.max(this.digits.length, other.digits.length);
    let carry = 0;
    for (let i = 0; i < maxNrOfDigits; i++) {
      let digitSum = carry;
      if (i < this.digits.length) {
        digitSum += this.digits[i];
      }
      if (i < other.digits.length) {
        digitSum += other.digits[i];
      }
      if (digitSum >= 10) {
        this.digits[i] = digitSum - 10;
        carry = 1;
      } else {
        this.digits[i] = digitSum;
      }
    }
    carry = 0;
    // Apply a remaining carry if needed.
    if (carry > 0) {
      this.digits[maxNrOfDigits] = 1;
    }
  }

  /**
   * Builds the decimal string representation of the big integer.
   *
   * As this is stored in little endian, the digits are concatenated in reverse order.
   */
  toString(): string {
    let res = "";
    for (let i = this.digits.length - 1; i >= 0; i--) {
      res += this.digits[i];
    }
    return res;
  }
}

/**
 * Represents a big integer which is optimized for multiplication operations, as its power-of-twos
 * are memoized. See `multiplyBy()` for details on the multiplication algorithm.
 */
export class BigIntForMultiplication {
  /**
   * Stores all memoized power-of-twos, where each index represents `this.number * 2^index`.
   */
  private readonly powerOfTwos: BigInteger[];

  constructor(value: BigInteger) {
    this.powerOfTwos = [value];
  }

  /**
   * Returns the big integer itself.
   */
  getValue(): BigInteger {
    return this.powerOfTwos[0];
  }

  /**
   * Computes the value for `num * b`, where `num` is a JS number and `b` is a big integer. The value for `b` is represented by a storage model that
   * is optimized for this computation. This operation is implemented in  $N(\log_2(\text{num}))$  by continuous halving
   * of the number, where the least-significant bit (LSB) is tested in each iteration. If the bit is set, the bit's index
   * is used as exponent into the power-of-two multiplication of `b`.
   *
   * As an example, consider the multiplication  $\text{num}=42, b=1337$ . In binary 42 is 0b00101010 and the algorithm unrolls into the following
   * iterations:
   */
  multiplyBy(num: number): BigInteger {
    const iterations = [
      { num: 0, LSB: 0, b: 1337, iter: 0, Add: false, product: 0 },
      { num: 2, LSB: 1, b: 2674, iter: 1, Add: true, product: 2674 },
      { num: 4, LSB: 0, b: 5348, iter: 2, Add: false, product: 5348 },
      { num: 8, LSB: 1, b: 10696, iter: 3, Add: true, product: 13370 },
      { num: 16, LSB: 0, b: 21392, iter: 4, Add: false, product: 26740 },
      { num: 32, LSB: 1, b: 42784, iter: 5, Add: true, product: 53480 },
      { num: 64, LSB: 0, b: 85568, iter: 6, Add: false, product: 106960 }
    ];
    // The computed product of 56154 is indeed the correct result.
    // The `BigIntForMultiplication` representation for a big integer provides memoized access to the power-of-two
    // values to reduce the workload in computing those values.
    const product = BigInteger.zero();
    this.multiplyByAndAddTo(num, product);
    return product;
  }

  /**
   * See `multiplyBy()` for details. This function allows for the computed product to be added directly to the provided
   * result big integer.
   */
  multiplyByAndAddTo(num: number, result: BigInteger): void {
    for (let exponent = 0; num !== 0; num = num >>> 1, exponent++) {
      if (num & 1) {
        const value = this.getMultipliedByPowerOfTwo(exponent);
        result.addToSelf(value);
      }
    }
  }

  /**
   * Computes and memoizes the big integer value for `this.number * 2^exponent`.
   */
  private getMultipliedByPowerOfTwo(exponent: number): BigInteger {
    //

```

```

Compute the powers up until the requested exponent, where each value is computed from its
// predecessor. This
is simple as `this.number * 2^(exponent - 1)` only has to be doubled (i.e.
// added to itself) to reach `this.number
* 2^exponent`.
for (let i = this.powerOfTwos.length; i <= exponent; i++) {
  const previousPower =
this.powerOfTwos[i - 1];
  this.powerOfTwos[i] = previousPower.add(previousPower);
}
return
this.powerOfTwos[exponent];
}
}

/**
 * Represents an exponentiation operation for the provided base, of
which exponents are computed and
* memoized. The results are represented by a `BigIntForMultiplication` which
is tailored for
* multiplication operations by memoizing the power-of-twos. This effectively results in a matrix
* representation that is lazily computed upon request.
*/
export class BigIntExponentiation {
  private readonly
exponents = [new BigIntForMultiplication(BigInteger.one())];

  constructor(private readonly base: number) {}

  /**
   * Compute the value for `this.base^exponent`, resulting in a big integer that is optimized for
   * further multiplication operations.
   */
  toThePowerOf(exponent: number): BigIntForMultiplication {
    //
    Compute the results up until the requested exponent, where every value is computed from its
    // predecessor. This
    is because `this.base^(exponent - 1)` only has to be multiplied by `base`
    // to reach `this.base^exponent`.
    for
    (let i = this.exponents.length; i <= exponent; i++) {
      const value = this.exponents[i - 1].multiplyBy(this.base);
      this.exponents[i] = new BigIntForMultiplication(value);
    }

    return this.exponents[exponent];
  }
}

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 * found in the LICENSE file at
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 */
import { Byte, newArray, utf8Encode } from './util';
import
{ BigIntExponentiation } from './big_integer';
import * as i18n from './i18n_ast';

/**
 * Return the message id
or compute it using the XLIFF1 digest.
*/
export function digest(message: i18n.Message): string {
  return
message.id || computeDigest(message);
}

/**
 * Compute the message id using the XLIFF1 digest.
*/
export function computeDigest(message: i18n.Message): string {
  return
sha1(serializeNodes(message.nodes).join('') + `[${message.meaning}]`);
}

/**
 * Return the message id or
compute it using the XLIFF2/XMB/$localize digest.
*/
export function decimalDigest(message: i18n.Message):
string {
  return message.id || computeDecimalDigest(message);
}

/**
 * Compute the message id using the XLIFF2/XMB/$localize digest.
*/
export function
computeDecimalDigest(message: i18n.Message): string {
  const visitor = new _SerializerIgnoreIcuExpVisitor();
  const parts = message.nodes.map(a => a.visit(visitor, null));
  return computeMsgId(parts.join(''),
message.meaning);
}

/**
 * Serialize the i18n ast to something xml-like in order to generate an UID.
 *
 * The visitor is also used in the i18n parser tests
 */
@internal
export class _SerializerVisitor implements
i18n.Visitor {
  visitText(text: i18n.Text, context: any): any {
    return text.value;
  }

  visitContainer(container: i18n.Container, context: any): any {
    return `[${container.children.map(child =>
child.visit(this)).join(' ')}]`;
  }

  visitIcu(icu: i18n.Icu, context: any): any {
    const strCases =
Object.keys(icu.cases).map((k: string) => `${k} {${icu.cases[k].visit(this)}}`);
    return `${icu.expression},
${icu.type},
${strCases.join(' ')}`;
  }

  visitTagPlaceholder(ph: i18n.TagPlaceholder, context: any): any {
    return
ph.isVoid ? `<ph tag name="${ph.startName}" />` : `<ph tag name="${ph.startName}">${
ph.children.map(child => child.visit(this)).join(' ')}</ph name="${ph.closeName}">`;
  }

  visitPlaceholder(ph: i18n.Placeholder, context: any): any {
    return ph.value ? `<ph
name="${ph.name}">${ph.value}</ph>` : `<ph name="${ph.name}" />`;
  }

  visitIcuPlaceholder(ph:
i18n.IcuPlaceholder, context?: any): any {
    return `<ph icu
name="${ph.name}">${ph.value.visit(this)}</ph>`;
  }
}

const serializerVisitor = new
_SerializerVisitor();

export function serializeNodes(nodes: i18n.Node[]): string[] {
  return nodes.map(a =>
a.visit(serializerVisitor, null));
}

/**
 * Serialize the i18n ast to something xml-like in order to generate an
UID.
 *
 * Ignore the ICU expressions so that message IDs stays identical if only
the expression changes.
 */
@internal
export class _SerializerIgnoreIcuExpVisitor extends _SerializerVisitor {
  visitIcu(icu: i18n.Icu, context: any): any {
    let strCases = Object.keys(icu.cases).map((k: string) => `${k}
{${icu.cases[k].visit(this)}}`);
    // Do not take the expression into account
    return `${icu.type},

```

```

${strCases.join(', ')}';\n } \n\n\n * Compute the SHA1 of the given string\n * \n * see
http://csrc.nist.gov/publications/fips/fips180-4/fips-180-4.pdf\n * \n * WARNING: this function has not been
designed not tested with security in mind.\n * \n * DO NOT USE IT IN A SECURITY SENSITIVE CONTEXT.\n
* \n\nexport function sha1(str: string): string {\n const utf8 = utf8Encode(str);\n const words32 =
bytesToWords32(utf8, Endian.Big);\n const len = utf8.length * 8;\n const w = newArray(80);\n let a =
0x67452301, b = 0xefcdab89, c = 0x98badcfe, d = 0x10325476, e = 0xc3d2e1f0;\n\n words32[len >> 5] |= 0x80 <<
(24 - len % 32);\n words32[(len + 64
>> 9) << 4] + 15] = len;\n\n for (let i = 0; i < words32.length; i += 16) {\n const h0 = a, h1 = b, h2 = c, h3 = d, h4
= e;\n\n for (let j = 0; j < 80; j++) {\n if (j < 16) {\n w[j] = words32[i + j];\n } else {\n w[j] =
rol32(w[j - 3] ^ w[j - 8] ^ w[j - 14] ^ w[j - 16], 1);\n }\n\n const fkVal = fk(j, b, c, d);\n const f =
fkVal[0];\n const k = fkVal[1];\n const temp = [rol32(a, 5), f, e, k, w[j]].reduce(add32);\n e = d;\n d =
c;\n c = rol32(b, 30);\n b = a;\n a = temp;\n }\n\n a = add32(a, h0);\n b = add32(b, h1);\n c = add32(c,
h2);\n d = add32(d, h3);\n e = add32(e, h4);\n }\n\n return bytesToHexString(words32ToByteString([a, b, c, d,
e]));\n}\n\nfunction fk(index: number, b: number, c: number, d: number): [number, number] {\n if (index < 20) {\n
return [(b & c) | (~b & d), 0x5a827999];\n }\n\n if (index < 40) {\n return [b ^ c ^ d, 0x6ed9eba1];\n }\n\n if
(index < 60) {\n
return [(b & c) | (b & d) | (c & d), 0x8f1bbcdc];\n }\n\n return [b ^ c ^ d, 0xca62c1d6];\n}\n\n\n * Compute
the fingerprint of the given string\n * \n * The output is 64 bit number encoded as a decimal string\n * \n * based
on:\n * https://github.com/google/closure-
compiler/blob/master/src/com/google/javascript/jscomp/GoogleJsMessageIdGenerator.java\n * \n\nexport function
fingerprint(str: string): [number, number] {\n const utf8 = utf8Encode(str);\n\n let hi = hash32(utf8, 0);\n let lo =
hash32(utf8, 102072);\n\n if (hi == 0 && (lo == 0 || lo == 1)) {\n hi = hi ^ 0x130f9bef;\n lo = lo ^ -
0x6b5f56d8;\n }\n\n return [hi, lo];\n}\n\n\nexport function computeMsgId(msg: string, meaning: string = ''): string
{\n let msgFingerprint = fingerprint(msg);\n\n if (meaning) {\n const meaningFingerprint =
fingerprint(meaning);\n msgFingerprint = add64(rol64(msgFingerprint, 1), meaningFingerprint);\n }\n\n const hi
= msgFingerprint[0];\n const lo = msgFingerprint[1];\n\n return
wordsToDecimalString(hi & 0x7fffffff, lo);\n}\n\n\nfunction hash32(bytes: Byte[], c: number): number {\n let a =
0x9e3779b9, b = 0x9e3779b9;\n let i: number;\n\n const len = bytes.length;\n\n for (i = 0; i + 12 <= len; i += 12)
{\n a = add32(a, wordAt(bytes, i, Endian.Little));\n b = add32(b, wordAt(bytes, i + 4, Endian.Little));\n c =
add32(c, wordAt(bytes, i + 8, Endian.Little));\n const res = mix(a, b, c);\n a = res[0], b = res[1], c = res[2];\n
}\n\n a = add32(a, wordAt(bytes, i, Endian.Little));\n b = add32(b, wordAt(bytes, i + 4, Endian.Little));\n // the
first byte of c is reserved for the length\n c = add32(c, len);\n c = add32(c, wordAt(bytes, i + 8, Endian.Little) <<
8);\n\n return mix(a, b, c)[2];\n}\n\n\n// clang-format off\nfunction mix(a: number, b: number, c: number): [number,
number, number] {\n a = sub32(a, b); a = sub32(a, c); a ^= c >>> 13;\n b = sub32(b, c); b = sub32(b, a); b ^= a <<
8;\n c = sub32(c, a); c = sub32(c, b); c ^= b >>> 13;\n
a = sub32(a, b); a = sub32(a, c); a ^= c >>> 12;\n b = sub32(b, c); b = sub32(b, a); b ^= a << 16;\n c = sub32(c, a);
c = sub32(c, b); c ^= b >>> 5;\n a = sub32(a, b); a = sub32(a, c); a ^= c >>> 3;\n b = sub32(b, c); b = sub32(b, a); b
^= a << 10;\n c = sub32(c, a); c = sub32(c, b); c ^= b >>> 15;\n return [a, b, c];\n}\n\n\n// clang-format on\n\n//
Utils\n\nenum Endian {\n Little,\n Big,\n}\n\nfunction add32(a: number, b: number): number {\n return
add32to64(a, b)[1];\n}\n\nfunction add32to64(a: number, b: number): [number, number] {\n const low = (a &
0xffff) + (b & 0xffff);\n const high = (a >>> 16) + (b >>> 16) + (low >>> 16);\n return [high >>> 16, (high << 16)
| (low & 0xffff)];\n}\n\nfunction add64(a: [number, number], b: [number, number]): [number, number] {\n const ah
= a[0], al = a[1];\n const bh = b[0], bl = b[1];\n const result = add32to64(al, bl);\n const carry = result[0];\n const l
= result[1];\n const h = add32(add32(ah, bh), carry);\n return [h, l];\n}\n\nfunction
sub32(a: number, b: number): number {\n const low = (a & 0xffff) - (b & 0xffff);\n const high = (a >> 16) - (b >>
16) + (low >> 16);\n return (high << 16) | (low & 0xffff);\n}\n\n\n// Rotate a 32b number left `count`
position\nfunction rol32(a: number, count: number): number {\n return (a << count) | (a >>> (32 - count));\n}\n\n\n//
Rotate a 64b number left `count` position\nfunction rol64(num: [number, number], count: number): [number,

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number] {\n  const hi = num[0], lo = num[1];\n  const h = (hi << count) | (lo >>> (32 - count));\n  const l = (lo << count) | (hi >>> (32 - count));\n  return [h, l];\n}\n\nfunction bytesToWords32(bytes: Byte[], endian: Endian): number[] {\n  const size = (bytes.length + 3) >>> 2;\n  const words32 = [];\n  for (let i = 0; i < size; i++) {\n    words32[i] = wordAt(bytes, i * 4, endian);\n  }\n  return words32;\n}\n\nfunction byteAt(bytes: Byte[], index: number): Byte {\n  return index >= bytes.length ? 0 : bytes[index];\n}\n\nfunction wordAt(bytes: Byte[], index: number, endian: Endian): number {\n  let word = 0;\n  if (endian === Endian.Big) {\n    for (let i = 0; i < 4; i++) {\n      word += byteAt(bytes, index + i) << (24 - 8 * i);\n    }\n  } else {\n    for (let i = 0; i < 4; i++) {\n      word += byteAt(bytes, index + i) << 8 * i;\n    }\n  }\n  return word;\n}\n\nfunction words32ToByteString(words32: number[]): Byte[] {\n  return words32.reduce((bytes, word) => bytes.concat(word32ToByteString(word)), [] as Byte[]);\n}\n\nfunction word32ToByteString(word: number): Byte[] {\n  let bytes: Byte[] = [];\n  for (let i = 0; i < 4; i++) {\n    bytes.push((word >>> 8 * (3 - i)) & 0xff);\n  }\n  return bytes;\n}\n\nfunction bytesToHexString(bytes: Byte[]): string {\n  let hex: string = '';\n  for (let i = 0; i < bytes.length; i++) {\n    const b = byteAt(bytes, i);\n    hex += (b >>> 4).toString(16) + (b & 0xf).toString(16);\n  }\n  return hex.toLowerCase();\n}\n\n/**\n * Create a shared exponentiation pool for base-256 computations. This shared pool provides memoized\n * power-of-256 results with memoized power-of-two computations for efficient multiplication.\n *\n * For our purposes, this can be safely stored as a global without memory concerns. The reason is\n * that we encode two words, so only need the 0th (for the low word) and 4th (for the high word)\n * exponent.\n */\nconst base256 = new BigIntExponentiation(256);\n\n/**\n * Represents two 32-bit words as a single decimal number. This requires a big integer storage\n * model as JS numbers are not accurate enough to represent the 64-bit number.\n *\n * Based on http://www.danvk.org/hex2dec.html\n */\nfunction wordsToDecimalString(hi: number, lo: number): string {\n  // Encode the four bytes in lo in the lower digits of the decimal number.\n  // Note: the multiplication results in lo itself but represented by a big integer using its\n  // decimal digits.\n  const decimal = base256.toThePowerOf(0).multiplyBy(lo);\n  // Encode the four bytes in hi above the four lo bytes. lo is a maximum of (2^8)^4, which is why\n  // this multiplication factor is applied.\n  decimal = base256.toThePowerOf(4).multiplyByAndAddTo(hi, decimal);\n  return decimal.toString();\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport * as i18n from './i18n_ast';\n\nexport abstract class Serializer {\n  // - The `placeholders` and `placeholderToMessage` properties are irrelevant in the input messages\n  // - The `id` contains the message id that the serializer is expected to use\n  // - Placeholder names are already map to public names using the provided mapper\n  abstract write(messages: i18n.Message[], locale: string|null): string;\n\n  abstract load(content: string, url: string): i18n.Message[];\n\n  abstract loadByMsgId(msgId: string): i18n.Message[];\n\n  abstract digest(message: i18n.Message): string;\n\n  // Creates a name mapper, see `PlaceholderMapper`\n  // Returning `null` means that no name mapping is used.\n  createNameMapper(message: i18n.Message): PlaceholderMapper|null {\n    return null;\n  }\n}\n\n/**\n * A `PlaceholderMapper` converts placeholder names from internal to serialized representation and\n * back.\n *\n * It should be used for serialization format that put constraints on the placeholder names.\n */\nexport interface PlaceholderMapper {\n  toPublicName(internalName: string): string|null;\n\n  toInternalName(publicName: string): string|null;\n}\n\n/**\n * A simple mapper that take a function to transform an internal name to a public name\n */\nexport class SimplePlaceholderMapper extends i18n.RecurseVisitor implements PlaceholderMapper {\n  private internalToPublic: {[k: string]: string} = {};\n  private publicToNextId: {[k: string]: number} = {};\n  private publicToInternal: {[k: string]: string} = {};\n\n  // create a mapping from the message\n  constructor(message: i18n.Message, private mapName: (name: string) => string) {\n    super();\n    message.nodes.forEach(node => node.visit(this));\n  }\n\n  toPublicName(internalName: string): string|null {\n    return this.internalToPublic.hasOwnProperty(internalName) ? this.internalToPublic[internalName] : null;\n  }\n\n  toInternalName(publicName: string): string|null {\n    return this.publicToInternal.hasOwnProperty(publicName) ? this.publicToInternal[publicName] : null;\n  }\n\n  visitText(text: i18n.Text, context?: any): any {\n    return null;\n  }\n\n  visitTagPlaceholder(ph: i18n.TagPlaceholder, context?: any): any {\n    return this.visitPlaceholderName(ph.startName);\n  }\n}

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super.visitTagPlaceholder(ph, context);\n  this.visitPlaceholderName(ph.closeName);\n }\n\nvisitPlaceholder(ph: i18n.Placeholder, context?: any): any {\n  this.visitPlaceholderName(ph.name);\n }\n\nvisitIcuPlaceholder(ph:
i18n.IcuPlaceholder, context?: any): any {\n  this.visitPlaceholderName(ph.name);\n }\n\n // XMB placeholders
could only contains A-Z, 0-9 and _\n private visitPlaceholderName(internalName: string): void {\n  if
(!internalName || this.internalToPublic.hasOwnProperty(internalName)) {\n    return;\n  }\n\n  let publicName =
this.mapName(internalName);\n\n  if (this.publicToInternal.hasOwnProperty(publicName)) {\n    // Create a new
XMB when it has already been used\n    const nextId = this.publicToNextId[publicName];\n
this.publicToNextId[publicName] = nextId + 1;\n    publicName = `${publicName}_${nextId}`;\n  } else {\n
this.publicToNextId[publicName] = 1;\n  }\n\n  this.internalToPublic[internalName] = publicName;\n
this.publicToInternal[publicName] = internalName;\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nexport interface IVisitor {\n  visitTag(tag: Tag): any;\n
visitText(text: Text): any;\n  visitDeclaration(decl: Declaration): any;\n  visitDoctype(doctype: Doctype):
any;\n}\n\n\nclass _Visitor implements IVisitor {\n  visitTag(tag: Tag): string {\n    const strAttrs =
this._serializeAttributes(tag.attrs);\n\n    if (tag.children.length == 0) {\n      return `<${tag.name}${strAttrs}>`;\n
}\n\n    const strChildren = tag.children.map(node => node.visit(this));\n    return
`<${tag.name}${strAttrs}>${strChildren.join("")}</${tag.name}>`;\n  }\n\n  visitText(text: Text): string {\n    return
text.value;\n  }\n\n  visitDeclaration(decl: Declaration): string {\n    return
`<?xml${this._serializeAttributes(decl.attrs)} ?>`;\n  }\n\n  private _serializeAttributes(attrs: {[k: string]: string})
{\n    const strAttrs = Object.keys(attrs).map((name: string) => `${name}="${attrs[name]}"`).join(' ');
    return
strAttrs.length > 0 ? ''
+ strAttrs : '';\n  }\n\n  visitDoctype(doctype: Doctype): any {\n    return `<!DOCTYPE ${doctype.rootTag}
[\\n${doctype.dtd}\\n]>`;\n  }\n}\n\nconst _visitor = new _Visitor();\n\nexport function serialize(nodes: Node[]):
string {\n  return nodes.map((node: Node): string => node.visit(_visitor)).join("");\n}\n\nexport interface Node {\n
visit(visitor: IVisitor): any;\n}\n\nexport class Declaration implements Node {\n  public attrs: {[k: string]: string} =
{};\n\n  constructor(unescapedAttrs: {[k: string]: string}) {\n    Object.keys(unescapedAttrs).forEach((k: string) =>
{\n      this.attrs[k] = escapeXml(unescapedAttrs[k]);\n    });\n  }\n\n  visit(visitor: IVisitor): any {\n    return
visitor.visitDeclaration(this);\n  }\n}\n\nexport class Doctype implements Node {\n  constructor(public rootTag:
string, public dtd: string) {}\n\n  visit(visitor: IVisitor): any {\n    return visitor.visitDoctype(this);\n  }\n}\n\nexport
class Tag implements Node {\n  public attrs: {[k: string]: string}
= {};\n\n  constructor(\n    public name: string, unescapedAttrs: {[k: string]: string} = {},\n    public children:
Node[] = []) {\n    Object.keys(unescapedAttrs).forEach((k: string) => {\n      this.attrs[k] =
escapeXml(unescapedAttrs[k]);\n    });\n  }\n\n  visit(visitor: IVisitor): any {\n    return visitor.visitTag(this);\n
}\n}\n\nexport class Text implements Node {\n  value: string;\n  constructor(unescapedValue: string) {\n
this.value = escapeXml(unescapedValue);\n  }\n\n  visit(visitor: IVisitor): any {\n    return visitor.visitText(this);\n
}\n}\n\nexport class CR extends Text {\n  constructor(ws: number = 0) {\n    super(`\\n${new Array(ws + 1).join('
')}`);\n  }\n}\n\nconst _ESCAPED_CHARS: [RegExp, string][] = [\n  [/&/g, '&'],\n  [/^/g, '&quot;'],\n  [/'/g,
'&apos;'],\n  [/</g, '&lt;'],\n  [/>/g, '&gt;'],\n];\n\n// Escape ` _ESCAPED_CHARS` characters in the given text with
encoded entities\nexport function escapeXml(text: string): string {\n  return _ESCAPED_CHARS.reduce(\n
    (text: string, entry: [RegExp, string]) => text.replace(entry[0], entry[1]), text);\n}\n\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {decimalDigest} from
'./digest';\nimport * as i18n from './i18n_ast';\n\nimport {PlaceholderMapper, Serializer,
SimplePlaceholderMapper} from './serializer';\nimport * as xml from './xml_helper';\n\nconst _MESSAGES_TAG =
'messagebundle';\nconst _MESSAGE_TAG = 'msg';\nconst _PLACEHOLDER_TAG = 'ph';\nconst
_EXAMPLE_TAG = 'ex';\nconst _SOURCE_TAG = 'source';\n\nconst _DOCTYPE = `<!ELEMENT
messagebundle (msg)*>`;\n\n<!ATTLIST messagebundle class CDATA #IMPLIED>\n\n<!ELEMENT msg

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(#PCDATA|ph|source)*>\n<!ATTLIST msg id CDATA #IMPLIED>\n<!ATTLIST msg seq CDATA
#IMPLIED>\n<!ATTLIST msg name CDATA #IMPLIED>\n<!ATTLIST msg desc CDATA
#IMPLIED>\n<!ATTLIST msg meaning CDATA
#IMPLIED>\n<!ATTLIST msg obsolete (obsolete) #IMPLIED>\n<!ATTLIST msg xml:space (default|preserve)
\"default\">\n<!ATTLIST msg is_hidden CDATA #IMPLIED>\n<!ELEMENT source
(#PCDATA)>\n\n<!ELEMENT ph (#PCDATA|ex)*>\n<!ATTLIST ph name CDATA
#REQUIRED>\n\n<!ELEMENT ex (#PCDATA)>>;\n\nexport class Xmb extends Serializer {\n  write(messages:
i18n.Message[], locale: string|null): string {\n    const exampleVisitor = new ExampleVisitor();\n    const visitor =
new _Visitor();\n    let rootNode = new xml.Tag(_MESSAGES_TAG);\n\n    messages.forEach(message => {\n
const attrs: {[k: string]: string} = {id: message.id};\n    if (message.description) {\n      attrs['desc'] =
message.description;\n    }\n    if (message.meaning) {\n      attrs['meaning'] = message.meaning;\n    }\n\n
let sourceTags: xml.Tag[] = [];\n    message.sources.forEach((source: i18n.MessageSpan) => {\n
sourceTags.push(new xml.Tag(\n      _SOURCE_TAG, {},\n      [new
xml.Text(`${source.filePath}:${source.startLine}`)\n
      source.endLine !== source.startLine ? ',' + source.endLine : '']));\n    });\n\n
rootNode.children.push(\n      new xml.CR(2),\n      new xml.Tag(_MESSAGE_TAG, attrs, [...sourceTags,
...visitor.serialize(message.nodes)]);\n    );\n\n    rootNode.children.push(new xml.CR());\n\n    return
xml.serialize([\n      new xml.Declaration({version: '1.0', encoding: 'UTF-8'}),\n      new xml.CR(),\n      new
xml.Doctype(_MESSAGES_TAG, _DOCTYPE),\n      new xml.CR(),\n
exampleVisitor.addDefaultExamples(rootNode),\n      new xml.CR(),\n    ]);\n  }\n\n  load(content: string, url:
string):\n    {locale: string, i18nNodesByMsgId: {[msgId: string]: i18n.Node[]}} {\n    throw new
Error('Unsupported');\n  }\n\n  digest(message: i18n.Message): string {\n    return digest(message);\n  }\n\n
createNameMapper(message: i18n.Message): PlaceholderMapper {\n    return new
SimplePlaceholderMapper(message, toPublicName);\n  }\n}\n\nclass
_Visitor implements i18n.Visitor {\n  visitText(text: i18n.Text, context?: any): xml.Node[] {\n    return [new
xml.Text(text.value)];\n  }\n\n  visitContainer(container: i18n.Container, context: any): xml.Node[] {\n    const
nodes: xml.Node[] = [];\n    container.children.forEach((node: i18n.Node) => nodes.push(...node.visit(this)));\n
return nodes;\n  }\n\n  visitIcu(icu: i18n.Icu, context?: any): xml.Node[] {\n    const nodes = [new
xml.Text(`${icu.expressionPlaceholder}`, `${icu.type}`, `);\n\n    Object.keys(icu.cases).forEach((c: string) => {\n
nodes.push(new xml.Text(`${c}`, ...icu.cases[c].visit(this), new xml.Text(` `));\n    });\n\n    nodes.push(new
xml.Text(` `));\n    return nodes;\n  }\n\n  visitTagPlaceholder(ph: i18n.TagPlaceholder, context?: any):
xml.Node[] {\n    const startTagAsText = new xml.Text(<${ph.tag}>);\n    const startEx = new
xml.Tag(_EXAMPLE_TAG, {}, [startTagAsText]);\n    // TC requires PH to have a non empty EX, and uses the
text
    node to show the \"original\" value.\n    const startTagPh =\n      new xml.Tag(_PLACEHOLDER_TAG, {name:
ph.startName}, [startEx, startTagAsText]);\n    if (ph.isVoid) {\n      // void tags have no children nor closing tags\n
return [startTagPh];\n    }\n\n    const closeTagAsText = new xml.Text(</${ph.tag}>);\n    const closeEx = new
xml.Tag(_EXAMPLE_TAG, {}, [closeTagAsText]);\n    // TC requires PH to have a non empty EX, and uses the
text node to show the \"original\" value.\n    const closeTagPh =\n      new xml.Tag(_PLACEHOLDER_TAG,
{name: ph.closeName}, [closeEx, closeTagAsText]);\n\n    return [startTagPh, ...this.serialize(ph.children),
closeTagPh];\n  }\n\n  visitPlaceholder(ph: i18n.Placeholder, context?: any): xml.Node[] {\n    const
interpolationAsText = new xml.Text(`${ph.value}`);\n    // Example tag needs to be not-empty for TC.\n
const exTag = new xml.Tag(_EXAMPLE_TAG, {}, [interpolationAsText]);\n    return [\n      // TC requires PH to
have a non
      empty EX, and uses the text node to show the \"original\" value.\n      new xml.Tag(_PLACEHOLDER_TAG,
{name: ph.name}, [exTag, interpolationAsText])\n    ];\n  }\n\n  visitIcuPlaceholder(ph: i18n.IcuPlaceholder,
context?: any): xml.Node[] {\n    const icuExpression = ph.value.expression;\n    const icuType = ph.value.type;\n
const icuCases = Object.keys(ph.value.cases).map((value: string) => value + ' {...'}).join(' '); \n    const icuAsText =

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new xml.Text(`${icuExpression}, ${icuType}, ${icuCases}}`);\n  const exTag = new
xml.Tag(_EXAMPLE_TAG, {}, [icuAsText]);\n  return [\n    // TC requires PH to have a non empty EX, and
uses the text node to show the "original" value.\n    new xml.Tag(_PLACEHOLDER_TAG, {name: ph.name},
[exTag, icuAsText])\n  ];\n }\n\n serialize(nodes: i18n.Node[]): xml.Node[] {\n  return
[].concat(...nodes.map(node => node.visit(this)));\n }\n}\n\nexport function digest(message: i18n.Message): string
{\n  return decimalDigest(message);\n }\n\n//
TC requires at least one non-empty example on placeholders\nclass ExampleVisitor implements xml.Visitor {\n
addDefaultExamples(node: xml.Node): xml.Node {\n  node.visit(this);\n  return node;\n }\n\n visitTag(tag:
xml.Tag): void {\n  if (tag.name === _PLACEHOLDER_TAG) {\n    if (!tag.children || tag.children.length === 0)
{\n      const exText = new xml.Text(tag.attrs['name'] || '...');\n      tag.children = [new
xml.Tag(_EXAMPLE_TAG, {}, [exText]);\n    }\n  } else if (tag.children) {\n    tag.children.forEach(node =>
node.visit(this));\n  }\n }\n\n visitText(text: xml.Text): void {\n }\n\n visitDeclaration(decl: xml.Declaration): void
{\n }\n\n visitDoctype(doctype: xml.Doctype): void {\n }\n}\n\n// XMB/XTB placeholders can only contain A-Z, 0-9 and
_\nexport function toPublicName(internalName: string): string {\n  return
internalName.toUpperCase().replace(/[^A-Z0-9_]/g, '_');\n }\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\nimport * as i18n from '../i18n/i18n_ast';\nimport {toPublicName} from
'../i18n/serializers/xmb';\nimport * as html from '../ml_parser_ast';\nimport * as o from
'../output/output_ast';\nimport * as t from '../r3_ast';\n\n/* Closure variables holding messages must be named
`MSG_[A-Z0-9]+` *\nconst CLOSURE_TRANSLATION_VAR_PREFIX = 'MSG_';\n\n/**\n * Prefix for non-
`goog.getMsg` i18n-related vars.\n * Note: the prefix uses lowercase characters intentionally due to a Closure
behavior that\n * considers variables like `I18N_0` as constants and throws an error when their value changes.\n
*/\nexport const TRANSLATION_VAR_PREFIX = 'i18n_';\n\n/** Name of the i18n attributes */\nexport const
I18N_ATTR = 'i18n';\nexport const I18N_ATTR_PREFIX = 'i18n-';\n\n/** Prefix of var expressions used in ICUs
*/\nexport const I18N_ICU_VAR_PREFIX = 'VAR_';\n\n/**
Prefix of ICU expressions for post processing */\nexport const I18N_ICU_MAPPING_PREFIX =
'I18N_EXP_';\n\n/** Placeholder wrapper for i18n expressions */\nexport const
I18N_PLACEHOLDER_SYMBOL = ";\n\nexport function isI18nAttribute(name: string): boolean {\n  return name
=== I18N_ATTR || name.startsWith(I18N_ATTR_PREFIX);\n }\n\nexport function isI18nRootNode(meta?:
i18n.I18nMeta): meta is i18n.Message {\n  return meta instanceof i18n.Message;\n }\n\nexport function
isSingleI18nIcu(meta?: i18n.I18nMeta): boolean {\n  return isI18nRootNode(meta) && meta.nodes.length === 1
&& meta.nodes[0] instanceof i18n.Icu;\n }\n\nexport function hasI18nMeta(node: t.Node & {i18n?: i18n.I18nMeta}):
boolean {\n  return !!node.i18n;\n }\n\nexport function hasI18nAttrs(element: html.Element): boolean {\n  return
element.attrs.some((attr: html.Attribute) => isI18nAttribute(attr.name));\n }\n\nexport function
icuFromI18nMessage(message: i18n.Message) {\n  return message.nodes[0] as i18n.IcuPlaceholder;\n }\n\nexport
function wrapI18nPlaceholder(content: string|number, contextId: number = 0): string {\n  const blockId = contextId
> 0 ? `:${contextId}` : '';\n  return
`${I18N_PLACEHOLDER_SYMBOL}${content}${blockId}${I18N_PLACEHOLDER_SYMBOL}`;\n }\n\nexport
function assembleI18nBoundString(\n  strings: string[], bindingStartIndex: number = 0, contextId: number = 0):
string {\n  if (!strings.length) return '';\n  let acc = '';\n  const lastIdx = strings.length - 1;\n  for (let i = 0; i < lastIdx;
i++) {\n    acc += `${strings[i]}${wrapI18nPlaceholder(bindingStartIndex + i, contextId)} `;\n  }\n  acc +=
strings[lastIdx];\n  return acc;\n }\n\nexport function getSeqNumberGenerator(startsAt: number = 0): () => number
{\n  let current = startsAt;\n  return () => current++;\n }\n\nexport function placeholdersToParams(placeholders:
Map<string, string[]>):\n  {[name: string]: o.LiteralExpr} {\n  const params: {[name: string]: o.LiteralExpr} =
{};\n  placeholders.forEach((values: string[], key: string)
=> {\n    params[key] = o.literal(values.length > 1 ? `${values.join(',')}` : values[0]);\n  });\n  return
params;\n }\n\nexport function updatePlaceholderMap(map: Map<string, any[]>, name: string, ...values: any[]) {\n

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const current = map.get(name) || [];
current.push(...values);
map.set(name, current);
}

export function
assembleBoundTextPlaceholders(
  meta: i18n.I18nMeta, bindingStartIndex: number = 0, contextId: number = 0):
Map<string, any[]> {
  const startIdx = bindingStartIndex;
  const placeholders = new Map<string, any>();
  const node =
    meta instanceof i18n.Message ? meta.nodes.find(node => node instanceof i18n.Container) :
    meta;
  if (node) {
    (node as i18n.Container).children
      .filter((child: i18n.Node): child is
i18n.Placeholder => child instanceof i18n.Placeholder)
      .forEach((child: i18n.Placeholder, idx: number) => {
        const content = wrapI18nPlaceholder(startIdx + idx, contextId);
        updatePlaceholderMap(placeholders,
          child.name, content);
      });
  }
  return placeholders;
}

/**
 * Format the placeholder names in a map of
placeholders to expressions.
 * The placeholder names are converted from "internal" format (e.g.
`START_TAG_DIV_1`) to "external" format (e.g. `startTagDiv_1`).
 * @param params A map of
placeholder names to expressions.
 * @param useCamelCase whether to camelCase the placeholder name when
formatting.
 * @returns A new map of formatted placeholder names to expressions.
*/
export function
i18nFormatPlaceholderNames(
  params: {[name: string]: o.Expression} = {}, useCamelCase: boolean) {
  const
_params: {[key: string]: o.Expression} = {};
  if (params && Object.keys(params).length) {
    Object.keys(params).forEach(
      key => _params[formatI18nPlaceholderName(key, useCamelCase)] =
params[key]);
  }
  return _params;
}

/**
 * Converts internal placeholder names to public-facing format
(for example
to use in goog.getMsg call).
 * Example: `START_TAG_DIV_1` is converted to `startTagDiv_1`.
 * @param
name The placeholder name that should be formatted.
 * @returns Formatted placeholder name.
*/
export function
formatI18nPlaceholderName(name: string, useCamelCase: boolean = true): string {
  const publicName =
toPublicName(name);
  if (!useCamelCase) {
    return publicName;
  }
  const chunks =
publicName.split('_');
  if (chunks.length === 1) {
    // if no "_" found - just lowercase the value
    return
name.toLowerCase();
  }
  let postfix;
  // eject last element if it's a number
  if
(/^\\d+$/ .test(chunks[chunks.length - 1])) {
    postfix = chunks.pop();
  }
  let raw =
chunks.shift().toLowerCase();
  if (chunks.length) {
    raw += chunks.map(c => c.charAt(0).toUpperCase() +
c.slice(1).toLowerCase()).join("");
  }
  return postfix ? `${raw}_${postfix}` : raw;
}

/**
 * Generates a
prefix for translation const name.
 * @param extra Additional
local prefix that should be injected into translation var name.
 * @returns Complete translation const prefix.
*/
export function
getTranslationConstPrefix(extra: string): string {
  return
`${CLOSURE_TRANSLATION_VAR_PREFIX}${extra}`.toUpperCase();
}

/**
 * Generate AST to declare
a variable. E.g. `var I18N_1;`.
 * @param variable the name of the variable to declare.
*/
export function
declareI18nVariable(variable: o.ReadVarExpr): o.Statement {
  return new o.DeclareVarStmt(
    variable.name!,
    undefined, o.INFERRED_TYPE, undefined, variable.sourceSpan);
}

/**
 * @license
 * Copyright Google
LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style license that can be
found
in the LICENSE file at https://angular.io/license
*/
import {ConstantPool} from '../constant_pool';
import {Interpolation} from '../expression_parser/ast';
import * as o from '../output/output_ast';
import {ParseSourceSpan} from '../parse_util';
import {splitAtColon} from '../util';
import * as t from './r3_ast';
import {R3QueryMetadata} from './api';
import {isI18nAttribute} from './i18n/util';

/**
 * Checks whether an object key contains potentially unsafe chars,
thus the key should be wrapped in quotes. Note: we do not wrap all keys into
quotes, as it may have impact on minification and may not work in some cases
when object keys are mangled by minifier.
 * TODO(FW-1136): this is a temporary solution, we need to come up with a better
way of working with inputs that contain potentially unsafe chars.
*/
const UNSAFE_OBJECT_KEY_NAME_REGEXP = /[.]/;

/**
 * Name of the
temporary to use during data binding
*/
export const TEMPORARY_NAME = '_t';

/**
 * Name of the context
parameter passed into a template function
*/
export const CONTEXT_NAME = 'ctx';

/**
 * Name of the
RenderFlag passed into a template function
*/
export const RENDER_FLAGS = 'rf';

/**
 * The prefix reference
variables

```

```

*\/nexport const REFERENCE_PREFIX = '_r';\n\n/** The name of the implicit context reference */\nexport const IMPLICIT_REFERENCE = '$implicit';\n\n/** Non bindable attribute name */\nexport const NON_BINDABLE_ATTR = 'ngNonBindable';\n\n/**\n * Creates an allocator for a temporary variable.\n * A variable declaration is added to the statements the first time the allocator is invoked.\n */\nexport function temporaryAllocator(statements: o.Statement[], name: string): () => o.ReadVarExpr {\n  let temp: o.ReadVarExpr | null = null;\n  return () => {\n    if (!temp) {\n      statements.push(new o.DeclareVarStmt(TEMPORARY_NAME, undefined, o.DYNAMIC_TYPE));\n      temp = o.variable(name);\n    }\n    return temp;\n  };\n}\n\nexport function unsupported(this: void | Function, feature: string): never {\n  if (this) {\n    throw new Error(`Builder ${this.constructor.name} doesn't support ${feature} yet`);\n  }\n  throw new Error(`Feature ${feature} is not supported yet`);\n}\n\nexport function invalid<T>(this: t.Visitor, arg: o.Expression | o.Statement | t.Node): never {\n  throw new Error(`Invalid state: Visitor ${this.constructor.name} doesn't handle ${arg.constructor.name}`);\n}\n\nexport function asLiteral(value: any): o.Expression {\n  if (Array.isArray(value)) {\n    return o.literalArr(value.map(asLiteral));\n  }\n  return o.literal(value, o.INFERRED_TYPE);\n}\n\nexport function conditionallyCreateMapObjectLiteral(\n  keys: {[key: string]: string | string[]},\n  keepDeclared?: boolean): o.Expression | null {\n  if (Object.getOwnPropertyNames(keys).length > 0) {\n    return mapToExpression(keys, keepDeclared);\n  }\n  return null;\n}\n\nfunction mapToExpression(\n  map: {[key: string]: string | string[]},\n  keepDeclared?: boolean): o.Expression {\n  return o.literalMap(Object.getOwnPropertyNames(map).map(key => {\n    // canonical syntax: `dirProp: publicProp`\n    // if there is no ``, use dirProp = elProp\n    const value = map[key];\n    let declaredName: string;\n\n    let publicName: string;\n    let minifiedName: string;\n    if (Array.isArray(value)) {\n      [publicName, declaredName] = value;\n    } else {\n      [declaredName, publicName] = splitAtColon(key, [key, value]);\n    }\n    minifiedName = declaredName;\n    return {\n      key: minifiedName,\n      // put quotes around keys that contain potentially unsafe characters\n      quoted: UNSAFE_OBJECT_KEY_NAME_REGEX.test(minifiedName),\n      value: (keepDeclared && publicName !== declaredName) ?\n        o.literalArr([asLiteral(publicName), asLiteral(declaredName)]) :\n        asLiteral(publicName);\n    };\n  });\n}\n\n/**\n * Remove trailing null nodes as they are implied.\n */\nexport function trimTrailingNulls(parameters: o.Expression[]): o.Expression[] {\n  while (o.isNull(parameters[parameters.length - 1])) {\n    parameters.pop();\n  }\n  return parameters;\n}\n\nexport function getQueryPredicate(\n  query: R3QueryMetadata, constantPool: ConstantPool): o.Expression {\n  if (Array.isArray(query.predicate)) {\n    let predicate: o.Expression[] = [];\n    query.predicate.forEach((selector: string): void => {\n      // Each item in predicates array may contain strings with comma-separated refs\n      // (for ex. 'ref, ref1, ..., refN'), thus we extract individual refs and store them\n      // as separate array entities\n      const selectors = selector.split(',').map(token => o.literal(token.trim()));\n      predicate.push(...selectors);\n    });\n    return constantPool.getConstLiteral(o.literalArr(predicate), true);\n  } else {\n    return query.predicate;\n  }\n}\n\nexport function noop() {} \n\nexport class DefinitionMap {\n  values: {key: string, quoted: boolean, value: o.Expression}[] = [];\n  set(key: string, value: o.Expression | null): void {\n    if (value) {\n      this.values.push({key, value, quoted: false});\n    }\n  }\n  toLiteralMap(): o.LiteralMapExpr {\n    return o.literalMap(this.values);\n  }\n}\n\n/**\n * Extract a map of properties to values for a given element or template node, which can be used\n * by the directive matching machinery.\n */\n@param elOrTpl the element or template in question\n * @return an object set up for directive matching. For attributes on the element/template, this\n * object maps a property name to its (static) value. For any bindings, this map simply maps the\n * property name to an empty string.\n */\nexport function getAttrsForDirectiveMatching(elOrTpl: t.Element | t.Template): {[name: string]: string} {\n  const attributesMap: {[name: string]: string} = {};\n  if (elOrTpl instanceof t.Template && elOrTpl.tagName !== 'ng-template') {\n    elOrTpl.templateAttrs.forEach(a => attributesMap[a.name] = '');\n  } else {\n    elOrTpl.attributes.forEach(a => {\n      if (!isI18nAttribute(a.name)) {\n        attributesMap[a.name] = a.value;\n      }\n    });\n    elOrTpl.inputs.forEach(i => {\n      attributesMap[i.name] = '';\n    });\n    elOrTpl.outputs.forEach(o

```

```
=> {\n    attributesMap[o.name] = ""; \n    });\n }\n\n return attributesMap;\n}\n\n/** Returns a call expression to a chained instruction, e.g. `property(params[0])(params[1])`. */\n\nexport function chainedInstruction(\n    reference: o.ExternalReference, calls: o.Expression[], span?: ParseSourceSpan|null) {\n    let expression = o.importExpr(reference, null, span) as o.Expression;\n\n    if (calls.length > 0) {\n        for (let i = 0; i < calls.length; i++) {\n            expression = expression.callFn(calls[i], span);\n        }\n    } else {\n        // Add a blank invocation, in case the `calls` array is empty.\n        expression = expression.callFn([], span);\n    }\n\n    return expression;\n}\n\n/**\n * Gets the number of arguments expected to be passed to a generated instruction in the case of\n * interpolation instructions.\n *\n * @param interpolation An interpolation ast\n */\n\nexport function getInterpolationArgsLength(interpolation: Interpolation) {\n    const {expressions, strings} = interpolation;\n\n    if (expressions.length === 1 && strings.length === 2 && strings[0] === " && strings[1] === ") {\n        // If the interpolation has one interpolated value, but the prefix and suffix are both empty\n        // strings, we only pass one argument, to a special instruction like `propertyInterpolate` or\n        // `textInterpolate`.\n        return 1;\n    } else {\n        return expressions.length + strings.length;\n    }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {StaticSymbol} from '../aot/static_symbol';\nimport {CompileTypeMetadata, tokenReference} from '../compile_metadata';\nimport {CompileReflector} from '../compile_reflector';\nimport {InjectFlags} from '../core';\nimport {Identifiers} from '../identifiers';\nimport * as o from '../output/output_ast';\nimport {Identifiers as R3} from '../render3/r3_identifiers';\nimport {OutputContext} from '../util';\nimport {R3Reference, typeWithParameters} from '../util';\nimport {unsupported} from '../view/util';\n\n\n\n/**\n * Metadata required by the factory generator to generate a `factory` function for a type.\n *\n * export interface R3ConstructorFactoryMetadata {\n *     /**\n      * String name of the type being generated (used to name the factory function).\n      */\n      * name: string;\n      *\n      * /**\n       * An expression representing the interface type being constructed.\n       */\n      * type: R3Reference;\n      *\n      * /**\n       * An expression representing the constructor type, intended for use within a class definition\n       */\n      * itself:\n      *\n      * This can differ from the outer `type` if the class is being compiled by ngcc and is inside\n      * an IIFE structure that uses a different name internally.\n      */\n      * internalType: o.Expression;\n      *\n      * /** Number of arguments for the `type`.\n      */\n      * typeArgumentCount: number;\n      *\n      * /**\n       * Regardless of whether `fnOrClass` is a constructor function or a user-defined factory, it\n      * may have 0 or more parameters, which will be injected according to the `R3DependencyMetadata`\n      * for those parameters. If this is `null`, then the type's constructor is nonexistent and will\n      * be inherited from `fnOrClass` which is interpreted as the current type. If this is `invalid`,\n      * then one or more of the parameters wasn't resolvable and any attempt to use these deps will\n      * result in a runtime error.\n      */\n      * deps: R3DependencyMetadata[]|'invalid'|null;\n      *\n      * /**\n       * An expression for the function which will be used to inject dependencies. The API of this\n      * function could be different, and other options control how it will be invoked.\n      */\n      * injectFn: o.ExternalReference;\n      *\n      * /**\n       * Type of the target being created by the factory.\n      */\n      * target: R3FactoryTarget;\n    }\n\n    export enum R3FactoryDelegateType {\n        Class,\n        Function,\n    }\n\n    export interface R3DelegatedFactoryMetadata extends R3ConstructorFactoryMetadata {\n        delegate: o.Expression;\n        delegateType: R3FactoryDelegateType.Factory;\n    }\n\n    export interface R3DelegatedFnOrClassMetadata extends R3ConstructorFactoryMetadata {\n        delegate: o.Expression;\n        delegateType: R3FactoryDelegateType.Class|R3FactoryDelegateType.Function;\n        delegateDeps: R3DependencyMetadata[];\n    }\n\n    export interface R3ExpressionFactoryMetadata extends R3ConstructorFactoryMetadata {\n        expression: o.Expression;\n    }\n\n    export type R3FactoryMetadata = R3ConstructorFactoryMetadata|R3DelegatedFactoryMetadata|\n    R3DelegatedFnOrClassMetadata|R3ExpressionFactoryMetadata;\n\n    export enum R3FactoryTarget {\n        Directive = 0,\n        Component = 1,\n        Injectable = 2,\n        Pipe = 3,\n        NgModule = 4,\n    }\n\n\n    /**\n     * Resolved type of a dependency.\n     *\n     * Occasionally, dependencies will have special significance which is known statically. In that\n     * case the `R3ResolvedDependencyType` informs the factory generator that a particular dependency\n     * should be generated
```

specially (usually by calling a special injection function instead of the\n * standard one).\n * ^\nexport enum R3ResolvedDependencyType {\n /**\n * A normal token dependency.\n * ^\n Token = 0,\n /**\n * The dependency is for an attribute.\n * ^\n * The token expression is a string representing the attribute name.\n * ^\n Attribute = 1,\n /**\n * Injecting the `ChangeDetectorRef` token. Needs special handling when injected into a pipe.\n * ^\n ChangeDetectorRef = 2,\n /**\n * An invalid dependency (no token could be determined). An error should be thrown at runtime.\n * ^\n Invalid = 3,\n /**\n * Metadata representing a single dependency to be injected into a constructor or function call.\n * ^\nexport interface R3DependencyMetadata {\n /**\n * An expression representing the token or value to be injected.\n * ^\n token: o.Expression;\n /**\n * If an @Attribute decorator is present, this is the literal type of the attribute name, or\n * the unknown type if no literal type is available (e.g. the attribute name is an expression).\n * Will be null otherwise.\n * ^\n attribute: o.Expression|null;\n /**\n * An enum indicating whether this dependency has special meaning to Angular and needs to be\n * injected specially.\n * ^\n resolved: R3ResolvedDependencyType;\n /**\n * Whether the dependency has an @Host qualifier.\n * ^\n host: boolean;\n /**\n * Whether the dependency has an @Optional qualifier.\n * ^\n optional: boolean;\n /**\n * Whether the dependency has an @Self qualifier.\n * ^\n self: boolean;\n /**\n * Whether the dependency has an @SkipSelf qualifier.\n * ^\n skipSelf: boolean;\n }\n\nexport interface R3FactoryFn {\n factory: o.Expression;\n statements: o.Statement[];\n type: o.ExpressionType;\n }\n\n/**\n * Construct a factory function expression for the given `R3FactoryMetadata`.\n * ^\nexport function compileFactoryFunction(meta: R3FactoryMetadata): R3FactoryFn {\n const t = o.variable('t');\n const statements: o.Statement[] = [];\n let ctorDepsType: o.Type = o.NONE_TYPE;\n\n // The type to instantiate via constructor invocation. If there is no delegated factory, meaning\n // this type is always created by constructor invocation, then this is the type-to-create\n // parameter provided by the user (t) if specified, or the current type if not. If there is a\n // delegated factory (which is used to create the current type) then this is only the type-to-\n // create parameter (t).\n const typeForCtor = !isDelegatedMetadata(meta) ?\n new o.BinaryOperatorExpr(o.BinaryOperator.Or, t, meta.internalType) :\n t;\n let ctorExpr: o.Expression|null = null;\n if (meta.deps !== null) {\n // There is a constructor (either explicitly or implicitly defined).\n if (meta.deps !== 'invalid') {\n ctorExpr = new o.InstantiateExpr(\n typeForCtor,\n injectDependencies(meta.deps, meta.injectFn, meta.target === R3FactoryTarget.Pipe));\n\n ctorDepsType = createCtorDepsType(meta.deps);\n }\n } else {\n const baseFactory = o.variable(`\${meta.name}_BaseFactory`);\n const getInheritedFactory = o.importExpr(R3.getInheritedFactory);\n const baseFactoryStmt =\n baseFactory\n .set(getInheritedFactory.callFn([\n [meta.internalType], /* sourceSpan */ undefined, /* pure */ true]))\n .toDeclStmt(o.INFERRED_TYPE, [o.StmtModifier.Exported, o.StmtModifier.Final]);\n statements.push(baseFactoryStmt);\n\n // There is no constructor, use the base class' factory to construct typeForCtor.\n ctorExpr = baseFactory.callFn([typeForCtor]);\n }\n const ctorExprFinal = ctorExpr;\n const body: o.Statement[] = [];\n let retExpr: o.Expression|null = null;\n function makeConditionalFactory(nonCtorExpr: o.Expression):\n o.ReadVarExpr {\n const r = o.variable('r');\n body.push(r.set(o.NULL_EXPR).toDeclStmt());\n let ctorStmt: o.Statement|null = null;\n\n if (ctorExprFinal !== null) {\n ctorStmt = r.set(ctorExprFinal).toStmt();\n } else {\n ctorStmt = o.importExpr(R3.invalidFactory).callFn([]).toStmt();\n }\n body.push(o.ifStmt(t, [ctorStmt], [r.set(nonCtorExpr).toStmt()]));\n return r;\n }\n\n if (isDelegatedMetadata(meta) && meta.delegateType === R3FactoryDelegateType.Factory) {\n const delegateFactory = o.variable(`\${meta.name}_BaseFactory`);\n const getFactoryOf = o.importExpr(R3.getFactoryOf);\n if (meta.delegate.isEquivalent(meta.internalType)) {\n throw new Error('Illegal state: compiling factory that delegates to itself');\n }\n const delegateFactoryStmt =\n delegateFactory.set(getFactoryOf.callFn([meta.delegate])).toDeclStmt(o.INFERRED_TYPE, [\n o.StmtModifier.Exported, o.StmtModifier.Final\n]);\n statements.push(delegateFactoryStmt);\n retExpr = makeConditionalFactory(delegateFactory.callFn([]));\n } else if (isDelegatedMetadata(meta)) {\n // This type is created with a delegated factory. If a type parameter is not specified, call\n // the factory instead.\n const delegateArgs =\n injectDependencies(meta.delegateDeps, meta.injectFn, meta.target ===

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R3FactoryTarget.Pipe);\n // Either call `new delegate(...)` or `delegate(...)` depending on meta.delegateType.\n
const factoryExpr = new (\n    meta.delegateType === R3FactoryDelegateType.Class ?\n        o.InstantiateExpr\n    :\n        o.InvokeFunctionExpr)(meta.delegate, delegateArgs);\n    retExpr =\n    makeConditionalFactory(factoryExpr);\n } else if (isExpressionFactoryMetadata(meta)) {\n    // TODO(alxhub):\n    decide whether to lower the value here or in the caller\n    retExpr = makeConditionalFactory(meta.expression);\n } else {\n    retExpr = ctorExpr;\n }\n\n if (retExpr !== null) {\n    body.push(new o.ReturnStatement(retExpr));\n }\n else {\n    body.push(o.importExpr(R3.invalidFactory).callFn([]).toStmt());\n }\n\n return {\n    factory: o.fn(\n        [new o.FnParam('t', o.DYNAMIC_TYPE)], body, o.INFERRED_TYPE, undefined,\n        `${meta.name}_Factory`),\n    statements,\n    type: o.expressionType(o.importExpr(\n        R3.FactoryDef,\n        [typeWithParameters(meta.type.type, meta.typeArgumentCount), ctorDepsType]))\n    );\n }\n\n\nfunction\ninjectDependencies(\n    deps: R3DependencyMetadata[], injectFn: o.ExternalReference, isPipe: boolean):\n    o.Expression[] {\n    return deps.map((dep, index) => compileInjectDependency(dep, injectFn, isPipe,\n    index));\n }\n\nfunction compileInjectDependency(\n    dep: R3DependencyMetadata, injectFn: o.ExternalReference,\n    isPipe: boolean,\n    index: number): o.Expression {\n    // Interpret the dependency according to its resolved type.\n    switch (dep.resolved) {\n        case R3ResolvedDependencyType.Token:\n            case\n            R3ResolvedDependencyType.ChangeDetectorRef:\n                // Build up the injection flags according to the metadata.\n                const flags = InjectFlags.Default | (dep.self ? InjectFlags.Self : 0) |\n                    (dep.skipSelf ? InjectFlags.SkipSelf : 0) | (dep.host ? InjectFlags.Host : 0) |\n                    (dep.optional ?\n                    InjectFlags.Optional : 0);\n                // If this dependency is optional or otherwise has non-default flags, then\n                additional\n                // parameters describing how to inject the dependency must be passed to the inject function\n                // that's being used.\n                let flagsParam: o.LiteralExpr|null =\n                    (flags !== InjectFlags.Default || dep.optional) ?\n                    o.literal(flags) : null;\n                // We have a separate instruction for injecting ChangeDetectorRef into a pipe.\n                if\n                (isPipe && dep.resolved === R3ResolvedDependencyType.ChangeDetectorRef) {\n                    return\n                    o.importExpr(R3.injectPipeChangeDetectorRef).callFn(flagsParam ? [flagsParam] : []);\n                }\n                // Build up the\n                arguments to the injectFn call.\n                const injectArgs = [dep.token];\n                if (flagsParam) {\n                    injectArgs.push(flagsParam);\n                }\n                return o.importExpr(injectFn).callFn(injectArgs);\n            \n            case R3ResolvedDependencyType.Attribute:\n                // In the case of attributes, the attribute name in question is\n                given as the token.\n                return o.importExpr(R3.injectAttribute).callFn([dep.token]);\n            \n            case\n            R3ResolvedDependencyType.Invalid:\n                return o.importExpr(R3.invalidFactoryDep).callFn([o.literal(index)]);\n            \n            default:\n                return unsupported(\n                    `Unknown R3ResolvedDependencyType:\n                    ${R3ResolvedDependencyType[dep.resolved]}`);\n    }\n }\n\n\nfunction createCtorDepsType(deps:\n    R3DependencyMetadata[]): o.Type {\n    let hasTypes = false;\n    const attributeTypes = deps.map(dep => {\n        const\n        type = createCtorDepType(dep);\n        if (type !== null) {\n            hasTypes = true;\n            return type;\n        } else {\n            return o.literal(null);\n        }\n    });\n    if (hasTypes) {\n        return o.expressionType(o.literalArr(attributeTypes));\n    }\n    else {\n        return o.NONE_TYPE;\n    }\n }\n\n\nfunction createCtorDepType(dep: R3DependencyMetadata):\n    o.LiteralMapExpr|null {\n    const entries:\n        {key: string, quoted: boolean, value: o.Expression}[] = [];\n    if (dep.resolved ===\n        R3ResolvedDependencyType.Attribute) {\n        if (dep.attribute !== null) {\n            entries.push({key: 'attribute', value:\n            dep.attribute, quoted: false});\n        }\n    }\n    if (dep.optional) {\n        entries.push({key: 'optional', value: o.literal(true),\n        quoted: false});\n    }\n    if (dep.host) {\n        entries.push({key: 'host', value: o.literal(true), quoted: false});\n    }\n    if\n    (dep.self) {\n        entries.push({key: 'self', value: o.literal(true), quoted: false});\n    }\n    if (dep.skipSelf) {\n        entries.push({key: 'skipSelf', value: o.literal(true), quoted: false});\n    }\n    return entries.length > 0 ?\n        o.literalMap(entries) : null;\n }\n\n\n/**\n * A helper function useful for extracting `R3DependencyMetadata` from a\n    Render2\n * `CompileTypeMetadata` instance.\n */\n\nexport function dependenciesFromGlobalMetadata(\n    type:\n    CompileTypeMetadata, outputCtx: OutputContext,\n    reflector: CompileReflector): R3DependencyMetadata[]\n {\n    // Use the `CompileReflector` to look up references to some well-known Angular types. These will\n    // be\n    compared with the token to statically determine whether the token has significance to\n    // Angular, and set the\n    correct `R3ResolvedDependencyType` as a result.\n    const injectorRef =

```



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reflector.resolveExternalReference(Identifiers.Injector);\n\n // Iterate through the type's DI dependencies and
produce `R3DependencyMetadata` for each of them.\n const deps: R3DependencyMetadata[] = [];\n for (let
dependency of type.diDeps) {\n   if (dependency.token) {\n     const tokenRef =
tokenReference(dependency.token);\n     let resolved: R3ResolvedDependencyType = dependency.isAttribute ?\n       R3ResolvedDependencyType.Attribute :\n       R3ResolvedDependencyType.Token;\n\n     // In the case of
most dependencies, the token will be a reference to a type. Sometimes,\n     // however, it can be a string, in the case
of older Angular code or @Attribute injection.\n\n     const token =\n       tokenRef instanceof StaticSymbol ? outputCtx.importExpr(tokenRef) :
o.literal(tokenRef);\n\n     // Construct the dependency.\n     deps.push({\n       token,\n       attribute: null,\n
resolved,\n       host: !!dependency.isHost,\n       optional: !!dependency.isOptional,\n       self:
!!dependency.isSelf,\n       skipSelf: !!dependency.isSkipSelf,\n     });\n   } else {\n     unsupported('dependency
without a token');\n   }\n }\n\n return deps;\n}\n\nfunction isDelegatedMetadata(meta: R3FactoryMetadata): meta
is R3DelegatedFactoryMetadata|\n  R3DelegatedFnOrClassMetadata {\n  return (meta as any).delegateType !==
undefined;\n}\n\nfunction isExpressionFactoryMetadata(meta: R3FactoryMetadata): meta is
R3ExpressionFactoryMetadata {\n  return (meta as any).expression !== undefined;\n}\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { Identifiers } from './identifiers';\nimport *
as o from './output/output_ast';\nimport { compileFactoryFunction, R3DependencyMetadata,
R3FactoryDelegateType, R3FactoryMetadata, R3FactoryTarget } from './render3/r3_factory';\nimport
{ mapToMapExpression, R3Reference, typeWithParameters } from './render3/util';\n\nexport interface InjectableDef
{\n  expression: o.Expression;\n  type: o.Type;\n  statements: o.Statement[];\n}\n\nexport interface
R3InjectableMetadata {\n  name: string;\n  type: R3Reference;\n  internalType: o.Expression;\n  typeArgumentCount: number;\n  providedIn: o.Expression;\n  useClass?: o.Expression;\n  useFactory?:
o.Expression;\n  useExisting?: o.Expression;\n  useValue?: o.Expression;\n  userDeps?:
R3DependencyMetadata[];\n}\n\nexport function compileInjectable(meta: R3InjectableMetadata): InjectableDef {\n
let result: { factory: o.Expression, statements: o.Statement[] } | null = null;\n\n const
factoryMeta: R3FactoryMetadata = {\n  name: meta.name,\n  type: meta.type,\n  internalType:
meta.internalType,\n  typeArgumentCount: meta.typeArgumentCount,\n  deps: [],\n  injectFn:
Identifiers.inject,\n  target: R3FactoryTarget.Injectable,\n }; \n\n if (meta.useClass !== undefined) {\n //
meta.useClass has two modes of operation. Either deps are specified, in which case `new` is\n // used to instantiate
the class with dependencies injected, or deps are not specified and\n // the factory of the class is used to instantiate
it.\n //\n // A special case exists for useClass: Type where Type is the injectable type itself and no\n // deps are
specified, in which case 'useClass' is effectively ignored.\n\n const useClassOnSelf =
meta.useClass.isEquivalent(meta.internalType);\n let deps: R3DependencyMetadata[] | undefined = undefined;\n
if (meta.userDeps !== undefined) {\n   deps = meta.userDeps;\n } \n\n if (deps !== undefined) {\n // factory:
()\n => new meta.useClass(...deps)\n   result = compileFactoryFunction({\n     ...factoryMeta,\n     delegate:
meta.useClass,\n     delegateDeps: deps,\n     delegateType: R3FactoryDelegateType.Class,\n   });\n } else if
(useClassOnSelf) {\n   result = compileFactoryFunction(factoryMeta);\n } else {\n   result =
delegateToFactory(\n     meta.type.value as o.WrappedNodeExpr<any>, meta.useClass as
o.WrappedNodeExpr<any>);\n   }\n } else if (meta.useFactory !== undefined) {\n   if (meta.userDeps !==
undefined) {\n     result = compileFactoryFunction({\n       ...factoryMeta,\n       delegate: meta.useFactory,\n
delegateDeps: meta.userDeps || [],\n       delegateType: R3FactoryDelegateType.Function,\n     });\n   } else {\n
result = {\n     statements: [],\n     factory: o.fn([], [new o.ReturnStatement(meta.useFactory.callFn([]))])\n   };\n } \n } else if (meta.useValue !== undefined) {\n // Note: it's safe to use
`meta.useValue` instead of the `USE_VALUE` in meta` check used for\n // client code because meta.useValue is
an Expression which will be defined even if the actual\n // value is undefined.\n   result =
compileFactoryFunction({\n     ...factoryMeta,\n     expression: meta.useValue,\n   });\n } else if (meta.useExisting

```

```

!= undefined) {\n    // useExisting is an `inject` call on the existing token.\n    result = compileFactoryFunction({\n      ...factoryMeta,\n      expression: o.importExpr(Identifiers.inject).callFn([meta.useExisting]),\n    });\n  } else {\n    result = delegateToFactory(\n      meta.type.value as o.WrappedNodeExpr<any>, meta.internalType as\n      o.WrappedNodeExpr<any>);\n  }\n  \n  const token = meta.internalType;\n  \n  const injectableProps: {[key: string]:\n    o.Expression} = {token, factory: result.factory};\n  \n  // Only generate providedIn property if it has a non-null\n  value\n  if ((meta.providedIn as o.LiteralExpr).value !== null) {\n    injectableProps.providedIn\n    = meta.providedIn;\n  }\n  \n  const expression =\n    o.importExpr(Identifiers.defineInjectable).callFn([mapToMapExpression(injectableProps)]);\n  \n  const type = new\n    o.ExpressionType(o.importExpr(\n      Identifiers.InjectableDef, [typeWithParameters(meta.type.type,\n      meta.typeArgumentCount)]));\n  \n  return {\n    expression,\n    type,\n    statements: result.statements,\n  };\n}\n\nfunction delegateToFactory(type: o.WrappedNodeExpr<any>, internalType: o.WrappedNodeExpr<any>)\n{\n  return {\n    statements: [],\n    // If types are the same, we can generate `factory: type.fac`\n    // If types are\n    different, we have to generate a wrapper function to ensure\n    // the internal type has been resolved (`factory:\n    function(t) { return type.fac(t); }`)\n    factory: type.node === internalType.node ?\n      internalType.prop('fac') :\n      o.fn([new o.FnParam('t', o.DYNAMIC_TYPE)], [new o.ReturnStatement(internalType.callMethod(\n
```

```
'fac', [o.variable('t'))]))\n  }\n\n  /*\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at
```

```
https://angular.io/license\n * \n\nexport function assertArrayOfStrings(identifier: string, value: any) {\n  if (value ==\nnull) {\n    return;\n  }\n  if (!Array.isArray(value)) {\n    throw new Error(`Expected '${identifier}' to be an array of\nstrings.`);\n  }\n  for (let i = 0; i < value.length; i += 1) {\n    if (typeof value[i] !== 'string') {\n      throw new\nError(`Expected '${identifier}' to be an array of strings.`);\n    }\n  }\n}\n\nconst
```

```
UNUSABLE_INTERPOLATION_REGEXPS = [\n /^s*$/,      // empty\n /(<>)/,      // html tag\n /^{ }$/,  
// i18n expansion\n /&(#[a-z])/i, // character reference,\n /^\\|\\|/,      // comment\n];\n\nexport function
```

```
assertInterpolationSymbols(identifier: string, value: any): void {\n  if (value != null && !(Array.isArray(value) && value.length == 2)) {\n    throw new Error(`Expected '${identifier}' to be an array, [start, end].`);\n  } else if (value != null) {\n    const start = value[0] as string;\n    const end = value[1] as string;\n    // Check for unusable interpolation symbols\n    UNUSABLE_INTERPOLATION_REGEXPS.forEach(regex => {\n      if (regex.test(start) || regex.test(end)) {\n        throw new Error(`['${start}', '${end}'] contains unusable interpolation symbol.`);\n      }\n    });\n  }\n},\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use
```

of this source code is governed by an MIT-style license that can be found in the LICENSE file at

```
https://angular.io/license\n *\n\nimport { assertInterpolationSymbols } from '../assertions';\n\nexport class
```

```
InterpolationConfig {\n  static fromArray(markers: [string, string]|null): InterpolationConfig {\n    if (!markers) {\n      return DEFAULT_INTERPOLATION_CONFIG;\n    }\n    assertInterpolationSymbols('interpolation',
```

```
markers);\n    return new InterpolationConfig(markers[0], markers[1]);\n  }\n\n  constructor(public start: string,\n    public end: string) {}\n\n  export const DEFAULT_INTERPOLATION_CONFIG: InterpolationConfig =\n    new InterpolationConfig('{}', '{}');\n\n  /**\n   * @license\n   * Copyright Google LLC All Rights Reserved.\n   * Use of
```

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```
https://angular.io/license\n *^\n\nimport { utf8Encode } from '../util';\n\n//
```

https://docs.google.com/document/d/1U1RGAehQwRypUTovF1KRlpiOFze0b-_2gc6fAH0KY0k/edit\nconst

```
VERSION = 3;\n\nconst JS_B64_PREFIX = '# sourceMappingURL=data:application/json;base64,';\n\ntype
```

```
Segment = {\n col0: number,\n sourceUrl?: string,\n sourceLine0?: number,\n sourceCol0?:
```

```
number,\n};\n\nexport type SourceMap = {\n  version: number,\n  file?: string,\n  sourceRoot: string,\n
```

```
sources: string[],\n    sourcesContent: (string|null)[],\n    mappings: string,\n    \n    exportNames: string[],\n    exports: string[],\n    imports: string[],\n    importAttributes: string[]
```

```
class SourceMapGenerator {\n  private sourcesContent: Map<string, string|null> = new Map();\n  private lines:
```

```
Segment[][] = {};\n private lastCol0: number = 0;\n private hasMappings = false;\n\n constructor(private file:
```

```
string|null = null) { } \n \n // The content is `null` when the content is expected to be loaded using the URL \n
```

```
addSource(url: string, content: string|null = null): this {\n    if (!this.sourcesContent.has(url)) {\n
```

```
this.sourcesContent.set(url, content);\n }\n return this;\n}\n\n addLine(): this {\n this.lines.push([]);\n this.lastCol0 = 0;\n return this;\n }\n\n addMapping(col0: number, sourceUrl?: string, sourceLine0?: number,\n sourceCol0?: number): this {\n if (!this.currentLine) {\n throw new Error(`A line must be added before mappings can be added`);\n }\n if (sourceUrl != null && !this.sourcesContent.has(sourceUrl)) {\n throw new Error(`Unknown source file \"${sourceUrl}\"`);\n }\n if (col0 == null)\n {\n throw new Error(`The column in the generated code must be provided`);\n }\n if (col0 < this.lastCol0)\n {\n throw new Error(`Mapping should be added in output order`);\n }\n if (sourceUrl && (sourceLine0 ==\n null || sourceCol0 == null)) {\n throw new Error(`The source location must be provided when a source url is provided`);\n }\n\n this.hasMappings = true;\n this.lastCol0 = col0;\n this.currentLine.push({col0, sourceUrl,\n sourceLine0, sourceCol0});\n return this;\n }\n\n /**\n * @internal strip this from published d.ts files due to\n * https://github.com/microsoft/TypeScript/issues/36216\n */\n private get currentLine(): Segment[] | null {\n return this.lines.slice(-1)[0];\n }\n\n toJSON(): SourceMap | null {\n if (!this.hasMappings) {\n return null;\n }\n\n const sourcesIndex = new Map<string, number>();\n const sources: string[] = [];\n const sourcesContent:\n (string | null)[] = [];\n\n Array.from(this.sourcesContent.keys()).forEach((url:\n string, i: number) => {\n sourcesIndex.set(url, i);\n sources.push(url);\n\n sourcesContent.push(this.sourcesContent.get(url) || null);\n });\n\n let mappings: string = '';\n let lastCol0:\n number = 0;\n let lastSourceIndex: number = 0;\n let lastSourceLine0: number = 0;\n let lastSourceCol0:\n number = 0;\n\n this.lines.forEach(segments => {\n lastCol0 = 0;\n mappings += segments\n .map(segment => {\n // zero-based starting column of the line in the generated code\n let segAsStr = toBase64VLQ(segment.col0 - lastCol0);\n lastCol0 = segment.col0;\n\n if (segment.sourceUrl != null) {\n // zero-based index into the “sources” list\n segAsStr +=\n toBase64VLQ(sourcesIndex.get(segment.sourceUrl)! - lastSourceIndex);\n lastSourceIndex = sourcesIndex.get(segment.sourceUrl)!;\n // the zero-based starting line\n in the original source\n segAsStr += toBase64VLQ(segment.sourceLine0! - lastSourceLine0);\n lastSourceLine0 = segment.sourceLine0!;\n // the zero-based starting column in the\n original source\n segAsStr += toBase64VLQ(segment.sourceCol0! - lastSourceCol0);\n lastSourceCol0 = segment.sourceCol0!;\n }\n\n return segAsStr;\n })\n .join(',');\n mappings += ';'\n });\n\n mappings = mappings.slice(0, -1);\n\n return {\n 'file':\n this.file || '',\n 'version': VERSION,\n 'sourceRoot': '',\n 'sources': sources,\n 'sourcesContent':\n sourcesContent,\n 'mappings': mappings,\n };\n }\n\n toJsonComment(): string {\n return this.hasMappings ? `/' + JS_B64_PREFIX + toBase64String(JSON.stringify(this, null, 0)) :\n '';\n }\n\n\n export function toBase64String(value: string): string {\n let b64 = '';\n const encoded =\n utf8Encode(value);\n for (let i = 0; i < encoded.length;) {\n const i1 = encoded[i++];\n const i2 = i <\n encoded.length ? encoded[i++] : null;\n const i3 = i < encoded.length ? encoded[i++] : null;\n b64 +=\n toBase64Digit(i1 >> 2);\n b64 += toBase64Digit(((i1 & 3) << 4) | (i2 === null ? 0 : i2 >> 4));\n b64 += i2 ===\n null ? '=' : toBase64Digit(((i2 & 15) << 2) | (i3 === null ? 0 : i3 >> 6));\n b64 += i2 === null || i3 === null ? '=' :\n toBase64Digit(i3 & 63);\n }\n\n return b64;\n }\n\n function toBase64VLQ(value: number): string {\n value =\n value < 0 ? ((-value) << 1) + 1 : value << 1;\n\n let out = '';\n do {\n let digit = value & 31;\n value = value >>\n 5;\n if (value > 0) {\n digit = digit | 32;\n }\n out +=\n toBase64Digit(digit);\n } while (value > 0);\n\n return out;\n }\n\n\n const B64_DIGITS =\n 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/';\n\n function\n toBase64Digit(value: number): string {\n if (value < 0 || value >= 64) {\n throw new Error(`Can only encode\n value in the range [0, 63]`);\n }\n\n return B64_DIGITS[value];\n }\n\n\n ,"/**\n * @license\n * Copyright Google\n LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found\n in the LICENSE file at https://angular.io/license\n */\n import {ParseSourceSpan} from '../parse_util';\n import * as\n o from './output_ast';\n import {SourceMapGenerator} from './source_map';\n\n const\n _SINGLE_QUOTE_ESCAPE_STRING_RE = /'\\\\\\\\\\|\\\\r\\\\\\\\$\\/g;\n const _LEGAL_IDENTIFIER_RE = /^[$_A-Z][0-\n 9A-Z_$]*$/i;\n\n const _INDENT_WITH = '\t';\n\n export const CATCH_ERROR_VAR = o.variable('error', null,
```

```

null);\nexport const CATCH_STACK_VAR = o.variable('stack', null, null);\n\nexport interface OutputEmitter
{\n  emitStatements(genFilePath: string, stmts: o.Statement[], preamble?: string|null): string;\n}\n\nnclass
_EmittedLine {\n  partsLength = 0;\n  parts: string[] = [];\n  srcSpans: (ParseSourceSpan|null)[] = [];\n
constructor(public indent: number) {\n}\n}\n\nexport class EmitterVisitorContext {\n  static createRoot():
EmitterVisitorContext {\n    return new EmitterVisitorContext(0);\n  }\n  private _lines: _EmittedLine[];\n  private
_classes: o.ClassStmt[] = [];\n  private _preambleLineCount = 0;\n  constructor(private _indent: number) {\n
this._lines = [new _EmittedLine(_indent)];\n  }\n  /**\n   * @internal strip this from published d.ts files due to\n
* https://github.com/microsoft/TypeScript/issues/36216\n   */\n  private get _currentLine(): _EmittedLine {\n
return this._lines[this._lines.length - 1];\n  }\n  println(from?: { sourceSpan: ParseSourceSpan|null}|null, lastPart:
string = ""): void {\n    this.print(from || null, lastPart, true);\n  }\n  lineIsEmpty():
boolean {\n    return this._currentLine.parts.length === 0;\n  }\n  lineLength(): number {\n    return
this._currentLine.indent * _INDENT_WITH.length + this._currentLine.partsLength;\n  }\n  print(from:
{ sourceSpan: ParseSourceSpan|null}|null, part: string, newLine: boolean = false) {\n    if (part.length > 0) {\n
this._currentLine.parts.push(part);\n    this._currentLine.partsLength += part.length;\n
this._currentLine.srcSpans.push(from && from.sourceSpan || null);\n    }\n    if (newLine) {\n
this._lines.push(new _EmittedLine(this._indent));\n    }\n  }\n  removeEmptyLastLine() {\n    if
(this.lineIsEmpty()) {\n      this._lines.pop();\n    }\n  }\n  incIndent() {\n    this._indent++;\n  }\n
if (this.lineIsEmpty()) {\n    this._currentLine.indent = this._indent;\n  }\n  decIndent() {\n    this._indent--;\n
if (this.lineIsEmpty()) {\n    this._currentLine.indent = this._indent;\n  }\n  }\n  pushClass(clazz: o.ClassStmt)
{\n    this._classes.push(clazz);\n
  }\n  popClass(): o.ClassStmt {\n    return this._classes.pop()!;\n  }\n  get currentClass(): o.ClassStmt|null {\n
return this._classes.length > 0 ? this._classes[this._classes.length - 1] : null;\n  }\n  toSource(): string {\n
return this.sourceLines\n    .map(l => l.parts.length > 0 ? _createIndent(l.indent) + l.parts.join("") : "")\n    .join("\n");\n
  }\n  toSourceMapGenerator(genFilePath: string, startsAtLine: number = 0): SourceMapGenerator {\n    const map
= new SourceMapGenerator(genFilePath);\n    let firstOffsetMapped = false;\n    const mapFirstOffsetIfNeeded =
() => {\n      if (!firstOffsetMapped) {\n        // Add a single space so that tools won't try to load the file from disk.\n
        // Note: We are using virtual urls like `ng://`, so we have to\n        // provide a content here.\n
map.addSource(genFilePath, ' ').addMapping(0, genFilePath, 0, 0);\n        firstOffsetMapped = true;\n      }\n    };\n
for (let
i = 0; i < startsAtLine; i++) {\n      map.addLine();\n      mapFirstOffsetIfNeeded();\n    }\n    this.sourceLines.forEach((line, lineIdx) => {\n      map.addLine();\n      const spans = line.srcSpans;\n      const
parts = line.parts;\n      let col0 = line.indent * _INDENT_WITH.length;\n      let spanIdx = 0;\n      // skip leading
parts without source spans\n      while (spanIdx < spans.length && !spans[spanIdx]) {\n        col0 +=
parts[spanIdx].length;\n        spanIdx++;\n      }\n      if (spanIdx < spans.length && lineIdx === 0 && col0 === 0)
{\n        firstOffsetMapped = true;\n      } else {\n        mapFirstOffsetIfNeeded();\n      }\n      while (spanIdx <
spans.length) {\n        const span = spans[spanIdx]!;\n        const source = span.start.file;\n        const sourceLine =
span.start.line;\n        const sourceCol = span.start.col;\n        map.addSource(source.url, source.content)\n
.addMapping(col0, source.url, sourceLine, sourceCol);\n
        col0 += parts[spanIdx].length;\n        spanIdx++;\n      }\n      // assign parts without span or the same span to the
previous segment\n      while (spanIdx < spans.length && (span === spans[spanIdx] || !spans[spanIdx])) {\n
        col0 += parts[spanIdx].length;\n        spanIdx++;\n      }\n    });\n    return map;\n  }\n  setPreambleLineCount(count: number) {\n    return this._preambleLineCount = count;\n  }\n  spanOf(line:
number, column: number): ParseSourceSpan|null {\n    const emittedLine = this._lines[line -
this._preambleLineCount];\n    if (emittedLine) {\n      let columnsLeft = column -
_createIndent(emittedLine.indent).length;\n      for (let partIndex = 0; partIndex < emittedLine.parts.length;
partIndex++) {\n        const part = emittedLine.parts[partIndex];\n        if (part.length > columnsLeft) {\n          return
emittedLine.srcSpans[partIndex];\n        }\n        columnsLeft -= part.length;\n      }\n    }\n    return null;\n  }\n}
/**\n * @internal

```

```

strip this from published d.ts files due to\n * https://github.com/microsoft/TypeScript/issues/36216\n */\n private
get sourceLines(): _EmittedLine[] {\n if (this._lines.length && this._lines[this._lines.length - 1].parts.length ===
0) {\n return this._lines.slice(0, -1);\n }\n return this._lines;\n }\n}\n\nexport abstract class
AbstractEmitterVisitor implements o.StatementVisitor, o.ExpressionVisitor {\n constructor(private
_escapeDollarInStrings: boolean) {\n\n protected printLeadingComments(stmt: o.Statement, ctx:
EmitterVisitorContext): void {\n if (stmt.leadingComments === undefined) {\n return;\n }\n for (const
comment of stmt.leadingComments) {\n if (comment instanceof o.JSDocComment) {\n ctx.print(stmt,
`/*${comment.toString()}*/`, comment.trailingNewline);\n } else {\n if (comment.multiline) {\n
ctx.print(stmt, `/* ${comment.text} */`, comment.trailingNewline);\n } else {\n
comment.text.split(`\n`).forEach((line)
=> {\n ctx.println(stmt, `// ${line}`);\n });\n }\n }\n }\n }\n\n visitExpressionStmt(stmt:
o.ExpressionStatement, ctx: EmitterVisitorContext): any {\n this.printLeadingComments(stmt, ctx);\n
stmt.expr.visitExpression(this, ctx);\n ctx.println(stmt, `);\n return null;\n }\n\n visitReturnStmt(stmt:
o.ReturnStatement, ctx: EmitterVisitorContext): any {\n this.printLeadingComments(stmt, ctx);\n ctx.print(stmt,
`return `);\n stmt.value.visitExpression(this, ctx);\n ctx.println(stmt, `);\n return null;\n }\n\n abstract
visitCastExpr(ast: o.CastExpr, context: any): any;\n\n abstract visitDeclareClassStmt(stmt: o.ClassStmt, ctx:
EmitterVisitorContext): any;\n\n visitIfStmt(stmt: o.IfStmt, ctx: EmitterVisitorContext): any {\n
this.printLeadingComments(stmt, ctx);\n ctx.print(stmt, `if (`);\n stmt.condition.visitExpression(this, ctx);\n
ctx.print(stmt, `)`);\n const hasElseCase
= stmt.falseCase != null && stmt.falseCase.length > 0;\n if (stmt.trueCase.length <= 1 && !hasElseCase) {\n
ctx.print(stmt, `);\n this.visitAllStatements(stmt.trueCase, ctx);\n ctx.removeEmptyLastLine();\n
ctx.print(stmt, `);\n } else {\n ctx.println();\n ctx.incIndent();\n this.visitAllStatements(stmt.trueCase,
ctx);\n ctx.decIndent();\n if (hasElseCase) {\n ctx.println(stmt, ` } else {`);\n ctx.incIndent();\n
this.visitAllStatements(stmt.falseCase, ctx);\n ctx.decIndent();\n }\n }\n ctx.println(stmt, `);\n return
null;\n }\n\n abstract visitTryCatchStmt(stmt: o.TryCatchStmt, ctx: EmitterVisitorContext): any;\n\n
visitThrowStmt(stmt: o.ThrowStmt, ctx: EmitterVisitorContext): any {\n this.printLeadingComments(stmt, ctx);\n
ctx.print(stmt, `throw `);\n stmt.error.visitExpression(this, ctx);\n ctx.println(stmt, `);\n return null;\n }\n\n
abstract visitDeclareVarStmt(stmt:
o.DeclareVarStmt, ctx: EmitterVisitorContext): any;\n\n visitWriteVarExpr(expr: o.WriteVarExpr, ctx:
EmitterVisitorContext): any {\n const lineWasEmpty = ctx.lineIsEmpty();\n if (!lineWasEmpty) {\n
ctx.print(expr, '(');\n }\n ctx.print(expr, `${expr.name} = `);\n expr.value.visitExpression(this, ctx);\n if
(!lineWasEmpty) {\n ctx.print(expr, `);\n }\n return null;\n }\n\n visitWriteKeyExpr(expr: o.WriteKeyExpr,
ctx: EmitterVisitorContext): any {\n const lineWasEmpty = ctx.lineIsEmpty();\n if (!lineWasEmpty) {\n
ctx.print(expr, '(');\n }\n expr.receiver.visitExpression(this, ctx);\n ctx.print(expr, `[`);\n
expr.index.visitExpression(this, ctx);\n ctx.print(expr, `] = `);\n expr.value.visitExpression(this, ctx);\n if
(!lineWasEmpty) {\n ctx.print(expr, `);\n }\n return null;\n }\n\n visitWritePropExpr(expr: o.WritePropExpr,
ctx: EmitterVisitorContext): any {\n const lineWasEmpty = ctx.lineIsEmpty();\n
if (!lineWasEmpty) {\n ctx.print(expr, '(');\n }\n expr.receiver.visitExpression(this, ctx);\n ctx.print(expr,
`${expr.name} = `);\n expr.value.visitExpression(this, ctx);\n if (!lineWasEmpty) {\n ctx.print(expr, `);\n
}\n return null;\n }\n\n visitInvokeMethodExpr(expr: o.InvokeMethodExpr, ctx: EmitterVisitorContext): any {\n
expr.receiver.visitExpression(this, ctx);\n let name = expr.name;\n if (expr.builtin != null) {\n name =
this.getBuiltinMethodName(expr.builtin);\n if (name == null) {\n // some builtins just mean to skip the
call.\n return null;\n }\n }\n ctx.print(expr, `${name}(`);\n this.visitAllExpressions(expr.args, ctx,
`,`);\n ctx.print(expr, `);\n return null;\n }\n\n abstract getBuiltinMethodName(method: o.BuiltinMethod):
string;\n\n visitInvokeFunctionExpr(expr: o.InvokeFunctionExpr, ctx: EmitterVisitorContext): any {\n
expr.fn.visitExpression(this, ctx);\n ctx.print(expr,
`(`);\n this.visitAllExpressions(expr.args, ctx,`,`);\n ctx.print(expr, `);\n return null;\n }\n\n
visitWrappedNodeExpr(ast: o.WrappedNodeExpr<any>, ctx: EmitterVisitorContext): any {\n throw new

```

```

Error('Abstract emitter cannot visit WrappedNodeExpr.');
```

`}
 visitTypeofExpr(expr: o.TypeofExpr, ctx:
 EmitterVisitorContext): any {
 \n ctx.print(expr, 'typeof ');
 \n expr.expr.visitExpression(this, ctx);
 \n }
 visitReadVarExpr(ast: o.ReadVarExpr, ctx: EmitterVisitorContext): any {
 \n let varName = ast.name!;
 \n if (ast.builtin != null) {
 \n switch (ast.builtin) {
 \n case o.BuiltinVar.Super:
 \n varName = 'super';
 \n break;
 \n case o.BuiltinVar.This:
 \n varName = 'this';
 \n break;
 \n case o.BuiltinVar.CatchError:
 \n varName = CATCH_ERROR_VAR.name!;
 \n break;
 \n case o.BuiltinVar.CatchStack:
 \n varName = CATCH_STACK_VAR.name!;
 \n break;
 \n default:
 \n throw
 \n new Error(`Unknown builtin variable ${ast.builtin}`);
 \n }
 \n }
 \n ctx.print(ast, varName);
 \n return null;
 \n }
 visitInstantiateExpr(ast: o.InstantiateExpr, ctx: EmitterVisitorContext): any {
 \n ctx.print(ast, `new `);
 \n ast.classExpr.visitExpression(this, ctx);
 \n ctx.print(ast, `(`);
 \n this.visitAllExpressions(ast.args, ctx, ',');
 \n ctx.print(ast, `)`);
 \n return null;
 \n }
 visitLiteralExpr(ast: o.LiteralExpr, ctx: EmitterVisitorContext): any {
 \n const value = ast.value;
 \n if (typeof value === 'string') {
 \n ctx.print(ast, escapeIdentifier(value,
 \n this._escapeDollarInStrings));
 \n } else {
 \n ctx.print(ast, `${value}`);
 \n }
 \n return null;
 \n }
 visitLocalizedString(ast: o.LocalizedString, ctx: EmitterVisitorContext): any {
 \n const head =
 \n ast.serializeI18nHead();
 \n ctx.print(ast, `$localize ` + head.raw);
 \n for (let i = 1; i < ast.messageParts.length; i++) {
 \n ctx.print(ast, `${` `}`);
 \n ast.expressions[i
 \n - 1].visitExpression(this, ctx);
 \n ctx.print(ast, `}${ast.serializeI18nTemplatePart(i).raw}`);
 \n }
 \n ctx.print(ast,
 \n ``);
 \n return null;
 \n }
 abstract visitExternalExpr(ast: o.ExternalExpr, ctx: EmitterVisitorContext): any;
 visitConditionalExpr(ast: o.ConditionalExpr, ctx: EmitterVisitorContext): any {
 \n ctx.print(ast, `(`);
 \n ast.condition.visitExpression(this, ctx);
 \n ctx.print(ast, `? `);
 \n ast.trueCase.visitExpression(this, ctx);
 \n ctx.print(ast, `:`);
 \n ast.falseCase!.visitExpression(this, ctx);
 \n ctx.print(ast, `)`);
 \n return null;
 \n }
 visitNotExpr(ast: o.NotExpr, ctx: EmitterVisitorContext): any {
 \n ctx.print(ast, `!`);
 \n ast.condition.visitExpression(this, ctx);
 \n return null;
 \n }
 visitAssertNotNullExpr(ast: o.AssertNotNull, ctx:
 EmitterVisitorContext): any {
 \n ast.condition.visitExpression(this, ctx);
 \n return null;
 \n }
 abstract
 visitFunctionExpr(ast: o.FunctionExpr, ctx: EmitterVisitorContext): any;
 abstract
 visitDeclareFunctionStmt(stmt: o.DeclareFunctionStmt, context: any): any;
 visitUnaryOperatorExpr(ast: o.UnaryOperatorExpr, ctx: EmitterVisitorContext): any {
 \n let opStr: string;
 \n switch (ast.operator) {
 \n case o.UnaryOperator.Plus:
 \n opStr = '+';
 \n break;
 \n case
 \n o.UnaryOperator.Minus:
 \n opStr = '-';
 \n break;
 \n default:
 \n throw new Error(`Unknown operator
 \n ${ast.operator}`);
 \n }
 \n if (ast.parens) ctx.print(ast, `(`);
 \n ctx.print(ast, opStr);
 \n ast.expr.visitExpression(this, ctx);
 \n if (ast.parens) ctx.print(ast, `)`);
 \n return null;
 \n }
 visitBinaryOperatorExpr(ast: o.BinaryOperatorExpr, ctx: EmitterVisitorContext): any {
 \n let opStr: string;
 \n switch (ast.operator) {
 \n case o.BinaryOperator.Equals:
 \n opStr = '==';
 \n break;
 \n case
 \n o.BinaryOperator.Identical:
 \n opStr = '===';
 \n break;
 \n case o.BinaryOperator.NotEquals:
 \n opStr =
 \n '!=';
 \n break;
 \n case o.BinaryOperator.NotIdentical:
 \n opStr = '!==';
 \n break;
 \n case
 \n o.BinaryOperator.And:
 \n opStr = '&&';
 \n break;
 \n case o.BinaryOperator.BitwiseAnd:
 \n opStr =
 \n '&';
 \n break;
 \n case o.BinaryOperator.Or:
 \n opStr = '||';
 \n break;
 \n case o.BinaryOperator.Plus:
 \n opStr = '+';
 \n break;
 \n case o.BinaryOperator.Minus:
 \n opStr = '-';
 \n break;
 \n case
 \n o.BinaryOperator.Divide:
 \n opStr = '/';
 \n break;
 \n case o.BinaryOperator.Multiply:
 \n opStr = '*';
 \n break;
 \n case o.BinaryOperator.Modulo:
 \n opStr = '%';
 \n break;
 \n case o.BinaryOperator.Lower:
 \n opStr = '<';
 \n break;
 \n case o.BinaryOperator.LowerEquals:
 \n opStr = '<=';
 \n break;
 \n case
 \n o.BinaryOperator.Bigger:
 \n opStr = '>';
 \n break;
 \n case o.BinaryOperator.BiggerEquals:
 \n opStr =
 \n '>=';
 \n break;
 \n default:
 \n throw new Error(`Unknown operator ${ast.operator}`);
 \n }
 \n if (ast.parens) ctx.print(ast,
 \n `(`);
 \n ast.lhs.visitExpression(this, ctx);
 \n ctx.print(ast, ` ${opStr} `);
 \n ast.rhs.visitExpression(this, ctx);
 \n if
 \n (ast.parens) ctx.print(ast, `)`);
 \n return null;
 \n }
 visitReadPropExpr(ast: o.ReadPropExpr, ctx:
 EmitterVisitorContext): any {
 \n ast.receiver.visitExpression(this, ctx);
 \n ctx.print(ast, `.`);
 \n ctx.print(ast,`

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ast.name);\n  return null;\n }\n visitReadKeyExpr(ast: o.ReadKeyExpr, ctx: EmitterVisitorContext): any {\n
ast.receiver.visitExpression(this, ctx);\n  ctx.print(ast, '[');\n  ast.index.visitExpression(this, ctx);\n  ctx.print(ast,
']');\n  return null;\n }\n visitLiteralArrayExpr(ast: o.LiteralArrayExpr, ctx: EmitterVisitorContext): any {\n
ctx.print(ast, '[');\n  this.visitAllExpressions(ast.entries, ctx, ',');\n  ctx.print(ast, ');\n  return null;\n }\n
visitLiteralMapExpr(ast:
  o.LiteralMapExpr, ctx: EmitterVisitorContext): any {\n  ctx.print(ast, '{');\n  this.visitAllObjects(entry => {\n
ctx.print(ast, `${escapeIdentifier(entry.key, this._escapeDollarInStrings, entry.quoted)}:`,\n
    entry.value.visitExpression(this, ctx);\n  }, ast.entries, ctx, ',');\n  ctx.print(ast, ');\n  return null;\n }\n
visitCommaExpr(ast: o.CommaExpr, ctx: EmitterVisitorContext): any {\n  ctx.print(ast, '(');\n
this.visitAllExpressions(ast.parts, ctx, ',');\n  ctx.print(ast, ');\n  return null;\n }\n
visitAllExpressions(expressions: o.Expression[], ctx: EmitterVisitorContext, separator: string):\n  void {\n
this.visitAllObjects(expr => expr.visitExpression(this, ctx), expressions, ctx, separator);\n  }\n\n
visitAllObjects<T>(\n  handler: (t: T) => void, expressions: T[], ctx: EmitterVisitorContext,\n  separator:
string): void {\n  let incrementedIndent = false;\n  for (let i = 0; i < expressions.length; i++) {\n    if (i >
0) {\n      if (ctx.lineLength() > 80) {\n        ctx.print(null, separator, true);\n        if (!incrementedIndent) {\n
// continuation are marked with double indent.\n          ctx.incIndent();\n          ctx.incIndent();\n
incrementedIndent = true;\n        }\n      } else {\n        ctx.print(null, separator, false);\n      }\n    }\n
handler(expressions[i]);\n  }\n  if (incrementedIndent) {\n    // continuation are marked with double indent.\n
ctx.decIndent();\n    ctx.decIndent();\n  }\n}\n\n
visitAllStatements(statements: o.Statement[], ctx:
EmitterVisitorContext): void {\n  statements.forEach((stmt) => stmt.visitStatement(this, ctx));\n  }\n}\n\n
function escapeIdentifier(\n  input: string, escapeDollar: boolean, alwaysQuote: boolean = true): any {\n  if (input
== null) {\n    return null;\n  }\n  const body = input.replace(_SINGLE_QUOTE_ESCAPE_STRING_RE, (...match:
string[]) => {\n    if (match[0] == '$')\n      {\n        return escapeDollar ? '\\\\$' : '$';\n      }\n    else if (match[0] == '\\n') {\n      return '\\\\n';\n    } else if (match[0] ==
'\\r') {\n      return '\\\\r';\n    } else {\n      return '\\\\${match[0]}';\n    }\n  });\n  const requiresQuotes = alwaysQuote
|| !_LEGAL_IDENTIFIER_RE.test(body);\n  return requiresQuotes ? `${body}` : body;\n}\n\n
function
_createIndent(count: number): string {\n  let res = '';\n  for (let i = 0; i < count; i++) {\n    res +=
_INDENT_WITH;\n  }\n  return res;\n}\n\n
"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n
import {AbstractEmitterVisitor, CATCH_ERROR_VAR,
CATCH_STACK_VAR, EmitterVisitorContext, escapeIdentifier} from './abstract_emitter';\nimport * as o from
'./output_ast';\n\n
export abstract class AbstractJsEmitterVisitor extends AbstractEmitterVisitor {\n  constructor() {\n    super(false);\n  }\n  visitDeclareClassStmt(stmt: o.ClassStmt, ctx: EmitterVisitorContext): any {\n
ctx.pushClass(stmt);\n  this._visitClassConstructor(stmt, ctx);\n  if (stmt.parent != null) {\n    ctx.print(stmt,
`${stmt.name}.prototype = Object.create(`);\n    stmt.parent.visitExpression(this, ctx);\n    ctx.println(stmt,
`.prototype);`);\n  }\n  stmt.getters.forEach((getter) => this._visitClassGetter(stmt, getter, ctx));\n
stmt.methods.forEach((method) => this._visitClassMethod(stmt, method, ctx));\n  ctx.popClass();\n  return null;\n
}\n\n
private _visitClassConstructor(stmt: o.ClassStmt, ctx: EmitterVisitorContext) {\n  ctx.print(stmt, `function
${stmt.name}(`);\n  if (stmt.constructorMethod != null) {\n    this._visitParams(stmt.constructorMethod.params,
ctx);\n  }\n  ctx.println(stmt, `)`);\n  ctx.incIndent();\n  if (stmt.constructorMethod != null) {\n    if
(stmt.constructorMethod.body.length > 0) {\n      ctx.println(stmt, `var\n      self = this;`);\n      this.visitAllStatements(stmt.constructorMethod.body, ctx);\n    }\n  }\n  ctx.decIndent();\n
ctx.println(stmt, `);\n  }\n\n
private _visitClassGetter(stmt: o.ClassStmt, getter: o.ClassGetter, ctx:
EmitterVisitorContext) {\n  ctx.println(`\n    stmt,\n    `Object.defineProperty(`${stmt.name}.prototype,
`${getter.name}`, { get: function() {`);\n    ctx.incIndent();\n    if (getter.body.length > 0) {\n      ctx.println(stmt, `var
self = this;`);\n      this.visitAllStatements(getter.body, ctx);\n    }\n    ctx.decIndent();\n    ctx.println(stmt, `});`);\n  }\n\n
private _visitClassMethod(stmt: o.ClassStmt, method: o.ClassMethod, ctx: EmitterVisitorContext) {\n
ctx.print(stmt, `${stmt.name}.prototype.${method.name} = function(`);\n  this._visitParams(method.params,

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ctx);\n  ctx.println(stmt, `)`);\n  ctx.incIndent();\n  if (method.body.length > 0) {\n    ctx.println(stmt, `var self`);\n    ctx.println(`this.visitAllStatements(method.body,`);\n    ctx);\n  }\n  ctx.decIndent();\n  ctx.println(stmt, `)`);\n  }\n\n  visitWrappedNodeExpr(ast: o.WrappedNodeExpr<any>, ctx: EmitterVisitorContext): any {\n    throw new Error('Cannot emit a`);\n    ctx.println(stmt, `)`);\n    ctx.println(`visitReadVarExpr(ast: o.ReadVarExpr, ctx: EmitterVisitorContext):`);\n    ctx.println(stmt, `)`);\n    ctx.println(`string|null {\n      if (ast.builtin === o.BuiltinVar.This) {\n        ctx.print(ast, 'self');\n      } else if (ast.builtin ===`);\n    ctx.println(stmt, `)`);\n    ctx.println(`o.BuiltinVar.Super) {\n      throw new Error(`super' needs to be handled at a parent ast node, not at the`);\n    ctx.println(stmt, `)`);\n    ctx.println(`variable level!');\n    } else {\n      super.visitReadVarExpr(ast, ctx);\n    }\n    return null;\n  }\n\n  visitDeclareVarStmt(stmt: o.DeclareVarStmt, ctx: EmitterVisitorContext): any {\n    ctx.print(stmt, `var`);\n    ctx.println(stmt, `)`);\n    ctx.println(`${stmt.name}`);\n    if (stmt.value) {\n      ctx.print(stmt, `=`);\n      stmt.value.visitExpression(this, ctx);\n    }\n    ctx.println(stmt, `)`);\n    return null;\n  }\n\n  visitCastExpr(ast: o.CastExpr, ctx: EmitterVisitorContext):`);\n    ctx.println(stmt, `)`);\n    ctx.println(`any {\n      ast.value.visitExpression(this, ctx);\n      return null;\n    }\n    visitInvokeFunctionExpr(expr:`);\n    ctx.println(stmt, `)`);\n    ctx.println(`o.InvokeFunctionExpr, ctx: EmitterVisitorContext): string|null {\n      const fnExpr = expr.fn;\n      if (fnExpr`);\n    ctx.println(stmt, `)`);\n    ctx.println(`instanceof o.ReadVarExpr && fnExpr.builtin === o.BuiltinVar.Super) {\n      ctx.currentClass!.parent!.visitExpression(this, ctx);\n      ctx.print(expr, `.`);\n      if (expr.args.length > 0) {\n        ctx.print(expr, `(`);\n        this.visitAllExpressions(expr.args, ctx, ``,`);\n        ctx.print(expr, `)`);\n      } else`);\n    ctx.println(stmt, `)`);\n    ctx.println(`{\n      super.visitInvokeFunctionExpr(expr, ctx);\n      return null;\n    }\n    visitFunctionExpr(ast:`);\n    ctx.println(stmt, `)`);\n    ctx.println(`o.FunctionExpr, ctx: EmitterVisitorContext): any {\n      ctx.print(ast, `function${ast.name ? '' + ast.name : ''}(`);\n      this._visitParams(ast.params, ctx);\n      ctx.println(stmt, `)`);\n      ctx.incIndent();\n      this.visitAllStatements(ast.statements, ctx);\n      ctx.decIndent();\n      ctx.print(stmt, `)`);\n      return null;\n    }\n    visitDeclareFunctionStmt(stmt: o.DeclareFunctionStmt, ctx: EmitterVisitorContext): any {\n      ctx.print(stmt,`);\n    ctx.println(stmt, `)`);\n    ctx.println(``function ${stmt.name}(`);\n      this._visitParams(stmt.params, ctx);\n      ctx.println(stmt, `)`);\n      ctx.incIndent();\n      this.visitAllStatements(stmt.statements, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, `)`);\n      return null;\n    }\n    visitTryCatchStmt(stmt: o.TryCatchStmt, ctx: EmitterVisitorContext): any {\n      ctx.println(stmt, `try`);\n      ctx.incIndent();\n      this.visitAllStatements(stmt.bodyStmts, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, `}`);\n      catch`);\n    ctx.println(stmt, `)`);\n    ctx.println(`($ {CATCH_ERROR_VAR.name})`);\n      ctx.incIndent();\n      const catchStmts =\n      [ <o.Statement>CATCH_STACK_VAR.set(CATCH_ERROR_VAR.prop('stack')).toDeclStmt(null, [\n      o.SmtModifier.Final\n      ])].concat(stmt.catchStmts);\n      this.visitAllStatements(catchStmts, ctx);\n      ctx.decIndent();\n      ctx.println(stmt, `)`);\n      return null;\n    }\n    visitLocalizedString(ast: o.LocalizedString,`);\n    ctx.println(stmt, `)`);\n    ctx.println(`ctx: EmitterVisitorContext): any {\n      // The following convoluted piece of code is effectively the downlevelled`);\n    ctx.println(stmt, `)`);\n    ctx.println(`equivalent of\n      // ``\n      // $localize `...`\n      // ``\n      // which is effectively like:\n      // ``\n      //`);\n    ctx.println(stmt, `)`);\n    ctx.println(`$localize(__makeTemplateObject(cooked, raw), expression1, expression2, ...);\n      // ``\n      //\n      // The `$localize``);\n    ctx.println(stmt, `)`);\n    ctx.println(`function expects a "template object", which is an array of "cooked" strings\n      // plus a `raw` property that`);\n    ctx.println(stmt, `)`);\n    ctx.println(`contains an array of "raw" strings.\n      //\n      // In some environments a helper function called`);\n    ctx.println(stmt, `)`);\n    ctx.println(``__makeTemplateObject(cooked, raw)` might be\n      // available, in which case we use that. Otherwise we must`);\n    ctx.println(stmt, `)`);\n    ctx.println(`create our own helper function\n      // inline.\n      //\n      // In the inline function, if `Object.defineProperty` is available`);\n    ctx.println(stmt, `)`);\n    ctx.println(`we use that to attach the\n      // `raw` array.\n      ctx.print(\n        ast,\n       `);\n    ctx.println(stmt, `)`);\n    ctx.println(`'$localize((this&&this.__makeTemplateObject|function(e,t){return`);\n    ctx.println(stmt, `)`);\n    ctx.println(`Object.defineProperty?Object.defineProperty(e,"raw",{ value:t}):e.raw=t,e))`);\n    ctx.println(stmt, `)`);\n    ctx.println(`const parts = [ast.serializeI18nHead()];\n      for (let i = 1; i < ast.messageParts.length; i++) {\n        parts.push(ast.serializeI18nTemplatePart(i));\n      }\n      ctx.print(ast, `[$ {parts.map(part =>`);\n    ctx.println(stmt, `)`);\n    ctx.println(`escapeIdentifier(part.cooked, false)).join(', '), `)`);\n      ctx.print(ast, `[$ {parts.map(part => escapeIdentifier(part.raw,`);\n    ctx.println(stmt, `)`);\n    ctx.println(`false)).join(', ')}]);\n      ast.expressions.forEach(expression => {\n        ctx.print(ast, ``,`);\n        expression.visitExpression(this, ctx);\n      });\n      ctx.print(ast, `)`);\n      return null;\n    }\n    private`);\n    ctx.println(stmt, `)`);\n    ctx.println(`_visitParams(params: o.FnParam[], ctx: EmitterVisitorContext): void {\n      this.visitAllObjects(param =>`);\n    ctx.println(stmt, `)`);\n    ctx.println(`ctx.print(null, param.name, params, ctx, ``,`);\n      }\n      getBuiltinMethodName(method: o.BuiltinMethod): string {\n        let name: string;\n        switch (method) {\n          case o.BuiltinMethod.ConcatArray:\n            name = 'concat';\n            break;\n          case o.BuiltinMethod.SubscribeObservable:\n`);\n    ctx.println(stmt, `)`);\n    ctx.println(`

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    name = 'subscribe';\n    break;\n    case o.BuiltinMethod.Bind:\n        name = 'bind';\n        break;\n    default:\n        throw new Error('Unknown builtin method: ${method}');\n    }\n    return name;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-\n * style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {identifierName}\nfrom './compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport\n{EmitterVisitorContext} from './abstract_emitter';\nimport {AbstractJsEmitterVisitor} from\n'./abstract_js_emitter';\nimport * as o from './output_ast';\n\n/**\n * A helper class to manage the evaluation of JIT\n * generated code.\n */\nexport class JitEvaluator {\n    /**\n     * @param sourceUrl The URL of the generated\n     * code.\n     * @param statements An array of Angular statement AST nodes to be evaluated.\n     * @param reflector A\n     * helper used\n     * when converting the statements to executable code.\n     * @param createSourceMaps If true then create a source-\n     * map for the generated code and include it\n     * inline as a source-map comment.\n     * @returns A map of all the\n     * variables in the generated code.\n     */\n    evaluateStatements(\n        sourceUrl: string, statements: o.Statement[],\n        reflector: CompileReflector,\n        createSourceMaps: boolean): {[key: string]: any} {\n        const converter = new\n        JitEmitterVisitor(reflector);\n        const ctx = EmitterVisitorContext.createRoot();\n        // Ensure generated code is in\n        strict mode\n        if (statements.length > 0 && !isUseStrictStatement(statements[0])) {\n            statements = [\n            o.literal('use strict').toStmt(),\n            ...statements,\n            ];\n        }\n        converter.visitAllStatements(statements, ctx);\n        converter.createReturnStmt(ctx);\n        return this.evaluateCode(sourceUrl, ctx, converter.getArgs(),\n        createSourceMaps);\n    }\n\n    /**\n     * Evaluate a piece of JIT generated code.\n     *\n     * @param sourceUrl The URL of this generated code.\n     * @param ctx A context object that contains an AST of\n     * the code to be evaluated.\n     * @param vars A map containing the names and values of variables that the evaluated\n     * code might\n     * reference.\n     * @param createSourceMap If true then create a source-map for the generated code\n     * and include it\n     * inline as a source-map comment.\n     * @returns The result of evaluating the code.\n     */\n    evaluateCode(\n        sourceUrl: string, ctx: EmitterVisitorContext, vars: {[key: string]: any},\n        createSourceMap:\n        boolean): any {\n        let fnBody = `\"use strict\";${ctx.toSource()}\\n\\n# sourceURL=${sourceUrl}`;\n        const\n        fnArgNames: string[] = [];\n        const fnArgValues: any[] = [];\n        for (const argName in vars) {\n            fnArgValues.push(vars[argName]);\n            fnArgNames.push(argName);\n        }\n        if (createSourceMap) {\n            //\n            using `new Function(...)` generates a header, 1 line of no arguments, 2 lines otherwise\n            // E.g.\n            ```\n            // function anonymous(a,b,c\n            // /**/) { ... }```\n            // We don't want to hard code this fact, so we auto\n            detect it via an empty function first.\n            const emptyFn = new Function(...fnArgNames.concat('return\n            null;')).toString();\n            const headerLines = emptyFn.slice(0, emptyFn.indexOf('return null;')).split('\\n').length - 1;\n            fnBody += `\\n${ctx.toSourceMapGenerator(sourceUrl, headerLines).toJsComment()}`;\n        }\n        const fn = new\n        Function(...fnArgNames.concat(fnBody));\n        return this.executeFunction(fn, fnArgValues);\n    }\n\n    /**\n     * Execute a JIT generated function by calling it.\n     *\n     * This method can be overridden in tests to capture the\n     * functions that are generated\n     * by this `JitEvaluator` class.\n     *\n     * @param fn A function to execute.\n     * @param args The arguments to pass to the function being executed.\n     * @returns The return value of the executed\n     * function.\n     */\n    executeFunction(fn: Function, args: any[]) {\n        return\n        fn(...args);\n    }\n\n    /**\n     * An Angular AST visitor that converts AST nodes into executable JavaScript code.\n     */\n    export class JitEmitterVisitor extends AbstractJsEmitterVisitor {\n        private _evalArgNames: string[] = [];\n        private _evalArgValues: any[] = [];\n        private _evalExportedVars: string[] = [];\n\n        constructor(private reflector:\n        CompileReflector) {\n            super();\n        }\n\n        createReturnStmt(ctx: EmitterVisitorContext) {\n            const stmt = new\n            o.ReturnStatement(new o.LiteralMapExpr(this._evalExportedVars.map(\n            resultVar => new\n            o.LiteralMapEntry(resultVar, o.variable(resultVar), false)));\n            stmt.visitStatement(this, ctx);\n        }\n\n        getArgs():\n        {[key: string]: any} {\n            const result: {[key: string]: any} = {};\n            for (let i = 0; i < this._evalArgNames.length;\n            i++) {\n                result[this._evalArgNames[i]] = this._evalArgValues[i];\n            }\n            return result;\n        }\n\n        visitExternalExpr(ast: o.ExternalExpr, ctx: EmitterVisitorContext): any {\n            this._emitReferenceToExternal(ast,\n            this.reflector.resolveExternalReference(ast.value), ctx);\n            return null;\n        }\n\n        visitWrappedNodeExpr(ast:\n        o.WrappedNodeExpr<any>, ctx: EmitterVisitorContext): any {\n            this._emitReferenceToExternal(ast, ast.node,\n
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ctx);\n  return null;\n }\n\n visitDeclareVarStmt(stmt: o.DeclareVarStmt, ctx: EmitterVisitorContext): any {\n  if
(stmt.hasModifier(o.StmtModifier.Exported)) {\n    this._evalExportedVars.push(stmt.name);\n  }\n  return
super.visitDeclareVarStmt(stmt, ctx);\n }\n\n visitDeclareFunctionStmt(stmt: o.DeclareFunctionStmt, ctx:
EmitterVisitorContext): any {\n  if (stmt.hasModifier(o.StmtModifier.Exported)) {\n
this._evalExportedVars.push(stmt.name);\n  }\n  return super.visitDeclareFunctionStmt(stmt, ctx);\n }\n\n
visitDeclareClassStmt(stmt: o.ClassStmt, ctx: EmitterVisitorContext): any {\n  if
(stmt.hasModifier(o.StmtModifier.Exported)) {\n    this._evalExportedVars.push(stmt.name);\n  }\n  return
super.visitDeclareClassStmt(stmt,
ctx);\n }\n\n private _emitReferenceToExternal(ast: o.Expression, value: any, ctx: EmitterVisitorContext):\n
void {\n  let id = this._evalArgValues.indexOf(value);\n  if (id === -1) {\n    id = this._evalArgValues.length;\n
    this._evalArgValues.push(value);\n    const name = identifierName({reference: value}) || 'val';\n
this._evalArgNames.push(`jit_${name}_${id}`);\n  }\n  ctx.print(ast, this._evalArgNames[id]);\n
}\n}\n\nfunction isUseStrictStatement(statement: o.Statement): boolean {\n  return
statement.isEquivalent(o.literal('use strict').toStmt());\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nexport const EOF = 0;\nexport const $BSPACE = 8;\nexport
const $TAB = 9;\nexport const $LF = 10;\nexport const $VTAB = 11;\nexport const $FF = 12;\nexport const $CR =
13;\nexport
const $SPACE = 32;\nexport const $BANG = 33;\nexport const $DQ = 34;\nexport const $HASH = 35;\nexport
const $$ = 36;\nexport const $PERCENT = 37;\nexport const $AMPERSAND = 38;\nexport const $SQ =
39;\nexport const $LPAREN = 40;\nexport const $RPAREN = 41;\nexport const $STAR = 42;\nexport const
$PLUS = 43;\nexport const $COMMA = 44;\nexport const $MINUS = 45;\nexport const $PERIOD = 46;\nexport
const $SLASH = 47;\nexport const $COLON = 58;\nexport const $SEMICOLON = 59;\nexport const $LT =
60;\nexport const $EQ = 61;\nexport const $GT = 62;\nexport const $QUESTION = 63;\n\nexport const $0 =
48;\nexport const $7 = 55;\nexport const $9 = 57;\n\nexport const $A = 65;\nexport const $E = 69;\nexport const $F
= 70;\nexport const $X = 88;\nexport const $Z = 90;\n\nexport const $LBRACKET = 91;\nexport const
$BACKSLASH = 92;\nexport const $RBRACKET = 93;\nexport const $CARET = 94;\nexport const $_ =
95;\n\nexport const $a = 97;\nexport const $b = 98;\nexport const $e = 101;\nexport const $f
= 102;\nexport const $n = 110;\nexport const $r = 114;\nexport const $t = 116;\nexport const $u = 117;\nexport
const $v = 118;\nexport const $x = 120;\nexport const $z = 122;\n\nexport const $LBRACE = 123;\nexport const
$BAR = 124;\nexport const $RBRACE = 125;\nexport const $NBSP = 160;\n\nexport const $PIPE = 124;\nexport
const $TILDA = 126;\nexport const $AT = 64;\n\nexport const $BT = 96;\n\nexport function isWhitespace(code:
number): boolean {\n  return (code >= $TAB && code <= $SPACE) || (code === $NBSP);\n}\n\nexport function
isDigit(code: number): boolean {\n  return $0 <= code && code <= $9;\n}\n\nexport function isAsciiLetter(code:
number): boolean {\n  return code >= $A && code <= $z || code >= $A && code <= $Z;\n}\n\nexport function
isAsciiHexDigit(code: number): boolean {\n  return code >= $a && code <= $f || code >= $A && code <= $F ||
isDigit(code);\n}\n\nexport function isNewLine(code: number): boolean {\n  return code === $LF || code ===
$CR;\n}\n\nexport function isOctalDigit(code:
number): boolean {\n  return $0 <= code && code <= $7;\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport * as chars from './chars';\n\nimport
{CompileIdentifierMetadata, identifierModuleUrl, identifierName} from './compile_metadata';\n\nexport class
ParseLocation {\n  constructor(\n    public file: ParseSourceFile, public offset: number, public line: number,\n    public col: number) {\n  }\n\n  toString(): string {\n    return this.offset !== null ?
`${this.file.url}@${this.line}:${this.col}` : this.file.url;\n  }\n\n  moveBy(delta: number): ParseLocation {\n    const
source = this.file.content;\n    const len = source.length;\n    let offset = this.offset;\n    let line = this.line;\n    let col
= this.col;\n    while (offset > 0 && delta < 0) {\n      offset--;\n      delta++;\n      const ch =
source.charCodeAt(offset);\n

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    if (ch == chars.$LF) {\n      line--;\n      const priorLine = source.substr(0, offset -
1).lastIndexOf(String.fromCharCode(chars.$LF));\n      col = priorLine > 0 ? offset - priorLine : offset;\n    } else
{\n      col--;\n    }\n  }\n  while (offset < len && delta > 0) {\n    const ch = source.charCodeAtAt(offset);\n    offset++;\n    delta--;\n    if (ch == chars.$LF) {\n      line++;\n      col = 0;\n    } else {\n      col++;\n    }\n  }\n  return new ParseLocation(this.file, offset, line, col);\n }\n\n // Return the source around the location\n // Up
to `maxChars` or `maxLines` on each side of the location\n getContext(maxChars: number, maxLines: number):
{before: string, after: string}|null {\n  const content = this.file.content;\n  let startOffset = this.offset;\n  if
(startOffset != null) {\n    if (startOffset > content.length - 1) {\n      startOffset = content.length - 1;\n    }\n
let endOffset
= startOffset;\n    let ctxChars = 0;\n    let ctxLines = 0;\n\n    while (ctxChars < maxChars && startOffset > 0)
{\n      startOffset--;\n      ctxChars++;\n      if (content[startOffset] == '\n') {\n        if (++ctxLines ==
maxLines) {\n          break;\n        }\n      }\n      ctxChars = 0;\n      ctxLines = 0;\n      while (ctxChars <
maxChars && endOffset < content.length - 1) {\n        endOffset++;\n        ctxChars++;\n        if (content[endOffset]
== '\n') {\n          if (++ctxLines == maxLines) {\n            break;\n          }\n        }\n      }\n      return {\n
before: content.substring(startOffset, this.offset),\n      after: content.substring(this.offset, endOffset + 1),\n    };\n
}\n\n    return null;\n  }\n}\n\nexport class ParseSourceFile {\n  constructor(public content: string, public url: string)
{\n  }\n}\n\nexport class ParseSourceSpan {\n  /**\n   * Create an object that holds information about spans of
tokens/nodes
captured during\n   * lexing/parsing of text.\n   *\n   * @param start\n   * The location of the start of the span
(having skipped leading trivia).\n   * Skipping leading trivia makes source-spans more \"user friendly\", since things
like HTML\n   * elements will appear to begin at the start of the opening tag, rather than at the start of any\n   *
leading trivia, which could include newlines.\n   *\n   * @param end\n   * The location of the end of the span.\n   *\n
   * @param fullStart\n   * The start of the token without skipping the leading trivia.\n   * This is used by tooling that
splits tokens further, such as extracting Angular interpolations\n   * from text tokens. Such tooling creates new
source-spans relative to the original token's\n   * source-span. If leading trivia characters have been skipped then the
new source-spans may be\n   * incorrectly offset.\n   *\n   * @param details\n   * Additional information (such as
identifier names) that should be associated with
the span.\n   */\n  constructor(\n    public start: ParseLocation, public end: ParseLocation,\n    public fullStart:
ParseLocation = start, public details: string|null = null) {\n  }\n  toString(): string {\n    return
this.start.file.content.substring(this.start.offset, this.end.offset);\n  }\n}\n\nexport enum ParseErrorLevel {\n
WARNING,\n  ERROR,\n}\n\nexport class ParseError {\n  constructor(\n    public span: ParseSourceSpan, public
msg: string,\n    public level: ParseErrorLevel = ParseErrorLevel.ERROR) {\n  }\n  contextualMessage(): string {\n
const ctx = this.span.start.getContext(100, 3);\n    return ctx ? `${this.msg}
("${ctx.before}${ParseErrorLevel[this.level]}->${ctx.after}")` : this.msg;\n  }\n  toString(): string
{\n    const details = this.span.details ? ` ${this.span.details}` : ";\n    return `${this.contextualMessage()}:
${this.span.start}${details}`;\n  }\n}\n\nexport function typeSourceSpan(kind: string, type:
CompileIdentifierMetadata):
ParseSourceSpan {\n  const moduleUrl = identifierModuleUrl(type);\n  const sourceFileName = moduleUrl != null
? `in ${kind} ${identifierName(type)} in ${moduleUrl}` : `in ${kind}
${identifierName(type)}`;\n  const sourceFile = new ParseSourceFile("", sourceFileName);\n  return new
ParseSourceSpan(\n    new ParseLocation(sourceFile, -1, -1, -1), new ParseLocation(sourceFile, -1, -1, -
1));\n  }\n}\n\n/**\n   * Generates Source Span object for a given R3 Type for JIT mode.\n   *\n   * @param kind
Component or Directive.\n   * @param typeName name of the Component or Directive.\n   * @param sourceUrl
reference to Component or Directive source.\n   * @returns instance of ParseSourceSpan that represent a given
Component or Directive.\n   */\nexport function r3JitTypeSourceSpan(\n  kind: string, typeName: string, sourceUrl:
string): ParseSourceSpan {\n  const sourceFileName = `in ${kind} ${typeName} in ${sourceUrl}`;\n  const
sourceFile = new ParseSourceFile("",

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sourceFileName);\n return new ParseSourceSpan(\n    new ParseLocation(sourceFile, -1, -1, -1), new
ParseLocation(sourceFile, -1, -1, -1));\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { CompileReflector } from './compile_reflector';\nimport * as o from
'./output/output_ast';\n\n/**\n * Implementation of `CompileReflector` which resolves references to
@angular/core\n * symbols at runtime, according to a consumer-provided mapping.\n *\n * Only supports
`resolveExternalReference`, all other methods throw.\n */\nexport class R3JitReflector implements
CompileReflector {\n  constructor(private context: {[key: string]: any}) {} \n\n  resolveExternalReference(ref:
o.ExternalReference): any {\n    // This reflector only handles @angular/core imports.\n    if (ref.moduleName !==
'@angular/core') {\n      throw
new Error(`Cannot resolve external reference to ${\n      ref.moduleName}, only references to @angular/core are
supported.`);\n    }\n    if (!this.context.hasOwnProperty(ref.name!)) {\n      throw new Error(`No value provided for
@angular/core symbol '${ref.name!}'.`);\n    }\n    return this.context[ref.name!];\n  }\n\n  parameters(typeOrFunc:
any): any[][] {\n    throw new Error('Not implemented.);\n  }\n\n  annotations(typeOrFunc: any): any[] {\n    throw
new Error('Not implemented.);\n  }\n\n  shallowAnnotations(typeOrFunc: any): any[] {\n    throw new Error('Not
implemented.);\n  }\n\n  tryAnnotations(typeOrFunc: any): any[] {\n    throw new Error('Not implemented.);\n  }\n\n
propMetadata(typeOrFunc: any): {[key: string]: any[]}; {\n    throw new Error('Not implemented.);\n  }\n\n
hasLifecycleHook(type: any, lcProperty: string): boolean {\n    throw new Error('Not implemented.);\n  }\n\n
guards(typeOrFunc: any): {[key: string]: any}; {\n    throw new Error('Not
implemented.);\n  }\n\n  componentModuleUrl(type: any, cmpMetadata: any): string {\n    throw new Error('Not
implemented.);\n  }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport * as o from './output_ast';\n\nexport type MapEntry = {\n  key: string,\n
quoted: boolean,\n  value: o.Expression\n};\n\nexport type MapLiteral = MapEntry[];\n\nexport function
mapEntry(key: string, value: o.Expression): MapEntry {\n  return {key, value, quoted: false};\n}\n\nexport function
mapLiteral(\n  obj: {[key: string]: o.Expression}, quoted: boolean = false): o.Expression {\n  return
o.literalMap(Object.keys(obj).map(key => ({\n\n      key,\n      quoted,\n      value: obj[key],\n\n    })))\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { CompileShallowModuleMetadata, identifierName } from './compile_metadata';\nimport
{ InjectableCompiler } from './injectable_compiler';\nimport { mapLiteral } from './output/map_util';\nimport * as o
from './output/output_ast';\nimport { OutputContext } from './util';\nimport { compileFactoryFunction,
R3DependencyMetadata, R3FactoryTarget } from './r3_factory';\nimport { Identifiers as R3 } from
'./r3_identifiers';\nimport { convertMetaToOutput, jitOnlyGuardedExpression, mapToMapExpression, R3Reference }
from './util';\n\nexport interface R3NgModuleDef {\n  expression: o.Expression;\n  type: o.Type;\n  additionalStatements: o.Statement[];\n}\n\n/**\n * Metadata required by the module compiler to generate a module
def (mod`) for a type.\n */\nexport interface
R3NgModuleMetadata {\n  /**\n   * An expression representing the module type being compiled.\n   */\n  type:
R3Reference;\n\n  /**\n   * An expression representing the module type being compiled, intended for use within a
class\n   * definition itself.\n   */\n  type: o.Type;\n\n  /**\n   * This can differ from the outer `type` if the class is being compiled by ngcc and
is inside\n   * an IIFE structure that uses a different name internally.\n   */\n  internalType: o.Expression;\n\n  /**\n   * An expression intended for use by statements that are adjacent (i.e. tightly coupled) to but\n   * not internal to a
class definition.\n   */\n  adjacentType: o.Expression;\n\n  /**\n   * An array of expressions representing the bootstrap components specified by the module.\n   */\n  bootstrap:
R3Reference[];\n\n  /**\n   * An array of expressions representing

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the directives and pipes declared by the module.\n  */\n  declarations: R3Reference[];\n\n  /**\n   * An array of
expressions representing the imports of the module.\n  */\n  imports: R3Reference[];\n\n  /**\n   * An array of
expressions representing the exports of the module.\n  */\n  exports: R3Reference[];\n\n  /**\n   * Whether to emit
the selector scope values (declarations, imports, exports) inline into the\n  * module definition, or to generate
additional statements which patch them on. Inline emission\n  * does not allow components to be tree-shaken, but is
useful for JIT mode.\n  */\n  emitInline: boolean;\n\n  /**\n   * Whether to generate closure wrappers for bootstrap,
declarations, imports, and exports.\n  */\n  containsForwardDecls: boolean;\n\n  /**\n   * The set of schemas that
declare elements to be allowed in the NgModule.\n  */\n  schemas: R3Reference[]|null;\n\n  /** Unique ID or
expression representing the unique ID of an NgModule. */\n  id: o.Expression|null;\n\n  /**\n   * Construct an `R3NgModuleDef` for the given `R3NgModuleMetadata`. */\n  nexport function
compileNgModule(meta: R3NgModuleMetadata): R3NgModuleDef {\n  const {\n    internalType,\n    type:
moduleType,\n    bootstrap,\n    declarations,\n    imports,\n    exports,\n    schemas,\n    containsForwardDecls,\n    emitInline,\n    id\n  } = meta;\n\n  const additionalStatements: o.Statement[] = [];\n  const definitionMap = { type:
internalType } as {\n    type: o.Expression,\n    bootstrap: o.Expression,\n    declarations: o.Expression,\n    imports:
o.Expression,\n    exports: o.Expression,\n    schemas: o.LiteralArrayExpr,\n    id: o.Expression\n  };\n\n  // Only
generate the keys in the metadata if the arrays have values.\n  if (bootstrap.length) {\n    definitionMap.bootstrap =
refsToArray(bootstrap, containsForwardDecls);\n  }\n\n  // If requested to emit scope information inline, pass the
declarations, imports and exports to\n  // the `defineNgModule` call. The JIT
compilation uses this.\n  if (emitInline) {\n    if (declarations.length) {\n      definitionMap.declarations =
refsToArray(declarations, containsForwardDecls);\n    }\n\n    if (imports.length) {\n      definitionMap.imports =
refsToArray(imports, containsForwardDecls);\n    }\n\n    if (exports.length) {\n      definitionMap.exports =
refsToArray(exports, containsForwardDecls);\n    }\n  }\n\n  // If not emitting inline, the scope information is not
passed into `defineNgModule` as it would\n  // prevent tree-shaking of the declarations, imports and exports
references.\n  else {\n    const setNgModuleScopeCall = generateSetNgModuleScopeCall(meta);\n    if
(setNgModuleScopeCall !== null) {\n      additionalStatements.push(setNgModuleScopeCall);\n    }\n\n    if
(schemas && schemas.length) {\n      definitionMap.schemas = o.literalArr(schemas.map(ref => ref.value));\n    }\n\n    if (id) {\n      definitionMap.id = id;\n    }\n\n    const expression =
o.importExpr(R3.defineNgModule).callFn([mapToMapExpression(definitionMap)]);\n\n    const type = new o.ExpressionType(o.importExpr(R3.NgModuleDefWithMeta, [\n      new
o.ExpressionType(moduleType.type), tupleTypeOf(declarations), tupleTypeOf(imports),\n      tupleTypeOf(exports)\n    ]));\n\n    return {expression, type, additionalStatements};\n  }\n\n  /**\n   * Generates a
function call to `setNgModuleScope` with all necessary information so that the\n  * transitive module scope can be
computed during runtime in JIT mode. This call is marked pure\n  * such that the references to declarations, imports
and exports may be elided causing these\n  * symbols to become tree-shakeable. */\n  function
generateSetNgModuleScopeCall(meta: R3NgModuleMetadata): o.Statement|null {\n  const {adjacentType:
moduleType, declarations, imports, exports, containsForwardDecls} = meta;\n\n  const scopeMap = { } as {\n    declarations: o.Expression,\n    imports: o.Expression,\n    exports: o.Expression,\n  };\n\n  if (declarations.length) {\n    scopeMap.declarations
= refsToArray(declarations, containsForwardDecls);\n  }\n\n  if (imports.length) {\n    scopeMap.imports =
refsToArray(imports, containsForwardDecls);\n  }\n\n  if (exports.length) {\n    scopeMap.exports =
refsToArray(exports, containsForwardDecls);\n  }\n\n  if (Object.keys(scopeMap).length === 0) {\n    return null;\n  }\n\n  // setNgModuleScope(...)\n  const fnCall = new o.InvokeFunctionExpr(\n    /* fn */
o.importExpr(R3.setNgModuleScope),\n    /* args */[moduleType, mapToMapExpression(scopeMap)]);\n\n  //
(ngJitMode guard) && setNgModuleScope(...)\n  const guardedCall = jitOnlyGuardedExpression(fnCall);\n\n  //
function() { (ngJitMode guard) && setNgModuleScope(...); }\n  const iife = new o.FunctionExpr(\n    /* params
*/[],\n    /* statements */[guardedCall.toStmt()]);\n\n  // (function() { (ngJitMode guard) &&
setNgModuleScope(...); })()\n  const iifeCall = new o.InvokeFunctionExpr(\n    /* fn */ iife,\n    /* args */[]);\n\n  return iifeCall.toStmt();\n}\n\n  nexport

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interface R3InjectorDef {\n  expression: o.Expression;\n  type: o.Type;\n  statements: o.Statement[];\n}\n\nexport
interface R3InjectorMetadata {\n  name: string;\n  type: R3Reference;\n  internalType: o.Expression;\n  deps:
R3DependencyMetadata[]|null;\n  providers: o.Expression|null;\n  imports: o.Expression[];\n}\n\nexport function
compileInjector(meta: R3InjectorMetadata): R3InjectorDef {\n  const result = compileFactoryFunction({\n    name:
meta.name,\n    type: meta.type,\n    internalType: meta.internalType,\n    typeArgumentCount: 0,\n    deps:
meta.deps,\n    injectFn: R3.inject,\n    target: R3FactoryTarget.NgModule,\n  });\n  const definitionMap = {\n
factory: result.factory,\n  } as {factory: o.Expression, providers: o.Expression, imports: o.Expression};\n  if
(meta.providers !== null) {\n    definitionMap.providers = meta.providers;\n  }\n  if (meta.imports.length > 0) {\n
definitionMap.imports = o.literalArr(meta.imports);\n  }\n  const expression =
o.importExpr(R3.defineInjector).callFn([mapToMapExpression(definitionMap)]);\n
  const type =\n    new o.ExpressionType(o.importExpr(R3.InjectorDef, [new
o.ExpressionType(meta.type.type)]));\n  return {expression, type, statements: result.statements};\n}\n\n//
TODO(alxhub): integrate this with `compileNgModule`. Currently the two are separate operations.\nexport function
compileNgModuleFromRender2(\n  ctx: OutputContext, ngModule: CompileShallowModuleMetadata,\n  injectableCompiler: InjectableCompiler): void {\n  const className = identifierName(ngModule.type)!;\n  const
rawImports = ngModule.rawImports ? [ngModule.rawImports] : [];\n  const rawExports = ngModule.rawExports ?
[ngModule.rawExports] : [];\n  const injectorDefArg = mapLiteral({\n    'factory':\ninjectableCompiler.factoryFor({type: ngModule.type, symbol: ngModule.type.reference}, ctx),\n    'providers':
convertMetaToOutput(ngModule.rawProviders, ctx),\n    'imports': convertMetaToOutput([...rawImports,
...rawExports],
    ctx),\n  });\n  const injectorDef = o.importExpr(R3.defineInjector).callFn([injectorDefArg]);\n  \n  ctx.statements.push(new o.ClassStmt(\n    /* name */ className,\n    /* parent */ null,\n    /* fields */[new
o.ClassField(\n      /* name */ 'inj',\n      /* type */ o.INFERRED_TYPE,\n      /* modifiers
*/[o.StmtModifier.Static],\n      /* initializer */ injectorDef,\n    ),\n    /* getters */[],\n    /*
constructorMethod */ new o.ClassMethod(null, [], []),\n    /* methods */[]));\n  }\n\nfunction
accessExportScope(module: o.Expression): o.Expression {\n  const selectorScope = new o.ReadPropExpr(module,
'mod');\n  return new o.ReadPropExpr(selectorScope, 'exported');\n}\n\nfunction tupleTypeOf(exp: R3Reference[]):
o.Type {\n  const types = exp.map(ref => o.typeofExpr(ref.type));\n  return exp.length > 0 ?
o.expressionType(o.literalArr(types)) : o.NONE_TYPE;\n}\n\nfunction refsToArray(refs: R3Reference[],
shouldForwardDeclare: boolean): o.Expression
{\n  const values = o.literalArr(refs.map(ref => ref.value));\n  return shouldForwardDeclare ? o.fn([], [new
o.ReturnStatement(values)]) : values;\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {CompilePipeMetadata, identifierName} from
'./compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport {DefinitionKind} from
'./constant_pool';\nimport * as o from './output/output_ast';\nimport {error, OutputContext} from './util';\n\nimport
{compileFactoryFunction, dependenciesFromGlobalMetadata, R3DependencyMetadata, R3FactoryTarget} from
'./r3_factory';\nimport {Identifiers as R3} from './r3_identifiers';\nimport {R3Reference, typeWithParameters,
wrapReference} from './util';\n\nexport interface R3PipeMetadata {\n  /**\n   * Name of the pipe type.\n   */\n  name: string;\n  /**\n
   * An expression representing a reference to the pipe itself.\n   */\n  type: R3Reference;\n  /**\n   * An expression
representing the pipe being compiled, intended for use within a class definition\n   */\n  itself: o.Expression;\n  /**\n
   * This can differ from the outer `type` if the class is being compiled by ngcc and is inside an\n   * IIFE structure that uses a different
name internally.\n   */\n  internalType: o.Expression;\n  /**\n   * Number of generic type parameters of the type
itself.\n   */\n  typeArgumentCount: number;\n  /**\n   * Name of the pipe.\n   */\n  pipeName: string;\n  /**\n
   * Dependencies of the pipe's constructor.\n   */\n  deps: R3DependencyMetadata[]|null;\n  /**\n   * Whether the
pipe is marked as pure.\n   */\n  pure: boolean;\n}\n\nexport function compilePipeFromMetadata(metadata:
R3PipeMetadata) {\n  const definitionMapValues: {key: string, quoted: boolean, value: o.Expression}[] = [];\n  //

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e.g. `name: 'myPipe`\n definitionMapValues.push({key: 'name',
value: o.literal(metadata.pipeName), quoted: false});\n\n // e.g. `type: MyPipe`\n definitionMapValues.push({key:
'type', value: metadata.type.value, quoted: false});\n\n // e.g. `pure: true`\n definitionMapValues.push({key: 'pure',
value: o.literal(metadata.pure), quoted: false});\n\n const expression =
o.importExpr(R3.definePipe).callFn([o.literalMap(definitionMapValues)]);\n const type = new
o.ExpressionType(o.importExpr(R3.PipeDefWithMeta, [\n typeWithParameters(metadata.type.type,
metadata.typeArgumentCount),\n new o.ExpressionType(new o.LiteralExpr(metadata.pipeName)),\n ]));\n\n
return {expression, type};\n}\n\n/**\n * Write a pipe definition to the output context.\n */\nexport function
compilePipeFromRender2(\n outputCtx: OutputContext, pipe: CompilePipeMetadata, reflector: CompileReflector)
{\n const name = identifierName(pipe.type);\n if (!name) {\n return error(`Cannot resolve the name of
${pipe.type}`);\n }\n\n const type = outputCtx.importExpr(pipe.type.reference);\n
const metadata: R3PipeMetadata = {\n name,\n type: wrapReference(type),\n internalType: type,\n
pipeName: pipe.name,\n typeArgumentCount: 0,\n deps: dependenciesFromGlobalMetadata(pipe.type,
outputCtx, reflector),\n pure: pipe.pure,\n };\n const res = compilePipeFromMetadata(metadata);\n const
factoryRes = compileFactoryFunction(\n { ...metadata, injectFn: R3.directiveInject, target:
R3FactoryTarget.Pipe});\n const definitionField =
outputCtx.constantPool.propertyNameOf(DefinitionKind.Pipe);\n const ngFactoryDefStatement = new
o.ClassStmt(\n /* name */ name,\n /* parent */ null,\n /* fields */ [new o.ClassField(\n /* name
*/ 'fac',\n /* type */ o.INFERRED_TYPE,\n /* modifiers */ [o.StmtModifier.Static],\n /* initializer
*/ factoryRes.factory)],\n /* getters */ [],\n /* constructorMethod */ new o.ClassMethod(null, [], []),\n /*
methods */ []);\n const pipeDefStatement
= new o.ClassStmt(\n /* name */ name,\n /* parent */ null,\n /* fields */ [new o.ClassField(\n /* name
*/ definitionField,\n /* type */ o.INFERRED_TYPE,\n /* modifiers */ [o.StmtModifier.Static],\n /*
initializer */ res.expression)],\n /* getters */ [],\n /* constructorMethod */ new o.ClassMethod(null, [], []),\n
/* methods */ []);\n\n outputCtx.statements.push(ngFactoryDefStatement, pipeDefStatement);\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport
{SecurityContext} from './core';\nimport {ParseSourceSpan} from './parse_util';\n\nexport class ParserError {\n
public message: string;\n constructor(\n message: string, public input: string, public errLocation: string, public
ctxLocation?: any) {\n this.message = `Parser Error: ${message}`
${errLocation} [${input}] in ${ctxLocation}`;\n }\n}\n\nexport class ParseSpan {\n constructor(public start:
number, public end: number) {\n toAbsolute(absoluteOffset: number): AbsoluteSourceSpan {\n return new
AbsoluteSourceSpan(absoluteOffset + this.start, absoluteOffset + this.end);\n }\n}\n\nexport class AST {\n
constructor(\n public span: ParseSpan,\n /**\n * Absolute location of the expression AST in a source code
file.\n */\n public sourceSpan: AbsoluteSourceSpan) {\n visit(visitor: AstVisitor, context: any = null): any
{\n return null;\n }\n toString(): string {\n return 'AST';\n }\n}\n}\n\nexport abstract class ASTWithName extends
AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public nameSpan:
AbsoluteSourceSpan) {\n super(span, sourceSpan);\n }\n}\n\n/**\n * Represents a quoted expression of the
form:\n *\n * quote = prefix ` ` uninterpretedExpression\n * prefix = identifier\n * uninterpretedExpression
= arbitrary string\n *\n * A quoted expression is meant to be pre-processed by an AST transformer that\n * converts
it into another AST that no longer contains quoted expressions.\n * It is meant to allow third-party developers to
extend Angular template\n * expression language. The `uninterpretedExpression` part of the quote is\n * therefore
not interpreted by the Angular's own expression parser.\n */\n\nexport class Quote extends AST {\n constructor(\n
span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public prefix: string,\n public uninterpretedExpression:
string, public location: any) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any
{\n return visitor.visitQuote(this, context);\n }\n toString(): string {\n return 'Quote';\n }\n}\n\nexport class
EmptyExpr extends AST {\n visit(visitor: AstVisitor, context: any = null) {\n // do nothing\n }\n}\n\nexport class
ImplicitReceiver extends AST {\n visit(visitor: AstVisitor,

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context: any = null): any {\n return visitor.visitImplicitReceiver(this, context);\n }\n}\n\n**\n * Receiver when something is accessed through `this` (e.g. `this.foo`). Note that this class\n * inherits from `ImplicitReceiver`, because accessing something through `this` is treated the\n * same as accessing it implicitly inside of an Angular template (e.g. `[attr.title]="this.title"`\n * is the same as `[attr.title]="title"`). Inheriting allows for the `this` accesses to be treated\n * the same as implicit ones, except for a couple of exceptions like `\$event` and `\$any`.\n * TODO: we should find a way for this class not to extend from `ImplicitReceiver` in the future.\n */\nexport class ThisReceiver extends ImplicitReceiver {\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitThisReceiver?.(this, context);\n }\n}\n\n**\n * Multiple expressions separated by a semicolon.\n */\nexport class Chain extends AST {\n constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public expressions: any[]) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitChain(this, context);\n }\n}\n\nexport class Conditional extends AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public condition: AST, public trueExp: AST,\n public falseExp: AST) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitConditional(this, context);\n }\n}\n\nexport class PropertyRead extends ASTWithName {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, nameSpan: AbsoluteSourceSpan,\n public receiver: AST, public name: string) {\n super(span, sourceSpan, nameSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitPropertyRead(this, context);\n }\n}\n\nexport class PropertyWrite extends ASTWithName {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, nameSpan: AbsoluteSourceSpan,\n public receiver: AST, public name: string, public value: AST) {\n super(span, sourceSpan, nameSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitPropertyWrite(this, context);\n }\n}\n\nexport class SafePropertyRead extends ASTWithName {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, nameSpan: AbsoluteSourceSpan,\n public receiver: AST, public name: string) {\n super(span, sourceSpan, nameSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitSafePropertyRead(this, context);\n }\n}\n\nexport class KeyedRead extends AST {\n constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public obj: AST, public key: AST) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitKeyedRead(this, context);\n }\n}\n\nexport class KeyedWrite extends AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public obj: AST, public key: AST,\n public value: AST) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitKeyedWrite(this, context);\n }\n}\n\nexport class BindingPipe extends ASTWithName {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public exp: AST, public name: string,\n public args: any[], nameSpan: AbsoluteSourceSpan) {\n super(span, sourceSpan, nameSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitPipe(this, context);\n }\n}\n\nexport class LiteralPrimitive extends AST {\n constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public value: any) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitLiteralPrimitive(this, context);\n }\n}\n\nexport class LiteralArray extends AST {\n constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public expressions: any[]) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitLiteralArray(this, context);\n }\n}\n\nexport type LiteralMapKey = {\n key: string; quoted: boolean;\n};\n\nexport class LiteralMap extends AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public keys: LiteralMapKey[],\n public values: any[]) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitLiteralMap(this, context);\n }\n}\n\nexport class Interpolation extends AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public strings: any[],\n public expressions: any[]) {\n super(span, sourceSpan);\n }\n visit(visitor: AstVisitor, context: any = null): any {\n return visitor.visitInterpolation(this, context);\n }\n}\n\nexport class Binary extends AST {\n constructor(\n span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public operation: string,\n public left: AST,\n public right: AST) {\n super(span, sourceSpan);\n }\n visit(visitor:


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AstVisitor, context: any = null): any {\n  return visitor.visitBinary(this, context);\n }\n}\n\n/**\n * For backwards compatibility reasons, `Unary` inherits from `Binary` and mimics the binary AST\n * node that was originally used. This inheritance relation can be deleted in some future major,\n * after consumers have been given a chance to fully support Unary.\n */\nexport class Unary extends Binary {\n // Redeclare the properties that are inherited from\n `Binary` as `never`, as consumers should not\n // depend on these fields when operating on `Unary`. \n left: never;\n right: never;\n operation: never;\n\n /**\n * Creates a unary minus expression \"-x\", represented as `Binary` using\n \"0 - x\".\n */\n static createMinus(span: ParseSpan, sourceSpan:

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  AbsoluteSourceSpan, expr: AST): Unary {\n  return new Unary(\n    span, sourceSpan, '-', expr, '-', new\n    LiteralPrimitive(span, sourceSpan, 0), expr);\n }\n\n /**\n * Creates a unary plus expression \"+x\", represented as\n `Binary` using \"x - 0\".\n */\n static createPlus(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, expr: AST):

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  Unary {\n  return new Unary(\n    span, sourceSpan, '+', expr, '-', expr, new LiteralPrimitive(span, sourceSpan,\n    0));\n }\n\n /**\n * During the deprecation period this constructor is private, to avoid consumers from creating\n * a `Unary` with the fallback properties for `Binary`. \n */\n private constructor(\n  span: ParseSpan, sourceSpan:\n  AbsoluteSourceSpan, public operator: string, public expr: AST,\n  binaryOp: string, binaryLeft: AST,\n  binaryRight: AST) {\n  super(span, sourceSpan, binaryOp, binaryLeft, binaryRight);\n }\n\n visit(visitor:

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  AstVisitor, context: any = null): any {\n  if (visitor.visitUnary\n    !== undefined) {\n    return visitor.visitUnary(this, context);\n  }\n  return visitor.visitBinary(this, context);\n }\n}\n\nexport class PrefixNot extends AST {\n  constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan,\n    public expression: AST) {\n    super(span, sourceSpan);\n  }\n  visit(visitor: AstVisitor, context: any = null): any {\n    return visitor.visitPrefixNot(this, context);\n  }\n}\n\nexport class NonNullAssert extends AST {\n  constructor(span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public expression: AST) {\n    super(span,\n    sourceSpan);\n  }\n  visit(visitor: AstVisitor, context: any = null): any {\n    return visitor.visitNonNullAssert(this,\n    context);\n  }\n}\n\nexport class MethodCall extends ASTWithName {\n  constructor(\n    span: ParseSpan,\n    sourceSpan: AbsoluteSourceSpan, nameSpan: AbsoluteSourceSpan,\n    public receiver: AST, public name: string,\n    public args: any[]) {\n    super(span, sourceSpan, nameSpan);\n  }\n  visit(visitor: AstVisitor,\n    context: any = null): any {\n    return visitor.visitMethodCall(this, context);\n  }\n}\n\nexport class SafeMethodCall\n  extends ASTWithName {\n  constructor(\n    span: ParseSpan, sourceSpan: AbsoluteSourceSpan, nameSpan:\n    AbsoluteSourceSpan,\n    public receiver: AST, public name: string, public args: any[]) {\n    super(span,\n    sourceSpan, nameSpan);\n  }\n  visit(visitor: AstVisitor, context: any = null): any {\n    return\n    visitor.visitSafeMethodCall(this, context);\n  }\n}\n\nexport class FunctionCall extends AST {\n  constructor(\n    span: ParseSpan, sourceSpan: AbsoluteSourceSpan, public target: AST|null,\n    public args: any[]) {\n    super(span, sourceSpan);\n  }\n  visit(visitor: AstVisitor, context: any = null): any {\n    return\n    visitor.visitFunctionCall(this, context);\n  }\n}\n\n/**\n * Records the absolute position of a text span in a source\n * file, where `start` and `end` are the\n * starting and ending byte offsets, respectively, of the text span in a source\n * file.\n

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 */\nexport class AbsoluteSourceSpan {\n  constructor(public readonly start: number, public readonly end: number)\n {\n }\n}\n\nexport class ASTWithSource extends AST {\n  constructor(\n    public ast: AST, public source:\n    string|null, public location: string, absoluteOffset: number,\n    public errors: ParserError[]) {\n    super(\n    new\n    ParseSpan(0, source === null ? 0 : source.length),\n    new AbsoluteSourceSpan(\n    absoluteOffset, source\n    === null ? absoluteOffset : absoluteOffset + source.length));\n  }\n  visit(visitor: AstVisitor, context: any = null):\n  any {\n    if (visitor.visitASTWithSource) {\n    return visitor.visitASTWithSource(this, context);\n    }\n    return\n    this.ast.visit(visitor, context);\n  }\n  toString(): string {\n    return `${this.source} in ${this.location}`;\n  }\n}\n\n/**\n * TemplateBinding refers to a particular key-value pair in a microsyntax\n * expression. A few\n * examples are:\n

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  \n * | expression | key | value | binding type\n * |-----|-----|-----|-----|\n * | 1. let item | item | null | variable\n * | 2. of items | ngForOf | items | expression\n * | 3. let x = y | x | y | variable\n * | 4. index as i | i | index | variable\n * | 5. trackBy: func | ngForTrackBy | func | expression\n * | 6. *ngIf=\"cond\" | ngIf | cond | expression\n * |----

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-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
\n *\n * (6) is a notable exception because it is a binding from the
template key in\n * the LHS of a HTML attribute to the expression in the RHS. All other bindings\n * in the
example above are derived solely from the RHS.\n */\nexport type TemplateBinding =
VariableBinding|ExpressionBinding;\n\nexport class VariableBinding {\n /**\n * @param sourceSpan
entire span of the binding.\n * @param key name of the LHS along with its span.\n * @param value optional
value for the RHS along with its span.\n */\n constructor(\n public readonly sourceSpan:
AbsoluteSourceSpan,\n public readonly key: TemplateBindingIdentifier,\n public readonly value:
TemplateBindingIdentifier|null) {} }\n\nexport class ExpressionBinding {\n /**\n * @param sourceSpan entire
span of the binding.\n * @param key binding name, like ngForOf, ngForTrackBy, ngIf, along with its\n * span.
Note that the length of the span may not be the same as\n * `key.source.length`. For example,\n * 1. key.source =
ngFor, key.span is for `\"ngFor\"`\n * 2. key.source = ngForOf, key.span is for `\"of\"`\n * 3. key.source =
ngForTrackBy, key.span is for `\"trackBy\"`\n * @param value optional expression for the RHS.\n */\n
constructor(\n public readonly sourceSpan: AbsoluteSourceSpan,\n public readonly key:
TemplateBindingIdentifier,
public readonly value: ASTWithSource|null) {} }\n\nexport interface TemplateBindingIdentifier {\n source:
string;\n span: AbsoluteSourceSpan;\n }\n\nexport interface AstVisitor {\n /**\n * The `visitUnary` method is
declared as optional for backwards compatibility. In an upcoming\n * major release, this method will be made
required.\n */\n visitUnary?(ast: Unary, context: any): any;\n visitBinary(ast: Binary, context: any): any;\n
visitChain(ast: Chain, context: any): any;\n visitConditional(ast: Conditional, context: any): any;\n
visitFunctionCall(ast: FunctionCall, context: any): any;\n /**\n * The `visitThisReceiver` method is declared as
optional for backwards compatibility.\n * In an upcoming major release, this method will be made required.\n */\n
visitThisReceiver?(ast: ThisReceiver, context: any): any;\n visitImplicitReceiver(ast: ImplicitReceiver, context:
any): any;\n visitInterpolation(ast: Interpolation, context: any): any;\n visitKeyedRead(ast: KeyedRead,
context: any): any;\n visitKeyedWrite(ast: KeyedWrite, context: any): any;\n visitLiteralArray(ast: LiteralArray,
context: any): any;\n visitLiteralMap(ast: LiteralMap, context: any): any;\n visitLiteralPrimitive(ast:
LiteralPrimitive, context: any): any;\n visitMethodCall(ast: MethodCall, context: any): any;\n visitPipe(ast:
BindingPipe, context: any): any;\n visitPrefixNot(ast: PrefixNot, context: any): any;\n visitNonNullAssert(ast:
NonNullAssert, context: any): any;\n visitPropertyRead(ast: PropertyRead, context: any): any;\n
visitPropertyWrite(ast: PropertyWrite, context: any): any;\n visitQuote(ast: Quote, context: any): any;\n
visitSafeMethodCall(ast: SafeMethodCall, context: any): any;\n visitSafePropertyRead(ast: SafePropertyRead,
context: any): any;\n visitASTWithSource?(ast: ASTWithSource, context: any): any;\n /**\n * This function is
optionally defined to allow classes that implement this\n * interface to selectively decide if the specified `ast`
should be visited.\n * @param ast node to visit\n * @param context context that gets passed to the node and all
its children\n */\n visit?(ast: AST, context?: any): any;\n }\n\nexport class RecursiveAstVisitor implements
AstVisitor {\n visit(ast: AST, context?: any): any {\n // The default implementation just visits every node.\n //
Classes that extend RecursiveAstVisitor should override this function\n // to selectively visit the specified node.\n
ast.visit(this, context);\n }\n\n visitUnary(ast: Unary, context: any): any {\n this.visit(ast.expr, context);\n }\n
visitBinary(ast: Binary, context: any): any {\n this.visit(ast.left, context);\n this.visit(ast.right, context);\n }\n
visitChain(ast: Chain, context: any): any {\n this.visitAll(ast.expressions, context);\n }\n
visitConditional(ast: Conditional, context: any): any {\n this.visit(ast.condition, context);\n this.visit(ast.trueExp, context);\n
this.visit(ast.falseExp, context);\n }\n\n visitPipe(ast: BindingPipe, context: any): any {\n this.visit(ast.exp, context);\n
this.visitAll(ast.args, context);\n }\n\n visitFunctionCall(ast: FunctionCall, context: any): any {\n if (ast.target) {\n
this.visit(ast.target, context);\n }\n this.visitAll(ast.args, context);\n }\n\n visitImplicitReceiver(ast: ThisReceiver, context: any): any {\n
visitThisReceiver(ast: ThisReceiver, context: any): any {\n }\n\n visitInterpolation(ast: Interpolation, context: any): any {\n
this.visitAll(ast.expressions, context);\n }\n\n visitKeyedRead(ast: KeyedRead, context: any): any {\n
this.visit(ast.obj, context);\n this.visit(ast.key, context);\n }\n\n visitKeyedWrite(ast: KeyedWrite, context: any):
any {\n this.visit(ast.obj, context);\n this.visit(ast.key, context);\n this.visit(ast.value, context);\n }\n }

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visitLiteralArray(ast: LiteralArray, context: any): any {\n  this.visitAll(ast.expressions, context);\n }\n
visitLiteralMap(ast: LiteralMap, context:
any): any {\n  this.visitAll(ast.values, context);\n }\n visitLiteralPrimitive(ast: LiteralPrimitive, context: any): any
{\n }\n visitMethodCall(ast: MethodCall, context: any): any {\n  this.visit(ast.receiver, context);\n
this.visitAll(ast.args, context);\n }\n visitPrefixNot(ast: PrefixNot, context: any): any {\n  this.visit(ast.expression,
context);\n }\n visitNonNullAssert(ast: NonNullAssert, context: any): any {\n  this.visit(ast.expression,
context);\n }\n visitPropertyRead(ast: PropertyRead, context: any): any {\n  this.visit(ast.receiver, context);\n }\n
visitPropertyWrite(ast: PropertyWrite, context: any): any {\n  this.visit(ast.receiver, context);\n
this.visit(ast.value, context);\n }\n visitSafePropertyRead(ast: SafePropertyRead, context: any): any {\n
this.visit(ast.receiver, context);\n }\n visitSafeMethodCall(ast: SafeMethodCall, context: any): any {\n
this.visit(ast.receiver, context);\n  this.visitAll(ast.args, context);\n }\n
  visitQuote(ast: Quote, context: any): any {\n // This is not part of the AstVisitor interface, just a helper method\n
visitAll(ast: AST[], context: any): any {\n  for (const ast of asts) {\n    this.visit(ast, context);\n  }\n }\n\nexport class AstTransformer implements AstVisitor {\n  visitImplicitReceiver(ast: ImplicitReceiver,
context: any): AST {\n    return ast;\n  }\n  visitThisReceiver(ast: ThisReceiver, context: any): AST {\n    return
ast;\n  }\n  visitInterpolation(ast: Interpolation, context: any): AST {\n    return new Interpolation(ast.span,
ast.sourceSpan, ast.strings, this.visitAll(ast.expressions));\n }\n  visitLiteralPrimitive(ast: LiteralPrimitive,
context: any): AST {\n    return new LiteralPrimitive(ast.span, ast.sourceSpan, ast.value);\n }\n  visitPropertyRead(ast: PropertyRead, context: any): AST {\n    return new PropertyRead(\n      ast.span,
ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name);\n }\n  visitPropertyWrite(ast:
PropertyWrite, context: any): AST {\n    return new PropertyWrite(\n      ast.span, ast.sourceSpan, ast.nameSpan,
ast.receiver.visit(this), ast.name,\n      ast.value.visit(this));\n }\n  visitSafePropertyRead(ast: SafePropertyRead,
context: any): AST {\n    return new SafePropertyRead(\n      ast.span, ast.sourceSpan, ast.nameSpan,
ast.receiver.visit(this), ast.name);\n }\n  visitMethodCall(ast: MethodCall, context: any): AST {\n    return new
MethodCall(\n      ast.span, ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name,\n      this.visitAll(ast.args));\n }\n  visitSafeMethodCall(ast: SafeMethodCall, context: any): AST {\n    return new
SafeMethodCall(\n      ast.span, ast.sourceSpan, ast.nameSpan, ast.receiver.visit(this), ast.name,\n      this.visitAll(ast.args));\n }\n  visitFunctionCall(ast: FunctionCall, context: any): AST {\n    return new
FunctionCall(\n      ast.span, ast.sourceSpan, ast.target!.visit(this), this.visitAll(ast.args));\n
  }\n  visitLiteralArray(ast: LiteralArray, context: any): AST {\n    return new LiteralArray(ast.span,
ast.sourceSpan, this.visitAll(ast.expressions));\n }\n  visitLiteralMap(ast: LiteralMap, context: any): AST {\n
return new LiteralMap(ast.span, ast.sourceSpan, ast.keys, this.visitAll(ast.values));\n }\n  visitUnary(ast: Unary,
context: any): AST {\n    switch (ast.operator) {\n      case '+':\n        return Unary.createPlus(ast.span,
ast.sourceSpan, ast.expr.visit(this));\n      case '-':\n        return Unary.createMinus(ast.span, ast.sourceSpan,
ast.expr.visit(this));\n      default:\n        throw new Error(`Unknown unary operator ${ast.operator}`);\n    }\n }\n  visitBinary(ast: Binary, context: any): AST {\n    return new Binary(\n      ast.span, ast.sourceSpan, ast.operation,
ast.left.visit(this), ast.right.visit(this));\n }\n  visitPrefixNot(ast: PrefixNot, context: any): AST {\n    return new
PrefixNot(ast.span, ast.sourceSpan, ast.expression.visit(this));\n
  }\n  visitNonNullAssert(ast: NonNullAssert, context: any): AST {\n    return new NonNullAssert(ast.span,
ast.sourceSpan, ast.expression.visit(this));\n }\n  visitConditional(ast: Conditional, context: any): AST {\n
return new Conditional(\n      ast.span, ast.sourceSpan, ast.condition.visit(this), ast.trueExp.visit(this),\n      ast.falseExp.visit(this));\n }\n  visitPipe(ast: BindingPipe, context: any): AST {\n    return new BindingPipe(\n
ast.span, ast.sourceSpan, ast.exp.visit(this), ast.name, this.visitAll(ast.args),\n      ast.nameSpan);\n }\n  visitKeyedRead(ast: KeyedRead, context: any): AST {\n    return new KeyedRead(ast.span, ast.sourceSpan,
ast.obj.visit(this), ast.key.visit(this));\n }\n  visitKeyedWrite(ast: KeyedWrite, context: any): AST {\n    return
new KeyedWrite(\n      ast.span, ast.sourceSpan, ast.obj.visit(this), ast.key.visit(this), ast.value.visit(this));\n }\n
  visitAll(ast: any[]): any[] {\n    const res = [];\n

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    for (let i = 0; i < asts.length; ++i) {\n      res[i] = asts[i].visit(this);\n    }\n    return res;\n  }\n\n  visitChain(ast: Chain, context: any): AST {\n    return new Chain(ast.span, ast.sourceSpan, this.visitAll(ast.expressions));\n  }\n\n  visitQuote(ast: Quote, context: any): AST {\n    return new Quote(\n      ast.span, ast.sourceSpan, ast.prefix,\n      ast.uninterpretedExpression, ast.location);\n  }\n}\n\n// A transformer that only creates new nodes if the transformer makes a change or\n// a change is made a child node.\nexport class AstMemoryEfficientTransformer implements AstVisitor {\n  visitImplicitReceiver(ast: ImplicitReceiver, context: any): AST {\n    return ast;\n  }\n\n  visitThisReceiver(ast: ThisReceiver, context: any): AST {\n    return ast;\n  }\n\n  visitInterpolation(ast: Interpolation, context: any): Interpolation {\n    const expressions = this.visitAll(ast.expressions);\n    if (expressions !== ast.expressions)\n      return new Interpolation(ast.span, ast.sourceSpan, ast.strings, expressions);\n    return ast;\n  }\n\n  visitLiteralPrimitive(ast: LiteralPrimitive, context: any): AST {\n    return ast;\n  }\n\n  visitPropertyRead(ast: PropertyRead, context: any): AST {\n    const receiver = ast.receiver.visit(this);\n    if (receiver !== ast.receiver) {\n      return new PropertyRead(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name);\n    }\n    return ast;\n  }\n\n  visitPropertyWrite(ast: PropertyWrite, context: any): AST {\n    const receiver = ast.receiver.visit(this);\n    const value = ast.value.visit(this);\n    if (receiver !== ast.receiver || value !== ast.value) {\n      return new PropertyWrite(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name, value);\n    }\n    return ast;\n  }\n\n  visitSafePropertyRead(ast: SafePropertyRead, context: any): AST {\n    const receiver = ast.receiver.visit(this);\n    if (receiver !== ast.receiver) {\n      return new SafePropertyRead(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name);\n    }\n    return ast;\n  }\n\n  visitMethodCall(ast: MethodCall, context: any): AST {\n    const receiver = ast.receiver.visit(this);\n    const args = this.visitAll(ast.args);\n    if (receiver !== ast.receiver || args !== ast.args) {\n      return new MethodCall(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name, args);\n    }\n    return ast;\n  }\n\n  visitSafeMethodCall(ast: SafeMethodCall, context: any): AST {\n    const receiver = ast.receiver.visit(this);\n    const args = this.visitAll(ast.args);\n    if (receiver !== ast.receiver || args !== ast.args) {\n      return new SafeMethodCall(ast.span, ast.sourceSpan, ast.nameSpan, receiver, ast.name, args);\n    }\n    return ast;\n  }\n\n  visitFunctionCall(ast: FunctionCall, context: any): AST {\n    const target = ast.target.visit(this);\n    const args = this.visitAll(ast.args);\n    if (target !== ast.target || args !== ast.args) {\n      return new FunctionCall(ast.span, ast.sourceSpan, target, args);\n    }\n    return ast;\n  }\n\n  visitLiteralArray(ast: LiteralArray, context: any): AST {\n    const expressions = this.visitAll(ast.expressions);\n    if (expressions !== ast.expressions) {\n      return new LiteralArray(ast.span, ast.sourceSpan, expressions);\n    }\n    return ast;\n  }\n\n  visitLiteralMap(ast: LiteralMap, context: any): AST {\n    const values = this.visitAll(ast.values);\n    if (values !== ast.values) {\n      return new LiteralMap(ast.span, ast.sourceSpan, ast.keys, values);\n    }\n    return ast;\n  }\n\n  visitUnary(ast: Unary, context: any): AST {\n    const expr = ast.expr.visit(this);\n    if (expr !== ast.expr) {\n      switch (ast.operator) {\n        case '+':\n          return Unary.createPlus(ast.span, ast.sourceSpan, expr);\n        case '-':\n          return Unary.createMinus(ast.span, ast.sourceSpan, expr);\n        default:\n          throw new Error(`Unknown unary operator ${ast.operator}`);\n      }\n    }\n    return ast;\n  }\n\n  visitBinary(ast: Binary, context: any): AST {\n    const left = ast.left.visit(this);\n    const right = ast.right.visit(this);\n    if (left !== ast.left || right !== ast.right) {\n      return new Binary(ast.span, ast.sourceSpan, ast.operation, left, right);\n    }\n    return ast;\n  }\n\n  visitPrefixNot(ast: PrefixNot, context: any): AST {\n    const expression = ast.expression.visit(this);\n    if (expression !== ast.expression) {\n      return new PrefixNot(ast.span, ast.sourceSpan, expression);\n    }\n    return ast;\n  }\n\n  visitNonNullAssert(ast: NonNullAssert, context: any): AST {\n    const expression = ast.expression.visit(this);\n    if (expression !== ast.expression) {\n      return new NonNullAssert(ast.span, ast.sourceSpan, expression);\n    }\n    return ast;\n  }\n\n  visitConditional(ast: Conditional, context: any): AST {\n    const condition = ast.condition.visit(this);\n    const trueExp = ast.trueExp.visit(this);\n    const falseExp = ast.falseExp.visit(this);\n    if (condition !== ast.condition || trueExp !== ast.trueExp || falseExp !== ast.falseExp) {\n      return new Conditional(ast.span, ast.sourceSpan, condition, trueExp, falseExp);\n    }\n    return ast;\n  }\n\n  visitPipe(ast: BindingPipe, context: any): AST {\n    const exp = ast.exp.visit(this);\n    const args = this.visitAll(ast.args);\n    if

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(exp !== ast.exp || args !== ast.args) {\n    return new BindingPipe(ast.span, ast.sourceSpan, exp, ast.name, args,
ast.nameSpan);\n  }\n  return ast;\n }\n\n visitKeyedRead(ast: KeyedRead, context: any): AST {\n  const obj =
ast.obj.visit(this);\n  const key = ast.key.visit(this);\n  if (obj !== ast.obj || key !== ast.key) {\n    return new
KeyedRead(ast.span, ast.sourceSpan, obj, key);\n  }\n  return ast;\n }\n\n visitKeyedWrite(ast: KeyedWrite,
context: any): AST {\n  const obj = ast.obj.visit(this);\n  const key = ast.key.visit(this);\n  const value =
ast.value.visit(this);\n  if (obj !==
ast.obj || key !== ast.key || value !== ast.value) {\n    return new KeyedWrite(ast.span, ast.sourceSpan, obj, key,
value);\n  }\n  return ast;\n }\n\n visitAll(ast: any[]): any[] {\n  const res = [];\n  let modified = false;\n  for
(let i = 0; i < asts.length; ++i) {\n    const original = asts[i];\n    const value = original.visit(this);\n    res[i] =
value;\n    modified = modified || value !== original;\n  }\n  return modified ? res : asts;\n }\n\n visitChain(ast:
Chain, context: any): AST {\n  const expressions = this.visitAll(ast.expressions);\n  if (expressions !==
ast.expressions) {\n    return new Chain(ast.span, ast.sourceSpan, expressions);\n  }\n  return ast;\n }\n\n
visitQuote(ast: Quote, context: any): AST {\n  return ast;\n }\n\n\n// Bindings\n\nexport class ParsedProperty {\n
public readonly isLiteral: boolean;\n public readonly isAnimation: boolean;\n\n constructor(\n   public name:
string, public expression: ASTWithSource,
   public type: ParsedPropertyType,\n   // TODO(atscott): `keySpan` should really be required but allows
`undefined` so VE does\n   // not need to be updated. Make `keySpan` required when VE is removed.\n   public
sourceSpan: ParseSourceSpan, readonly keySpan: ParseSourceSpan|undefined,\n   public valueSpan:
ParseSourceSpan|undefined) {\n  this.isLiteral = this.type === ParsedPropertyType.LITERAL_ATTR;\n
this.isAnimation = this.type === ParsedPropertyType.ANIMATION;\n }\n\n\nexport enum ParsedPropertyType
{\n  DEFAULT,\n  LITERAL_ATTR,\n  ANIMATION\n}\n\n\nexport const enum ParsedEventType {\n // DOM or
Directive event\n  Regular,\n // Animation specific event\n  Animation,\n}\n\n\nexport class ParsedEvent {\n //
Regular events have a target\n // Animation events have a phase\n constructor(\n   public name: string, public
targetOrPhase: string, public type: ParsedEventType,\n   public handler: ASTWithSource, public sourceSpan:
ParseSourceSpan,\n   public
handlerSpan: ParseSourceSpan) {\n }\n\n\n/**\n * ParsedVariable represents a variable declaration in a microsyntax
expression.\n */\nexport class ParsedVariable {\n  constructor(\n    public readonly name: string, public readonly
value: string,\n    public readonly sourceSpan: ParseSourceSpan, public readonly keySpan: ParseSourceSpan,\n
public readonly valueSpan?: ParseSourceSpan) {\n }\n\n\nexport const enum BindingType {\n // A regular binding
to a property (e.g. `[property]="expression"`).\n  Property,\n // A binding to an element attribute (e.g.
`[attr.name]="expression"`).\n  Attribute,\n // A binding to a CSS class (e.g. `[class.name]="condition"`).\n
  Class,\n // A binding to a style rule (e.g. `[style.rule]="expression"`).\n  Style,\n // A binding to an animation
reference (e.g. `[animate.key]="expression"`).\n  Animation,\n}\n\n\nexport class BoundElementProperty {\n
constructor(\n   public name: string, public type: BindingType, public securityContext:
SecurityContext,\n   public value: ASTWithSource, public unit: string|null, public sourceSpan:
ParseSourceSpan,\n   readonly keySpan: ParseSourceSpan|undefined, public valueSpan:
ParseSourceSpan|undefined) {\n }\n\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport * as cdAst from './expression_parser/ast';\nimport {Identifiers} from
'./identifiers';\nimport * as o from './output/output_ast';\nimport {ParseSourceSpan} from './parse_util';\n\nexport
class EventHandlerVars {\n  static event = o.variable('$event');\n}\n\n\nexport interface LocalResolver {\n
getLocal(name: string): o.Expression|null;\n notifyImplicitReceiverUse(): void;\n globals?:
Set<string>;\n}\n\n\nexport class ConvertActionBindingResult {\n /**\n * Store statements which are render3
compatible.\n */\n  render3Stmts: o.Statement[];\n  constructor(\n    /**\n * Render2 compatible statements,\n */\n    public stmts: o.Statement[],\n    /**\n * Variable
name used with render2 compatible statements.\n */\n    public allowDefault: o.ReadVarExpr) {\n    /**\n *
This is bit of a hack. It converts statements which render2 expects to statements which are\n * expected by
render3.\n */\n    * Example: `<div click="doSomething($event)">` will generate:\n */\n    * Render3:\n *

```

```

```n
 * const pd_b:any = ((<any>ctx.doSomething($event)) !== false);\n
 * return pd_b;\n
 * ```n
 * \n
 *
but render2 expects:\n
 * ```n
 * return ctx.doSomething($event);\n
 * ```n
 * \n
 * \n
 * // TODO(misko): remove
this hack once we no longer support ViewEngine.\n
 this.render3Stmts = stmts.map((statement: o.Statement) =>
{\n
 if (statement instanceof o.DeclareVarStmt && statement.name == allowDefault.name &&\n
statement.value instanceof o.BinaryOperatorExpr) {\n
 const lhs = statement.value.lhs as o.CastExpr;\n
 return new o.ReturnStatement(lhs.value);\n
 } \n
return statement;\n
 });\n
 }\n
}\n\nexport type InterpolationFunction = (args: o.Expression[]) =>
o.Expression;\n\n/**\n * Converts the given expression AST into an executable output AST, assuming the
expression is\n * used in an action binding (e.g. an event handler).\n */\nexport function convertActionBinding(\nlocalResolver: LocalResolver|null, implicitReceiver: o.Expression, action: cdAst.AST,\n bindingId: string,
interpolationFunction?: InterpolationFunction,\n baseSourceSpan?: ParseSourceSpan, implicitReceiverAccesses?:
Set<string>,\n globals?: Set<string>): ConvertActionResult {\n if (!localResolver) {\n localResolver =
new DefaultLocalResolver(globals);\n }\n\n const actionWithoutBuiltins = convertPropertyBindingBuiltins(\n {\n
createLiteralArrayConverter: (argCount: number) => {\n // Note: no caching for literal
arrays in actions.\n return (args: o.Expression[]) => o.literalArr(args);\n },\n
createLiteralMapConverter: (keys: {key: string, quoted: boolean}[]) => {\n // Note: no caching for literal maps
in actions.\n return (values: o.Expression[]) => {\n const entries = keys.map((k, i) => ({\n
key: k.key,\n value: values[i],\n quoted: k.quoted,\n
}));\n return o.literalMap(entries);\n });\n },\n
createPipeConverter: (name: string)
=> {\n throw new Error(`Illegal State: Actions are not allowed to contain pipes. Pipe: ${name}`);\n }\n
},\n action);\n\n const visitor = new _AstToIrVisitor(\n localResolver, implicitReceiver, bindingId,
interpolationFunction, baseSourceSpan,\n implicitReceiverAccesses);\n const actionStmts: o.Statement[]
= [];\n flattenStatements(actionWithoutBuiltins.visit(visitor, _Mode.Statement), actionStmts);\n
prependTemporaryDecls(visitor.temporaryCount, bindingId, actionStmts);\n\n if (visitor.usesImplicitReceiver) {\n
localResolver.notifyImplicitReceiverUse();\n }\n\n const lastIndex = actionStmts.length - 1;\n let
preventDefaultVar: o.ReadVarExpr = null!;\n if (lastIndex >= 0) {\n const lastStatement =
actionStmts[lastIndex];\n const returnExpr = convertStmtIntoExpression(lastStatement);\n if (returnExpr) {\n
// Note: We need to cast the result of the method call to dynamic,\n // as it might be a void method!\n
preventDefaultVar = createPreventDefaultVar(bindingId);\n actionStmts[lastIndex] =\n
preventDefaultVar.set(returnExpr.cast(o.DYNAMIC_TYPE).notIdentical(o.literal(false)))\n
.toDeclStmt(null, [o.StmtModifier.Final]);\n }\n }\n return new ConvertActionResult(actionStmts,
preventDefaultVar);\n }\n}\n\nexport interface
BuiltinConverter {\n (args: o.Expression[]): o.Expression;\n }\n\nexport interface BuiltinConverterFactory {\n
createLiteralArrayConverter(argCount: number): BuiltinConverter;\n createLiteralMapConverter(keys: {key: string,
quoted: boolean}[]): BuiltinConverter;\n createPipeConverter(name: string, argCount: number):
BuiltinConverter;\n }\n\nexport function convertPropertyBindingBuiltins(\n converterFactory:
BuiltinConverterFactory, ast: cdAst.AST): cdAst.AST {\n return convertBuiltins(converterFactory,
ast);\n }\n\nexport class ConvertPropertyBindingResult {\n constructor(public stmts: o.Statement[], public
currValExpr: o.Expression) {\n }\n}\n\nexport enum BindingForm {\n // The general form of binding expression,
supports all expressions.\n General,\n\n // Try to generate a simple binding (no temporaries or statements)\n\n //
otherwise generate a general binding\n TrySimple,\n\n // Inlines assignment of temporaries into the generated
expression. The result may still\n //
have statements attached for declarations of temporary variables.\n // This is the only relevant form for Ivy, the
other forms are only used in ViewEngine.\n Expression,\n }\n\n/**\n * Converts the given expression AST into an
executable output AST, assuming the expression\n * is used in property binding. The expression has to be
preprocessed via\n * `convertPropertyBindingBuiltins`.\n */\nexport function convertPropertyBinding(\nlocalResolver: LocalResolver|null, implicitReceiver: o.Expression,\n expressionWithoutBuiltins: cdAst.AST,
bindingId: string, form: BindingForm,\n interpolationFunction?: InterpolationFunction):

```

```

ConvertPropertyBindingResult {
 if (!localResolver) {
 localResolver = new DefaultLocalResolver();
 }
 const visitor = new _AstToIrVisitor(localResolver, implicitReceiver, bindingId, interpolationFunction);
 const outputExpr: o.Expression = expressionWithoutBuiltins.visit(visitor, _Mode.Expression);
 const stmts: o.Statement[] = getStatementsFromVisitor(visitor, bindingId);

 if (visitor.usesImplicitReceiver) {
 localResolver.notifyImplicitReceiverUse();
 }

 if (visitor.temporaryCount === 0 && form === BindingForm.TrySimple) {
 return new ConvertPropertyBindingResult([], outputExpr);
 } else if (form === BindingForm.Expression) {
 return new ConvertPropertyBindingResult(stmts, outputExpr);
 }

 const currValExpr = createCurrValueExpr(bindingId);
 stmts.push(currValExpr.set(outputExpr).toDeclStmt(o.DYNAMIC_TYPE, [o.StmtModifier.Final]));
 return new ConvertPropertyBindingResult(stmts, currValExpr);
}

/* Given some expression, such as a binding or interpolation expression, and a context expression to look values up on, visit each facet of the given expression resolving values from the context expression such that a list of arguments can be derived from the found values that can be used as arguments to an external update instruction. */

@param localResolver The resolver to use to look up expressions by name appropriately
@param contextVariableExpression The expression representing the context variable used to create the final argument expressions
@param expressionWithArgumentsToExtract The expression to visit to figure out what values need to be resolved and what arguments list to build
@param bindingId A name prefix used to create temporary variable names if they're needed for the arguments generated
@returns An array of expressions that can be passed as arguments to instruction expressions like `o.importExpr(R3.propertyInterpolate).callFn(result)`

nexport function convertUpdateArguments(
 localResolver: LocalResolver, contextVariableExpression: o.Expression,
 expressionWithArgumentsToExtract: cdAst.AST, bindingId: string) {
 const visitor = new _AstToIrVisitor(localResolver, contextVariableExpression, bindingId, undefined);
 const outputExpr: o.InvokeFunctionExpr = expressionWithArgumentsToExtract.visit(visitor, _Mode.Expression);

 if (visitor.usesImplicitReceiver) {
 localResolver.notifyImplicitReceiverUse();
 }

 const stmts = getStatementsFromVisitor(visitor, bindingId);

 // Removing the first argument, because it was a length for ViewEngine, not Ivy.
 let args = outputExpr.args.slice(1);
 if (expressionWithArgumentsToExtract instanceof cdAst.Interpolation) {
 // If we're dealing with an interpolation of 1 value with an empty prefix and suffix, reduce the args returned to just the value, because we're going to pass it to a special instruction.
 const strings = expressionWithArgumentsToExtract.strings;
 if (args.length === 3 && strings[0] === " && strings[1] === ") {
 // Single argument interpolate instructions.
 args = [args[1]];
 } else if (args.length >= 19) {
 // 19 or more arguments must be passed to the `interpolateV`-style instructions, which accept an array of arguments
 args = [o.literalArr(args)];
 }
 }

 return {stmts, args};
}

nfunction getStatementsFromVisitor(visitor: _AstToIrVisitor, bindingId: string) {
 const stmts: o.Statement[] = [];
 for (let i = 0; i < visitor.temporaryCount; i++) {
 stmts.push(temporaryDeclaration(bindingId, i));
 }
 return stmts;
}

nfunction convertBuiltins(converterFactory: BuiltinConverterFactory, ast: cdAst.AST) {
 const visitor = new _BuiltinAstConverter(converterFactory);
 return ast.visit(visitor);
}

nfunction temporaryName(bindingId: string, temporaryNumber: number): string {
 return `tmp_${bindingId}_${temporaryNumber}`;
}

nexport function temporaryDeclaration(bindingId: string, temporaryNumber: number): o.Statement {
 return new o.DeclareVarStmt(temporaryName(bindingId, temporaryNumber), o.NULL_EXPR);
}

nfunction prependTemporaryDecls(
 temporaryCount: number, bindingId: string, statements: o.Statement[]) {
 for (let i = temporaryCount - 1; i >= 0; i--) {
 statements.unshift(temporaryDeclaration(bindingId, i));
 }
}

nenum _Mode {
 Statement,
 Expression
}

nfunction ensureStatementMode(mode: _Mode, ast: cdAst.AST) {
 if (mode !== _Mode.Statement) {
 throw new Error(`Expected a statement, but saw ${ast}`);
 }
}

nfunction ensureExpressionMode(mode: _Mode, ast: cdAst.AST) {
 if (mode !== _Mode.Expression) {
 throw new Error(`Expected an expression, but saw ${ast}`);
 }
}

nfunction convertToStatementIfNeeded(mode: _Mode,

```

```

expr: o.Expression): o.Expression|o.Statement {\n if (mode === _Mode.Statement) {\n return expr.toStmt();\n }
else {\n return expr;\n }\n}\n\nclass _BuiltinAstConverter extends cdAst.AstTransformer {\n constructor(private
_converterFactory: BuiltinConverterFactory) {\n super();\n }\n visitPipe(ast: cdAst.BindingPipe, context: any):
any {\n const args = [ast.exp, ...ast.args].map(ast => ast.visit(this, context));\n return new BuiltinFunctionCall(\n
ast.span,
ast.sourceSpan, args,\n this._converterFactory.createPipeConverter(ast.name, args.length));\n }\n
visitLiteralArray(ast: cdAst.LiteralArray, context: any): any {\n const args = ast.expressions.map(ast =>
ast.visit(this, context));\n return new BuiltinFunctionCall(\n ast.span, ast.sourceSpan, args,\n
this._converterFactory.createLiteralArrayConverter(ast.expressions.length));\n }\n visitLiteralMap(ast:
cdAst.LiteralMap, context: any): any {\n const args = ast.values.map(ast => ast.visit(this, context));\n return
new BuiltinFunctionCall(\n ast.span, ast.sourceSpan, args,
this._converterFactory.createLiteralMapConverter(ast.keys));\n }\n}\n\nclass _AstToIrVisitor implements
cdAst.AstVisitor {\n private _nodeMap = new Map<cdAst.AST, cdAst.AST>();\n private _resultMap = new
Map<cdAst.AST, o.Expression>();\n private _currentTemporary: number = 0;\n public temporaryCount: number =
0;\n public usesImplicitReceiver: boolean = false;\n\n constructor(\n
private _localResolver: LocalResolver, private _implicitReceiver: o.Expression,\n private bindingId: string,
private interpolationFunction: InterpolationFunction|undefined,\n private baseSourceSpan?: ParseSourceSpan,
private implicitReceiverAccesses?: Set<string>) {\n\n visitUnary(ast: cdAst.Unary, mode: _Mode): any {\n let
op: o.UnaryOperator;\n switch (ast.operator) {\n case '+':\n op = o.UnaryOperator.Plus;\n break;\n
case '-':\n op = o.UnaryOperator.Minus;\n break;\n default:\n throw new Error(`Unsupported
operator ${ast.operator}`);\n }\n\n return convertToStatementIfNeeded(\n mode,\n new
o.UnaryOperatorExpr(\n op, this._visit(ast.expr, _Mode.Expression), undefined,\n
this.convertSourceSpan(ast.span));\n }\n\n visitBinary(ast: cdAst.Binary, mode: _Mode): any {\n let op:
o.BinaryOperator;\n switch (ast.operation) {\n case '+':\n op = o.BinaryOperator.Plus;\n
break;\n case '-':\n op = o.BinaryOperator.Minus;\n break;\n case '*':\n op =
o.BinaryOperator.Multiply;\n break;\n case '/':\n op = o.BinaryOperator.Divide;\n break;\n case
'%':\n op = o.BinaryOperator.Modulo;\n break;\n case '&':\n op = o.BinaryOperator.And;\n
break;\n case '||':\n op = o.BinaryOperator.Or;\n break;\n case '==':\n op =
o.BinaryOperator.Equals;\n break;\n case '!=':\n op = o.BinaryOperator.NotEquals;\n break;\n
case '===':\n op = o.BinaryOperator.Identical;\n break;\n case '!==':\n op =
o.BinaryOperator.NotIdentical;\n break;\n case '<':\n op = o.BinaryOperator.Lower;\n break;\n
case '>':\n op = o.BinaryOperator.Bigger;\n break;\n case '<=':\n op =
o.BinaryOperator.LowerEquals;\n break;\n case
'>=':\n op = o.BinaryOperator.BiggerEquals;\n break;\n default:\n throw new Error(`Unsupported
operation ${ast.operation}`);\n }\n\n return convertToStatementIfNeeded(\n mode,\n new
o.BinaryOperatorExpr(\n op, this._visit(ast.left, _Mode.Expression), this._visit(ast.right,
_Mode.Expression),\n undefined, this.convertSourceSpan(ast.span));\n }\n\n visitChain(ast: cdAst.Chain,
mode: _Mode): any {\n ensureStatementMode(mode, ast);\n return this.visitAll(ast.expressions, mode);\n }\n\n
visitConditional(ast: cdAst.Conditional, mode: _Mode): any {\n const value: o.Expression =
this._visit(ast.condition, _Mode.Expression);\n return convertToStatementIfNeeded(\n mode,\n
value.conditional(\n this._visit(ast.trueExp, _Mode.Expression), this._visit(ast.falseExp,
_Mode.Expression),\n this.convertSourceSpan(ast.span));\n }\n\n visitPipe(ast: cdAst.BindingPipe, mode:
_Mode):
any {\n throw new Error(\n `Illegal state: Pipes should have been converted into functions. Pipe:
${ast.name}`);\n }\n\n visitFunctionCall(ast: cdAst.FunctionCall, mode: _Mode): any {\n const convertedArgs =
this.visitAll(ast.args, _Mode.Expression);\n let fnResult: o.Expression;\n if (ast instanceof BuiltinFunctionCall)
{\n fnResult = ast.converter(convertedArgs);\n } else {\n fnResult = this._visit(ast.target!,
_Mode.Expression);\n .callFn(convertedArgs, this.convertSourceSpan(ast.span));\n }\n return

```



```

convertToStatementIfNeeded(mode, fnResult);\n }\n\n visitImplicitReceiver(ast: cdAst.ImplicitReceiver, mode:
_Mode): any {\n ensureExpressionMode(mode, ast);\n this.usesImplicitReceiver = true;\n return
this._implicitReceiver;\n }\n\n visitThisReceiver(ast: cdAst.ThisReceiver, mode: _Mode): any {\n return
this.visitImplicitReceiver(ast, mode);\n }\n\n visitInterpolation(ast: cdAst.Interpolation, mode: _Mode):
any {\n ensureExpressionMode(mode, ast);\n const args = [o.literal(ast.expressions.length)];\n for (let i = 0; i
< ast.strings.length - 1; i++) {\n args.push(o.literal(ast.strings[i]));\n args.push(this._visit(ast.expressions[i],
_Mode.Expression));\n }\n args.push(o.literal(ast.strings[ast.strings.length - 1]));\n if
(this.interpolationFunction) {\n return this.interpolationFunction(args);\n }\n return ast.expressions.length <=
9 ?\n o.importExpr(Identifiers.inlineInterpolate).callFn(args) :\n o.importExpr(Identifiers.interpolate).callFn([\n args[0], o.literalArr(args.slice(1), undefined,
this.convertSourceSpan(ast.span))\n]);\n }\n\n visitKeyedRead(ast: cdAst.KeyedRead, mode: _Mode): any {\n
const leftMostSafe = this.leftMostSafeNode(ast);\n if (leftMostSafe) {\n return this.convertSafeAccess(ast,
leftMostSafe, mode);\n } else {\n return convertToStatementIfNeeded(\n mode, this._visit(ast.obj,
_Mode.Expression).key(this._visit(ast.key, _Mode.Expression));\n }\n }\n\n visitKeyedWrite(ast:
cdAst.KeyedWrite, mode: _Mode): any {\n const obj: o.Expression = this._visit(ast.obj, _Mode.Expression);\n
const key: o.Expression = this._visit(ast.key, _Mode.Expression);\n const value: o.Expression =
this._visit(ast.value, _Mode.Expression);\n return convertToStatementIfNeeded(mode, obj.key(key).set(value));\n
}\n\n visitLiteralArray(ast: cdAst.LiteralArray, mode: _Mode): any {\n throw new Error(`Illegal State: literal
arrays should have been converted into functions`);\n }\n\n visitLiteralMap(ast: cdAst.LiteralMap, mode: _Mode):
any {\n throw new Error(`Illegal State: literal maps should have been converted into functions`);\n }\n\n
visitLiteralPrimitive(ast: cdAst.LiteralPrimitive, mode: _Mode): any {\n // For literal values of null, undefined,
true, or false allow type interference\n // to infer the type.\n const type =\n ast.value
=== null || ast.value === undefined || ast.value === true || ast.value === true ?\n o.INFERRED_TYPE :\n undefined;\n return convertToStatementIfNeeded(\n mode, o.literal(ast.value, type,
this.convertSourceSpan(ast.span));\n)\n }\n\n private _getLocal(name: string, receiver: cdAst.AST):
o.Expression|null {\n if (this._localResolver.globals?.has(name) && receiver instanceof cdAst.ThisReceiver) {\n
return null;\n }\n return this._localResolver.getLocal(name);\n }\n\n visitMethodCall(ast: cdAst.MethodCall,
mode: _Mode): any {\n if (ast.receiver instanceof cdAst.ImplicitReceiver &&\n !(ast.receiver instanceof
cdAst.ThisReceiver) && ast.name === '$any') {\n const args = this.visitAll(ast.args, _Mode.Expression) as
any[];\n if (args.length != 1) {\n throw new Error(\n `Invalid call to $any, expected 1 argument but
received ${args.length || 'none'}`);\n }\n return (args[0] as o.Expression).cast(o.DYNAMIC_TYPE,
this.convertSourceSpan(ast.span));\n }\n const leftMostSafe = this.leftMostSafeNode(ast);\n if
(leftMostSafe) {\n return this.convertSafeAccess(ast, leftMostSafe, mode);\n } else {\n const args =
this.visitAll(ast.args, _Mode.Expression);\n const prevUsesImplicitReceiver = this.usesImplicitReceiver;\n let
result: any = null;\n const receiver = this._visit(ast.receiver, _Mode.Expression);\n if (receiver ===
this._implicitReceiver) {\n const varExpr = this._getLocal(ast.name, ast.receiver);\n if (varExpr) {\n //
Restore the previous "usesImplicitReceiver" state since the implicit\n // receiver has been replaced with a
resolved local expression.\n this.usesImplicitReceiver = prevUsesImplicitReceiver;\n result =
varExpr.callFn(args);\n this.addImplicitReceiverAccess(ast.name);\n }\n if (result == null) {\n
result = receiver.callMethod(ast.name, args,
this.convertSourceSpan(ast.span));\n }\n return convertToStatementIfNeeded(mode, result);\n }\n }\n\n
visitPrefixNot(ast: cdAst.PrefixNot, mode: _Mode): any {\n return convertToStatementIfNeeded(mode,
o.not(this._visit(ast.expression, _Mode.Expression));\n }\n\n visitNonNullAssert(ast: cdAst.NonNullAssert, mode:
_Mode): any {\n return convertToStatementIfNeeded(\n mode, o.assertNotNull(this._visit(ast.expression,
_Mode.Expression));\n }\n\n visitPropertyRead(ast: cdAst.PropertyRead, mode: _Mode): any {\n const
leftMostSafe = this.leftMostSafeNode(ast);\n if (leftMostSafe) {\n return this.convertSafeAccess(ast,
leftMostSafe, mode);\n } else {\n let result: any = null;\n const prevUsesImplicitReceiver =
this.usesImplicitReceiver;\n const receiver = this._visit(ast.receiver, _Mode.Expression);\n if (receiver ===

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this._implicitReceiver) {\n result = this._getLocal(ast.name, ast.receiver);\n if (result) {\n // Restore the previous \"usesImplicitReceiver\" state since the implicit\n // receiver has been replaced with a resolved local expression.\n this.usesImplicitReceiver = prevUsesImplicitReceiver;\n this.addImplicitReceiverAccess(ast.name);\n }\n if (result == null) {\n result = receiver.prop(ast.name);\n }\n return convertToStatementIfNeeded(mode, result);\n }\n }\n visitPropertyWrite(ast: cdAst.PropertyWrite, mode: _Mode): any {\n const receiver: o.Expression = this._visit(ast.receiver, _Mode.Expression);\n const prevUsesImplicitReceiver = this.usesImplicitReceiver;\n let varExpr: o.ReadPropExpr|null = null;\n if (receiver === this._implicitReceiver) {\n const localExpr = this._getLocal(ast.name, ast.receiver);\n if (localExpr) {\n if (localExpr instanceof o.ReadPropExpr) {\n // If the local variable is a property read expression, it's a reference\n // to a 'context.property' value and will be used as the target of the\n // write expression.\n varExpr = localExpr;\n // Restore the previous \"usesImplicitReceiver\" state since the implicit\n // receiver has been replaced with a resolved local expression.\n this.usesImplicitReceiver = prevUsesImplicitReceiver;\n this.addImplicitReceiverAccess(ast.name);\n } else {\n // Otherwise it's an error.\n const receiver = ast.name;\n const value = (ast.value instanceof cdAst.PropertyRead) ? ast.value.name : undefined;\n throw new Error(`Cannot assign value \"${value}\" to template variable \"${receiver}\". Template variables are read-only.`);\n }\n }\n // If no local expression could be produced, use the original receiver's\n // property as the target.\n if (varExpr === null) {\n varExpr = receiver.prop(ast.name);\n }\n return convertToStatementIfNeeded(mode, varExpr.set(this._visit(ast.value, _Mode.Expression)));\n }\n }\n visitSafePropertyRead(ast: cdAst.SafePropertyRead, mode: _Mode): any {\n return this.convertSafeAccess(ast, this.leftMostSafeNode(ast), mode);\n }\n visitSafeMethodCall(ast: cdAst.SafeMethodCall, mode: _Mode): any {\n return this.convertSafeAccess(ast, this.leftMostSafeNode(ast), mode);\n }\n visitAll(ast: cdAst.AST[], mode: _Mode): any {\n return asts.map(ast => this._visit(ast, mode));\n }\n visitQuote(ast: cdAst.Quote, mode: _Mode): any {\n throw new Error(`Quotes are not supported for evaluation! Statement: ${ast.uninterpretedExpression} located at ${ast.location}`);\n }\n private _visit(ast: cdAst.AST, mode: _Mode): any {\n const result = this._resultMap.get(ast);\n if (result) return result;\n return (this._nodeMap.get(ast) || ast).visit(this, mode);\n }\n private convertSafeAccess(\n ast: cdAst.AST, leftMostSafe: cdAst.SafeMethodCall|cdAst.SafePropertyRead,\n mode: _Mode): any {\n // If the expression contains a safe access node on the left it needs to be converted to\n // an expression that guards the access to the member by checking the receiver for blank. As\n // execution proceeds from left to right, the left most part of the expression must be guarded\n // first but, because member access is left associative, the right side of the expression is at\n // the top of the AST. The desired result requires lifting a copy of the left part of the\n // expression up to test it for blank before generating the unguarded version.\n // Consider, for example the following expression: a?.b.c?.d.e\n // This results in the ast:\n // .\n // /\n // \\\n // ? . e\n // /\n // \\\n // . d\n // /\n // \\\n // ? . c\n // /\n // \\\n // a b\n // The following tree should be generated:\n // /\n // /---- ? ----\n // / | \\\n // /--- ? ---\n // null\n // / | \\\n // . . null\n // /\n // \\\n // . c . e\n // /\n // \\\n // a b . d\n // /\n // \\\n // . c\n // /\n // \\\n // a b\n // Notice that the first guard condition is the left hand of the left most safe access node\n // which comes in as leftMostSafe to this routine.\n let guardedExpression = this._visit(leftMostSafe.receiver, _Mode.Expression);\n let temporary: o.ReadVarExpr = undefined;\n if (this.needsTemporary(leftMostSafe.receiver)) {\n // If the expression has method calls or pipes then we need to save the result into a\n // temporary variable to avoid calling stateful or impure code more than once.\n temporary = this.allocateTemporary();\n // Preserve the result in the temporary variable\n guardedExpression = temporary.set(guardedExpression);\n // Ensure all further references to the guarded expression refer to the temporary instead.\n this._resultMap.set(leftMostSafe.receiver, temporary);\n }\n const condition = guardedExpression.isBlank();\n // Convert the ast to an unguarded access to the receiver's member. The map will substitute\n // leftMostNode with its unguarded version in the call to

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`this.visit()`.n if (leftMostSafe instanceof cdAst.SafeMethodCall) {n this._nodeMap.set(n
leftMostSafe,n new cdAst.MethodCall(n leftMostSafe.span, leftMostSafe.sourceSpan,
leftMostSafe.nameSpan,n leftMostSafe.receiver, leftMostSafe.name, leftMostSafe.args));n } else {n
this._nodeMap.set(n leftMostSafe,n new cdAst.PropertyRead(n leftMostSafe.span,
leftMostSafe.sourceSpan, leftMostSafe.nameSpan,n leftMostSafe.receiver, leftMostSafe.name));n }n\n
// Recursively convert the node now without the guarded member access.n const access = this._visit(ast,
_Mode.Expression);n\n // Remove the mapping. This is not strictly required as the converter only traverses each
node\n // once but is safer if the conversion is changed to traverse the nodes more than once.n
this._nodeMap.delete(leftMostSafe);n\n // If we allocated a temporary, release it.n if (temporary) {n
this.releaseTemporary(temporary);n }n\n // Produce the conditional\n return
convertToStatementIfNeeded(mode, condition.conditional(o.literal(null), access));n }n\n // Given an expression
of the form a?.b.c?.d.e then the left most safe node is\n // the (a?.b). The . and ?. are left associative thus can be
rewritten as:\n // (((a?.c).b).c)?.d).e. This returns the most deeply nested safe read or\n // safe method call as this
needs to be transformed initially to:\n // a == null ? null : a.c.b.c?.d.e\n // then to:\n // a == null ? null : a.b.c ==
null ? null : a.b.c.d.e\n private leftMostSafeNode(ast: cdAst.AST): cdAst.SafePropertyRead|cdAst.SafeMethodCall
{n const visit = (visitor: cdAst.AstVisitor, ast: cdAst.AST): any => {n return (this._nodeMap.get(ast) ||
ast).visit(visitor);n };n return ast.visit({n visitUnary(ast: cdAst.Unary) {n return null;n },n
visitBinary(ast: cdAst.Binary) {n return null;n },n visitChain(ast: cdAst.Chain) {n return null;n
},n visitConditional(ast: cdAst.Conditional) {n return null;n },n visitFunctionCall(ast:
cdAst.FunctionCall) {n return null;n },n visitImplicitReceiver(ast: cdAst.ImplicitReceiver) {n
return null;n },n visitThisReceiver(ast: cdAst.ThisReceiver) {n return null;n },n
visitInterpolation(ast: cdAst.Interpolation) {n return null;n },n visitKeyedRead(ast: cdAst.KeyedRead)
{n return visit(this, ast.obj);n },n visitKeyedWrite(ast: cdAst.KeyedWrite) {n return
null;n },n visitLiteralArray(ast: cdAst.LiteralArray) {n return null;n },n visitLiteralMap(ast:
cdAst.LiteralMap) {n return null;n },n visitLiteralPrimitive(ast: cdAst.LiteralPrimitive) {n return
null;n },n visitMethodCall(ast: cdAst.MethodCall) {n return visit(this, ast.receiver);n },n
visitPipe(ast: cdAst.BindingPipe) {n return null;n },n visitPrefixNot(ast: cdAst.PrefixNot) {n
return null;n },n visitNonNullAssert(ast: cdAst.NonNullAssert) {n return null;n },n
visitPropertyRead(ast: cdAst.PropertyRead) {n return visit(this, ast.receiver);n },n
visitPropertyWrite(ast: cdAst.PropertyWrite) {n return null;n },n visitQuote(ast: cdAst.Quote) {n
return null;n },n visitSafeMethodCall(ast: cdAst.SafeMethodCall) {n return visit(this, ast.receiver) ||
ast;n },n
visitSafePropertyRead(ast: cdAst.SafePropertyRead) {n return visit(this, ast.receiver) || ast;n }n });n
}n\n // Returns true if the AST includes a method or a pipe indicating that, if the\n // expression is used as the
target of a safe property or method access then\n // the expression should be stored into a temporary variable.n
private needsTemporary(ast: cdAst.AST): boolean {n const visit = (visitor: cdAst.AstVisitor, ast: cdAst.AST):
boolean => {n return ast && (this._nodeMap.get(ast) || ast).visit(visitor);n };n const visitSome = (visitor:
cdAst.AstVisitor, ast: cdAst.AST[]): boolean => {n return ast.some(ast => visit(visitor, ast));n };n return
ast.visit({n visitUnary(ast: cdAst.Unary): boolean {n return visit(this, ast.expr);n },n
visitBinary(ast: cdAst.Binary): boolean {n return visit(this, ast.left) || visit(this, ast.right);n },n
visitChain(ast: cdAst.Chain) {n return
false;n },n visitConditional(ast: cdAst.Conditional): boolean {n return visit(this, ast.condition) ||
visit(this, ast.trueExp) || visit(this, ast.falseExp);n },n visitFunctionCall(ast: cdAst.FunctionCall) {n
return true;n },n visitImplicitReceiver(ast: cdAst.ImplicitReceiver) {n return false;n },n
visitThisReceiver(ast: cdAst.ThisReceiver) {n return false;n },n visitInterpolation(ast:
cdAst.Interpolation) {n return visitSome(this, ast.expressions);n },n visitKeyedRead(ast:
cdAst.KeyedRead) {n return false;n },n visitKeyedWrite(ast: cdAst.KeyedWrite) {n return false;n
},n visitLiteralArray(ast: cdAst.LiteralArray) {n return true;n },n visitLiteralMap(ast:

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cdAst.LiteralMap) {\n return true;\n },\n visitLiteralPrimitive(ast: cdAst.LiteralPrimitive) {\n return
false;\n },\n visitMethodCall(ast:
cdAst.MethodCall) {\n return true;\n },\n visitPipe(ast: cdAst.BindingPipe) {\n return true;\n },\n
 visitPrefixNot(ast: cdAst.PrefixNot) {\n return visit(this, ast.expression);\n },\n visitNonNullAssert(ast:
cdAst.PrefixNot) {\n return visit(this, ast.expression);\n },\n visitPropertyRead(ast: cdAst.PropertyRead)
{\n return false;\n },\n visitPropertyWrite(ast: cdAst.PropertyWrite) {\n return false;\n },\n
 visitQuote(ast: cdAst.Quote) {\n return false;\n },\n visitSafeMethodCall(ast: cdAst.SafeMethodCall) {\n
 return true;\n },\n visitSafePropertyRead(ast: cdAst.SafePropertyRead) {\n return false;\n }\n
});\n }\n\n private allocateTemporary(): o.ReadVarExpr {\n const tempNumber = this._currentTemporary++;\n
 this.temporaryCount = Math.max(this._currentTemporary, this.temporaryCount);\n return new
o.ReadVarExpr(temporaryName(this.bindingId,
tempNumber));\n }\n\n private releaseTemporary(temporary: o.ReadVarExpr) {\n this._currentTemporary--;\n
if (temporary.name !== temporaryName(this.bindingId, this._currentTemporary)) {\n throw new
Error(`Temporary ${temporary.name} released out of order`);\n }\n }\n\n /**\n * Creates an absolute
`ParseSourceSpan` from the relative `ParseSpan`.\n *\n * `ParseSpan` objects are relative to the start of the
expression.\n * This method converts these to full `ParseSourceSpan` objects that\n * show where the span is
within the overall source file.\n *\n * @param span the relative span to convert.\n * @returns a
`ParseSourceSpan` for the given span or null if no\n * `baseSourceSpan` was provided to this class.\n */\n private
convertSourceSpan(span: cdAst.ParseSpan) {\n if (this.baseSourceSpan) {\n const start =
this.baseSourceSpan.start.moveBy(span.start);\n const end = this.baseSourceSpan.start.moveBy(span.end);\n
 const fullStart = this.baseSourceSpan.fullStart.moveBy(span.start);\n return new ParseSourceSpan(start, end,
fullStart);\n } else {\n return null;\n }\n }\n\n /** Adds the name of an AST to the list of implicit receiver
accesses. */\n private addImplicitReceiverAccess(name: string) {\n if (this.implicitReceiverAccesses) {\n
this.implicitReceiverAccesses.add(name);\n }\n }\n\n\nfunction flattenStatements(arg: any, output:
o.Statement[]) {\n if (Array.isArray(arg)) {\n (<any[]>arg).forEach((entry) => flattenStatements(entry, output));\n
 } else {\n output.push(arg);\n }\n }\n\n\nclass DefaultLocalResolver implements LocalResolver {\n
constructor(public globals?: Set<string>) {}\n notifyImplicitReceiverUse(): void {}\n getLocal(name: string):
o.Expression|null {\n if (name === EventHandlerVars.event.name) {\n return EventHandlerVars.event;\n }\n
return null;\n }\n }\n\n\nfunction createCurrValueExpr(bindingId: string): o.ReadVarExpr {\n
return o.variable(`currVal_${bindingId}`); // fix syntax highlighting: `}\n }\n\nfunction
createPreventDefaultVar(bindingId: string): o.ReadVarExpr {\n return
o.variable(`pd_${bindingId}`);\n }\n\n\nfunction convertStmtIntoExpression(stmt: o.Statement): o.Expression|null {\n
if (stmt instanceof o.ExpressionStatement) {\n return stmt.expr;\n } else if (stmt instanceof o.ReturnStatement)
{\n return stmt.value;\n }\n return null;\n }\n\n\nexport class BuiltinFunctionCall extends cdAst.FunctionCall {\n
constructor(\n span: cdAst.ParseSpan, sourceSpan: cdAst.AbsoluteSourceSpan, public args: cdAst.AST[],\n
 public converter: BuiltinConverter) {\n super(span, sourceSpan, null, args);\n }\n }\n\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\n * This file is a port of
shadowCSS from webcomponents.js to TypeScript.\n
*\n * Please make sure to keep to edits in sync with the source file.\n *\n * Source:\n *
https://github.com/webcomponents/webcomponentsjs/blob/4efecd7e0e/src/ShadowCSS/ShadowCSS.js\n *\n * The
original file level comment is reproduced below\n */\n\n\n * This is a limited shim for ShadowDOM css styling.\n
https://dvcs.w3.org/hg/webcomponents/raw-file/tip/spec/shadow/index.html#styles\n\n The intention here is to
support only the styling features which can be\n relatively simply implemented. The goal is to allow users to avoid
the\n most obvious pitfalls and do so without compromising performance significantly.\n For ShadowDOM styling
that's not covered here, a set of best practices\n can be provided that should allow users to accomplish more
complex styling.\n\n The following is a list of specific ShadowDOM styling features and a brief\n discussion of the
approach used to shim.\n\n Shimmed features:\n\n * :host, :host-context: ShadowDOM allows styling of the

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shadowRoot's

host element using the :host rule. To shim this feature, the :host styles are reformatted and prefixed with a given scope name and promoted to a document level stylesheet. For example, given a scope name of .foo, a rule like this: :host { background: red; } becomes: .foo { background: red; } \* encapsulation: Styles defined within ShadowDOM, apply only to dom inside the ShadowDOM. Polymer uses one of two techniques to implement this feature. By default, rules are prefixed with the host element tag name as a descendant selector. This ensures styling does not leak out of the 'top' of the element's ShadowDOM. For example, div { font-weight: bold; } becomes: x-foo div { font-weight: bold; } Alternatively, if WebComponents.ShadowCSS.strictStyling is set to true then selectors are scoped by adding an attribute selector suffix to each simple

selector that contains the host element tag name. Each element in the element's ShadowDOM template is also given the scope attribute. Thus, these rules match only elements that have the scope attribute. For example, given a scope name of x-foo, a rule like this: div { font-weight: bold; } becomes: div[x-foo] { font-weight: bold; } Note that elements that are dynamically added to a scope must have the scope selector added to them manually. \* upper/lower bound encapsulation: Styles which are defined outside a shadowRoot should not cross the ShadowDOM boundary and should not apply inside a shadowRoot. This styling behavior is not emulated. Some possible ways to do this that were rejected due to complexity and/or performance concerns include: (1) reset every possible property for every possible selector for a given scope name; (2) re-implement css in javascript. As an alternative, users should make

sure to use selectors specific to the scope in which they are working. \* ::distributed: This behavior is not emulated. It's often not necessary to style the contents of a specific insertion point and instead, descendants of the host element can be styled selectively. Users can also create an extra node around an insertion point and style that node's contents via descendent selectors. For example, with a shadowRoot like this: <style>::content(div) { background: red; } </style> <content></content> could become: <style> /\*@polyfill .content-container div \* ^::content(div) { background: red; } </style> <div class="content-container"> <content></content> </div> Note the use of @polyfill in the comment above a ShadowDOM specific style declaration. This is a directive to the styling shim to use the selector in comments in lieu of the next selector when

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running under polyfill.
export class ShadowCss {
 strictStyling: boolean = true;
 constructor() {}
 /* Shim some cssText with the given selector. Returns cssText that can be included in the document via
 WebComponents.ShadowCSS.addCssToDocument(css).
 * When strictStyling is true:
 * - selector is the attribute added to all elements inside the host,
 * - hostSelector is the attribute added to the host itself.
 */
 shimCssText(cssText: string, selector: string, hostSelector: string = ""): string {
 const commentsWithHash = extractCommentsWithHash(cssText);
 cssText = stripComments(cssText);
 cssText = this._insertDirectives(cssText);
 const scopedCssText = this._scopeCssText(cssText, selector, hostSelector);
 return [scopedCssText, ...commentsWithHash].join("\n");
 }
 private _insertDirectives(cssText: string): string {
 cssText = this._insertPolyfillDirectivesInCssText(cssText);
 return this._insertPolyfillRulesInCssText(cssText);
 }
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 }
 /* Process styles to convert native ShadowDOM rules that will trip up the css parser; we rely on
 decorating the stylesheet with inert rules.
 * For example, we convert this rule:
 * polyfill-next-selector { content: 'host menu-item'; }
 * ::content menu-item {
 * to this:
 * scopeName menu-item {
 * private _insertPolyfillDirectivesInCssText(cssText: string): string {
 * // Difference with webcomponents.js: does not handle comments
 * return cssText.replace(_cssContentNextSelectorRe, function(...m: string[]) {
 * return m[2] + '{';
 * });
 * }
 * /* Process styles to add rules which will only apply under the polyfill
 * For example, we convert this rule:
 * polyfill-rule {
 * content: 'host menu-item';
 * }
 * to this:
 * scopeName menu-item { ... }
 * private _insertPolyfillRulesInCssText(cssText:

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string): string {\n // Difference with webcomponents.js: does not handle comments\n return
cssText.replace(_cssContentRuleRe, (...m: string[]) => {\n const rule = m[0].replace(m[1], ").replace(m[2], ");\n
 return m[4] + rule;\n });\n }\n\n /* Ensure styles are scoped. Pseudo-scoping takes a rule like:\n *\n *.foo { ...
}\n *\n * and converts this to\n *\n * scopeName.foo { ... }\n *\n private _scopeCssText(cssText: string,
scopeSelector: string, hostSelector: string): string {\n const unscopedRules =
this._extractUnscopedRulesFromCssText(cssText);\n // replace :host and :host-context -shadowcsshost and -
shadowcsshost respectively\n cssText = this._insertPolyfillHostInCssText(cssText);\n cssText =
this._convertColonHost(cssText);\n cssText = this._convertColonHostContext(cssText);\n cssText =
this._convertShadowDOMSelectors(cssText);\n if (scopeSelector) {\n cssText = this._scopeSelectors(cssText,
scopeSelector, hostSelector);\n
 }\n cssText = cssText + '\n' + unscopedRules;\n return cssText.trim();\n }\n\n /*\n * Process styles to add
rules which will only apply under the polyfill\n * and do not process via CSSOM. (CSSOM is destructive to rules
on rare\n * occasions, e.g. -webkit-calc on Safari.)\n * For example, we convert this rule:\n *\n * @polyfill-
unscoped-rule {\n * content: 'menu-item';\n * ... }\n *\n * to this:\n *\n * menu-item { ... }\n *\n **/\n
private _extractUnscopedRulesFromCssText(cssText: string): string {\n // Difference with webcomponents.js:
does not handle comments\n let r = ""; \n let m: RegExpExecArray|null;\n
_cssContentUnscopedRuleRe.lastIndex = 0;\n while ((m = _cssContentUnscopedRuleRe.exec(cssText)) !== null)
{\n const rule = m[0].replace(m[2], ").replace(m[1], m[4]);\n r += rule + '\n\n';\n }\n return r;\n }\n\n
/*\n * convert a rule like :host(.foo) > .bar { }\n *\n * to\n *\n *.foo<scopeName>
> .bar\n *\n private _convertColonHost(cssText: string): string {\n return this._convertColonRule(cssText,
_cssColonHostRe, this._colonHostPartReplacer);\n }\n\n /*\n * convert a rule like :host-context(.foo) > .bar { }\n
*\n * to\n *\n *.foo<scopeName> > .bar, .foo scopeName > .bar { }\n *\n * and\n *\n *:host-
context(.foo:host) .bar { ... }\n *\n * to\n *\n *.foo<scopeName> .bar { ... }\n *\n private
_convertColonHostContext(cssText: string): string {\n return this._convertColonRule(\n cssText,
_cssColonHostContextRe, this._colonHostContextPartReplacer);\n }\n\n private _convertColonRule(cssText:
string, regexp: RegExp, partReplacer: Function): string {\n // m[1] = :host(-context), m[2] = contents of (), m[3]
rest of rule\n return cssText.replace(regexp, function(...m: string[]) {\n if (m[2]) {\n const parts =
m[2].split(',');\n const r: string[] = [];\n for (let i = 0; i < parts.length;
i++) {\n const p = parts[i].trim();\n if (!p) break;\n
r.push(partReplacer(_polyfillHostNoCombinator, p, m[3]));\n }\n return r.join(',');\n } else {\n return
_polyfillHostNoCombinator + m[3];\n }\n });\n }\n\n private _colonHostContextPartReplacer(host: string,
part: string, suffix: string): string {\n if (part.indexOf(_polyfillHost) > -1) {\n return
this._colonHostPartReplacer(host, part, suffix);\n } else {\n return host + part + suffix + ', ' + part + ' ' + host +
suffix;\n }\n }\n\n private _colonHostPartReplacer(host: string, part: string, suffix: string): string {\n return host
+ part.replace(_polyfillHost, ") + suffix;\n }\n\n /*\n * Convert combinators like ::shadow and pseudo-elements
like ::content\n * by replacing with space.\n *\n private _convertShadowDOMSelectors(cssText: string): string
{\n return _shadowDOMSelectorsRe.reduce((result, pattern) => result.replace(pattern,
' '), cssText);\n }\n\n // change a selector like 'div' to 'name div'\n private _scopeSelectors(cssText: string,
scopeSelector: string, hostSelector: string): string {\n return processRules(cssText, (rule: CssRule) => {\n let
selector = rule.selector;\n let content = rule.content;\n if (rule.selector[0] !== '@') {\n selector =\nthis._scopeSelector(rule.selector, scopeSelector, hostSelector, this.strictStyling);\n } else if (\n
rule.selector.startsWith('@media') || rule.selector.startsWith('@supports') ||\n rule.selector.startsWith('@page')
|| rule.selector.startsWith('@document')) {\n content = this._scopeSelectors(rule.content, scopeSelector,
hostSelector);\n }\n return new CssRule(selector, content);\n });\n }\n\n private _scopeSelector(\n
selector: string, scopeSelector: string, hostSelector: string, strict: boolean): string {\n return selector.split(',')\n
.map(part => part.trim().split(_shadowDeepSelectors))\n
 .map((deepParts) => {\n const [shallowPart, ...otherParts] = deepParts;\n const applyScope =
(shallowPart: string) => {\n if (this._selectorNeedsScoping(shallowPart, scopeSelector)) {\n return

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strict ?\n this._applyStrictSelectorScope(shallowPart, scopeSelector, hostSelector) : \n
this._applySelectorScope(shallowPart, scopeSelector, hostSelector); \n } else { \n return shallowPart; \n
 } \n } \n return [applyScope(shallowPart), ...otherParts].join(' '); \n }) \n .join(', '); \n } \n } \n
private _selectorNeedsScoping(selector: string, scopeSelector: string): boolean { \n const re =
this._makeScopeMatcher(scopeSelector); \n return !re.test(selector); \n } \n private
_makeScopeMatcher(scopeSelector: string): RegExp { \n const lre = /\[/g; \n const rre = /\]/g; \n scopeSelector
= scopeSelector.replace(lre, '\\[').replace(rre,
'\\]'); \n return new RegExp('^(' + scopeSelector + ') + _selectorReSuffix, 'm'); \n } \n private
_applySelectorScope(selector: string, scopeSelector: string, hostSelector: string): \n string { \n // Difference from
webcomponents.js: scopeSelector could not be an array \n return this._applySimpleSelectorScope(selector,
scopeSelector, hostSelector); \n } \n // scope via name and [is=name] \n private
_applySimpleSelectorScope(selector: string, scopeSelector: string, hostSelector: string): \n string { \n // In
Android browser, the lastIndex is not reset when the regex is used in String.replace() \n _polyfillHostRe.lastIndex
= 0; \n if (_polyfillHostRe.test(selector)) { \n const replaceBy = this.strictStyling ? ` ${hostSelector} ` :
scopeSelector; \n return selector \n .replace(\n _polyfillHostNoCombinatorRe, \n (hnc,
selector) => { \n return selector.replace(\n /([^(]*)([*])([*])/ \n
 (_: string, before: string, colon: string, after: string) => { \n return before + replaceBy +
colon + after; \n }) \n }) \n .replace(_polyfillHostRe, replaceBy + ' '); \n } \n return
scopeSelector + ' ' + selector; \n } \n // return a selector with [name] suffix on each simple selector \n // e.g.
.foo.bar > .zot becomes .foo[name].bar[name] > .zot[name] /** @internal */ \n private
_applyStrictSelectorScope(selector: string, scopeSelector: string, hostSelector: string): \n string { \n const isRe =
/\[is=([^(]*)\]/g; \n scopeSelector = scopeSelector.replace(isRe, (_: string, ...parts: string[]) => parts[0]); \n const attrName = '[' + scopeSelector + ']'; \n const _scopeSelectorPart = (p: string) => { \n let scopedP =
p.trim(); \n if (!scopedP) { \n return ''; \n } \n if (p.indexOf(_polyfillHostNoCombinator) > -1) { \n scopedP = this._applySimpleSelectorScope(p,
scopeSelector, hostSelector); \n } else { \n // remove :host since it should be unnecessary \n const t =
p.replace(_polyfillHostRe, ''); \n if (t.length > 0) { \n const matches = t.match(/([^(]*)([*])([*])/); \n if
(matches) { \n scopedP = matches[1] + attrName + matches[2] + matches[3]; \n } \n } \n } \n return
scopedP; \n }; \n const safeContent = new SafeSelector(selector); \n selector =
safeContent.content(); \n let scopedSelector = ''; \n let startIndex = 0; \n let res: RegExpExecArray | null; \n const sep = /(>|\\|+|~(?:=))\\s*/g; \n // If a selector appears before :host it should not be shimmed as it \n //
matches on ancestor elements and not on elements in the host's shadow \n // `:host-context(div)` is transformed to \n
 // `~shadowcsshost-no-combinatordiv, div -shadowcsshost-no-combinator` \n // the `div` is not part of the
component in the 2nd selectors and
should not be scoped. \n // Historically `component-tag:host` was matching the component so we also want to
preserve \n // this behavior to avoid breaking legacy apps (it should not match). \n // The behavior should be: \n
 // - `tag:host` -> `tag[h]` (this is to avoid breaking legacy apps, should not match anything) \n // - `tag :host` -> `tag
[h]` (`tag` is not scoped because it's considered part of a \n // `:host-context(tag)` \n const hasHost =
selector.indexOf(_polyfillHostNoCombinator) > -1; \n // Only scope parts after the first `~shadowcsshost-no-combinator`
when it is present \n let shouldScope = !hasHost; \n while ((res = sep.exec(selector)) !== null) { \n const separator = res[1]; \n const part = selector.slice(startIndex, res.index).trim(); \n shouldScope =
shouldScope || part.indexOf(_polyfillHostNoCombinator) > -1; \n const scopedPart = shouldScope ?
_scopeSelectorPart(part) : part; \n scopedSelector += `${scopedPart} ${separator}`; \n `; \n startIndex =
sep.lastIndex; \n } \n const part = selector.substring(startIndex); \n shouldScope =
shouldScope || part.indexOf(_polyfillHostNoCombinator) > -1; \n scopedSelector += shouldScope ?
_scopeSelectorPart(part) : part; \n // replace the placeholders with their original values \n return
safeContent.restore(scopedSelector); \n } \n private _insertPolyfillHostInCssText(selector: string): string { \n return
selector.replace(_colonHostContextRe, _polyfillHostContext) \n .replace(_colonHostRe, _polyfillHost); \n }

```





```

nonBlockStartIndex = 0;\n let blockStartIndex = -1;\n let openChar: string|undefined;\n let closeChar:
string|undefined;\n for (let i = 0; i < input.length; i++) {\n const char = input[i];\n if (char === '\\\\') {\n
i++;\n } else if (char === closeChar) {\n openCharCount--;\n if (openCharCount === 0) {\n
escapedBlocks.push(input.substring(blockStartIndex, i));\n resultParts.push(placeholder);\n
nonBlockStartIndex = i;\n blockStartIndex = -1;\n openChar = closeChar = undefined;\n
 }\n } else if (char === openChar) {\n openCharCount++;\n } else if (openCharCount === 0 &&
charPairs.has(char)) {\n openChar = char;\n closeChar = charPairs.get(char);\n openCharCount = 1;\n
blockStartIndex = i + 1;\n resultParts.push(input.substring(nonBlockStartIndex, blockStartIndex));\n } }\n if
(blockStartIndex !== -1) {\n escapedBlocks.push(input.substring(blockStartIndex));\n
resultParts.push(placeholder);\n } else {\n resultParts.push(input.substring(nonBlockStartIndex));\n }\n return
new StringWithEscapedBlocks(resultParts.join(""), escapedBlocks);\n }\n\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport { CompileDirectiveMetadata,
CompileIdentifierMetadata, CompileStylesheetMetadata, identifierModuleUrl, identifierName } from
'./compile_metadata';\nimport { ViewEncapsulation }
from './core';\nimport * as o from './output/output_ast';\nimport { ShadowCss } from './shadow_css';\nimport
{ UrlResolver } from './url_resolver';\nimport { OutputContext } from './util';\n\nconst COMPONENT_VARIABLE =
'%COMP%';\nexport const HOST_ATTR = `_ngghost-${COMPONENT_VARIABLE}`;\nexport const
CONTENT_ATTR = `_ngcontent-${COMPONENT_VARIABLE}`;\n\nexport class StylesCompileDependency {\n
constructor(\n public name: string, public moduleUrl: string, public setValue: (value: any) => void)
{\n}\n}\n\nexport class CompiledStylesheet {\n constructor(\n public outputCtx: OutputContext, public stylesVar:
string,\n public dependencies: StylesCompileDependency[], public isShimmed: boolean,\n public meta:
CompileStylesheetMetadata) {\n}\n}\n\nexport class StyleCompiler {\n private _shadowCss: ShadowCss = new
ShadowCss();\n\n constructor(private _urlResolver: UrlResolver) {\n}\n\n compileComponent(outputCtx:
OutputContext, comp: CompileDirectiveMetadata): CompiledStylesheet
{\n const template = comp.template !;\n return this._compileStyles(\n outputCtx, comp, new
CompileStylesheetMetadata({\n styles: template.styles,\n styleUrls: template.styleUrls,\n
moduleUrl: identifierModuleUrl(comp.type)\n }),\n this.needsStyleShim(comp), true);\n }\n\n compileStyles(\n outputCtx: OutputContext, comp: CompileDirectiveMetadata,\n stylesheet:
CompileStylesheetMetadata,\n shim: boolean = this.needsStyleShim(comp)): CompiledStylesheet {\n return
this._compileStyles(outputCtx, comp, stylesheet, shim, false);\n }\n\n needsStyleShim(comp:
CompileDirectiveMetadata): boolean {\n return comp.template !.encapsulation ===
ViewEncapsulation.Emulated;\n }\n\n private _compileStyles(\n outputCtx: OutputContext, comp:
CompileDirectiveMetadata,\n stylesheet: CompileStylesheetMetadata, shim: boolean,\n isComponentStylesheet: boolean): CompiledStylesheet {\n const styleExpressions:
o.Expression[] =\n stylesheet.styles.map(plainStyle => o.literal(this._shimIfNeeded(plainStyle, shim)));\n
const dependencies: StylesCompileDependency[] = [];\n stylesheet.styleUrls.forEach((styleUrl) => {\n const
exprIndex = styleExpressions.length;\n // Note: This placeholder will be filled later.\n
styleExpressions.push(null!);\n dependencies.push(new StylesCompileDependency(\n
getStylesVarName(null), styleUrl,\n (value) => styleExpressions[exprIndex] =
outputCtx.importExpr(value));\n });\n // styles variable contains plain strings and arrays of other styles arrays
(recursive),\n // so we set its type to dynamic.\n const stylesVar = getStylesVarName(isComponentStylesheet ?
comp : null);\n const stmt = o.variable(stylesVar)\n .set(o.literalArr(\n
styleExpressions, new o.ArrayType(o.DYNAMIC_TYPE, [o.TypeModifier.Const])))\n
.toDeclStmt(null, isComponentStylesheet
? [o.StmtModifier.Final] : [\n o.StmtModifier.Final, o.StmtModifier.Exported\n]);\n
outputCtx.statements.push(stmt);\n return new CompiledStylesheet(outputCtx, stylesVar, dependencies, shim,
stylesheet);\n }\n\n private _shimIfNeeded(style: string, shim: boolean): string {\n return shim ?

```

```

this._shadowCss.shimCssText(style, CONTENT_ATTR, HOST_ATTR) : style;\n }\n}\n\nfunction
getStylesVarName(component: CompileDirectiveMetadata|null): string {\n let result = `styles`;\n if (component)
{\n result += `_${identifierName(component.type)}`;\n }\n return result;\n }\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n *\n\n*/\n\n * A path is an ordered set of elements.
Typically a path is to a\n * particular offset in a source file. The head of the list is the top\n
* most node. The tail is the node that contains the offset directly.\n *\n * For example, the expression `a + b + c`
might have an ast that looks\n * like:\n * +\n * /\n * a +\n * /\n * b c\n *\n * The path to the node
at offset 9 would be `['+' at 1-10, '+' at 7-10, 'c' at 9-10]` and the path the node at offset 1 would be\n
* `['+' at 1-10, 'a' at 1-2]`.\n */\n\nexport class AstPath<T> {\n constructor(private path: T[], public position: number = -1) {\n\n
get empty(): boolean {\n return !this.path || !this.path.length;\n }\n get head(): T|undefined {\n return
this.path[0];\n }\n get tail(): T|undefined {\n return this.path[this.path.length - 1];\n }\n\n parentOf(node:
T|undefined): T|undefined {\n return node && this.path[this.path.indexOf(node) - 1];\n }\n childOf(node: T):
T|undefined {\n return this.path[this.path.indexOf(node) + 1];\n }\n\n first<N extends T>(ctor: {new(...args:
any[]): N}): N|undefined {\n for (let
i = this.path.length - 1; i >= 0; i--) {\n let item = this.path[i];\n if (item instanceof ctor) return <N>item;\n
}\n }\n\n push(node: T) {\n this.path.push(node);\n }\n\n pop(): T {\n return this.path.pop();\n }\n }\n\n", "/*\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport { AstPath } from
'./ast_path';\nimport { I18nMeta } from './i18n/i18n_ast';\nimport { ParseSourceSpan } from './parse_util';\n\nexport
interface Node {\n sourceSpan: ParseSourceSpan;\n visit(visitor: Visitor, context: any): any;\n }\n\nexport abstract
class NodeWithI18n implements Node {\n constructor(public sourceSpan: ParseSourceSpan, public i18n?:
I18nMeta) {\n\n abstract visit(visitor: Visitor, context: any): any;\n }\n\nexport class Text extends NodeWithI18n {\n
constructor(public value: string, sourceSpan: ParseSourceSpan, i18n?:
I18nMeta) {\n super(sourceSpan, i18n);\n }\n visit(visitor: Visitor, context: any): any {\n return
visitor.visitText(this, context);\n }\n }\n\nexport class Expansion extends NodeWithI18n {\n constructor(\n
public switchValue: string, public type: string, public cases: ExpansionCase[],\n sourceSpan: ParseSourceSpan,\n
public switchValueSourceSpan: ParseSourceSpan, i18n?: I18nMeta) {\n super(sourceSpan, i18n);\n }\n\n
visit(visitor: Visitor, context: any): any {\n return visitor.visitExpansion(this, context);\n }\n }\n\nexport class
ExpansionCase implements Node {\n constructor(\n public value: string, public expression: Node[], public
sourceSpan: ParseSourceSpan,\n public valueSourceSpan: ParseSourceSpan, public expSourceSpan:
ParseSourceSpan) {\n\n visit(visitor: Visitor, context: any): any {\n return visitor.visitExpansionCase(this,
context);\n }\n }\n\nexport class Attribute extends NodeWithI18n {\n constructor(\n public name: string,\n
public value: string, sourceSpan: ParseSourceSpan,\n public valueSpan?: ParseSourceSpan, i18n?: I18nMeta) {\n
super(sourceSpan, i18n);\n }\n visit(visitor: Visitor, context: any): any {\n return visitor.visitAttribute(this,
context);\n }\n }\n\nexport class Element extends NodeWithI18n {\n constructor(\n public name: string, public
attrs: Attribute[], public children: Node[],\n sourceSpan: ParseSourceSpan, public startSourceSpan:
ParseSourceSpan,\n public endSourceSpan: ParseSourceSpan|null = null, i18n?: I18nMeta) {\n
super(sourceSpan, i18n);\n }\n visit(visitor: Visitor, context: any): any {\n return visitor.visitElement(this,
context);\n }\n }\n\nexport class Comment implements Node {\n constructor(public value: string|null, public
sourceSpan: ParseSourceSpan) {\n\n visit(visitor: Visitor, context: any): any {\n return visitor.visitComment(this,
context);\n }\n }\n\nexport interface Visitor {\n // Returning a truthy value from `visit()` will
prevent `visitAll()` from the call to the typed\n // method and result returned will become the result included in
`visitAll()`'s result array.\n visit?(node: Node, context: any): any;\n\n visitElement(element: Element, context: any):
any;\n\n visitAttribute(attribute: Attribute, context: any): any;\n\n visitText(text: Text, context: any): any;\n
visitComment(comment: Comment, context: any): any;\n\n visitExpansion(expansion: Expansion, context: any):
any;\n\n visitExpansionCase(expansionCase: ExpansionCase, context: any): any;\n }\n\nexport function
visitAll(visitor: Visitor, nodes: Node[], context: any = null): any[] {\n const result: any[] = [];\n\n const visit =

```



```

template (e.g. via `templateUrl`) then we need to decide
 * whether or not to normalize the line-endings (from
 `\\r\\n` to `\\n`) when processing ICU
 * expressions.
 * If `true` then we will normalize ICU expression
 line endings.
 * The default is `false`, but this
 will be switched in a future major release.
 * i18nNormalizeLineEndingsInICUs?: boolean;
 * An
 array of characters that should be considered as leading trivia.
 * Leading trivia are characters that are not
 important to the developer, and so should not be
 * included in source-map segments. A common example is
 whitespace.
 * leadingTriviaChars?: string[];
 * If true, do not convert CRLF to LF.
 * preserveLineEndings?: boolean;
}

export function tokenize(
 source: string, url: string, getTagDefinition:
 (tagName: string) => TagDefinition,
 options: TokenizeOptions = {}): TokenizeResult {
 const tokenizer = new
 _Tokenizer(new ParseSourceFile(source, url), getTagDefinition, options);
 tokenizer.tokenize();
 return new
 TokenizeResult(
 mergeTextTokens(tokenizer.tokens), tokenizer.errors,
 tokenizer.nonNormalizedIcuExpressions);
}

const _CR_OR_CRLF_REGEXP = /\r\n?/g;

function
_unexpectedCharacterErrorMsg(charCode:
number): string {
 const char = charCode === chars.EOF ? 'EOF' : String.fromCharCode(charCode);
 return
 `Unexpected character "${char}"`;
}

function _unknownEntityErrorMsg(entitySrc: string): string {
 return
 `Unknown entity "${entitySrc}" - use the "&#<decimal>" or "&#x<hex>" syntax`;
}

function
_unparsableEntityErrorMsg(type: CharacterReferenceType, entityStr: string): string {
 return `Unable to parse
entity "${entityStr}" - ${
 type
 } character reference entities must end with ";"`;
}

enum
CharacterReferenceType {
 HEX = 'hexadecimal',
 DEC = 'decimal',
}

class _ControlFlowError {
 constructor(public error: TokenError) {}
}

// See http://www.w3.org/TR/html5/syntax.html#writing
class
_Tokenizer {
 private _cursor: CharacterCursor;
 private _tokenizeIcu: boolean;
 private _interpolationConfig:
 InterpolationConfig;
 private _leadingTriviaCodePoints: number[];
 private _currentTokenStart:
 CharacterCursor;
 private _currentTokenType: TokenType;
 private _expansionCaseStack: TokenType[] = [];
 private _inInterpolation: boolean = false;
 private readonly _preserveLineEndings: boolean;
 private readonly
 _escapedString: boolean;
 private readonly _i18nNormalizeLineEndingsInICUs: boolean;
 tokens: Token[] =
 [];
 errors: TokenError[] =
 [];
 nonNormalizedIcuExpressions: Token[] =
 [];
 * @param _file The html
 source file being tokenized.
 * @param _getTagDefinition A function that will retrieve a tag definition for a given
 tag name.
 * @param options Configuration of the tokenization.
 * constructor(
 _file: ParseSourceFile,
 private _getTagDefinition: (tagName: string) => TagDefinition,
 options: TokenizeOptions) {
 this._tokenizeIcu = options.tokenizeExpansionForms || false;
 this._interpolationConfig =
 options.interpolationConfig || DEFAULT_INTERPOLATION_CONFIG;
 this._leadingTriviaCodePoints =
 options.leadingTriviaChars
 && options.leadingTriviaChars.map(c => c.codePointAt(0) || 0);
 const range =
 options.range || {endPos:
 _file.content.length, startPos: 0, startLine: 0, startCol: 0};
 this._cursor = options.escapedString ? new
 EscapedCharacterCursor(_file, range) : new PlainCharacterCursor(_file, range);
 this._preserveLineEndings = options.preserveLineEndings || false;
 this._escapedString = options.escapedString ||
 false;
 this._i18nNormalizeLineEndingsInICUs = options.i18nNormalizeLineEndingsInICUs ||
 false;
 try {
 this._cursor.init();
 } catch (e) {
 this.handleError(e);
 }
 }

 private
 _processCarriageReturns(content: string): string {
 if (this._preserveLineEndings) {
 return content;
 }
 // http://www.w3.org/TR/html5/syntax.html#preprocessing-the-input-stream
 // In order to keep the original
 position in the source, we can not
 // pre-process
 it.
 // Instead CRs are processed right before instantiating the tokens.
 return
 content.replace(_CR_OR_CRLF_REGEXP, "\\n");
 }

 tokenize(): void {
 while (this._cursor.peek() !==
 chars.EOF) {
 const start = this._cursor.clone();
 try {
 if (this._attemptCharCode(chars.$LT)) {
 if (this._attemptCharCode(chars.$BANG)) {
 if (this._attemptCharCode(chars.$LBRACKET)) {
 this._consumeCdata(start);
 } else if (this._attemptCharCode(chars.$MINUS)) {
 this._consumeComment(start);
 } else {
 this._consumeDocType(start);
 }
 } else if
 }
 }
 }
 }
}

```



```

_attemptUntilChar(char: number) {\n while (this._cursor.peek() !== char) {\n this._cursor.advance();\n }\n}\n\nprivate _readChar(decodeEntities: boolean): string {\n if (decodeEntities && this._cursor.peek() ===\nchars.$AMPERSAND) {\n return this._decodeEntity();\n }\n else {\n // Don't rely upon reading directly from `_input` as the actual char value\n // may have been\n generated from an escape sequence.\n const char = String.fromCodePoint(this._cursor.peek());\n this._cursor.advance();\n return char;\n }\n}\n\nprivate _decodeEntity(): string {\n const start =\nthis._cursor.clone();\n this._cursor.advance();\n if (this._attemptCharCode(chars.$HASH)) {\n const isHex =\nthis._attemptCharCode(chars.$x) || this._attemptCharCode(chars.$X);\n const codeStart = this._cursor.clone();\n this._attemptCharCodeUntilFn(isDigitEntityEnd);\n if (this._cursor.peek() !== chars.$SEMICOLON) {\n // Advance cursor to include the peeked character in the string provided to the error\n // message.\n this._cursor.advance();\n const entityType = isHex ? CharacterReferenceType.HEX :\nCharacterReferenceType.DEC;\n throw this._createError(\n _unparsableEntityErrorMsg(entityType,\n this._cursor.getChars(start)),\n this._cursor.getSpan());\n }\n const strNum =\nthis._cursor.getChars(codeStart);\n this._cursor.advance();\n try {\n const charCode = parseInt(strNum,\nisHex ? 16 : 10);\n return String.fromCharCode(charCode);\n } catch {\n throw this._createError(\n _unknownEntityErrorMsg(this._cursor.getChars(start)),\n this._cursor.getSpan());\n }\n } else {\n const\nnameStart = this._cursor.clone();\n this._attemptCharCodeUntilFn(isNamedEntityEnd);\n if\n(this._cursor.peek() !== chars.$SEMICOLON) {\n this._cursor = nameStart;\n return '&';\n }\n const\nname = this._cursor.getChars(nameStart);\n this._cursor.advance();\n const char =\nNAMED_ENTITIES[name];\n if (!char) {\n throw this._createError(_unknownEntityErrorMsg(name),\nthis._cursor.getSpan(start));\n }\n return char;\n }\n}\n\nprivate _consumeRawText(decodeEntities:\nboolean, endMarkerPredicate: () => boolean): Token {\n this._beginToken(decodeEntities ?\nTokenType.ESCAPABLE_RAW_TEXT : TokenType.RAW_TEXT);\n const parts: string[] = [];\n while (true)\n{\n const tagCloseStart = this._cursor.clone();\n const foundEndMarker = endMarkerPredicate();\n this._cursor = tagCloseStart;\n if (foundEndMarker) {\n break;\n }\n parts.push(this._readChar(decodeEntities));\n }\n return\nthis._endToken([this._processCarriageReturns(parts.join(""))]);\n}\n\nprivate _consumeComment(start:\nCharacterCursor) {\n this._beginToken(TokenType.COMMENT_START, start);\n this._requireCharCode(chars.$MINUS);\n this._endToken([]);\n this._consumeRawText(false, () =>\nthis._attemptStr('-->));\n this._beginToken(TokenType.COMMENT_END);\n this._requireStr('-->);\n this._endToken([]);\n}\n\nprivate _consumeCdata(start: CharacterCursor) {\n this._beginToken(TokenType.CDATA_START,\nstart);\n this._requireStr('CDATA[');\n this._endToken([]);\n this._consumeRawText(false, () =>\nthis._attemptStr(']]>));\n this._beginToken(TokenType.CDATA_END);\n this._requireStr(']]>);\n this._endToken([]);\n}\n\nprivate _consumeDocType(start: CharacterCursor) {\n this._beginToken(TokenType.DOC_TYPE, start);\n const contentStart = this._cursor.clone();\n this._attemptUntilChar(chars.$GT);\n const content = this._cursor.getChars(contentStart);\n this._cursor.advance();\n this._endToken([content]);\n}\n\nprivate _consumePrefixAndName(): string[] {\n const nameOrPrefixStart = this._cursor.clone();\n let prefix: string = '';\n while (this._cursor.peek() !==\nchars.$COLON && !isPrefixEnd(this._cursor.peek())) {\n this._cursor.advance();\n }\n let nameStart:\nCharacterCursor;\n if (this._cursor.peek() === chars.$COLON) {\n prefix =\nthis._cursor.getChars(nameOrPrefixStart);\n this._cursor.advance();\n nameStart\n= this._cursor.clone();\n } else {\n nameStart = nameOrPrefixStart;\n }\n this._requireCharCodeUntilFn(isNameEnd, prefix === '' ? 0 : 1);\n const name =\nthis._cursor.getChars(nameStart);\n return [prefix, name];\n}\n\nprivate _consumeTagOpen(start:\nCharacterCursor) {\n let tagName: string;\n let prefix: string;\n let openTagToken: Token|undefined;\n try\n{\n if (!chars.isAsciiLetter(this._cursor.peek())) {\n throw this._createError(\n _unexpectedCharacterErrorMsg(this._cursor.peek()),\n this._cursor.getSpan(start));\n }\n openTagToken =

```

```

this._consumeTagOpenStart(start);\n prefix = openTagToken.parts[0];\n tagName =\n openTagToken.parts[1];\n this._attemptCharCodeUntilFn(isNotWhitespace);\n while (this._cursor.peak() !==\n chars.$SLASH && this._cursor.peak() !== chars.$GT &&\n this._cursor.peak() !== chars.$LT) {\n this._consumeAttributeName();\n this._attemptCharCodeUntilFn(isNotWhitespace);\n if (this._attemptCharCode(chars.$EQ)) {\n this._attemptCharCodeUntilFn(isNotWhitespace);\n this._consumeAttributeValue();\n }\n this._attemptCharCodeUntilFn(isNotWhitespace);\n }\n this._consumeTagOpenEnd();\n } catch (e) {\n if (e instanceof _ControlFlowError) {\n if (openTagToken)\n {\n // We errored before we could close the opening tag, so it is incomplete.\n openTagToken.type =\n TokenType.INCOMPLETE_TAG_OPEN;\n } else {\n // When the start tag is invalid, assume we want a\n '<\\' as text.\n // Back to back text tokens are merged at the end.\n this._beginToken(TokenType.TEXT,\n start);\n this._endToken(['<']);\n }\n return;\n }\n throw e;\n }\n const\n contentTokenType = this._getTagDefinition(tagName).contentType;\n if (contentTokenType ===\n TagContentType.RAW_TEXT) {\n this._consumeRawTextWithTagClose(prefix,\n tagName, false);\n } else if (contentTokenType === TagContentType.ESCAPABLE_RAW_TEXT) {\n this._consumeRawTextWithTagClose(prefix, tagName, true);\n }\n }\n private\n _consumeRawTextWithTagClose(prefix: string, tagName: string, decodeEntities: boolean) {\n const textToken =\n this._consumeRawText(decodeEntities, () => {\n if (!this._attemptCharCode(chars.$LT)) return false;\n if\n (!this._attemptCharCode(chars.$SLASH)) return false;\n this._attemptCharCodeUntilFn(isNotWhitespace);\n if (!this._attemptStrCaseInsensitive(tagName)) return false;\n this._attemptCharCodeUntilFn(isNotWhitespace);\n return this._attemptCharCode(chars.$GT);\n });\n this._beginToken(TokenType.TAG_CLOSE);\n this._requireCharCodeUntilFn(code => code === chars.$GT,\n 3);\n this._cursor.advance();\n // Consume the '>'\n this._endToken([prefix, tagName]);\n }\n private\n _consumeTagOpenStart(start: CharacterCursor) {\n this._beginToken(TokenType.TAG_OPEN_START,\n start);\n const parts = this._consumePrefixAndName();\n return this._endToken(parts);\n }\n private\n _consumeAttributeName() {\n const attrNameStart = this._cursor.peak();\n if (attrNameStart === chars.$SQ ||\n attrNameStart === chars.$DQ) {\n throw this._createError(_unexpectedCharacterErrorMsg(attrNameStart),\n this._cursor.getSpan());\n }\n this._beginToken(TokenType.ATTR_NAME);\n const prefixAndName =\n this._consumePrefixAndName();\n this._endToken(prefixAndName);\n }\n private _consumeAttributeValue()\n {\n let value: string;\n if (this._cursor.peak() === chars.$SQ || this._cursor.peak() === chars.$DQ) {\n this._beginToken(TokenType.ATTR_QUOTE);\n const quoteChar = this._cursor.peak();\n this._cursor.advance();\n this._endToken([String.fromCharCode(quoteChar)]);\n this._beginToken(TokenType.ATTR_VALUE);\n const parts: string[] = [];\n while (this._cursor.peak() !==\n quoteChar) {\n parts.push(this._readChar(true));\n }\n value = parts.join('');\n this._endToken([this._processCarriageReturns(value)]);\n this._beginToken(TokenType.ATTR_QUOTE);\n this._cursor.advance();\n this._endToken([String.fromCharCode(quoteChar)]);\n } else {\n this._beginToken(TokenType.ATTR_VALUE);\n const valueStart = this._cursor.clone();\n this._requireCharCodeUntilFn(isNameEnd, 1);\n value = this._cursor.getChars(valueStart);\n this._endToken([this._processCarriageReturns(value)]);\n }\n }\n private _consumeTagOpenEnd() {\n const\n tokenType =\n this._attemptCharCode(chars.$SLASH) ? TokenType.TAG_OPEN_END_VOID :\n TokenType.TAG_OPEN_END;\n this._beginToken(tokenType);\n this._requireCharCode(chars.$GT);\n this._endToken([]);\n }\n private _consumeTagClose(start: CharacterCursor) {\n this._beginToken(TokenType.TAG_CLOSE, start);\n this._attemptCharCodeUntilFn(isNotWhitespace);\n const\n prefixAndName = this._consumePrefixAndName();\n this._attemptCharCodeUntilFn(isNotWhitespace);\n this._requireCharCode(chars.$GT);\n this._endToken(prefixAndName);\n }\n private _consumeExpansionFormStart() {\n this._beginToken(TokenType.EXPANSION_FORM_START);\n this._requireCharCode(chars.$LBRACE);\n this._endToken([]);\n this._expansionCaseStack.push(TokenType.EXPANSION_FORM_START);\n }

```

```

this._beginToken(TokenTypes.RAW_TEXT);\n const condition = this._readUntil(chars.$COMMA);\n const
normalizedCondition = this._processCarriageReturns(condition);\n if (this._i18nNormalizeLineEndingsInICUs)
{\n // We explicitly want to normalize line endings for this text.\n this._endToken([normalizedCondition]);\n
} else {\n // We are not normalizing line endings.\n const conditionToken = this._endToken([condition]);\n
if (normalizedCondition !== condition) {\n this.nonNormalizedIcuExpressions.push(conditionToken);\n }\n
}\n this._requireCharCode(chars.$COMMA);\n
 this._attemptCharCodeUntilFn(isNotWhitespace);\n\n this._beginToken(TokenTypes.RAW_TEXT);\n const
type = this._readUntil(chars.$COMMA);\n this._endToken([type]);\n
this._requireCharCode(chars.$COMMA);\n this._attemptCharCodeUntilFn(isNotWhitespace);\n }\n\n private
_consumeExpansionCaseStart() {\n this._beginToken(TokenTypes.EXPANSION_CASE_VALUE);\n const
value = this._readUntil(chars.$LBRACE).trim();\n this._endToken([value]);\n
this._attemptCharCodeUntilFn(isNotWhitespace);\n\n
this._beginToken(TokenTypes.EXPANSION_CASE_EXP_START);\n
this._requireCharCode(chars.$LBRACE);\n this._endToken([]);\n
this._attemptCharCodeUntilFn(isNotWhitespace);\n\n
this._expansionCaseStack.push(TokenTypes.EXPANSION_CASE_EXP_START);\n }\n\n private
_consumeExpansionCaseEnd() {\n this._beginToken(TokenTypes.EXPANSION_CASE_EXP_END);\n
this._requireCharCode(chars.$RBRACE);\n this._endToken([]);\n
this._attemptCharCodeUntilFn(isNotWhitespace);\n\n
 this._expansionCaseStack.pop();\n }\n\n private _consumeExpansionFormEnd() {\n
this._beginToken(TokenTypes.EXPANSION_FORM_END);\n this._requireCharCode(chars.$RBRACE);\n
this._endToken([]);\n\n this._expansionCaseStack.pop();\n }\n\n private _consumeText() {\n const start =
this._cursor.clone();\n this._beginToken(TokenTypes.TEXT, start);\n const parts: string[] = [];\n\n do {\n if
(this._interpolationConfig && this._attemptStr(this._interpolationConfig.start)) {\n
parts.push(this._interpolationConfig.start);\n this._inInterpolation = true;\n } else if (\n
this._interpolationConfig && this._inInterpolation &&\n this._attemptStr(this._interpolationConfig.end)) {\n
parts.push(this._interpolationConfig.end);\n this._inInterpolation = false;\n } else {\n
parts.push(this._readChar(true));\n }\n } while (!this._isTextEnd());\n\n
this._endToken([this._processCarriageReturns(parts.join(""))]);\n
 }\n\n private _isTextEnd(): boolean {\n if (this._cursor.peek() === chars.$LT || this._cursor.peek() ===
chars.$EOF) {\n return true;\n }\n\n if (this._tokenizeIcu && !this._inInterpolation) {\n if
(this._isExpansionFormStart()) {\n // start of an expansion form\n return true;\n }\n\n if
(this._cursor.peek() === chars.$RBRACE && this._isInExpansionCase()) {\n // end of and expansion case\n
return true;\n }\n }\n\n return false;\n }\n\n private _readUntil(char: number): string {\n const start =
this._cursor.clone();\n this._attemptUntilChar(char);\n return this._cursor.getChars(start);\n }\n\n private
_isInExpansionCase(): boolean {\n return this._expansionCaseStack.length > 0 &&\n
this._expansionCaseStack[this._expansionCaseStack.length - 1] ===\n
TokenTypes.EXPANSION_CASE_EXP_START;\n }\n\n private _isInExpansionForm(): boolean {\n return
this._expansionCaseStack.length
> 0 &&\n this._expansionCaseStack[this._expansionCaseStack.length - 1] ===\n
TokenTypes.EXPANSION_FORM_START;\n }\n\n private isExpansionFormStart(): boolean {\n if
(this._cursor.peek() !== chars.$LBRACE) {\n return false;\n }\n if (this._interpolationConfig) {\n const
start = this._cursor.clone();\n const isInterpolation = this._attemptStr(this._interpolationConfig.start);\n
this._cursor = start;\n return !isInterpolation;\n }\n return true;\n }\n\n\nfunction isNotWhitespace(code:
number): boolean {\n return !chars.isWhitespace(code) || code === chars.$EOF;\n }\n\nfunction isNameEnd(code:
number): boolean {\n return chars.isWhitespace(code) || code === chars.$GT || code === chars.$LT ||\n code
=== chars.$SLASH || code === chars.$SQ || code === chars.$DQ || code === chars.$EQ;\n }\n\nfunction
isPrefixEnd(code: number): boolean {\n return (code < chars.$a || chars.$z < code) && (code < chars.$A || chars.$Z

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< code)
 &&\n (code < chars.$0 || code > chars.$9);\n}\n\nfunction isDigitEntityEnd(code: number): boolean {\n return
code == chars.$SEMICOLON || code == chars.$EOF || !chars.isAsciiHexDigit(code);\n}\n\nfunction
isNamedEntityEnd(code: number): boolean {\n return code == chars.$SEMICOLON || code == chars.$EOF ||
!chars.isAsciiLetter(code);\n}\n\nfunction isExpansionCaseStart(peek: number): boolean {\n return peek !==
chars.$RBRACE;\n}\n\nfunction compareCharCodeCaseInsensitive(code1: number, code2: number): boolean {\n
return toUpperCaseCharCode(code1) == toUpperCaseCharCode(code2);\n}\n\nfunction
toUpperCaseCharCode(code: number): number {\n return code >= chars.$a && code <= chars.$z ? code - chars.$a
+ chars.$A : code;\n}\n\nfunction mergeTextTokens(srcTokens: Token[]): Token[] {\n const dstTokens: Token[] =
[];\n let lastDstToken: Token|undefined = undefined;\n for (let i = 0; i < srcTokens.length; i++) {\n const token =
srcTokens[i];\n if (lastDstToken && lastDstToken.type
== TokenType.TEXT && token.type == TokenType.TEXT) {\n lastDstToken.parts[0]! += token.parts[0];\n
lastDstToken.sourceSpan.end = token.sourceSpan.end;\n } else {\n lastDstToken = token;\n
dstTokens.push(lastDstToken);\n }\n }\n return dstTokens;\n}\n\n\n/**\n * The _Tokenizer uses objects of this
type to move through the input text,\n * extracting \"parsed characters\". These could be more than one actual
character\n * if the text contains escape sequences.\n */\n\ninterface CharacterCursor {\n /** Initialize the cursor. */\n
init(): void;\n /** The parsed character at the current cursor position. */\n peek(): number;\n /** Advance the
cursor by one parsed character. */\n advance(): void;\n /** Get a span from the marked start point to the current
point. */\n getSpan(start?: this, leadingTriviaCodePoints?: number[]): ParseSourceSpan;\n /** Get the parsed
characters from the marked start point to the current point. */\n getChars(start: this):
string;\n /** The number of characters left before the end of the cursor. */\n charsLeft(): number;\n /** The
number of characters between `this` cursor and `other` cursor. */\n diff(other: this): number;\n /** Make a copy of
this cursor */\n clone(): CharacterCursor;\n}\n\ninterface CursorState {\n peek: number;\n offset: number;\n line:
number;\n column: number;\n}\n\nclass PlainCharacterCursor implements CharacterCursor {\n protected state:
CursorState;\n protected file: ParseSourceFile;\n protected input: string;\n protected end: number;\n\n
constructor(fileOrCursor: PlainCharacterCursor);\n constructor(fileOrCursor: ParseSourceFile, range:
LexerRange);\n constructor(fileOrCursor: ParseSourceFile|PlainCharacterCursor, range?: LexerRange) {\n if
(fileOrCursor instanceof PlainCharacterCursor) {\n this.file = fileOrCursor.file;\n this.input =
fileOrCursor.input;\n this.end = fileOrCursor.end;\n\n const state = fileOrCursor.state;\n // Note:
avoid using `{...fileOrCursor.state}` here as that has a severe performance penalty.\n // In ES5 bundles the object
spread operator is translated into the `__assign` helper, which\n // is not optimized by VMs as efficiently as a raw
object literal. Since this constructor is\n // called in tight loops, this difference matters.\n this.state = {\n
peek: state.peek,\n offset: state.offset,\n line: state.line,\n column: state.column,\n }; \n } else {\n
if (!range) {\n throw new Error(`Programming error: the range argument must be provided with a file
argument.`);\n }\n this.file = fileOrCursor;\n this.input = fileOrCursor.content;\n this.end =
range.endPos;\n this.state = {\n peek: -1,\n offset: range.startPos,\n line: range.startLine,\n
column: range.startCol,\n }; \n }\n }\n\n clone(): PlainCharacterCursor {\n return new
PlainCharacterCursor(this);\n
}\n\n peek() {\n return this.state.peek;\n }\n charsLeft() {\n return this.end - this.state.offset;\n }\n diff(other:
this) {\n return this.state.offset - other.state.offset;\n }\n\n advance(): void {\n this.advanceState(this.state);\n
}\n\n init(): void {\n this.updatePeek(this.state);\n }\n\n getSpan(start?: this, leadingTriviaCodePoints?:
number[]): ParseSourceSpan {\n start = start || this;\n let fullStart = start;\n if (leadingTriviaCodePoints) {\n
while (this.diff(start) > 0 && leadingTriviaCodePoints.indexOf(start.peek()) !== -1) {\n if (fullStart === start)
{\n start = start.clone() as this;\n }\n start.advance();\n }\n }\n const startLocation =
this.locationFromCursor(start);\n const endLocation = this.locationFromCursor(this);\n const fullStartLocation
= \n fullStart !== start ? this.locationFromCursor(fullStart) : startLocation;\n return new
ParseSourceSpan(startLocation,

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endLocation, fullStartLocation);\n }\n\n getChars(start: this): string {\n return
this.input.substring(start.state.offset, this.state.offset);\n }\n\n charAt(pos: number): number {\n return
this.input.charCodeAt(pos);\n }\n\n protected advanceState(state: CursorState) {\n if (state.offset >= this.end) {\n
 this.state = state;\n throw new CursorError('Unexpected character \"EOF\"', this);\n }\n const currentChar =
this.charAt(state.offset);\n if (currentChar === chars.$LF) {\n state.line++; \n state.column = 0;\n } else if
(!chars.isNewLine(currentChar)) {\n state.column++; \n }\n state.offset++; \n this.updatePeek(state);\n }\n\n
protected updatePeek(state: CursorState): void {\n state.peak = state.offset >= this.end ? chars.$EOF :
this.charAt(state.offset);\n }\n\n private locationFromCursor(cursor: this): ParseLocation {\n return new
ParseLocation(\n cursor.file, cursor.state.offset, cursor.state.line, cursor.state.column);\n
}\n}\n\nclass EscapedCharacterCursor extends PlainCharacterCursor {\n protected internalState: CursorState;\n\n
constructor(fileOrCursor: EscapedCharacterCursor);\n constructor(fileOrCursor: ParseSourceFile, range:
LexerRange);\n constructor(fileOrCursor: ParseSourceFile|EscapedCharacterCursor, range?: LexerRange) {\n if
(fileOrCursor instanceof EscapedCharacterCursor) {\n super(fileOrCursor);\n this.internalState =
{...fileOrCursor.internalState};\n } else {\n super(fileOrCursor, range!);\n this.internalState = this.state;\n
}\n}\n\n advance(): void {\n this.state = this.internalState;\n super.advance();\n
this.processEscapeSequence();\n }\n\n init(): void {\n super.init();\n this.processEscapeSequence();\n }\n\n
clone(): EscapedCharacterCursor {\n return new EscapedCharacterCursor(this);\n }\n\n getChars(start: this):
string {\n const cursor = start.clone();\n let chars = '';\n while (cursor.internalState.offset
< this.internalState.offset) {\n chars += String.fromCodePoint(cursor.peak());\n cursor.advance();\n }\n
return chars;\n }\n\n /**\n * Process the escape sequence that starts at the current position in the text.\n *\n *
This method is called to ensure that `peek` has the unescaped value of escape sequences.\n */\n protected
processEscapeSequence(): void {\n const peek = () => this.internalState.peak;\n\n if (peek() ===
chars.$BACKSLASH) {\n // We have hit an escape sequence so we need the internal state to become
independent\n // of the external state.\n this.internalState = {...this.state};\n\n // Move past the backslash\n
 this.advanceState(this.internalState);\n\n // First check for standard control char sequences\n if (peek() ===
chars.$n) {\n this.state.peak = chars.$LF;\n } else if (peek() === chars.$r) {\n this.state.peak =
chars.$CR;\n } else if (peek() === chars.$v) {\n
 this.state.peak = chars.$VTAB;\n } else if (peek() === chars.$t) {\n this.state.peak = chars.$TAB;\n }
else if (peek() === chars.$b) {\n this.state.peak = chars.$BSPACE;\n } else if (peek() === chars.$f) {\n
 this.state.peak = chars.$FF;\n }\n\n // Now consider more complex sequences\n else if (peek() ===
chars.$u) {\n // Unicode code-point sequence\n this.advanceState(this.internalState); // advance past the `u`
char\n if (peek() === chars.$LBRACE) {\n // Variable length Unicode, e.g. `\\x{123}`\n
this.advanceState(this.internalState); // advance past the `{` char\n // Advance past the variable number of hex
digits until we hit a `}` char\n const digitStart = this.clone();\n let length = 0;\n while (peek() !==
chars.$RBRACE) {\n this.advanceState(this.internalState);\n length++; \n }\n this.state.peak
= this.decodeHexDigits(digitStart,\n length);\n } else {\n // Fixed length Unicode, e.g. `\\u1234`\n const digitStart = this.clone();\n
this.advanceState(this.internalState);\n this.advanceState(this.internalState);\n
this.advanceState(this.internalState);\n this.state.peak = this.decodeHexDigits(digitStart, 4);\n }\n }\n
 else if (peek() === chars.$x) {\n // Hex char code, e.g. `\\x2F`\n this.advanceState(this.internalState); //
advance past the `x` char\n const digitStart = this.clone();\n this.advanceState(this.internalState);\n
this.state.peak = this.decodeHexDigits(digitStart, 2);\n }\n\n else if (chars.isOctalDigit(peek())) {\n //
Octal char code, e.g. `\\012`,\n let octal = '';\n let length = 0;\n let previous = this.clone();\n while
(chars.isOctalDigit(peek()) && length < 3) {\n previous = this.clone();\n octal +=
String.fromCodePoint(peek());\n this.advanceState(this.internalState);\n length++; \n }\n this.state.peak = parseInt(octal, 8);\n
// Backup one char\n this.internalState = previous.internalState;\n }\n\n else if
(chars.isNewLine(this.internalState.peak)) {\n // Line continuation `\\` followed by a new line\n

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this.advanceState(this.internalState); // advance over the newline\n this.state = this.internalState;\n }\n\n else {\n // If none of the `if` blocks were executed then we just have an escaped normal character.\n // In that case we just, effectively, skip the backslash from the character.\n this.state.peak = this.internalState.peak;\n }\n }\n\n protected decodeHexDigits(start: EscapedCharacterCursor, length: number): number {\n const hex = this.input.substr(start.internalState.offset, length);\n const charCode = parseInt(hex, 16);\n if (!isNaN(charCode)) {\n return charCode;\n } else {\n start.state = start.internalState;\n throw new CursorError('Invalid hexadecimal escape sequence', start);\n }\n }\n}\n\nexport class CursorError {\n constructor(public msg: string, public cursor: CharacterCursor) {}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n * https://angular.io/license\n */\n\nimport {ParseError, ParseSourceSpan} from './parse_util';\nimport * as html from './ast';\nimport * as lex from './lexer';\nimport {getNsPrefix, mergeNsAndName, splitNsName, TagDefinition} from './tags';\n\nexport class TreeError extends ParseError {\n static create(elementName: string|null, span: ParseSourceSpan, msg: string): TreeError {\n return new TreeError(elementName, span, msg);\n }\n}\n\nconstructor(public elementName: string|null, span: ParseSourceSpan, msg: string) {\n super(span, msg);\n}\n\nexport class ParseTreeResult {\n constructor(public rootNodes: html.Node[], public errors: ParseError[]) {}\n}\n\nexport class Parser {\n constructor(public getTagDefinition: (tagName: string) => TagDefinition) {}\n\n parse(source: string, url: string, options?: lex.TokenizeOptions): ParseTreeResult {\n const tokenizeResult = lex.tokenize(source, url, this.getTagDefinition, options);\n const parser = new _TreeBuilder(tokenizeResult.tokens, this.getTagDefinition);\n parser.build();\n return new ParseTreeResult(\n parser.rootNodes,\n (tokenizeResult.errors as ParseError[]).concat(parser.errors),\n);\n }\n}\n\nclass _TreeBuilder {\n private _index: number = -1;\n // `_peek` will be initialized by the call to `advance()` in the constructor.\n private _peek!: lex.Token;\n private _elementStack: html.Element[] = [];\n\n rootNodes: html.Node[] = [];\n errors: TreeError[] = [];\n\n constructor(\n private tokens: lex.Token[],\n private getTagDefinition: (tagName: string) => TagDefinition\n) {\n this._advance();\n }\n\n build(): void {\n while (this._peek.type !== lex.TokenType.EOF) {\n if (this._peek.type === lex.TokenType.TAG_OPEN_START ||\n this._peek.type === lex.TokenType.INCOMPLETE_TAG_OPEN) {\n this._consumeStartTag(this._advance());\n } else if (this._peek.type === lex.TokenType.TAG_CLOSE) {\n this._consumeEndTag(this._advance());\n } else if (this._peek.type === lex.TokenType.CDATA_START) {\n this._closeVoidElement();\n this._consumeCdata(this._advance());\n } else if (this._peek.type === lex.TokenType.COMMENT_START) {\n this._closeVoidElement();\n this._consumeComment(this._advance());\n } else if (\n this._peek.type === lex.TokenType.TEXT ||\n this._peek.type === lex.TokenType.RAW_TEXT ||\n this._peek.type === lex.TokenType.ESCAPABLE_RAW_TEXT\n) {\n this._closeVoidElement();\n this._consumeText(this._advance());\n } else if (this._peek.type === lex.TokenType.EXPANSION_FORM_START) {\n this._consumeExpansion(this._advance());\n } else {\n // Skip all other tokens...\n this._advance();\n }\n }\n }\n\n private _advance(): lex.Token {\n const prev = this._peek;\n if (this._index < this.tokens.length - 1) {\n // Note: there is always an EOF token at the end\n this._index++;\n } else {\n this._peek = this.tokens[this._index];\n return prev;\n }\n }\n\n private _advanceIf(type: lex.TokenType): lex.Token|null {\n if (this._peek.type === type) {\n return this._advance();\n }\n return null;\n }\n\n private _consumeCdata(_startToken: lex.Token) {\n this._consumeText(this._advance());\n this._advanceIf(lex.TokenType.CDATA_END);\n }\n\n private _consumeComment(token: lex.Token) {\n const text = this._advanceIf(lex.TokenType.RAW_TEXT);\n this._advanceIf(lex.TokenType.COMMENT_END);\n const value = text != null ? text.parts[0].trim() : null;\n this._addToParent(new html.Comment(value, token.sourceSpan));\n }\n\n private _consumeExpansion(token: lex.Token) {\n const switchValue = this._advance();\n const type = this._advance();\n const cases: html.ExpansionCase[] = [];\n // read =\n while (this._peek.type ===

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lex.TokenType.EXPANSION_CASE_VALUE) {\n const expCase = this._parseExpansionCase();\n if
(!expCase) return; // error\n cases.push(expCase);\n }\n\n // read the final }\n if (this._peek.type !==
lex.TokenType.EXPANSION_FORM_END) {\n this.errors.push(\n TreeError.create(null,
this._peek.sourceSpan, `Invalid ICU message. Missing '}'.`));\n return;\n }\n const sourceSpan = new
ParseSourceSpan(\n token.sourceSpan.start, this._peek.sourceSpan.end, token.sourceSpan.fullStart);\n
this._addToParent(new html.Expansion(\n switchValue.parts[0], type.parts[0], cases, sourceSpan,
switchValue.sourceSpan));\n\n
 this._advance();\n }\n\n private _parseExpansionCase(): html.ExpansionCase|null {\n const value =
this._advance();\n\n // read {\n if (this._peek.type !== lex.TokenType.EXPANSION_CASE_EXP_START) {\n
 this.errors.push(\n TreeError.create(null, this._peek.sourceSpan, `Invalid ICU message. Missing '{'.`));\n
 return null;\n }\n\n // read until }\n const start = this._advance();\n\n const exp =
this._collectExpansionExpTokens(start);\n if (!exp) return null;\n\n const end = this._advance();\n
exp.push(new lex.Token(lex.TokenType.EOF, [], end.sourceSpan));\n\n // parse everything in between { and }\n
const expansionCaseParser = new _TreeBuilder(exp, this.getTagDefinition);\n expansionCaseParser.build();\n if
(expansionCaseParser.errors.length > 0) {\n this.errors = this.errors.concat(expansionCaseParser.errors);\n
 return null;\n }\n\n const sourceSpan =\n new ParseSourceSpan(value.sourceSpan.start, end.sourceSpan.end,
value.sourceSpan.fullStart);\n const expSourceSpan =\n new ParseSourceSpan(start.sourceSpan.start,
end.sourceSpan.end, start.sourceSpan.fullStart);\n return new html.ExpansionCase(\n value.parts[0],
expansionCaseParser.rootNodes, sourceSpan, value.sourceSpan, expSourceSpan);\n }\n\n private
_collectExpansionExpTokens(start: lex.Token): lex.Token[]|null {\n const exp: lex.Token[] = [];\n const
expansionFormStack = [lex.TokenType.EXPANSION_CASE_EXP_START];\n\n while (true) {\n if
(this._peek.type === lex.TokenType.EXPANSION_FORM_START ||\n this._peek.type ===
lex.TokenType.EXPANSION_CASE_EXP_START) {\n expansionFormStack.push(this._peek.type);\n
 }\n\n if (this._peek.type === lex.TokenType.EXPANSION_CASE_EXP_END) {\n if
(lastOnStack(expansionFormStack, lex.TokenType.EXPANSION_CASE_EXP_START)) {\n
expansionFormStack.pop();\n if (expansionFormStack.length === 0) return exp;\n } else {\n
this.errors.push(\n TreeError.create(null, start.sourceSpan, `Invalid ICU message. Missing '}'.`));\n
return null;\n }\n }\n\n if (this._peek.type === lex.TokenType.EXPANSION_FORM_END) {\n if
(lastOnStack(expansionFormStack, lex.TokenType.EXPANSION_FORM_START)) {\n
expansionFormStack.pop();\n } else {\n this.errors.push(\n TreeError.create(null, start.sourceSpan,
`Invalid ICU message. Missing '}'.`));\n return null;\n }\n }\n\n if (this._peek.type ===
lex.TokenType.EOF) {\n this.errors.push(\n TreeError.create(null, start.sourceSpan, `Invalid ICU
message. Missing '}'.`));\n return null;\n }\n\n exp.push(this._advance());\n }\n\n private
_consumeText(token: lex.Token) {\n let text = token.parts[0];\n if (text.length > 0 && text[0] === "\\n") {\n
const parent = this._getParentElement();\n if (parent !== null &&
parent.children.length === 0 &&\n this.getTagDefinition(parent.name).ignoreFirstLf) {\n text =
text.substring(1);\n }\n\n if (text.length > 0) {\n this._addToParent(new html.Text(text,
token.sourceSpan));\n }\n\n private _closeVoidElement(): void {\n const el = this._getParentElement();\n
if (el && this.getTagDefinition(el.name).isVoid) {\n this._elementStack.pop();\n }\n\n private
_consumeStartTag(startTagToken: lex.Token) {\n const [prefix, name] = startTagToken.parts;\n const attrs:
html.Attribute[] = [];\n while (this._peek.type === lex.TokenType.ATTR_NAME) {\n
attrs.push(this._consumeAttr(this._advance()));\n }\n const fullName = this._getElementFullName(prefix, name,
this._getParentElement());\n let selfClosing = false;\n // Note: There could have been a tokenizer error\n // so
that we don't get a token for the end tag...\n if (this._peek.type === lex.TokenType.TAG_OPEN_END_VOID) {\n
this._advance();\n selfClosing = true;\n const tagDef = this.getTagDefinition(fullName);\n if
(!tagDef.canSelfClose || getNsPrefix(fullName) !== null || tagDef.isVoid) {\n
this.errors.push(TreeError.create(\n fullName, startTagToken.sourceSpan,\n `Only void and foreign
elements can be self closed \"${startTagToken.parts[1]}\"`));\n }\n } else if (this._peek.type ===

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lex.TokenType.TAG_OPEN_END) {\n this._advance();\n selfClosing = false;\n }\n const end =
this._peek.sourceSpan.start;\n const span = new ParseSourceSpan(\n startTagToken.sourceSpan.start, end,
startTagToken.sourceSpan.fullStart);\n // Create a separate `startSpan` because `span` will be modified when there
is an `end` span.\n const startSpan = new ParseSourceSpan(\n startTagToken.sourceSpan.start, end,
startTagToken.sourceSpan.fullStart);\n const el = new html.Element(fullName, attrs, [], span, startSpan,
undefined);\n this._pushElement(el);\n
 if (selfClosing) {\n // Elements that are self-closed have their `endSourceSpan` set to the full span, as the\n
// element start tag also represents the end tag.\n this._popElement(fullName, span);\n } else if
(startTagToken.type === lex.TokenType.INCOMPLETE_TAG_OPEN) {\n // We already know the opening tag
is not complete, so it is unlikely it has a corresponding\n // close tag. Let's optimistically parse it as a full element
and emit an error.\n this._popElement(fullName, null);\n this.errors.push(\n TreeError.create(fullName,
span, `Opening tag \"${fullName}\" not terminated.`));\n }\n }\n private _pushElement(el: html.Element) {\n
const parentEl = this._getParentElement();\n if (parentEl &&
this.getTagDefinition(parentEl.name).isClosedByChild(el.name)) {\n this._elementStack.pop();\n }\n this._addToParent(el);\n this._elementStack.push(el);\n }\n private _consumeEndTag(endTagToken:
lex.Token) {\n const fullName = this._getElementFullName(\n endTagToken.parts[0], endTagToken.parts[1],
this._getParentElement());\n if (this.getTagDefinition(fullName).isVoid) {\n
this.errors.push(TreeError.create(\n fullName, endTagToken.sourceSpan,\n `Void elements do not have
end tags \"${endTagToken.parts[1]}\"`));\n } else if (!this._popElement(fullName, endTagToken.sourceSpan)) {\n
const errMsg = `Unexpected closing tag \"${\n fullName}\". It may happen when the tag has already been
closed by another tag. For more info see https://www.w3.org/TR/html5/syntax.html#closing-elements-that-have-
implied-end-tags`;\n this.errors.push(TreeError.create(fullName, endTagToken.sourceSpan, errMsg));\n }\n
 }\n /**\n * Closes the nearest element with the tag name `fullName` in the parse tree.\n * `endSourceSpan` is
the span of the closing tag, or null if the element does\n * not have a closing tag (for example, this
happens when an incomplete\n * opening tag is recovered).\n */\n private _popElement(fullName: string,
endSourceSpan: ParseSourceSpan|null): boolean {\n for (let stackIndex = this._elementStack.length - 1;
stackIndex >= 0; stackIndex--) {\n const el = this._elementStack[stackIndex];\n if (el.name === fullName) {\n
// Record the parse span with the element that is being closed. Any elements that are\n // removed from the
element stack at this point are closed implicitly, so they won't get\n // an end source span (as there is no explicit
closing element).\n el.endSourceSpan = endSourceSpan;\n el.sourceSpan.end = endSourceSpan !== null ?
endSourceSpan.end : el.sourceSpan.end;\n this._elementStack.splice(stackIndex, this._elementStack.length -
stackIndex);\n return true;\n }\n if (!this.getTagDefinition(el.name).closedByParent) {\n return
false;\n }\n return false;\n }\n private _consumeAttr(attrName:
lex.Token): html.Attribute {\n const fullName = mergeNsAndName(attrName.parts[0], attrName.parts[1]);\n let
end = attrName.sourceSpan.end;\n let value = \"\";\n let valueSpan: ParseSourceSpan = undefined!;\n if
(this._peek.type === lex.TokenType.ATTR_QUOTE) {\n this._advance();\n }\n if (this._peek.type ===
lex.TokenType.ATTR_VALUE) {\n const valueToken = this._advance();\n value = valueToken.parts[0];\n
end = valueToken.sourceSpan.end;\n valueSpan = valueToken.sourceSpan;\n }\n if (this._peek.type ===
lex.TokenType.ATTR_QUOTE) {\n const quoteToken = this._advance();\n end =
quoteToken.sourceSpan.end;\n }\n return new html.Attribute(\n fullName, value,\n new
ParseSourceSpan(attrName.sourceSpan.start, end, attrName.sourceSpan.fullStart),\n valueSpan);\n }\n private _getParentElement(): html.Element|null {\n return this._elementStack.length > 0 ?
this._elementStack[this._elementStack.length
- 1] : null;\n }\n private _addToParent(node: html.Node) {\n const parent = this._getParentElement();\n if
(parent !== null) {\n parent.children.push(node);\n } else {\n this.rootNodes.push(node);\n }\n }\n private _getElementFullName(prefix: string, localName: string, parentElement: html.Element|null): string {\n
if (prefix === \"\") {\n prefix = this.getTagDefinition(localName).implicitNamespacePrefix || \"\";\n if (prefix ===
\" && parentElement !== null) {\n const parentTagName = splitNsName(parentElement.name)[1];\n const

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null;\n }\n\n visitComment(comment: html.Comment, context: any): any {\n return comment;\n }\n\n visitExpansion(expansion: html.Expansion, context: any): any {\n return expansion;\n }\n\n visitExpansionCase(expansionCase: html.ExpansionCase, context: any): any {\n return expansionCase;\n }\n}\n\nexport function removeWhitespaces(htmlAstWithErrors:
ParseTreeResult): ParseTreeResult {\n return new ParseTreeResult(\n html.visitAll(new WhitespaceVisitor(),
htmlAstWithErrors.rootNodes),\n htmlAstWithErrors.errors);\n }\n\ninterface SiblingVisitorContext {\n prev:
html.Node|undefined;\n next: html.Node|undefined;\n }\n\nfunction visitAllWithSiblings(visitor: WhitespaceVisitor,
nodes: html.Node[]): any[] {\n const result: any[] = [];\n nodes.forEach((ast, i) => {\n const context:
SiblingVisitorContext = {prev: nodes[i - 1], next: nodes[i + 1]};\n const astResult = ast.visit(visitor, context);\n if (astResult) {\n result.push(astResult);\n }\n });\n return result;\n }\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {ParseError, ParseSourceSpan} from
'./parse_util';\n\nimport * as html from './ast';\n\n// http://cldr.unicode.org/index/cldr-spec/plural-rules\nconst
PLURAL_CASES: string[] = ['zero', 'one', 'two', 'few', 'many', 'other'];\n\n/**\n * Expands special forms into
elements.\n * \n * For example,\n * \n * ``\n * { messages.length, plural,\n * =0 {zero}\n * =1 {one}\n * other
{more than one}\n * }\n * ``\n * will be expanded into\n * \n * ``\n * <ng-container
[ngPlural]="messages.length">\n * <ng-template ngPluralCase="=0">zero</ng-template>\n * <ng-template
ngPluralCase="=1">one</ng-template>\n * <ng-template ngPluralCase="other">more than one</ng-
template>\n * </ng-container>\n * ``\n */\n\nexport function expandNodes(nodes: html.Node[]): ExpansionResult {\n
const expander = new _Expander();\n return new ExpansionResult(html.visitAll(expander, nodes),
expander.isExpanded, expander.errors);\n }\n\nexport class ExpansionResult {\n constructor(public nodes:
html.Node[], public expanded: boolean, public errors: ParseError[]) {\n }\n }\n\nexport class ExpansionError extends
ParseError {\n
 constructor(span: ParseSourceSpan, errorMsg: string) {\n super(span, errorMsg);\n }\n }\n\n/**\n * Expand
expansion forms (plural, select) to directives\n * \n * @internal\n */\n\nclass _Expander implements html.Visitor {\n
isExpanded: boolean = false;\n errors: ParseError[] = [];\n\n visitElement(element: html.Element, context: any):
any {\n return new html.Element(\n element.name, element.attrs, html.visitAll(this, element.children),
element.sourceSpan,\n element.startSourceSpan, element.endSourceSpan);\n }\n\n visitAttribute(attribute:
html.Attribute, context: any): any {\n return attribute;\n }\n\n visitText(text: html.Text, context: any): any {\n
return text;\n }\n\n visitComment(comment: html.Comment, context: any): any {\n return comment;\n }\n\n visitExpansion(icu: html.Expansion, context: any): any {\n this.isExpanded = true;\n return icu.type == 'plural' ?
_expandPluralForm(icu, this.errors) : _expandDefaultForm(icu,
this.errors);\n }\n\n visitExpansionCase(icuCase: html.ExpansionCase, context: any): any {\n throw new
Error('Should not be reached');\n }\n }\n\n// Plural forms are expanded to `NgPlural` and `NgPluralCase`\n\nfunction
_expandPluralForm(ast: html.Expansion, errors: ParseError[]): html.Element {\n const children = ast.cases.map(c
=> {\n if (PLURAL_CASES.indexOf(c.value) == -1 && !c.value.match(/^=\d+$/)) {\n errors.push(new
ExpansionError(\n c.valueSourceSpan,\n `Plural cases should be "="<number>" or one of
${PLURAL_CASES.join(', ')});\n }\n const expansionResult = expandNodes(c.expression);\n errors.push(...expansionResult.errors);\n return new html.Element(\n `ng-template`, [new
html.Attribute('ngPluralCase', `${c.value}`, c.valueSourceSpan)],\n expansionResult.nodes, c.sourceSpan,
c.sourceSpan, c.sourceSpan);\n });\n const switchAttr = new html.Attribute('ngPlural', ast.switchValue,
ast.switchValueSourceSpan);\n
 return new html.Element(\n `ng-container`, [switchAttr], children, ast.sourceSpan, ast.sourceSpan,
ast.sourceSpan);\n }\n\n// ICU messages (excluding plural form) are expanded to `NgSwitch` and
`NgSwitchCase`\n\nfunction _expandDefaultForm(ast: html.Expansion, errors: ParseError[]): html.Element {\n
const children = ast.cases.map(c => {\n const expansionResult = expandNodes(c.expression);\n errors.push(...expansionResult.errors);\n if (c.value === 'other') {\n // other is the default case when no values
match\n return new html.Element(\n `ng-template`, [new html.Attribute('ngSwitchDefault', "",

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c.valueSourceSpan)],\n expansionResult.nodes, c.sourceSpan, c.sourceSpan, c.sourceSpan);\n }\n\n return
new html.Element(\n `ng-template`, [new html.Attribute('ngSwitchCase', `${c.value}`, c.valueSourceSpan)],\n expansionResult.nodes, c.sourceSpan, c.sourceSpan, c.sourceSpan);\n });\n const switchAttr = new
html.Attribute('ngSwitch'),
 ast.switchValue, ast.switchValueSourceSpan);\n return new html.Element(\n 'ng-container', [switchAttr],
children, ast.sourceSpan, ast.sourceSpan, ast.sourceSpan);\n }\n\n "/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport { AstPath } from './ast_path';\nimport
{ CompileDirectiveSummary, CompileProviderMetadata, CompileTokenMetadata } from
'./compile_metadata';\nimport { SecurityContext } from './core';\nimport { ASTWithSource, BindingType,
BoundElementProperty, ParsedEvent, ParsedEventType, ParsedVariable } from './expression_parser/ast';\nimport
{ LifecycleHooks } from './lifecycle_reflector';\nimport { ParseSourceSpan } from './parse_util';\n\n\n/**\n * An
Abstract Syntax Tree node representing part of a parsed Angular template.\n */\nexport interface TemplateAst {\n
/**\n * The source span
from which this node was parsed.\n */\n sourceSpan: ParseSourceSpan;\n\n /**\n * Visit this node and possibly
transform it.\n */\n visit(visitor: TemplateAstVisitor, context: any): any;\n\n /**\n * A segment of text within
the template.\n */\n export class TextAst implements TemplateAst {\n constructor(\n public value: string, public
ngContentIndex: number, public sourceSpan: ParseSourceSpan) {\n }\n visit(visitor: TemplateAstVisitor, context:
any): any {\n return visitor.visitText(this, context);\n }\n }\n\n /**\n * A bound expression within the text of a
template.\n */\n export class BoundTextAst implements TemplateAst {\n constructor(\n public value:
ASTWithSource, public ngContentIndex: number,\n public sourceSpan: ParseSourceSpan) {\n }\n visit(visitor:
TemplateAstVisitor, context: any): any {\n return visitor.visitBoundText(this, context);\n }\n }\n\n /**\n * A plain
attribute on an element.\n */\n export class AttrAst implements TemplateAst {\n constructor(public
name: string, public value: string, public sourceSpan: ParseSourceSpan) {\n }\n visit(visitor: TemplateAstVisitor,
context: any): any {\n return visitor.visitAttr(this, context);\n }\n }\n\n export const enum PropertyBindingType {\n
// A normal binding to a property (e.g. `[property]="expression"`).\n Property,\n // A binding to an element
attribute (e.g. `[attr.name]="expression"`).\n Attribute,\n // A binding to a CSS class (e.g.
`[class.name]="condition"`).\n Class,\n // A binding to a style rule (e.g. `[style.rule]="expression"`).\n Style,\n
// A binding to an animation reference (e.g. `[animate.key]="expression"`).\n Animation,\n }\n\n const
BoundPropertyMapping = {\n [BindingType.Animation]: PropertyBindingType.Animation,\n
[BindingType.Attribute]: PropertyBindingType.Attribute,\n [BindingType.Class]: PropertyBindingType.Class,\n
[BindingType.Property]: PropertyBindingType.Property,\n [BindingType.Style]:
PropertyBindingType.Style,\n };\n\n /**\n * A binding for an element property (e.g. `[property]="expression"`) or an animation trigger (e.g.
`[@trigger]="stateExp"`) \n */\n export class BoundElementPropertyAst implements TemplateAst {\n readonly
isAnimation: boolean;\n\n constructor(\n public name: string, public type: PropertyBindingType,\n public
securityContext: SecurityContext, public value: ASTWithSource,\n public unit: string|null, public sourceSpan:
ParseSourceSpan) {\n this.isAnimation = this.type === PropertyBindingType.Animation;\n }\n\n static
fromBoundProperty(prop: BoundElementProperty) {\n const type = BoundPropertyMapping[prop.type];\n return
new BoundElementPropertyAst(\n prop.name, type, prop.securityContext, prop.value, prop.unit,
prop.sourceSpan);\n }\n\n visit(visitor: TemplateAstVisitor, context: any): any {\n return
visitor.visitElementProperty(this, context);\n }\n }\n\n /**\n * A binding for an element event (e.g.
`(event)="handler()"`) or an animation trigger
event (e.g. `(@trigger.phase)="callback($event)`).\n */\n export class BoundEventAst implements
TemplateAst {\n readonly fullName: string;\n readonly isAnimation: boolean;\n\n constructor(\n public name:
string, public target: string|null, public phase: string|null,\n public handler: ASTWithSource, public sourceSpan:
ParseSourceSpan,\n public handlerSpan: ParseSourceSpan) {\n this.fullName =
BoundEventAst.calcFullName(this.name, this.target, this.phase);\n this.isAnimation = !!this.phase;\n }\n\n static

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calcFullName(name: string, target: string|null, phase: string|null): string {\n if (target) {\n return
`$${target}:$${name}`;\n }\n if (phase) {\n return `@$${name}.$${phase}`;\n }\n return name;\n }\n\n
static fromParsedEvent(event: ParsedEvent) {\n const target: string|null = event.type ===
ParsedEventType.Regular ? event.targetOrPhase : null;\n const phase: string|null =\n event.type ===
ParsedEventType.Animation
? event.targetOrPhase : null;\n return new BoundEventAst(\n event.name, target, phase, event.handler,
event.sourceSpan, event.handlerSpan);\n }\n\n
visit(visitor: TemplateAstVisitor, context: any): any {\n return
visitor.visitEvent(this, context);\n }\n}\n\n
* A reference declaration on an element (e.g. `let
someName="expression")\n\n
*/\n\n
export class ReferenceAst implements TemplateAst {\n constructor(\n public
name: string, public value: CompileTokenMetadata, public originalValue: string,\n public sourceSpan:
ParseSourceSpan) {\n }\n visit(visitor: TemplateAstVisitor, context: any): any {\n return visitor.visitReference(this,
context);\n }\n}\n\n
* A variable declaration on a <ng-template> (e.g. `var-
someName="someLocalName")\n\n
*/\n\n
export class VariableAst implements TemplateAst {\n constructor(\n public
readonly name: string, public readonly value: string,\n public readonly sourceSpan: ParseSourceSpan,
public readonly valueSpan?:
ParseSourceSpan) {\n }\n\n static fromParsedVariable(v: ParsedVariable) {\n return new VariableAst(v.name,
v.value, v.sourceSpan, v.valueSpan);\n }\n\n visit(visitor: TemplateAstVisitor, context: any): any {\n return
visitor.visitVariable(this, context);\n }\n}\n\n
* An element declaration in a template.\n\n
*/\n\n
export class ElementAst implements TemplateAst {\n constructor(\n public name: string, public attrs: AttrAst[], public
inputs: BoundElementPropertyAst[],\n public outputs: BoundEventAst[], public references: ReferenceAst[],\n public directives: DirectiveAst[], public providers: ProviderAst[],\n public hasViewContainer: boolean, public
queryMatches: QueryMatch[],\n public children: TemplateAst[], public ngContentIndex: number|null,\n public sourceSpan: ParseSourceSpan, public endSourceSpan: ParseSourceSpan|null) {\n }\n\n visit(visitor:
TemplateAstVisitor, context: any): any {\n return visitor.visitElement(this, context);\n }\n}\n\n
* A <ng-template> element included in an Angular template.\n\n
*/\n\n
export class EmbeddedTemplateAst
implements TemplateAst {\n constructor(\n public attrs: AttrAst[], public outputs: BoundEventAst[], public
references: ReferenceAst[],\n public variables: VariableAst[], public directives: DirectiveAst[],\n public
providers: ProviderAst[], public hasViewContainer: boolean,\n public queryMatches: QueryMatch[], public
children: TemplateAst[],\n public ngContentIndex: number, public sourceSpan: ParseSourceSpan) {\n }\n\n visit(visitor: TemplateAstVisitor, context: any): any {\n return visitor.visitEmbeddedTemplate(this, context);\n }\n}\n\n
* A directive property with a bound value (e.g. `*ngIf="condition")\n\n
*/\n\n
export class BoundDirectivePropertyAst implements TemplateAst {\n constructor(\n public directiveName: string, public
templateName: string, public value: ASTWithSource,\n public sourceSpan: ParseSourceSpan) {\n }\n visit(visitor:
TemplateAstVisitor, context: any): any {\n return visitor.visitDirectiveProperty(this, context);\n }\n}\n\n
* A directive declared on an element.\n\n
*/\n\n
export class DirectiveAst implements TemplateAst {\n constructor(\n public directive: CompileDirectiveSummary, public inputs: BoundDirectivePropertyAst[],\n public
hostProperties: BoundElementPropertyAst[], public hostEvents: BoundEventAst[],\n public contentQueryStartId:
number, public sourceSpan: ParseSourceSpan) {\n }\n visit(visitor: TemplateAstVisitor, context: any): any {\n return visitor.visitDirective(this, context);\n }\n}\n\n
* A provider declared on an element\n\n
*/\n\n
export class ProviderAst implements TemplateAst {\n constructor(\n public token: CompileTokenMetadata, public
multiProvider: boolean, public eager: boolean,\n public providers: CompileProviderMetadata[], public
providerType: ProviderAstType,\n public lifecycleHooks: LifecycleHooks[], public sourceSpan:
ParseSourceSpan,\n public
readonly isModule: boolean) {\n }\n\n visit(visitor: TemplateAstVisitor, context: any): any {\n // No visit
method in the visitor for now...\n return null;\n }\n}\n\n
export enum ProviderAstType {\n PublicService,\n PrivateService,\n Component,\n Directive,\n Builtin\n}\n\n
* Position where content is to be projected
(instance of <ng-content> in a template).\n\n
*/\n\n
export class NgContentAst implements TemplateAst {\n constructor(\n public index: number, public ngContentIndex: number, public sourceSpan: ParseSourceSpan) {\n }\n}

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visit(visitor: TemplateAstVisitor, context: any): any {\n return visitor.visitNgContent(this, context);\n
}\n}\n\nexport interface QueryMatch {\n queryId: number;\n value: CompileTokenMetadata;\n}\n\n/**\n * A
visitor for { @link TemplateAst } trees that will process each node.\n */\nexport interface TemplateAstVisitor {\n //
Returning a truthy value from `visit()` will prevent `templateVisitAll()` from the call to\n // the typed
method and result returned will become the result included in `visitAll()`s\n // result array.\n visit?(ast:
TemplateAst, context: any): any;\n\n visitNgContent(ast: NgContentAst, context: any): any;\n
visitEmbeddedTemplate(ast: EmbeddedTemplateAst, context: any): any;\n visitElement(ast: ElementAst, context:
any): any;\n visitReference(ast: ReferenceAst, context: any): any;\n visitVariable(ast: VariableAst, context: any):
any;\n visitEvent(ast: BoundEventAst, context: any): any;\n visitElementProperty(ast: BoundElementPropertyAst,
context: any): any;\n visitAttr(ast: AttrAst, context: any): any;\n visitBoundText(ast: BoundTextAst, context: any):
any;\n visitText(ast: TextAst, context: any): any;\n visitDirective(ast: DirectiveAst, context: any): any;\n
visitDirectiveProperty(ast: BoundDirectivePropertyAst, context: any): any;\n}\n\n/**\n * A visitor that accepts each
node but doesn't do anything. It is intended to be used\n * as the base class for a visitor that is only
interested in a subset of the node types.\n */\nexport class NullTemplateVisitor implements TemplateAstVisitor {\n
visitNgContent(ast: NgContentAst, context: any): void {}\n visitEmbeddedTemplate(ast: EmbeddedTemplateAst,
context: any): void {}\n visitElement(ast: ElementAst, context: any): void {}\n visitReference(ast: ReferenceAst,
context: any): void {}\n visitVariable(ast: VariableAst, context: any): void {}\n visitEvent(ast: BoundEventAst,
context: any): void {}\n visitElementProperty(ast: BoundElementPropertyAst, context: any): void {}\n
visitAttr(ast: AttrAst, context: any): void {}\n visitBoundText(ast: BoundTextAst, context: any): void {}\n
visitText(ast: TextAst, context: any): void {}\n visitDirective(ast: DirectiveAst, context: any): void {}\n
visitDirectiveProperty(ast: BoundDirectivePropertyAst, context: any): void {}\n}\n\n/**\n * Base class that can be
used to build a visitor that visits each node\n * in an template ast recursively.\n */\nexport class
RecursiveTemplateAstVisitor
extends NullTemplateVisitor implements TemplateAstVisitor {\n constructor() {\n super();\n }\n\n // Nodes
with children\n visitEmbeddedTemplate(ast: EmbeddedTemplateAst, context: any): any {\n return
this.visitChildren(context, visit => {\n visit(ast.attrs);\n visit(ast.references);\n visit(ast.variables);\n
visit(ast.directives);\n visit(ast.providers);\n visit(ast.children);\n });\n }\n\n visitElement(ast: ElementAst,
context: any): any {\n return this.visitChildren(context, visit => {\n visit(ast.attrs);\n visit(ast.inputs);\n
visit(ast.outputs);\n visit(ast.references);\n visit(ast.directives);\n visit(ast.providers);\n
visit(ast.children);\n });\n }\n\n visitDirective(ast: DirectiveAst, context: any): any {\n return
this.visitChildren(context, visit => {\n visit(ast.inputs);\n visit(ast.hostProperties);\n visit(ast.hostEvents);\n
 });\n }\n\n protected
visitChildren(\n context: any,\n cb: (visit: (<V extends TemplateAst>(children: V[]|undefined) => void)) =>
void) {\n let results: any[][] = [];\n let t = this;\n function visit<T extends TemplateAst>(children:
T[]|undefined) {\n if (children && children.length) results.push(templateVisitAll(t, children, context));\n }\n
 cb(visit);\n return Array.prototype.concat.apply([], results);\n }\n}\n\n/**\n * Visit every node in a list of { @link
TemplateAst }s with the given { @link TemplateAstVisitor }.\n */\nexport function templateVisitAll(\n visitor:
TemplateAstVisitor, asts: TemplateAst[], context: any = null): any[] {\n const result: any[] = [];\n const visit =
visitor.visit ?\n (ast: TemplateAst) => visitor.visit!(ast, context) || ast.visit(visitor, context) : \n (ast:
TemplateAst) => ast.visit(visitor, context);\n asts.forEach(ast => {\n const astResult = visit(ast);\n if (astResult)
{\n result.push(astResult);\n }\n });\n
return result;\n }\n\nexport type TemplateAstPath = AstPath<TemplateAst>;\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport { CompileDiDependencyMetadata,
CompileDirectiveMetadata, CompileDirectiveSummary, CompileNgModuleMetadata, CompileProviderMetadata,
CompileQueryMetadata, CompileTokenMetadata, CompileTypeMetadata, tokenName, tokenReference } from
'./compile_metadata';\nimport { CompileReflector } from './compile_reflector';\nimport
{ createTokenForExternalReference, Identifiers } from './identifiers';\nimport { ParseError, ParseSourceSpan } from

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./parse_util';\nimport { AttrAst, DirectiveAst, ProviderAst, ProviderAstType, QueryMatch, ReferenceAst } from
./template_parser/template_ast';\n\nexport class ProviderError extends ParseError {\n constructor(message: string,
span: ParseSourceSpan) {\n super(span, message);\n }\n}\n\nexport interface QueryWithId {\n meta: CompileQueryMetadata;\n queryId: number;\n}\n\nexport class
ProviderViewContext {\n /**\n * @internal\n */\n viewQueries: Map<any, QueryWithId>;\n /**\n *
@internal\n */\n viewProviders: Map<any, boolean>;\n errors: ProviderError[] = [];\n constructor(public
reflector: CompileReflector, public component: CompileDirectiveMetadata) {\n this.viewQueries =
_getViewQueries(component);\n this.viewProviders = new Map<any, boolean>();\n
component.viewProviders.forEach((provider) => {\n if (this.viewProviders.get(tokenReference(provider.token))
== null) {\n this.viewProviders.set(tokenReference(provider.token), true);\n }\n });\n}\n\nexport class
ProviderElementContext {\n private _contentQueries: Map<any, QueryWithId>;\n private
_transformedProviders = new Map<any, ProviderAst>();\n private _seenProviders = new Map<any, boolean>();\n
private _allProviders: Map<any, ProviderAst>;\n
private _attrs: {[key: string]: string};\n private _queriedTokens = new Map<any, QueryMatch[]>();\n public
readonly transformedHasViewContainer: boolean = false;\n constructor(\n public viewContext:
ProviderViewContext, private _parent: ProviderElementContext,\n private _isViewRoot: boolean, private
_directiveAsts: DirectiveAst[], attrs: AttrAst[],\n refs: ReferenceAst[], isTemplate: boolean, contentQueryStartId:
number,\n private _sourceSpan: ParseSourceSpan) {\n this._attrs = {};\n attrs.forEach((attrAst) =>
this._attrs[attrAst.name] = attrAst.value);\n const directivesMeta = _directiveAsts.map(directiveAst =>
directiveAst.directive);\n this._allProviders =\n _resolveProvidersFromDirectives(directivesMeta,
_sourceSpan, viewContext.errors);\n this._contentQueries = _getContentQueries(contentQueryStartId,
directivesMeta);\n Array.from(this._allProviders.values()).forEach((provider) => {\n
this._addQueryReadsTo(provider.token,
provider.token, this._queriedTokens);\n });\n if (isTemplate) {\n const templateRefId =\n
createTokenForExternalReference(this.viewContext.reflector, Identifiers.TemplateRef);\n
this._addQueryReadsTo(templateRefId, templateRefId, this._queriedTokens);\n }\n refs.forEach((refAst) => {\n
let defaultQueryValue = refAst.value ||\n createTokenForExternalReference(this.viewContext.reflector,
Identifiers.ElementRef);\n this._addQueryReadsTo({ value: refAst.name }, defaultQueryValue,
this._queriedTokens);\n });\n if (this._queriedTokens.get(\n
this.viewContext.reflector.resolveExternalReference(Identifiers.ViewContainerRef))) {\n
this.transformedHasViewContainer = true;\n }\n // create the providers that we know are eager first\n
Array.from(this._allProviders.values()).forEach((provider) => {\n const eager = provider.eager ||
this._queriedTokens.get(tokenReference(provider.token));\n if (eager) {\n
this._getOrCreateLocalProvider(provider.providerType, provider.token, true);\n }\n });\n afterElement() {\n // collect lazy providers\n
Array.from(this._allProviders.values()).forEach((provider) => {\n
this._getOrCreateLocalProvider(provider.providerType, provider.token, false);\n });\n }\n get
transformProviders(): ProviderAst[] {\n // Note: Maps keep their insertion order.\n const lazyProviders:
ProviderAst[] = [];\n const eagerProviders: ProviderAst[] = [];\n this._transformedProviders.forEach(provider
=> {\n if (provider.eager) {\n eagerProviders.push(provider);\n } else {\n
lazyProviders.push(provider);\n }\n });\n return lazyProviders.concat(eagerProviders);\n }\n get
transformedDirectiveAsts(): DirectiveAst[] {\n const sortedProviderTypes = this.transformProviders.map(provider
=> provider.token.identifier);\n const sortedDirectives = this._directiveAsts.slice();\n sortedDirectives.sort(\n
(dir1, dir2) => sortedProviderTypes.indexOf(dir1.directive.type) -\n
sortedProviderTypes.indexOf(dir2.directive.type));\n return sortedDirectives;\n }\n get queryMatches():
QueryMatch[] {\n const allMatches: QueryMatch[] = [];\n this._queriedTokens.forEach((matches:
QueryMatch[]) => {\n allMatches.push(...matches);\n });\n return allMatches;\n }\n private
_addQueryReadsTo(\n token: CompileTokenMetadata, defaultValue: CompileTokenMetadata,\n queryReadTokens: Map<any, QueryMatch[]>) {\n this._getQueriesFor(token).forEach((query) => {\n const

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queryValue = query.meta.read || defaultValue;\n const tokenRef = tokenReference(queryValue);\n let
queryMatches = queryReadTokens.get(tokenRef);\n if (!queryMatches) {\n queryMatches = [];\n queryReadTokens.set(tokenRef, queryMatches);\n }\n queryMatches.push({queryId: query.queryId, value:
queryValue});\n });\n }\n\n private _getQueriesFor(token:
CompileTokenMetadata): QueryWithId[] {\n const result: QueryWithId[] = [];\n let currentEl:
ProviderElementContext = this;\n let distance = 0;\n let queries: QueryWithId[]|undefined;\n while (currentEl
!== null) {\n queries = currentEl._contentQueries.get(tokenReference(token));\n if (queries) {\n
result.push(...queries.filter((query) => query.meta.descendants || distance <= 1));\n }\n if
(currentEl._directiveAsts.length > 0) {\n distance++;\n }\n currentEl = currentEl._parent;\n }\n queries = this.viewContext.viewQueries.get(tokenReference(token));\n if (queries) {\n result.push(...queries);\n }\n return result;\n }\n\n private _getOrCreateLocalProvider(\n requestingProviderType: ProviderAstType,
token: CompileTokenMetadata,\n eager: boolean): ProviderAst|null {\n const resolvedProvider =
this._allProviders.get(tokenReference(token));\n if (!resolvedProvider ||\n ((requestingProviderType
=== ProviderAstType.Directive ||\n requestingProviderType === ProviderAstType.PublicService) &&\n resolvedProvider.providerType === ProviderAstType.PrivateService) ||\n ((requestingProviderType ===
ProviderAstType.PrivateService ||\n requestingProviderType === ProviderAstType.PublicService) &&\n resolvedProvider.providerType === ProviderAstType.Builtin)) {\n return null;\n }\n let
transformedProviderAst = this._transformedProviders.get(tokenReference(token));\n if (transformedProviderAst)
{\n return transformedProviderAst;\n }\n if (this._seenProviders.get(tokenReference(token)) != null) {\n
this.viewContext.errors.push(new ProviderError(\n `Cannot instantiate cyclic dependency!\n
${tokenName(token)}`, this._sourceSpan));\n return null;\n }\n this._seenProviders.set(tokenReference(token), true);\n const transformedProviders =
resolvedProvider.providers.map((provider) => {\n
 let transformedUseValue = provider.useValue;\n let transformedUseExisting = provider.useExisting!;\n let
transformedDeps: CompileDiDependencyMetadata[] = undefined!;\n if (provider.useExisting != null) {\n
const existingDiDep = this._getDependency(\n resolvedProvider.providerType, {token:
provider.useExisting}, eager!);\n if (existingDiDep.token != null) {\n transformedUseExisting =
existingDiDep.token;\n } else {\n transformedUseExisting = null!;\n transformedUseValue =
existingDiDep.value;\n }\n } else if (provider.useFactory) {\n const deps = provider.deps ||
provider.useFactory.diDeps;\n transformedDeps =\n deps.map((dep) =>
this._getDependency(resolvedProvider.providerType, dep, eager!);\n) else if (provider.useClass) {\n const
deps = provider.deps || provider.useClass.diDeps;\n transformedDeps =\n deps.map((dep) =>
this._getDependency(resolvedProvider.providerType,
dep, eager!);\n }\n return _transformProvider(provider, {\n useExisting: transformedUseExisting,\n
 useValue: transformedUseValue,\n deps: transformedDeps\n });\n }\n transformedProviderAst =\n _transformProviderAst(resolvedProvider, {eager: eager, providers: transformedProviders});\n this._transformedProviders.set(tokenReference(token), transformedProviderAst);\n return
transformedProviderAst;\n }\n\n private _getLocalDependency(\n requestingProviderType: ProviderAstType,
dep: CompileDiDependencyMetadata,\n eager: boolean = false): CompileDiDependencyMetadata|null {\n if
(dep.isAttribute) {\n const attrValue = this._attrs[dep.token!.value];\n return {isValue: true, value: attrValue
== null ? null : attrValue};\n }\n if (dep.token != null) {\n // access builtints\n if
((requestingProviderType === ProviderAstType.Directive ||\n requestingProviderType
=== ProviderAstType.Component)) {\n if (tokenReference(dep.token) ===\n
this.viewContext.reflector.resolveExternalReference(Identifiers.Renderer) ||\n tokenReference(dep.token)
===\n this.viewContext.reflector.resolveExternalReference(Identifiers.ElementRef) ||\n
tokenReference(dep.token) ===\n this.viewContext.reflector.resolveExternalReference(\n
Identifiers.ChangeDetectorRef) ||\n tokenReference(dep.token) ===\n
this.viewContext.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n return dep;\n }\n } if

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(tokenReference(dep.token) ===\n
this.viewContext.reflector.resolveExternalReference(Identifiers.ViewContainerRef)) {\n (this as
{transformedHasViewContainer: boolean}).transformedHasViewContainer = true;\n }\n // access the
injector\n if (tokenReference(dep.token) ===\n
this.viewContext.reflector.resolveExternalReference(Identifiers.Injector))
{\n return dep;\n }\n // access providers\n if
(this._getOrCreateLocalProvider(requestingProviderType, dep.token, eager) != null) {\n return dep;\n }\n
}\n return null;\n }\n\n private _getDependency(\n requestingProviderType: ProviderAstType, dep:
CompileDiDependencyMetadata,\n eager: boolean = false): CompileDiDependencyMetadata|null {\n let
currElement: ProviderElementContext = this;\n let currEager: boolean = eager;\n let result:
CompileDiDependencyMetadata|null = null;\n if (!dep.isSkipSelf) {\n result =
this._getLocalDependency(requestingProviderType, dep, eager);\n }\n if (dep.isSelf) {\n if (!result &&
dep.isOptional) {\n result = {isValue: true, value: null};\n }\n } else {\n // check parent elements\n
while (!result && currElement._parent) {\n const prevElement = currElement;\n currElement =
currElement._parent;\n
 if (prevElement._isViewRoot) {\n currEager = false;\n }\n result =
currElement._getLocalDependency(ProviderAstType.PublicService, dep, currEager);\n }\n // check @Host
restriction\n if (!result) {\n if (!dep.isHost || this.viewContext.component.isHost ||\n
this.viewContext.component.type.reference === tokenReference(dep.token!)) ||\n
this.viewContext.viewProviders.get(tokenReference(dep.token!)) != null) {\n result = dep;\n } else {\n
result = dep.isOptional ? {isValue: true, value: null} : null;\n }\n }\n if (!result) {\n
this.viewContext.errors.push(\n new ProviderError(`No provider for ${tokenName(dep.token!)}` ,
this._sourceSpan));\n }\n return result;\n }\n }\n\n export class NgModuleProviderAnalyzer {\n private
_transformedProviders = new Map<any, ProviderAst>();\n private _seenProviders = new Map<any, boolean>();\n
 private
 _allProviders: Map<any, ProviderAst>;\n private _errors: ProviderError[] = [];\n\n constructor(\n private
reflector: CompileReflector, ngModule: CompileNgModuleMetadata,\n extraProviders:
CompileProviderMetadata[], sourceSpan: ParseSourceSpan) {\n this._allProviders = new Map<any,
ProviderAst>();\n ngModule.transitiveModule.modules.forEach((ngModuleType: CompileTypeMetadata) => {\n
const ngModuleProvider = {token: {identifier: ngModuleType}, useClass: ngModuleType};\n
 _resolveProviders(\n [ngModuleProvider], ProviderAstType.PublicService, true, sourceSpan, this._errors,\n
this._allProviders, /* isModule */ true);\n });\n _resolveProviders(\n
ngModule.transitiveModule.providers.map(entry => entry.provider).concat(extraProviders),\n
ProviderAstType.PublicService, false, sourceSpan, this._errors, this._allProviders,\n /* isModule */ false);\n
 }\n\n parse(): ProviderAst[] {\n Array.from(this._allProviders.values()).forEach((provider)
=> {\n this._getOrCreateLocalProvider(provider.token, provider.eager);\n });\n if (this._errors.length > 0)
{\n const errorString = this._errors.join('\n');\n throw new Error(`Provider parse errors:\n${errorString}`);\n
 }\n // Note: Maps keep their insertion order.\n const lazyProviders: ProviderAst[] = [];\n const eagerProviders:
ProviderAst[] = [];\n this._transformedProviders.forEach(provider => {\n if (provider.eager) {\n
eagerProviders.push(provider);\n } else {\n lazyProviders.push(provider);\n }\n });\n return
lazyProviders.concat(eagerProviders);\n }\n\n private _getOrCreateLocalProvider(token: CompileTokenMetadata,
eager: boolean): ProviderAst|null {\n const resolvedProvider = this._allProviders.get(tokenReference(token));\n
 if (!resolvedProvider) {\n return null;\n }\n let transformedProviderAst =
this._transformedProviders.get(tokenReference(token));\n if
(transformedProviderAst) {\n return transformedProviderAst;\n }\n if
(this._seenProviders.get(tokenReference(token)) != null) {\n this._errors.push(new ProviderError(\n
`Cannot instantiate cyclic dependency! ${tokenName(token)}`, resolvedProvider.sourceSpan));\n return
null;\n }\n this._seenProviders.set(tokenReference(token), true);\n const transformedProviders =

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resolvedProvider.providers.map((provider) => {\n let transformedUseValue = provider.useValue;\n let
transformedUseExisting = provider.useExisting!;\n let transformedDeps: CompileDiDependencyMetadata[] =
undefined!;\n if (provider.useExisting != null) {\n const existingDiDep =\nthis._getDependency({token: provider.useExisting}, eager, resolvedProvider.sourceSpan);\n if
(existingDiDep.token != null) {\n transformedUseExisting = existingDiDep.token;\n } else {\n
transformedUseExisting = null!;\n transformedUseValue
= existingDiDep.value;\n }\n } else if (provider.useFactory) {\n const deps = provider.deps ||
provider.useFactory.diDeps;\n transformedDeps =\n deps.map((dep) => this._getDependency(dep, eager,
resolvedProvider.sourceSpan));\n } else if (provider.useClass) {\n const deps = provider.deps ||
provider.useClass.diDeps;\n transformedDeps =\n deps.map((dep) => this._getDependency(dep, eager,
resolvedProvider.sourceSpan));\n }\n return _transformProvider(provider, {\n useExisting:
transformedUseExisting,\n useValue: transformedUseValue,\n deps: transformedDeps\n });\n});\n
transformedProviderAst =\n _transformProviderAst(resolvedProvider, {eager: eager, providers:
transformedProviders});\n this._transformedProviders.set(tokenReference(token), transformedProviderAst);\n
return transformedProviderAst;\n}\n\nprivate _getDependency(\n dep: CompileDiDependencyMetadata,
eager: boolean = false,\n requestorSourceSpan: ParseSourceSpan): CompileDiDependencyMetadata {\n let
foundLocal = false;\n if (!dep.isSkipSelf && dep.token != null) {\n // access the injector\n if
(tokenReference(dep.token) ===\n this.reflector.resolveExternalReference(Identifiers.Injector) ||\n
tokenReference(dep.token) ===\n
this.reflector.resolveExternalReference(Identifiers.ComponentFactoryResolver)) {\n foundLocal = true;\n //
access providers\n } else if (this._getOrCreateLocalProvider(dep.token, eager) != null) {\n foundLocal =
true;\n }\n }\n return dep;\n}\n\nfunction _transformProvider(\n provider: CompileProviderMetadata,\n {useExisting, useValue, deps}: {\n useExisting: CompileTokenMetadata, useValue: any, deps:
CompileDiDependencyMetadata[]\n }) {\n return {\n token: provider.token,\n useClass: provider.useClass,\n
useExisting: useExisting,\n
 useFactory: provider.useFactory,\n useValue: useValue,\n deps: deps,\n multi: provider.multi\n
 };\n}\n\nfunction _transformProviderAst(\n provider: ProviderAst,\n {eager, providers}: {eager: boolean,
providers: CompileProviderMetadata[]\n}): ProviderAst {\n return new ProviderAst(\n provider.token,
provider.multiProvider, provider.eager || eager, providers,\n provider.providerType, provider.lifecycleHooks,
provider.sourceSpan, provider.isModule);\n}\n\nfunction _resolveProvidersFromDirectives(\n directives:
CompileDirectiveSummary[], sourceSpan: ParseSourceSpan,\n targetErrors: ParseError[]): Map<any,
ProviderAst> {\n const providersByToken = new Map<any, ProviderAst>();\n directives.forEach((directive) =>
{\n const dirProvider:\n CompileProviderMetadata = {token: {identifier: directive.type}, useClass:
directive.type};\n _resolveProviders(\n [dirProvider],\n directive.isComponent ?
ProviderAstType.Component : ProviderAstType.Directive,\n true,\n sourceSpan, targetErrors, providersByToken, /* isModule */ false);\n });\n\n // Note: directives need to
be able to overwrite providers of a component!\n const directivesWithComponentFirst =\n directives.filter(dir
=> dir.isComponent).concat(directives.filter(dir => !dir.isComponent));\n
directivesWithComponentFirst.forEach((directive) => {\n _resolveProviders(\n directive.providers,
ProviderAstType.PublicService, false, sourceSpan, targetErrors,\n providersByToken, /* isModule */ false);\n });\n _resolveProviders(\n directive.viewProviders, ProviderAstType.PrivateService, false, sourceSpan,
targetErrors,\n providersByToken, /* isModule */ false);\n });\n return providersByToken;\n}\n\nfunction
_resolveProviders(\n providers: CompileProviderMetadata[], providerType: ProviderAstType, eager: boolean,\n sourceSpan: ParseSourceSpan, targetErrors: ParseError[],\n targetProvidersByToken: Map<any, ProviderAst>,\n isModule: boolean) {\n providers.forEach((provider) => {\n let resolvedProvider =
targetProvidersByToken.get(tokenReference(provider.token));\n if (resolvedProvider != null &&
!resolvedProvider.multiProvider !== !provider.multi) {\n targetErrors.push(new ProviderError(\n `Mixing
multi and non multi provider is not possible for token $\n tokenName(resolvedProvider.token)`\n),\n

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(sourceSpan));\n }\n if (!resolvedProvider) {\n const lifecycleHooks = provider.token.identifier &&\n (<CompileTypeMetadata>provider.token.identifier).lifecycleHooks ?\n (<CompileTypeMetadata>provider.token.identifier).lifecycleHooks :\n [];\n const isUseValue =\n !(provider.useClass || provider.useExisting || provider.useFactory);\n resolvedProvider = new ProviderAst(\n provider.token, !!provider.multi, eager || isUseValue, [provider], providerType,\n lifecycleHooks, sourceSpan,\n isModule);\n targetProvidersByToken.set(tokenReference(provider.token),\n resolvedProvider);\n } else {\n if (!provider.multi) {\n resolvedProvider.providers.length = 0;\n }\n resolvedProvider.providers.push(provider);\n }\n });\n}\n\nfunction _getViewQueries(component:\n CompileDirectiveMetadata): Map<any, QueryWithId[]> {\n // Note: queries start with id 1 so we can use the\n number in a Bloom filter!\n let viewQueryId = 1;\n const viewQueries = new Map<any, QueryWithId[]>();\n if\n (component.viewQueries) {\n component.viewQueries.forEach((query) =>\n _addQueryToTokenMap(viewQueries, {meta: query, queryId: viewQueryId++});\n);\n }\n return\n viewQueries;\n}\n\nfunction _getContentQueries(\n contentQueryStartId: number, directives:\n CompileDirectiveSummary[]): Map<any, QueryWithId[]> {\n let contentQueryId = contentQueryStartId;\n const\n contentQueries = new Map<any, QueryWithId[]>();\n directives.forEach((directive, directiveIndex) => {\n if\n (directive.queries)\n {\n directive.queries.forEach((query) => _addQueryToTokenMap(contentQueries, {meta: query,\n queryId: contentQueryId++}));\n }\n });\n }\n return contentQueries;\n}\n\nfunction _addQueryToTokenMap(map:\n Map<any, QueryWithId[]>, query: QueryWithId) {\n query.meta.selectors.forEach((token:\n CompileTokenMetadata) => {\n let entry = map.get(tokenReference(token));\n if (!entry) {\n entry = [];\n map.set(tokenReference(token), entry);\n }\n entry.push(query);\n });\n}\n\n/**\n * @license\n * Copyright\n Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n found in the LICENSE file at https://angular.io/license\n */\n\nSome of the code comes from\nWebComponents.JS\n\nhttps://github.com/webcomponents/webcomponentsjs/blob/master/src/HTMLImports/path.js\n\nimport\n{UrlResolver} from './url_resolver';\n\nexport class StyleWithImports {\n constructor(public style: string, public\n styleUrls: string[]) {\n }\n\n export function isStyleUrlResolvable(url: string): boolean {\n if (url == null || url.length === 0 || url[0] ==\n '/') return false;\n const schemeMatch = url.match(URL_WITH_SCHEMA_REGEXP);\n return schemeMatch ===\n null || schemeMatch[1] == 'package' || schemeMatch[1] == 'asset';\n }\n\n /**\n * Rewrites stylesheets by resolving\n and removing the @import urls that\n * are either relative or don't have a `package:`\n scheme\n */\n export function\n extractStyleUrls(\n resolver: UrlResolver, baseUrl: string, cssText: string): StyleWithImports {\n const foundUrls:\n string[] = [];\n const modifiedCssText = cssText.replace(CSS_STRIPPABLE_COMMENT_REGEXP, \"\\n\n .replace(CSS_IMPORT_REGEXP, (...m: string[]) => {\n const url = m[1] || m[2];\n if (!isStyleUrlResolvable(url)) {\n // Do not attempt to resolve non-package\nabsolute URLs with URI\n\n // scheme\n return m[0];\n }\n foundUrls.push(resolver.resolve(baseUrl, url));\n return \"\";\n }));\n return new\n StyleWithImports(modifiedCssText, foundUrls);\n }\n}\n\nconst CSS_IMPORT_REGEXP =\n /@import\\s+(?:url\\(\\)?\\s*(?:\\([^\"]+\\)[^\\)]+\\)|\\s*)(?![^;]*;)/g;\n\nconst\n CSS_STRIPPABLE_COMMENT_REGEXP =\n /\\/\\/.*?(?!#\\s*(?:sourceURL| sourceMappingURL)=)[\\s\\S]+?\\/\\/g;\n\nconst URL_WITH_SCHEMA_REGEXP =\n /^(?:[^\s:/#]+):(?:/|\\/)(.*)$/;\n\n/**\n * @license\n * Copyright\n Google LLC All Rights Reserved.\n *\n * Use of this source code\n is governed by an MIT-style license that can be\n found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileDirectiveSummary, CompilePipeSummary} from './compile_metadata';\nimport\n{SecurityContext} from './core';\nimport {AbsoluteSourceSpan, ASTWithSource, BindingPipe, BindingType,\n BoundElementProperty,
```

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EmptyExpr, ParsedEvent, ParsedEventType, ParsedProperty, ParsedPropertyType, ParsedVariable, ParserError,
RecursiveAstVisitor, TemplateBinding, VariableBinding} from './expression_parser/ast';\nimport {Parser} from
'./expression_parser/parser';\nimport {InterpolationConfig} from './ml_parser/interpolation_config';\nimport
{mergeNsAndName} from './ml_parser/tags';\nimport {ParseError, ParseErrorLevel, ParseLocation,
ParseSourceSpan} from './parse_util';\nimport {ElementSchemaRegistry} from
'./schema/element_schema_registry';\nimport {CssSelector} from './selector';\nimport {splitAtColon,
splitAtPeriod} from './util';\n\nconst PROPERTY_PARTS_SEPARATOR = '.';\nconst ATTRIBUTE_PREFIX =
'attr';\nconst CLASS_PREFIX = 'class';\nconst STYLE_PREFIX = 'style';\nconst TEMPLATE_ATTR_PREFIX =
'*';\nconst ANIMATE_PROP_PREFIX = 'animate-';\n\n/**\n * Parses bindings in templates and in the directive
host area.\n */\nexport class BindingParser {\n pipesByName: Map<string,
CompilePipeSummary> | null = null;\n\n private _usedPipes: Map<string, CompilePipeSummary> = new
Map();\n\n constructor(\n private _exprParser: Parser, private _interpolationConfig: InterpolationConfig,\n private _schemaRegistry: ElementSchemaRegistry, pipes: CompilePipeSummary[] | null,\n public errors: ParseError[]\n) {\n // When the `pipes` parameter is `null`, do not check for used pipes\n // This is used in IVY
when we might not know the available pipes at compile time\n if (pipes) {\n const pipesByName: Map<string,
CompilePipeSummary> = new Map();\n pipes.forEach(pipe => pipesByName.set(pipe.name, pipe));\n this.pipesByName = pipesByName;\n }\n\n get interpolationConfig(): InterpolationConfig {\n return
this._interpolationConfig;\n }\n\n getUsedPipes(): CompilePipeSummary[] {\n return
Array.from(this._usedPipes.values());\n }\n\n createBoundHostProperties(dirMeta: CompileDirectiveSummary,
sourceSpan: ParseSourceSpan):\n ParsedProperty[] | null\n {\n if (dirMeta.hostProperties) {\n const boundProps: ParsedProperty[] = [];\n Object.keys(dirMeta.hostProperties).forEach(propName => {\n const expression =
dirMeta.hostProperties[propName];\n if (typeof expression === 'string') {\n this.parsePropertyBinding(\n
 propName, expression, true, sourceSpan, sourceSpan.start.offset, undefined, [],\n // Use the
`sourceSpan` for `keySpan`. This isn't really accurate, but neither is the\n // sourceSpan, as it represents the
sourceSpan of the host itself rather than the\n // source of the host binding (which doesn't exist in the
template). Regardless,\n // neither of these values are used in Ivy but are only here to satisfy the function\n
 // signature. This should likely be refactored in the future so that `sourceSpan`\n // isn't being used
inaccurately.\n boundProps, sourceSpan);\n }\n else {\n this._reportError(\n
 `Value of the host property binding "${propName}"\n
needs to be a string representing an expression but got "${expression}" (${typeof expression})`,\n
 sourceSpan);\n }\n });\n return boundProps;\n }\n return null;\n }\n\n createDirectiveHostPropertyAsts(\n dirMeta: CompileDirectiveSummary, elementSelector: string,\n sourceSpan: ParseSourceSpan): BoundElementProperty[] | null {\n const boundProps =
this.createBoundHostProperties(dirMeta, sourceSpan);\n return boundProps &&\n boundProps.map((prop) =>
this.createBoundElementProperty(elementSelector, prop));\n }\n\n createDirectiveHostEventAsts(dirMeta:
CompileDirectiveSummary, sourceSpan: ParseSourceSpan):\n ParsedEvent[] | null {\n if (dirMeta.hostListeners)\n {\n const targetEvents: ParsedEvent[] = [];\n Object.keys(dirMeta.hostListeners).forEach(propName => {\n
 const expression = dirMeta.hostListeners[propName];\n if (typeof expression === 'string') {\n //
TODO: pass a more accurate handlerSpan for this event.\n this.parseEvent(propName, expression, sourceSpan,
sourceSpan, [], targetEvents);\n }\n else {\n this._reportError(\n
 `Value of the host listener "${propName}"\n
needs to be a string representing an expression but got "${expression}"\n
(${typeof expression})`,\n sourceSpan);\n }\n });\n return targetEvents;\n }\n return null;\n }\n\n parseInterpolation(value: string, sourceSpan: ParseSourceSpan): ASTWithSource {\n const sourceInfo =
sourceSpan.start.toString();\n try {\n const ast = this._exprParser.parseInterpolation(\n value,\n sourceInfo, sourceSpan.start.offset, this._interpolationConfig);\n if (ast)\n this._reportExpressionParserErrors(ast.errors, sourceSpan);\n this._checkPipes(ast,

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sourceSpan);\n return ast;\n } catch (e) {\n this._reportError(`${e}`, sourceSpan);\n return
this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, sourceSpan.start.offset);\n }\n}\n\n/**\n * Similar
to `parseInterpolation`, but treats the provided string as a single expression\n * element that would normally appear
within the interpolation prefix and suffix (`{{` and `}}`).\n * This is used for parsing the switch expression in
ICUs.\n */\n parseInterpolationExpression(expression: string, sourceSpan: ParseSourceSpan): ASTWithSource {\n
 const sourceInfo = sourceSpan.start.toString();\n try {\n const ast =
this._exprParser.parseInterpolationExpression(\n expression, sourceInfo, sourceSpan.start.offset);\n if (ast)
this._reportExpressionParserErrors(ast.errors, sourceSpan);\n this._checkPipes(ast, sourceSpan);\n return
ast;\n } catch (e) {\n this._reportError(`${e}`, sourceSpan);\n return
this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, sourceSpan.start.offset);\n }\n}\n\n/**\n * Parses
the bindings in a microsyntax expression, and converts them to\n * `ParsedProperty` or `ParsedVariable`.\n */\n *
@param tplKey template binding name\n * @param tplValue template binding value\n * @param sourceSpan
span of template binding relative to entire the template\n * @param absoluteValueOffset start of the tplValue
relative to the entire template\n * @param targetMatchableAttrs potential attributes to match in the template\n *
@param targetProps target property bindings in the template\n * @param targetVars target variables in the
template\n */\n parseInlineTemplateBinding(\n tplKey: string, tplValue: string, sourceSpan: ParseSourceSpan,
absoluteValueOffset: number,\n targetMatchableAttrs: string[][], targetProps: ParsedProperty[], targetVars:
ParsedVariable[],\n isIvyAst: boolean) {\n const absoluteKeyOffset = sourceSpan.start.offset
+ TEMPLATE_ATTR_PREFIX.length;\n const bindings = this._parseTemplateBindings(\n tplKey, tplValue,
sourceSpan, absoluteKeyOffset, absoluteValueOffset);\n for (const binding of bindings) {\n // sourceSpan is
for the entire HTML attribute. bindingSpan is for a particular\n // binding within the microsyntax expression so
it's more narrow than sourceSpan.\n const bindingSpan = moveParseSourceSpan(sourceSpan,
binding.sourceSpan);\n const key = binding.key.source;\n const keySpan =
moveParseSourceSpan(sourceSpan, binding.key.span);\n if (binding instanceof VariableBinding) {\n const
value = binding.value ? binding.value.source : '$implicit';\n const valueSpan =\n binding.value ?
moveParseSourceSpan(sourceSpan, binding.value.span) : undefined;\n targetVars.push(new
ParsedVariable(key, value, bindingSpan, keySpan, valueSpan));\n } else if (binding.value) {\n const srcSpan
= isIvyAst ? bindingSpan
: sourceSpan;\n const valueSpan = moveParseSourceSpan(sourceSpan, binding.value.ast.sourceSpan);\n
this._parsePropertyAst(\n key, binding.value, srcSpan, keySpan, valueSpan, targetMatchableAttrs,
targetProps);\n } else {\n targetMatchableAttrs.push([key, " /* value */"]); \n // Since this is a literal
attribute with no RHS, source span should be\n // just the key span.\n this.parseLiteralAttr(\n key,
null /* value */, keySpan, absoluteValueOffset, undefined /* valueSpan */, \n targetMatchableAttrs,
targetProps, keySpan);\n }\n }\n}\n\n/**\n * Parses the bindings in a microsyntax expression, e.g.\n * ```\n * <tag *tplKey="let value1 = prop; let value2 = localVar">\n * ```\n * @param tplKey template binding
name\n * @param tplValue template binding value\n * @param sourceSpan span of template binding relative to
entire the template\n * @param absoluteKeyOffset start of
the `tplKey`\n * @param absoluteValueOffset start of the `tplValue`\n */\n private _parseTemplateBindings(\n
 tplKey: string, tplValue: string, sourceSpan: ParseSourceSpan, absoluteKeyOffset: number,\n
 absoluteValueOffset: number): TemplateBinding[] {\n const sourceInfo = sourceSpan.start.toString();\n try {\n
 const bindingsResult = this._exprParser.parseTemplateBindings(\n tplKey, tplValue, sourceInfo,
absoluteKeyOffset, absoluteValueOffset);\n this._reportExpressionParserErrors(bindingsResult.errors,
sourceSpan);\n bindingsResult.templateBindings.forEach((binding) => {\n if (binding.value instanceof
ASTWithSource) {\n this._checkPipes(binding.value, sourceSpan);\n }\n });\n bindingsResult.warnings.forEach((warning) => {\n this._reportError(warning, sourceSpan,
ParseErrorLevel.WARNING);\n });\n return bindingsResult.templateBindings;\n } catch (e) {\n
this._reportError(`${e}`, sourceSpan);\n

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 return [];\n }\n}\n\nparseLiteralAttr(\n name: string, value: string|null, sourceSpan: ParseSourceSpan,\n absoluteOffset: number,\n valueSpan: ParseSourceSpan|undefined, targetMatchableAttrs: string[][],\n //\n TODO(atscott): keySpan is only optional here so VE template parser implementation does not\n // have to change\n This should be required when VE is removed.\n targetProps: ParsedProperty[], keySpan?: ParseSourceSpan) {\n if (isAnimationLabel(name)) {\n name = name.substring(1);\n if (value) {\n this._reportError(\n `Assigning animation triggers via @prop="exp" attributes with an expression is invalid.` +\n ` Use\n property bindings (e.g. [@prop]="exp") or use an attribute without a value (e.g. @prop) instead.`,\n sourceSpan, ParseErrorLevel.ERROR);\n }\n this._parseAnimation(\n name, value, sourceSpan,\n absoluteOffset, keySpan, valueSpan, targetMatchableAttrs,\n targetProps);\n } else {\n targetProps.push(new ParsedProperty(\n name,\n this._exprParser.wrapLiteralPrimitive(value, "", absoluteOffset),\n ParsedPropertyType.LITERAL_ATTR,\n sourceSpan, keySpan, valueSpan));\n }\n}\n\nparsePropertyBinding(\n name: string, expression: string,\n isHost: boolean, sourceSpan: ParseSourceSpan,\n absoluteOffset: number, valueSpan:\n ParseSourceSpan|undefined,\n // TODO(atscott): keySpan is only optional here so VE template parser\n implementation does not\n // have to change\n This should be required when VE is removed.\n targetMatchableAttrs: string[][], targetProps: ParsedProperty[], keySpan?: ParseSourceSpan) {\n if (name.length\n === 0) {\n this._reportError(`Property name is missing in binding`, sourceSpan);\n }\n let isAnimationProp\n = false;\n if (name.startsWith(ANIMATE_PROP_PREFIX)) {\n isAnimationProp = true;\n name =\n name.substring(ANIMATE_PROP_PREFIX.length);\n } else if (isAnimationLabel(name)) {\n isAnimationProp = true;\n name = name.substring(1);\n }\n if\n (isAnimationProp) {\n this._parseAnimation(\n name, expression, sourceSpan, absoluteOffset, keySpan,\n valueSpan, targetMatchableAttrs,\n targetProps);\n } else {\n this._parsePropertyAst(\n name,\n this._parseBinding(expression, isHost, valueSpan || sourceSpan, absoluteOffset),\n sourceSpan, keySpan,\n valueSpan, targetMatchableAttrs, targetProps);\n }\n}\n\nparsePropertyInterpolation(\n name: string, value:\n string, sourceSpan: ParseSourceSpan,\n valueSpan: ParseSourceSpan|undefined, targetMatchableAttrs:\n string[][],\n // TODO(atscott): keySpan is only optional here so VE template parser implementation does not\n // have to change\n This should be required when VE is removed.\n targetProps: ParsedProperty[], keySpan?:\n ParseSourceSpan): boolean {\n const expr = this.parseInterpolation(value, valueSpan\n || sourceSpan);\n if (expr) {\n this._parsePropertyAst(\n name, expr, sourceSpan, keySpan, valueSpan,\n targetMatchableAttrs, targetProps);\n return true;\n }\n return false;\n}\n\nprivate _parsePropertyAst(\n name: string, ast: ASTWithSource, sourceSpan: ParseSourceSpan,\n keySpan: ParseSourceSpan|undefined,\n valueSpan: ParseSourceSpan|undefined,\n targetMatchableAttrs: string[][], targetProps: ParsedProperty[]) {\n targetMatchableAttrs.push([name, ast.source!]);\n targetProps.push(\n new ParsedProperty(name, ast,\n ParsedPropertyType.DEFAULT, sourceSpan, keySpan, valueSpan));\n }\n\nprivate _parseAnimation(\n name:\n string, expression: string|null, sourceSpan: ParseSourceSpan, absoluteOffset: number,\n keySpan:\n ParseSourceSpan|undefined, valueSpan: ParseSourceSpan|undefined,\n targetMatchableAttrs: string[][],\n targetProps: ParsedProperty[]) {\n if (name.length === 0) {\n this._reportError(`Animation\n trigger is missing`, sourceSpan);\n }\n // This will occur when a @trigger is not paired with an expression.\n // For animations it is valid to not have an expression since */void\n // states will be applied by angular when the\n element is attached/detached\n const ast = this._parseBinding(\n expression || 'undefined', false, valueSpan ||\n sourceSpan, absoluteOffset);\n targetMatchableAttrs.push([name, ast.source!]);\n targetProps.push(new\n ParsedProperty(\n name, ast, ParsedPropertyType.ANIMATION, sourceSpan, keySpan, valueSpan));\n }\n\nprivate _parseBinding(\n value: string, isHostBinding: boolean, sourceSpan: ParseSourceSpan,\n absoluteOffset: number): ASTWithSource {\n const sourceInfo = (sourceSpan && sourceSpan.start ||\n 'unknown').toString();\n try {\n const ast = isHostBinding ?\n this._exprParser.parseSimpleBinding(\n value, sourceInfo, absoluteOffset, this._interpolationConfig) :\n this._exprParser.parseBinding(\n value, sourceInfo, absoluteOffset, this._interpolationConfig);\n if (ast)\n this._reportExpressionParserErrors(ast.errors, sourceSpan);\n this._checkPipes(ast, sourceSpan);\n return

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ast;\n } catch (e) {\n this._reportError(`${e}`, sourceSpan);\n return
this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, absoluteOffset);\n } }\n\n
createBoundElementProperty(\n elementSelector: string, boundProp: ParsedProperty, skipValidation: boolean =
false,\n mapPropertyName: boolean = true): BoundElementProperty {\n if (boundProp.isAnimation) {\n
return new BoundElementProperty(\n boundProp.name, BindingType.Animation, SecurityContext.NONE,
boundProp.expression, null,\n boundProp.sourceSpan, boundProp.keySpan, boundProp.valueSpan);\n }\n\n
let unit: string|null = null;\n let bindingType: BindingType = undefined!;\n let boundPropertyName: string|null =
null;\n const
parts = boundProp.name.split(PROPERTY_PARTS_SEPARATOR);\n let securityContexts: SecurityContext[] =
undefined!;\n\n // Check for special cases (prefix style, attr, class)\n if (parts.length > 1) {\n if (parts[0] ==
ATTRIBUTE_PREFIX) {\n boundPropertyName = parts.slice(1).join(PROPERTY_PARTS_SEPARATOR);\n
 if (!skipValidation) {\n this._validatePropertyOrAttributeName(boundPropertyName,
boundProp.sourceSpan, true);\n }\n securityContexts = calcPossibleSecurityContexts(\n
this._schemaRegistry, elementSelector, boundPropertyName, true);\n const nsSeparatorIdx =
boundPropertyName.indexOf(':');\n if (nsSeparatorIdx > -1) {\n const ns =
boundPropertyName.substring(0, nsSeparatorIdx);\n const name =
boundPropertyName.substring(nsSeparatorIdx + 1);\n boundPropertyName = mergeNsAndName(ns, name);\n
 }\n bindingType = BindingType.Attribute;\n } else if (parts[0] == CLASS_PREFIX)
{\n boundPropertyName = parts[1];\n bindingType = BindingType.Class;\n securityContexts =
[SecurityContext.NONE];\n } else if (parts[0] == STYLE_PREFIX) {\n unit = parts.length > 2 ? parts[2] :
null;\n boundPropertyName = parts[1];\n bindingType = BindingType.Style;\n securityContexts =
[SecurityContext.STYLE];\n }\n }\n\n // If not a special case, use the full property name\n if
(boundPropertyName === null) {\n const mappedPropName =
this._schemaRegistry.getMappedPropName(boundProp.name);\n boundPropertyName = mapPropertyName ?
mappedPropName : boundProp.name;\n securityContexts = calcPossibleSecurityContexts(\n
this._schemaRegistry, elementSelector, mappedPropName, false);\n bindingType = BindingType.Property;\n
if (!skipValidation) {\n this._validatePropertyOrAttributeName(mappedPropName, boundProp.sourceSpan,
false);\n }\n }\n\n return new BoundElementProperty(\n
 boundPropertyName, bindingType, securityContexts[0], boundProp.expression, unit,\n
 boundProp.sourceSpan, boundProp.keySpan, boundProp.valueSpan);\n }\n\n parseEvent(\n name: string,
expression: string, sourceSpan: ParseSourceSpan, handlerSpan: ParseSourceSpan,\n targetMatchableAttrs:
string[][], targetEvents: ParsedEvent[]) {\n if (name.length === 0) {\n this._reportError(`Event name is missing
in binding`, sourceSpan);\n }\n if (isAnimationLabel(name)) {\n name = name.substr(1);\n
this._parseAnimationEvent(name, expression, sourceSpan, handlerSpan, targetEvents);\n } else {\n
this._parseRegularEvent(\n name, expression, sourceSpan, handlerSpan, targetMatchableAttrs,
targetEvents);\n }\n }\n\n calcPossibleSecurityContexts(selector: string, propName: string, isAttribute:
boolean): SecurityContext[] {\n const prop = this._schemaRegistry.getMappedPropName(propName);\n
return calcPossibleSecurityContexts(this._schemaRegistry,
 selector, prop, isAttribute);\n }\n\n private _parseAnimationEvent(\n name: string, expression: string,
sourceSpan: ParseSourceSpan, handlerSpan: ParseSourceSpan,\n targetEvents: ParsedEvent[]) {\n const
matches = splitAtPeriod(name, [name, "]);\n const eventName = matches[0];\n const phase =
matches[1].toLowerCase();\n if (phase) {\n switch (phase) {\n case 'start':\n case 'done':\n const
ast = this._parseAction(expression, handlerSpan);\n targetEvents.push(new ParsedEvent(\n
eventName, phase, ParsedEventType.Animation, ast, sourceSpan, handlerSpan));\n break;\n default:\n
this._reportError(\n `The provided animation output phase value "${phase}" for "${@${n
eventName}}`" is not supported (use start or done)`,\n sourceSpan);\n break;\n }\n } else {\n
this._reportError(\n `The animation

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trigger output event (@${\n eventName}) is missing its phase value name (start or done are currently
supported)`;\n sourceSpan);\n }\n }\n\n private _parseRegularEvent(\n name: string, expression: string,\n sourceSpan: ParseSourceSpan, handlerSpan: ParseSourceSpan,\n targetMatchableAttrs: string[][], targetEvents:\n ParsedEvent[]) {\n // long format: 'target: eventName'\n const [target, eventName] = splitAtColon(name, [null!,\n name]);\n const ast = this._parseAction(expression, handlerSpan);\n targetMatchableAttrs.push([name!,\n ast.source!]);\n targetEvents.push(\n new ParsedEvent(eventName, target, ParsedEventType.Regular, ast,\n sourceSpan, handlerSpan));\n // Don't detect directives for event names for now,\n // so don't add the event name\n to the matchableAttrs\n }\n\n private _parseAction(value: string, sourceSpan: ParseSourceSpan): ASTWithSource\n {\n const sourceInfo = (sourceSpan && sourceSpan.start || 'unknown').toString();\n\n const absoluteOffset = (sourceSpan && sourceSpan.start) ? sourceSpan.start.offset : 0;\n\n try {\n const ast =\n this._exprParser.parseAction(\n value, sourceInfo, absoluteOffset, this._interpolationConfig);\n if (ast) {\n this._reportExpressionParserErrors(ast.errors, sourceSpan);\n }\n if (!ast || ast.ast instanceof EmptyExpr)\n {\n this._reportError('Empty expressions are not allowed', sourceSpan);\n return\n this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, absoluteOffset);\n }\n this._checkPipes(ast,\n sourceSpan);\n return ast;\n } catch (e) {\n this._reportError(`${e}`, sourceSpan);\n return\n this._exprParser.wrapLiteralPrimitive('ERROR', sourceInfo, absoluteOffset);\n }\n }\n\n private _reportError(\n message: string, sourceSpan: ParseSourceSpan,\n level: ParseErrorLevel = ParseErrorLevel.ERROR) {\n this.errors.push(new ParseError(sourceSpan, message, level));\n }\n\n }\n\n private _reportExpressionParserErrors(errors: ParseError[], sourceSpan: ParseSourceSpan) {\n for (const\n error of errors) {\n this._reportError(error.message, sourceSpan);\n }\n }\n\n // Make sure all the used pipes\n are known in `this.pipesByName`\n private _checkPipes(ast: ASTWithSource, sourceSpan: ParseSourceSpan): void\n {\n if (ast && this.pipesByName) {\n const collector = new PipeCollector();\n ast.visit(collector);\n collector.pipes.forEach((ast, pipeName) => {\n const pipeMeta = this.pipesByName!.get(pipeName);\n if\n (!pipeMeta) {\n this._reportError(\n `The pipe '${pipeName}' could not be found`,\n new\n ParseSourceSpan(\n sourceSpan.start.moveBy(ast.span.start), sourceSpan.start.moveBy(ast.span.end));\n }\n } else {\n this._usedPipes.set(pipeName, pipeMeta);\n }\n });\n }\n }\n\n /**\n * @param\n propName the name of the property / attribute\n *\n * @param sourceSpan\n * @param isAttr true when binding to an attribute\n */\n private\n _validatePropertyOrAttributeName(\n propName: string, sourceSpan: ParseSourceSpan, isAttr: boolean): void\n {\n const report = isAttr ? this._schemaRegistry.validateAttribute(propName) : \n this._schemaRegistry.validateProperty(propName);\n if (report.error) {\n this._reportError(report.msg!,\n sourceSpan, ParseErrorLevel.ERROR);\n }\n }\n\n }\n\n }\n\n export class PipeCollector extends RecursiveAstVisitor {\n pipes = new Map<string, BindingPipe>();\n visitPipe(ast: BindingPipe, context: any): any {\n this.pipes.set(ast.name, ast);\n ast.exp.visit(this);\n this.visitAll(ast.args, context);\n return null;\n }\n }\n\n function isAnimationLabel(name: string): boolean {\n return name[0] == '@';\n }\n\n function\n calcPossibleSecurityContexts(\n registry: ElementSchemaRegistry, selector: string, propName: string,\n isAttribute: boolean): SecurityContext[]\n {\n const ctxs: SecurityContext[] = [];\n CssSelector.parse(selector).forEach((selector) => {\n const\n elementNames = selector.element ? [selector.element] : registry.allKnownElementNames();\n const\n notElementNames =\n new Set(selector.notSelectors.filter(selector => selector.isElementSelector()))\n .map((selector) => selector.element);\n const possibleElementNames =\n elementNames.filter(elementName\n => !notElementNames.has(elementName));\n ctxs.push(...possibleElementNames.map(\n elementName =>\n registry.securityContext(elementName, propName, isAttribute)));\n });\n return ctxs.length === 0 ?\n [SecurityContext.NONE] : Array.from(new Set(ctxs)).sort();\n }\n\n /**\n * Compute a new ParseSourceSpan based\n off an original `sourceSpan` by using\n * absolute offsets from the specified `absoluteSpan`.\n *\n * @param\n sourceSpan original source span\n * @param absoluteSpan absolute source span to move to\n */\n function\n moveParseSourceSpan(\n

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 sourceSpan: ParseSourceSpan, absoluteSpan: AbsoluteSourceSpan): ParseSourceSpan {\n // The difference of
two absolute offsets provide the relative offset\n const startDiff = absoluteSpan.start - sourceSpan.start.offset;\n
const endDiff = absoluteSpan.end - sourceSpan.end.offset;\n return new ParseSourceSpan(\n
sourceSpan.start.moveBy(startDiff), sourceSpan.end.moveBy(endDiff),\n
sourceSpan.fullStart.moveBy(startDiff), sourceSpan.details);\n}\n\n", "/*\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport * as html from './ml_parser/ast';\nimport
{isNgContent} from './ml_parser/tags';\n\nconst NG_CONTENT_SELECT_ATTR = 'select';\nconst
LINK_ELEMENT = 'link';\nconst LINK_STYLE_REL_ATTR = 'rel';\nconst LINK_STYLE_HREF_ATTR =
'href';\nconst LINK_STYLE_REL_VALUE = 'stylesheet';\nconst STYLE_ELEMENT = 'style';\nconst
SCRIPT_ELEMENT = 'script';\nconst NG_NON_BINDABLE_ATTR = 'ngNonBindable';\nconst
NG_PROJECT_AS = 'ngProjectAs';\n\nexport function preparseElement(ast: html.Element): PreparedElement {\n
let selectAttr: string = null;\n let hrefAttr: string = null;\n let relAttr: string = null;\n let nonBindable = false;\n
let projectAs = "";\n ast.attrs.forEach(attr => {\n const lcAttrName = attr.name.toLowerCase();\n if (lcAttrName
== NG_CONTENT_SELECT_ATTR) {\n selectAttr = attr.value;\n } else if (lcAttrName ==
LINK_STYLE_HREF_ATTR) {\n hrefAttr = attr.value;\n } else if (lcAttrName ==
LINK_STYLE_REL_ATTR) {\n relAttr = attr.value;\n } else if (attr.name == NG_NON_BINDABLE_ATTR)
{\n nonBindable = true;\n } else if (attr.name == NG_PROJECT_AS) {\n if (attr.value.length > 0) {\n
projectAs = attr.value;\n }\n }\n });\n selectAttr = normalizeNgContentSelect(selectAttr);\n const nodeName
= ast.name.toLowerCase();\n let type
= PreparedElementType.OTHER;\n if (isNgContent(nodeName)) {\n type =
PreparedElementType.NG_CONTENT;\n } else if (nodeName == STYLE_ELEMENT) {\n type =
PreparedElementType.STYLE;\n } else if (nodeName == SCRIPT_ELEMENT) {\n type =
PreparedElementType.SCRIPT;\n } else if (nodeName == LINK_ELEMENT && relAttr ==
LINK_STYLE_REL_VALUE) {\n type = PreparedElementType.STYLESHEET;\n }\n\n return new
PreparedElement(type, selectAttr, hrefAttr, nonBindable, projectAs);\n}\n\nexport enum PreparedElementType
{\n NG_CONTENT,\n STYLE,\n STYLESHEET,\n SCRIPT,\n OTHER\n}\n\nexport class PreparedElement
{\n constructor(\n public type: PreparedElementType, public selectAttr: string, public hrefAttr: string,\n
 public nonBindable: boolean, public projectAs: string) {}\n}\n\nfunction normalizeNgContentSelect(selectAttr:
string): string {\n if (selectAttr === null || selectAttr.length === 0) {\n return '*';\n }\n return
selectAttr;\n}\n\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileDirectiveMetadata,
CompileDirectiveSummary, CompilePipeSummary, CompileTokenMetadata, CompileTypeMetadata,
identifierName} from './compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport
{CompilerConfig} from './config';\nimport {SchemaMetadata} from './core';\nimport {AST, ASTWithSource,
EmptyExpr, ParsedEvent, ParsedProperty, ParsedVariable} from './expression_parser/ast';\nimport {Parser} from
'./expression_parser/parser';\nimport {createTokenForExternalReference, createTokenForReference, Identifiers}
from './identifiers';\nimport * as html from './ml_parser/ast';\nimport {HtmlParser, ParseTreeResult} from
'./ml_parser/html_parser';\nimport {removeWhitespaces, replaceNgsp} from
'./ml_parser/html_whitespaces';\nimport {expandNodes} from './ml_parser/icu_ast_expander';\nimport
{InterpolationConfig} from './ml_parser/interpolation_config';\nimport {isNgTemplate, splitNsName} from
'./ml_parser/tags';\nimport {ParseError, ParseErrorLevel, ParseSourceSpan} from './parse_util';\nimport
{ProviderElementContext, ProviderViewContext} from './provider_analyzer';\nimport {ElementSchemaRegistry}
from './schema/element_schema_registry';\nimport {CssSelector, SelectorMatcher} from './selector';\nimport
{isStyleUrlResolvable} from './style_url_resolver';\nimport {Console, newArray, syntaxError} from
'./util';\n\nimport {BindingParser} from './binding_parser';\nimport * as t from './template_ast';\nimport
{PreparedElementType, preparseElement} from './template_preparser';\n\nconst BIND_NAME_REGEXP =\n

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return new TemplateParseResult(result, usedPipes, errors);\n }\n\n if (this.transforms)
 {\n this.transforms.forEach((transform: t.TemplateAstVisitor) => {\n result = t.templateVisitAll(transform,
result);\n });\n }\n\n return new TemplateParseResult(result, usedPipes, errors);\n }\n\n expandHtml(htmlAstWithErrors: ParseTreeResult, forced: boolean = false): ParseTreeResult {\n const errors:
ParseError[] = htmlAstWithErrors.errors;\n\n if (errors.length === 0 || forced) {\n // Transform ICU messages to
angular directives\n const expandedHtmlAst = expandNodes(htmlAstWithErrors.rootNodes);\n errors.push(...expandedHtmlAst.errors);\n htmlAstWithErrors = new ParseTreeResult(expandedHtmlAst.nodes,
errors);\n }\n\n return htmlAstWithErrors;\n }\n\n getInterpolationConfig(component:
CompileDirectiveMetadata): InterpolationConfig|undefined {\n if (component.template) {\n return
InterpolationConfig.fromArray(component.template.interpolation);\n }\n return undefined;\n }\n\n /**
@internal */\n _assertNoReferenceDuplicationOnTemplate(result:
t.TemplateAst[], errors: TemplateParseError[]):\n void {\n const existingReferences: string[] = [];\n result.filter(element => !(<any>element).references)\n .forEach(element =>
(<any>element).references.forEach((reference: t.ReferenceAst) => {\n const name = reference.name;\n if
(existingReferences.indexOf(name) < 0) {\n existingReferences.push(name);\n } else {\n const
error = new TemplateParseError(\n `Reference \"#${name}\" is defined several times`,
reference.sourceSpan,\n ParseErrorLevel.ERROR);\n errors.push(error);\n }\n }));\n }\n\n class TemplateParseVisitor implements html.Visitor {\n selectorMatcher = new SelectorMatcher();\n directivesIndex = new Map<CompileDirectiveSummary, number>();\n ngContentCount = 0;\n contentQueryStartId: number;\n\n constructor(\n private reflector: CompileReflector, private config:
CompilerConfig,\n public providerViewContext: ProviderViewContext, directives:
CompileDirectiveSummary[],\n private _bindingParser: BindingParser, private _schemaRegistry:
ElementSchemaRegistry,\n private _schemas: SchemaMetadata[], private _targetErrors: TemplateParseError[]) {\n // Note: queries start with id 1 so we can use the number in a Bloom filter!\n this.contentQueryStartId =
providerViewContext.component.viewQueries.length + 1;\n directives.forEach((directive, index) => {\n const
selector = CssSelector.parse(directive.selector!);\n this.selectorMatcher.addSelectables(selector, directive);\n this.directivesIndex.set(directive, index);\n });\n }\n\n visitExpansion(expansion: html.Expansion, context: any):
any {\n return null;\n }\n\n visitExpansionCase(expansionCase: html.ExpansionCase, context: any): any {\n
return null;\n }\n\n visitText(text: html.Text, parent: ElementContext): any {\n const ngContentIndex =
parent.findNgContentIndex(TEXT_CSS_SELECTOR());\n\n const valueNoNgsp = replaceNgsp(text.value);\n const expr =
this._bindingParser.parseInterpolation(valueNoNgsp, text.sourceSpan);\n return expr ? new t.BoundTextAst(expr,
ngContentIndex, text.sourceSpan) :\n new t.TextAst(valueNoNgsp, ngContentIndex, text.sourceSpan);\n }\n\n visitAttribute(attribute: html.Attribute, context: any): any {\n return new t.AttrAst(attribute.name,
attribute.value, attribute.sourceSpan);\n }\n\n visitComment(comment: html.Comment, context: any): any {\n
return null;\n }\n\n visitElement(element: html.Element, parent: ElementContext): any {\n const queryStartIndex
= this.contentQueryStartId;\n const elName = element.name;\n const preparsedElement =
preparseElement(element);\n if (preparsedElement.type === PreparsedElementType.SCRIPT ||\n preparsedElement.type === PreparsedElementType.STYLE) {\n // Skipping <script> for security reasons\n //
Skipping
 <style> as we already processed them\n // in the StyleCompiler\n return null;\n }\n if
(preparsedElement.type === PreparsedElementType.STYLESHEET &&\n isStyleUrlResolvable(preparsedElement.hrefAttr)) {\n // Skipping stylesheets with either relative urls or package
scheme as we already processed\n // them in the StyleCompiler\n return null;\n }\n const
matchableAttrs: [string, string][] = [];\n const elementOrDirectiveProps: ParsedProperty[] = [];\n const
elementOrDirectiveRefs: ElementOrDirectiveRef[] = [];\n const elementVars: t.VariableAst[] = [];\n const
events: t.BoundEventAst[] = [];\n const templateElementOrDirectiveProps: ParsedProperty[] = [];\n const
templateMatchableAttrs: [string, string][] = [];\n const templateElementVars: t.VariableAst[] = [];\n let

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hasInlineTemplates = false;\n const attrs: t.AttrAst[] = [];\n const isTemplateElement =
isNgTemplate(element.name);\n\n element.attrs.forEach(attr
=> {\n const parsedVariables: ParsedVariable[] = [];\n const hasBinding = this._parseAttr(\n
isTemplateElement, attr, matchableAttrs, elementOrDirectiveProps, events,\n elementOrDirectiveRefs,
elementVars);\n elementVars.push(...parsedVariables.map(v => t.VariableAst.fromParsedVariable(v)));\n\n
let templateValue: string|undefined;\n let templateKey: string|undefined;\n const normalizedName =
this._normalizeAttributeName(attr.name);\n if (normalizedName.startsWith(TEMPLATE_ATTR_PREFIX))
{\n templateValue = attr.value;\n templateKey =
normalizedName.substring(TEMPLATE_ATTR_PREFIX.length);\n }\n\n const hasTemplateBinding =
templateValue != null;\n if (hasTemplateBinding) {\n if (hasInlineTemplates) {\n this._reportError(\n
`Can't have multiple template bindings on one element. Use only one attribute prefixed with *`,\n
attr.sourceSpan);\n }\n
hasInlineTemplates = true;\n const parsedVariables: ParsedVariable[] = [];\n const absoluteOffset =
(attr.valueSpan || attr.sourceSpan).start.offset;\n this._bindingParser.parseInlineTemplateBinding(\n
templateKey!, templateValue!, attr.sourceSpan, absoluteOffset, templateMatchableAttrs,\n
templateElementOrDirectiveProps, parsedVariables, false /* isIvyAst */);\n
templateElementVars.push(...parsedVariables.map(v => t.VariableAst.fromParsedVariable(v)));\n }\n\n if
(!hasBinding && !hasTemplateBinding) {\n // don't include the bindings as attributes as well in the AST\n
attrs.push(this.visitAttribute(attr, null));\n matchableAttrs.push([attr.name, attr.value]);\n }\n });\n\n
const elementCssSelector = createElementCssSelector(elName, matchableAttrs);\n const {directives:
directiveMetas, matchElement} =\n this._parseDirectives(this.selectorMatcher, elementCssSelector);\n const
references:
t.ReferenceAst[] = [];\n const boundDirectivePropNames = new Set<string>();\n const directiveAsts =
this._createDirectiveAsts(\n isTemplateElement, element.name, directiveMetas, elementOrDirectiveProps,\n
elementOrDirectiveRefs, element.sourceSpan, references, boundDirectivePropNames);\n const elementProps:
t.BoundElementPropertyAst[] = this._createElementPropertyAsts(\n element.name, elementOrDirectiveProps,
boundDirectivePropNames);\n const isViewRoot = parent.isTemplateElement || hasInlineTemplates;\n\n const
providerContext = new ProviderElementContext(\n this.providerViewContext, parent.providerContext!,
isViewRoot, directiveAsts, attrs,\n references, isTemplateElement, queryStartIndex, element.sourceSpan);\n\n
const children: t.TemplateAst[] = html.visitAll(\n preparsedElement.nonBindable ?
NON_BINDABLE_VISITOR : this, element.children,\n ElementContext.create(\n isTemplateElement,
directiveAsts,\n
isTemplateElement ? parent.providerContext! : providerContext));\n providerContext.afterElement();\n //
Override the actual selector when the `ngProjectAs` attribute is provided\n const projectionSelector =
preparsedElement.projectAs != " ?\n CssSelector.parse(preparsedElement.projectAs)[0] :\n
elementCssSelector;\n const ngContentIndex = parent.findNgContentIndex(projectionSelector)!;\n let
parsedElement: t.TemplateAst;\n\n if (preparsedElement.type === PreparsedElementType.NG_CONTENT) {\n
// `` element\n if (element.children && !element.children.every(_isEmptyTextNode)) {\n
this._reportError(`

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this._assertOnlyOneComponent(directiveAsts, element.sourceSpan);\n const ngContentIndex =\nhasInlineTemplates ? null : parent.findNgContentIndex(projectionSelector);\n parsedElement = new\n t.ElementAst(\n elName, attrs, elementProps, events, references, providerContext.transformedDirectiveAsts,\n\n providerContext.transformProviders, providerContext.transformedHasViewContainer,\n providerContext.queryMatches, children, hasInlineTemplates ? null : ngContentIndex,\n element.sourceSpan,\n element.endSourceSpan || null);\n }\n\n if (hasInlineTemplates) {\n // The element as a *-attribute\n const\n templateQueryStartIndex = this.contentQueryStartId;\n const templateSelector = createElementCssSelector('ng-\ntemplate', templateMatchableAttrs);\n const { directives } = this._parseDirectives(this.selectorMatcher,\ntemplateSelector);\n const templateBoundDirectivePropNames = new Set<string>();\n const\n templateDirectiveAsts = this._createDirectiveAsts(\n true, elName, directives,\ntemplateElementOrDirectiveProps, [], element.sourceSpan, [],\n templateBoundDirectivePropNames);\n const templateElementProps: t.BoundElementPropertyAst[] = this._createElementPropertyAsts(\n elName,\ntemplateElementOrDirectiveProps, templateBoundDirectivePropNames);\n\n this._assertNoComponentsNorElementBindingsOnTemplate(\n templateDirectiveAsts,\ntemplateElementProps, element.sourceSpan);\n const templateProviderContext = new\n ProviderElementContext(\n this.providerViewContext, parent.providerContext!, parent.isTemplateElement,\n templateDirectiveAsts, [], [], true, templateQueryStartIndex, element.sourceSpan);\n templateProviderContext.afterElement();\n parsedElement = new t.EmbeddedTemplateAst(\n [], [], [],\ntemplateElementVars, templateProviderContext.transformedDirectiveAsts,\ntemplateProviderContext.transformProviders,\n templateProviderContext.transformedHasViewContainer,\ntemplateProviderContext.queryMatches,\n [parsedElement], ngContentIndex, element.sourceSpan);\n }\n\n return parsedElement;\n}\n\nprivate _parseAttr(\n isTemplateElement: boolean, attr: html.Attribute,\ntargetMatchableAttrs: string[][],\n targetProps:\n ParsedProperty[], targetEvents: t.BoundEventAst[],\n targetRefs: ElementOrDirectiveRef[], targetVars:\nt.VariableAst[]): boolean {\n const name = this._normalizeAttributeName(attr.name);\n const value =\n attr.value;\n const srcSpan = attr.sourceSpan;\n const absoluteOffset = attr.valueSpan ?\n attr.valueSpan.start.offset : srcSpan.start.offset;\n\n const boundEvents: ParsedEvent[] = [];\n const bindParts =\n name.match(BIND_NAME_REGEX);\n let hasBinding = false;\n\n if (bindParts !== null) {\n hasBinding =\n true;\n if (bindParts[KW_BIND_IDX] !== null) {\n this._bindingParser.parsePropertyBinding(\n bindParts[IDENT_KW_IDX], value, false, srcSpan, absoluteOffset, attr.valueSpan,\n targetMatchableAttrs,\ntargetProps);\n }\n else if (bindParts[KW_LET_IDX]) {\n if (isTemplateElement) {\n const identifier =\n bindParts[IDENT_KW_IDX];\n this._parseVariable(identifier, value, srcSpan, targetVars);\n }\n else {\n this._reportError(`"let-" is only supported on ng-template elements.`, srcSpan);\n }\n }\n else if (bindParts[KW_REF_IDX]) {\n const identifier = bindParts[IDENT_KW_IDX];\n this._parseReference(identifier, value, srcSpan, targetRefs);\n }\n else if (bindParts[KW_ON_IDX]) {\n this._bindingParser.parseEvent(\n bindParts[IDENT_KW_IDX], value, srcSpan, attr.valueSpan || srcSpan,\n targetMatchableAttrs, boundEvents);\n }\n else if (bindParts[KW_BINDON_IDX]) {\n this._bindingParser.parsePropertyBinding(\n bindParts[IDENT_KW_IDX], value, false, srcSpan,\n absoluteOffset, attr.valueSpan,\n targetMatchableAttrs, targetProps);\n this._parseAssignmentEvent(\n bindParts[IDENT_KW_IDX], value, srcSpan, attr.valueSpan || srcSpan,\n targetMatchableAttrs,\n boundEvents);\n }\n else if (bindParts[KW_AT_IDX]) {\n this._bindingParser.parseLiteralAttr(\n name, value, srcSpan, absoluteOffset, attr.valueSpan, targetMatchableAttrs,\n targetProps);\n }\n else if (bindParts[IDENT_BANANA_BOX_IDX]) {\n this._bindingParser.parsePropertyBinding(\n bindParts[IDENT_BANANA_BOX_IDX], value, false, srcSpan, absoluteOffset, attr.valueSpan,\n targetMatchableAttrs, targetProps);\n this._parseAssignmentEvent(\n bindParts[IDENT_BANANA_BOX_IDX], value, srcSpan, attr.valueSpan || srcSpan,\n targetMatchableAttrs,\n boundEvents);\n }\n else if (bindParts[IDENT_PROPERTY_IDX]) {\n

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this._bindingParser.parsePropertyBinding(\n bindParts[IDENT_PROPERTY_IDX], value, false, srcSpan,
absoluteOffset, attr.valueSpan,\n targetMatchableAttrs, targetProps);\n\n } else if
(bindParts[IDENT_EVENT_IDX]) {\n this._bindingParser.parseEvent(\n
bindParts[IDENT_EVENT_IDX], value, srcSpan, attr.valueSpan || srcSpan,\n targetMatchableAttrs,
boundEvents);\n }\n } else {\n hasBinding = this._bindingParser.parsePropertyInterpolation(\n name,
value, srcSpan, attr.valueSpan, targetMatchableAttrs, targetProps);\n }\n\n if (!hasBinding) {\n
this._bindingParser.parseLiteralAttr(\n name, value, srcSpan, absoluteOffset, attr.valueSpan,
targetMatchableAttrs, targetProps);\n }\n\n targetEvents.push(...boundEvents.map(e =>
t.BoundEventAst.fromParsedEvent(e)));\n\n return hasBinding;\n}\n\nprivate
_normalizeAttributeName(attrName: string): string {\n return /^data-/i.test(attrName) ? attrName.substring(5) :
attrName;\n}\n\nprivate _parseVariable(\n identifier: string, value: string, sourceSpan: ParseSourceSpan,
targetVars: t.VariableAst[]) {\n if (identifier.indexOf('-') > -1) {\n this._reportError(`\"-\" is not allowed in
variable names`, sourceSpan);\n } else if (identifier.length === 0) {\n this._reportError(`Variable does not have
a
name`, sourceSpan);\n }\n\n targetVars.push(new t.VariableAst(identifier, value, sourceSpan));\n}\n\nprivate
_parseReference(\n identifier: string, value: string, sourceSpan: ParseSourceSpan,\n targetRefs:
ElementOrDirectiveRef[]) {\n if (identifier.indexOf('-') > -1) {\n this._reportError(`\"-\" is not allowed in
reference names`, sourceSpan);\n } else if (identifier.length === 0) {\n this._reportError(`Reference does not
have a name`, sourceSpan);\n }\n\n targetRefs.push(new ElementOrDirectiveRef(identifier, value,
sourceSpan));\n}\n\nprivate _parseAssignmentEvent(\n name: string, expression: string, sourceSpan:
ParseSourceSpan, valueSpan: ParseSourceSpan,\n targetMatchableAttrs: string[][], targetEvents: ParsedEvent[])
{\n this._bindingParser.parseEvent(\n `${name}Change`, `${expression}=${event}`, sourceSpan, valueSpan,
targetMatchableAttrs,\n targetEvents);\n}\n\nprivate _parseDirectives(selectorMatcher: SelectorMatcher,
elementCssSelector: CssSelector):\n {directives: CompileDirectiveSummary[], matchElement: boolean} {\n //
Need to sort the directives so that we get consistent results throughout,\n // as selectorMatcher uses Maps inside.\n
// Also deduplicate directives as they might match more than one time!\n const directives =
new Array(this.directivesIndex.size);\n // Whether any directive selector matches on the element name\n let
matchElement = false;\n\n selectorMatcher.match(elementCssSelector, (selector, directive) => {\n
directives[this.directivesIndex.get(directive)!] = directive;\n matchElement = matchElement ||
selector.hasElementSelector();\n });\n\n return {\n directives: directives.filter(dir => !!dir),\n
matchElement,\n };\n}\n\nprivate _createDirectiveAsts(\n isTemplateElement: boolean, elementName:
string, directives: CompileDirectiveSummary[],\n props: ParsedProperty[], elementOrDirectiveRefs:
ElementOrDirectiveRef[],\n
elementSourceSpan: ParseSourceSpan, targetReferences: t.ReferenceAst[],\n
targetBoundDirectivePropNames: Set<string>): t.DirectiveAst[] {\n const matchedReferences = new
Set<string>();\n let component: CompileDirectiveSummary = null!;\n\n const directiveAsts =
directives.map((directive) => {\n const sourceSpan = new ParseSourceSpan(\n elementSourceSpan.start,
elementSourceSpan.end, elementSourceSpan.fullStart,\n `Directive ${identifierName(directive.type)}`);\n\n
if (directive.isComponent) {\n component = directive;\n }\n\n const directiveProperties:
t.BoundDirectivePropertyAst[] = [];\n const boundProperties =\n
this._bindingParser.createDirectiveHostPropertyAsts(directive, elementName, sourceSpan)!;\n\n let
hostProperties =\n boundProperties.map(prop => t.BoundElementPropertyAst.fromBoundProperty(prop));\n
// Note: We need to check the host properties here as well,\n
// as we don't know the element name in the DirectiveWrapperCompiler yet.\n hostProperties =
this._checkPropertiesInSchema(elementName, hostProperties);\n const parsedEvents =
this._bindingParser.createDirectiveHostEventAsts(directive, sourceSpan)!;\n
this._createDirectivePropertyAsts(\n directive.inputs, props, directiveProperties,
targetBoundDirectivePropNames);\n elementOrDirectiveRefs.forEach((elOrDirRef) => {\n if

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((elOrDirRef.value.length === 0 && directive.isComponent) ||\n
(elOrDirRef.isReferenceToDirective(directive))) {\n targetReferences.push(new t.ReferenceAst(\n
elOrDirRef.name, createTokenForReference(directive.type.reference), elOrDirRef.value,\n
elOrDirRef.sourceSpan));\n matchedReferences.add(elOrDirRef.name);\n }\n });\n const hostEvents
= parsedEvents.map(e => t.BoundEventAst.fromParsedEvent(e));\n const contentQueryStartId =
this.contentQueryStartId;\n
 this.contentQueryStartId += directive.queries.length;\n return new t.DirectiveAst(\n directive,
directiveProperties, hostProperties, hostEvents, contentQueryStartId,\n sourceSpan);\n });\n\n elementOrDirectiveRefs.forEach((elOrDirRef) => {\n if (elOrDirRef.value.length > 0) {\n if
(!matchedReferences.has(elOrDirRef.name)) {\n this._reportError(\n `There is no directive with
`exportAs` set to `\"${elOrDirRef.value}\"`,\n elOrDirRef.sourceSpan);\n }\n } else if (!component)
{\n let refToken: CompileTokenMetadata = null!;\n if (isTemplateElement) {\n refToken =
createTokenForExternalReference(this.reflector, Identifiers.TemplateRef);\n }\n targetReferences.push(\n
new t.ReferenceAst(elOrDirRef.name, refToken, elOrDirRef.value, elOrDirRef.sourceSpan));\n }\n });\n\n return directiveAsts;\n}\n\nprivate _createDirectivePropertyAsts(\n
directiveProperties: {[key: string]: string}, boundProps: ParsedProperty[],\n targetBoundDirectiveProps:
t.BoundDirectivePropertyAst[],\n targetBoundDirectivePropNames: Set<string>) {\n if (directiveProperties)
{\n const boundPropsByName = new Map<string, ParsedProperty>();\n boundProps.forEach(boundProp =>
{\n const prevValue = boundPropsByName.get(boundProp.name);\n if (!prevValue || prevValue.isLiteral)
{\n // give [a]="b" a higher precedence than a="b" on the same element\n
boundPropsByName.set(boundProp.name, boundProp);\n }\n });\n\n Object.keys(directiveProperties).forEach(dirProp => {\n const elProp = directiveProperties[dirProp];\n const boundProp = boundPropsByName.get(elProp);\n // Bindings are optional, so this binding only needs to
be set up if an expression is given.\n if (boundProp) {\n targetBoundDirectivePropNames.add(boundProp.name);\n if (!isEmptyExpression(boundProp.expression))
{\n targetBoundDirectiveProps.push(new t.BoundDirectivePropertyAst(\n dirProp,
boundProp.name, boundProp.expression, boundProp.sourceSpan);\n }\n }\n }\n });\n\n private
_createElementPropertyAsts(\n elementName: string, props: ParsedProperty[],\n boundDirectivePropNames:
Set<string>): t.BoundElementPropertyAst[] {\n const boundElementProps: t.BoundElementPropertyAst[] = [];\n props.forEach((prop: ParsedProperty) => {\n if (!prop.isLiteral &&
!boundDirectivePropNames.has(prop.name)) {\n const boundProp =
this._bindingParser.createBoundElementProperty(elementName, prop);\n boundElementProps.push(t.BoundElementPropertyAst.fromBoundProperty(boundProp));\n }\n });\n return
this._checkPropertiesInSchema(elementName, boundElementProps);\n }\n\n private
_findComponentDirectives(directives: t.DirectiveAst[]): t.DirectiveAst[] {\n return directives.filter(directive
=> directive.directive.isComponent);\n }\n\n private _findComponentDirectiveNames(directives:
t.DirectiveAst[]): string[] {\n return this._findComponentDirectives(directives).map(directive =>
identifierName(directive.directive.type!));\n }\n\n private _assertOnlyOneComponent(directives: t.DirectiveAst[],
sourceSpan: ParseSourceSpan) {\n const componentTypeNames =
this._findComponentDirectiveNames(directives);\n if (componentTypeNames.length > 1) {\n this._reportError(\n `More than one component matched on this element.\\n` +\n `Make sure that only
one component's selector can match a given element.\\n` +\n `Conflicting components:
${componentTypeNames.join(',')}`,\n sourceSpan);\n }\n }\n\n /**\n * Make sure that non-angular tags
conform to the schemas.\n *\n * Note: An element is considered an angular tag when at least one directive
selector matches the\n * tag name.\n *\n * @param
matchElement Whether any directive has matched on the tag name\n * @param element the html element\n */\n\n private _assertElementExists(matchElement: boolean, element: html.Element) {\n const elName =
element.name.replace(/^:xhtml:/, '');\n if (!matchElement && !this._schemaRegistry.hasElement(elName,

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this._schemas)) {\n let errorMsg = `${elName}` is not a known element:\n`; \n errorMsg += `1. If `${elName}` is an Angular component, then verify that it is part of this module.\n`; \n if (elName.indexOf('-') > -1) {\n errorMsg += `2. If `${elName}` is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of this component to suppress this message.`;\n } else {\n errorMsg += `2. To allow any element add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.`;\n } \n this._reportError(errorMsg, element.sourceSpan);\n} \n\nprivate _assertNoComponentsNorElementBindingsOnTemplate(\n directives: t.DirectiveAst[], elementProps: t.BoundElementPropertyAst[], \n sourceSpan: ParseSourceSpan) {\n const componentTypeNames: string[] = this._findComponentDirectiveNames(directives);\n if (componentTypeNames.length > 0) {\n this._reportError(`Components on an embedded template: ${componentTypeNames.join(',')}` , sourceSpan);\n } \n elementProps.forEach(prop => {\n this._reportError(`Property binding `${prop.name}` not used by any directive on an embedded template. Make sure that the property name is spelled correctly and all directives are listed in the '@NgModule.declarations'`, \n sourceSpan);\n }); \n\n private _assertAllEventsPublishedByDirectives(\n directives: t.DirectiveAst[], events: t.BoundEventAst[]) {\n const allDirectiveEvents = new Set<string>();\n directives.forEach(directive => {\n Object.keys(directive.directive.outputs).forEach(k => {\n const eventName = directive.directive.outputs[k];\n allDirectiveEvents.add(eventName);\n });\n events.forEach(event => {\n if (event.target != null || !allDirectiveEvents.has(event.name)) {\n this._reportError(`Event binding `${event.name}` not emitted by any directive on an embedded template. Make sure that the event name is spelled correctly and all directives are listed in the '@NgModule.declarations'`, \n event.sourceSpan);\n }\n });\n }\n\n private _checkPropertiesInSchema(elementName: string, boundProps: t.BoundElementPropertyAst[]) {\n t.BoundElementPropertyAst[] {\n // Note: We can't filter out empty expressions before this method, // as we still want to validate them!\n return boundProps.filter((boundProp) => {\n if (boundProp.type === t.PropertyBindingType.Property && !this._schemaRegistry.hasProperty(elementName, boundProp.name, this._schemas)) {\n let errorMsg = `Can't bind to `${boundProp.name}` since it isn't a known property of `${elementName}`.`;\n if (elementName.startsWith('ng-')) {\n errorMsg += `\n\n1. If `${boundProp.name}` is an Angular directive, then add 'CommonModule' to the '@NgModule.imports' of this component.` +\n `\n\n2. To allow any property add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.`;\n } else if (elementName.indexOf('-') > -1) {\n errorMsg += `\n\n1. If `${elementName}` is an Angular component and it has `${boundProp.name}` input, then verify that it is part of this module.` +\n `\n\n2. If `${elementName}` is a Web Component then add 'CUSTOM_ELEMENTS_SCHEMA' to the '@NgModule.schemas' of this component to suppress this message.` +\n `\n\n3. To allow any property add 'NO_ERRORS_SCHEMA' to the '@NgModule.schemas' of this component.`;\n }\n this._reportError(errorMsg, boundProp.sourceSpan);\n }\n });\n return !isEmptyExpression(boundProp.value);\n });\n }\n\n private _reportError(\n message: string, sourceSpan: ParseSourceSpan, \n level: ParseErrorLevel = ParseErrorLevel.ERROR) {\n this._targetErrors.push(new ParseError(sourceSpan, message, level));\n }\n }\n\n class NonBindableVisitor implements html.Visitor {\n visitElement(ast: html.Element, parent: ElementContext): t.ElementAst|null {\n const preparsedElement = preparseElement(ast);\n if (preparsedElement.type === PreparsedElementType.SCRIPT ||\n preparsedElement.type === PreparsedElementType.STYLE ||\n preparsedElement.type === PreparsedElementType.STYLESHEET) {\n // Skipping <script> for security reasons\n // Skipping <style> and stylesheets as we already processed them\n // in the StyleCompiler\n return null;\n }\n const attrNameAndValues = ast.attrs.map((attr): [string, string] => [attr.name, attr.value]);\n const selector = createElementCssSelector(ast.name, attrNameAndValues);\n const ngContentIndex = parent.findNgContentIndex(selector);\n const children: t.TemplateAst[] = html.visitAll(this, ast.children,

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EMPTY_ELEMENT_CONTEXT);\n return new t.ElementAst(\n ast.name, html.visitAll(this, ast.attrs), [], [],\n [], [], false, [], children,\n ngContentIndex, ast.sourceSpan, ast.endSourceSpan);\n }\n\n visitComment(comment: html.Comment, context: any): any {\n return null;\n }\n\n visitAttribute(attribute:\n html.Attribute, context: any): t.AttrAst {\n return new t.AttrAst(attribute.name, attribute.value,\n attribute.sourceSpan);\n }\n\n visitText(text: html.Text, parent: ElementContext): t.TextAst {\n const\n ngContentIndex = parent.findNgContentIndex(TEXT_CSS_SELECTOR());\n return new t.TextAst(text.value,\n ngContentIndex, text.sourceSpan);\n }\n\n visitExpansion(expansion: html.Expansion, context: any): any {\n return expansion;\n }\n\n visitExpansionCase(expansionCase: html.ExpansionCase, context: any): any {\n return expansionCase;\n }\n}\n\n/**\n * A reference to an element or directive in a template. E.g., the reference in this template:\n *\n * <div\n * #myMenu="coolMenu">\n * \n * would be {name: 'myMenu', value: 'coolMenu', sourceSpan: ...}\n *\n * @class\n * ElementOrDirectiveRef\n */\nconstructor(public name: string, public value: string, public sourceSpan:\n ParseSourceSpan) {\n /**\n * Gets whether this is a reference to the given directive.\n */\n isReferenceToDirective(directive: CompileDirectiveSummary) {\n return\n splitExportAs(directive.exportAs).indexOf(this.value) !== -1;\n }\n}\n\n/**\n * Splits a raw, potentially comma-delimited `exportAs` value into an array of names.\n */\nfunction splitExportAs(exportAs: string|null): string[] {\n return exportAs ? exportAs.split(',').map(e => e.trim()) : [];\n}\n\nfunction splitClasses(classAttrValue: string): string[] {\n return classAttrValue.trim().split(/\\s+/g);\n}\n\n/**\n * @class\n * ElementContext\n */\nstatic create(\n isTemplateElement: boolean, directives: t.DirectiveAst[],\n providerContext: ProviderElementContext): ElementContext {\n const matcher = new SelectorMatcher();\n let\n wildcardNgContentIndex: number = null;\n const component = directives.find(directive =>\n directive.directive.isComponent);\n if (component) {\n const ngContentSelectors =\n component.directive.template.ngContentSelectors;\n for (let i = 0; i < ngContentSelectors.length; i++) {\n const selector = ngContentSelectors[i];\n if (selector === '*') {\n wildcardNgContentIndex = i;\n }\n }\n matcher.addSelectable(CssSelector.parse(ngContentSelectors[i]), i);\n }\n return\n new ElementContext(isTemplateElement, matcher, wildcardNgContentIndex, providerContext);\n}\n\nconstructor(\n public isTemplateElement: boolean, private _ngContentIndexMatcher: SelectorMatcher,\n private\n _wildcardNgContentIndex: number|null,\n public providerContext: ProviderElementContext|null) {\n}\n\nfindNgContentIndex(selector: CssSelector): number|null {\n const ngContentIndices: number[] = [];\n this._ngContentIndexMatcher.match(selector, (selector, ngContentIndex) => {\n ngContentIndices.push(ngContentIndex);\n });\n ngContentIndices.sort();\n if (this._wildcardNgContentIndex\n !== null) {\n ngContentIndices.push(this._wildcardNgContentIndex);\n }\n return ngContentIndices.length > 0\n ? ngContentIndices[0] : null;\n}\n\nfunction createElementCssSelector(\n elementName: string,\n attributes: [string, string][]): CssSelector {\n const cssSelector = new CssSelector();\n const elNameNoNs =\n splitNsName(elementName)[1];\n cssSelector.setElement(elNameNoNs);\n for (let i = 0; i < attributes.length;\n i++) {\n const attrName\n = attributes[i][0];\n const attrNameNoNs = splitNsName(attrName)[1];\n const attrValue = attributes[i][1];\n cssSelector.addAttribute(attrNameNoNs, attrValue);\n if (attrName.toLowerCase() === CLASS_ATTR) {\n const classes = splitClasses(attrValue);\n classes.forEach(className =>\n cssSelector.addClassName(className));\n }\n }\n return cssSelector;\n}\n\nconst\n EMPTY_ELEMENT_CONTEXT = new ElementContext(true, new SelectorMatcher(), null, null);\nconst\n NON_BINDABLE_VISITOR = new NonBindableVisitor();\n\nfunction isEmptyTextNode(node: html.Node):\n boolean {\n return node instanceof html.Text && node.value.trim().length === 0;\n}\n\nfunction\n removeSummaryDuplicates<T extends {type: CompileTypeMetadata}>(items: T[]): T[] {\n const map = new\n Map<any, T>();\n items.forEach((item) => {\n if (!map.get(item.type.reference)) {\n map.set(item.type.reference, item);\n }\n });\n return Array.from(map.values());\n}\n\nfunction\n isEmptyExpression(ast:

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AST): boolean {\n if (ast instanceof ASTWithSource) {\n ast = ast.ast;\n } \n return ast instanceof
EmptyExpr;\n}\n","/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nconst enum Char {\n OpenParen = 40,\n CloseParen = 41,\n Colon = 58,\n Semicolon = 59,\n BackSlash =
92,\n QuoteNone = 0, // indicating we are not inside a quote\n QuoteDouble = 34,\n QuoteSingle =
39,\n}\n\n\n/*\n * Parses string representation of a style and converts it into object literal.\n *\n * @param value
string representation of style as used in the `style` attribute in HTML.\n * Example: `color: red; height: auto`.\n *
@returns An array of style property name and value pairs, e.g. `[color, 'red', height, 'auto']`\n */\n\nexport
function parse(value: string): string[] {\n // we use a string array here instead of a string
map\n // because a string-map is not guaranteed to retain the\n // order of the entries whereas a string array can
be\n // constructed in a [key, value, key, value] format.\n const styles: string[] = [];\n let i = 0;\n let parenDepth
= 0;\n let quote: Char = Char.QuoteNone;\n let valueStart = 0;\n let propStart = 0;\n let currentProp: string|null =
null;\n let valueHasQuotes = false;\n while (i < value.length) {\n const token = value.charCodeAt(i++) as Char;\n
 switch (token) {\n case Char.OpenParen:\n parenDepth++;\n break;\n case Char.CloseParen:\n
 parenDepth--;\n break;\n case Char.QuoteSingle:\n // valueStart needs to be there since prop values
don't\n // have quotes in CSS\n valueHasQuotes = valueHasQuotes || valueStart > 0;\n if (quote ===
Char.QuoteNone) {\n quote = Char.QuoteSingle;\n } else if (quote === Char.QuoteSingle &&
value.charCodeAt(i - 1) !== Char.BackSlash) {\n
 quote = Char.QuoteNone;\n }\n break;\n case Char.QuoteDouble:\n // same logic as above\n
valueHasQuotes = valueHasQuotes || valueStart > 0;\n if (quote === Char.QuoteNone) {\n quote =
Char.QuoteDouble;\n } else if (quote === Char.QuoteDouble && value.charCodeAt(i - 1) !== Char.BackSlash) {\n
 quote = Char.QuoteNone;\n }\n break;\n case Char.Colon:\n if (!currentProp &&
parenDepth === 0 && quote === Char.QuoteNone) {\n currentProp = hyphenate(value.substring(propStart, i -
1).trim());\n valueStart = i;\n }\n break;\n case Char.Semicolon:\n if (currentProp &&
valueStart > 0 && parenDepth === 0 && quote === Char.QuoteNone) {\n const styleVal =
value.substring(valueStart, i - 1).trim();\n styles.push(currentProp, valueHasQuotes ?
stripUnnecessaryQuotes(styleVal) : styleVal);\n propStart = i;\n valueStart = 0;\n
 currentProp = null;\n valueHasQuotes = false;\n }\n break;\n }\n }\n }\n if (currentProp &&
valueStart) {\n const styleVal = value.substr(valueStart).trim();\n styles.push(currentProp, valueHasQuotes ?
stripUnnecessaryQuotes(styleVal) : styleVal);\n }\n return styles;\n}\n\nexport function
stripUnnecessaryQuotes(value: string): string {\n const qS = value.charCodeAt(0);\n const qE =
value.charCodeAt(value.length - 1);\n if (qS == qE && (qS == Char.QuoteSingle || qS == Char.QuoteDouble)) {\n
 const tempValue = value.substring(1, value.length - 1);\n // special case to avoid using a multi-quoted string that
was just chomped\n // (e.g. `font-family: \"Verdana\", \"sans-serif\"`)\n if (tempValue.indexOf("\\") === -1 &&
tempValue.indexOf(\"'\") === -1) {\n value = tempValue;\n }\n }\n return value;\n}\n\nexport function
hyphenate(value: string): string {\n return value\n .replace(\n /[a-z][A-Z]/g,\n v
=> {\n return v.charAt(0) + '-' + v.charAt(1);\n })\n .toLowerCase();\n}\n","/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AttributeMarker } from
'./../core';\nimport { AST, ASTWithSource, BindingPipe, BindingType, Interpolation } from
'./../expression_parser/ast';\nimport * as o from './../output/output_ast';\nimport { ParseSourceSpan } from
'./../parse_util';\nimport { isEmptyExpression } from './../template_parser/template_parser';\nimport * as t from
'./r3_ast';\nimport { Identifiers as R3 } from './r3_identifiers';\nimport { hyphenate, parse as parseStyle } from
'./style_parser';\nimport { ValueConverter } from './template';\nimport { DefinitionMap, getInterpolationArgsLength }
from './util';\n\nconst IMPORTANT_FLAG = 'important';\n\n\n/*\n * Minimum amount of binding slots required in
the runtime
for style/class bindings.\n *\n * Styling in Angular uses up two slots in the runtime LView/TData data structures
to\n * record binding data, property information and metadata.\n *\n * When a binding is registered it will place the

```

followed information in the `LView` slot 1) binding value slot 2) cached value (all other values collected before it in string form) When a binding is registered it will place the following information in the `TData` slot 1) prop name slot 2) binding index that points to the previous style/class binding (and some extra config values) Let's imagine we have a binding that looks like so:
 

```
<div [style.width]=`x` [style.height]=`y`>
 Our `LView` and `TData` data-structures look like so:
 typescript
 LView = {
 // ...
 x, // value of x
 "width: x",
 y, // value of y
 "width: x; height: y",
 // ...
 };
 TData = {
 // ...
 "width", // binding slot 20
 0,
 "height",
 20,
 // ...
 };

```

 A styling expression summary that is to be processed by the compiler
 

```

 export interface StylingInstruction {
 reference: o.ExternalReference;
 // Calls to individual styling instructions. Used when chaining calls to the same instruction.
 }
 export interface StylingInstructionCall {
 sourceSpan: ParseSourceSpan;
 supportsInterpolation: boolean;
 allocateBindingSlots: number;
 params: ((convertFn: (value: any) => o.Expression | o.Expression[]) => o.Expression[]);
 }

```

 An internal record of the input data for a styling binding
 

```

 interface BoundStylingEntry {
 hasOverrideFlag: boolean;
 name: string;
 suffix: string;
 sourceSpan: ParseSourceSpan;
 value: AST;
 }

```

 Produces creation/update instructions for all styling bindings (class and style) It also produces the creation instruction to register all initial styling values (which are all the static class="..." and style="..." attribute values that exist on an element within a template). The builder class below handles producing instructions for the following cases:
 

- Static style/class attributes (style="..." and class="...")
- Dynamic style/class map bindings ([style]="map" and [class]="map|string")
- Dynamic style/class property bindings ([style.prop]="exp" and [class.name]="exp")

 Due to the complex relationship of all of these cases, the instructions generated for these attributes/properties/bindings must be done so in the correct order. The order which these must be generated is as follows:
 

```

 if (createMode) {
 styling(...)
 }
 if (updateMode) {
 styleMap(...)
 classMap(...)
 styleProp(...)
 classProp(...)
 }

```

 The creation/update methods within the builder class produce these instructions.
 

```

 export class StylingBuilder {
 /** Whether or not there are any static styling values present */
 private _hasInitialValues = false;

 /** Whether or not there are any styling bindings present (i.e. `[style]`, `[class]`, `[style.prop]` or `[class.name]`) */
 public hasBindings = false;
 public hasBindingsWithPipes = false;

 /** the input for [class] (if it exists) */
 private _classMapInput: BoundStylingEntry | null = null;

 /** the input for [style] (if it exists) */
 private _styleMapInput: BoundStylingEntry | null = null;

 /** an array of each [style.prop] input */
 private _singleStyleInputs: BoundStylingEntry[] | null = null;

 /** an array of each [class.name] input */
 private _singleClassInputs: BoundStylingEntry[] | null = null;

 private _lastStylingInput: BoundStylingEntry | null = null;
 private _firstStylingInput: BoundStylingEntry | null = null;

 // maps are used instead of hash maps because a Map will retain the ordering of the keys
 /** Represents the location of each style binding in the template (e.g. `<div [style.width]=`w` [style.height]=`h`>` implies that `width=0` and `height=1`) */
 private _stylesIndex = new Map<string, number>();

 /** Represents the location of each class binding in the template (e.g. `<div [class.big]=`b` [class.hidden]=`h`>` implies that `big=0` and `hidden=1`) */
 private _classesIndex = new Map<string, number>();

 private _initialStyleValues: string[] = [];
 private _initialClassValues: string[] = [];

 constructor(private _directiveExpr: o.Expression | null) {}

 /** Registers a given input to the styling builder to be later used when producing AOT code. The code below will only accept the input if it is somehow tied to styling (whether it be style/class bindings or static style/class attributes). */
 registerBoundInput(input: t.BoundAttribute): boolean {
 // [attr.style] or [attr.class] are skipped in the code below, they should not be treated as styling-based bindings since they are intended to be written directly to the attr and will therefore skip all style/class resolution that is present with style="", [style]="`" and [style.prop]="`, class="", [class.prop]="`. [class]="`" assignments
 let binding: BoundStylingEntry | null = null;
 let name = input.name;
 switch (input.type) {
 case BindingType.Property:
 binding =

```

```

this.registerInputBasedOnName(name, input.value, input.sourceSpan);\n break;\n case BindingType.Style:\n binding = this.registerStyleInput(name, false, input.value, input.sourceSpan, input.unit);\n break;\n case BindingType.Class:\n binding = this.registerClassInput(name, false, input.value, input.sourceSpan);\n break;\n }\n return\n binding ? true : false;\n }\n\n registerInputBasedOnName(name: string, expression: AST, sourceSpan: ParseSourceSpan) {\n let binding: BoundStylingEntry|null = null;\n const prefix = name.substring(0, 6);\n const isStyle = name === 'style' || prefix === 'style.' || prefix === 'style!';\n const isClass = !isStyle && (name === 'class' || prefix === 'class.' || prefix === 'class!');\n if (isStyle || isClass) {\n const isMapBased = name.charAt(5) !== '.';\n // style.prop or class.prop makes this a no\n const property = name.substr(isMapBased ? 5 : 6); // the dot explains why there's a +1\n if (isStyle) {\n binding = this.registerStyleInput(property, isMapBased, expression, sourceSpan);\n } else {\n binding = this.registerClassInput(property, isMapBased, expression, sourceSpan);\n }\n }\n return binding;\n }\n\n registerStyleInput(\n name: string, isMapBased: boolean, value: AST, sourceSpan: ParseSourceSpan,\n suffix?: string|null): BoundStylingEntry|null {\n if (isEmptyExpression(value)) {\n return null;\n }\n name = normalizePropName(name);\n const {property, hasOverrideFlag, suffix: bindingSuffix} = parseProperty(name);\n suffix = typeof suffix === 'string' && suffix.length !== 0 ? suffix : bindingSuffix;\n const entry:\n BoundStylingEntry = {name: property, suffix: suffix, value, sourceSpan, hasOverrideFlag};\n if (isMapBased) {\n this._styleMapInput = entry;\n } else {\n (this._singleStyleInputs = this._singleStyleInputs || []).push(entry);\n registerIntoMap(this._stylesIndex, property);\n }\n this._lastStylingInput = entry;\n this._firstStylingInput = this._firstStylingInput || entry;\n this._checkForPipes(value);\n this.hasBindings = true;\n return entry;\n }\n\n registerClassInput(name: string, isMapBased: boolean, value: AST, sourceSpan: ParseSourceSpan):\n BoundStylingEntry|null {\n if (isEmptyExpression(value)) {\n return null;\n }\n const {property, hasOverrideFlag} = parseProperty(name);\n const entry:\n BoundStylingEntry = {name: property, value, sourceSpan, hasOverrideFlag, suffix: null};\n if (isMapBased) {\n if (this._classMapInput) {\n throw new Error(\n '[class] and [className] bindings cannot be used on the same element simultaneously');\n }\n this._classMapInput = entry;\n } else {\n (this._singleClassInputs = this._singleClassInputs || []).push(entry);\n registerIntoMap(this._classesIndex, property);\n }\n this._lastStylingInput = entry;\n this._firstStylingInput = this._firstStylingInput || entry;\n this._checkForPipes(value);\n this.hasBindings = true;\n return entry;\n }\n\n private _checkForPipes(value: AST) {\n if ((value instanceof ASTWithSource) && (value.ast instanceof BindingPipe)) {\n this.hasBindingsWithPipes = true;\n }\n }\n\n /**\n * Registers the element's static style string value to the builder.\n * @param value the style string (e.g. `width:100px; height:200px;`)\n */\n registerStyleAttr(value: string) {\n this._initialStyleValues = parseStyle(value);\n this._hasInitialValues = true;\n }\n\n /**\n * Registers the element's static class string value to the builder.\n * @param value the className string (e.g. `disabled gold zoom`)\n */\n registerClassAttr(value: string) {\n this._initialClassValues = value.trim().split(/s+/g);\n this._hasInitialValues = true;\n }\n\n /**\n * Appends all styling-related expressions to the provided attrs array.\n * @param attrs an existing array where each of the styling expressions will be inserted into.\n */\n populateInitialStylingAttrs(attrs: o.Expression[]): void {\n // [CLASS_MARKER, 'foo', 'bar', 'baz' ...]\n if (this._initialClassValues.length) {\n attrs.push(o.literal(AttributeMarker.Classes));\n for (let i = 0; i < this._initialClassValues.length; i++) {\n attrs.push(o.literal(this._initialClassValues[i]));\n }\n }\n // [STYLE_MARKER, 'width', '200px', 'height', '100px', ...]\n if (this._initialStyleValues.length) {\n attrs.push(o.literal(AttributeMarker.Styles));\n for (let i = 0; i < this._initialStyleValues.length; i += 2) {\n attrs.push(\n o.literal(this._initialStyleValues[i]), o.literal(this._initialStyleValues[i + 1]));\n }\n }\n }\n\n /**\n * Builds an instruction with all the expressions and parameters for `elementHostAttrs`.\n * The instruction generation code below is used for producing the AOT statement code which is responsible for registering initial styles (within a directive hostBindings' creation block), as well as any of the provided attribute values, to the directive host element.\n */\n assignHostAttrs(attrs: o.Expression[], definitionMap:

```



```

DefinitionMap): void {\n if (this._directiveExpr &&
(attrs.length || this._hasInitialValues)) {\n this.populateInitialStylingAttrs(attrs);\n
definitionMap.set('hostAttrs', o.literalArr(attrs));\n }\n }\n\n /**\n * Builds an instruction with all the
expressions and parameters for `classMap`.\n *\n * The instruction data will contain all expressions for
`classMap` to function\n * which includes the `[class]` expression params.\n */\n
buildClassMapInstruction(valueConverter: ValueConverter): StylingInstruction|null {\n if (this._classMapInput)
{\n return this._buildMapBasedInstruction(valueConverter, true, this._classMapInput);\n }\n return null;\n
}\n\n /**\n * Builds an instruction with all the expressions and parameters for `styleMap`.\n *\n * The
instruction data will contain all expressions for `styleMap` to function\n * which includes the `[style]` expression
params.\n */\n buildStyleMapInstruction(valueConverter: ValueConverter): StylingInstruction|null {\n if
(this._styleMapInput)
{\n return this._buildMapBasedInstruction(valueConverter, false, this._styleMapInput);\n }\n return null;\n
}\n\n private _buildMapBasedInstruction(\n valueConverter: ValueConverter, isClassBased: boolean,\n
stylingInput: BoundStylingEntry): StylingInstruction {\n // each styling binding value is stored in the LView\n //
map-based bindings allocate two slots: one for the\n // previous binding value and another for the previous\n //
className or style attribute value.\n let totalBindingSlotsRequired =
MIN_STYLING_BINDING_SLOTS_REQUIRED;\n\n // these values must be outside of the update block so that
they can\n // be evaluated (the AST visit call) during creation time so that any\n // pipes can be picked up in time
before the template is built\n const mapValue = stylingInput.value.visit(valueConverter);\n let reference:
o.ExternalReference;\n if (mapValue instanceof Interpolation) {\n totalBindingSlotsRequired +=
mapValue.expressions.length;\n
 reference = isClassBased ? getClassMapInterpolationExpression(mapValue) :\n
getStyleMapInterpolationExpression(mapValue);\n } else {\n reference = isClassBased ? R3.classMap :
R3.styleMap;\n }\n\n return {\n reference,\n calls: [{\n supportsInterpolation: true,\n sourceSpan:
stylingInput.sourceSpan,\n allocateBindingSlots: totalBindingSlotsRequired,\n params: (convertFn: (value:
any) => o.Expression|o.Expression[]) => {\n const convertResult = convertFn(mapValue);\n const
params = Array.isArray(convertResult) ? convertResult : [convertResult];\n return params;\n }\n }
];\n }\n\n private _buildSingleInputs(\n reference: o.ExternalReference, inputs: BoundStylingEntry[],
valueConverter: ValueConverter,\n getInterpolationExpressionFn: ((value: Interpolation) =>
o.ExternalReference)|null,\n isClassBased: boolean): StylingInstruction[]
{\n const instructions: StylingInstruction[] = [];\n\n inputs.forEach(input => {\n const previousInstruction:
StylingInstruction|undefined =\n instructions[instructions.length - 1];\n const value =
input.value.visit(valueConverter);\n let referenceForCall = reference;\n\n // each styling binding value is
stored in the LView\n // but there are two values stored for each binding:\n // 1) the value itself\n // 2) an
intermediate value (concatenation of style up to this point).\n // We need to store the intermediate value so that
we don't allocate\n // the strings on each CD.\n let totalBindingSlotsRequired =
MIN_STYLING_BINDING_SLOTS_REQUIRED;\n\n if (value instanceof Interpolation) {\n totalBindingSlotsRequired += value.expressions.length;\n\n if (getInterpolationExpressionFn) {\n referenceForCall = getInterpolationExpressionFn(value);\n }\n }\n\n const
call = {\n sourceSpan: input.sourceSpan,\n allocateBindingSlots: totalBindingSlotsRequired,\n supportsInterpolation: !!getInterpolationExpressionFn,\n params: (convertFn: (value: any) => o.Expression |
o.Expression[]) => {\n // params => stylingProp(propName, value, suffix)\n const params:
o.Expression[] = [];\n params.push(o.literal(input.name));\n\n const convertResult = convertFn(value);\n\n if (Array.isArray(convertResult)) {\n params.push(...convertResult);\n } else {\n params.push(convertResult);\n }\n\n // [style.prop] bindings may use suffix values (e.g. px, em, etc...),
therefore,\n // if that is detected then we need to pass that in as an optional param.\n if (!isClassBased
&& input.suffix !== null) {\n params.push(o.literal(input.suffix));\n }\n\n return params;\n
 }\n };\n\n // If we ended

```



```

R3.stylePropInterpolateV;\n }\n}\n\nfunction normalizePropName(prop: string): string {\n return
hyphenate(prop);\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport * as chars from './chars';\n\nexport enum TokenType {\n Character,\n Identifier,\n Keyword,\n String,\n Operator,\n Number,\n Error\n}\n\nconst KEYWORDS = ['var', 'let', 'as', 'null',
'undefined', 'true', 'false', 'if', 'else', 'this'];\n\nexport class Lexer {\n tokenize(text: string): Token[] {\n const
scanner = new _Scanner(text);\n const tokens: Token[] = [];\n let token = scanner.scanToken();\n while
(token != null) {\n tokens.push(token);\n token = scanner.scanToken();\n }\n return tokens;\n
}\n}\n\nexport class Token {\n constructor(\n public index: number, public end: number, public type:
TokenType, public numValue: number,\n public strValue: string) {\n\n isCharacter(code: number): boolean {\n
return this.type == TokenType.Character && this.numValue == code;\n }\n\n isNumber(): boolean {\n return
this.type == TokenType.Number;\n }\n\n isString(): boolean {\n return this.type == TokenType.String;\n }\n\n
isOperator(operator: string): boolean {\n return this.type == TokenType.Operator && this.strValue == operator;\n
}\n\n isIdentifier(): boolean {\n return this.type == TokenType.Identifier;\n }\n\n isKeyword(): boolean {\n
return this.type == TokenType.Keyword;\n }\n\n isKeywordLet(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'let';\n }\n\n isKeywordAs(): boolean {\n return this.type
== TokenType.Keyword && this.strValue == 'as';\n }\n\n isKeywordNull(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'null';\n }\n\n isKeywordUndefined(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'undefined';\n }\n\n isKeywordTrue(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'true';\n }\n\n isKeywordFalse(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'false';\n }\n\n isKeywordThis(): boolean {\n return this.type ==
TokenType.Keyword && this.strValue == 'this';\n }\n\n isError(): boolean {\n return this.type ==
TokenType.Error;\n }\n\n toNumber(): number {\n return this.type == TokenType.Number ? this.numValue : -
1;\n }\n\n toString(): string|null {\n switch (this.type) {\n case TokenType.Character:\n case
TokenType.Identifier:\n case TokenType.Keyword:\n case TokenType.Operator:\n case
TokenType.String:\n case
TokenType.Error:\n return this.strValue;\n case TokenType.Number:\n return
this.numValue.toString();\n default:\n return null;\n }\n }\n}\n\nfunction newCharacterToken(index:
number, end: number, code: number): Token {\n return new Token(index, end, TokenType.Character, code,
String.fromCharCode(code));\n}\n\nfunction newIdentifierToken(index: number, end: number, text: string): Token
{\n return new Token(index, end, TokenType.Identifier, 0, text);\n}\n\nfunction newKeywordToken(index: number,
end: number, text: string): Token {\n return new Token(index, end, TokenType.Keyword, 0, text);\n}\n\nfunction
newOperatorToken(index: number, end: number, text: string): Token {\n return new Token(index, end,
TokenType.Operator, 0, text);\n}\n\nfunction newStringToken(index: number, end: number, text: string): Token {\n
return new Token(index, end, TokenType.String, 0, text);\n}\n\nfunction newNumberToken(index: number, end:
number, n: number): Token {\n
return new Token(index, end, TokenType.Number, n, ");\n}\n\nfunction newErrorToken(index: number, end:
number, message: string): Token {\n return new Token(index, end, TokenType.Error, 0, message);\n}\n\nexport
const EOF: Token = new Token(-1, -1, TokenType.Character, 0, ");\n\nclass _Scanner {\n length: number;\n peek:
number = 0;\n index: number = -1;\n\n constructor(public input: string) {\n this.length = input.length;\n
this.advance();\n }\n\n advance() {\n this.peek = ++this.index >= this.length ? chars.$EOF :
this.input.charCodeAtAt(this.index);\n }\n\n scanToken(): Token|null {\n const input = this.input, length =
this.length;\n let peek = this.peek, index = this.index;\n\n // Skip whitespace.\n while (peek <= chars.$SPACE)
{\n if (++index >= length) {\n peek = chars.$EOF;\n break;\n } else {\n peek =
input.charCodeAtAt(index);\n }\n }\n\n this.peek = peek;\n this.index = index;\n\n if (index >= length)
{\n return null;\n }\n\n // Handle identifiers and numbers.\n if (isIdentifierStart(peek)) return
this.scanIdentifier();\n if (chars.isDigit(peek)) return this.scanNumber(index);\n\n const start: number = index;\n
switch (peek) {\n case chars.$PERIOD:\n this.advance();\n return chars.isDigit(this.peek) ?

```

```

this.scanNumber(start) : \n newCharacterToken(start, this.index, chars.$PERIOD);\n
case chars.$LPAREN: \n case chars.$RPAREN: \n case chars.$LBRACE: \n case chars.$RBRACE: \n
case chars.$LBRACKET: \n case chars.$RBRACKET: \n case chars.$COMMA: \n case chars.$COLON: \n
case chars.$SEMICOLON: \n return this.scanCharacter(start, peek); \n case chars.$SQ: \n case
chars.$DQ: \n return this.scanString(); \n case chars.$HASH: \n case chars.$PLUS: \n case
chars.$MINUS: \n case chars.$STAR: \n case chars.$SLASH: \n case chars.$PERCENT: \n
 case chars.$CARET: \n return this.scanOperator(start, String.fromCharCode(peek)); \n case
chars.$QUESTION: \n return this.scanComplexOperator(start, '?', chars.$PERIOD, '.'); \n case chars.$LT: \n
case chars.$GT: \n return this.scanComplexOperator(start, String.fromCharCode(peek), chars.$EQ, '='); \n
case chars.$BANG: \n case chars.$EQ: \n return this.scanComplexOperator(\n start,
String.fromCharCode(peek), chars.$EQ, '=', chars.$EQ, '='); \n case chars.$AMPERSAND: \n return
this.scanComplexOperator(start, '&', chars.$AMPERSAND, '&'); \n case chars.$BAR: \n return
this.scanComplexOperator(start, '|', chars.$BAR, '|'); \n case chars.$NBSP: \n while
(chars.isWhitespace(this.peek)) this.advance(); \n return this.scanToken(); \n } \n \n this.advance(); \n return
this.error(`Unexpected character [${String.fromCharCode(peek)}]`, 0); \n } \n \n scanCharacter(start: number, code:
number):
Token { \n this.advance(); \n return newCharacterToken(start, this.index, code); \n } \n \n \n \n scanOperator(start:
number, str: string): Token { \n this.advance(); \n return newOperatorToken(start, this.index, str); \n } \n \n /** \n
* Tokenize a 2/3 char long operator \n * \n * @param start start index in the expression \n * @param one first
symbol (always part of the operator) \n * @param twoCode code point for the second symbol \n * @param two
second symbol (part of the operator when the second code point matches) \n * @param threeCode code point for
the third symbol \n * @param three third symbol (part of the operator when provided and matches source
expression) \n */ \n scanComplexOperator(\n start: number, one: string, twoCode: number, two: string,
threeCode?: number, \n three?: string): Token { \n this.advance(); \n let str: string = one; \n if (this.peek ==
twoCode) { \n this.advance(); \n str += two; \n } \n if (threeCode != null && this.peek
== threeCode) { \n this.advance(); \n str += three; \n } \n return newOperatorToken(start, this.index, str); \n
} \n \n scanIdentifier(): Token { \n const start: number = this.index; \n this.advance(); \n while
(isIdentifierPart(this.peek)) this.advance(); \n const str: string = this.input.substring(start, this.index); \n return
KEYWORDS.indexOf(str) > -1 ? newKeywordToken(start, this.index, str) : \n
newIdentifierToken(start, this.index, str); \n } \n \n scanNumber(start: number): Token { \n let simple: boolean =
(this.index === start); \n this.advance(); // Skip initial digit. \n while (true) { \n if (chars.isDigit(this.peek)) { \n
// Do nothing. \n } else if (this.peek == chars.$PERIOD) { \n simple = false; \n } else if
(isExponentStart(this.peek)) { \n this.advance(); \n if (isExponentSign(this.peek)) this.advance(); \n if
(!chars.isDigit(this.peek)) return this.error('Invalid
exponent', -1); \n simple = false; \n } else { \n break; \n } \n this.advance(); \n } \n const str: string
= this.input.substring(start, this.index); \n const value: number = simple ? parseIntAutoRadix(str) :
parseFloat(str); \n return newNumberToken(start, this.index, value); \n } \n \n scanString(): Token { \n const start:
number = this.index; \n const quote: number = this.peek; \n this.advance(); // Skip initial quote. \n \n let buffer:
string = ''; \n let marker: number = this.index; \n const input: string = this.input; \n \n while (this.peek != quote)
{ \n if (this.peek == chars.$BACKSLASH) { \n buffer += input.substring(marker, this.index); \n
this.advance(); \n let unescapedCode: number; \n // Workaround for TS2.1-introduced type strictness \n
this.peek = this.peek; \n if (this.peek == chars.$u) { \n // 4 character hex code for unicode character. \n
const hex: string = input.substring(this.index
+ 1, this.index + 5); \n if (/^[0-9a-f]+$/.test(hex)) { \n unescapedCode = parseInt(hex, 16); \n } else
{ \n return this.error(`Invalid unicode escape [\\\\\\u${hex}]`, 0); \n } \n for (let i: number = 0; i < 5;
i++) { \n this.advance(); \n } \n } else { \n unescapedCode = unescape(this.peek); \n
this.advance(); \n } \n buffer += String.fromCharCode(unescapedCode); \n marker = this.index; \n }
else if (this.peek == chars.$EOF) { \n return this.error('Unterminated quote', 0); \n } else { \n

```

```

this.advance();\n }\n }\n const last: string = input.substring(marker, this.index);\n this.advance(); // Skip
terminating quote.\n return newStringToken(start, this.index, buffer + last);\n }\n error(message: string,
offset: number): Token {\n const position: number = this.index + offset;\n return newErrorToken(\n
 position, this.index,\n `Lexer Error: ${message} at column ${position} in expression [${this.input}]`);\n
 }\n}\n\nfunction isIdentifierStart(code: number): boolean {\n return (chars.$a <= code && code <= chars.$z) ||
(chars.$A <= code && code <= chars.$Z) ||\n (code == chars.$_) || (code == chars.$$);\n}\n\n\nexport function
isIdentifier(input: string): boolean {\n if (input.length == 0) return false;\n const scanner = new _Scanner(input);\n if (!isIdentifierStart(scanner.peek)) return false;\n scanner.advance();\n while (scanner.peek !== chars.$EOF) {\n
 if (!isIdentifierPart(scanner.peek)) return false;\n scanner.advance();\n }\n return true;\n}\n\n\nfunction
isIdentifierPart(code: number): boolean {\n return chars.isAsciiLetter(code) || chars.isDigit(code) || (code ==
chars.$_) ||\n (code == chars.$$);\n}\n\n\nfunction isExponentStart(code: number): boolean {\n return code ==
chars.$e || code == chars.$E;\n}\n\n\nfunction isExponentSign(code: number): boolean
{\n return code == chars.$MINUS || code == chars.$PLUS;\n}\n\n\nexport function isQuote(code: number): boolean
{\n return code === chars.$SQ || code === chars.$DQ || code === chars.$BT;\n}\n\n\nfunction unescape(code:
number): number {\n switch (code) {\n case chars.$n:\n return chars.$LF;\n case chars.$f:\n return
chars.$FF;\n case chars.$r:\n return chars.$CR;\n case chars.$t:\n return chars.$TAB;\n case chars.$v:\n
 return chars.$VTAB;\n default:\n return code;\n }\n}\n\n\nfunction parseIntAutoRadix(text: string): number {\n
const result: number = parseInt(text);\n if (isNaN(result)) {\n throw new Error('Invalid integer literal when
parsing ' + text);\n }\n return result;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport * as chars from '../chars';\n\nimport
{DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig} from '../ml_parser/interpolation_config';\n\nimport
{escapeRegExp} from '../util';\n\nimport {AbsoluteSourceSpan, AST, AstVisitor, ASTWithSource, Binary,
BindingPipe, Chain, Conditional, EmptyExpr, ExpressionBinding, FunctionCall, ImplicitReceiver, Interpolation,
KeyedRead, KeyedWrite, LiteralArray, LiteralMap, LiteralMapKey, LiteralPrimitive, MethodCall, NonNullAssert,
ParserError, ParseSpan, PrefixNot, PropertyRead, PropertyWrite, Quote, RecursiveAstVisitor, SafeMethodCall,
SafePropertyRead, TemplateBinding, TemplateBindingIdentifier, ThisReceiver, Unary, VariableBinding} from
'./ast';\n\nimport {EOF, isIdentifier, isQuote, Lexer, Token, TokenType} from './lexer';\n\n\nexport class
SplitInterpolation {\n constructor(\n public strings: string[], public stringSpans: {start: number, end:
number}[],\n public expressions: string[], public expressionsSpans: {start: number, end: number}[],\n public
offsets: number[]) {\n }\n}\n\n\nexport
class TemplateBindingParseResult {\n constructor(\n public templateBindings: TemplateBinding[], public
warnings: string[],\n public errors: ParserError[]) {\n }\n\n const defaultInterpolateRegExp =
_createInterpolateRegExp(DEFAULT_INTERPOLATION_CONFIG);\n\n function _getInterpolateRegExp(config:
InterpolationConfig): RegExp {\n if (config === DEFAULT_INTERPOLATION_CONFIG) {\n return
defaultInterpolateRegExp;\n } else {\n return _createInterpolateRegExp(config);\n }\n }\n\n function
_createInterpolateRegExp(config: InterpolationConfig): RegExp {\n const pattern = escapeRegExp(config.start) +
'([\\\\\\\\s\\\\\\\\S]*)' + escapeRegExp(config.end);\n return new RegExp(pattern, 'g');\n }\n}\n\n\nexport class Parser {\n
private errors: ParserError[] = [];\n\n constructor(private _lexer: Lexer) {\n }\n\n simpleExpressionChecker =
SimpleExpressionChecker;\n\n parseAction(\n input: string, location: any, absoluteOffset: number,\n interpolationConfig: InterpolationConfig = DEFAULT_INTERPOLATION_CONFIG):\n ASTWithSource {\n this._checkNoInterpolation(input, location, interpolationConfig);\n const sourceToLex =
this._stripComments(input);\n const tokens = this._lexer.tokenize(this._stripComments(input));\n const ast =
new _ParseAST(\n input, location, absoluteOffset, tokens, sourceToLex.length, true, this.errors,\n input.length - sourceToLex.length)\n .parseChain();\n return new ASTWithSource(ast, input,
location, absoluteOffset, this.errors);\n }\n\n parseBinding(\n input: string, location: any, absoluteOffset:
number,\n interpolationConfig: InterpolationConfig = DEFAULT_INTERPOLATION_CONFIG):\n ASTWithSource {\n const ast = this._parseBindingAst(input, location, absoluteOffset, interpolationConfig);\n

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return new ASTWithSource(ast, input, location, absoluteOffset, this.errors);\n }\n\n private
checkSimpleExpression(ast: AST): string[] {\n const checker = new this.simpleExpressionChecker();\n ast.visit(checker);\n return checker.errors;\n }\n\n parseSimpleBinding(\n input: string, location: string,
absoluteOffset: number,\n interpolationConfig: InterpolationConfig =
DEFAULT_INTERPOLATION_CONFIG): ASTWithSource {\n const ast = this._parseBindingAst(input,
location, absoluteOffset, interpolationConfig);\n const errors = this.checkSimpleExpression(ast);\n if
(errors.length > 0) {\n this._reportError(\n `Host binding expression cannot contain ${errors.join(' ')}`,
input, location);\n }\n return new ASTWithSource(ast, input, location, absoluteOffset, this.errors);\n }\n\n private _reportError(message: string, input: string, errLocation: string, ctxLocation?: any) {\n this.errors.push(new
ParserError(message, input, errLocation, ctxLocation));\n }\n\n private _parseBindingAst(\n input: string,
location: string, absoluteOffset: number,\n interpolationConfig: InterpolationConfig): AST {\n //
Quotes expressions use 3rd-party expression language. We don't want to use\n // our lexer or parser for that, so we
check for that ahead of time.\n const quote = this._parseQuote(input, location, absoluteOffset);\n\n if (quote !=
null) {\n return quote;\n }\n\n this._checkNoInterpolation(input, location, interpolationConfig);\n const
sourceToLex = this._stripComments(input);\n const tokens = this._lexer.tokenize(sourceToLex);\n return new
_ParseAST(\n input, location, absoluteOffset, tokens, sourceToLex.length, false, this.errors,\n input.length - sourceToLex.length)\n .parseChain();\n }\n\n private _parseQuote(input: string|null, location:
any, absoluteOffset: number): AST|null {\n if (input == null) return null;\n const prefixSeparatorIndex =
input.indexOf(':');\n if (prefixSeparatorIndex == -1) return null;\n const prefix = input.substring(0,
prefixSeparatorIndex).trim();\n if (!isIdentifier(prefix)) return
null;\n const uninterpretedExpression = input.substring(prefixSeparatorIndex + 1);\n const span = new
ParseSpan(0, input.length);\n return new Quote(\n span, span.toAbsolute(absoluteOffset), prefix,
uninterpretedExpression, location);\n }\n\n /**\n * Parse microsyntax template expression and return a list of
bindings or\n * parsing errors in case the given expression is invalid.\n *\n * For example,\n * ```\n * <div
*ngFor="let item of items">\n * ^ ^ absoluteValueOffset for `templateValue`\n *
absoluteKeyOffset for `templateKey`\n * ```\n * contains three bindings:\n * 1. ngFor -> null\n * 2. item ->
NgForOfContext.$implicit\n * 3. ngForOf -> items\n *\n * This is apparent from the de-sugared template:\n *
```\n  * <ng-template ngFor let-item [ngForOf]="items">\n  * ```\n  * @param templateKey name of
directive, without the * prefix. For example: ngIf, ngFor\n  * @param templateValue RHS of
the microsyntax attribute\n  * @param templateUrl template filename if it's external, component filename if it's
inline\n  * @param absoluteKeyOffset start of the `templateKey`\n  * @param absoluteValueOffset start of the
`templateValue`\n  */\n  parseTemplateBindings(\n    templateKey: string, templateValue: string, templateUrl:
string, absoluteKeyOffset: number,\n    absoluteValueOffset: number): TemplateBindingParseResult {\n    const
tokens = this._lexer.tokenize(templateValue);\n    const parser = new _ParseAST(\n      templateValue,
templateUrl, absoluteValueOffset, tokens, templateValue.length,\n      false /* parseAction */, this.errors, 0 /*
relative offset */);\n    return parser.parseTemplateBindings({\n      source: templateKey,\n      span: new
AbsoluteSourceSpan(absoluteKeyOffset, absoluteKeyOffset + templateKey.length),\n    });\n  }\n\n  parseInterpolation(\n    input: string, location: any, absoluteOffset: number,\n    interpolationConfig:
InterpolationConfig
= DEFAULT_INTERPOLATION_CONFIG): ASTWithSource|null {\n    const split = this.splitInterpolation(input,
location, interpolationConfig);\n    if (split == null) return null;\n\n    const expressions: AST[] = [];\n\n    for (let i =
0; i < split.expressions.length; ++i) {\n      const expressionText = split.expressions[i];\n      const sourceToLex =
this._stripComments(expressionText);\n      const tokens = this._lexer.tokenize(sourceToLex);\n      const ast = new
_ParseAST(\n        input, location, absoluteOffset, tokens, sourceToLex.length, false,\n        this.errors, split.offsets[i] + (expressionText.length - sourceToLex.length))\n        .parseChain();\n      expressions.push(ast);\n    }\n\n    return this.createInterpolationAst(split.strings, expressions, input, location,
absoluteOffset);\n  }\n\n  /**\n  * Similar to `parseInterpolation`, but treats the provided string as a single
expression\n  * element that would normally appear

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within the interpolation prefix and suffix (`{{` and `}}`).\n * This is used for parsing the switch expression in
ICUs.\n */\n parseInterpolationExpression(expression: string, location: any, absoluteOffset: number):\n
ASTWithSource {\n  const sourceToLex = this._stripComments(expression);\n  const tokens =
this._lexer.tokenize(sourceToLex);\n  const ast = new _ParseAST(\n    expression, location,
absoluteOffset, tokens, sourceToLex.length,\n    /* parseAction */ false, this.errors, 0)\n  .parseChain();\n  const strings = ["", ""]; // The prefix and suffix strings are both empty\n  return
this.createInterpolationAst(strings, [ast], expression, location, absoluteOffset);\n } \n\n private
createInterpolationAst(\n  strings: string[], expressions: AST[], input: string, location: string,\n  absoluteOffset:
number): ASTWithSource {\n  const span = new ParseSpan(0, input.length);\n  const interpolation =\n    new Interpolation(span, span.toAbsolute(absoluteOffset), strings, expressions);\n  return new
ASTWithSource(interpolation, input, location, absoluteOffset, this.errors);\n } \n\n /**\n  * Splits a string of text
into \"raw\" text segments and expressions present in interpolations in\n  * the string.\n  * Returns `null` if there are
no interpolations, otherwise a\n  * `SplitInterpolation` with splits that look like\n  * <raw text> <expression>
<raw text> ... <raw text> <expression> <raw text>\n  */\n  splitInterpolation(\n    input: string, location: string,\n
interpolationConfig: InterpolationConfig = DEFAULT_INTERPOLATION_CONFIG): SplitInterpolation\n  |null\n  {\n    const strings: string[] = [];\n    const expressions: string[] = [];\n    const offsets: number[] = [];\n    const
stringSpans: {start: number, end: number}[] = [];\n    const expressionSpans: {start: number, end: number}[] = [];\n
    let i = 0;\n    let atInterpolation = false;\n    let extendLastString
= false;\n    let {start: interpStart, end: interpEnd} = interpolationConfig;\n    while (i < input.length) {\n      if
(!atInterpolation) {\n        // parse until starting {\n        const start = i;\n        i = input.indexOf(interpStart, i);\n
if (i === -1) {\n          i = input.length;\n        }\n        const part = input.substring(start, i);\n        strings.push(part);\n
        stringSpans.push({start, end: i});\n        atInterpolation = true;\n      } else {\n        // parse from starting { to
ending }\n        const fullStart = i;\n        const exprStart = fullStart + interpStart.length;\n        const exprEnd =
input.indexOf(interpEnd, exprStart);\n        if (exprEnd === -1) {\n          // Could not find the end of the
interpolation; do not parse an expression.\n          // Instead we should extend the content on the last raw string.\n
          atInterpolation = false;\n          extendLastString = true;\n          break;\n        }\n        const
fullEnd = exprEnd + interpEnd.length;\n        const part = input.substring(exprStart, exprEnd);\n        if
(part.trim().length > 0) {\n          expressions.push(part);\n        } else {\n          this._reportError(\n            'Blank
expressions are not allowed in interpolated strings', input,\n            `at column ${i} in`, location);\n          expressions.push('$implicit');\n        }\n        offsets.push(exprStart);\n        expressionSpans.push({start: fullStart,
end: fullEnd});\n        i = fullEnd;\n        atInterpolation = false;\n      }\n    }\n    if (!atInterpolation) {\n      // If we
are now at a text section, add the remaining content as a raw string.\n      if (extendLastString) {\n
strings[strings.length - 1] += input.substring(i);\n      stringSpans[stringSpans.length - 1].end = input.length;\n    }
else {\n      strings.push(input.substring(i));\n      stringSpans.push({start: i, end: input.length});\n    }\n  }\n  return expressions.length
=== 0 ?\n    null :\n    new SplitInterpolation(strings, stringSpans, expressions, expressionSpans, offsets);\n }\n\n wrapLiteralPrimitive(input: string|null, location: any, absoluteOffset: number): ASTWithSource {\n  const
span = new ParseSpan(0, input == null ? 0 : input.length);\n  return new ASTWithSource(\n    new
LiteralPrimitive(span, span.toAbsolute(absoluteOffset), input), input, location,\n    absoluteOffset, this.errors);\n }\n\n private _stripComments(input: string): string {\n  const i = this._commentStart(input);\n  return i != null ?
input.substring(0, i).trim() : input;\n }\n\n private _commentStart(input: string): number|null {\n  let outerQuote:
number|null = null;\n  for (let i = 0; i < input.length - 1; i++) {\n    const char = input.charCodeAt(i);\n    const
nextChar = input.charCodeAt(i + 1);\n    if (char === chars.SLASH && nextChar == chars.SLASH &&
outerQuote == null) return i;\n    if (outerQuote
=== char) {\n      outerQuote = null;\n    } else if (outerQuote == null && isQuote(char)) {\n      outerQuote =
char;\n    }\n  }\n  return null;\n }\n\n private _checkNoInterpolation(\n  input: string, location: any,
interpolationConfig: InterpolationConfig): void {\n  const regexp = _getInterpolateRegExp(interpolationConfig);\n  const parts = input.split(regexp);\n  if (parts.length > 1) {\n    this._reportError(\n      `Got interpolation

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($ { interpolationConfig.start } $ { interpolationConfig.end }) where expression was expected`,\n
input,\n      `at column ${this._findInterpolationErrorColumn(parts, 1, interpolationConfig)} in`,\n
location);\n  }\n }\n\n private _findInterpolationErrorColumn(\n    parts: string[], partInErrIdx: number,\n    interpolationConfig: InterpolationConfig): number {\n    let errLocation = ";\n    for (let j = 0; j < partInErrIdx; j++)\n    {\n      errLocation += j % 2 === 0 ?\n        parts[j]\n      :\n        `${interpolationConfig.start} ${parts[j]} ${interpolationConfig.end}`;\n    }\n    return\n    errLocation.length;\n  }\n }\n\nexport class IvyParser extends Parser {\n  simpleExpressionChecker =\n    IvySimpleExpressionChecker; //\n\n  /** Describes a stateful context an expression parser is in. */\n  enum\n    ParseContextFlags {\n    None = 0,\n    /**\n     * A Writable context is one in which a value may be written to an\n     lvalue.\n     * For example, after we see a property access, we may expect a write to the\n     * property via the "="\n     operator.\n     * prop\n     * ^ possible "=" after\n     */\n    Writable = 1,\n  }\n\n  export class _ParseAST {\n    private\n      rparensExpected = 0;\n    private\n      rbracketsExpected = 0;\n    private\n      rbracesExpected = 0;\n    private\n      context =\n        ParseContextFlags.None;\n\n    // Cache of expression start and input indeces to the absolute source span they map to,\n    used to\n    // prevent creating superfluous source spans in `sourceSpan`.\n    // A serial of the expression start\n    and input index is used for mapping because both are stateful\n    // and may change for subsequent expressions\n    visited by the parser.\n    private\n      sourceSpanCache = new Map<string, AbsoluteSourceSpan>();\n\n    index: number =\n      0;\n\n    constructor(\n      public\n        input: string, public\n        location: any, public\n        absoluteOffset: number, public\n        tokens: Token[], public\n        inputLength: number, public\n        parseAction: boolean, private\n        errors: ParserError[],\n        private\n        offset: number) {\n    }\n\n    peek(offset: number): Token {\n      const i = this.index + offset;\n      return i <\n        this.tokens.length ? this.tokens[i] : EOF;\n    }\n\n    get next(): Token {\n      return this.peek(0);\n    }\n\n    /** Whether\n    all the parser input has been processed. */\n    get atEOF(): boolean {\n      return this.index >= this.tokens.length;\n    }\n\n    /**\n     * Index of the next token to be processed, or the end of the last token if all have been\n     * processed.\n     */\n    get inputIndex(): number {\n      return this.atEOF ? this.currentEndIndex\n        : this.next.index + this.offset;\n    }\n\n    /**\n     * End index of the last processed token, or the start of the first token\n    if none have been\n     * processed.\n     */\n    get currentEndIndex(): number {\n      if (this.index > 0) {\n        const\n          curToken = this.peek(-1);\n        return curToken.end + this.offset;\n      }\n      // No tokens have been processed yet;\n      return the next token's start or the length of the input\n      // if there is no token.\n      if (this.tokens.length === 0) {\n        return this.inputLength + this.offset;\n      }\n      return this.next.index + this.offset;\n    }\n\n    /**\n     * Returns the\n    absolute offset of the start of the current token.\n     */\n    get currentAbsoluteOffset(): number {\n      return\n        this.absoluteOffset + this.inputIndex;\n    }\n\n    span(start: number) {\n      return new ParseSpan(start,\n        this.currentEndIndex);\n    }\n\n    sourceSpan(start: number): AbsoluteSourceSpan {\n      const serial =\n        `${start}@${this.inputIndex}`;\n      if (!this.sourceSpanCache.has(serial))\n        {\n          this.sourceSpanCache.set(serial, this.span(start).toAbsolute(this.absoluteOffset));\n        }\n      return\n        this.sourceSpanCache.get(serial)!;\n    }\n\n    advance() {\n      this.index++;\n    }\n\n    /**\n     * Executes a callback in\n    the provided context.\n     */\n    private\n      withContext<T>(context: ParseContextFlags, cb: () => T): T {\n      this.context\n        |= context;\n      const ret = cb();\n      this.context\n        ^= context;\n      return ret;\n    }\n\n    consumeOptionalCharacter(code:\n      number): boolean {\n      if (this.next.isCharacter(code)) {\n        this.advance();\n        return true;\n      } else {\n        return false;\n      }\n    }\n\n    peekKeywordLet(): boolean {\n      return this.next.isKeywordLet();\n    }\n\n    peekKeywordAs(): boolean {\n      return this.next.isKeywordAs();\n    }\n\n    /**\n     * Consumes an expected\n    character, otherwise emits an error about the missing expected character\n     * and skips over the token stream until\n    reaching a recoverable point.\n     */\n    * See `this.error` and `this.skip`\n    for more details.\n     */\n    expectCharacter(code: number) {\n      if (this.consumeOptionalCharacter(code)) return;\n      this.error(`Missing expected ${String.fromCharCode(code)}`);\n    }\n\n    consumeOptionalOperator(op: string):\n      boolean {\n      if (this.next.isOperator(op)) {\n        this.advance();\n        return true;\n      } else {\n        return false;\n      }\n    }\n\n    expectOperator(operator: string) {\n      if (this.consumeOptionalOperator(operator)) return;\n      this.error(`Missing expected operator ${operator}`);\n    }\n\n    prettyPrintToken(tok: Token): string {\n      return tok\n        === EOF ? 'end of input' : `token ${tok}`;\n    }\n\n    expectIdentifierOrKeyword(): string {\n      const n = this.next;\n      if (!n.isIdentifier() && !n.isKeyword()) {\n        this.error(`Unexpected ${this.prettyPrintToken(n)}, expected`

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identifier or keyword');\n    return ";\n    }\n    this.advance();\n    return n.toString() as string;\n    }\n\n    expectIdentifierOrKeywordOrString(): string {\n    const
    n = this.next;\n    if (!n.isIdentifier() && !n.isKeyword() && !n.isString()) {\n    this.error('Unexpected
    ${this.prettyPrintToken(n)}, expected identifier, keyword, or string');\n    return ";\n    }\n    this.advance();\n
    return n.toString() as string;\n    }\n\n    parseChain(): AST {\n    const exprs: AST[] = [];\n    const start =
    this.inputIndex;\n    while (this.index < this.tokens.length) {\n    const expr = this.parsePipe();\n
    exprs.push(expr);\n\n    if (this.consumeOptionalCharacter(chars.$SEMICOLON)) {\n    if (!this.parseAction)
    {\n    this.error('Binding expression cannot contain chained expression');\n    }\n    while
    (this.consumeOptionalCharacter(chars.$SEMICOLON)) {\n    } // read all semicolons\n    } else if (this.index <
    this.tokens.length) {\n    this.error('Unexpected token '${this.next}');\n    }\n    }\n    if (exprs.length == 0)
    return new EmptyExpr(this.span(start), this.sourceSpan(start));\n    if (exprs.length ==
    1) return exprs[0];\n    return new Chain(this.span(start), this.sourceSpan(start), exprs);\n    }\n\n    parsePipe(): AST
    {\n    let result = this.parseExpression();\n    if (this.consumeOptionalOperator('|')) {\n    if (this.parseAction) {\n
    this.error('Cannot have a pipe in an action expression');\n    }\n    do {\n    const nameStart =
    this.inputIndex;\n    const name = this.expectIdentifierOrKeyword();\n    const nameSpan =
    this.sourceSpan(nameStart);\n    const args: AST[] = [];\n    while
    (this.consumeOptionalCharacter(chars.$COLON)) {\n    args.push(this.parseExpression());\n    }\n    const
    {start} = result.span;\n    result =\n    new BindingPipe(this.span(start), this.sourceSpan(start), result, name,
    args, nameSpan);\n    } while (this.consumeOptionalOperator('|'));\n    }\n\n    return result;\n    }\n\n    parseExpression(): AST {\n    return this.parseConditional();\n    }\n\n    parseConditional(): AST {\n    const start
    = this.inputIndex;\n    const result = this.parseLogicalOr();\n\n    if (this.consumeOptionalOperator('?')) {\n    const
    yes = this.parsePipe();\n    let no: AST;\n    if (!this.consumeOptionalCharacter(chars.$COLON)) {\n    const
    end = this.inputIndex;\n    const expression = this.input.substring(start, end);\n    this.error('Conditional
    expression ${expression} requires all 3 expressions');\n    no = new EmptyExpr(this.span(start),
    this.sourceSpan(start));\n    } else {\n    no = this.parsePipe();\n    }\n    return new Conditional(this.span(start),
    this.sourceSpan(start), result, yes, no);\n    } else {\n    return result;\n    }\n    }\n\n    parseLogicalOr(): AST {\n    //
    '\n    let result = this.parseLogicalAnd();\n    while (this.consumeOptionalOperator('||')) {\n    const right =
    this.parseLogicalAnd();\n    const {start} = result.span;\n    result = new Binary(this.span(start),
    this.sourceSpan(start), '||', result, right);\n    }\n
    return result;\n    }\n\n    parseLogicalAnd(): AST {\n    // '&&'\n    let result = this.parseEquality();\n    while
    (this.consumeOptionalOperator('&&')) {\n    const right = this.parseEquality();\n    const {start} = result.span;\n
    result = new Binary(this.span(start), this.sourceSpan(start), '&&', result, right);\n    }\n    return result;\n    }\n\n    parseEquality(): AST {\n    // '==', '!=', '===', '!=='\n    let result = this.parseRelational();\n    while (this.next.type ==
    TokenType.Operator) {\n    const operator = this.next.strValue;\n    switch (operator) {\n    case '==':\n    case
    '===':\n    case '!=':\n    case '!==':\n    this.advance();\n    const right = this.parseRelational();\n
    const {start} = result.span;\n    result = new Binary(this.span(start), this.sourceSpan(start), operator, result,
    right);\n    continue;\n    }\n    break;\n    }\n    return result;\n    }\n\n    parseRelational(): AST {\n    // '<', '>',
    '<=', '>='\n    let result = this.parseAdditive();\n    while (this.next.type == TokenType.Operator) {\n    const
    operator = this.next.strValue;\n    switch (operator) {\n    case '<':\n    case '>':\n    case '<=':\n    case
    '>=':\n    this.advance();\n    const right = this.parseAdditive();\n    const {start} = result.span;\n
    result = new Binary(this.span(start), this.sourceSpan(start), operator, result, right);\n    continue;\n    }\n
    break;\n    }\n    return result;\n    }\n\n    parseAdditive(): AST {\n    // '+', '-'\n    let result =
    this.parseMultiplicative();\n    while (this.next.type == TokenType.Operator) {\n    const operator =
    this.next.strValue;\n    switch (operator) {\n    case '+':\n    case '-':\n    this.advance();\n    let right =
    this.parseMultiplicative();\n    const {start} = result.span;\n    result = new Binary(this.span(start),
    this.sourceSpan(start), operator, result,
    right);\n    continue;\n    }\n    break;\n    }\n    return result;\n    }\n\n    parseMultiplicative(): AST {\n    // '*',
    '%', '/'\n    let result = this.parsePrefix();\n    while (this.next.type == TokenType.Operator) {\n    const operator =

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this.next.strValue;\n    switch (operator) {\n        case '*':\n            case '%':\n            case '/':\n                this.advance();\n                let right = this.parsePrefix();\n                const {start} = result.span;\n                result = new Binary(this.span(start),\n                this.sourceSpan(start), operator, result, right);\n                continue;\n            }\n            break;\n        }\n        return result;\n    }\n\n    parsePrefix(): AST {\n        if (this.next.type == TokenType.Operator) {\n            const start = this.inputIndex;\n            const operator = this.next.strValue;\n            let result: AST;\n            switch (operator) {\n                case '+':\n                    this.advance();\n                    result = this.parsePrefix();\n                    return Unary.createPlus(this.span(start), this.sourceSpan(start),\n                    result);\n                case '-':\n                    this.advance();\n                    result = this.parsePrefix();\n                    return\n                    Unary.createMinus(this.span(start), this.sourceSpan(start), result);\n                case '!':\n                    this.advance();\n                    result = this.parsePrefix();\n                    return new PrefixNot(this.span(start), this.sourceSpan(start), result);\n            }\n        }\n        return this.parseCallChain();\n    }\n\n    parseCallChain(): AST {\n        let result = this.parsePrimary();\n        const resultStart = result.span.start;\n        while (true) {\n            if (this.consumeOptionalCharacter(chars.$PERIOD)) {\n                result = this.parseAccessMemberOrMethodCall(result, false);\n            }\n            else if (this.consumeOptionalOperator('?')) {\n                result = this.parseAccessMemberOrMethodCall(result, true);\n            }\n            else if\n            (this.consumeOptionalCharacter(chars.$LBRACKET)) {\n                this.withContext(ParseContextFlags.Writable, () =>\n                {\n                    this.rbracketsExpected++;\n                    const key =\n                    this.parsePipe();\n                    if (key instanceof EmptyExpr) {\n                        this.error(`Key access cannot be empty`);\n                    }\n                    this.rbracketsExpected--;\n                    this.expectCharacter(chars.$RBRACKET);\n                    if\n                    (this.consumeOptionalOperator('=')) {\n                        const value = this.parseConditional();\n                        result = new\n                        KeyedWrite(\n                            this.span(resultStart), this.sourceSpan(resultStart), result, key, value);\n                    }\n                    else {\n                        result =\n                        new KeyedRead(this.span(resultStart), this.sourceSpan(resultStart), result, key);\n                    }\n                }\n            }\n            else if (this.consumeOptionalCharacter(chars.$LPAREN)) {\n                this.rparensExpected++;\n                const\n                args = this.parseCallArguments();\n                this.rparensExpected--;\n                this.expectCharacter(chars.$RPAREN);\n                result =\n                new FunctionCall(this.span(resultStart), this.sourceSpan(resultStart), result, args);\n            }\n            else if\n            (this.consumeOptionalOperator('!'))\n            {\n                result = new NonNullAssert(this.span(resultStart), this.sourceSpan(resultStart), result);\n            }\n            else {\n                return result;\n            }\n        }\n    }\n\n    parsePrimary(): AST {\n        const start = this.inputIndex;\n        if\n        (this.consumeOptionalCharacter(chars.$LPAREN)) {\n            this.rparensExpected++;\n            const result =\n            this.parsePipe();\n            this.rparensExpected--;\n            this.expectCharacter(chars.$RPAREN);\n            return result;\n        }\n        else if (this.next.isKeywordNull()) {\n            this.advance();\n            return new LiteralPrimitive(this.span(start),\n            this.sourceSpan(start), null);\n        }\n        else if (this.next.isKeywordUndefined()) {\n            this.advance();\n            return new\n            LiteralPrimitive(this.span(start), this.sourceSpan(start), void 0);\n        }\n        else if (this.next.isKeywordTrue()) {\n            this.advance();\n            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), true);\n        }\n        else if\n        (this.next.isKeywordFalse()) {\n            this.advance();\n            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), false);\n        }\n        else if\n        (this.next.isKeywordThis()) {\n            this.advance();\n            return new ThisReceiver(this.span(start),\n            this.sourceSpan(start));\n        }\n        else if (this.consumeOptionalCharacter(chars.$LBRACKET)) {\n            this.rbracketsExpected++;\n            const elements = this.parseExpressionList(chars.$RBRACKET);\n            this.rbracketsExpected--;\n            this.expectCharacter(chars.$RBRACKET);\n            return new\n            LiteralArray(this.span(start), this.sourceSpan(start), elements);\n        }\n        else if\n        (this.next.isCharacter(chars.$LBRACE)) {\n            return this.parseLiteralMap();\n        }\n        else if (this.next.isIdentifier())\n        {\n            return this.parseAccessMemberOrMethodCall(\n                new ImplicitReceiver(this.span(start),\n                this.sourceSpan(start)), false);\n        }\n        else if (this.next.isNumber()) {\n            const value = this.next.toNumber();\n            this.advance();\n            return new LiteralPrimitive(this.span(start),\n            this.sourceSpan(start), value);\n        }\n        else if (this.next.isString()) {\n            const literalValue = this.next.toString();\n            this.advance();\n            return new LiteralPrimitive(this.span(start), this.sourceSpan(start), literalValue);\n        }\n        else if\n        (this.index >= this.tokens.length) {\n            this.error(`Unexpected end of expression: ${this.input}`);\n            return new\n            EmptyExpr(this.span(start), this.sourceSpan(start));\n        }\n        else {\n            this.error(`Unexpected token ${this.next}`);\n            return new\n            EmptyExpr(this.span(start), this.sourceSpan(start));\n        }\n    }\n\n    parseExpressionList(terminator:

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number): AST[] {\n  const result: AST[] = [];\n  if (!this.next.isCharacter(terminator)) {\n    do {\n      result.push(this.parsePipe());\n    } while (this.consumeOptionalCharacter(chars.$COMMA));\n  }\n  return result;\n }\n\n parseLiteralMap(): LiteralMap {\n  const keys: LiteralMapKey[] = [];\n  const values: AST[] = [];\n  const start = this.inputIndex;\n  this.expectCharacter(chars.$LBRACE);\n  if (!this.consumeOptionalCharacter(chars.$RBRACE)) {\n    this.rbracesExpected++;\n    do {\n      const quoted = this.next.isString();\n      const key = this.expectIdentifierOrKeywordOrString();\n      keys.push({key, quoted});\n      this.expectCharacter(chars.$COLON);\n      values.push(this.parsePipe());\n    } while (this.consumeOptionalCharacter(chars.$COMMA));\n    this.rbracesExpected--;\n  }\n  this.expectCharacter(chars.$RBRACE);\n  return new LiteralMap(this.span(start), this.sourceSpan(start), keys, values);\n }\n\n parseAccessMemberOrMethodCall(receiver: AST, isSafe: boolean = false): AST {\n  const start = receiver.span.start;\n  const nameStart = this.inputIndex;\n  const id = this.expectIdentifierOrKeyword();\n  const nameSpan = this.sourceSpan(nameStart);\n  if (this.consumeOptionalCharacter(chars.$LPAREN)) {\n    this.rparensExpected++;\n    const args = this.parseCallArguments();\n    this.expectCharacter(chars.$RPAREN);\n    this.rparensExpected--;\n    const span = this.span(start);\n    const sourceSpan = this.sourceSpan(start);\n    return isSafe ? new SafeMethodCall(span, sourceSpan, nameSpan, receiver, id, args) :\n      new MethodCall(span, sourceSpan, nameSpan, receiver, id, args);\n  } else {\n    if (isSafe) {\n      if (this.consumeOptionalOperator('=')) {\n        this.error("The '=' operator cannot be used in the assignment");\n        return new EmptyExpr(this.span(start), this.sourceSpan(start));\n      } else {\n        return new SafePropertyRead(this.span(start), this.sourceSpan(start), nameSpan, receiver, id);\n      }\n    } else {\n      if (this.consumeOptionalOperator('=')) {\n        if (!this.parseAction) {\n          this.error('Bindings cannot contain assignments');\n          return new EmptyExpr(this.span(start), this.sourceSpan(start));\n        }\n        const value = this.parseConditional();\n        return new PropertyWrite(this.span(start), this.sourceSpan(start), nameSpan, receiver, id, value);\n      } else {\n        return new PropertyRead(this.span(start), this.sourceSpan(start), nameSpan, receiver, id);\n      }\n    }\n  }\n\n parseCallArguments(): BindingPipe[] {\n  if (this.next.isCharacter(chars.$RPAREN)) return [];\n  const positionals: AST[] = [];\n  do {\n    positionals.push(this.parsePipe());\n  } while (this.consumeOptionalCharacter(chars.$COMMA));\n  return positionals as BindingPipe[];\n }\n\n /**\n  * Parses an identifier, a keyword, a string with an optional `~` in between,\n  * and returns the string along with its absolute source span.\n  */\n expectTemplateBindingKey(): TemplateBindingIdentifier {\n  let result = "";\n  let operatorFound = false;\n  const start = this.currentAbsoluteOffset;\n  do {\n    result += this.expectIdentifierOrKeywordOrString();\n    operatorFound = this.consumeOptionalOperator('~');\n    if (operatorFound) {\n      result += '~';\n    }\n  } while (operatorFound);\n  return {\n    source: result,\n    span: new AbsoluteSourceSpan(start, start + result.length),\n  };\n }\n\n /**\n  * Parse microsyntax template expression and return a list of bindings or\n  * parsing errors in case the given expression is invalid.\n  */\n /**\n  * For example,\n  * <div *ngFor="let item of items; index as i; trackBy: func">\n  * contains five bindings:\n  * 1. ngFor -> null\n  * 2. item -> NgForOfContext.$implicit\n  * 3. ngForOf -> items\n  * 4. i -> NgForOfContext.index\n  * 5. ngForTrackBy -> func\n  */\n /**\n  * For a full description of the microsyntax grammar, see\n  * https://gist.github.com/mhevery/d3530294cff2e4a1b3fe15ff75d08855\n  */\n /**\n  * @param templateKey name of the microsyntax directive, like ngIf, ngFor,\n  * without the *, along with its absolute span.\n  */\n parseTemplateBindings(templateKey: TemplateBindingIdentifier): TemplateBindingParseResult {\n  const bindings: TemplateBinding[] = [];\n  // The first binding is for the template key itself\n  // In *ngFor="let item of items", key = "ngFor", value = null\n  // In *ngIf="cond | pipe", key = "ngIf", value = "cond | pipe"\n  bindings.push(...this.parseDirectiveKeywordBindings(templateKey));\n  while (this.index < this.tokens.length) {\n    // If it starts with 'let', then this must be variable declaration\n    const letBinding = this.parseLetBinding();\n    if (letBinding) {\n      bindings.push(letBinding);\n    } else {\n      // Two possible cases here, either `value\n      // as` key or `directive-keyword expression`. We don't know which case, but both\n      // `value` and

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"directive-keyword\" are template binding key, so consume\n    // the key first.\n    const key =  
this.expectTemplateBindingKey();\n  
    // Peek at the next token, if it is \"as\" then this must be variable\n    // declaration.\n    const binding =  
this.parseAsBinding(key);\n    if (binding) {\n        bindings.push(binding);\n    } else {\n        // Otherwise  
the key must be a directive keyword, like \"of\". Transform\n        // the key to actual key. Eg. of -> ngForOf,  
trackBy -> ngForTrackBy\n        key.source = templateKey.source + key.source[0].toUpperCase() +  
key.source.substring(1);\n        bindings.push(...this.parseDirectiveKeywordBindings(key));\n    }\n}\nthis.consumeStatementTerminator();\n}\nreturn new TemplateBindingParseResult(bindings, [] /* warnings  
*/, this.errors);\n} \n\n /**\n * Parse a directive keyword, followed by a mandatory expression.\n * For example,  
\"of items\", \"trackBy: func\".\n * The bindings are: ngForOf -> items, ngForTrackBy -> func\n * There could be  
an optional \"as\" binding that follows the expression.\n * For  
example,\n * ```\n * *ngFor=\"let item of items | slice:0:1 as collection\".\n *      ^^  
^^^^^^^^^^^^^^^^^^ ^^^^^^^^^^^^^^^\n *           keyword   bound target  optional 'as' binding\n *      ```\n * @param key binding key, for example, ngFor, ngIf, ngForOf, along with its\n * absolute span.\n */\nprivate parseDirectiveKeywordBindings(key: TemplateBindingIdentifier): TemplateBinding[] {\n    const bindings:  
TemplateBinding[] = [];\n    this.consumeOptionalCharacter(chars.$COLON); // trackBy: trackByFunction\n    const value = this.getDirectiveBoundTarget();\n    let spanEnd = this.currentAbsoluteOffset;\n    // The binding  
could optionally be followed by \"as\". For example,\n    // *ngIf=\"cond | pipe as x\". In this case, the key in the  
\"as\" binding\n    // is \"x\" and the value is the template key itself (\"ngIf\"). Note that the\n    // 'key' in the current  
context now becomes the \"value\" in the next binding.\n    const asBinding = this.parseAsBinding(key);\n    if (!asBinding) {\n        this.consumeStatementTerminator();\n        spanEnd = this.currentAbsoluteOffset;\n    }\n    const sourceSpan = new AbsoluteSourceSpan(key.span.start, spanEnd);\n    bindings.push(new  
ExpressionBinding(sourceSpan, key, value));\n    if (asBinding) {\n        bindings.push(asBinding);\n    }\n    return  
bindings;\n} \n\n /**\n * Return the expression AST for the bound target of a directive keyword\n * binding. For  
example,\n * ```\n * *ngIf=\"condition | pipe\"\n *      ^^^^^^^^^^^^^^^^^^ bound target for \"ngIf\"\n * *ngFor=\"let item of items\"\n *      ^^^^^ bound target for \"ngForOf\"\n *      ```\n * private  
getDirectiveBoundTarget(): ASTWithSource|null {\n    if (this.next === EOF || this.peekKeywordAs() ||  
this.peekKeywordLet())\n        return null;\n    const ast = this.parsePipe(); // example: \"condition | async\"\n    const {start, end} = ast.span;\n    const value = this.input.substring(start,  
end);\n    return new ASTWithSource(ast, value, this.location, this.absoluteOffset + start, this.errors);\n} \n\n /**\n * Return the binding for a variable declared using `as`. Note that the order\n * of the key-value pair in this  
declaration is reversed. For example,\n * ```\n * *ngFor=\"let item of items; index as i\"\n *      ^^^^^  ^\n *          value  key\n *      ```\n * @param value name of the value in the declaration,  
\"ngIf\" in the example\n * above, along with its absolute span.\n */\nprivate parseAsBinding(value:  
TemplateBindingIdentifier): TemplateBinding|null {\n    if (!this.peekKeywordAs())\n        return null;\n    this.advance(); // consume the 'as' keyword\n    const key = this.expectTemplateBindingKey();\n    this.consumeStatementTerminator();\n    const sourceSpan = new AbsoluteSourceSpan(value.span.start,  
this.currentAbsoluteOffset);\n    return new VariableBinding(sourceSpan,  
key, value);\n} \n\n /**\n * Return the binding for a variable declared using `let`. For example,\n * ```\n * *ngFor=\"let item of items; let i=index\"\n *      ^^^^^^^^^  ^^^^^^^^^^^^^^\n *              value         key\n *      ```\n * In the first binding,  
`item` is bound to `NgForOfContext.$implicit`. In the second binding, `i` is bound to  
`NgForOfContext.index`.\n */\nprivate parseLetBinding(): TemplateBinding|null {\n    if  
(!this.peekKeywordLet())\n        return null;\n    const spanStart = this.currentAbsoluteOffset;\n    this.advance(); // consume the 'let' keyword\n    const key = this.expectTemplateBindingKey();\n    let value:  
TemplateBindingIdentifier|null = null;\n    if (this.consumeOptionalOperator('='))\n        value =  
this.expectTemplateBindingKey();\n    this.consumeStatementTerminator();\n    const sourceSpan = new  
AbsoluteSourceSpan(spanStart, this.currentAbsoluteOffset);\n    return new VariableBinding(sourceSpan, key,  
value);\n}
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/**\n * Consume the optional statement terminator: semicolon or comma.\n */\n private\n consumeStatementTerminator() {\n   this.consumeOptionalCharacter(chars.$SEMICOLON) ||\n   this.consumeOptionalCharacter(chars.$COMMA);\n }\n\n /**\n  * Records an error and skips over the token\n  stream until reaching a recoverable point. See\n  * `this.skip` for more details on token skipping.\n  */\n  error(message: string, index: number|null = null) {\n    this.errors.push(new ParserError(message, this.input,\n    this.locationText(index), this.location));\n    this.skip();\n }\n\n private locationText(index: number|null = null) {\n   if (index == null) index = this.index;\n   return (index < this.tokens.length) ? `at column ${this.tokens[index].index\n   + 1} in`\n   `at the end of the expression`;\n }\n\n /**\n  * Error recovery should skip\n  tokens until it encounters a recovery point. skip() treats\n  * the end of input and a ';' as unconditionally\n  a recovery point. It also treats ')',\n  * '}' and ']' as conditional recovery points if one of calling productions is\n  expecting\n  * one of these symbols. This allows skip() to recover from errors such as '(a.) + 1' allowing\n  * more\n  of the AST to be retained (it doesn't skip any tokens as the ')' is retained because\n  * of the '(' begins an '(' <expr>' '\n  production). The recovery points of grouping symbols\n  * must be conditional as they must be skipped if none of\n  the calling productions are not\n  * expecting the closing token else we will never make progress in the case of an\n  * extraneous group closing symbol (such as a stray ')'). This is not the case for ';' because\n  * parseChain() is\n  always the root production and it expects a ';'. \n  * \n  * Furthermore, the presence of a stateful context can add\n  more recovery points.\n  * - in a `Writable` context, we are able to recover after seeing the `=` operator, which\n  * signals the presence of an independent\n  rvalue expression following the `=` operator.\n  * \n  * If a production expects one of these token it increments the\n  corresponding nesting count,\n  * and then decrements it just prior to checking if the token is in the input.\n  */\n  private skip() {\n    let n = this.next;\n    while (this.index < this.tokens.length &&\n    !n.isCharacter(chars.$SEMICOLON) &&n (this.rparensExpected <= 0 || !n.isCharacter(chars.$RPAREN))\n    &&n (this.rbracesExpected <= 0 || !n.isCharacter(chars.$RBRACE)) &&n (this.rbracketsExpected <=\n    0 || !n.isCharacter(chars.$RBRACKET)) &&n (!(this.context & ParseContextFlags.Writable) ||\n    !n.isOperator('='))) {\n      if (this.next.isError()) {\n        this.errors.push(\n          new\n          ParserError(this.next.toString()!, this.input, this.locationText(), this.location);\n        }\n        this.advance();\n        n =\n        this.next;\n      }\n    }\n  }\n}\n\nclass SimpleExpressionChecker implements AstVisitor {\n  errors: string[] = [];\n\n  visitImplicitReceiver(ast: ImplicitReceiver, context: any) {}\n\n  visitThisReceiver(ast: ThisReceiver, context: any)\n  {}\n\n  visitInterpolation(ast: Interpolation, context: any) {}\n\n  visitLiteralPrimitive(ast: LiteralPrimitive, context:\n  any) {}\n\n  visitPropertyRead(ast: PropertyRead, context: any) {}\n\n  visitPropertyWrite(ast: PropertyWrite,\n  context: any) {}\n\n  visitSafePropertyRead(ast: SafePropertyRead, context: any) {}\n\n  visitMethodCall(ast:\n  MethodCall, context: any) {}\n\n  visitSafeMethodCall(ast: SafeMethodCall, context: any) {}\n\n  visitFunctionCall(ast: FunctionCall, context: any) {}\n\n  visitLiteralArray(ast: LiteralArray, context: any) {\n    this.visitAll(ast.expressions, context);\n  }\n\n  visitLiteralMap(ast: LiteralMap, context: any) {\n    this.visitAll(ast.values, context);\n  }\n\n  visitUnary(ast: Unary, context: any) {}\n\n  visitBinary(ast: Binary,\n  context: any) {}\n\n  visitPrefixNot(ast: PrefixNot, context: any) {}\n\n  visitNonNullAssert(ast: NonNullAssert,\n  context: any) {}\n\n  visitConditional(ast: Conditional, context: any) {}\n\n  visitPipe(ast: BindingPipe, context:\n  any) {\n    this.errors.push('pipes');\n  }\n\n  visitKeyedRead(ast: KeyedRead, context: any) {}\n\n  visitKeyedWrite(ast: KeyedWrite, context: any) {}\n\n  visitAll(ast: any[], context: any): any[] {\n    return\n    asts.map(node => node.visit(this, context));\n  }\n\n  visitChain(ast: Chain, context: any) {}\n\n  visitQuote(ast:\n  Quote, context: any) {}\n}\n\n/**\n * This class implements SimpleExpressionChecker used in View Engine and\n  performs more strict checks\n  * to make sure host bindings do not contain pipes. In View Engine, having pipes in\n  host bindings is\n  * not supported as well, but in some cases (like `!(value | async)`) the error is not triggered at\n  * compile time. In order to preserve View Engine behavior, more strict checks are introduced for\n  * Ivy mode only.\n  */\n\nclass IvySimpleExpressionChecker extends RecursiveAstVisitor implements SimpleExpressionChecker\n{\n  errors: string[] = [];\n\n  visitPipe() {\n    this.errors.push('pipes');\n  }\n}\n\n"/**\n * @license\n * Copyright\n  Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n  found in the LICENSE file at https://angular.io/license\n */\n\nimport {SecurityContext} from '../core';\n\n

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=====
=====\\n//
=====
=====\\n// ===== STOP - STOP - STOP - STOP - STOP - STOP
=====\\n//
=====
=====\\n//
=====
=====\\n//\\n// DO NOT EDIT THIS LIST OF SECURITY SENSITIVE PROPERTIES
WITHOUT A SECURITY REVIEW!\\n//
    Reach out to mprobst for details.\\n//\\n//
=====
=====\\n\\n** Map from tagName|propertyName SecurityContext. Properties applying to all tags use
**'. *\\nlet _SECURITY_SCHEMA!: {[k: string]: SecurityContext};\\n\\nexport function SECURITY_SCHEMA():
{[k: string]: SecurityContext} {\\n if (!_SECURITY_SCHEMA) {\\n _SECURITY_SCHEMA = {};\\n // Case is
insignificant below, all element and attribute names are lower-cased for lookup.\\n\\n
registerContext(SecurityContext.HTML, [\\n 'iframe|srcdoc',\\n '*|innerHTML',\\n '*|outerHTML',\\n ]);\\n
registerContext(SecurityContext.STYLE, ['*|style']);\\n // NB: no SCRIPT contexts here, they are never allowed
due to the parser stripping them.\\n registerContext(SecurityContext.URL, [\\n '*|formAction', 'area|href',
'area|ping', 'audio|src', 'a|href',\\n 'a|ping', 'blockquote|cite', 'body|background', 'del|cite',
'form|action',\\n 'img|src', 'img|srcset', 'input|src', 'ins|cite', 'q|cite',\\n 'source|src', 'source|srcset',
'track|src', 'video|poster', 'video|src',\\n ]);\\n registerContext(SecurityContext.RESOURCE_URL, [\\n
'applet|code',\\n 'applet|codebase',\\n 'base|href',\\n 'embed|src',\\n 'frame|src',\\n 'head|profile',\\n
'html|manifest',\\n 'iframe|src',\\n 'link|href',\\n 'media|src',\\n 'object|codebase',\\n 'object|data',\\n
'script|src',\\n ]);\\n }\\n return _SECURITY_SCHEMA;\\n}\\n\\nfunction registerContext(ctx: SecurityContext,
specs: string[]) {\\n for (const spec of specs) _SECURITY_SCHEMA[spec.toLowerCase()] = ctx;\\n}\\n\\n"/**\\n
* @license\\n * Copyright Google LLC All Rights Reserved.\\n *\\n * Use of this source code is governed by an MIT-
style license that can be\\n * found in the LICENSE file at https://angular.io/license\\n */\\n\\nimport
{SchemaMetadata, SecurityContext} from './core';\\n\\nexport
abstract class ElementSchemaRegistry {\\n abstract hasProperty(tagName: string, propName: string, schemaMetas:
SchemaMetadata[]): boolean;\\n abstract hasElement(tagName: string, schemaMetas: SchemaMetadata[]):
boolean;\\n abstract securityContext(elementName: string, propName: string, isAttribute: boolean):\\n
SecurityContext;\\n abstract allKnownElementNames(): string[];\\n abstract getMappedPropName(propName:
string): string;\\n abstract getDefaultComponentElementName(): string;\\n abstract validateProperty(name: string):
{error: boolean, msg?: string};\\n abstract validateAttribute(name: string): {error: boolean, msg?: string};\\n abstract
normalizeAnimationStyleProperty(propName: string): string;\\n abstract normalizeAnimationStyleValue(\\n
camelCaseProp: string, userProvidedProp: string,\\n val: string|number): {error: string, value: string};\\n}\\n"/**\\n
* @license\\n * Copyright Google LLC All Rights Reserved.\\n *\\n * Use of this source code is governed
by an MIT-style license that can be\\n * found in the LICENSE file at https://angular.io/license\\n */\\n\\nimport
{CUSTOM_ELEMENTS_SCHEMA, NO_ERRORS_SCHEMA, SchemaMetadata, SecurityContext} from
'./core';\\n\\nimport {isNgContainer, isNgContent} from './ml_parser/tags';\\nimport {dashCaseToCamelCase} from
'./util';\\n\\nimport {SECURITY_SCHEMA} from './dom_security_schema';\\nimport {ElementSchemaRegistry}
from './element_schema_registry';\\n\\nconst BOOLEAN = 'boolean';\\nconst NUMBER = 'number';\\nconst STRING
= 'string';\\nconst OBJECT = 'object';\\n\\n/**\\n * This array represents the DOM schema. It encodes inheritance,
properties, and events.\\n *\\n * ## Overview\\n *\\n * Each line represents one kind of element. The
`element_inheritance` and properties are joined\\n * using `element_inheritance|properties` syntax.\\n *\\n * ##
Element Inheritance\\n *\\n * The `element_inheritance` can be further subdivided as
`element1,element2,...^parentElement`.\\n * Here the individual elements are separated by

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`,` (commas). Every element in the list\n * has identical properties.\n * An `element` may inherit additional properties from `parentElement` If no `parentElement` is\n * specified then `""` (blank) element is assumed.\n * NOTE: The blank element inherits from root `[Element]` element, the super element of all\n * elements.\n * NOTE an element prefix such as `:svg:` has no special meaning to the schema.\n * ## Properties\n * Each element has a set of properties separated by`,` (commas). Each property can be prefixed\n * by a special character designating its type:\n * - (no prefix): property is a string.\n * - `*`: property represents an event.\n * - `!`: property is a boolean.\n * - `#`: property is a number.\n * - `%`: property is an object.\n * ## Query\n * The class creates an internal squas representation which allows to easily answer the query of\n * if a given property exist on a given element.\n * NOTE: We don't yet support querying for types or events.\n * NOTE: This schema is auto extracted from `schema_extractor.ts` located in the test folder,\n * see dom_element_schema_registry_spec.ts\n */

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=====\\n\\nconst
SCHEMA: string[] = [\\n
[Element]]textContent,%classList,className,id,innerHTML,*beforecopy,*beforecut,*beforepaste,*copy,*cut,*paste,*search,*selectstart,*webkitfullscreenchange,*webkitfullscreenerror,*wheel,outerHTML,#scrollLeft,#scrollTop,slot'+\\n    /* added manually to avoid breaking changes */\\n
,'message,*mozfullscreenchange,*mozfullscreenerror,*mozpointerlockchange,*mozpointerlockerror,*webglcontextcreationerror,*webglcontextlost,*webglcontextrestored',\\n
[HTMLElement]^[Element]]accessKey,contentEditable,dir,!draggable,!hidden,innerText,lang,*abort,*auxclick,*blur,*cancel,*canplay,*canplaythrough,*change,*click,*close,*contextmenu,*cuechange,*dblclick,*drag,*dragend,*dragenter,*dragleave,*dragover,*dragstart,*drop,*durationchange,*emptied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadeddata,*loadedmetadata,*loadstart,*lostpointercapture,*mousedown,*mouseenter,*mouseleave,*mousemove,*mouseout,*mouseover,*mouseup,*mousewheel,*pause,*play,*playing,*pointercancel,*pointerdown,*pointerenter,*pointerleave,*pointermove,*pointerout,*pointerover,*pointerup,*progress,*ratechange,*reset,*resize,*scroll,*seeked,*seeking,*select,*show,*stalled,*submit,*suspend,*timeupdate,*toggle,*volumechange,*waiting,outerText,!spellcheck,%style,#tabIndex,title,!translate',\\n
'abbr,address,article,aside,b,bdi,bdo,cite,code,dd,dfn,dt,em,figcaption,figure,footer,header,i,kbd,main,mark,nav,noscript,rb,rp,rt,rtc,ruby,s,samp,section,small,strong,sub,sup,u,var,wbr^[HTMLElement]]accessKey,contentEditable,dir,!draggable,!hidden,innerText,lang,*abort,*auxclick,*blur,*cancel,*canplay,*canplaythrough,*change,*click,*close,*contextmenu,*cuechange,*dblclick,*drag,*dragend,*dragenter,*dragleave,*dragover,*dragstart,*drop,*durationchange,*emptied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadeddata,*loadedmetadata,*loadstart,*lostpointercapture,*mousedown,*mouseenter,*mouseleave,*mousemove,*mouseout,*mouseover,*mouseup,*mousewheel,*pause,*play,*playing,*pointercancel,*pointerdown,*pointerenter,*pointerleave,*pointermove,*pointerout,*pointerover,*pointerup,*progress,*ratechange,*reset,*resize,*scroll,*seeked,*seeking,*select,*show,*stalled,*submit,*suspend,*timeupdate,*toggle,*volumechange,*waiting,outerText,!spellcheck,%style,#tabIndex,title,!translate',\\n

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'media^[HTMLElement]!autoplay,!controls,%controlsList,%crossOrigin,#currentTime,!defaultMuted,#defaultPlaybackRate,!disableRemotePlayback,!loop,!muted,*encrypted,*waitingforkey,#playbackRate,preload,src,%srcObject,#volume',\n

'svg^[HTMLElement]*abort,*auxclick,*blur,*cancel,*canplay,*canplaythrough,*change,*click,*close,*contextmenu,*cuechange,*dblclick,*drag,*dragend,*dragenter,*dragleave,*dragover,*dragstart,*drop,*durationchange,*emptied,*ended,*error,*focus,*gotpointercapture,*input,*invalid,*keydown,*keypress,*keyup,*load,*loadeddata,*loadedmetadata,*loadstart,*lostpointercapture,*mousedown,*mouseenter,*mouseleave,*mousemove,*mouseout,*mouseover,*mouseup,*mousewheel,*pause,*play,*playing,*pointercancel,*pointerdown,*pointerenter,*pointerleave,*pointermove,*pointerout,*pointerover,*pointerup,*progress,*ratechange,*reset,*resize,*scroll,*seeked,*seeking,*select,*show,*stalled,*submit,*suspend,*timeupdate,*toggle,*volumechange,*waiting,%style,#tabIndex',\n

'svg:graphics^:svg:|',\n 'svg:animation^:svg:|*begin,*end,*repeat',\n 'svg:geometry^:svg:|',\n

'svg:componentTransferFunction^:svg:|',\n 'svg:gradient^:svg:|',\n 'svg:textContent^:svg:graphics|',\n

'svg:textPositioning^:svg:textContent|',\n

'a^[HTMLElement]charset,coords,download,hash,host,hostname,href,hreflang,name,password,pathname,ping,port,protocol,referrerPolicy,rel,rev,search,shape,target,text,type,username',\n

'area^[HTMLElement]alt,coords,download,hash,host,hostname,href,!noHref,password,pathname,ping,port,protocol,referrerPolicy,rel,search,shape,target,username',\n

'audio^medial',\n 'br^[HTMLElement]clear',\n 'base^[HTMLElement]href,target',\n

'body^[HTMLElement]aLink,background,bgColor,link,*beforeunload,*blur,*error,*focus,*hashchange,*languagechange,*load,*message,*offline,*online,*pagehide,*pageshow,*popstate,*rejectionhandled,*resize,*scroll,*storage,*unhandledrejection,*unload,text,vLink',\n

'button^[HTMLElement]!autofocus,!disabled,formAction,formEnctype,formMethod,!formNoValidate,formTarget,name,type,value',\n 'canvas^[HTMLElement]#height,#width',\n 'content^[HTMLElement]select',\n

'dl^[HTMLElement]!compact',\n 'datalist^[HTMLElement]',\n 'details^[HTMLElement]!open',\n

'dialog^[HTMLElement]!open,returnValue',\n 'dir^[HTMLElement]!compact',\n 'div^[HTMLElement]align',\n

'embed^[HTMLElement]align,height,name,src,type,width',\n 'fieldset^[HTMLElement]!disabled,name',\n

'font^[HTMLElement]color,face,size',\n

'form^[HTMLElement]acceptCharset,action,autocomplete,encoding,enctype,method,name,!noValidate,target',\n

'frame^[HTMLElement]frameBorder,longDesc,marginHeight,marginWidth,name,!noResize,scrolling,src',\n

'frameset^[HTMLElement]cols,*beforeunload,*blur,*error,*focus,*hashchange,*languagechange,*load,*message,*offline,*online,*pagehide,*pageshow,*popstate,*rejectionhandled,*resize,*scroll,*storage,*unhandledrejection,*unload,rows',\n 'hr^[HTMLElement]align,color,!noShade,size,width',\n 'head^[HTMLElement]',\n

'h1,h2,h3,h4,h5,h6^[HTMLElement]align',\n 'html^[HTMLElement]version',\n

'iframe^[HTMLElement]align,!allowFullscreen,frameBorder,height,longDesc,marginHeight,marginWidth,name,referrerPolicy,%sandbox,scrolling,src,srcdoc,width',\n

'img^[HTMLElement]align,alt,border,%crossOrigin,#height,#hspace,!isMap,longDesc,lowsrc,name,referrerPolicy,sizes,src,srcset,useMap,#vspace,#width',\n

'input^[HTMLElement]accept,align,alt,autocapitalize,autocomplete,!autofocus,!checked,!defaultChecked,defaultValue,dirName,!disabled,%files,formAction,formEnctype,formMethod,!formNoValidate,formTarget,#height,!incremental,!indeterminate,max,#maxLength,min,#minLength,!multiple,name,pattern,placeholder,!readOnly,!required,selectionDirection,#selectionEnd,#selectionStart,#size,src,step,type,useMap,value,%valueAsDate,#valueAsNumber,#width',\n

'li^[HTMLElement]type,#value',\n 'label^[HTMLElement]htmlFor',\n 'legend^[HTMLElement]align',\n

'link^[HTMLElement]as,charset,%crossOrigin,!disabled,href,hreflang,integrity,media,referrerPolicy,rel,%relList,rev,%sizes,target,type',\n 'map^[HTMLElement]name',\n

'marquee^[HTMLElement]behavior,bgColor,direction,height,#hspace,#loop,#scrollAmount,#scrollDelay,!trueSpeed,#vspace,width',\n 'menu^[HTMLElement]!compact',\n

'meta^[HTMLElement]content,httpEquiv,name,scheme',\n

'meter^[HTMLInputElement]#[high,#low,#max,#min,#optimum,#value',\n 'ins,del^[HTMLInputElement]cite,dateTime',\n
'ol^[HTMLInputElement]#!compact,!reversed,#start,type',\n
'object^[HTMLInputElement]|align,archive,border,code,codeBase,codeType,data,!declare,height,#hspace,name,standby,type,useMap,#vspace,width',\n
'optgroup^[HTMLInputElement]#!disabled,label',\n
'option^[HTMLInputElement]#!defaultSelected,!disabled,label,!selected,text,value',\n
'output^[HTMLInputElement]|defaultValue,%htmlFor,name,value',\n 'p^[HTMLInputElement]|align',\n
'param^[HTMLInputElement]|name,type,value,valueType',\n 'picture^[HTMLInputElement]',\n
'pre^[HTMLInputElement]#[width',\n 'progress^[HTMLInputElement]#[max,#value',\n
'q,blockquote,cite^[HTMLInputElement]',\n
'script^[HTMLInputElement]!async,charset,%crossOrigin,!defer,event,htmlFor,integrity,src,text,type',\n
'select^[HTMLInputElement]!autofocus,!disabled,#length,!multiple,name,!required,#selectedIndex,#size,value',\n
'shadow^[HTMLInputElement]',\n 'slot^[HTMLInputElement]|name',\n
'source^[HTMLInputElement]|media,sizes,src,srcset,type',\n 'span^[HTMLInputElement]',\n
'style^[HTMLInputElement]!disabled,media,type',\n 'caption^[HTMLInputElement]|align',\n
'th,td^[HTMLInputElement]|abbr,align,axis,bgColor,ch,chOff,#colSpan,headers,height,!noWrap,#rowSpan,scope,vAlign,width',\n 'col,colgroup^[HTMLInputElement]|align,ch,chOff,#span,vAlign,width',\n
'table^[HTMLInputElement]|align,bgColor,border,%caption,cellPadding,cellSpacing,frame,rules,summary,%tfoot,%thead,width',\n 'tr^[HTMLInputElement]|align,bgColor,ch,chOff,vAlign',\n
'tfoot,thead,tbody^[HTMLInputElement]|align,ch,chOff,vAlign',\n 'template^[HTMLInputElement]',\n
'textarea^[HTMLInputElement]|autocapitalize,!autofocus,#cols,defaultValue,dirName,!disabled,#maxLength,#minLength,name,placeholder,!readOnly,!required,#rows,selectionDirection,#selectionEnd,#selectionStart,value,wrap',\n
'title^[HTMLInputElement]|text',\n 'track^[HTMLInputElement]!default,kind,label,src,srclang',\n
'ul^[HTMLInputElement]!compact,type',\n 'unknown^[HTMLInputElement]',\n 'video^media#height,poster,#width',\n
':svg:a^:svg:graphics',\n ':svg:animate^:svg:animation',\n ':svg:animateMotion^:svg:animation',\n
':svg:animateTransform^:svg:animation',\n ':svg:circle^:svg:geometry',\n ':svg:clipPath^:svg:graphics',\n
':svg:defs^:svg:graphics',\n ':svg:desc^:svg:',\n
':svg:discard^:svg:',\n ':svg:ellipse^:svg:geometry',\n ':svg:feBlend^:svg:',\n ':svg:feColorMatrix^:svg:',\n
':svg:feComponentTransfer^:svg:',\n ':svg:feComposite^:svg:',\n ':svg:feConvolveMatrix^:svg:',\n
':svg:feDiffuseLighting^:svg:',\n ':svg:feDisplacementMap^:svg:',\n ':svg:feDistantLight^:svg:',\n
':svg:feDropShadow^:svg:',\n ':svg:feFlood^:svg:',\n ':svg:feFuncA^:svg:componentTransferFunction',\n
':svg:feFuncB^:svg:componentTransferFunction',\n ':svg:feFuncG^:svg:componentTransferFunction',\n
':svg:feFuncR^:svg:componentTransferFunction',\n ':svg:feGaussianBlur^:svg:',\n ':svg:feImage^:svg:',\n
':svg:feMerge^:svg:',\n ':svg:feMergeNode^:svg:',\n ':svg:feMorphology^:svg:',\n ':svg:feOffset^:svg:',\n
':svg:fePointLight^:svg:',\n ':svg:feSpecularLighting^:svg:',\n ':svg:feSpotLight^:svg:',\n ':svg:feTile^:svg:',\n
':svg:feTurbulence^:svg:',\n ':svg:filter^:svg:',\n ':svg:foreignObject^:svg:graphics',\n ':svg:g^:svg:graphics',\n
':svg:image^:svg:graphics',\n ':svg:line^:svg:geometry',\n ':svg:linearGradient^:svg:gradient',\n
':svg:mpath^:svg:',\n ':svg:marker^:svg:',\n ':svg:mask^:svg:',\n ':svg:metadata^:svg:',\n
':svg:path^:svg:geometry',\n ':svg:pattern^:svg:',\n ':svg:polygon^:svg:geometry',\n
':svg:polyline^:svg:geometry',\n ':svg:radialGradient^:svg:gradient',\n ':svg:rect^:svg:geometry',\n
':svg:svg^:svg:graphics#currentScale,#zoomAndPan',\n ':svg:script^:svg:|type',\n ':svg:set^:svg:animation',\n
':svg:stop^:svg:',\n ':svg:style^:svg:#!disabled,media,title,type',\n ':svg:switch^:svg:graphics',\n
':svg:symbol^:svg:',\n ':svg:tspan^:svg:textPositioning',\n ':svg:text^:svg:textPositioning',\n
':svg:textPath^:svg:textContent',\n ':svg:title^:svg:',\n ':svg:use^:svg:graphics',\n
':svg:view^:svg:|zoomAndPan',\n 'data^[HTMLInputElement]|value',\n
'keygen^[HTMLInputElement]!autofocus,challenge,!disabled,form,keytype,name',\n
'menuitem^[HTMLInputElement]|type,label,icon,!disabled,!checked,radiogroup,!default',\n

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'summary^[HTMLInputElement]|\n 'time^[HTMLInputElement]dateTime',\n 'svg:cursor^:svg:|',\n);\n\nconst
_ATTR_TO_PROP: {[name: string]: string} = {\n 'class': 'className',\n 'for': 'htmlFor',\n 'formaction':
'formAction',\n 'innerHTML': 'innerHTML',\n 'readonly': 'readOnly',\n 'tabindex': 'tabIndex',\n};\n\nexport class
DomElementSchemaRegistry extends ElementSchemaRegistry {\n private _schema: {[element: string]: {[property:
string]: string}} = {};\n\n constructor() {\n super();\n SCHEMA.forEach(encodedType => {\n const type:
{[property: string]: string} = {};\n const [strType, strProperties] = encodedType.split('|');\n const properties =
strProperties.split(',');\n const [typeName, superName] = strType.split('^');\n typeName.split(',').forEach(tag
=> this._schema[tag.toLowerCase()] = type);\n const superType = superName &&
this._schema[superName.toLowerCase()];\n if (superType) {\n
Object.keys(superType).forEach((prop: string) => {\n type[prop] = superType[prop];\n });\n }\n
properties.forEach((property: string) => {\n if (property.length > 0) {\n switch (property[0]) {\n
case '*':\n // We don't yet support events.\n // If ever allowing to bind to events, GO THROUGH A
SECURITY REVIEW, allowing events\n // will\n // almost certainly introduce bad XSS
vulnerabilities.\n // type[property.substring(1)] = EVENT;\n break;\n case '!':\n
type[property.substring(1)] = BOOLEAN;\n break;\n case '#':\n type[property.substring(1)] =
NUMBER;\n break;\n case '%':\n type[property.substring(1)] = OBJECT;\n break;\n
default:\n type[property] = STRING;\n }\n });\n });\n\n hasProperty(tagName:
string, propName: string, schemaMetas: SchemaMetadata[]): boolean {\n if (schemaMetas.some((schema) =>
schema.name === NO_ERRORS_SCHEMA.name)) {\n return true;\n }\n\n if (tagName.indexOf('-') > -1)
{\n if (isNgContainer(tagName) || isNgContent(tagName)) {\n return false;\n }\n\n if
(schemaMetas.some((schema) => schema.name === CUSTOM_ELEMENTS_SCHEMA.name)) {\n // Can't
tell now as we don't know which properties a custom element will get\n // once it is instantiated\n return
true;\n }\n }\n\n const elementProperties = this._schema[tagName.toLowerCase()] ||
this._schema['unknown'];\n return !!elementProperties[propName];\n }\n\n hasElement(tagName: string,
schemaMetas: SchemaMetadata[]): boolean {\n if (schemaMetas.some((schema) => schema.name ===
NO_ERRORS_SCHEMA.name)) {\n return true;\n }\n\n if (tagName.indexOf('-') > -1) {\n if
(isNgContainer(tagName) || isNgContent(tagName)) {\n
return true;\n }\n\n if (schemaMetas.some((schema) => schema.name ===
CUSTOM_ELEMENTS_SCHEMA.name)) {\n // Allow any custom elements\n return true;\n }\n
}\n\n return !!this._schema[tagName.toLowerCase()];\n }\n\n /**\n * securityContext returns the security
context for the given property on the given DOM tag.\n * \n * Tag and property name are statically known and
cannot change at runtime, i.e. it is not\n * possible to bind a value into a changing attribute or tag name.\n * \n *
The filtering is based on a list of allowed tags/attributes. All attributes in the schema\n * above are assumed to have
the 'NONE' security context, i.e. that they are safe inert\n * string values. Only specific well known attack vectors
are assigned their appropriate context.\n * \n securityContext(tagName: string, propName: string, isAttribute:
boolean): SecurityContext {\n if (isAttribute) {\n // NB: For security purposes, use the mapped property
name, not the attribute name.\n propName = this.getMappedPropName(propName);\n }\n\n // Make sure
comparisons are case insensitive, so that case differences between attribute and\n // property names do not have a
security impact.\n tagName = tagName.toLowerCase();\n propName = propName.toLowerCase();\n let ctx =
SECURITY_SCHEMA()[tagName + '|' + propName];\n if (ctx) {\n return ctx;\n }\n\n ctx =
SECURITY_SCHEMA()['*' + propName];\n return ctx ? ctx : SecurityContext.NONE;\n }\n\n
getMappedPropName(propName: string): string {\n return _ATTR_TO_PROP[propName] || propName;\n }\n\n
getDefaultComponentElementName(): string {\n return 'ng-component';\n }\n\n validateProperty(name: string):
{error: boolean, msg?: string} {\n if (name.toLowerCase().startsWith('on')) {\n const msg = `Binding to event
property '${name}' is disallowed for security reasons,` +\n `please use (${name.slice(2)})=...` +\n `\\nIf
'${name}'
is a directive input, make sure the directive is imported by the` +\n `current module.`;\n return {error: true,
msg: msg};\n } else {\n return {error: false};\n }\n }\n\n validateAttribute(name: string): {error: boolean,

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'Cannot mark an element as translatable inside of a translatable section. Please remove the nested i18n
marker.';\n      element.sourceSpan);\n    }\n    this.inI18nBlock = true;\n  }\n  const preparsedElement =
preparseElement(element);\n  if (preparsedElement.type === PreparedElementType.SCRIPT) {\n    return null;\n  }
else if (preparsedElement.type === PreparedElementType.STYLE) {\n    const contents =
textContents(element);\n    if (contents !== null) {\n      this.styles.push(contents);\n    }\n    return null;\n  }
else if (\n    preparsedElement.type === PreparedElementType.STYLESHEET &&\n      isStyleUrlResolvable(preparsedElement.hrefAttr)) {\n    this.styleUrls.push(preparsedElement.hrefAttr);\n    return null;\n  }\n\n  // Whether the element is a <ng-template>\n  const isTemplateElement =
isNgTemplate(element.name);\n\n  const parsedProperties: ParsedProperty[] = [];\n  const boundEvents:
t.BoundEvent[] = [];\n  const variables: t.Variable[] = [];\n  const references: t.Reference[] = [];\n  const
attributes: t.TextAttribute[] = [];\n  const i18nAttrsMeta: {[key: string]: i18n.I18nMeta} = {};\n\n  const
templateParsedProperties: ParsedProperty[] = [];\n  const templateVariables: t.Variable[] = [];\n\n  // Whether the
element has any *-attribute\n  let elementHasInlineTemplate = false;\n\n  for (const attribute of element.attrs) {\n
    let hasBinding = false;\n    const normalizedName = normalizeAttributeName(attribute.name);\n\n    // `*attr`
defines template bindings\n    let isTemplateBinding = false;\n\n    if (attribute.i18n)
{\n      i18nAttrsMeta[attribute.name] = attribute.i18n;\n    }\n\n    if
(normalizedName.startsWith(TEMPLATE_ATTR_PREFIX)) {\n      // *-attributes\n      if
(elementHasInlineTemplate) {\n        this.reportError(\n          `Can't have multiple template bindings on one
element. Use only one attribute prefixed with *,\n          attribute.sourceSpan);\n        }\n        isTemplateBinding
= true;\n        elementHasInlineTemplate = true;\n        const templateValue = attribute.value;\n        const
templateKey = normalizedName.substring(TEMPLATE_ATTR_PREFIX.length);\n\n        const parsedVariables:
ParsedVariable[] = [];\n        const absoluteValueOffset = attribute.valueSpan ?\n        attribute.valueSpan.start.offset :\n        // If there is no value span the attribute does not have a value, like `attr`
in\n        // <div attr></div>`. In this case, point to one character beyond the last character of\n        // the
attribute name.\n        attribute.sourceSpan.start.offset + attribute.name.length;\n\n        this.bindingParser.parseInlineTemplateBinding(\n          templateKey, templateValue, attribute.sourceSpan,
absoluteValueOffset, [],\n          templateParsedProperties, parsedVariables, true /* isIvyAst */);\n        templateVariables.push(...parsedVariables.map(\n          v => new t.Variable(v.name, v.value, v.sourceSpan,
v.keySpan, v.valueSpan));\n        } else {\n          // Check for variables, events, property bindings, interpolation\n
hasBinding = this.parseAttribute(\n          isTemplateElement, attribute, [], parsedProperties, boundEvents,
variables, references);\n        }\n\n        if (!hasBinding && !isTemplateBinding) {\n          // don't include the bindings
as attributes as well in the AST\n          attributes.push(this.visitAttribute(attribute) as t.TextAttribute);\n        }\n
}\n\n        const children: t.Node[] =\n          html.visitAll(preparsedElement.nonBindable ?
NON_BINDABLE_VISITOR
: this, element.children);\n\n        let parsedElement: t.Node|undefined;\n        if (preparsedElement.type ===
PreparedElementType.NG_CONTENT) {\n          // <ng-content>\n          if (element.children &&\n
!element.children.every(\n            (node: html.Node) => isEmptyTextNode(node) || isCommentNode(node))) {\n
this.reportError(`<ng-content> element cannot have content`, element.sourceSpan);\n          }\n          const selector =
preparsedElement.selectAttr;\n          const attrs: t.TextAttribute[] = element.attrs.map(attr =>
this.visitAttribute(attr));\n          parsedElement = new t.Content(selector, attrs, element.sourceSpan, element.i18n);\n\n          this.ngContentSelectors.push(selector);\n        } else if (isTemplateElement) {\n          // <ng-template>\n          const
attrs = this.extractAttributes(element.name, parsedProperties, i18nAttrsMeta);\n          parsedElement = new
t.Template(\n            element.name, attributes, attrs.bound, boundEvents, /* no template attributes
*/,\n            children, references, variables, element.sourceSpan, element.startSourceSpan,\n
element.endSourceSpan, element.i18n);\n        } else {\n          const attrs = this.extractAttributes(element.name,
parsedProperties, i18nAttrsMeta);\n          parsedElement = new t.Element(\n            element.name, attributes,
attrs.bound, boundEvents, children, references,\n            element.sourceSpan, element.startSourceSpan,

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element.endSourceSpan, element.i18n);\n  }\n\n  if (elementHasInlineTemplate) {\n    // If this node is an inline-
template (e.g. has *ngFor) then we need to create a template\n    // node that contains this node.\n    // Moreover, if
the node is an element, then we need to hoist its attributes to the template\n    // node for matching against content
projection selectors.\n    const attrs = this.extractAttributes('ng-template', templateParsedProperties,
i18nAttrsMeta);\n    const templateAttrs: (t.TextAttribute|t.BoundAttribute)[] = [];\n    attrs.literal.forEach(attr
=> templateAttrs.push(attr));\n    attrs.bound.forEach(attr => templateAttrs.push(attr));\n    const hoistedAttrs =
parsedElement instanceof t.Element ?\n      {\n        attributes: parsedElement.attributes,\n        inputs:
parsedElement.inputs,\n        outputs: parsedElement.outputs,\n      } :\n      {\n        attributes: [], inputs: [], outputs:
[];\n      }\n    // For <ng-template>s with structural directives on them, avoid passing i18n information to\n    // the
wrapping template to prevent unnecessary i18n instructions from being generated. The\n    // necessary i18n meta
information will be extracted from child elements.\n    const i18n = isTemplateElement && isI18nRootElement ?
undefined : element.i18n;\n\n    // TODO(pk): test for this case\n    parsedElement = new t.Template(\n
(parsedElement as t.Element | t.Content).name, hoistedAttrs.attributes,\n    hoistedAttrs.inputs,
hoistedAttrs.outputs, templateAttrs,
[parsedElement],\n    /* no references */,\n    templateVariables, element.sourceSpan, element.startSourceSpan,\n
element.endSourceSpan, i18n);\n  }\n\n  if (isI18nRootElement) {\n    this.inI18nBlock = false;\n  }\n  return
parsedElement;\n}\n\nvisitAttribute(attribute: html.Attribute): t.TextAttribute {\n  return new t.TextAttribute(\n
attribute.name, attribute.value, attribute.sourceSpan, attribute.valueSpan, attribute.i18n);\n}\n\nvisitText(text:
html.Text): t.Node {\n  return this._visitTextWithInterpolation(text.value, text.sourceSpan, text.i18n);\n}\n\nvisitExpansion(expansion: html.Expansion): t.Icu|null {\n  if (!expansion.i18n) {\n    // do not generate Icu in case
it was created\n    // outside of i18n block in a template\n    return null;\n  }\n  if
(!isI18nRootNode(expansion.i18n)) {\n    throw new Error(`Invalid type \"${expansion.i18n.constructor}\" for
\"i18n\" property of ${\n    expansion.sourceSpan.toString()}).\n    Expected a \"Message\"`);\n  }\n  const message = expansion.i18n;\n  const vars: {[name: string]: t.BoundText}
= {};\n  const placeholders: {[name: string]: t.Text|t.BoundText} = {};\n  // extract VARs from ICUs - we process
them separately while\n  // assembling resulting message via goog.getMsg function, since\n  // we need to pass
them to top-level goog.getMsg call\n  Object.keys(message.placeholders).forEach(key => {\n    const value =
message.placeholders[key];\n    if (key.startsWith(I18N_ICU_VAR_PREFIX)) {\n      // Currently when the
`plural` or `select` keywords in an ICU contain trailing spaces (e.g.\n      // `{count, select , ...}`), these spaces are
also included into the key names in ICU vars\n      // (e.g. `VAR_SELECT `). These trailing spaces are not
desirable, since they will later be\n      // converted into `_` symbols while normalizing placeholder names, which
might lead to\n      // mismatches at runtime (i.e. placeholder will
not be replaced with the correct value).\n      const formattedKey = key.trim();\n      const ast =
this.bindingParser.parseInterpolationExpression(value.text, value.sourceSpan);\n      vars[formattedKey] = new
t.BoundText(ast, value.sourceSpan);\n    } else {\n      placeholders[key] =
this._visitTextWithInterpolation(value.text, value.sourceSpan);\n    }\n  });\n  return new t.Icu(vars,
placeholders, expansion.sourceSpan, message);\n}\n\nvisitExpansionCase(expansionCase: html.ExpansionCase):
null {\n  return null;\n}\n\nvisitComment(comment: html.Comment): null {\n  return null;\n}\n\n// convert
view engine `ParsedProperty` to a format suitable for IVY\nprivate extractAttributes(\n  elementName: string,
properties: ParsedProperty[],\n  i18nPropsMeta: {[key: string]: i18n.I18nMeta}): {\n  bound:
t.BoundAttribute[], literal: t.TextAttribute[]\n} {\n  const bound: t.BoundAttribute[] = [];\n  const literal:
t.TextAttribute[] = [];\n\n  properties.forEach(prop => {\n    const i18n = i18nPropsMeta[prop.name];\n    if (prop.isLiteral) {\n
literal.push(new t.TextAttribute(\n      prop.name, prop.expression.source || "", prop.sourceSpan, undefined,
i18n);\n    } else {\n      // Note that validation is skipped and property mapping is disabled\n      // due to the fact
that we need to make sure a given prop is not an\n      // input of a directive and directive matching happens at
runtime.\n      const bep = this.bindingParser.createBoundElementProperty(\n        elementName, prop, /*
skipValidation */ true, /* mapPropertyName */ false);\n

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bound.push(t.BoundAttribute.fromBoundElementProperty(bep, i18n));\n    }\n    });\n\n    return { bound, literal};\n\n}\n\nprivate parseAttribute(\n    isTemplateElement: boolean, attribute: html.Attribute, matchableAttributes: string[][],\n    parsedProperties: ParsedProperty[], boundEvents: t.BoundEvent[], variables: t.Variable[],\n    references: t.Reference[]) {\n    const name = normalizeAttributeName(attribute.name);\n    const value = attribute.value;\n    const srcSpan = attribute.sourceSpan;\n    const absoluteOffset =\n        attribute.valueSpan.start.offset : srcSpan.start.offset;\n\n    function createKeySpan(srcSpan: ParseSourceSpan, prefix: string, identifier: string) {\n        // We need to adjust the start location for the keySpan to account for the removed 'data-\n        // prefix from `normalizeAttributeName`.\n        const normalizationAdjustment = attribute.name.length - name.length;\n        const keySpanStart = srcSpan.start.moveBy(prefix.length + normalizationAdjustment);\n        const keySpanEnd = keySpanStart.moveBy(identifier.length);\n        return new ParseSourceSpan(keySpanStart, keySpanEnd, keySpanStart, identifier);\n    }\n\n    const bindParts = name.match(BIND_NAME_REGEXP);\n    let hasBinding = false;\n\n    if (bindParts) {\n        hasBinding = true;\n        if (bindParts[KW_BIND_IDX] != null) {\n            const identifier = bindParts[IDENT_KW_IDX];\n            const keySpan = createKeySpan(srcSpan, bindParts[KW_BIND_IDX], identifier);\n            this.bindingParser.parsePropertyBinding(\n                identifier, value, false, srcSpan, absoluteOffset, attribute.valueSpan,\n                matchableAttributes, parsedProperties, keySpan);\n        }\n        else if (bindParts[KW_LET_IDX]) {\n            if (isTemplateElement) {\n                const identifier = bindParts[IDENT_KW_IDX];\n                const keySpan = createKeySpan(srcSpan, bindParts[KW_LET_IDX], identifier);\n                this.parseVariable(identifier, value, srcSpan, keySpan, attribute.valueSpan, variables);\n            }\n            else {\n                this.reportError(`"let-" is only supported on ng-template elements.`, srcSpan);\n            }\n        }\n        else if (bindParts[KW_REF_IDX]) {\n            const identifier = bindParts[IDENT_KW_IDX];\n            this.parseReference(identifier, value, srcSpan, attribute.valueSpan, references);\n        }\n        else if (bindParts[KW_ON_IDX]) {\n            const events: ParsedEvent[] = [];\n            const identifier = bindParts[IDENT_KW_IDX];\n            this.bindingParser.parseEvent(\n                identifier, value, srcSpan, attribute.valueSpan || srcSpan, matchableAttributes,\n                events);\n            addEvents(events, boundEvents);\n        }\n        else if (bindParts[KW_BINDON_IDX]) {\n            const identifier = bindParts[IDENT_KW_IDX];\n            const keySpan = createKeySpan(srcSpan, bindParts[KW_BINDON_IDX], identifier);\n            this.bindingParser.parsePropertyBinding(\n                identifier, value, false, srcSpan, absoluteOffset, attribute.valueSpan,\n                matchableAttributes, parsedProperties, keySpan);\n            this.parseAssignmentEvent(\n                identifier, value, srcSpan, attribute.valueSpan, matchableAttributes, boundEvents);\n        }\n        else if (bindParts[KW_AT_IDX]) {\n            const keySpan = createKeySpan(srcSpan, "", name);\n            this.bindingParser.parseLiteralAttr(\n                name, value, srcSpan, absoluteOffset, attribute.valueSpan, matchableAttributes,\n                parsedProperties, keySpan);\n        }\n        else if (bindParts[IDENT_BANANA_BOX_IDX]) {\n            const keySpan = createKeySpan(srcSpan, '(', bindParts[IDENT_BANANA_BOX_IDX]);\n            this.bindingParser.parsePropertyBinding(\n                bindParts[IDENT_BANANA_BOX_IDX], value, false, srcSpan, absoluteOffset,\n                attribute.valueSpan, matchableAttributes, parsedProperties, keySpan);\n            this.parseAssignmentEvent(\n                bindParts[IDENT_BANANA_BOX_IDX], value, srcSpan, attribute.valueSpan,\n                matchableAttributes, boundEvents);\n        }\n        else if (bindParts[IDENT_PROPERTY_IDX]) {\n            const keySpan = createKeySpan(srcSpan, '[', bindParts[IDENT_PROPERTY_IDX]);\n            this.bindingParser.parsePropertyBinding(\n                bindParts[IDENT_PROPERTY_IDX], value, false, srcSpan, absoluteOffset,\n                attribute.valueSpan, matchableAttributes, parsedProperties, keySpan);\n        }\n        else if (bindParts[IDENT_EVENT_IDX]) {\n            const events: ParsedEvent[] = [];\n            this.bindingParser.parseEvent(\n                bindParts[IDENT_EVENT_IDX], value, srcSpan, attribute.valueSpan || srcSpan,\n                matchableAttributes, events);\n            addEvents(events, boundEvents);\n        }\n        else {\n            const keySpan = createKeySpan(srcSpan, "/* prefix */", name);\n            hasBinding = this.bindingParser.parsePropertyInterpolation(\n                name, value, srcSpan, attribute.valueSpan,

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matchableAttributes, parsedProperties,\n      keySpan);\n  }\n\n  return hasBinding;\n  }\n\n  private\n  _visitTextWithInterpolation(\n    value: string, sourceSpan: ParseSourceSpan, i18n?: i18n.I18nMeta):\n  t.Text|t.BoundText {\n    const valueNoNgsp = replaceNgsp(value);\n    const expr =\n    this.bindingParser.parseInterpolation(valueNoNgsp, sourceSpan);\n    return expr ? new t.BoundText(expr,\n    sourceSpan, i18n) : new t.Text(valueNoNgsp, sourceSpan);\n  }\n\n  private parseVariable(\n    identifier: string, value: string, sourceSpan: ParseSourceSpan, keySpan:\n  ParseSourceSpan,\n    valueSpan: ParseSourceSpan|undefined, variables: t.Variable[]) {\n    if (identifier.indexOf('-') > -1) {\n      this.reportError(`\"-\" is not allowed in variable names`, sourceSpan);\n    } else if (identifier.length\n    === 0) {\n      this.reportError(`Variable does not have a name`, sourceSpan);\n    }\n    variables.push(new\n    t.Variable(identifier, value, sourceSpan, keySpan, valueSpan));\n  }\n\n  private parseReference(\n    identifier:\n  string, value: string, sourceSpan: ParseSourceSpan,\n    valueSpan: ParseSourceSpan|undefined, references:\n  t.Reference[]) {\n    if (identifier.indexOf('-') > -1) {\n      this.reportError(`\"-\" is not allowed in reference names`,\n    sourceSpan);\n    } else if (identifier.length === 0) {\n      this.reportError(`Reference does not have a name`,\n    sourceSpan);\n    }\n    references.push(new t.Reference(identifier, value,\n    sourceSpan, valueSpan));\n  }\n\n  private parseAssignmentEvent(\n    name: string, expression: string,\n  sourceSpan: ParseSourceSpan,\n    valueSpan: ParseSourceSpan|undefined, targetMatchableAttrs: string[][],\n  boundEvents: t.BoundEvent[]) {\n    const events: ParsedEvent[] = [];\n    this.bindingParser.parseEvent(\n    `${name}Change`, `${expression}=${event}`, sourceSpan, valueSpan || sourceSpan,\n    targetMatchableAttrs,\n    events);\n    addEvents(events, boundEvents);\n  }\n\n  private reportError(\n    message: string, sourceSpan:\n  ParseSourceSpan,\n    level: ParseErrorLevel = ParseErrorLevel.ERROR) {\n    this.errors.push(new\n    ParseError(sourceSpan, message, level);\n  }\n}\n\nnclass NonBindableVisitor implements html.Visitor {\n  visitElement(ast: html.Element): t.Element|null {\n    const preparedElement = prepareElement(ast);\n    if\n    (preparedElement.type === PreparedElementType.SCRIPT ||\n    preparedElement.type ===\n    PreparedElementType.STYLE ||\n    preparedElement.type === PreparedElementType.STYLESHEET) {\n      // Skipping <script> for security\n    reasons\n      // Skipping <style> and stylesheets as we already processed them\n      // in the StyleCompiler\n    return null;\n    }\n    const children: t.Node[] = html.visitAll(this, ast.children, null);\n    return new t.Element(\n    ast.name, html.visitAll(this, ast.attrs as t.TextAttribute[],\n    /* inputs */[], /* outputs */[], children, /*\n    references */[], ast.sourceSpan,\n    ast.startSourceSpan, ast.endSourceSpan);\n    }\n    visitComment(comment:\n    html.Comment): any {\n      return null;\n    }\n    visitAttribute(attribute: html.Attribute): t.TextAttribute {\n      return\n    new t.TextAttribute(\n    attribute.name, attribute.value, attribute.sourceSpan, undefined, attribute.i18n);\n    }\n    visitText(text: html.Text): t.Text {\n      return new t.Text(text.value, text.sourceSpan);\n    }\n    visitExpansion(expansion: html.Expansion): any {\n      return null;\n    }\n    visitExpansionCase(expansionCase: html.ExpansionCase): any {\n      return null;\n    }\n  }\n\n  const\n  NON_BINDABLE_VISITOR = new NonBindableVisitor();\n\n  function normalizeAttributeName(attrName:\n  string): string {\n    return /^data-/.test(attrName) ? attrName.substring(5) : attrName;\n  }\n\n  function\n  addEvents(events: ParsedEvent[], boundEvents: t.BoundEvent[]) {\n    boundEvents.push(...events.map(e =>\n    t.BoundEvent.fromParsedEvent(e));\n  }\n\n  function isEmptyTextNode(node: html.Node): boolean {\n    return node\n    instanceof html.Text && node.value.trim().length === 0;\n  }\n\n  function isCommentNode(node: html.Node): boolean {\n    return node\n    instanceof html.Comment;\n  }\n\n  function textContents(node: html.Element): string|null {\n    if\n    (node.children.length !== 1 || !(node.children[0] instanceof html.Text)) {\n      return null;\n    } else {\n      return\n    (node.children[0] as html.Text).value;\n    }\n  }\n}\n\n/*\n * @license\n * Copyright Google LLC All Rights\n  Reserved.\n * Use of this source code\n  is governed by an MIT-style license that can be\n  * found in the LICENSE file at https://angular.io/license\n  *\n  *\n  import {AST} from '../..../expression_parser/ast';\n  import * as i18n from '../..../i18n/i18n_ast';\n  import * as o\n  from '../..../output/output_ast';\n  import {assembleBoundTextPlaceholders, getSeqNumberGenerator,\n  updatePlaceholderMap, wrapI18nPlaceholder} from './util';\n  enum TagType {\n    ELEMENT,\n    TEMPLATE,\n  }\n\n  /**\n   * Generates an object that is used as a shared state between parent and all child

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contexts.\n */\nfunction setupRegistry() {\n  return {getUniqueId: getSeqNumberGenerator(), icus: new Map<string,
any[]>()};\n}\n\n/**\n * I18nContext is a helper class which keeps track of all i18n-related aspects\n * (accumulates
placeholders, bindings, etc) between i18nStart and i18nEnd instructions.\n *\n * When we enter a nested template,
the top-level context is being passed down\n * to the nested component, which uses this context to generate a child
instance\n
* of I18nContext class (to handle nested template) and at the end, reconciles it back\n * with the parent context.\n
*\n * @param index Instruction index of i18nStart, which initiates this context\n * @param ref Reference to a
translation const that represents the content of this context\n * @param level Nesting level defined for child
contexts\n * @param templateIndex Instruction index of a template which this context belongs to\n * @param meta
Meta information (id, meaning, description, etc) associated with this context\n */\nexport class I18nContext {\n
  public readonly id: number;\n  public bindings = new Set<AST>();\n  public placeholders = new Map<string,
any[]>();\n  public isEmitted: boolean = false;\n\n  private _registry!: any;\n  private _unresolvedCtxCount: number
= 0;\n\n  constructor(\n    readonly index: number, readonly ref: o.ReadVarExpr, readonly level: number = 0,\n    readonly templateIndex: number|null = null, readonly meta: i18n.I18nMeta,\n    private registry?:
any) {\n    this._registry = registry || setupRegistry();\n    this.id = this._registry.getUniqueId();\n  }\n\n  private
appendTag(type: TagType, node: i18n.TagPlaceholder, index: number, closed?: boolean) {\n    if (node.isVoid &&
closed) {\n      return; // ignore \"close\" for void tags\n    }\n    const ph = node.isVoid || !closed ? node.startName :
node.closeName;\n    const content = {type, index, ctx: this.id, isVoid: node.isVoid, closed};\n
    updatePlaceholderMap(this.placeholders, ph, content);\n  }\n\n  get icus() {\n    return this._registry.icus;\n  }\n  get
isRoot() {\n    return this.level === 0;\n  }\n  get isResolved() {\n    return this._unresolvedCtxCount === 0;\n  }\n\n  getSerializedPlaceholders() {\n    const result = new Map<string, any[]>();\n    this.placeholders.forEach(\n      (values, key) => result.set(key, values.map(serializePlaceholderValue));\n    );\n    return result;\n  }\n\n  // public API to
accumulate i18n-related content\n  appendBinding(binding:
AST) {\n    this.bindings.add(binding);\n  }\n\n  appendIcu(name: string, ref: o.Expression) {\n
    updatePlaceholderMap(this._registry.icus, name, ref);\n  }\n\n  appendBoundText(node: i18n.I18nMeta) {\n    const
phs = assembleBoundTextPlaceholders(node, this.bindings.size, this.id);\n    phs.forEach((values, key) =>
updatePlaceholderMap(this.placeholders, key, ...values));\n  }\n\n  appendTemplate(node: i18n.I18nMeta, index:
number) {\n    // add open and close tags at the same time,\n    // since we process nested templates separately\n
    this.appendTag(TagType.TEMPLATE, node as i18n.TagPlaceholder, index, false);\n
    this.appendTag(TagType.TEMPLATE, node as i18n.TagPlaceholder, index, true);\n
    this._unresolvedCtxCount++;\n  }\n\n  appendElement(node: i18n.I18nMeta, index: number, closed?: boolean) {\n
    this.appendTag(TagType.ELEMENT, node as i18n.TagPlaceholder, index, closed);\n  }\n\n  appendProjection(node:
i18n.I18nMeta, index: number) {\n    // Add open and close tags at the
    same time, since `<ng-content>` has no content,\n    // so when we come across `<ng-content>` we can register both
open and close tags.\n    // Note: runtime i18n logic doesn't distinguish `<ng-content>` tag placeholders and\n    //
regular element tag placeholders, so we generate element placeholders for both types.\n
    this.appendTag(TagType.ELEMENT, node as i18n.TagPlaceholder, index, false);\n
    this.appendTag(TagType.ELEMENT, node as i18n.TagPlaceholder, index, true);\n  }\n\n  /**\n   * Generates an
instance of a child context based on the root one,\n   * when we enter a nested template within I18n section.\n   *\n   * @param index Instruction index of corresponding i18nStart, which initiates this context\n   * @param
templateIndex Instruction index of a template which this context belongs to\n   * @param meta Meta information
(id, meaning, description, etc) associated with this context\n   *\n   * @returns I18nContext instance\n   */\n  forkChildContext(index: number, templateIndex:
number, meta: i18n.I18nMeta) {\n    return new I18nContext(index, this.ref, this.level + 1, templateIndex, meta,
this._registry);\n  }\n\n  /**\n   * Reconciles child context into parent one once the end of the i18n block is reached
(i18nEnd).\n   *\n   * @param context Child I18nContext instance to be reconciled with parent context.\n   */\n  reconcileChildContext(context: I18nContext) {\n    // set the right context id for open and close\n    // template tags,
so we can use it as sub-block ids\n    ['start', 'close'].forEach((op: string) => {\n      const key = (context.meta as

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any()[$ {op}Name`];\n    const phs = this.placeholders.get(key) || [];\n    const tag =\nphs.find(findTemplateFn(this.id, context.templateIndex));\n    if (tag) {\n        tag.ctx = context.id;\n    }\n});\n\n// reconcile placeholders\nconst childPhs = context.placeholders;\nchildPhs.forEach((values: any[],\nkey: string) => {\n    const phs = this.placeholders.get(key);\n    if\n(!phs) {\n        this.placeholders.set(key, values);\n        return;\n    }\n    // try to find matching template...\nconst tmplIdx = phs.findIndex(findTemplateFn(context.id, context.templateIndex));\n    if (tmplIdx >= 0) {\n        //\n... if found - replace it with nested template content\n        const isCloseTag = key.startsWith('CLOSE');\n        const\nisTemplateTag = key.endsWith('NG-TEMPLATE');\n        if (isTemplateTag) {\n            // current template's content\nis placed before or after\n            // parent template tag, depending on the open/close attribute\nphs.splice(tmplIdx + (isCloseTag ? 0 : 1), 0, ...values);\n        } else {\n            const idx = isCloseTag ? values.length\n- 1 : 0;\n            values[idx].tmpl = phs[tmplIdx];\n            phs.splice(tmplIdx, 1, ...values);\n        } else {\n// ... otherwise just append content to placeholder value\n            phs.push(...values);\n        }\nthis.placeholders.set(key, phs);\n    });\n\n    this._unresolvedCtxCount--;\n}\n}\n\n// Helper methods\n\nfunction wrap(symbol: string, index:\nnumber, contextId: number, closed?: boolean): string {\n    const state = closed ? ' ' : '';\n    return\nwrapI18nPlaceholder(`${state}${symbol}${index}`, contextId);\n}\n\nfunction wrapTag(symbol: string, {index,\nctx, isVoid}: any, closed?: boolean): string {\n    return isVoid ? wrap(symbol, index, ctx) + wrap(symbol, index, ctx,\ntrue) : \n        wrap(symbol, index, ctx, closed);\n}\n\nfunction findTemplateFn(ctx: number, templateIndex:\nnumber|null) {\n    return (token: any) => typeof token === 'object' && token.type === TagType.TEMPLATE && \n        token.index === templateIndex && token.ctx === ctx;\n}\n\nfunction serializePlaceholderValue(value: any):\nstring {\n    const element = (data: any, closed?: boolean) => wrapTag('#', data, closed);\n    const template = (data:\nany, closed?: boolean) => wrapTag('*', data, closed);\n    const projection = (data: any, closed?: boolean)\n=> wrapTag('!', data, closed);\n\n    switch (value.type) {\n        case TagType.ELEMENT:\n            // close element tag\nif (value.closed) {\n                return element(value, true) + (value.tmpl ? template(value.tmpl, true) : '');\n            }\n            //\nopen element tag that also initiates a template\n            if (value.tmpl) {\n                return template(value.tmpl) +\nelement(value) + \n                (value.isVoid ? template(value.tmpl, true) : '');\n            }\n            return element(value);\n        case TagType.TEMPLATE:\n            return template(value, value.closed);\n        default:\n            return value;\n    }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport * as i18n from './i18n/i18n_ast';\nimport {formatI18nPlaceholderName} from './util';\n\nclass\nIcuSerializerVisitor implements i18n.Visitor {\n    visitText(text: i18n.Text):\nany {\n        return text.value;\n    }\n\n    visitContainer(container: i18n.Container): any {\n        return\ncontainer.children.map(child => child.visit(this)).join('');\n    }\n\n    visitIcu(icu: i18n.Icu): any {\n        const strCases\n=\n        Object.keys(icu.cases).map((k: string) => `${k} ${icu.cases[k].visit(this)}`);\n        const result =\n`${icu.expressionPlaceholder}, ${icu.type}, ${strCases.join(' ')}`;\n        return result;\n    }\n\n    visitTagPlaceholder(ph: i18n.TagPlaceholder): any {\n        return ph.isVoid ? \n            this.formatPh(ph.startName) : \n            `${this.formatPh(ph.startName)}${ph.children.map(child => child.visit(this)).join('')}${\nthis.formatPh(ph.closeName)}`;\n    }\n\n    visitPlaceholder(ph: i18n.Placeholder): any {\n        return\nthis.formatPh(ph.name);\n    }\n\n    visitIcuPlaceholder(ph: i18n.IcuPlaceholder, context?: any): any {\n        return\nthis.formatPh(ph.name);\n    }\n\n    private formatPh(value: string): string {\n        return\n`${formatI18nPlaceholderName(value,\n/* useCamelCase */ false)}`;\n    }\n}\n\nconst serializer = new IcuSerializerVisitor();\n\nexport function\nserializeIcuNode(icu: i18n.Icu): string {\n    return icu.visit(serializer);\n}\n\n"/**\n * @license\n * Copyright Google\n LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n in the LICENSE file at https://angular.io/license\n */\nconst TAG_TO_PLACEHOLDER_NAMES: {[k: string]:\nstring} = {\n    'A': 'LINK',\n    'B': 'BOLD_TEXT',\n    'BR': 'LINE_BREAK',\n    'EM': 'EMPHASISED_TEXT',\n    'H1':\n'HEADING_LEVEL1',\n    'H2': 'HEADING_LEVEL2',\n    'H3': 'HEADING_LEVEL3',\n    'H4':\n'HEADING_LEVEL4',\n    'H5': 'HEADING_LEVEL5',\n    'H6': 'HEADING_LEVEL6',\n    'HR':
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'HORIZONTAL_RULE',\n 'T': 'ITALIC_TEXT',\n 'LI': 'LIST_ITEM',\n 'LINK': 'MEDIA_LINK',\n 'OL':
'ORDERED_LIST',\n 'P': 'PARAGRAPH',\n 'Q': 'QUOTATION',\n 'S': 'STRIKETHROUGH_TEXT',\n 'SMALL':
'SMALL_TEXT',\n 'SUB': 'SUBSCRIPT',\n 'SUP': 'SUPERSCRIPIT',\n 'TBODY': 'TABLE_BODY',\n
'TD': 'TABLE_CELL',\n 'TFOOT': 'TABLE_FOOTER',\n 'TH': 'TABLE_HEADER_CELL',\n 'THEAD':
'TABLE_HEADER',\n 'TR': 'TABLE_ROW',\n 'TT': 'MONOSPACED_TEXT',\n 'U': 'UNDERLINED_TEXT',\n
'UL': 'UNORDERED_LIST',\n});\n\n/**\n * Creates unique names for placeholder with different content.\n *\n *
Returns the same placeholder name when the content is identical.\n */\nexport class PlaceholderRegistry {\n //
Count the occurrence of the base name top generate a unique name\n private _placeholderNameCounts: {[k:
string]: number} = {};\n // Maps signature to placeholder names\n private _signatureToName: {[k: string]: string}
= {};\n\n getStartTagPlaceholderName(tag: string, attrs: {[k: string]: string}, isVoid: boolean): string {\n const
signature = this._hashTag(tag, attrs, isVoid);\n if (this._signatureToName[signature]) {\n return
this._signatureToName[signature];\n }\n\n const upperTag = tag.toUpperCase();\n const baseName =
TAG_TO_PLACEHOLDER_NAMES[upperTag] ||
`TAG_${upperTag}`;\n const name = this._generateUniqueName(isVoid ? baseName :
`START_${baseName}`);\n\n this._signatureToName[signature] = name;\n\n return name;\n }\n\n
getCloseTagPlaceholderName(tag: string): string {\n const signature = this._hashClosingTag(tag);\n if
(this._signatureToName[signature]) {\n return this._signatureToName[signature];\n }\n\n const upperTag =
tag.toUpperCase();\n const baseName = TAG_TO_PLACEHOLDER_NAMES[upperTag] ||
`TAG_${upperTag}`;\n const name = this._generateUniqueName(`CLOSE_${baseName}`);\n\n
this._signatureToName[signature] = name;\n\n return name;\n }\n\n getPlaceholderName(name: string, content:
string): string {\n const upperName = name.toUpperCase();\n const signature = `PH:
${upperName}=${content}`;\n if (this._signatureToName[signature]) {\n return
this._signatureToName[signature];\n }\n\n const uniqueName = this._generateUniqueName(upperName);\n
this._signatureToName[signature]
= uniqueName;\n\n return uniqueName;\n }\n\n getUniquePlaceholder(name: string): string {\n return
this._generateUniqueName(name.toUpperCase());\n }\n\n // Generate a hash for a tag - does not take attribute
order into account\n private _hashTag(tag: string, attrs: {[k: string]: string}, isVoid: boolean): string {\n const
start = `<${tag}`;\n const strAttrs = Object.keys(attrs).sort().map((name) => `
${name}=${attrs[name]}`).join("");\n const end = isVoid ? '>' : `>${tag}>`;\n\n return start + strAttrs + end;\n
}\n\n private _hashClosingTag(tag: string): string {\n return this._hashTag(`/${tag}`, {}, false);\n }\n\n private
_generateUniqueName(base: string): string {\n const seen =
this._placeholderNameCounts.hasOwnProperty(base);\n if (!seen) {\n this._placeholderNameCounts[base] =
1;\n return base;\n }\n\n const id = this._placeholderNameCounts[base];\n
this._placeholderNameCounts[base] = id + 1;\n return `${base}_${id}`;\n
}\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Lexer as ExpressionLexer} from '../expression_parser/lexer';\nimport {Parser as ExpressionParser}
from '../expression_parser/parser';\nimport * as html from '../ml_parser/ast';\nimport {getHtmlTagDefinition} from
 '../ml_parser/html_tags';\nimport {InterpolationConfig} from '../ml_parser/interpolation_config';\nimport
{ParseSourceSpan} from '../parse_util';\n\nimport * as i18n from './i18n_ast';\nimport {PlaceholderRegistry} from
 '../serializers/placeholder';\n\nconst _expParser = new ExpressionParser(new ExpressionLexer());\n\nexport type
VisitNodeFn = (html: html.Node, i18n: i18n.Node) => i18n.Node;\n\nexport interface I18nMessageFactory {\n
(nodes: html.Node[], meaning: string|undefined, description: string|undefined,\n customId: string|undefined,
visitNodeFn?:
VisitNodeFn): i18n.Message;\n}\n\n/**\n * Returns a function converting html nodes to an i18n Message given an
interpolationConfig\n */\nexport function createI18nMessageFactory(interpolationConfig: InterpolationConfig):\n I18nMessageFactory {\n const visitor = new _I18nVisitor(_expParser, interpolationConfig);\n return (nodes,
meaning, description, customId, visitNodeFn) =>\n visitor.toI18nMessage(nodes, meaning, description,

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customId, visitNodeFn);\n\ninterface I18nMessageVisitorContext {\n  isIcu: boolean;\n  icuDepth: number;\n  placeholderRegistry: PlaceholderRegistry;\n  placeholderToContent: {[phName: string]:\n  i18n.MessagePlaceholder};\n  placeholderToMessage: {[phName: string]: i18n.Message};\n  visitNodeFn:\n  VisitNodeFn;\n}\n\nfunction noopVisitNodeFn(_html: html.Node, i18n: i18n.Node): i18n.Node {\n  return\n  i18n;\n}\n\nclass _I18nVisitor implements html.Visitor {\n  constructor(\n    private _expressionParser:\n  ExpressionParser,\n    private\n  _interpolationConfig: InterpolationConfig) {\n\n    public toI18nMessage(\n      nodes: html.Node[], meaning = "\n  description = ", customId = ",\n      visitNodeFn: VisitNodeFn|undefined): i18n.Message {\n      const context:\n  I18nMessageVisitorContext = {\n        isIcu: nodes.length === 1 && nodes[0] instanceof html.Expansion,\n        icuDepth: 0,\n        placeholderRegistry: new PlaceholderRegistry(),\n        placeholderToContent: {},\n        placeholderToMessage: {},\n        visitNodeFn: visitNodeFn || noopVisitNodeFn,\n      };\n      const i18nodes:\n  i18n.Node[] = html.visitAll(this, nodes, context);\n      return new i18n.Message(\n        i18nodes,\n        context.placeholderToContent, context.placeholderToMessage, meaning, description,\n        customId);\n    }\n\n    visitElement(el: html.Element, context: I18nMessageVisitorContext): i18n.Node {\n      const children =\n  html.visitAll(this, el.children, context);\n      const attrs: {[k: string]: string} = {};\n      el.attrs.forEach(attr => {\n        //\n  Do\n        not visit the attributes, translatable ones are top-level ASTs\n        attrs[attr.name] = attr.value;\n      });\n      const\n  isVoid: boolean = getHtmlTagDefinition(el.name).isVoid;\n      const startPhName =\n  context.placeholderRegistry.getStartTagPlaceholderName(el.name, attrs, isVoid);\n      context.placeholderToContent[startPhName] = {\n        text: el.startSourceSpan.toString(),\n        sourceSpan:\n  el.startSourceSpan,\n      };\n      let closePhName = ";\n      if (!isVoid) {\n        closePhName =\n  context.placeholderRegistry.getCloseTagPlaceholderName(el.name);\n        context.placeholderToContent[closePhName] = {\n          text: `</${el.name}>`,\n          sourceSpan: el.endSourceSpan\n        };\n        ?? el.sourceSpan,\n      };\n      const node = new i18n.TagPlaceholder(\n        el.name, attrs, startPhName,\n        closePhName, children, isVoid, el.sourceSpan,\n        el.startSourceSpan, el.endSourceSpan);\n        return\n  context.visitNodeFn(el, node);\n      }\n\n      visitAttribute(attribute: html.Attribute,\n        context: I18nMessageVisitorContext): i18n.Node {\n        const node =\n  this._visitTextWithInterpolation(attribute.value, attribute.sourceSpan, context);\n        return\n  context.visitNodeFn(attribute, node);\n      }\n\n      visitText(text: html.Text, context: I18nMessageVisitorContext):\n  i18n.Node {\n        const node = this._visitTextWithInterpolation(text.value, text.sourceSpan, context);\n        return\n  context.visitNodeFn(text, node);\n      }\n\n      visitComment(comment: html.Comment, context:\n  I18nMessageVisitorContext): i18n.Node|null {\n        return null;\n      }\n\n      visitExpansion(icu: html.Expansion,\n        context: I18nMessageVisitorContext): i18n.Node {\n        context.icuDepth++;\n        const i18nIcuCases: {[k: string]:\n  i18n.Node} = {};\n        const i18nIcu = new i18n.Icu(icu.switchValue, icu.type, i18nIcuCases, icu.sourceSpan);\n        icu.cases.forEach((caze): void => {\n          i18nIcuCases[caze.value] = new i18n.Container(\n            caze.expression.map((node) => node.visit(this, context)), caze.expSourceSpan);\n        });\n        context.icuDepth--;\n        if (context.isIcu || context.icuDepth > 0) {\n          // Returns an ICU node when:\n          // - the message (vs a part of the message) is an ICU message, or\n          // - the ICU message is nested.\n          const\n  expPh = context.placeholderRegistry.getUniquePlaceholder(`VAR_${icu.type}`);\n          i18nIcu.expressionPlaceholder = expPh;\n          context.placeholderToContent[expPh] = {\n            text:\n  icu.switchValue,\n            sourceSpan: icu.switchValueSourceSpan,\n          };\n          return context.visitNodeFn(icu,\n  i18nIcu);\n        }\n        // Else returns a placeholder\n        // ICU placeholders should not be replaced with their original\n        content but with the their\n        // translations.\n        // TODO(vicb): add a html.Node -> i18n.Message cache to avoid\n        having to re-create the msg\n        const phName = context.placeholderRegistry.getPlaceholderName('ICU',\n  icu.sourceSpan.toString());\n        context.placeholderToMessage[phName] = this.toI18nMessage([icu], " ", "\n  undefined);\n        const node = new i18n.IcuPlaceholder(i18nIcu, phName, icu.sourceSpan);\n        return context.visitNodeFn(icu,\n  node);\n      }\n\n      visitExpansionCase(_icuCase: html.ExpansionCase, _context: I18nMessageVisitorContext):

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i18n.Node {\n    throw new Error('Unreachable code');\n }\n\n private _visitTextWithInterpolation(\n     text:\n string,\n sourceSpan: ParseSourceSpan,\n context: I18NMessageVisitorContext):\n i18n.Node {\n     const splitInterpolation = this._expressionParser.splitInterpolation(\n         text,\n sourceSpan.start.toString(),\n this._interpolationConfig);\n\n     if (!splitInterpolation) {\n         // No expression, return a single text\n         return new\n i18n.Text(text, sourceSpan);\n     }\n\n     // Return a group of text + expressions\n     const nodes: i18n.Node[] = [];\n     const container = new i18n.Container(nodes, sourceSpan);\n     const {start: sDelimiter, end: eDelimiter} =\n this._interpolationConfig;\n\n     for (let i = 0; i < splitInterpolation.strings.length - 1; i++) {\n         const expression = splitInterpolation.expressions[i];\n         const baseName =\n _extractPlaceholderName(expression) || 'INTERPOLATION';\n         const phName =\n context.placeholderRegistry.getPlaceholderName(baseName, expression);\n\n         if\n (splitInterpolation.strings[i].length) {\n             // No need to add empty strings\n             const stringSpan =\n getOffsetSourceSpan(sourceSpan, splitInterpolation.stringSpans[i]);\n             nodes.push(new\n i18n.Text(splitInterpolation.strings[i], stringSpan));\n         }\n\n         const expressionSpan =\n getOffsetSourceSpan(sourceSpan, splitInterpolation.expressionsSpans[i]);\n         nodes.push(new\n i18n.Placeholder(expression, phName, expressionSpan));\n         context.placeholderToContent[phName] = {\n text: sDelimiter + expression + eDelimiter,\n sourceSpan: expressionSpan,\n };\n     }\n\n     // The last index contains no expression\n     const lastStringIdx = splitInterpolation.strings.length - 1;\n     if\n (splitInterpolation.strings[lastStringIdx].length)\n {\n         const stringSpan =\n getOffsetSourceSpan(sourceSpan, splitInterpolation.stringSpans[lastStringIdx]);\n         nodes.push(new i18n.Text(splitInterpolation.strings[lastStringIdx], stringSpan));\n     }\n     return container;\n }\n}\n\nfunction getOffsetSourceSpan(\n    sourceSpan: ParseSourceSpan,\n    {start, end}: {start: number, end: number}): ParseSourceSpan {\n    return new ParseSourceSpan(sourceSpan.fullStart.moveBy(start),\n        sourceSpan.fullStart.moveBy(end));\n }\n\nconst _CUSTOM_PH_EXP =`\n\\\\\\\\\\/[\\\\s\\\\$]*i18n([\\\\s\\\\$]*)((\\\\[\\\\s\\\\$]*ph\\\\[\\\\s\\\\$]*=([\\\\s\\\\$]*(\"')?)(\\\\[\\\\s\\\\$]*?)\\\\|1\\\\[\\\\s\\\\$]*\\\\))/g`;\n\nfunction\n_extractPlaceholderName(input: string): string {\n    return input.split(_CUSTOM_PH_EXP)[2];\n }\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-\n style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport\n {computeDecimalDigest, computeDigest,\n decimalDigest} from '../..'/i18n/digest';\n import * as i18n from '../..'/i18n/i18n_ast';\n import\n {createI18NMessageFactory, VisitNodeFn} from '../..'/i18n/i18n_parser';\n import * as html from\n '../..'/ml_parser/ast';\n import {DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig} from\n '../..'/ml_parser/interpolation_config';\n import * as o from '../..'/output/output_ast';\n\n import {hasI18NAttrs,\n I18N_ATTR, I18N_ATTR_PREFIX, icuFromI18NMessage} from './util';\n\n export type I18NMeta = {\n id?:\n string,\n customId?: string,\n legacyIds?: string[],\n description?: string,\n meaning?: string\n }; \n\n const setI18NRefs: VisitNodeFn = (htmlNode, i18NNode) => {\n     if (htmlNode instanceof html.NodeWithI18N) {\n         if\n (i18NNode instanceof i18n.IcuPlaceholder && htmlNode.i18n instanceof i18n.Message) {\n             // This html node represents an ICU but this is a second processing pass,\n             // and the legacy id was computed in the previous pass and stored in the `i18n` property as\n             a message.\n             // We are about to wipe out that property so capture the previous message to be reused when\n             generating the message for this ICU later. See `_generateI18NMessage()`.\n             htmlNode.i18n.previousMessage =\n htmlNode.i18n;\n             htmlNode.i18n = i18NNode;\n         }\n         return i18NNode;\n     }\n\n     /**\n      * This visitor walks over HTML parse tree and converts information stored in i18n-related attributes ("i18n" and "i18n-*) into i18n meta object that is stored with other element's and attribute's information.\n      */\n     export class I18NMetaVisitor implements html.Visitor {\n         // whether visited nodes contain i18n information\n         public hasI18NMeta: boolean = false;\n\n         // i18n message generation factory\n         private _createI18NMessage =\n createI18NMessageFactory(this.interpolationConfig);\n\n         constructor(\n             private interpolationConfig:\n InterpolationConfig = DEFAULT_INTERPOLATION_CONFIG,\n             private keepI18NAttrs = false,\n             private enableI18NLegacyMessageIdFormat
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= false) {} \n\n private _generateI18nMessage(\n    nodes: html.Node[], meta: string|i18n.I18nMeta = "", \n
visitNodeFn?: VisitNodeFn): i18n.Message {\n    const {meaning, description, customId} =
this._parseMetadata(meta);\n    const message = this._createI18nMessage(nodes, meaning, description, customId,
visitNodeFn);\n    this._setMessageId(message, meta);\n    this._setLegacyIds(message, meta);\n    return message;\n
}\n\n visitElement(element: html.Element): any {\n    if (hasI18nAttrs(element)) {\n        this.hasI18nMeta = true;\n
const attrs: html.Attribute[] = [];\n        const attrsMeta: {[key: string]: string} = {};\n\n        for (const attr of
element.attrs) {\n            if (attr.name === I18N_ATTR) {\n                // root 'i18n' node attribute\n                const i18n =
element.i18n || attr.value;\n                const message = this._generateI18nMessage(element.children, i18n,
setI18nRefs);\n                // do not assign empty i18n meta\n                if (message.nodes.length) {\n
                    element.i18n = message;\n                }\n\n            } else if (attr.name.startsWith(I18N_ATTR_PREFIX)) {\n                //
'i18n-*' attributes\n                const key = attr.name.slice(I18N_ATTR_PREFIX.length);\n                attrsMeta[key] =
attr.value;\n\n            } else {\n                // non-i18n attributes\n                attrs.push(attr);\n            }\n\n        }\n\n        // set i18n
meta for attributes\n        if (Object.keys(attrsMeta).length) {\n            for (const attr of attrs) {\n                const meta =
attrsMeta[attr.name];\n                // do not create translation for empty attributes\n                if (meta !== undefined &&
attr.value) {\n                    attr.i18n = this._generateI18nMessage([attr], attr.i18n || meta);\n                }\n            }\n\n        }\n\n        if (!this.keepI18nAttrs) {\n            // update element's attributes,\n            // keeping only non-i18n related ones\n            element.attrs = attrs;\n        }\n\n        html.visitAll(this, element.children, element.i18n);\n        return element;\n
    }\n\n    visitExpansion(expansion: html.Expansion, currentMessage: i18n.Message|undefined): any {\n        let
message;\n        const meta = expansion.i18n;\n        this.hasI18nMeta = true;\n        if (meta instanceof i18n.IcuPlaceholder)
{\n            // set ICU placeholder name (e.g. '"ICU_1"'),\n            // generated while processing root element contents,\n
// so we can reference it when we output translation\n            const name = meta.name;\n            message =
this._generateI18nMessage([expansion], meta);\n            const icu = icuFromI18nMessage(message);\n            icu.name =
name;\n        } else {\n            // ICU is a top level message, try to use metadata from container element if provided via\n
// `context` argument. Note: context may not be available for standalone ICUs (without\n            // wrapping element),
so fallback to ICU metadata in this case.\n            message = this._generateI18nMessage([expansion], currentMessage ||
meta);\n        }\n        expansion.i18n = message;\n        return expansion;\n    }\n\n    visitText(text:
html.Text): any {\n        return text;\n    }\n\n    visitAttribute(attribute: html.Attribute): any {\n        return attribute;\n    }\n
    visitComment(comment: html.Comment): any {\n        return comment;\n    }\n\n    visitExpansionCase(expansionCase:
html.ExpansionCase): any {\n        return expansionCase;\n    }\n\n    /**\n     * Parse the general form `meta` passed into
extract the explicit metadata needed to create a\n     * `Message`.\n     * \n     * There are three possibilities for the `meta`
variable\n     * 1) a string from an `i18n` template attribute: parse it to extract the metadata values.\n     * 2) a
`Message` from a previous processing pass: reuse the metadata values in the message.\n     * 4) other: ignore this and
just process the message metadata as normal\n     * \n     * @param meta the bucket that holds information about the
message\n     * @returns the parsed metadata.\n     */\n    private _parseMetadata(meta: string|i18n.I18nMeta): I18nMeta
{\n        return typeof meta === 'string' ? parseI18nMeta(meta) :\n
            meta instanceof i18n.Message ? meta : {};\n    }\n\n    /**\n     * Generate (or restore) message
id if not specified already.\n     */\n    private _setMessageId(message: i18n.Message, meta: string|i18n.I18nMeta):
void {\n        if (!message.id) {\n            message.id = meta instanceof i18n.Message && meta.id ||
decimalDigest(message);\n        }\n    }\n\n    /**\n     * Update the `message` with a `legacyId` if necessary.\n     */\n    @param message the message whose legacy id should be set\n    @param meta information about the message
being processed\n    private _setLegacyIds(message: i18n.Message, meta: string|i18n.I18nMeta): void {\n        if
(this.enableI18nLegacyMessageIdFormat) {\n            message.legacyIds = [computeDigest(message),
computeDecimalDigest(message)];\n        } else if (typeof meta !== 'string') {\n            // This occurs if we are doing the
2nd pass after whitespace removal (see `parseTemplate()` in\n            //
`packages/compiler/src/render3/view/template.ts`).\n\n            // In that case we want to reuse the legacy message generated in the 1st pass (see\n            // `setI18nRefs()`).\n
const previousMessage = meta instanceof i18n.Message ?\n                meta :\n                meta instanceof i18n.IcuPlaceholder
? meta.previousMessage : undefined;\n            message.legacyIds = previousMessage ? previousMessage.legacyIds :

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[];\n  }\n }\n}\n\n/** I18n separators for metadata */\nconst I18N_MEANING_SEPARATOR = '|';\nconst I18N_ID_SEPARATOR = '@@';\n\n/**\n * Parses i18n metas like:\n * - \"@@id\", \n * - \"description[ @@id]\", \n * - \"meaning|description[ @@id]\"\n * and returns an object with parsed output.\n * @param meta String that represents i18n meta\n * @returns Object with id, meaning and description fields\n */\nexport function parseI18nMeta(meta: string = ''): I18nMeta {\n  let customId: string|undefined;\n  let meaning: string|undefined;\n  let description: string|undefined;\n\n  meta = meta.trim();\n  if (meta) {\n    const idIndex = meta.indexOf(I18N_ID_SEPARATOR);\n    const descIndex = meta.indexOf(I18N_MEANING_SEPARATOR);\n    let meaningAndDesc: string;\n    [meaningAndDesc, customId] =\n      (idIndex > -1) ? [meta.slice(0, idIndex), meta.slice(idIndex + 2)] : [meta, ''];\n    [meaning, description] =\n      (descIndex > -1) ? [meaningAndDesc.slice(0, descIndex), meaningAndDesc.slice(descIndex + 1)] :\n      ['', meaningAndDesc];\n  }\n\n  return {customId, meaning, description};\n}\n\n// Converts i18n meta information for a message (id, description, meaning)\n// to a JsDoc statement formatted as expected by the Closure compiler.\nexport function i18nMetaToJSDoc(meta: I18nMeta): o.JSDocComment|null {\n  const tags: o.JSDocTag[] = [];\n  if (meta.description) {\n    tags.push({tagName: o.JSDocTagName.Desc, text: meta.description});\n  }\n  if (meta.meaning) {\n    tags.push({tagName: o.JSDocTagName.Meaning, text: meta.meaning});\n  }\n  return tags.length === 0 ? null : o.jsDocComment(tags);\n}\n\n\"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\nimport * as i18n from './../i18n/i18n_ast';\nimport {mapLiteral} from './../output/map_util';\nimport * as o from './../output/output_ast';\nimport {serializeIcuNode} from './icu_serializer';\nimport {i18nMetaToJSDoc} from './meta';\nimport {formatI18nPlaceholderName} from './util';\n\n/** Closure uses `goog.getMsg(message)` to lookup translations */\nconst GOOG_GET_MSG = 'goog.getMsg';\n\nexport function createGoogleGetMsgStatements(\n  variable: o.ReadVarExpr, message: i18n.Message, closureVar: o.ReadVarExpr,\n  params: {[name: string]: o.Expression}): o.Statement[] {\n  const messageString = serializeI18nMessageForGetMsg(message);\n  const args = [o.literal(messageString) as o.Expression];\n  if (Object.keys(params).length) {\n    args.push(mapLiteral(params, true));\n  }\n\n  }\n\n  /**\n   * @desc description of message\n   * @meaning meaning of message\n   */\n  const MSG_... = goog.getMsg(...);\n  // I18N_X = MSG_...;\n  const googGetMsgStmt =\n    closureVar.set(o.variable(GOOG_GET_MSG).callFn(args)).toConstDecl();\n  const metaComment = i18nMetaToJSDoc(message);\n  if (metaComment !== null) {\n    googGetMsgStmt.addLeadingComment(metaComment);\n  }\n  const i18nAssignmentStmt = new o.ExpressionStatement(variable.set(closureVar));\n  return [googGetMsgStmt, i18nAssignmentStmt];\n}\n\n/**\n * This visitor walks over i18n tree and generates its string representation, including ICUs and\n * placeholders in `${placeholder}` (for plain messages) or `{PLACEHOLDER}` (inside ICUs) format.\n */\nexport class GetMsgSerializerVisitor implements i18n.Visitor {\n  private formatPh(value: string): string {\n    return `${formatI18nPlaceholderName(value)} `;\n  }\n\n  visitText(text: i18n.Text): any {\n    return text.value;\n  }\n\n  visitContainer(container: i18n.Container): any {\n    return container.children.map(child => child.visit(this)).join('');\n  }\n\n  visitIcu(icu: i18n.Icu): any {\n    return serializeIcuNode(icu);\n  }\n\n  visitTagPlaceholder(ph: i18n.TagPlaceholder): any {\n    return ph.isVoid ?\n      this.formatPh(ph.startName) :\n      `${this.formatPh(ph.startName)}${ph.children.map(child => child.visit(this)).join('')}${\n        this.formatPh(ph.closeName)} `;\n  }\n\n  visitPlaceholder(ph: i18n.Placeholder): any {\n    return this.formatPh(ph.name);\n  }\n\n  visitIcuPlaceholder(ph: i18n.IcuPlaceholder, context?: any): any {\n    return this.formatPh(ph.name);\n  }\n}\n\nconst serializerVisitor = new GetMsgSerializerVisitor();\n\nexport function serializeI18nMessageForGetMsg(message: i18n.Message): string {\n  return message.nodes.map(node => node.visit(serializerVisitor, null)).join('');\n}\n\n\"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an

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MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\nimport * as i18n
from '../i18n/i18n_ast';\nimport * as o from '../output/output_ast';\nimport { ParseLocation,
ParseSourceSpan } from '../parse_util';\nimport { serializeIcuNode } from './icu_serializer';\nimport
{ formatI18nPlaceholderName } from './util';\n\nexport function createLocalizeStatements(\n  variable:
o.ReadVarExpr, message: i18n.Message,\n  params: {[name: string]: o.Expression}): o.Statement[] {\n  const
{ messageParts, placeholders } = serializeI18nMessageForLocalize(message);\n  const sourceSpan =
getSourceSpan(message);\n  const expressions = placeholders.map(ph => params[ph.text]);\n  const localizedString
=\n    o.localizedString(message, messageParts, placeholders, expressions, sourceSpan);\n  const
variableInitialization = variable.set(localizedString);\n  return [new
o.ExpressionStatement(variableInitialization)];\n}\n\n/**\n * This visitor walks over
an i18n tree, capturing literal strings and placeholders.\n *\n * The result can be used for generating the `$_localize`
tagged template literals.\n *\n * \nclass LocalizeSerializerVisitor implements i18n.Visitor {\n  visitText(text: i18n.Text,
context: o.MessagePiece[]): any {\n    if (context[context.length - 1] instanceof o.LiteralPiece) {\n      // Two literal
pieces in a row means that there was some comment node in-between.\n      context[context.length - 1].text +=
text.value;\n    } else {\n      context.push(new o.LiteralPiece(text.value, text.sourceSpan));\n    }\n  }\n  visitContainer(container: i18n.Container, context: o.MessagePiece[]): any {\n    container.children.forEach(child =>
child.visit(this, context));\n  }\n  visitIcu(icu: i18n.Icu, context: o.MessagePiece[]): any {\n    context.push(new
o.LiteralPiece(serializeIcuNode(icu), icu.sourceSpan));\n  }\n  visitTagPlaceholder(ph: i18n.TagPlaceholder,
context: o.MessagePiece[]): any {\n    context.push(this.createPlaceholderPiece(ph.startName,
ph.startSourceSpan ?? ph.sourceSpan));\n    if (!ph.isVoid) {\n      ph.children.forEach(child => child.visit(this,
context));\n      context.push(this.createPlaceholderPiece(ph.closeName, ph.endSourceSpan ?? ph.sourceSpan));\n    }\n  }\n  visitPlaceholder(ph: i18n.Placeholder, context: o.MessagePiece[]): any {\n
context.push(this.createPlaceholderPiece(ph.name, ph.sourceSpan));\n  }\n  visitIcuPlaceholder(ph:
i18n.IcuPlaceholder, context?: any): any {\n    context.push(this.createPlaceholderPiece(ph.name,
ph.sourceSpan));\n  }\n  private createPlaceholderPiece(name: string, sourceSpan: ParseSourceSpan):
o.PlaceholderPiece {\n    return new o.PlaceholderPiece(\n      formatI18nPlaceholderName(name, /*
useCamelCase */ false), sourceSpan);\n  }\n}\n\nconst serializerVisitor = new LocalizeSerializerVisitor();\n\n/**\n *
Serialize an i18n message into two arrays: messageParts and placeholders.\n *\n * These arrays will be used to
generate `$_localize`
tagged template literals.\n *\n * @param message The message to be serialized.\n * @returns an object containing
the messageParts and placeholders.\n *\n * \nexport function serializeI18nMessageForLocalize(message:
i18n.Message): {\n  messageParts: o.LiteralPiece[], placeholders: o.PlaceholderPiece[]\n} {\n  const pieces:
o.MessagePiece[] = [];\n  message.nodes.forEach(node => node.visit(serializerVisitor, pieces));\n  return
processMessagePieces(pieces);\n}\n\nfunction getSourceSpan(message: i18n.Message): ParseSourceSpan {\n  const
startNode = message.nodes[0];\n  const endNode = message.nodes[message.nodes.length - 1];\n  return new
ParseSourceSpan(\n    startNode.sourceSpan.start, endNode.sourceSpan.end, startNode.sourceSpan.fullStart,\n    startNode.sourceSpan.details);\n}\n\n/**\n * Convert the list of serialized MessagePieces into two arrays.\n *\n *
One contains the literal string pieces and the other the placeholders that will be replaced by\n * expressions when
rendering `$_localize`
tagged template literals.\n *\n * @param pieces The pieces to process.\n * @returns an object containing the
messageParts and placeholders.\n *\n * \nfunction processMessagePieces(pieces: o.MessagePiece[]): {\n
{ messageParts: o.LiteralPiece[], placeholders: o.PlaceholderPiece[]\n} {\n  const messageParts: o.LiteralPiece[] =
[];\n  const placeholders: o.PlaceholderPiece[] = [];\n  if (pieces[0] instanceof o.PlaceholderPiece) {\n    // The
first piece was a placeholder so we need to add an initial empty message part.\n    messageParts.push(createEmptyMessagePart(pieces[0].sourceSpan.start));\n  }\n  for (let i = 0; i < pieces.length;
i++) {\n    const part = pieces[i];\n    if (part instanceof o.LiteralPiece) {\n      messageParts.push(part);\n    } else {\n
      placeholders.push(part);\n      if (pieces[i - 1] instanceof o.PlaceholderPiece) {\n        // There were two
placeholders in a row, so we need to add an empty message part.\n

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messageParts.push(createEmptyMessagePart(pieces[i
- 1].sourceSpan.end));\n    }\n    }\n    if (pieces[pieces.length - 1] instanceof o.PlaceholderPiece) {\n    // The
last piece was a placeholder so we need to add a final empty message part.\n
messageParts.push(createEmptyMessagePart(pieces[pieces.length - 1].sourceSpan.end));\n    }\n    return
{messageParts, placeHolders};\n    }\n\nfunction createEmptyMessagePart(location: ParseLocation): o.LiteralPiece {\n
return new o.LiteralPiece("", new ParseSourceSpan(location, location));\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {flatten, sanitizeIdentifier} from
'../../compile_metadata';\nimport {BindingForm, BuiltinFunctionCall, convertActionBinding,
convertPropertyBinding, convertUpdateArguments, LocalResolver} from
'../../compiler_util/expression_converter';\nimport {ConstantPool} from '../../constant_pool';\nimport
* as core from '../../core';\nimport {AST, AstMemoryEfficientTransformer, BindingPipe, BindingType,
FunctionCall, ImplicitReceiver, Interpolation, LiteralArray, LiteralMap, LiteralPrimitive, ParsedEventType,
PropertyRead, ThisReceiver} from '../../expression_parser/ast';\nimport {Lexer} from
'../../expression_parser/lexer';\nimport {IvyParser} from '../../expression_parser/parser';\nimport * as i18n from
'../../i18n/i18n_ast';\nimport * as html from '../../ml_parser/ast';\nimport {HtmlParser} from
'../../ml_parser/html_parser';\nimport {WhitespaceVisitor} from '../../ml_parser/html_whitespaces';\nimport
{DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig} from
'../../ml_parser/interpolation_config';\nimport {LexerRange} from '../../ml_parser/lexer';\nimport {isNgContainer as
checkIsNgContainer, splitNsName} from '../../ml_parser/tags';\nimport {mapLiteral} from
'../../output/map_util';\nimport * as o from '../../output/output_ast';\nimport {ParseError, ParseSourceSpan}
from '../../parse_util';\nimport {DomElementSchemaRegistry} from
'../../schema/dom_element_schema_registry';\nimport {CssSelector, SelectorMatcher} from '../../selector';\nimport
{BindingParser} from '../../template_parser/binding_parser';\nimport {error, partitionArray} from '../../util';\nimport
* as t from './r3_ast';\nimport {Identifiers as R3} from './r3_identifiers';\nimport {htmlAstToRender3Ast} from
'./r3_template_transform';\nimport {prepareSyntheticListenerFunctionName, prepareSyntheticListenerName,
prepareSyntheticPropertyName} from './util';\n\nimport {I18nContext} from './i18n/context';\nimport
{createGoogleGetMsgStatements} from './i18n/get_msg_utils';\nimport {createLocalizeStatements} from
'./i18n/localize_utils';\nimport {I18nMetaVisitor} from './i18n/meta';\nimport {assembleBoundTextPlaceholders,
assembleI18nBoundString, declareI18nVariable, getTranslationConstPrefix, hasI18nMeta,
I18N_ICU_MAPPING_PREFIX, i18nFormatPlaceholderNames, icuFromI18nMessage, isI18nRootNode,
isSingleI18nIcu, placeholdersToParams, TRANSLATION_VAR_PREFIX, wrapI18nPlaceholder} from
'./i18n/util';\nimport {StylingBuilder, StylingInstruction} from './styling_builder';\nimport {asLiteral,
chainedInstruction, CONTEXT_NAME, getAttrsForDirectiveMatching, getInterpolationArgsLength,
IMPLICIT_REFERENCE, invalid, NON_BINDABLE_ATTR, REFERENCE_PREFIX, RENDER_FLAGS,
trimTrailingNulls, unsupported} from './util';\n\n\n// Selector attribute name of <ng-content>\nconst
NG_CONTENT_SELECT_ATTR = 'select';\n\n// Attribute name of `ngProjectAs`\nconst
NG_PROJECT_AS_ATTR_NAME = 'ngProjectAs';\n\n// Global symbols available only inside event
bindings.\nconst EVENT_BINDING_SCOPE_GLOBALS = new Set<string>(['$event']);\n\n// List of supported
global targets for event listeners\nconst GLOBAL_TARGET_RESOLVERS = new Map<string,
o.ExternalReference>(\n    [['window', R3.resolveWindow], ['document', R3.resolveDocument], ['body',
R3.resolveBody]]);\n\nexport const LEADING_TRIVIA_CHARS = ['
', '\\n', '\\r', '\\t'];\n\n// if (rf & flags) { .. }\nexport function renderFlagCheckIfStmt(\n    flags: core.RenderFlags,
statements: o.Statement[]): o.IfStmt {\n    return o.ifStmt(o.variable(RENDER_FLAGS).bitwiseAnd(o.literal(flags),
null, false), statements);\n}\n\nexport function prepareEventListenerParameters(\n    eventAst: t.BoundEvent,
handlerName: string|null = null,\n    scope: BindingScope|null = null): o.Expression[] {\n    const {type, name, target,
phase, handler} = eventAst;\n    if (target && !GLOBAL_TARGET_RESOLVERS.has(target)) {\n        throw new
Error('Unexpected global target '${target}' defined for '${name}' event.\n        Supported list of global targets:

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${Array.from(GLOBAL_TARGET_RESOLVERS.keys())}.');\n }\n\n const eventArgumentName = '$event';\n const implicitReceiverAccesses = new Set<string>();\n const implicitReceiverExpr = (scope === null ||\n scope.bindingLevel === 0) ?\n   o.variable(CONTEXT_NAME) :\n   scope.getOrCreateSharedContextVar(0);\n const\n\n bindingExpr = convertActionBinding(\n   scope, implicitReceiverExpr, handler, 'b', () => error('Unexpected\n interpolation'),\n   eventAst.handlerSpan, implicitReceiverAccesses, EVENT_BINDING_SCOPE_GLOBALS);\n\n const statements = [];\n if (scope) {\n   statements.push(...scope.restoreViewStateStatement());\n   statements.push(...scope.variableDeclarations());\n }\n\n statements.push(...bindingExpr.render3Stmts);\n\n\n const\n eventName: string =\n   type === ParsedEventType.Animation ? prepareSyntheticListenerName(name, phase!) :\n   name;\n const fnName = handlerName && sanitizeIdentifier(handlerName);\n const fnArgs: o.FnParam[] = [];\n\n if (implicitReceiverAccesses.has(eventArgumentName)) {\n   fnArgs.push(new o.FnParam(eventArgumentName,\n o.DYNAMIC_TYPE));\n }\n\n\n const handlerFn = o.fn(fnArgs, statements, o.INFERRED_TYPE, null, fnName);\n\n const params: o.Expression[] = [o.literal(eventName), handlerFn];\n if (target) {\n   params.push(\n o.literal(false), // `useCapture`\n\n flag, defaults to `false`\n   o.importExpr(GLOBAL_TARGET_RESOLVERS.get(target!));\n }\n\n return\n params;\n}\n\n// Collects information needed to generate `const` field of the ComponentDef.\n// When a constant\n requires some pre-processing, the `prepareStatements` section\n// contains corresponding statements.\n\nexport\n interface ComponentDefConsts {\n   prepareStatements: o.Statement[];\n   constExpressions:\n o.Expression[];\n }\n\n\nfunction createComponentDefConsts(): ComponentDefConsts {\n   return {prepareStatements:\n [], constExpressions: []};\n}\n\n\nexport class TemplateDefinitionBuilder implements t.Visitor<void>, LocalResolver\n {\n   private _dataIndex = 0;\n   private _bindingContext = 0;\n   private _prefixCode: o.Statement[] = [];\n\n   /**\n    * List of callbacks to generate creation mode instructions. We store them here as we process\n    * the template so\n    bindings in listeners are resolved only once all nodes have been visited.\n    * This ensures all local refs and context\n    variables\n    are available for matching.\n    */\n   private _creationCodeFns: (() => o.Statement)[] = [];\n\n   /**\n    * List of\n    callbacks to generate update mode instructions. We store them here as we process\n    * the template so bindings are\n    resolved only once all nodes have been visited. This ensures\n    * all local refs and context variables are available\n    for matching.\n    */\n   private _updateCodeFns: (() => o.Statement)[] = [];\n\n   /**\n    Index of the currently-selected\n    node.\n    */\n   private _currentIndex: number = 0;\n\n   /**\n    Temporary variable declarations generated from visiting\n    pipes, literals, etc.\n    */\n   private _tempVariables: o.Statement[] = [];\n\n   /**\n    * List of callbacks to build nested\n    templates. Nested templates must not be visited until\n    * after the parent template has finished visiting all of its\n    nodes. This ensures that all\n    * local ref bindings in nested templates are able to find local ref values if the refs\n    * are defined after the template declaration.\n    */\n   private\n\n     _nestedTemplateFns: (() => void)[] = [];\n\n   /**\n    * This scope contains local variables declared in the update mode\n    block of the template.\n    * (e.g. refs and context vars in bindings)\n    */\n   private _bindingScope: BindingScope;\n\n   private _valueConverter: ValueConverter;\n   private _unsupported = unsupported;\n\n   // i18n context local to this\n   template\n   private i18n: I18nContext|null = null;\n\n   // Number of slots to reserve for pureFunctions\n   private\n     _pureFunctionSlots = 0;\n\n   // Number of binding slots\n   private _bindingSlots = 0;\n\n   private\n\n     fileBasedI18nSuffix: string;\n\n   // Projection slots found in the template. Projection slots can distribute projected\n   // nodes based on a selector, or can just use the wildcard selector to match\n   // all nodes which aren't matching any\n   selector.\n   private _ngContentReservedSlots: (string|'')[] = [];\n\n   // Number of non-default selectors found in all\n   parent templates of this template. We need to\n   // track it to properly\n   adjust projection slot index in the `projection` instruction.\n   private _ngContentSelectorsOffset = 0;\n\n   //\n\n   Expression that should be used as implicit receiver when converting template\n   // expressions to output AST.\n   private _implicitReceiverExpr: o.ReadVarExpr|null = null;\n\n   constructor(\n     private constantPool:\n ConstantPool, parentBindingScope: BindingScope, private level = 0,\n     private contextName: string|null, private\n     i18nContext: I18nContext|null,\n     private templateIndex: number|null, private templateName: string|null,\n     private directiveMatcher: SelectorMatcher|null, private directives: Set<o.Expression>,\n     private

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pipeTypeByName: Map<string, o.Expression>, private pipes: Set<o.Expression>,\n    private _namespace:
o.ExternalReference, relativeContextFilePath: string,\n    private i18nUseExternalIds: boolean,\n    private
_constants: ComponentDefConsts = createComponentDefConsts()) {\n    this._bindingScope =
parentBindingScope.nestedScope(level);\n\n    // Turn the relative context file path into an identifier by replacing non-alphanumeric\n    // characters with
underscores.\n    this.fileBasedI18nSuffix = relativeContextFilePath.replace(/[^A-Za-z0-9]/g, '_') + '_';\n\n    this._valueConverter = new ValueConverter(\n        constantPool, () => this.allocateDataSlot(),\n        (numSlots:
number) => this.allocatePureFunctionSlots(numSlots),\n        (name, localName, slot, value: o.Expression) => {\n
        const pipeType = pipeTypeByName.get(name);\n        if (pipeType) {\n            this.pipes.add(pipeType);\n
        }\n        this._bindingScope.set(this.level, localName, value);\n        this.creationInstruction(null, R3.pipe,
[o.literal(slot), o.literal(name)]);\n    });\n\n    buildTemplateFunction(\n        nodes: t.Node[], variables:
t.Variable[], ngContentSelectorsOffset: number = 0,\n        i18n?: i18n.I18nMeta): o.FunctionExpr {\n
this._ngContentSelectorsOffset = ngContentSelectorsOffset;\n\n        if (this._namespace !== R3.namespaceHTML) {\n            this.creationInstruction(null, this._namespace);\n        }\n\n        // Create variable bindings\n        variables.forEach(v => this.registerContextVariables(v));\n\n        // Initiate i18n context
in case:\n        // - this template has parent i18n context\n        // - or the template has i18n meta associated with it,\n        //
but it's not initiated by the Element (e.g. <ng-template i18n>)\n        const initI18nContext = this.i18nContext ||\n
(isI18nRootNode(i18n) && !isSingleI18nIcu(i18n) && !isSingleElementTemplate(nodes) &&
nodes[0].i18n === i18n);\n        const selfClosingI18nInstruction = hasTextChildrenOnly(nodes);\n        if
(initI18nContext) {\n            this.i18nStart(null, i18n!, selfClosingI18nInstruction);\n        }\n\n        // This is the initial pass
through the nodes of this template. In this pass, we\n        // queue all creation mode and update mode instructions for
generation in the second\n        // pass. It's necessary to
        separate the passes to ensure local refs are defined before\n        // resolving bindings. We also count bindings in this
pass as we walk bound expressions.\n        t.visitAll(this, nodes);\n\n        // Add total binding count to pure function
count so pure function instructions are\n        // generated with the correct slot offset when update instructions are
processed.\n        this._pureFunctionSlots += this._bindingSlots;\n\n        // Pipes are walked in the first pass (to enqueue
`pipe()` creation instructions and\n        // `pipeBind` update instructions), so we have to update the slot offsets
manually\n        // to account for bindings.\n        this._valueConverter.updatePipeSlotOffsets(this._bindingSlots);\n\n        //
Nested templates must be processed before creation instructions so template()\n        // instructions can be generated
with the correct internal const count.\n        this._nestedTemplateFns.forEach(buildTemplateFn =>
buildTemplateFn());\n\n        // Output the `projectionDef` instruction when some `<ng-content>`
tags are present.\n        // The `projectionDef` instruction is only emitted for the component template and\n        // is
skipped for nested templates (<ng-template> tags).\n        if (this.level === 0 &&
this._ngContentReservedSlots.length) {\n            const parameters: o.Expression[] = [];\n\n            // By default the
`projectionDef` instructions creates one slot for the wildcard\n            // selector if no parameters are passed. Therefore
we only want to allocate a new\n            // array for the projection slots if the default projection slot is not sufficient.\n
if (this._ngContentReservedSlots.length > 1 || this._ngContentReservedSlots[0] !== '*') {\n                const
r3ReservedSlots = this._ngContentReservedSlots.map(\n                    s => s !== '*' ? core.parseSelectorToR3Selector(s) :
s);\n                parameters.push(this.constantPool.getConstLiteral(asLiteral(r3ReservedSlots), true));\n            }\n\n            //
Since we accumulate ngContent selectors while processing template elements,\n            // we
*prepend* `projectionDef` to creation instructions block, to put it before\n            // any `projection` instructions\n
this.creationInstruction(null, R3.projectionDef, parameters, /* prepend */ true);\n        }\n\n        if (initI18nContext) {\n
            this.i18nEnd(null, selfClosingI18nInstruction);\n        }\n\n        // Generate all the creation mode instructions (e.g.
resolve bindings in listeners)\n        const creationStatements = this._creationCodeFns.map((fn: () => o.Statement) =>
fn());\n\n        // Generate all the update mode instructions (e.g. resolve property or text bindings)\n        const
updateStatements = this._updateCodeFns.map((fn: () => o.Statement) => fn());\n\n        // Variable declaration must
occur after binding resolution so we can generate context\n        // instructions that build on each other.\n        // e.g. const
b = nextContext().Simplicit(); const b = nextContext();\n        const creationVariables =

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this._bindingScope.viewSnapshotStatements();\n  const updateVariables =
this._bindingScope.variableDeclarations().concat(this._tempVariables);\n\n  const creationBlock = creationStatements.length > 0 ?\n    [renderFlagCheckIfStmt(\n
core.RenderFlags.Create, creationVariables.concat(creationStatements))]:\n    [];\n\n  const updateBlock =
updateStatements.length > 0 ?\n    [renderFlagCheckIfStmt(core.RenderFlags.Update,
updateVariables.concat(updateStatements))]:\n    [];\n\n  return o.fn(\n    // i.e. (rf: RenderFlags, ctx: any)\n
[new o.FnParam(RENDER_FLAGS, o.NUMBER_TYPE), new o.FnParam(CONTEXT_NAME, null)],\n    [\n
    // Temporary variable declarations for query refresh (i.e. let _t: any);\n    ...this._prefixCode,\n    //
Creating mode (i.e. if (rf & RenderFlags.Create) { ... })\n    ...creationBlock,\n    // Binding and refresh mode
(i.e. if (rf & RenderFlags.Update) { ... })\n    ...updateBlock,\n    ],\n    o.INFERRED_TYPE, null,
this.templateName);\n  }\n\n  // LocalResolver\n
getLocal(name: string): o.Expression|null {\n  return this._bindingScope.get(name);\n  }\n\n  // LocalResolver\n
notifyImplicitReceiverUse(): void {\n  this._bindingScope.notifyImplicitReceiverUse();\n  }\n\n  private
i18nTranslate(\n    message: i18n.Message, params: {[name: string]: o.Expression} = {}, ref?: o.ReadVarExpr,\n
transformFn?: (raw: o.ReadVarExpr) => o.Expression): o.ReadVarExpr {\n    const _ref = ref ||
this.i18nGenerateMainBlockVar();\n    // Closure Compiler requires const names to start with `MSG_` but disallows
any other const to\n    // start with `MSG_`. We define a variable starting with `MSG_` just for the `goog.getMsg`
call\n    const closureVar = this.i18nGenerateClosureVar(message.id);\n    const statements =
getTranslationDeclStmts(message, _ref, closureVar, params, transformFn);\n
this._constants.prepareStatements.push(...statements);\n    return _ref;\n  }\n\n  private
registerContextVariables(variable: t.Variable) {\n    const
scopedName = this._bindingScope.freshReferenceName();\n    const retrievalLevel = this.level;\n    const lhs =
o.variable(variable.name + scopedName);\n    this._bindingScope.set(\n      retrievalLevel, variable.name, lhs,
DeclarationPriority.CONTEXT,\n      (scope: BindingScope, relativeLevel: number) => {\n        let rhs:
o.Expression;\n        if (scope.bindingLevel === retrievalLevel) {\n          // e.g. ctx\n          rhs =
o.variable(CONTEXT_NAME);\n        } else {\n          const sharedCtxVar =
scope.getSharedContextName(retrievalLevel);\n          // e.g. ctx_r0 OR x(2);\n          rhs = sharedCtxVar ?
sharedCtxVar : generateNextContextExpr(relativeLevel);\n        }\n        // e.g. const $item$ = x(2).Simplicit;\n
return [lhs.set(rhs.prop(variable.value || IMPLICIT_REFERENCE)).toConstDecl()];\n      });\n  }\n\n  private
i18nAppendBindings(expressions: AST[]) {\n    if (expressions.length > 0) {\n      expressions.forEach(expression
=> this.i18n!.appendBinding(expression));\n    }\n  }\n\n  private i18nBindProps(props: {[key: string]:
t.Text|t.BoundText}): {[key: string]: o.Expression} {\n    const bound: {[key: string]: o.Expression} = {};\n
Object.keys(props).forEach(key => {\n      const prop = props[key];\n      if (prop instanceof t.Text) {\n
bound[key] = o.literal(prop.value);\n      } else {\n        const value = prop.value.visit(this._valueConverter);\n
this.allocateBindingSlots(value);\n        if (value instanceof Interpolation) {\n          const {strings, expressions} =
value;\n          const {id, bindings} = this.i18n!;\n          const label = assembleI18nBoundString(strings,
bindings.size, id);\n          this.i18nAppendBindings(expressions);\n          bound[key] = o.literal(label);\n        }\n
      });\n    }\n    return bound;\n  }\n\n  // Generates top level vars for i18n blocks (i.e. `i18n_N`).\n  private
i18nGenerateMainBlockVar(): o.ReadVarExpr {\n    return
o.variable(this.constantPool.uniqueName(TRANSLATION_VAR_PREFIX));\n  }\n\n  // Generates vars with Closure-specific names for i18n blocks (i.e. `MSG_XXX`).\n  private
i18nGenerateClosureVar(messageId: string): o.ReadVarExpr {\n    let name: string;\n    const suffix =
this.fileBasedI18nSuffix.toUpperCase();\n    if (this.i18nUseExternalIds) {\n      const prefix =
getTranslationConstPrefix(`EXTERNAL_`);\n      const uniqueSuffix = this.constantPool.uniqueName(suffix);\n
name = `${prefix}${sanitizeIdentifier(messageId)}${uniqueSuffix}`;\n    } else {\n      const prefix =
getTranslationConstPrefix(suffix);\n      name = this.constantPool.uniqueName(prefix);\n    }\n    return
o.variable(name);\n  }\n\n  private i18nUpdateRef(context: I18nContext): void {\n    const {icus, meta, isRoot,
isResolved, isEmitted} = context;\n    if (isRoot && isResolved && !isEmitted && !isSingleI18nIcu(meta)) {\n

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context.isEmitted = true;\n    const placeholders = context.getSerializedPlaceholders();\n    let icuMapping: {[name: string]: o.Expression} = {};\n    let params: {[name: string]: o.Expression} =\nplaceholders.size ? placeholdersToParams(placeholders) : {};\n    if (icus.size) {\n        icus.forEach((refs:\no.Expression[], key: string) => {\n            if (refs.length === 1) {\n                // if we have one ICU defined for a given\n                // placeholder - just output its reference\n                params[key] = refs[0];\n            } else {\n                // ... otherwise\n                we need to activate post-processing\n                // to replace ICU placeholders with proper values\n                const\nplaceholder: string = wrapI18nPlaceholder(`${I18N_ICU_MAPPING_PREFIX}${key}`);\n                params[key] =\no.literal(placeholder);\n                icuMapping[key] = o.literalArr(refs);\n            }\n        });\n    }\n    // translation\nrequires post processing in 2 cases:\n    // - if we have placeholders with multiple values (ex. `START_DIV`: [#1,\n#2, ...])\n    // - if\n    we have multiple ICUs that refer to the same placeholder name\n    const needsPostprocessing =\nArray.from(placeholders.values()).some((value: string[]) => value.length > 1) ||\nObject.keys(icuMapping).length;\n    let transformFn;\n    if (needsPostprocessing) {\n        transformFn = (raw:\no.ReadVarExpr) => {\n            const args: o.Expression[] = [raw];\n            if (Object.keys(icuMapping).length) {\n                args.push(mapLiteral(icuMapping, true));\n            }\n            return instruction(null, R3.i18nPostprocess, args);\n        };\n    }\n    this.i18nTranslate(meta as i18n.Message, params, context.ref, transformFn);\n    private\ni18nStart(span: ParseSourceSpan|null = null, meta: i18n.I18nMeta, selfClosing?: boolean):\n    void {\n        const\nindex = this.allocateDataSlot();\n        this.i18n = this.i18nContext ?\n        this.i18nContext.forkChildContext(index,\nthis.templateIndex!, meta) :\n        new I18nContext(index, this.i18nGenerateMainBlockVar(),\n0, this.templateIndex, meta);\n        // generate i18nStart instruction\n        const {id, ref} = this.i18n;\n        const params:\no.Expression[] = [o.literal(index), this.addToConsts(ref)];\n        if (id > 0) {\n            // do not push 3rd argument (sub-\nblock id)\n            // into i18nStart call for top level i18n context\n            params.push(o.literal(id));\n        }\n        this.creationInstruction(span, selfClosing ? R3.i18n : R3.i18nStart, params);\n    }\n    private i18nEnd(span:\nParseSourceSpan|null = null, selfClosing?: boolean): void {\n        if (!this.i18n) {\n            throw new Error('i18nEnd is\nexecuted with no i18n context present');\n        }\n        if (this.i18nContext) {\n            this.i18nContext.reconcileChildContext(this.i18n);\n            this.i18nUpdateRef(this.i18nContext);\n        } else {\n            this.i18nUpdateRef(this.i18n);\n        }\n        // setup accumulated bindings\n        const {index, bindings} = this.i18n;\n        if (bindings.size) {\n            const chainBindings: ChainableBindingInstruction[]\n= [];\n            bindings.forEach(binding => {\n                chainBindings.push({sourceSpan: span, value: () =>\nthis.convertPropertyBinding(binding)});\n            });\n            // for i18n block, advance to the most recent element index\n(by taking the current number of\n            // elements and subtracting one) before invoking `i18nExp` instructions, to\nmake sure the\n            // necessary lifecycle hooks of components/directives are properly flushed.\n            this.updateInstructionChainWithAdvance(this.getConstCount() - 1, R3.i18nExp, chainBindings);\n            this.updateInstruction(span, R3.i18nApply, [o.literal(index)]);\n        }\n        if (!selfClosing) {\n            this.creationInstruction(span, R3.i18nEnd);\n        }\n        this.i18n = null; // reset local i18n context\n    }\n    private\ni18nAttributesInstruction(\n        nodeIndex: number, attrs: t.BoundAttribute[], sourceSpan: ParseSourceSpan): void\n{\n        let hasBindings: boolean = false;\n        const i18nAttrArgs: o.Expression[] = [];\n        const bindings:\nChainableBindingInstruction[] = [];\n        attrs.forEach(attr => {\n            const message = attr.i18n! as i18n.Message;\n            const converted = attr.value.visit(this._valueConverter);\n            this.allocateBindingSlots(converted);\n            if\n(converted instanceof Interpolation) {\n                const placeholders = assembleBoundTextPlaceholders(message);\n                const params = placeholdersToParams(placeholders);\n                i18nAttrArgs.push(o.literal(attr.name),\n                this.i18nTranslate(message, params));\n                converted.expressions.forEach(expression => {\n                    hasBindings =\ntrue;\n                    bindings.push({\n                        sourceSpan,\n                        value: () => this.convertPropertyBinding(expression),\n                    });\n                });\n            }\n        });\n        if (bindings.length > 0) {\n            this.updateInstructionChainWithAdvance(nodeIndex, R3.i18nExp, bindings);\n        }\n        if (i18nAttrArgs.length > 0)\n{\n            const index: o.Expression = o.literal(this.allocateDataSlot());\n            const constIndex =\nthis.addToConsts(o.literalArr(i18nAttrArgs));\n}

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    this.creationInstruction(sourceSpan, R3.i18nAttributes, [index, constIndex]);\n    if (hasBindings) {\n
this.updateInstruction(sourceSpan, R3.i18nApply, [index]);\n    }\n    }\n    }\n\n private
getNamespaceInstruction(namespaceKey: string|null) {\n    switch (namespaceKey) {\n        case 'math':\n            return
R3.namespaceMathML;\n        case 'svg':\n            return R3.namespaceSVG;\n        default:\n            return
R3.namespaceHTML;\n    }\n    }\n\n private addNamespaceInstruction(nsInstruction: o.ExternalReference, element:
t.Element) {\n    this._namespace = nsInstruction;\n    this.creationInstruction(element.startSourceSpan,
nsInstruction);\n    }\n\n /**\n * Adds an update instruction for an interpolated property or attribute, such as\n *
`prop="{ {value} }"` or `attr.title="{ {value} }"`\n *^\n private interpolatedUpdateInstruction(\n    instruction:
o.ExternalReference, elementIndex: number, attrName: string,\n
    input: t.BoundAttribute, value: any, params: any[]) {\n    this.updateInstructionWithAdvance(\n
elementIndex, input.sourceSpan, instruction,\n        () => [o.literal(attrName),
...this.getUpdateInstructionArguments(value), ...params]);\n    }\n\n visitContent(ngContent: t.Content) {\n    const
slot = this.allocateDataSlot();\n    const projectionSlotIdx = this._ngContentSelectorsOffset +
this._ngContentReservedSlots.length;\n    const parameters: o.Expression[] = [o.literal(slot)];\n\n
this._ngContentReservedSlots.push(ngContent.selector);\n\n    const nonContentSelectAttributes =\n
ngContent.attributes.filter(attr => attr.name.toLowerCase() !== NG_CONTENT_SELECT_ATTR);\n    const
attributes =\n        this.getAttributeExpressions(ngContent.name, nonContentSelectAttributes, [], []);\n\n    if
(attributes.length > 0) {\n        parameters.push(o.literal(projectionSlotIdx), o.literalArr(attributes));\n    } else if
(projectionSlotIdx !== 0) {\n        parameters.push(o.literal(projectionSlotIdx));\n    }\n\n    this.creationInstruction(ngContent.sourceSpan, R3.projection, parameters);\n    if (this.i18n) {\n
this.i18n.appendProjection(ngContent.i18n!, slot);\n    }\n    }\n\n visitElement(element: t.Element) {\n    const
elementIndex = this.allocateDataSlot();\n    const stylingBuilder = new StylingBuilder(null);\n\n    let
isNonBindableMode: boolean = false;\n    const isI18nRootElement: boolean =\n
isI18nRootNode(element.i18n) && !isSingleI18nIcu(element.i18n);\n\n    const outputAttrs: t.TextAttribute[] = [];\n\n    const [namespaceKey, elementName] = splitNsName(element.name);\n    const isNgContainer =
checkIsNgContainer(element.name);\n\n    // Handle styling, i18n, ngNonBindable attributes\n    for (const attr of
element.attributes) {\n        const {name, value} = attr;\n        if (name === NON_BINDABLE_ATTR) {\n
isNonBindableMode = true;\n        } else if (name === 'style') {\n            stylingBuilder.registerStyleAttr(value);\n        }
else if (name === 'class') {\n            stylingBuilder.registerClassAttr(value);\n        } else {\n
outputAttrs.push(attr);\n        }\n    }\n\n    // Match directives on non i18n attributes\n
this.matchDirectives(element.name, element);\n\n    // Regular element or ng-container creation mode\n    const
parameters: o.Expression[] = [o.literal(elementIndex)];\n    if (!isNgContainer) {\n
parameters.push(o.literal(elementName));\n    }\n\n    // Add the attributes\n    const allOtherInputs:
t.BoundAttribute[] = [];\n    const boundI18nAttrs: t.BoundAttribute[] = [];\n    element.inputs.forEach(input =>
{\n        const stylingInputWasSet = stylingBuilder.registerBoundInput(input);\n        if (!stylingInputWasSet) {\n
if (input.type === BindingType.Property && input.i18n) {\n            boundI18nAttrs.push(input);\n        } else {\n
allOtherInputs.push(input);\n        }\n    }\n    });\n\n    // add attributes for directive and projection matching
purposes\n
    const attributes: o.Expression[] = this.getAttributeExpressions(\n        element.name, outputAttrs, allOtherInputs,
element.outputs, stylingBuilder, [],\n        boundI18nAttrs);\n\n    parameters.push(this.addAttrsToConsts(attributes));\n\n    // local refs (ex.: <div #foo #bar="baz">)\n    const refs
= this.prepareRefsArray(element.references);\n    parameters.push(this.addToConsts(refs));\n\n    const
wasInNamespace = this._namespace;\n    const currentNamespace =
this.getNamespaceInstruction(namespaceKey);\n\n    // If the namespace is changing now, include an instruction to
change it\n    // during element creation.\n    if (currentNamespace !== wasInNamespace) {\n
this.addNamespaceInstruction(currentNamespace, element);\n    }\n\n    if (this.i18n) {\n
this.i18n.appendElement(element.i18n!, elementIndex);\n    }\n\n    // Note that we do not append text node
instructions and ICUs inside i18n section,\n    // so we exclude them while calculating whether current element

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has children\n    const hasChildren = (!isI18nRootElement && this.i18n) ? !hasTextChildrenOnly(element.children)
:\n                element.children.length > 0;\n\n    const createSelfClosingInstruction =
!stylingBuilder.hasBindingsWithPipes &&\n    element.outputs.length === 0 && boundI18nAttrs.length === 0
&& !hasChildren;\n    const createSelfClosingI18nInstruction =\n        !createSelfClosingInstruction &&
hasTextChildrenOnly(element.children);\n\n    if (createSelfClosingInstruction) {\n        this.creationInstruction(\n
        element.sourceSpan, isNgContainer ? R3.elementContainer : R3.element,\n        trimTrailingNulls(parameters));\n
    } else {\n        this.creationInstruction(\n            element.startSourceSpan, isNgContainer ? R3.elementContainerStart :
R3.elementStart,\n            trimTrailingNulls(parameters));\n\n        if (isNonBindableMode) {\n
this.creationInstruction(element.startSourceSpan, R3.disableBindings);\n
            }\n\n            if (boundI18nAttrs.length > 0) {\n                this.i18nAttributesInstruction(\n                    elementIndex,
boundI18nAttrs, element.startSourceSpan ?? element.sourceSpan);\n            }\n\n            // Generate Listeners (outputs)\n
if (element.outputs.length > 0) {\n                const listeners = element.outputs.map(\n                    (outputAst: t.BoundEvent)
=> ({\n                    sourceSpan: outputAst.sourceSpan,\n                    params: this.prepareListenerParameter(element.name,
outputAst, elementIndex)\n                }));\n                this.creationInstructionChain(R3.listener, listeners);\n            }\n\n            //
Note: it's important to keep i18n/i18nStart instructions after i18nAttributes and\n            // listeners, to make sure
i18nAttributes instruction targets current element at runtime.\n            if (isI18nRootElement) {\n
this.i18nStart(element.startSourceSpan, element.i18n!, createSelfClosingI18nInstruction);\n            }\n\n            }\n\n            // the
code here will collect all update-level styling
instructions and add them to the\n            // update block of the template function AOT code. Instructions like
`styleProp`,\n            // `styleMap`, `classMap`, `classProp`\n            // are all generated and assigned in the code below.\n
const stylingInstructions = stylingBuilder.buildUpdateLevelInstructions(this._valueConverter);\n    const limit =
stylingInstructions.length - 1;\n    for (let i = 0; i <= limit; i++) {\n        const instruction = stylingInstructions[i];\n
this._bindingSlots += this.processStylingUpdateInstruction(elementIndex, instruction);\n    }\n\n    // the reason why
`undefined` is used is because the renderer understands this as a\n    // special value to symbolize that there is no
RHS to this binding\n    // TODO (matsko): revisit this once FW-959 is approached\n    const
emptyValueBindInstruction = o.literal(undefined);\n    const propertyBindings: ChainableBindingInstruction[] =
[];\n    const attributeBindings: ChainableBindingInstruction[] = [];\n\n    // Generate
element input bindings\n    allOtherInputs.forEach(input => {\n        const inputType = input.type;\n        if (inputType
=== BindingType.Animation) {\n            const value = input.value.visit(this._valueConverter);\n            // animation
bindings can be presented in the following formats:\n            // 1. [@binding]="fooExp"\n            // 2.
[@binding]=`{ value:fooExp, params:{...} }`\n            // 3. [@binding]\n            // 4. @binding\n            // All formats will
be valid for when a synthetic binding is created.\n            // The reasoning for this is because the renderer should get
each\n            // synthetic binding value in the order of the array that they are\n            // defined in...\n            const
hasValue = value instanceof LiteralPrimitive ? !!value.value : true;\n            this.allocateBindingSlots(value);\n\n
propertyBindings.push({\n                name: prepareSyntheticPropertyName(input.name),\n                sourceSpan:
input.sourceSpan,\n                value: () => hasValue ? this.convertPropertyBinding(value)
: emptyValueBindInstruction\n            });\n        } else {\n            // we must skip attributes with associated i18n context,
since these attributes are handled\n            // separately and corresponding `i18nExp` and `i18nApply` instructions will
be generated\n            if (input.i18n) return;\n\n            const value = input.value.visit(this._valueConverter);\n            if
(value !== undefined) {\n                const params: any[] = [];\n                const [attrNamespace, attrName] =
splitNsName(input.name);\n                const isAttributeBinding = inputType === BindingType.Attribute;\n                const
sanitizationRef = resolveSanitizationFn(input.securityContext, isAttributeBinding);\n                if (sanitizationRef)
params.push(sanitizationRef);\n                if (attrNamespace) {\n                    const namespaceLiteral =
o.literal(attrNamespace);\n                    if (sanitizationRef) {\n                        params.push(namespaceLiteral);\n                    } else
{\n                        // If there wasn't
a sanitization ref, we need to add\n                        // an extra param so that we can pass in the namespace.\n
params.push(o.literal(null), namespaceLiteral);\n                    }\n                }\n                this.allocateBindingSlots(value);\n\n
if (inputType === BindingType.Property) {\n                    if (value instanceof Interpolation) {\n                        //

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prop="\{ {value} \}" and friends\n          this.interpolatedUpdateInstruction(\n
getPropertyInterpolationExpression(value), elementIndex, attrName, input, value,\n          params);\n          }
else {\n          // [prop]="value"\n          // Collect all the properties so that we can chain into a single function
at the end.\n          propertyBindings.push({\n          name: attrName,\n          sourceSpan:
input.sourceSpan,\n          value: () => this.convertPropertyBinding(value),\n          params\n          });\n          } else if (inputType
=== BindingType.Attribute) {\n          if (value instanceof Interpolation && getInterpolationArgsLength(value) >
1) {\n          // attr.name="text{ {value} }" and friends\n          this.interpolatedUpdateInstruction(\n
getAttributeInterpolationExpression(value), elementIndex, attrName, input, value,\n          params);\n          }
else {\n          const boundValue = value instanceof Interpolation ? value.expressions[0] : value;\n          //
[attr.name]="value" or attr.name="\{ {value} \}" \n          // Collect the attribute bindings so that they can be
chained at the end.\n          attributeBindings.push({\n          name: attrName,\n          sourceSpan:
input.sourceSpan,\n          value: () => this.convertPropertyBinding(boundValue),\n          params\n
          });\n          } else {\n          // class prop\n          this.updateInstructionWithAdvance(elementIndex,
input.sourceSpan, R3.classProp, () => {\n          return [\n          o.literal(elementIndex), o.literal(attrName),
this.convertPropertyBinding(value),\n          ...params\n          ];\n          });\n          }\n          }\n          }\n          }\n          }\n          if (propertyBindings.length > 0) {\n          this.updateInstructionChainWithAdvance(elementIndex,
R3.property, propertyBindings);\n          }\n          if (attributeBindings.length > 0) {\n
this.updateInstructionChainWithAdvance(elementIndex, R3.attribute, attributeBindings);\n          }\n          // Traverse
element child nodes\n          t.visitAll(this, element.children);\n          if (!isI18nRootElement && this.i18n) {\n
this.i18n.appendElement(element.i18n!, elementIndex, true);\n          }\n          if (!createSelfClosingInstruction) {\n          //
Finish element construction mode.\n          const span = element.endSourceSpan ?? element.sourceSpan;\n          if
(isI18nRootElement) {\n          this.i18nEnd(span, createSelfClosingI18nInstruction);\n          }\n          if (isNonBindableMode) {\n          this.creationInstruction(span, R3.enableBindings);\n          }\n          this.creationInstruction(span, isNgContainer ? R3.elementContainerEnd : R3.elementEnd);\n          }\n          }\n          visitTemplate(template: t.Template) {\n          const NG_TEMPLATE_TAG_NAME = 'ng-template';\n          const
templateIndex = this.allocateDataSlot();\n          if (this.i18n) {\n          this.i18n.appendTemplate(template.i18n!,
templateIndex);\n          }\n          const tagName = sanitizeIdentifier(template.tagName || "");\n          const contextName =
`${this.contextName}${tagName ? '_' + tagName : ""}_${templateIndex}`;\n          const templateName =
`${contextName}_Template`;\n          const parameters: o.Expression[] = [\n          o.literal(templateIndex),\n
o.variable(templateName),\n          // We don't care about the tag's namespace here, because we infer\n          // it based
on the parent nodes inside the template instruction.\n          o.literal(template.tagName ?
splitNsName(template.tagName)[1]
: template.tagName),\n          ];\n          // find directives matching on a given <ng-template> node\n
this.matchDirectives(NG_TEMPLATE_TAG_NAME, template);\n          // prepare attributes parameter (including
attributes used for directive matching)\n          const attrExprs: o.Expression[] = this.getAttributeExpressions(\n
NG_TEMPLATE_TAG_NAME, template.attributes, template.inputs, template.outputs,\n          undefined /* styles */,
template.templateAttrs);\n          parameters.push(this.addAttrsToConsts(attrExprs));\n          // local refs (ex.: <ng-
template #foo>)\n          if (template.references && template.references.length) {\n          const refs =
this.prepareRefsArray(template.references);\n          parameters.push(this.addToConsts(refs));\n
parameters.push(o.importExpr(R3.templateRefExtractor));\n          }\n          // Create the template function\n          const
templateVisitor = new TemplateDefinitionBuilder(\n          this.constantPool, this._bindingScope, this.level + 1,
contextName, this.i18n,\n
          templateIndex, templateName, this.directiveMatcher, this.directives, this.pipeTypeByName,\n          this.pipes,
this._namespace, this.fileBasedI18nSuffix, this.i18nUseExternalIds,\n          this._constants);\n          // Nested
templates must not be visited until after their parent templates have completed\n          // processing, so they are queued
here until after the initial pass. Otherwise, we wouldn't\n          // be able to support bindings in nested templates to local
refs that occur after the\n          // template definition. e.g. <div *ngIf="showing">{ { foo } }</div> <div #foo></div>\n

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    this._nestedTemplateFns.push(() => {\n    const templateFunctionExpr =
templateVisitor.buildTemplateFunction(\n        template.children, template.variables,\n
this._ngContentReservedSlots.length + this._ngContentSelectorsOffset, template.i18n);\n
this.constantPool.statements.push(templateFunctionExpr.toDeclStmt(templateName));\n    if
(templateVisitor._ngContentReservedSlots.length) {\n
        this._ngContentReservedSlots.push(...templateVisitor._ngContentReservedSlots);\n    }\n    });\n\n    // e.g.
template(1, MyComp_Template_1)\n    this.creationInstruction(template.sourceSpan, R3.templateCreate, () => {\n
    parameters.splice(\n        2, 0, o.literal(templateVisitor.getConstCount()),\n
o.literal(templateVisitor.getVarCount()));\n    return trimTrailingNulls(parameters);\n    });\n\n    // handle property
bindings e.g. property('ngForOf', ctx.items), et al;\n    this.templatePropertyBindings(templateIndex,
template.templateAttrs);\n\n    // Only add normal input/output binding instructions on explicit <ng-template>
elements.\n    if (template.tagName === NG_TEMPLATE_TAG_NAME) {\n    const [i18nInputs, inputs] =\n
partitionArray<t.BoundAttribute, t.BoundAttribute>(template.inputs, hasI18nMeta);\n\n    // Add i18n attributes
that may act as inputs to directives. If such attributes are present,\n    // generate `i18nAttributes` instruction.
Note: we generate it only for explicit <ng-template>\n    // elements, in case of inline templates, corresponding
instructions will be generated in the\n    // nested template function.\n    if (i18nInputs.length > 0) {\n
this.i18nAttributesInstruction(\n        templateIndex, i18nInputs, template.startSourceSpan ??
template.sourceSpan);\n    }\n\n    // Add the input bindings\n    if (inputs.length > 0) {\n
this.templatePropertyBindings(templateIndex, inputs);\n    }\n\n    // Generate listeners for directive output\n    if
(template.outputs.length > 0) {\n    const listeners = template.outputs.map(\n        (outputAst: t.BoundEvent) =>
({\n            sourceSpan: outputAst.sourceSpan,\n            params: this.prepareListenerParameter('ng_template',
outputAst, templateIndex)\n        }));\n    this.creationInstructionChain(R3.listener, listeners);\n    }\n    }\n
}\n\n    // These should be handled in the template or
element directly.\n    readonly visitReference = invalid;\n    readonly visitVariable = invalid;\n    readonly
visitTextAttribute = invalid;\n    readonly visitBoundAttribute = invalid;\n    readonly visitBoundEvent = invalid;\n\n
visitBoundText(text: t.BoundText) {\n    if (this.i18n) {\n    const value = text.value.visit(this._valueConverter);\n
this.allocateBindingSlots(value);\n    if (value instanceof Interpolation) {\n
this.i18n.appendBoundText(text.i18n!);\n    this.i18n.appendBindings(value.expressions);\n    }\n    return;\n
}\n\n    const nodeIndex = this.allocateDataSlot();\n\n    this.creationInstruction(text.sourceSpan, R3.text,
[o.literal(nodeIndex)]);\n\n    const value = text.value.visit(this._valueConverter);\n
this.allocateBindingSlots(value);\n\n    if (value instanceof Interpolation) {\n
this.updateInstructionWithAdvance(\n        nodeIndex, text.sourceSpan, getTextInterpolationExpression(value),\n
() => this.getUpdateInstructionArguments(value));\n
    } else {\n    error('Text nodes should be interpolated and never bound directly.);\n    }\n    }\n\n    visitText(text:
t.Text) {\n    // when a text element is located within a translatable\n    // block, we exclude this text element from
instructions set,\n    // since it will be captured in i18n content and processed at runtime\n    if (!this.i18n) {\n
this.creationInstruction(\n        text.sourceSpan, R3.text, [o.literal(this.allocateDataSlot()), o.literal(text.value)]);\n
}\n    }\n\n    visitIcu(icu: t.Icu) {\n    let initWasInvoked = false;\n\n    // if an ICU was created outside of i18n block,
we still treat\n    // it as a translatable entity and invoke i18nStart and i18nEnd\n    // to generate i18n context and the
necessary instructions\n    if (!this.i18n) {\n    initWasInvoked = true;\n    this.i18nStart(null, icu.i18n!, true);\n
}\n\n    const i18n = this.i18n!;\n    const vars = this.i18nBindProps(icu.vars);\n    const placeholders =
this.i18nBindProps(icu.placeholders);\n\n    // output ICU directly and keep ICU reference in context\n    const message = icu.i18n! as i18n.Message;\n\n    //
we always need post-processing function for ICUs, to make sure that:\n    // - all placeholders in a form of
{PLACEHOLDER} are replaced with actual values (note:\n    // `goog.getMsg` does not process ICUs and uses the
`{PLACEHOLDER}` format for placeholders\n    // inside ICUs)\n    // - all ICU vars (such as `VAR_SELECT` or
`VAR_PLURAL`) are replaced with correct values\n    const transformFn = (raw: o.ReadVarExpr) => {\n    const
params = {...vars, ...placeholders};\n    const formatted = i18nFormatPlaceholderNames(params, /* useCamelCase

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*/ false);\n    return instruction(null, R3.i18nPostprocess, [raw, mapLiteral(formatted, true)]);\n  };\n\n  // in case
the whole i18n message is a single ICU - we do not need to\n  // create a separate top-level translation, we can use
the root ref instead\n  // and make this ICU
a top-level translation\n  // note: ICU placeholders are replaced with actual values in `i18nPostprocess` function\n
// separately, so we do not pass placeholders into `i18nTranslate` function.\n  if (isSingleI18nIcu(i18n.meta)) {\n
this.i18nTranslate(message, /* placeholders */ {}, i18n.ref, transformFn);\n  } else {\n    // output ICU directly
and keep ICU reference in context\n    const ref =\n      this.i18nTranslate(message, /* placeholders */ {}, /* ref
*/ undefined, transformFn);\n    i18n.appendIcu(icuFromI18nMessage(message).name, ref);\n  }\n\n  if
(initWasInvoked) {\n    this.i18nEnd(null, true);\n  }\n  return null;\n}\n\nprivate allocateDataSlot() {\n
return this._dataIndex++;\n}\n\ngetConstCount() {\n  return this._dataIndex;\n}\n\ngetVarCount() {\n  return
this._pureFunctionSlots;\n}\n\ngetConsts(): ComponentDefConsts {\n  return this._constants;\n}\n\n
getNgContentSelectors(): o.Expression|null {\n  return
this._ngContentReservedSlots.length ?\n
this.constantPool.getConstLiteral(asLiteral(this._ngContentReservedSlots), true) : \n    null;\n}\n\nprivate
bindingContext() {\n  return `${this._bindingContext++}`;\n}\n\nprivate templatePropertyBindings(\n
templateIndex: number, attrs: (t.BoundAttribute|t.TextAttribute)[]) {\n  const propertyBindings:
ChainableBindingInstruction[] = [];\n  attrs.forEach(input => {\n    if (input instanceof t.BoundAttribute) {\n
const value = input.value.visit(this._valueConverter);\n\n    if (value !== undefined) {\n
this.allocateBindingSlots(value);\n\n    if (value instanceof Interpolation) {\n      // Params typically contain
attribute namespace and value sanitizer, which is applicable\n      // for regular HTML elements, but not
applicable for <ng-template> (since props act as\n      // inputs to directives), so keep params array empty.\n
const params: any[] = [];\n\n      // prop={`{ value }`} case\n      this.interpolatedUpdateInstruction(\n
getPropertyInterpolationExpression(value), templateIndex, input.name, input, value,\n      params);\n    }
else {\n      // [prop]="value" case\n      propertyBindings.push({\n        name: input.name,\n
sourceSpan: input.sourceSpan,\n        value: () => this.convertPropertyBinding(value)\n      });\n    }\n
  })\n  }\n  if (propertyBindings.length > 0) {\n
this.updateInstructionChainWithAdvance(templateIndex, R3.property, propertyBindings);\n  }\n}\n\n// Bindings
must only be resolved after all local refs have been visited, so all\n// instructions are queued in callbacks that
execute once the initial pass has completed.\n// Otherwise, we wouldn't be able to support local refs that are
defined after their\n// bindings. e.g. {{ foo }} <div #foo></div>\nprivate instructionFn(\n
fns: (() => o.Statement)[], span: ParseSourceSpan|null, reference: o.ExternalReference,\n  paramsOrFn:
o.Expression[]|(() => o.Expression[]), prepend: boolean = false): void {\n  fns[prepend ? 'unshift' : 'push'](() => {\n
const params = Array.isArray(paramsOrFn) ? paramsOrFn : paramsOrFn();\n  return instruction(span,
reference, params).toStmt();\n  });\n}\n\nprivate processStylingUpdateInstruction(\n  elementIndex: number,
instruction: StylingInstruction|null) {\n  let allocateBindingSlots = 0;\n  if (instruction) {\n    const calls:
ChainableBindingInstruction[] = [];\n    instruction.calls.forEach(call => {\n      allocateBindingSlots +=
call.allocateBindingSlots;\n      calls.push({\n        sourceSpan: call.sourceSpan,\n        value: () => {\n
return call.params(\n          value => (call.supportsInterpolation && value instanceof Interpolation) ?\n
this.getUpdateInstructionArguments(value)\n          :\n            this.convertPropertyBinding(value)) as o.Expression[];\n        });\n      });\n    }\n
this.updateInstructionChainWithAdvance(elementIndex, instruction.reference, calls);\n  }\n\n  return
allocateBindingSlots;\n}\n\nprivate creationInstruction(\n  span: ParseSourceSpan|null, reference:
o.ExternalReference,\n  paramsOrFn?: o.Expression[]|(() => o.Expression[]), prepend?: boolean) {\n
this.instructionFn(this._creationCodeFns, span, reference, paramsOrFn || [], prepend);\n}\n\nprivate
creationInstructionChain(reference: o.ExternalReference, calls: {\n  sourceSpan: ParseSourceSpan|null,\n
params: () => o.Expression[]\n}) {\n  const span = calls.length ? calls[0].sourceSpan : null;\n
this._creationCodeFns.push(() => {\n    return chainedInstruction(reference, calls.map(call => call.params()),

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span).toStmt();\n  });\n }\n\n private updateInstructionWithAdvance(\n   nodeIndex: number, span:
ParseSourceSpan|null,
  reference: o.ExternalReference,\n   paramsOrFn?: o.Expression[]|((() => o.Expression[])) {\n
this.addAdvanceInstructionIfNecessary(nodeIndex, span);\n  this.updateInstruction(span, reference,
paramsOrFn);\n }\n\n private updateInstruction(\n   span: ParseSourceSpan|null, reference:
o.ExternalReference,\n   paramsOrFn?: o.Expression[]|((() => o.Expression[])) {\n
this.instructionFn(this._updateCodeFns, span, reference, paramsOrFn || []);\n }\n\n private
updateInstructionChain(\n   reference: o.ExternalReference, bindings: ChainableBindingInstruction[]) {\n  const
span = bindings.length ? bindings[0].sourceSpan : null;\n\n  this._updateCodeFns.push(() => {\n   const calls =
bindings.map(property => {\n    const value = property.value();\n    const fnParams = Array.isArray(value) ?
value : [value];\n    if (property.params) {\n      fnParams.push(...property.params);\n    }\n    if
(property.name) {\n      // We want the
property name to always be the first function parameter.\n      fnParams.unshift(o.literal(property.name));\n
}\n    return fnParams;\n  });\n\n  return chainedInstruction(reference, calls, span).toStmt();\n });\n }\n\n
private updateInstructionChainWithAdvance(\n   nodeIndex: number, reference: o.ExternalReference, bindings:
ChainableBindingInstruction[]) {\n  this.addAdvanceInstructionIfNecessary(\n    nodeIndex, bindings.length ?
bindings[0].sourceSpan : null);\n  this.updateInstructionChain(reference, bindings);\n }\n\n private
addAdvanceInstructionIfNecessary(nodeIndex: number, span: ParseSourceSpan|null) {\n  if (nodeIndex !==
this._currentIndex) {\n    const delta = nodeIndex - this._currentIndex;\n\n    if (delta < 1) {\n      throw new
Error('advance instruction can only go forwards');\n    }\n\n    this.instructionFn(this._updateCodeFns, span,
R3.advance, [o.literal(delta)]);\n    this._currentIndex = nodeIndex;\n  }\n
}\n\n private allocatePureFunctionSlots(numSlots: number): number {\n  const originalSlots =
this._pureFunctionSlots;\n  this._pureFunctionSlots += numSlots;\n  return originalSlots;\n }\n\n private
allocateBindingSlots(value: AST|null) {\n  this._bindingSlots += value instanceof Interpolation ?
value.expressions.length : 1;\n }\n\n /**\n  * Gets an expression that refers to the implicit receiver. The implicit\n
* receiver is always the root level context.\n  */\n private getImplicitReceiverExpr(): o.ReadVarExpr {\n  if
(this._implicitReceiverExpr) {\n    return this._implicitReceiverExpr;\n  }\n\n  return this._implicitReceiverExpr
= this.level === 0 ?\n    o.variable(CONTEXT_NAME) :\n    this._bindingScope.getOrCreateSharedContextVar(0);\n }\n\n private convertPropertyBinding(value: AST):
o.Expression {\n  const convertedPropertyBinding = convertPropertyBinding(\n    this,
this.getImplicitReceiverExpr(), value, this.bindingContext(), BindingForm.Expression,\n
    () => error('Unexpected interpolation'));\n  const valExpr = convertedPropertyBinding.currValExpr;\n
this._tempVariables.push(...convertedPropertyBinding.stmts);\n  return valExpr;\n }\n\n /**\n  * Gets a list of
argument expressions to pass to an update instruction expression. Also updates\n  * the temp variables state with
temp variables that were identified as needing to be created\n  * while visiting the arguments.\n  * @param value
The original expression we will be resolving an arguments list from.\n  */\n private
getUpdateInstructionArguments(value: AST): o.Expression[] {\n  const {args, stmts} =\n
convertUpdateArguments(this, this.getImplicitReceiverExpr(), value, this.bindingContext());\n\n
this._tempVariables.push(...stmts);\n  return args;\n }\n\n private matchDirectives(elementName: string, elOrTpl:
t.Element|t.Template) {\n  if (this.directiveMatcher) {\n    const selector = createCssSelector(elementName,
getAttrsForDirectiveMatching(elOrTpl));\n
this.directiveMatcher.match(selector, (cssSelector, staticType) => {\n    this.directives.add(staticType);\n
});\n  }\n }\n\n /**\n  * Prepares all attribute expression values for the `TAttributes` array.\n  */\n  * The purpose
of this function is to properly construct an attributes array that\n  * is passed into the `elementStart` (or just
`element`) functions. Because there\n  * are many different types of attributes, the array needs to be constructed in
a\n  * special way so that `elementStart` can properly evaluate them.\n  */\n  * The format looks like this:\n  */\n
```\n  * attrs = [prop, value, prop2, value2,\n  *   PROJECT_AS, selector,\n  *   CLASSES, class1, class2,\n  *
STYLES, style1, value1, style2, value2,\n * BINDINGS, name1, name2, name3,\n * TEMPLATE, name4,

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name5, name6,\n * I18N, name7, name8, ...]\n * ```\n * \n * Note that this function will fully ignore all
synthetic (@foo) attribute
values\n * because those values are intended to always be generated as property instructions.\n */\n private
getAttributeExpressions(\n elementName: string, renderAttributes: t.TextAttribute[], inputs:
t.BoundAttribute[],\n outputs: t.BoundEvent[], styles?: StylingBuilder,\n templateAttrs:
(t.BoundAttribute|t.TextAttribute)[] = [],\n boundI18nAttrs: t.BoundAttribute[] = []): o.Expression[] {\n const
alreadySeen = new Set<string>();\n const attrExprs: o.Expression[] = [];\n let ngProjectAsAttr:
t.TextAttribute|undefined;\n\n for (const attr of renderAttributes) {\n if (attr.name ===
NG_PROJECT_AS_ATTR_NAME) {\n ngProjectAsAttr = attr;\n }\n\n // Note that static i18n attributes
aren't in the i18n array,\n // because they're treated in the same way as regular attributes.\n if (attr.i18n) {\n
attrExprs.push(o.literal(attr.name), this.i18nTranslate(attr.i18n as i18n.Message));\n } else {\n
attrExprs.push(\n
 ...getAttributeNameLiterals(attr.name), trustedConstAttribute(elementName, attr));\n }\n }\n\n // Keep
ngProjectAs next to the other name, value pairs so we can verify that we match\n // ngProjectAs marker in the
attribute name slot.\n if (ngProjectAsAttr) {\n attrExprs.push(...getNgProjectAsLiteral(ngProjectAsAttr));\n
 }\n\n function addAttrExpr(key: string|number, value?: o.Expression): void {\n if (typeof key === 'string') {\n
if (!alreadySeen.has(key)) {\n attrExprs.push(...getAttributeNameLiterals(key));\n value !== undefined
&& attrExprs.push(value);\n alreadySeen.add(key);\n }\n } else {\n
attrExprs.push(o.literal(key));\n }\n }\n\n // it's important that this occurs before BINDINGS and
TEMPLATE because once `elementStart`\n // comes across the BINDINGS or TEMPLATE markers then it will
continue reading each value as\n // as single property value cell by cell.\n if (styles) {\n styles.populateInitialStylingAttrs(attrExprs);\n }\n\n if (inputs.length || outputs.length) {\n
const attrsLengthBeforeInputs = attrExprs.length;\n\n for (let i = 0; i < inputs.length; i++) {\n const input =
inputs[i];\n // We don't want the animation and attribute bindings in the\n // attributes array since they aren't
used for directive matching.\n if (input.type !== BindingType.Animation && input.type !==
BindingType.Attribute) {\n addAttrExpr(input.name);\n }\n }\n\n for (let i = 0; i < outputs.length;
i++) {\n const output = outputs[i];\n if (output.type !== ParsedEventType.Animation) {\n
addAttrExpr(output.name);\n }\n }\n\n // this is a cheap way of adding the marker only after all the
input/output\n // values have been filtered (by not including the animation ones) and added\n // to the
expressions. The marker is important because
it tells the runtime\n // code that this is where attributes without values start...\n if (attrExprs.length !==
attrsLengthBeforeInputs) {\n attrExprs.splice(attrsLengthBeforeInputs, 0,
o.literal(core.AttributeMarker.Bindings));\n }\n\n if (templateAttrs.length) {\n
attrExprs.push(o.literal(core.AttributeMarker.Template));\n templateAttrs.forEach(attr =>
addAttrExpr(attr.name));\n }\n\n if (boundI18nAttrs.length) {\n
attrExprs.push(o.literal(core.AttributeMarker.I18N));\n boundI18nAttrs.forEach(attr =>
addAttrExpr(attr.name));\n }\n\n return attrExprs;\n }\n\n private addToConsts(expression: o.Expression):
o.LiteralExpr {\n if (o.isNull(expression)) {\n return o.TYPED_NULL_EXPR;\n }\n\n const consts =
this._constants.constExpressions;\n\n // Try to reuse a literal that's already in the array, if possible.\n for (let i =
0; i < consts.length; i++) {\n if (consts[i].isEquivalent(expression)) {\n
return o.literal(i);\n }\n }\n\n return o.literal(consts.push(expression) - 1);\n }\n\n private
addAttrsToConsts(attrs: o.Expression[]): o.LiteralExpr {\n return attrs.length > 0 ?
this.addToConsts(o.literalArr(attrs)) : o.TYPED_NULL_EXPR;\n }\n\n private prepareRefsArray(references:
t.Reference[]): o.Expression {\n if (!references || references.length === 0) {\n return
o.TYPED_NULL_EXPR;\n }\n\n const refsParam = flatten(references.map(reference => {\n const slot =
this.allocateDataSlot();\n // Generate the update temporary.\n const variableName =
this._bindingScope.freshReferenceName();\n const retrievalLevel = this.level;\n const lhs =
o.variable(variableName);\n this._bindingScope.set(\n retrievalLevel, reference.name, lhs,\n

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DeclarationPriority.DEFAULT, (scope: BindingScope, relativeLevel: number) => {\n // e.g.
nextContext(2);\n const nextContextStmt =\n relativeLevel
> 0 ? [generateNextContextExpr(relativeLevel).toStmt()] : [];\n // e.g. const foo = reference(1);\n const refExpr = lhs.set(o.importExpr(R3.reference).callFn([o.literal(slot)]));\n return
nextContextStmt.concat(refExpr.toConstDecl());\n }, true);\n return [reference.name, reference.value];\n
});\n\n return asLiteral(refsParam);\n }\n\n private prepareListenerParameter(tagName: string, outputAst:
t.BoundEvent, index: number):\n () => o.Expression[] {\n return () => {\n const eventName: string =
outputAst.name;\n const bindingFnName = outputAst.type === ParsedEventType.Animation ?\n //
synthetic @listener.foo values are treated the exact same as are standard listeners\n
prepareSyntheticListenerFunctionName(eventName, outputAst.phase!):\n sanitizeIdentifier(eventName);\n
const handlerName = `${this.templateName}_${tagName}_${bindingFnName}_${index}_listener`;\n const
scope = this._bindingScope.nestedScope(\n this._bindingScope.bindingLevel,
EVENT_BINDING_SCOPE_GLOBALS);\n return prepareEventListenerParameters(outputAst, handlerName,
scope);\n };\n }\n}\n\n\nexport class ValueConverter extends AstMemoryEfficientTransformer {\n private
_pipeBindExprs: FunctionCall[] = [];\n\n constructor(\n private constantPool: ConstantPool, private allocateSlot:
() => number,\n private allocatePureFunctionSlots: (numSlots: number) => number,\n private definePipe:\n (name: string, localName: string, slot: number, value: o.Expression) => void) {\n super();\n }\n\n //
AstMemoryEfficientTransformer\n visitPipe(pipe: BindingPipe, context: any): AST {\n // Allocate a slot to create
the pipe\n const slot = this.allocateSlot();\n const slotPseudoLocal = `PIPE:${slot}`;\n // Allocate one slot for
the result plus one slot per pipe argument\n const pureFunctionSlot = this.allocatePureFunctionSlots(2 +
pipe.args.length);\n
 const target = new PropertyRead(\n pipe.span, pipe.sourceSpan, pipe.nameSpan, new
ImplicitReceiver(pipe.span, pipe.sourceSpan),\n slotPseudoLocal);\n const { identifier, isVarLength } =
pipeBindingCallInfo(pipe.args);\n this.definePipe(pipe.name, slotPseudoLocal, slot, o.importExpr(identifier));\n
const args: AST[] = [pipe.exp, ...pipe.args];\n const convertedArgs: AST[] = isVarLength ?\n this.visitAll([new LiteralArray(pipe.span, pipe.sourceSpan, args)]) :\n this.visitAll(args);\n\n const
pipeBindExpr = new FunctionCall(pipe.span, pipe.sourceSpan, target, [\n new LiteralPrimitive(pipe.span,
pipe.sourceSpan, slot),\n new LiteralPrimitive(pipe.span, pipe.sourceSpan, pureFunctionSlot),\n
...convertedArgs,\n]);\n this._pipeBindExprs.push(pipeBindExpr);\n return pipeBindExpr;\n }\n\n
updatePipeSlotOffsets(bindingSlots: number) {\n this._pipeBindExprs.forEach((pipe: FunctionCall) => {\n //
update the
slot offset arg (index 1) to account for binding slots\n const slotOffset = pipe.args[1] as LiteralPrimitive;\n
(slotOffset.value as number) += bindingSlots;\n });\n }\n\n visitLiteralArray(array: LiteralArray, context: any):
AST {\n return new BuiltinFunctionCall(\n array.span, array.sourceSpan, this.visitAll(array.expressions),
values => {\n // If the literal has calculated (non-literal) elements transform it into\n // calls to literal
factories that compose the literal and will cache intermediate\n // values.\n const literal =
o.literalArr(values);\n return getLiteralFactory(this.constantPool, literal, this.allocatePureFunctionSlots);\n
});\n }\n\n visitLiteralMap(map: LiteralMap, context: any): AST {\n return new BuiltinFunctionCall(map.span,
map.sourceSpan, this.visitAll(map.values), values => {\n // If the literal has calculated (non-literal) elements
transform it into\n // calls to literal
factories that compose the literal and will cache intermediate\n // values.\n const literal =
o.literalMap(values.map(\n (value, index) => ({key: map.keys[index].key, value, quoted:
map.keys[index].quoted}));\n return getLiteralFactory(this.constantPool, literal,
this.allocatePureFunctionSlots);\n });\n }\n}\n\n// Pipes always have at least one parameter, the value they operate
on\nconst pipeBindingIdentifiers = [R3.pipeBind1, R3.pipeBind2, R3.pipeBind3, R3.pipeBind4];\n\nfunction
pipeBindingCallInfo(args: o.Expression[]) {\n const identifier = pipeBindingIdentifiers[args.length];\n return {\n
identifier: identifier || R3.pipeBindV,\n isVarLength: !identifier,\n };\n }\n\nconst pureFunctionIdentifiers = [\n
R3.pureFunction0, R3.pureFunction1, R3.pureFunction2, R3.pureFunction3, R3.pureFunction4,\n

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R3.pureFunction5, R3.pureFunction6, R3.pureFunction7, R3.pureFunction8\n);\n\nfunction
pureFunctionCallInfo(args: o.Expression[]) {\n const identifier
= pureFunctionIdentifiers[args.length];\n return {\n identifier: identifier || R3.pureFunctionV,\n isVarLength:
!identifier,\n };\n}\n\nfunction instruction(\n span: ParseSourceSpan|null, reference: o.ExternalReference,\n params: o.Expression[]: o.Expression {\n return o.importExpr(reference, null, span).callFn(params, span);\n}\n\n//
e.g. x(2);\nfunction generateNextContextExpr(relativeLevelDiff: number): o.Expression {\n return
o.importExpr(R3.nextContext)\n .callFn(relativeLevelDiff > 1 ? [o.literal(relativeLevelDiff)] : []);\n}\n\nfunction
getLiteralFactory(\n constantPool: ConstantPool, literal: o.LiteralArrayExpr|o.LiteralMapExpr,\n allocateSlots:
(numSlots: number) => number): o.Expression {\n const {literalFactory, literalFactoryArguments} =
constantPool.getLiteralFactory(literal);\n // Allocate 1 slot for the result plus 1 per argument\n const startSlot =
allocateSlots(1 + literalFactoryArguments.length);\n const {identifier, isVarLength} =
pureFunctionCallInfo(literalFactoryArguments);\n\n // Literal factories are pure functions that only need to be re-
invoked when the parameters\n // change.\n const args = [o.literal(startSlot), literalFactory];\n\n if (isVarLength)
{\n args.push(o.literalArr(literalFactoryArguments));\n } else {\n args.push(...literalFactoryArguments);\n }\n\n return o.importExpr(identifier).callFn(args);\n}\n\n/**\n * Gets an array of literals that can be added to an
expression\n * to represent the name and namespace of an attribute. E.g.\n * `xlink:href` turns into
`[AttributeMarker.NamespaceURI, 'xlink', 'href']`.\n * \n * @param name Name of the attribute, including the
namespace.\n */\nfunction getAttributeNameLiterals(name: string): o.LiteralExpr[] {\n const [attributeNamespace,
attributeName] = splitNsName(name);\n const nameLiteral = o.literal(attributeName);\n\n if (attributeNamespace)
{\n return [\n o.literal(core.AttributeMarker.NamespaceURI), o.literal(attributeNamespace),
nameLiteral\n];\n }\n\n return [nameLiteral];\n}\n\n/**\n * Function which is executed whenever a variable is
referenced for the first time in a given\n * scope.\n * \n * It is expected that the function creates the `const localName
= expression`; statement.\n */\nexport type DeclareLocalVarCallback = (scope: BindingScope, relativeLevel:
number) => o.Statement[];\n\n/**\n * The prefix used to get a shared context in BindingScope's map. */\nconst
SHARED_CONTEXT_KEY = '$$shared_ctx$$';\n\n/**\n * This is used when one refers to variable such as: 'let abc
= nextContext(2).$simpliciter`\n * - key to the map is the string literal `"abc"`. \n * - value `retrievalLevel` is the level
from which this value can be retrieved, which is 2 levels\n * up in example.\n * - value `lhs` is the left hand side
which is an AST representing `abc`. \n * - value `declareLocalCallback` is a callback that is invoked when declaring
the local.\n * - value `declare` is true if this value needs to be declared.\n
\n * - value `localRef` is true if we are storing a local reference\n * - value `priority` dictates the sorting priority of this
var declaration compared\n * to other var declarations on the same retrieval level. For example, if there is a\n *
context variable and a local ref accessing the same parent view, the context var\n * declaration should always come
before the local ref declaration.\n */\nexport type BindingData = {\n retrievalLevel: number; lhs: o.Expression;\n
declareLocalCallback?: DeclareLocalVarCallback; declare: boolean; priority: number;\n localRef:
boolean;\n};\n\n/**\n * The sorting priority of a local variable declaration. Higher numbers\n * mean the declaration
will appear first in the generated code.\n */\nexport enum DeclarationPriority {\n DEFAULT = 0,\n CONTEXT =
1,\n SHARED_CONTEXT = 2\n}\n\nexport class BindingScope implements LocalResolver {\n /**\n * Keeps a map
from local variables to their BindingData. */\n private map = new Map<string, BindingData>();\n private
referenceNameIndex = 0;\n private restoreViewVariable: o.ReadVarExpr|null = null;\n\n static createRootScope():
BindingScope {\n return new BindingScope();\n }\n\n private constructor(\n public bindingLevel: number = 0,\n
private parent: BindingScope|null = null,\n public globals?: Set<string>) {\n if (globals !== undefined) {\n
for (const name of globals) {\n this.set(0, name, o.variable(name));\n }\n }\n\n get(name: string):
o.Expression|null {\n let current: BindingScope|null = this;\n while (current) {\n let value =
current.map.get(name);\n if (value !== null) {\n if (current !== this) {\n // make a local copy and reset
the `declare` state\n value = {\n retrievalLevel: value.retrievalLevel,\n lhs: value.lhs,\n
declareLocalCallback: value.declareLocalCallback,\n declare: false,\n priority: value.priority,\n
localRef: value.localRef\n

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};\n\n // Cache the value locally.\n this.map.set(name, value);\n // Possibly generate a shared
context var\n this.maybeGenerateSharedContextVar(value);\n
this.maybeRestoreView(value.retrievalLevel, value.localRef);\n }\n\n if (value.declareLocalCallback &&
!value.declare) {\n value.declare = true;\n }\n return value.lhs;\n }\n current = current.parent;\n
}\n\n // If we get to this point, we are looking for a property on the top level component\n // - If level === 0, we
are on the top and don't need to re-declare `ctx`.\n // - If level > 0, we are in an embedded view. We need to
retrieve the name of the\n // local var we used to store the component context, e.g. const $comp$ = x();\n return
this.bindingLevel === 0 ? null : this.getComponentProperty(name);\n }\n\n /**\n * Create a local variable for
later reference.\n *\n * @param retrievalLevel The level from
which this value can be retrieved\n * @param name Name of the variable.\n * @param lhs AST representing the
left hand side of the `let lhs = rhs`.\n * @param priority The sorting priority of this var\n * @param
declareLocalCallback The callback to invoke when declaring this local var\n * @param localRef Whether or not
this is a local ref\n */\n set(retrievalLevel: number, name: string, lhs: o.Expression,\n priority: number =
DeclarationPriority.DEFAULT,\n declareLocalCallback?: DeclareLocalVarCallback, localRef?: true):
BindingScope {\n if (this.map.has(name)) {\n if (localRef) {\n // Do not throw an error if it's a local ref and
do not update existing value,\n // so the first defined ref is always returned.\n return this;\n }\n
error(`The name ${name} is already defined in scope to be ${this.map.get(name)}`);\n }\n this.map.set(name,
{\n retrievalLevel: retrievalLevel,\n lhs: lhs,\n declare: false,\n
 declareLocalCallback: declareLocalCallback,\n priority: priority,\n localRef: localRef || false\n });\n
return this;\n }\n\n // Implemented as part of LocalResolver.\n getLocal(name: string): (o.Expression|null) {\n
return this.get(name);\n }\n\n // Implemented as part of LocalResolver.\n notifyImplicitReceiverUse(): void {\n
if (this.bindingLevel !== 0) {\n // Since the implicit receiver is accessed in an embedded view, we need to\n //
ensure that we declare a shared context variable for the current template\n // in the update variables.\n
this.map.get(SHARED_CONTEXT_KEY + 0)!.declare = true;\n }\n }\n\n nestedScope(level: number, globals?:
Set<string>): BindingScope {\n const newScope = new BindingScope(level, this, globals);\n if (level > 0)
newScope.generateSharedContextVar(0);\n return newScope;\n }\n\n /**\n * Gets or creates a shared context
variable and returns its expression. Note that\n * this does not mean
that the shared variable will be declared. Variables in the\n * binding scope will be only declared if they are
used.\n */\n getOrCreateSharedContextVar(retrievalLevel: number): o.ReadVarExpr {\n const bindingKey =
SHARED_CONTEXT_KEY + retrievalLevel;\n if (!this.map.has(bindingKey)) {\n
this.generateSharedContextVar(retrievalLevel);\n }\n // Shared context variables are always generated as
`ReadVarExpr`.\n return this.map.get(bindingKey)!.lhs as o.ReadVarExpr;\n }\n\n getSharedContextName(retrievalLevel: number): o.ReadVarExpr|null {\n const sharedCtxObj =
this.map.get(SHARED_CONTEXT_KEY + retrievalLevel);\n // Shared context variables are always generated as
`ReadVarExpr`.\n return sharedCtxObj && sharedCtxObj.declare ? sharedCtxObj.lhs as o.ReadVarExpr : null;\n
}\n\n maybeGenerateSharedContextVar(value: BindingData) {\n if (value.priority ===
DeclarationPriority.CONTEXT &&\n value.retrievalLevel < this.bindingLevel) {\n const
sharedCtxObj = this.map.get(SHARED_CONTEXT_KEY + value.retrievalLevel);\n if (sharedCtxObj) {\n
sharedCtxObj.declare = true;\n } else {\n this.generateSharedContextVar(value.retrievalLevel);\n }\n
}\n }\n\n generateSharedContextVar(retrievalLevel: number) {\n const lhs = o.variable(CONTEXT_NAME +
this.freshReferenceName());\n this.map.set(SHARED_CONTEXT_KEY + retrievalLevel, {\n retrievalLevel:
retrievalLevel,\n lhs: lhs,\n declareLocalCallback: (scope: BindingScope, relativeLevel: number) => {\n //
const ctx_r0 = nextContext(2);\n return [lhs.set(generateNextContextExpr(relativeLevel)).toConstDecl()];\n
 },\n declare: false,\n priority: DeclarationPriority.SHARED_CONTEXT,\n localRef: false\n });\n }\n\n getComponentProperty(name: string): o.Expression {\n const componentValue =
this.map.get(SHARED_CONTEXT_KEY + 0);\n componentValue.declare = true;\n this.maybeRestoreView(0,
false);\n

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return R3.attributeInterpolate2;\n case 7:\n
 return R3.attributeInterpolate3;\n case 9:\n return R3.attributeInterpolate4;\n case 11:\n return
R3.attributeInterpolate5;\n case 13:\n return R3.attributeInterpolate6;\n case 15:\n return
R3.attributeInterpolate7;\n case 17:\n return R3.attributeInterpolate8;\n default:\n return
R3.attributeInterpolateV;\n }\n}\n\n/**\n * Gets the instruction to generate for interpolated text.\n * @param
interpolation An Interpolation AST\n */\nfunction getTextInterpolationExpression(interpolation: Interpolation):
o.ExternalReference {\n switch (getInterpolationArgsLength(interpolation)) {\n case 1:\n return
R3.textInterpolate;\n case 3:\n return R3.textInterpolate1;\n case 5:\n return R3.textInterpolate2;\n case
7:\n return R3.textInterpolate3;\n case 9:\n return R3.textInterpolate4;\n case 11:\n return
R3.textInterpolate5;\n case 13:\n return R3.textInterpolate6;\n case 15:\n return R3.textInterpolate7;\n
 case 17:\n return R3.textInterpolate8;\n default:\n return R3.textInterpolateV;\n }\n}\n\n/**\n * Options
that can be used to modify how a template is parsed by `parseTemplate()`. \n */\nexport interface
ParseTemplateOptions {\n /**\n * Include whitespace nodes in the parsed output.\n */\n preserveWhitespaces?:
boolean;\n /**\n * How to parse interpolation markers.\n */\n interpolationConfig?: InterpolationConfig;\n /**\n
 * The start and end point of the text to parse within the `source` string.\n * The entire `source` string is parsed if
this is not provided.\n */\n range?: LexerRange;\n /**\n * If this text is stored in a JavaScript string, then we
have to deal with escape sequences.\n */\n /**\n * Example 1:\n */\n /**\n * `\"abc\\\"def\\\"ghi\"`\n */\n /**\n * - The `\\\"` must be converted to `\"`. \n */\n /**\n * - The `\\n` must be converted to a new line character in a token,\n */\n
 * but it should not increment the
current line for source mapping.\n */\n /**\n * Example 2:\n */\n /**\n * `\"abc\\n def\"`\n */\n /**\n * The line continuation (`\\` followed by a newline) should be removed from a token\n */\n /**\n * but the new line should
increment the current line for source mapping.\n */\n /**\n * An array of characters
that should be considered as leading trivia.\n */\n /**\n * Leading trivia are characters that are not important to the developer,
and so should not be\n */\n /**\n * included in source-map segments. A common example is whitespace.\n */\n
 leadingTriviaChars?: string[];\n /**\n * Render `$localize` message ids with additional legacy message ids.\n */\n
 /**\n * This option defaults to `true` but in the future the default will be flipped.\n */\n /**\n * For now set this option to
false if you have migrated the translation files to use the new\n */\n /**\n * `$localize` message id format and you are not
using compile time translation merging.\n */\n /**\n * enableI18nLegacyMessageIdFormat?:
boolean;\n /**\n * If this text is stored in an external template (e.g. via `templateUrl`) then we need to decide\n */\n
 /**\n * whether or not to normalize the line-endings (from `\\r\\n` to `\\n`) when processing ICU\n */\n /**\n * expressions.\n */\n /**\n * If `true` then we will normalize ICU expression line endings.\n */\n /**\n * The default is `false`, but this will be switched in
a future major release.\n */\n /**\n * i18nNormalizeLineEndingsInICUs?: boolean;\n }\n}\n\n/**\n * Parse a template into
render3 `Node`s and additional metadata, with no other dependencies.\n */\n * @param template text of the template
to parse\n * @param templateUrl URL to use for source mapping of the parsed template\n * @param options
options to modify how the template is parsed\n */\nexport function parseTemplate(\n template: string,\n
 templateUrl: string, options: ParseTemplateOptions = {}): ParsedTemplate {\n const {interpolationConfig,\n
 preserveWhitespaces, enableI18nLegacyMessageIdFormat} = options;\n const
bindingParser = makeBindingParser(interpolationConfig);\n const htmlParser = new HtmlParser();\n const
parseResult = htmlParser.parse(\n template, templateUrl,\n {leadingTriviaChars:
LEADING_TRIVIA_CHARS, ...options, tokenizeExpansionForms: true});\n if (parseResult.errors &&
parseResult.errors.length > 0) {\n // TODO(ayazhafiz): we may not always want to bail out at this point (e.g. in\n
// the context of a language service).\n return {\n interpolationConfig,\n preserveWhitespaces,\n
 template,\n errors: parseResult.errors,\n nodes: [],\n styleUrls: [],\n styles: [],\n ngContentSelectors:
[]\n };\n }\n let rootNodes: html.Node[] = parseResult.rootNodes;\n // process i18n meta information (scan
attributes, generate ids)\n // before we run whitespace removal process, because existing i18n\n // extraction
process (ng extract-i18n) relies on a raw content to generate\n // message ids\n const i18nMetaVisitor = new
I18nMetaVisitor(\n interpolationConfig, /* keepI18nAttrs */ !preserveWhitespaces,\n
 enableI18nLegacyMessageIdFormat);\n rootNodes = html.visitAll(i18nMetaVisitor, rootNodes);\n if

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(!preserveWhitespaces) {\n rootNodes = html.visitAll(new WhitespaceVisitor(), rootNodes);\n\n // run i18n
 meta visitor again in case whitespaces are removed (because that might affect\n // generated i18n message content)
 and first pass indicated that i18n content is present in a\n // template. During this pass i18n IDs generated at the
 first pass will be preserved, so we can\n // mimic existing extraction process (ng extract-i18n)\n if
 (i18nMetaVisitor.hasI18nMeta) {\n rootNodes = html.visitAll(\n new I18nMetaVisitor(interpolationConfig,
 /* keepI18nAttrs */ false), rootNodes);\n }\n\n const {nodes, errors, styleUrls, styles, ngContentSelectors}
 =\n htmlAstToRender3Ast(rootNodes, bindingParser);\n\n return {\n interpolationConfig,\n preserveWhitespaces,\n errors: errors.length > 0 ? errors : null,\n template,\n nodes,\n styleUrls,\n styles,\n ngContentSelectors\n };\n}\n\nconst elementRegistry = new DomElementSchemaRegistry();\n\n/**\n * Construct a `BindingParser` with
 a default configuration.\n */\nexport function makeBindingParser(\n interpolationConfig: InterpolationConfig =
 DEFAULT_INTERPOLATION_CONFIG): BindingParser {\n return new BindingParser(\n new IvyParser(new
 Lexer(), interpolationConfig, elementRegistry, null, []);\n\n }\n\n export function resolveSanitizationFn(context:
 core.SecurityContext, isAttribute?: boolean) {\n switch (context) {\n case core.SecurityContext.HTML:\n
 return o.importExpr(R3.sanitizeHtml);\n case core.SecurityContext.SCRIPT:\n return
 o.importExpr(R3.sanitizeScript);\n case core.SecurityContext.STYLE:\n // the compiler does not fill in an
 instruction for [style.prop?] binding\n // values because the style algorithm knows internally what
 props are subject\n // to sanitization (only [attr.style] values are explicitly sanitized)\n return isAttribute ?
 o.importExpr(R3.sanitizeStyle) : null;\n case core.SecurityContext.URL:\n return
 o.importExpr(R3.sanitizeUrl);\n case core.SecurityContext.RESOURCE_URL:\n return
 o.importExpr(R3.sanitizeResourceUrl);\n default:\n return null;\n }\n }\n\n function
 trustedConstAttribute(tagName: string, attr: t.TextAttribute): o.Expression {\n const value = asLiteral(attr.value);\n
 switch (elementRegistry.securityContext(tagName, attr.name, /* isAttribute */ true)) {\n case
 core.SecurityContext.HTML:\n return o.importExpr(R3.trustConstantHtml).callFn([value], attr.valueSpan);\n
 case core.SecurityContext.SCRIPT:\n return o.importExpr(R3.trustConstantScript).callFn([value],
 attr.valueSpan);\n case core.SecurityContext.RESOURCE_URL:\n return
 o.importExpr(R3.trustConstantResourceUrl).callFn([value], attr.valueSpan);\n default:\n
 return value;\n }\n }\n\n function isSingleElementTemplate(children: t.Node[]): children is [t.Element] {\n return
 children.length === 1 && children[0] instanceof t.Element;\n }\n\n function isTextNode(node: t.Node): boolean {\n
 return node instanceof t.Text || node instanceof t.BoundText || node instanceof t.Icu;\n }\n\n function
 hasTextChildrenOnly(children: t.Node[]): boolean {\n return children.every(isTextNode);\n }\n\n interface
 ChainableBindingInstruction {\n name?: string;\n sourceSpan: ParseSourceSpan|null;\n value: () => o.Expression |
 o.Expression[];\n params?: any[];\n }\n\n /**\n * Name of the global variable that is used to determine if we use Closure
 translations or not\n */\n const NG_I18N_CLOSURE_MODE = 'ngI18nClosureMode';\n\n /**\n * Generate statements
 that define a given translation message.\n */\n * ``\n * var I18N_1;\n * if (typeof ngI18nClosureMode !== undefined
 && ngI18nClosureMode) {\n * var MSG_EXTERNAL_XXX = goog.getMsg(\n * \"Some message with
 { $interpolation }!\",\n * {\n * \"interpolation\": \"\\uFFFFD0\\uFFFFD\" }\n *);\n * I18N_1 = MSG_EXTERNAL_XXX;\n * }\n *
 else {\n * I18N_1 = $localize`Some message with ${\"\\uFFFFD0\\uFFFFD`}!`; \n * }\n * ``\n * @param
 message The original i18n AST message node\n * @param variable The variable that will be assigned the
 translation, e.g. `I18N_1`\n * @param closureVar The variable for Closure `goog.getMsg` calls, e.g.
 `MSG_EXTERNAL_XXX`\n * @param params Object mapping placeholder names to their values (e.g.\n * `{
 \"interpolation\": \"\\uFFFFD0\\uFFFFD\" }`)\n * @param transformFn Optional transformation function that will be
 applied to the translation (e.g.\n * post-processing).\n * @returns An array of statements that defined a given
 translation.\n */\n export function getTranslationDeclStmts(\n message: i18n.Message, variable: o.ReadVarExpr,
 closureVar: o.ReadVarExpr,\n params: {[name: string]: o.Expression} = {},\n transformFn?: (raw:
 o.ReadVarExpr) => o.Expression):
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o.Statement[] {\n const statements: o.Statement[] = [\n declareI18nVariable(variable),\n o.ifStmt(\n createClosureModeGuard(),\n createGoogleGetMsgStatements(\n variable, message, closureVar,\n i18nFormatPlaceholderNames(params, /* useCamelCase */ true)),\n createLocalizeStatements(\n variable, message, i18nFormatPlaceholderNames(params, /* useCamelCase */ false))),\n];\n\n if (transformFn) {\n statements.push(new o.ExpressionStatement(variable.set(transformFn(variable))));\n }\n\n return\n statements;\n }\n\n /**\n * Create the expression that will be used to guard the closure mode block\n * It is equivalent\n to:\n *\n * ``\n * typeof ngI18nClosureMode !== undefined && ngI18nClosureMode\n * ``\n */\n function\n createClosureModeGuard(): o.BinaryOperatorExpr {\n return\n o.typeofExpr(o.variable(NG_I18N_CLOSURE_MODE))\n .notIdentical(o.literal('undefined',\n o.STRING_TYPE))\n .and(o.variable(NG_I18N_CLOSURE_MODE));\n }\n\n /**\n * Information about the template which was extracted during parsing.\n *\n * This contains the actual parsed\n template as well as any metadata collected during its parsing,\n some of which might be useful for re-parsing the\n template with different options.\n */\n export interface ParsedTemplate {\n /**\n * Include whitespace nodes in the\n parsed output.\n */\n preserveWhitespaces?: boolean;\n /**\n * How to parse interpolation markers.\n */\n interpolationConfig?: InterpolationConfig;\n /**\n * The string contents of the template.\n *\n * This is the\n \"logical\" template string, after expansion of any escaped characters (for inline\n templates). This may differ\n from the actual template bytes as they appear in the .ts file.\n */\n template: string;\n /**\n * Any errors from\n parsing the template the first time.\n *\n * `null` if there are no errors. Otherwise, the array of errors is guaranteed\n to be non-empty.\n */\n errors: ParseError[]|null;\n\n /**\n * The template AST, parsed from the template.\n */\n nodes: t.Node[];\n /**\n * Any styleUrls\n extracted from the metadata.\n */\n styleUrls: string[];\n /**\n * Any inline styles extracted from the\n metadata.\n */\n styles: string[];\n /**\n * Any ng-content selectors extracted from the template.\n */\n ngContentSelectors: string[];\n }\n\n \"\"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use\n of this source code is governed by an MIT-style license that can be\n found in the LICENSE file at\n https://angular.io/license\n */\n\n import {StaticSymbol} from '../aot/static_symbol';\n import\n {CompileDirectiveMetadata, CompileDirectiveSummary, CompileQueryMetadata, CompileTokenMetadata,\n identifierName, sanitizeIdentifier} from '../compile_metadata';\n import {CompileReflector} from\n '../compile_reflector';\n import {BindingForm, convertPropertyBinding} from\n '../compiler_util/expression_converter';\n import {ConstantPool,\n DefinitionKind} from '../constant_pool';\n import * as core from '../core';\n import {AST, ParsedEvent,\n ParsedEventType, ParsedProperty} from '../expression_parser/ast';\n import\n {DEFAULT_INTERPOLATION_CONFIG} from '../ml_parser/interpolation_config';\n import * as o from\n '../output/output_ast';\n import {ParseError, ParseSourceSpan} from '../parse_util';\n import {CssSelector,\n SelectorMatcher} from '../selector';\n import {ShadowCss} from '../shadow_css';\n import {CONTENT_ATTR,\n HOST_ATTR} from '../style_compiler';\n import {BindingParser} from\n '../template_parser/binding_parser';\n import {error, OutputContext} from '../util';\n import {BoundEvent} from\n '../r3_ast';\n import {compileFactoryFunction, R3DependencyMetadata, R3FactoryTarget,\n R3ResolvedDependencyType} from '../r3_factory';\n import {Identifiers as R3} from '../r3_identifiers';\n import\n {Render3ParseResult} from '../r3_template_transform';\n import {prepareSyntheticListenerFunctionName,\n prepareSyntheticPropertyName,\n typeWithParameters} from '../util';\n\n import {R3ComponentDef, R3ComponentMetadata, R3DirectiveDef,\n R3DirectiveMetadata, R3HostMetadata, R3QueryMetadata} from './api';\n import\n {MIN_STYLING_BINDING_SLOTS_REQUIRED, StylingBuilder, StylingInstructionCall} from\n './styling_builder';\n import {BindingScope, makeBindingParser, prepareEventListenerParameters,\n renderFlagCheckIfStmt, resolveSanitizationFn, TemplateDefinitionBuilder, ValueConverter} from\n './template';\n import {asLiteral, chainedInstruction, conditionallyCreateMapObjectLiteral, CONTEXT_NAME,\n DefinitionMap, getQueryPredicate, RENDER_FLAGS, TEMPORARY_NAME, temporaryAllocator} from\n './util';\n\n const EMPTY_ARRAY: any[] = [];\n\n // This regex matches any binding names that contain the \"attr.\"

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prefix, e.g. `attr.required` If there is a match, the first matching group will contain the attribute name to
bind.\nconst ATTR_REGEX = /attr\\.([^\s]+)/;\n\nfunction baseDirectiveFields(\n meta: R3DirectiveMetadata,\n constantPool: ConstantPool,\n bindingParser: BindingParser): DefinitionMap {\n const definitionMap = new\n DefinitionMap();\n const selectors = core.parseSelectorToR3Selector(meta.selector);\n \n // e.g. `type:\n MyDirective`\n definitionMap.set('type', meta.internalType);\n \n // e.g. `selectors: ["", 'someDir', ""]`\n if\n (selectors.length > 0) {\n definitionMap.set('selectors', asLiteral(selectors));\n }\n \n if (meta.queries.length > 0)\n {\n // e.g. `contentQueries: (rf, ctx, dirIndex) => { ... }`\n definitionMap.set(\n 'contentQueries',\n createContentQueriesFunction(meta.queries, constantPool, meta.name));\n }\n \n if (meta.viewQueries.length) {\n definitionMap.set(\n 'viewQuery', createViewQueriesFunction(meta.viewQueries, constantPool, meta.name));\n }\n \n // e.g. `hostBindings: (rf, ctx) => { ... }`\n definitionMap.set(\n 'hostBindings',\n createHostBindingsFunction(\n meta.host, meta.typeSourceSpan, bindingParser, constantPool,\n meta.selector || "",\n meta.name, definitionMap));\n \n // e.g `inputs: { a: 'a'}`\n definitionMap.set('inputs',\n conditionallyCreateMapObjectLiteral(meta.inputs, true));\n \n // e.g `outputs: { a: 'a'}`\n definitionMap.set('outputs',\n conditionallyCreateMapObjectLiteral(meta.outputs));\n \n if (meta.exportAs !== null) {\n definitionMap.set('exportAs', o.literalArr(meta.exportAs.map(e => o.literal(e))));\n }\n \n return\n definitionMap;\n}\n\n/**\n * Add features to the definition map.\n */\nfunction addFeatures(definitionMap:\n DefinitionMap, meta: R3DirectiveMetadata|R3ComponentMetadata) {\n // e.g. `features:\n [NgOnChangesFeature]`\n const features: o.Expression[] = [];\n \n const providers = meta.providers;\n \n const\n viewProviders = (meta as R3ComponentMetadata).viewProviders;\n \n if (providers || viewProviders) {\n const args\n = [providers || new o.LiteralArrayExpr([])];\n \n if (viewProviders) {\n args.push(viewProviders);\n }\n \n features.push(o.importExpr(R3.ProvidersFeature).callFn(args));\n }\n \n if (meta.usesInheritance) {\n features.push(o.importExpr(R3.InheritDefinitionFeature));\n }\n \n if\n (meta.fullInheritance) {\n features.push(o.importExpr(R3.CopyDefinitionFeature));\n }\n \n if\n (meta.lifecycle.usesOnChanges) {\n features.push(o.importExpr(R3.NgOnChangesFeature));\n }\n \n if\n (features.length) {\n definitionMap.set('features', o.literalArr(features));\n }\n}\n\n/**\n * Compile a directive for\n the render3 runtime as defined by the `R3DirectiveMetadata`.\n */\nexport function\n compileDirectiveFromMetadata(\n meta: R3DirectiveMetadata, constantPool: ConstantPool,\n bindingParser: BindingParser): R3DirectiveDef {\n const definitionMap = baseDirectiveFields(meta, constantPool,\n bindingParser);\n \n addFeatures(definitionMap, meta);\n \n const expression =\n o.importExpr(R3.defineDirective).callFn([definitionMap.toLiteralMap()]);\n \n const typeParams =\n createDirectiveTypeParams(meta);\n \n const type = o.expressionType(o.importExpr(R3.DirectiveDefWithMeta,\n typeParams));\n \n return {expression, type};\n}\n\n/**\n * Compile a component for the render3 runtime as\n defined by the `R3ComponentMetadata`.\n */\nexport function\n compileComponentFromMetadata(\n meta:\n R3ComponentMetadata, constantPool: ConstantPool,\n bindingParser: BindingParser): R3ComponentDef {\n const definitionMap = baseDirectiveFields(meta, constantPool, bindingParser);\n \n addFeatures(definitionMap,\n meta);\n \n const selector = meta.selector && CssSelector.parse(meta.selector);\n \n const firstSelector = selector &&\n selector[0];\n \n // e.g. `attr: ["class", ".my.app"]`\n // This is optional and only included if the first selector of a\n component specifies attributes.\n \n if (firstSelector) {\n const selectorAttributes = firstSelector.getAttrs();\n \n if\n (selectorAttributes.length) {\n definitionMap.set(\n 'attrs',\n constantPool.getConstLiteral(\n o.literalArr(selectorAttributes.map(\n value => value !== null ? o.literal(value) : o.literal(undefined))),\n /* forceShared */ true));\n }\n }\n \n // Generate the CSS matcher that recognize directive\n let directiveMatcher: SelectorMatcher | null = null;\n \n if\n (meta.directives.length > 0) {\n const matcher = new SelectorMatcher();\n \n for (const {selector, expression} of\n meta.directives) {\n matcher.addSelectable(CssSelector.parse(selector), expression);\n }\n \n directiveMatcher\n = matcher;\n }\n \n // e.g. `template: function MyComponent_Template(_ctx, _cm) { ... }`\n const\n templateTypeName = meta.name;\n \n const templateName = templateTypeName ?\n `${templateTypeName}_Template` : null;\n \n const directivesUsed = new Set<o.Expression>();\n \n const pipesUsed\n = new Set<o.Expression>();\n \n const changeDetection = meta.changeDetection;\n \n const template =

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meta.template;\n const templateBuilder = new TemplateDefinitionBuilder(\n constantPool,
BindingScope.createRootScope(), 0, templateTypeName,
 null, null, templateName,\n directiveMatcher, directivesUsed, meta.pipes, pipesUsed, R3.namespaceHTML,\n
meta.relativeContextFilePath, meta.i18nUseExternalIds);\n\n const templateFunctionExpression =
templateBuilder.buildTemplateFunction(template.nodes, []);\n\n // We need to provide this so that dynamically
generated components know what\n // projected content blocks to pass through to the component when it is
instantiated.\n const ngContentSelectors = templateBuilder.getNgContentSelectors();\n if (ngContentSelectors) {\n
 definitionMap.set('ngContentSelectors', ngContentSelectors);\n }\n\n // e.g. `decls: 2`\n definitionMap.set('decls',
o.literal(templateBuilder.getConstCount()));\n\n // e.g. `vars: 2`\n definitionMap.set('vars',
o.literal(templateBuilder.getVarCount()));\n\n // Generate `consts` section of ComponentDef:\n // - either as an
array:\n // `consts: [['one', 'two'], ['three', 'four']]`\n // - or as a factory function in case additional
statements are present (to support i18n):\n // `consts: function() { var i18n_0; if (ngI18nClosureMode) {...} else
{...} return [i18n_0]; }`\n const {constExpressions, prepareStatements} = templateBuilder.getConsts();\n if
(constExpressions.length > 0) {\n let constsExpr: o.LiteralArrayExpr|o.FunctionExpr =
o.literalArr(constExpressions);\n // Prepare statements are present - turn `consts` into a function.\n if
(prepareStatements.length > 0) {\n constsExpr = o.fn([], [...prepareStatements, new
o.ReturnStatement(constsExpr)]);\n }\n definitionMap.set('consts', constsExpr);\n }\n\n
definitionMap.set('template', templateFunctionExpression);\n\n // e.g. `directives: [MyDirective]`\n if
(directivesUsed.size) {\n let directivesExpr: o.Expression = o.literalArr(Array.from(directivesUsed));\n if
(meta.wrapDirectivesAndPipesInClosure) {\n directivesExpr = o.fn([], [new
o.ReturnStatement(directivesExpr)]);\n }\n definitionMap.set('directives', directivesExpr);\n
}\n\n // e.g. `pipes: [MyPipe]`\n if (pipesUsed.size) {\n let pipesExpr: o.Expression =
o.literalArr(Array.from(pipesUsed));\n if (meta.wrapDirectivesAndPipesInClosure) {\n pipesExpr = o.fn([],
[new o.ReturnStatement(pipesExpr)]);\n }\n definitionMap.set('pipes', pipesExpr);\n }\n\n if
(meta.encapsulation === null) {\n meta.encapsulation = core.ViewEncapsulation.Emulated;\n }\n\n // e.g. `styles:
[str1, str2]`\n if (meta.styles && meta.styles.length) {\n const styleValues = meta.encapsulation ===
core.ViewEncapsulation.Emulated ?\n compileStyles(meta.styles, CONTENT_ATTR, HOST_ATTR) : \n
meta.styles;\n const strings = styleValues.map(str => constantPool.getConstLiteral(o.literal(str)));\n
definitionMap.set('styles', o.literalArr(strings));\n } else if (meta.encapsulation ===
core.ViewEncapsulation.Emulated) {\n // If there is no style, don't generate css selectors on elements\n
meta.encapsulation = core.ViewEncapsulation.None;\n }\n\n // Only set view encapsulation if it's not the default value\n if (meta.encapsulation !==
core.ViewEncapsulation.Emulated) {\n definitionMap.set('encapsulation', o.literal(meta.encapsulation));\n }\n\n
// e.g. `animation: [trigger('123', [])]`\n if (meta.animations !== null) {\n definitionMap.set(\n 'data',
o.literalMap([{\n key: 'animation', value: meta.animations, quoted: false\n }]));\n }\n\n // Only set the change detection
flag if it's defined and it's not the default.\n if (changeDetection !== null && changeDetection !==
core.ChangeDetectionStrategy.Default) {\n definitionMap.set('changeDetection', o.literal(changeDetection));\n
}\n\n const expression = o.importExpr(R3.defineComponent).callFn([definitionMap.toLiteralMap()]);\n\n\n const
typeParams = createDirectiveTypeParams(meta);\n
typeParams.push(stringArrayAsType(meta.template.ngContentSelectors));\n const type =
o.expressionType(o.importExpr(R3.ComponentDefWithMeta, typeParams));\n\n
return {expression, type};\n}\n\n/**\n * A wrapper around `compileDirective` which depends on render2 global
analysis data as its input\n * instead of the `R3DirectiveMetadata`.\n * `R3DirectiveMetadata` is computed from
`CompileDirectiveMetadata` and other statically reflected\n * information.\n */\nexport function
compileDirectiveFromRender2(\n outputCtx: OutputContext, directive: CompileDirectiveMetadata, reflector:
CompileReflector,\n bindingParser: BindingParser) {\n const name = identifierName(directive.type)!;\n name ||
error(`Cannot resolver the name of ${directive.type}`);\n const definitionField =
outputCtx.constantPool.propertyNameOf(DefinitionKind.Directive);\n const meta =

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directiveMetadataFromGlobalMetadata(directive, outputCtx, reflector);\n const res =
compileDirectiveFromMetadata(meta, outputCtx.constantPool, bindingParser);\n const factoryRes =
compileFactoryFunction(\n {...meta, injectFn: R3.directiveInject, target: R3FactoryTarget.Directive});\n
const ngFactoryDefStatement = new o.ClassStmt(\n name, null,\n [new o.ClassField('fac',
o.INFERRED_TYPE, [o.StmtModifier.Static], factoryRes.factory)], [],\n new o.ClassMethod(null, [], [], []);\n
const directiveDefStatement = new o.ClassStmt(\n name, null,\n [new o.ClassField(definitionField,
o.INFERRED_TYPE, [o.StmtModifier.Static], res.expression)],\n [], new o.ClassMethod(null, [], [], []);\n\n //
Create the partial class to be merged with the actual class.\n outputCtx.statements.push(ngFactoryDefStatement,
directiveDefStatement);\n\n\n\n\n * A wrapper around `compileComponent` which depends on render2 global
analysis data as its input\n * instead of the `R3DirectiveMetadata`. \n * \n * `R3ComponentMetadata` is computed
from `CompileDirectiveMetadata` and other statically reflected\n * information.\n * \n\nexport function
compileComponentFromRender2(\n outputCtx: OutputContext, component: CompileDirectiveMetadata,
render3Ast: Render3ParseResult,\n
 reflector: CompileReflector, bindingParser: BindingParser, directiveTypeBySel: Map<string, any>,\n
pipeTypeByName: Map<string, any>) {\n const name = identifierName(component.type)!;\n name || error(`Cannot
resolver the name of ${component.type}`);\n\n const definitionField =
outputCtx.constantPool.propertyNameOf(DefinitionKind.Component);\n\n const summary =
component.toSummary();\n\n // Compute the R3ComponentMetadata from the CompileDirectiveMetadata\n const
meta: R3ComponentMetadata = {\n ...directiveMetadataFromGlobalMetadata(component, outputCtx, reflector),\n
 selector: component.selector,\n template: {nodes: render3Ast.nodes, ngContentSelectors:
render3Ast.ngContentSelectors},\n directives: [],\n pipes: typeMapToExpressionMap(pipeTypeByName,
outputCtx),\n viewQueries: queriesFromGlobalMetadata(component.viewQueries, outputCtx),\n
 wrapDirectivesAndPipesInClosure: false,\n styles: (summary.template && summary.template.styles) ||
EMPTY_ARRAY,\n
 encapsulation:\n (summary.template && summary.template.encapsulation) ||
core.ViewEncapsulation.Emulated,\n interpolation: DEFAULT_INTERPOLATION_CONFIG,\n animations:
null,\n viewProviders:\n component.viewProviders.length > 0 ? new
o.WrappedNodeExpr(component.viewProviders) : null,\n relativeContextFilePath: ",\n i18nUseExternalIds:
true,\n };\n const res = compileComponentFromMetadata(meta, outputCtx.constantPool, bindingParser);\n const
factoryRes = compileFactoryFunction(\n {...meta, injectFn: R3.directiveInject, target:
R3FactoryTarget.Directive});\n const ngFactoryDefStatement = new o.ClassStmt(\n name, null,\n [new
o.ClassField('fac', o.INFERRED_TYPE, [o.StmtModifier.Static], factoryRes.factory)], [],\n new
o.ClassMethod(null, [], [], []);\n const componentDefStatement = new o.ClassStmt(\n name, null,\n [new
o.ClassField(definitionField, o.INFERRED_TYPE, [o.StmtModifier.Static], res.expression)],\n
 [], new o.ClassMethod(null, [], [], []);\n\n // Create the partial class to be merged with the actual class.\n
outputCtx.statements.push(ngFactoryDefStatement, componentDefStatement);\n\n\n\n\n * Compute
`R3DirectiveMetadata` given `CompileDirectiveMetadata` and a `CompileReflector`. \n * \n\nfunction
directiveMetadataFromGlobalMetadata(\n directive: CompileDirectiveMetadata, outputCtx: OutputContext,\n
 reflector: CompileReflector): R3DirectiveMetadata {\n // The global-analysis based Ivy mode in ngc is no longer
utilized/supported.\n throw new Error('unsupported');\n\n\n\n\n * Convert `CompileQueryMetadata` into
`R3QueryMetadata`. \n * \n\nfunction queriesFromGlobalMetadata(\n queries: CompileQueryMetadata[], outputCtx:
OutputContext): R3QueryMetadata[] {\n return queries.map(query => {\n let read: o.Expression|null = null;\n
if (query.read && query.read.identifier) {\n read = outputCtx.importExpr(query.read.identifier.reference);\n
 }\n return {\n
 propertyName: query.propertyName,\n first: query.first,\n predicate:
selectorsFromGlobalMetadata(query.selectors, outputCtx),\n descendants: query.descendants,\n read,\n
 static: !!query.static\n };\n });\n\n\n\n\n * Convert `CompileTokenMetadata` for query selectors into either an
expression for a predicate\n * type, or a list of string predicates.\n * \n\nfunction selectorsFromGlobalMetadata(\n

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selectors: CompileTokenMetadata[], outputCtx: OutputContext): o.Expression|string[] {\n if (selectors.length > 1 ||
(selectors.length == 1 && selectors[0].value)) {\n const selectorStrings = selectors.map(value => value.value as
string);\n selectorStrings.some(value => !value) &&\n error('Found a type among the string selectors
expected');\n return outputCtx.constantPool.getConstLiteral(\n o.literalArr(selectorStrings.map(value =>
o.literal(value)));\n }\n\n if (selectors.length == 1) {\n const first = selectors[0];\n if (first.identifier)
{\n return outputCtx.importExpr(first.identifier.reference);\n }\n }\n\n error('Unexpected query form');\n
return o.NULL_EXPR;\n}\n\nfunction prepareQueryParams(query: R3QueryMetadata, constantPool:
ConstantPool): o.Expression[] {\n const parameters = [getQueryPredicate(query, constantPool),
o.literal(query.descendants)];\n if (query.read) {\n parameters.push(query.read);\n }\n return
parameters;\n}\n\nfunction convertAttributesToExpressions(attributes: {[name: string]: o.Expression}): \n
o.Expression[] {\n const values: o.Expression[] = [];\n for (let key of Object.getOwnPropertyNames(attributes)) {\n
 const value = attributes[key];\n values.push(o.literal(key), value);\n }\n return values;\n}\n\n// Define and
update any content queries\nfunction createContentQueriesFunction(\n queries: R3QueryMetadata[], constantPool:
ConstantPool, name?: string): o.Expression {\n const createStatements: o.Statement[] = [];\n const
updateStatements: o.Statement[]
= [];\n const tempAllocator = temporaryAllocator(updateStatements, TEMPORARY_NAME);\n for (const
query of queries) {\n const queryInstruction = query.static ? R3.staticContentQuery : R3.contentQuery;\n //
creation, e.g. r3.contentQuery(dirIndex, somePredicate, true, null);\n createStatements.push(\n
o.importExpr(queryInstruction)\n .callFn([o.variable('dirIndex'), ...prepareQueryParams(query, constantPool)
as any])\n .toStmt());\n // update, e.g. (r3.queryRefresh(tmp = r3.loadQuery()) && (ctx.someDir =
tmp));\n const temporary = tempAllocator();\n const getQueryList = o.importExpr(R3.loadQuery).callFn([]);\n
const refresh = o.importExpr(R3.queryRefresh).callFn([temporary.set(getQueryList)]);\n const updateDirective =
o.variable(CONTEXT_NAME)\n .prop(query.propertyName)\n
.set(query.first ? temporary.prop('first') : temporary);\n
updateStatements.push(refresh.and(updateDirective).toStmt());\n
 }\n\n const contentQueriesFnName = name ? `${name}_ContentQueries` : null;\n return o.fn(\n [\n new
o.FnParam(RENDER_FLAGS, o.NUMBER_TYPE), new o.FnParam(CONTEXT_NAME, null),\n new
o.FnParam('dirIndex', null)\n],\n [\n renderFlagCheckIfStmt(core.RenderFlags.Create,
createStatements),\n renderFlagCheckIfStmt(core.RenderFlags.Update, updateStatements)\n],\n
o.INFERRED_TYPE, null, contentQueriesFnName);\n}\n\nfunction stringAsType(str: string): o.Type {\n return
o.expressionType(o.literal(str));\n}\n\nfunction stringMapAsType(map: {[key: string]: string|string[]}): o.Type {\n
const mapValues = Object.keys(map).map(key => {\n const value = Array.isArray(map[key]) ? map[key][0] :
map[key];\n return {\n key,\n value: o.literal(value),\n quoted: true,\n };\n});\n return
o.expressionType(o.literalMap(mapValues));\n}\n\nfunction stringArrayAsType(arr: ReadonlyArray<string|null>):
o.Type {\n return arr.length > 0 ? o.expressionType(o.literalArr(arr.map(value => o.literal(value)))) :\n
o.NONE_TYPE;\n}\n\nfunction createDirectiveTypeParams(meta: R3DirectiveMetadata): o.Type[] {\n // On the
type side, remove newlines from the selector as it will need to fit into a TypeScript\n // string literal, which must be
on one line.\n const selectorForType = meta.selector !== null ? meta.selector.replace(/\n/g, " ") : null;\n return [\n
typeWithParameters(meta.type.type, meta.typeArgumentCount),\n selectorForType !== null ?
stringAsType(selectorForType) : o.NONE_TYPE,\n meta.exportAs !== null ? stringArrayAsType(meta.exportAs)
: o.NONE_TYPE,\n stringMapAsType(meta.inputs),\n stringMapAsType(meta.outputs),\n
stringArrayAsType(meta.queries.map(q => q.propertyName)),\n];\n}\n\n// Define and update any view
queries\nfunction createViewQueriesFunction(\n viewQueries: R3QueryMetadata[], constantPool: ConstantPool,
name?:
string): o.Expression {\n const createStatements: o.Statement[] = [];\n const updateStatements: o.Statement[] =
[];\n const tempAllocator = temporaryAllocator(updateStatements, TEMPORARY_NAME);\n viewQueries.forEach((query: R3QueryMetadata) => {\n const queryInstruction = query.static ?
R3.staticViewQuery : R3.viewQuery;\n // creation, e.g. r3.viewQuery(somePredicate, true);\n const

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queryDefinition = \n o.importExpr(queryInstruction).callFn(prepareQueryParams(query, constantPool));\n
createStatements.push(queryDefinition.toStmt());\n\n // update, e.g. (r3.queryRefresh(tmp = r3.loadQuery()) &&
(ctx.someDir = tmp));\n const temporary = tempAllocator();\n const getQueryList =
o.importExpr(R3.loadQuery).callFn([]);\n const refresh =
o.importExpr(R3.queryRefresh).callFn([temporary.set(getQueryList)]);\n const updateDirective =
o.variable(CONTEXT_NAME)\n .prop(query.propertyName)\n .set(query.first
 ? temporary.prop('first') : temporary);\n updateStatements.push(refresh.and(updateDirective).toStmt());\n });\n\nconst viewQueryFnName = name ? `${name}_Query` : null;\n return o.fn(\n [new
o.FnParam(RENDER_FLAGS, o.NUMBER_TYPE), new o.FnParam(CONTEXT_NAME, null)],\n [\n
renderFlagCheckIfStmt(core.RenderFlags.Create, createStatements),\n
renderFlagCheckIfStmt(core.RenderFlags.Update, updateStatements)\n],\n o.INFERRED_TYPE, null,
viewQueryFnName);\n}\n\n// Return a host binding function or null if one is not necessary.\nfunction
createHostBindingsFunction(\n hostBindingsMetadata: R3HostMetadata, typeSourceSpan: ParseSourceSpan,\n bindingParser: BindingParser, constantPool: ConstantPool, selector: string, name: string,\n definitionMap:
DefinitionMap): o.Expression|null {\n const bindingContext = o.variable(CONTEXT_NAME);\n const
styleBuilder = new StylingBuilder(bindingContext);\n const {styleAttr, classAttr} =
hostBindingsMetadata.specialAttributes;\n
 if (styleAttr !== undefined) {\n styleBuilder.registerStyleAttr(styleAttr);\n }\n if (classAttr !== undefined) {\n
styleBuilder.registerClassAttr(classAttr);\n }\n\n const createStatements: o.Statement[] = [];\n const
updateStatements: o.Statement[] = [];\n\n const hostBindingSourceSpan = typeSourceSpan;\n const
directiveSummary = metadataAsSummary(hostBindingsMetadata);\n\n // Calculate host event bindings\n const
eventBindings =\n bindingParser.createDirectiveHostEventAsts(directiveSummary, hostBindingSourceSpan);\n
 if (eventBindings && eventBindings.length) {\n const listeners = createHostListeners(eventBindings, name);\n
 createStatements.push(...listeners);\n }\n\n // Calculate the host property bindings\n const bindings =
bindingParser.createBoundHostProperties(directiveSummary, hostBindingSourceSpan);\n const allOtherBindings:
ParsedProperty[] = [];\n\n // We need to calculate the total amount of binding slots required
 by\n // all the instructions together before any value conversions happen.\n // Value conversions may require
additional slots for interpolation and\n // bindings with pipes. These calculates happen after this block.\n let
totalHostVarsCount = 0;\n bindings && bindings.forEach((binding: ParsedProperty) => {\n const
stylingInputWasSet = styleBuilder.registerInputBasedOnName(\n binding.name, binding.expression,
hostBindingSourceSpan);\n if (stylingInputWasSet) {\n totalHostVarsCount +=
MIN_STYLING_BINDING_SLOTS_REQUIRED;\n } else {\n allOtherBindings.push(binding);\n
totalHostVarsCount++;\n }\n });\n\n let valueConverter: ValueConverter;\n const getValueConverter = () => {\n
 if (!valueConverter) {\n const hostVarsCountFn = (numSlots: number): number => {\n const
originalVarsCount = totalHostVarsCount;\n totalHostVarsCount += numSlots;\n return
originalVarsCount;\n };\n valueConverter = new ValueConverter(\n
 constantPool,\n () => error('Unexpected node'), // new nodes are illegal here\n hostVarsCountFn,\n
 () => error('Unexpected pipe'));\n // pipes are illegal here\n }\n return valueConverter;\n };\n\n const
propertyBindings: o.Expression[][] = [];\n const attributeBindings: o.Expression[][] = [];\n const
syntheticHostBindings: o.Expression[][] = [];\n allOtherBindings.forEach((binding: ParsedProperty) => {\n //
resolve literal arrays and literal objects\n const value = binding.expression.visit(getValueConverter());\n const
bindingExpr = bindingFn(bindingContext, value);\n\n const {bindingName, instruction, isAttribute} =
getBindingNameAndInstruction(binding);\n\n const securityContexts =\n bindingParser.calcPossibleSecurityContexts(selector, bindingName, isAttribute)\n .filter(context => context
!== core.SecurityContext.NONE);\n\n let sanitizerFn: o.ExternalExpr|null = null;\n if (securityContexts.length)
{\n if (securityContexts.length === 2 &&\n securityContexts.indexOf(core.SecurityContext.URL) > -1
&&\n securityContexts.indexOf(core.SecurityContext.RESOURCE_URL) > -1) {\n // Special case for

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some URL attributes (such as \"src\" and \"href\") that may be a part\n // of different security contexts. In this
case we use special sanitization function and\n // select the actual sanitizer at runtime based on a tag name that
is provided while\n // invoking sanitization function.\n sanitizerFn =
o.importExpr(R3.sanitizeUrlOrResourceUrl);\n } else {\n sanitizerFn =
resolveSanitizationFn(securityContexts[0], isAttribute);\n }\n }\n const instructionParams =
[o.literal(bindingName), bindingExpr.currValExpr];\n if (sanitizerFn) {\n
instructionParams.push(sanitizerFn);\n }\n updateStatements.push(...bindingExpr.stmts);\n if (instruction
=== R3.hostProperty) {\n propertyBindings.push(instructionParams);\n
 } else if (instruction === R3.attribute) {\n attributeBindings.push(instructionParams);\n } else if (instruction
=== R3.syntheticHostProperty) {\n syntheticHostBindings.push(instructionParams);\n } else {\n
updateStatements.push(o.importExpr(instruction).callFn(instructionParams).toStmt());\n }\n }\n if
(propertyBindings.length > 0) {\n updateStatements.push(chainedInstruction(R3.hostProperty,
propertyBindings).toStmt());\n }\n if (attributeBindings.length > 0) {\n
updateStatements.push(chainedInstruction(R3.attribute, attributeBindings).toStmt());\n }\n if
(syntheticHostBindings.length > 0) {\n updateStatements.push(\n
chainedInstruction(R3.syntheticHostProperty, syntheticHostBindings).toStmt());\n }\n }\n // since we're dealing with
directives/components and both have hostBinding\n // functions, we need to generate a special hostAttrs instruction
that deals\n // with both the assignment of styling as
well as static attributes to the host\n // element. The instruction below will instruct all initial styling (styling\n //
that is inside of a host binding within a directive/component) to be attached\n // to the host element alongside any of
the provided host attributes that were\n // collected earlier.\n const hostAttrs =
convertAttributesToExpressions(hostBindingsMetadata.attributes);\n styleBuilder.assignHostAttrs(hostAttrs,
definitionMap);\n if (styleBuilder.hasBindings) {\n // finally each binding that was registered in the statement
above will need to be added to\n // the update block of a component/directive templateFn/hostBindingsFn so that
the bindings\n // are evaluated and updated for the element.\n
styleBuilder.buildUpdateLevelInstructions(getValueConverter()).forEach(instruction => {\n if
(instruction.calls.length > 0) {\n const calls: o.Expression[][] = [];\n instruction.calls.forEach(call => {\n
 // we subtract a value of
`1` here because the binding slot was already allocated\n // at the top of this method when all the input
bindings were counted.\n totalHostVarsCount +=\n Math.max(call.allocateBindingSlots -
MIN_STYLING_BINDING_SLOTS_REQUIRED, 0);\n calls.push(convertStylingCall(call, bindingContext,
bindingFn));\n });\n updateStatements.push(chainedInstruction(instruction.reference, calls).toStmt());\n
 }\n }\n if (totalHostVarsCount) {\n definitionMap.set('hostVars', o.literal(totalHostVarsCount));\n }\n }\n
if (createStatements.length > 0 || updateStatements.length > 0) {\n const hostBindingsFnName = name ?
`${name}_HostBindings` : null;\n const statements: o.Statement[] = [];\n if (createStatements.length > 0) {\n
statements.push(renderFlagCheckIfStmt(core.RenderFlags.Create, createStatements));\n }\n if
(updateStatements.length > 0) {\n statements.push(renderFlagCheckIfStmt(core.RenderFlags.Update,
updateStatements));\n }\n return o.fn(\n [new o.FnParam(RENDER_FLAGS, o.NUMBER_TYPE), new
o.FnParam(CONTEXT_NAME, null)], statements,\n o.INFERRED_TYPE, null, hostBindingsFnName);\n
 }\n return null;\n }\n function bindingFn(implicit: any, value: AST) {\n return convertPropertyBinding(\n
null, implicit, value, 'b', BindingForm.Expression, () => error('Unexpected interpolation'));\n }\n function
convertStylingCall(\n call: StylingInstructionCall, bindingContext: any, bindingFn: Function) {\n return
call.params(value => bindingFn(bindingContext, value).currValExpr);\n }\n function
getBindingNameAndInstruction(binding: ParsedProperty):\n {bindingName: string, instruction:
o.ExternalReference, isAttribute: boolean} {\n let bindingName = binding.name;\n let instruction!:
o.ExternalReference;\n // Check to see if this is an attr binding or a property binding\n const attrMatches =
bindingName.match(ATTR_REGEX);\n if (attrMatches) {\n bindingName

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= attrMatches[1];\n instruction = R3.attribute;\n } else {\n if (binding.isAnimation) {\n bindingName =
prepareSyntheticPropertyName(bindingName);\n // host bindings that have a synthetic property (e.g. @foo)
should always be rendered\n // in the context of the component and not the parent. Therefore there is a special\n
// compatibility instruction available for this purpose.\n instruction = R3.syntheticHostProperty;\n } else {\n
instruction = R3.hostProperty;\n }\n }\n\n return {bindingName, instruction, isAttribute:
!!attrMatches};\n}\n\nfunction createHostListeners(eventBindings: ParsedEvent[], name?: string): o.Statement[] {\n
const listeners: o.Expression[][] = [];\n const syntheticListeners: o.Expression[][] = [];\n const instructions:
o.Statement[] = [];\n\n eventBindings.forEach(binding => {\n let bindingName = binding.name &&
sanitizeIdentifier(binding.name);\n const bindingFnName = binding.type === ParsedEventType.Animation
?\n prepareSyntheticListenerFunctionName(bindingName, binding.targetOrPhase) :\n bindingName;\n const handlerName = name && bindingName ? `${name}_${bindingFnName}_HostBindingHandler` : null;\n
const params = prepareEventListenerParameters(BoundEvent.fromParsedEvent(binding), handlerName);\n\n if
(binding.type === ParsedEventType.Animation) {\n syntheticListeners.push(params);\n } else {\n
listeners.push(params);\n }\n });\n\n if (syntheticListeners.length > 0) {\n
instructions.push(chainedInstruction(R3.syntheticHostListener, syntheticListeners).toStmt());\n }\n\n if
(listeners.length > 0) {\n instructions.push(chainedInstruction(R3.listener, listeners).toStmt());\n }\n\n return
instructions;\n}\n\nfunction metadataAsSummary(meta: R3HostMetadata): CompileDirectiveSummary {\n // clang-
format off\n return {\n // This is used by the BindingParser, which only deals with listeners and properties. There's
no\n // need to pass attributes
to it.\n hostAttributes: {},\n hostListeners: meta.listeners,\n hostProperties: meta.properties,\n } as
CompileDirectiveSummary;\n // clang-format on\n}\n\nfunction typeMapToExpressionMap(\n map:
Map<string, StaticSymbol>, outputCtx: OutputContext): Map<string, o.Expression> {\n // Convert each map entry
into another entry where the value is an expression importing the type.\n const entries = Array.from(map).map(\n
([key, type]): [string, o.Expression] => [key, outputCtx.importExpr(type)]);\n return new Map(entries);\n}\n\nconst
HOST_REG_EXP = /^(?:\\[[^\\]]+\\])\\((?:\\[[^\\]]+\\])\\)$/;\n// Represents the groups in the above regex.\nconst
enum HostBindingGroup {\n // group 1: "prop" from "[prop]", or "attr.role" from "[attr.role]", or @anim from
["@anim"]\n Binding = 1,\n // group 2: "event" from "(event)"\n Event = 2,\n}\n\n// Defines Host Bindings
structure that contains attributes, listeners, and properties,\n// parsed from the `host`
object defined for a Type.\nexport interface ParsedHostBindings {\n attributes: {[key: string]: o.Expression};\n
listeners: {[key: string]: string};\n properties: {[key: string]: string};\n specialAttributes: {styleAttr?: string;
classAttr?: string};\n}\n\nexport function parseHostBindings(host: {[key: string]: string|o.Expression}):
ParsedHostBindings {\n const attributes: {[key: string]: o.Expression} = {};\n const listeners: {[key: string]:
string} = {};\n const properties: {[key: string]: string} = {};\n const specialAttributes: {styleAttr?: string;
classAttr?: string} = {};\n\n for (const key of Object.keys(host)) {\n const value = host[key];\n const matches =
key.match(HOST_REG_EXP);\n\n if (matches === null) {\n switch (key) {\n case 'class':\n if (typeof
value !== 'string') {\n // TODO(alxhub): make this a diagnostic.\n throw new Error(`Class binding
must be string`);\n }\n specialAttributes.classAttr
= value;\n break;\n case 'style':\n if (typeof value !== 'string') {\n // TODO(alxhub): make
this a diagnostic.\n throw new Error(`Style binding must be string`);\n }\n specialAttributes.styleAttr = value;\n break;\n default:\n if (typeof value === 'string') {\n
attributes[key] = o.literal(value);\n } else {\n attributes[key] = value;\n }\n }\n } else if
(matches[HostBindingGroup.Binding] != null) {\n if (typeof value !== 'string') {\n // TODO(alxhub): make
this a diagnostic.\n throw new Error(`Property binding must be string`);\n }\n // synthetic properties (the
ones that have a `@` as a prefix)\n // are still treated the same as regular properties. Therefore\n // there is no
point in storing them in a separate map.\n properties[matches[HostBindingGroup.Binding]] = value;\n } else if
(matches[HostBindingGroup.Event]
!= null) {\n if (typeof value !== 'string') {\n // TODO(alxhub): make this a diagnostic.\n throw new
Error(`Event binding must be string`);\n }\n listeners[matches[HostBindingGroup.Event]] = value;\n }\n
}

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}\n\n return {attributes, listeners, properties, specialAttributes};\n}\n\n/**\n * Verifies host bindings and returns the
list of errors (if any). Empty array indicates that a\n * given set of host bindings has no errors.\n *\n * @param
bindings set of host bindings to verify.\n * @param sourceSpan source span where host bindings were defined.\n *
@return array of errors associated with a given set of host bindings.\n */\nexport function verifyHostBindings(\n
bindings: ParsedHostBindings, sourceSpan: ParseSourceSpan): ParseError[] {\n const summary =
metadataAsSummary(bindings);\n // TODO: abstract out host bindings verification logic and use it instead of\n //
creating events and properties ASTs to detect errors (FW-996)\n\n const bindingParser = makeBindingParser();\n bindingParser.createDirectiveHostEventAsts(summary,
sourceSpan);\n bindingParser.createBoundHostProperties(summary, sourceSpan);\n return
bindingParser.errors;\n}\n\nfunction compileStyles(styles: string[], selector: string, hostSelector: string): string[] {\n
const shadowCss = new ShadowCss();\n return styles.map(style => {\n return shadowCss!.shimCssText(style,
selector, hostSelector);\n });\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\n * An interface for retrieving documents by URL that the compiler uses\n * to
load templates.\n */\nexport class ResourceLoader {\n get(url: string): Promise<string>|string {\n return ";\n
 }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\nimport { CompilerFacade,
CoreEnvironment, ExportedCompilerFacade, R3ComponentMetadataFacade, R3DependencyMetadataFacade,
R3DirectiveMetadataFacade, R3FactoryDefMetadataFacade, R3InjectableMetadataFacade,
R3InjectorMetadataFacade, R3NgModuleMetadataFacade, R3PipeMetadataFacade, R3QueryMetadataFacade,
StringMap, StringMapWithRename } from './compiler_facade_interface';\nimport { ConstantPool } from
'./constant_pool';\nimport { HostBinding, HostListener, Input, Output, Type } from './core';\nimport { Identifiers }
from './identifiers';\nimport { compileInjectable } from './injectable_compiler_2';\nimport
{ DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig } from './ml_parser/interpolation_config';\nimport
{ DeclareVarStmt, Expression, LiteralExpr, Statement, StmtModifier, WrappedNodeExpr } from
'./output/output_ast';\nimport { JitEvaluator } from './output/output_jit';\nimport { ParseError, ParseSourceSpan,
r3JitTypeSourceSpan }
from './parse_util';\nimport { compileFactoryFunction, R3DependencyMetadata, R3FactoryTarget,
R3ResolvedDependencyType } from './render3/r3_factory';\nimport { R3JitReflector } from './render3/r3_jit';\nimport
{ compileInjector, compileNgModule, R3InjectorMetadata, R3NgModuleMetadata } from
'./render3/r3_module_compiler';\nimport { compilePipeFromMetadata, R3PipeMetadata } from
'./render3/r3_pipe_compiler';\nimport { R3Reference } from './render3/util';\nimport { R3DirectiveMetadata,
R3QueryMetadata } from './render3/view/api';\nimport { compileComponentFromMetadata,
compileDirectiveFromMetadata, ParsedHostBindings, parseHostBindings, verifyHostBindings } from
'./render3/view/compiler';\nimport { makeBindingParser, parseTemplate } from './render3/view/template';\nimport
{ ResourceLoader } from './resource_loader';\nimport { DomElementSchemaRegistry } from
'./schema/dom_element_schema_registry';\n\nexport class CompilerFacadeImpl implements CompilerFacade {\n
R3ResolvedDependencyType = R3ResolvedDependencyType
as any;\n R3FactoryTarget = R3FactoryTarget as any;\n ResourceLoader = ResourceLoader;\n private
elementSchemaRegistry = new DomElementSchemaRegistry();\n\n constructor(private jitEvaluator = new
JitEvaluator()) {\n }\n\n compilePipe(angularCoreEnv: CoreEnvironment, sourceMapUrl: string, facade:
R3PipeMetadataFacade):\n any {\n const metadata: R3PipeMetadata = {\n name: facade.name,\n type:
wrapReference(facade.type),\n internalType: new WrappedNodeExpr(facade.type),\n typeArgumentCount:
facade.typeArgumentCount,\n deps: convertR3DependencyMetadataArray(facade.deps),\n pipeName:
facade.pipeName,\n pure: facade.pure,\n };\n const res = compilePipeFromMetadata(metadata);\n return
this.jitExpression(res.expression, angularCoreEnv, sourceMapUrl, []);\n }\n\n compileInjectable(\n
angularCoreEnv: CoreEnvironment, sourceMapUrl: string,\n facade: R3InjectableMetadataFacade): any {\n

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const {expression, statements}
= compileInjectable({\n name: facade.name,\n type: wrapReference(facade.type),\n internalType: new
WrappedNodeExpr(facade.type),\n typeArgumentCount: facade.typeArgumentCount,\n providedIn:
computeProvidedIn(facade.providedIn),\n useClass: wrapExpression(facade, USE_CLASS),\n useFactory:
wrapExpression(facade, USE_FACTORY),\n useValue: wrapExpression(facade, USE_VALUE),\n
useExisting: wrapExpression(facade, USE_EXISTING),\n userDeps:
convertR3DependencyMetadataArray(facade.userDeps) || undefined,\n });\n\n return
this.jitExpression(expression, angularCoreEnv, sourceMapUrl, statements);\n }\n\n compileInjector(\n
angularCoreEnv: CoreEnvironment, sourceMapUrl: string,\n facade: R3InjectorMetadataFacade): any {\n const
meta: R3InjectorMetadata = {\n name: facade.name,\n type: wrapReference(facade.type),\n internalType:
new WrappedNodeExpr(facade.type),\n deps: convertR3DependencyMetadataArray(facade.deps),\n
providers: new WrappedNodeExpr(facade.providers),\n imports: facade.imports.map(i => new
WrappedNodeExpr(i)),\n };\n const res = compileInjector(meta);\n return this.jitExpression(res.expression,
angularCoreEnv, sourceMapUrl, res.statements);\n }\n\n compileNgModule(\n angularCoreEnv:
CoreEnvironment, sourceMapUrl: string,\n facade: R3NgModuleMetadataFacade): any {\n const meta:
R3NgModuleMetadata = {\n type: wrapReference(facade.type),\n internalType: new
WrappedNodeExpr(facade.type),\n adjacentType: new WrappedNodeExpr(facade.type),\n bootstrap:
facade.bootstrap.map(wrapReference),\n declarations: facade.declarations.map(wrapReference),\n imports:
facade.imports.map(wrapReference),\n exports: facade.exports.map(wrapReference),\n emitInline: true,\n
containsForwardDecls: false,\n schemas: facade.schemas ? facade.schemas.map(wrapReference) : null,\n id:
facade.id ? new WrappedNodeExpr(facade.id)
: null,\n };\n const res = compileNgModule(meta);\n return this.jitExpression(res.expression, angularCoreEnv,
sourceMapUrl, []);\n }\n\n compileDirective(\n angularCoreEnv: CoreEnvironment, sourceMapUrl: string,\n
facade: R3DirectiveMetadataFacade): any {\n const constantPool = new ConstantPool();\n const bindingParser =
makeBindingParser();\n const meta: R3DirectiveMetadata = convertDirectiveFacadeToMetadata(facade);\n
const res = compileDirectiveFromMetadata(meta, constantPool, bindingParser);\n return this.jitExpression(\n
res.expression, angularCoreEnv, sourceMapUrl, constantPool.statements);\n }\n\n compileComponent(\n
angularCoreEnv: CoreEnvironment, sourceMapUrl: string,\n facade: R3ComponentMetadataFacade): any {\n //
The ConstantPool is a requirement of the JIT'er.\n const constantPool = new ConstantPool();\n\n const
interpolationConfig = facade.interpolation ?\n InterpolationConfig.fromArray(facade.interpolation)
:\n DEFAULT_INTERPOLATION_CONFIG;\n // Parse the template and check for errors.\n const
template = parseTemplate(\n facade.template, sourceMapUrl,\n {preserveWhitespaces:
facade.preserveWhitespaces, interpolationConfig});\n if (template.errors !== null) {\n const errors =
template.errors.map(err => err.toString()).join(', ');
throw new Error(`Errors during JIT compilation of template
for ${facade.name}: ${errors}`);\n }\n\n // Compile the component metadata, including template, into an
expression.\n // TODO(alxhub): implement inputs, outputs, queries, etc.\n const metadata = {\n ...facade as
R3ComponentMetadataFacadeNoPropAndWhitespace,\n ...convertDirectiveFacadeToMetadata(facade),\n
selector: facade.selector || this.elementSchemaRegistry.getDefaultComponentElementName(),\n template,\n
wrapDirectivesAndPipesInClosure: false,\n styles: [...facade.styles, ...template.styles],\n
encapsulation: facade.encapsulation as any,\n interpolation: interpolationConfig,\n changeDetection:
facade.changeDetection,\n animations: facade.animations != null ? new WrappedNodeExpr(facade.animations) :
null,\n viewProviders: facade.viewProviders != null ? new WrappedNodeExpr(facade.viewProviders) :\n
null,\n relativeContextFilePath: ",\n i18nUseExternalIds: true,\n };\n const res =
compileComponentFromMetadata(\n metadata, constantPool, makeBindingParser(interpolationConfig));\n
const jitExpressionSourceMap = `ng:///${facade.name}.js`;\n return this.jitExpression(\n res.expression,
angularCoreEnv, jitExpressionSourceMap, constantPool.statements);\n }\n\n compileFactory(\n
angularCoreEnv: CoreEnvironment, sourceMapUrl: string, meta: R3FactoryDefMetadataFacade) {\n const
factoryRes = compileFactoryFunction({\n name: meta.name,\n type: wrapReference(meta.type),\n

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 internalType: new WrappedNodeExpr(meta.type),\n typeArgumentCount: meta.typeArgumentCount,\n
 deps: convertR3DependencyMetadataArray(meta.deps),\n injectFn: meta.injectFn === 'directiveInject' ?
 Identifiers.directiveInject :\n Identifiers.inject,\n target: meta.target,\n });\n
 return this.jitExpression(\n factoryRes.factory, angularCoreEnv, sourceMapUrl, factoryRes.statements);\n }\n
 createParseSourceSpan(kind: string, typeName: string, sourceUrl: string): ParseSourceSpan {\n return
 r3JitTypeSourceSpan(kind, typeName, sourceUrl);\n }\n\n /**\n * JIT compiles an expression and returns the
 result of executing that expression.\n * \n * @param def the definition which will be compiled and executed to get
 the value to patch\n * @param context an object map of @angular/core symbol names to symbols which will be
 available\n * in the context of the compiled expression\n * @param
 sourceUrl a URL to use for the source map of the compiled expression\n * @param preStatements a collection of
 statements that should be evaluated before the expression.\n */\n private jitExpression(\n def: Expression,
 context: {[key: string]: any}, sourceUrl: string,\n preStatements: Statement[]): any {\n // The ConstantPool may
 contain Statements which declare variables used in the final expression.\n // Therefore, its statements need to
 precede the actual JIT operation. The final statement is a\n // declaration of $def which is set to the expression
 being compiled.\n const statements: Statement[] = [\n ...preStatements,\n new DeclareVarStmt('$def', def,
 undefined, [StmtModifier.Exported]),\n];\n\n const res = this.jitEvaluator.evaluateStatements(\n sourceUrl,
 statements, new R3JitReflector(context), /* enableSourceMaps */ true);\n return res['$def'];\n }\n\n// This
 seems to be needed to placate TS v3.0 only\ntype R3ComponentMetadataFacadeNoPropAndWhitespace
 = Pick<\n R3ComponentMetadataFacade,\n Exclude<Exclude<keyof R3ComponentMetadataFacade,
 'preserveWhitespaces'>,\n 'propMetadata'>>;\n\nconst USE_CLASS = Object.keys({useClass: null})[0];\nconst
 USE_FACTORY = Object.keys({useFactory: null})[0];\nconst USE_VALUE = Object.keys({useValue:
 null})[0];\nconst USE_EXISTING = Object.keys({useExisting: null})[0];\n\nconst wrapReference = function(value:
 any): R3Reference {\n const wrapped = new WrappedNodeExpr(value);\n return {value: wrapped, type:
 wrapped};\n};\n\nfunction convertToR3QueryMetadata(facade: R3QueryMetadataFacade): R3QueryMetadata {\n
 return {\n ...facade,\n predicate: Array.isArray(facade.predicate) ? facade.predicate :\n
 new WrappedNodeExpr(facade.predicate),\n read: facade.read ? new WrappedNodeExpr(facade.read) : null,\n
 static: facade.static\n };\n}\n\nfunction convertDirectiveFacadeToMetadata(facade: R3DirectiveMetadataFacade):
 R3DirectiveMetadata {\n const inputsFromMetadata = parseInputOutputs(facade.inputs || []);\n const
 outputsFromMetadata = parseInputOutputs(facade.outputs || []);\n const propMetadata = facade.propMetadata;\n
 const inputsFromType: StringMapWithRename = {};\n const outputsFromType: StringMap = {};\n for (const field
 in propMetadata) {\n if (propMetadata.hasOwnProperty(field)) {\n propMetadata[field].forEach(ann => {\n
 if (isInput(ann)) {\n inputsFromType[field] =\n ann.bindingPropertyName ?
 [ann.bindingPropertyName, field] : field;\n } else if (isOutput(ann)) {\n outputsFromType[field] =
 ann.bindingPropertyName || field;\n }\n });\n }\n }\n\n return {\n ...facade as
 R3DirectiveMetadataFacadeNoPropAndWhitespace,\n typeSourceSpan: facade.typeSourceSpan,\n type:
 wrapReference(facade.type),\n internalType: new WrappedNodeExpr(facade.type),\n deps:
 convertR3DependencyMetadataArray(facade.deps),\n
 host: extractHostBindings(facade.propMetadata, facade.typeSourceSpan, facade.host),\n inputs:
 {...inputsFromMetadata, ...inputsFromType},\n outputs: {...outputsFromMetadata, ...outputsFromType},\n
 queries: facade.queries.map(convertToR3QueryMetadata),\n providers: facade.providers != null ? new
 WrappedNodeExpr(facade.providers) : null,\n viewQueries:
 facade.viewQueries.map(convertToR3QueryMetadata),\n fullInheritance: false,\n };\n}\n\n// This seems to be
 needed to placate TS v3.0 only\ntype R3DirectiveMetadataFacadeNoPropAndWhitespace =\n Pick<R3DirectiveMetadataFacade, Exclude<keyof R3DirectiveMetadataFacade, 'propMetadata'>>;\n\nfunction
 wrapExpression(obj: any, property: string): WrappedNodeExpr<any>|undefined {\n if
 (obj.hasOwnProperty(property)) {\n return new WrappedNodeExpr(obj[property]);\n } else {\n return
 undefined;\n }\n}\n\nfunction computeProvidedIn(providedIn: Type|string|null|undefined): Expression {\n if
 (providedIn == null || typeof

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providedIn === 'string') {\n return new LiteralExpr(providedIn);\n } else {\n return new
WrappedNodeExpr(providedIn);\n }\n}\n\nfunction convertR3DependencyMetadata(facade:
R3DependencyMetadataFacade): R3DependencyMetadata {\n let tokenExpr;\n if (facade.token === null) {\n
tokenExpr = new LiteralExpr(null);\n } else if (facade.resolved === R3ResolvedDependencyType.Attribute) {\n
tokenExpr = new LiteralExpr(facade.token);\n } else {\n tokenExpr = new WrappedNodeExpr(facade.token);\n
}\n return {\n token: tokenExpr,\n attribute: null,\n resolved: facade.resolved,\n host: facade.host,\n
optional: facade.optional,\n self: facade.self,\n skipSelf: facade.skipSelf,\n };\n}\n\nfunction
convertR3DependencyMetadataArray(facades: R3DependencyMetadataFacade[]|null|\n
undefined): R3DependencyMetadata[]|null {\n return facades == null ? null :
facades.map(convertR3DependencyMetadata);\n }\n}\n\nfunction extractHostBindings(\n
 propMetadata: {[key: string]: any[]}, sourceSpan: ParseSourceSpan,\n host?: {[key: string]: string}):
ParsedHostBindings {\n // First parse the declarations from the metadata.\n const bindings =
parseHostBindings(host || {});\n // After that check host bindings for errors\n const errors =
verifyHostBindings(bindings, sourceSpan);\n if (errors.length) {\n throw new Error(errors.map((error: ParseError)
=> error.msg).join('\n'));\n }\n // Next, loop over the properties of the object, looking for @HostBinding and
@HostListener.\n for (const field in propMetadata) {\n if (propMetadata.hasOwnProperty(field)) {\n
propMetadata[field].forEach(ann => {\n if (isHostBinding(ann)) {\n
bindings.properties[ann.hostPropertyName || field] = field;\n } else if (isHostListener(ann)) {\n
bindings.listeners[ann.eventName || field] = `${field}(${ann.args || []}.join(','))`;\n }\n });\n }\n return bindings;\n }\n}\n\nfunction
isHostBinding(value: any): value is HostBinding {\n return value.ngMetadataName ===
'HostBinding';\n }\n}\n\nfunction isHostListener(value: any): value is HostListener {\n return value.ngMetadataName
=== 'HostListener';\n }\n}\n\nfunction isInput(value: any): value is Input {\n return value.ngMetadataName ===
'Input';\n }\n}\n\nfunction isOutput(value: any): value is Output {\n return value.ngMetadataName ===
'Output';\n }\n}\n\nfunction parseInputOutputs(values: string[]): StringMap {\n return values.reduce((map, value) =>
{\n const [field, property] = value.split(',').map(piece => piece.trim());\n map[field] = property || field;\n return
map;\n }, {} as StringMap);\n }\n}\n\nexport function publishFacade(global: any) {\n const ng:
ExportedCompilerFacade = global.ng || (global.ng = {});\n ng.compilerFacade = new
CompilerFacadeImpl();\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n */\n * @module\n * @description\n
* Entry point for all public APIs of the common package.\n */\n\nimport {Version} from './util';\n\nexport const
VERSION = new Version('11.0.2');\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {MissingTranslationStrategy, ViewEncapsulation} from './core';\nimport
{noUndefined} from './util';\n\nexport class CompilerConfig {\n public defaultEncapsulation:
ViewEncapsulation|null;\n public useJit: boolean;\n public jitDevMode: boolean;\n public missingTranslation:
MissingTranslationStrategy|null;\n public preserveWhitespaces: boolean;\n public strictInjectionParameters:
boolean;\n\n constructor({\n defaultEncapsulation = ViewEncapsulation.Emulated,\n useJit = true,\n jitDevMode = false,\n
 missingTranslation = null,\n preserveWhitespaces,\n strictInjectionParameters\n }: {\n
defaultEncapsulation?: ViewEncapsulation,\n useJit?: boolean,\n jitDevMode?: boolean,\n
missingTranslation?: MissingTranslationStrategy|null,\n preserveWhitespaces?: boolean,\n
strictInjectionParameters?: boolean,\n } = {}) {\n this.defaultEncapsulation = defaultEncapsulation;\n this.useJit
= !!useJit;\n this.jitDevMode = !!jitDevMode;\n this.missingTranslation = missingTranslation;\n
 this.preserveWhitespaces = preserveWhitespacesDefault(noUndefined(preserveWhitespaces));\n
 this.strictInjectionParameters = strictInjectionParameters === true;\n }\n }\n\nexport function
preserveWhitespacesDefault(\n preserveWhitespacesOption: boolean|null, defaultSetting = false): boolean {\n

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return preserveWhitespacesOption === null ? defaultSetting : preserveWhitespacesOption;\n}\n"/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { CompileDirectiveMetadata, CompileStylesheetMetadata,
CompileTemplateMetadata, templateSourceUrl } from './compile_metadata';\nimport { CompilerConfig,
preserveWhitespacesDefault } from './config';\nimport { ViewEncapsulation } from './core';\nimport * as html from
'/ml_parser/ast';\nimport { HtmlParser } from './ml_parser/html_parser';\nimport { InterpolationConfig } from
'/ml_parser/interpolation_config';\nimport { ParseTreeResult as HtmlParseTreeResult } from
'/ml_parser/parser';\nimport { ResourceLoader } from './resource_loader';\nimport { extractStyleUrls,
isStyleUrlResolvable } from './style_url_resolver';\nimport { PreparedElementType, prepareElement } from
'/template_parser/template_preparser';\nimport { UrlResolver } from './url_resolver';\nimport { isDefined, stringify,
SyncAsync, syntaxError } from './util';\n\nexport interface PrenormalizedTemplateMetadata
{\n ngModuleType: any;\n componentType: any;\n moduleUrl: string;\n template: string|null;\n templateUrl:
string|null;\n styles: string[];\n styleUrls: string[];\n interpolation: [string, string]|null;\n encapsulation:
ViewEncapsulation|null;\n animations: any[];\n preserveWhitespaces: boolean|null;\n}\n\nexport class
DirectiveNormalizer {\n private _resourceLoaderCache = new Map<string, SyncAsync<string>>();\n\n constructor(\n private _resourceLoader: ResourceLoader, private _urlResolver: UrlResolver,\n private
_htmlParser: HtmlParser, private _config: CompilerConfig) {\n\n clearCache(): void {\n
this._resourceLoaderCache.clear();\n }\n\n clearCacheFor(normalizedDirective: CompileDirectiveMetadata): void
{\n if (!normalizedDirective.isComponent) {\n return;\n }\n const template = normalizedDirective.template
!;\n this._resourceLoaderCache.delete(template.templateUrl!);\n
 template.externalStyleSheets.forEach((stylesheet) => {\n
 this._resourceLoaderCache.delete(stylesheet.moduleUrl!);\n
 });\n }\n\n private _fetch(url: string): SyncAsync<string> {\n let result = this._resourceLoaderCache.get(url);\n
 if (!result) {\n result = this._resourceLoader.get(url);\n this._resourceLoaderCache.set(url, result);\n }\n
 return result;\n }\n\n normalizeTemplate(prenormData: PrenormalizedTemplateMetadata):\n SyncAsync<CompileTemplateMetadata> {\n if (isDefined(prenormData.template)) {\n if
(isDefined(prenormData.templateUrl)) {\n throw syntaxError(`${\n stringify(prenormData\n
.componentType)}' component cannot define both template and templateUrl`);\n }\n if (typeof
prenormData.template !== 'string') {\n throw syntaxError(`The template specified for component ${\n
stringify(prenormData.componentType)} is not a string`);\n }\n } else if (isDefined(prenormData.templateUrl))
{\n if (typeof prenormData.templateUrl
 !== 'string') {\n throw syntaxError(`The templateUrl specified for component ${\n
stringify(prenormData.componentType)} is not a string`);\n }\n } else {\n throw syntaxError(`\n `No
template specified for component ${stringify(prenormData.componentType)}`);\n }\n\n if
(isDefined(prenormData.preserveWhitespaces) &&\n typeof prenormData.preserveWhitespaces !== 'boolean')
{\n throw syntaxError(`The preserveWhitespaces option for component ${\n
stringify(prenormData.componentType)} must be a boolean`);\n }\n\n return SyncAsync.then(\n
this._preParseTemplate(prenormData),\n (preparedTemplate) =>\n this._normalizeTemplateMetadata(prenormData, preparedTemplate));\n }\n\n private
_preParseTemplate(prenormData: PrenormalizedTemplateMetadata):\n SyncAsync<PreparedTemplate> {\n let
template: SyncAsync<string>;\n let templateUrl: string;\n if (prenormData.template !== null) {\n template
= prenormData.template;\n templateUrl = prenormData.moduleUrl;\n } else {\n templateUrl =
this._urlResolver.resolve(prenormData.moduleUrl, prenormData.templateUrl!);\n template =
this._fetch(templateUrl);\n }\n return SyncAsync.then(\n template, (template) =>\n this._prepareLoadedTemplate(prenormData, template, templateUrl));\n }\n\n private _prepareLoadedTemplate(\n
 prenormData: PrenormalizedTemplateMetadata, template: string,\n templateAbsUrl: string):\n PreparedTemplate {\n const isInline = !!prenormData.template;\n const interpolationConfig =

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InterpolationConfig.fromArray(prenormData.interpolation!);\n const templateUrl = templateSourceUrl(\n
{reference: prenormData.ngModuleType}, {type: {reference: prenormData.componentType}}),\n {isInline,
templateUrl: templateAbsUrl});\n const rootNodesAndErrors = this._htmlParser.parse(\n template,
templateUrl, {tokenizeExpansionForms: true, interpolationConfig});\n if (rootNodesAndErrors.errors.length
> 0) {\n const errorString = rootNodesAndErrors.errors.join('\\n');\n throw syntaxError(`Template parse
errors:\\n${errorString}`);\n }\n\n const templateMetadataStyles = this._normalizeStylesheet(new
CompileStylesheetMetadata(\n {styles: prenormData.styles, moduleUrl: prenormData.moduleUrl}));\n\n const
visitor = new TemplatePreparseVisitor();\n html.visitAll(visitor, rootNodesAndErrors.rootNodes);\n const
templateStyles = this._normalizeStylesheet(new CompileStylesheetMetadata(\n {styles: visitor.styles, styleUrls:
visitor.styleUrls, moduleUrl: templateAbsUrl}));\n\n const styles =
templateMetadataStyles.styles.concat(templateStyles.styles);\n\n const inlineStyleUrls =
templateMetadataStyles.styleUrls.concat(templateStyles.styleUrls);\n const styleUrls = this\n._normalizeStylesheet(new CompileStylesheetMetadata(\n {styleUrls: prenormData.styleUrls,
moduleUrl:
prenormData.moduleUrl})))\n .styleUrls;\n return {\n template,\n templateUrl:
templateAbsUrl,\n isInline,\n htmlAst: rootNodesAndErrors,\n styles,\n inlineStyleUrls,\n
styleUrls,\n ngContentSelectors: visitor.ngContentSelectors,\n };\n}\n\n private
_normalizeTemplateMetadata(\n prenormData: PrenormalizedTemplateMetadata,\n preparedTemplate:
PreparedTemplate): SyncAsync<CompileTemplateMetadata> {\n return SyncAsync.then(\n
this._loadMissingExternalStylesheets(\n
preparedTemplate.styleUrls.concat(preparedTemplate.inlineStyleUrls)),\n (externalStylesheets) =>
this._normalizeLoadedTemplateMetadata(\n prenormData, preparedTemplate, externalStylesheets));\n }\n\n private _normalizeLoadedTemplateMetadata(\n prenormData: PrenormalizedTemplateMetadata,
preparedTemplate: PreparedTemplate,\n stylesheets: Map<string, CompileStylesheetMetadata>):
CompileTemplateMetadata
{\n // Algorithm:\n // - produce exactly 1 entry per original styleUrl in\n //
CompileTemplateMetadata.externalStylesheets with all styles inlined\n // - inline all styles that are referenced by
the template into CompileTemplateMetadata.styles.\n // Reason: be able to determine how many stylesheets there
are even without loading\n // the template nor the stylesheets, so we can create a stub for TypeScript always
synchronously\n // (as resource loading may be async)\n\n const styles = [...preparedTemplate.styles];\n
this._inlineStyles(preparedTemplate.inlineStyleUrls, stylesheets, styles);\n const styleUrls =
preparedTemplate.styleUrls;\n\n const externalStylesheets = styleUrls.map(styleUrl => {\n const stylesheet =
stylesheets.get(styleUrl)!;\n const styles = [...stylesheet.styles];\n this._inlineStyles(stylesheet.styleUrls,
stylesheet, styles);\n return new CompileStylesheetMetadata({moduleUrl: styleUrl, styles:
styles});\n });\n\n let encapsulation = prenormData.encapsulation;\n if (encapsulation == null) {\n
encapsulation = this._config.defaultEncapsulation;\n }\n if (encapsulation === ViewEncapsulation.Emulated
&& styles.length === 0 &&\n styleUrls.length === 0) {\n encapsulation = ViewEncapsulation.None;\n }\n
return new CompileTemplateMetadata({\n encapsulation,\n template: preparedTemplate.template,\n
templateUrl: preparedTemplate.templateUrl,\n htmlAst: preparedTemplate.htmlAst,\n styles,\n
styleUrls,\n ngContentSelectors: preparedTemplate.ngContentSelectors,\n animations:
prenormData.animations,\n interpolation: prenormData.interpolation,\n isInline: preparedTemplate.isInline,\n
externalStylesheets,\n preserveWhitespaces: preserveWhitespacesDefault(\n
prenormData.preserveWhitespaces, this._config.preserveWhitespaces),\n });\n}\n\n private _inlineStyles(\n
styleUrls:
string[], stylesheets: Map<string, CompileStylesheetMetadata>,\n targetStyles: string[]) {\n
styleUrls.forEach(styleUrl => {\n const stylesheet = stylesheets.get(styleUrl)!;\n
stylesheet.styles.forEach(style => targetStyles.push(style));\n this._inlineStyles(stylesheet.styleUrls, stylesheets,
targetStyles);\n });\n}\n\n private _loadMissingExternalStylesheets(\n styleUrls: string[],\n

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loadedStyleSheets: Map<string, CompileStyleSheetMetadata> = new Map<string,
CompileStyleSheetMetadata>();
SyncAsync<Map<string, CompileStyleSheetMetadata>> {
 return SyncAsync.then(
 SyncAsync.all(styleUrls.filter((styleUrl) => !loadedStyleSheets.has(styleUrl)))
 .map(
 styleUrl => SyncAsync.then(
 this._fetch(styleUrl),
 (loadedStyle) => {
 const stylesheet =
 this._normalizeStyleSheet(new CompileStyleSheetMetadata(
 {
 styles: [loadedStyle],
 moduleUrl: styleUrl
 }
),
 loadedStyleSheets.set(styleUrl, stylesheet);
 return this._loadMissingExternalStyleSheets(
 stylesheet.styleUrls,
 loadedStyleSheets
);
 }
),
 (_) => loadedStyleSheets
)
);
}

private _normalizeStyleSheet(stylesheet: CompileStyleSheetMetadata): CompileStyleSheetMetadata {
 const moduleUrl = stylesheet.moduleUrl!;
 const allStyleUrls = stylesheet.styleUrls.filter(isStyleUrlResolvable);
 const allStyles = stylesheet.styles.map(style => {
 const styleWithImports = extractStyleUrls(this._urlResolver, moduleUrl, style);
 allStyleUrls.push(...styleWithImports.styleUrls);
 return styleWithImports.style;
 });
 return new CompileStyleSheetMetadata(
 {
 styles: allStyles,
 styleUrls: allStyleUrls,
 moduleUrl: moduleUrl
 }
);
}

interface PreparedTemplate {
 template: string;
 templateUrl: string;
 isInline: boolean;
 htmlAst: HtmlParseTreeResult;
 styles: string[];
 inlineStyleUrls: string[];
 styleUrls: string[];
 ngContentSelectors: string[];
}

class TemplatePreparseVisitor implements html.Visitor {
 ngContentSelectors: string[] = [];
 styles: string[] = [];
 styleUrls: string[] = [];
 ngNonBindableStackCount: number = 0;

 visitElement(ast: html.Element, context: any): any {
 const preparsedElement = preparseElement(ast);
 switch (preparsedElement.type) {
 case PreparedElementType.NG_CONTENT:
 if (this.ngNonBindableStackCount === 0) {
 this.ngContentSelectors.push(preparsedElement.selectAttr);
 }
 break;
 case PreparedElementType.STYLE:
 let textContent = '';
 ast.children.forEach(child => {
 if (child instanceof html.Text) {
 textContent += child.value;
 }
 });
 this.styles.push(textContent);
 break;
 case PreparedElementType.STYLESHEET:
 this.styleUrls.push(preparsedElement.hrefAttr);
 break;
 default:
 break;
 }
 if (preparsedElement.nonBindable) {
 this.ngNonBindableStackCount++;
 }
 html.visitAll(this, ast.children);
 if (preparsedElement.nonBindable) {
 this.ngNonBindableStackCount--;
 }
 return null;
 }

 visitExpansion(ast: html.Expansion, context: any): any {
 html.visitAll(this, ast.cases);
 }

 visitExpansionCase(ast: html.ExpansionCase, context: any): any {
 html.visitAll(this, ast.expression);
 }

 visitComment(ast: html.Comment, context: any): any {
 return null;
 }

 visitAttribute(ast: html.Attribute, context: any): any {
 return null;
 }

 visitText(ast: html.Text, context: any): any {
 return null;
 }
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by an MIT-style
 * license that can be found in the LICENSE file at
 * https://angular.io/license
 */
import {
 CompileReflector,
 Component,
 createComponent,
 createContentChild,
 createContentChildren,
 createDirective,
 createHostBinding,
 createHostListener,
 createInput,
 createOutput,
 createViewChild,
 createViewChildren,
 Directive,
 Type
} from './core';
import {
 resolveForwardRef,
 splitAtColon,
 stringify
} from './util';
const QUERY_METADATA_IDENTIFIERS = [
 createViewChild,
 createViewChildren,
 createContentChild,
 createContentChildren
];

/**
 * Resolve a `Type` for {@link Directive}.
 * This interface can be overridden by the application developer to create custom behavior.
 * See {@link Compiler}.
 */
export class DirectiveResolver {
 constructor(private _reflector: CompileReflector) {}

 isDirective(type: Type): boolean {
 const typeMetadata = this._reflector.annotations(resolveForwardRef(type));
 return typeMetadata && typeMetadata.some(isDirectiveMetadata);
 }

 /**
 * Return {@link Directive} for a given `Type`.
 */
 resolve(type: Type): Directive;
 resolve(type: Type, throwIfNotFound: true): Directive;
 resolve(type: Type, throwIfNotFound: boolean): Directive | null;
 resolve(type: Type, throwIfNotFound = true): Directive | null {
 if (this.isDirective(type)) {
 return this._reflector.getDirective(type);
 }
 return null;
 }
}

```



```

const typeMetadata = this._reflector.annotations(resolveForwardRef(type));\n if (typeMetadata) {\n const
metadata = findLast(typeMetadata, isDirectiveMetadata);\n if (metadata) {\n const propertyMetadata =
this._reflector.propMetadata(type);\n const guards = this._reflector.guards(type);\n return
this._mergeWithPropertyMetadata(metadata, propertyMetadata, guards, type);\n }\n }\n\n if
(throwIfNotFound)
{\n throw new Error(`No Directive annotation found on ${stringify(type)}`);\n }\n\n return null;\n }\n\n
private _mergeWithPropertyMetadata(\n dm: Directive, propertyMetadata: {[key: string]: any[]}, guards: {[key:
string]: any},\n directiveType: Type): Directive {\n const inputs: string[] = [];\n const outputs: string[] = [];\n
const host: {[key: string]: string} = {};\n const queries: {[key: string]: any} = {};\n
Object.keys(propertyMetadata).forEach((propName: string) => {\n const input =
findLast(propertyMetadata[propName], (a) => createInput.isTypeOf(a));\n if (input) {\n if
(input.bindingPropertyName) {\n inputs.push(`${propName}: ${input.bindingPropertyName}`);\n } else
{\n inputs.push(propName);\n }\n }\n const output = findLast(propertyMetadata[propName], (a) =>
createOutput.isTypeOf(a));\n if (output) {\n if (output.bindingPropertyName) {\n
outputs.push(`${propName}:
${output.bindingPropertyName}`);\n } else {\n outputs.push(propName);\n }\n }\n const
hostBindings = propertyMetadata[propName].filter(a => createHostBinding.isTypeOf(a));\n
hostBindings.forEach(hostBinding => {\n if (hostBinding.hostPropertyName) {\n const startWith =
hostBinding.hostPropertyName[0];\n if (startWith === '(') {\n throw new Error(`@HostBinding can not
bind to events. Use @HostListener instead.`);\n } else if (startWith === '[') {\n throw new Error(`\n
 `@HostBinding parameter should be a property name, 'class.<name>', or 'attr.<name>'.`);\n }\n
host[`${hostBinding.hostPropertyName}`] = propName;\n } else {\n host[`${propName}`] =
propName;\n }\n }\n const hostListeners = propertyMetadata[propName].filter(a =>
createHostListener.isTypeOf(a));\n hostListeners.forEach(hostListener =>
{\n const args = hostListener.args || [];\n host[`${hostListener.eventName}`] =
`${propName}(${args.join(',')})`;\n });\n const query = findLast(\n propertyMetadata[propName], (a) =>
QUERY_METADATA_IDENTIFIERS.some(i => i.isTypeOf(a)));\n if (query) {\n queries[propName] =
query;\n }\n });\n return this._merge(dm, inputs, outputs, host, queries, guards, directiveType);\n }\n\n
private _extractPublicName(def: string) {\n return splitAtColon(def, [null!, def])[1].trim();\n }\n\n private
_dedupeBindings(bindings: string[]): string[] {\n const names = new Set<string>();\n const publicNames = new
Set<string>();\n const reversedResult: string[] = [];\n // go last to first to allow later entries to overwrite previous
entries\n for (let i = bindings.length - 1; i >= 0; i--) {\n const binding = bindings[i];\n const name =
this._extractPublicName(binding);\n publicNames.add(name);\n if (!names.has(name))\n {\n names.add(name);\n reversedResult.push(binding);\n }\n }\n return reversedResult.reverse();\n
}\n\n private _merge(\n directive: Directive, inputs: string[], outputs: string[], host: {[key: string]: string},\n
queries: {[key: string]: any}, guards: {[key: string]: any}, directiveType: Type): Directive {\n const mergedInputs
=\n this._dedupeBindings(directive.inputs ? directive.inputs.concat(inputs) : inputs);\n const mergedOutputs
=\n this._dedupeBindings(directive.outputs ? directive.outputs.concat(outputs) : outputs);\n const mergedHost
= directive.host ? [...directive.host, ...host] : host;\n const mergedQueries = directive.queries ?
[...directive.queries, ...queries] : queries;\n if (createComponent.isTypeOf(directive)) {\n const comp =
directive as Component;\n return createComponent({\n selector: comp.selector,\n inputs:
mergedInputs,\n outputs: mergedOutputs,\n host:
mergedHost,\n exportAs: comp.exportAs,\n moduleId: comp.moduleId,\n queries: mergedQueries,\n
 changeDetection: comp.changeDetection,\n providers: comp.providers,\n viewProviders:
comp.viewProviders,\n entryComponents: comp.entryComponents,\n template: comp.template,\n
 templateUrl: comp.templateUrl,\n styles: comp.styles,\n styleUrls: comp.styleUrls,\n encapsulation:
comp.encapsulation,\n animations: comp.animations,\n interpolation: comp.interpolation,\n
 preserveWhitespaces: directive.preserveWhitespaces,\n });\n } else {\n return createDirective({\n

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selector: directive.selector,\n inputs: mergedInputs,\n outputs: mergedOutputs,\n host: mergedHost,\n exportAs: directive.exportAs,\n queries: mergedQueries,\n providers: directive.providers,\n guards\n });\n }\n}\n\nfunction isDirectiveMetadata(type: any):\n type is Directive {\n return createDirective.isTypeOf(type) || createComponent.isTypeOf(type);\n }\n}\n\nexport\nfunction findLast<T>(arr: T[], condition: (value: T) => boolean): T|null {\n for (let i = arr.length - 1; i >= 0; i--) {\n if (condition(arr[i])) {\n return arr[i];\n }\n }\n return null;\n}\n\n"/**\n * @license\n * Copyright Google\n * LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n * in the LICENSE file at https://angular.io/license\n */\n\nimport {ParseError, ParseSourceSpan} from\n './parse_util';\n\n/**\n * An i18n error.\n */\nexport class I18nError extends ParseError {\n constructor(span:\n ParseSourceSpan, msg: string) {\n super(span, msg);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All\n * Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n * LICENSE file at https://angular.io/license\n */\n\nimport * as html from './ml_parser/ast';\nimport\n {InterpolationConfig} from './ml_parser/interpolation_config';\nimport {ParseTreeResult} from\n './ml_parser/parser';\nimport * as i18n from './i18n_ast';\nimport {createI18nMessageFactory,\n I18nMessageFactory} from './i18n_parser';\nimport {I18nError} from './parse_util';\nimport {TranslationBundle}\n from './translation_bundle';\n\nconst _I18N_ATTR = 'i18n';\nconst _I18N_ATTR_PREFIX = 'i18n-';\nconst\n _I18N_COMMENT_PREFIX_REGEXP = /^i18n:?:\nconst MEANING_SEPARATOR = ' ';\nconst\n ID_SEPARATOR = '@@';\n\nlet i18nCommentsWarned = false;\n\n/**\n * Extract translatable messages from an\n * html AST\n */\nexport function extractMessages(\n nodes: html.Node[], interpolationConfig: InterpolationConfig,\n implicitTags: string[],\n implicitAttrs: {[k: string]: string[]}): ExtractionResult {\n const visitor = new\n _Visitor(implicitTags, implicitAttrs);\n return visitor.extract(nodes, interpolationConfig);\n}\n\nexport function\n mergeTranslations(\n nodes: html.Node[], translations:\n TranslationBundle, interpolationConfig: InterpolationConfig,\n implicitTags: string[], implicitAttrs: {[k: string]:\n string[]}): ParseTreeResult {\n const visitor = new _Visitor(implicitTags, implicitAttrs);\n return\n visitor.merge(nodes, translations, interpolationConfig);\n}\n\nexport class ExtractionResult {\n constructor(public\n messages: i18n.Message[], public errors: I18nError[]) {}\n}\n\nenum _VisitorMode {\n Extract,\n Merge\n}\n\n/**\n * This Visitor is used:\n * 1. to extract all the translatable strings from an html AST (see\n * `extract()`),\n * 2. to replace the translatable strings with the actual translations (see `merge()`)\n */\n\n/**\n * @internal\n */\nexport class _Visitor implements html.Visitor {\n // TODO(issue/24571): remove '!'\n private _depth!: number;\n\n // TODO(issue/24571): remove '!'\n private _inI18nNode!: boolean;\n\n // TODO(issue/24571): remove '!'\n private _inImplicitNode!: boolean;\n\n // <!--i18n-->...<!--/i18n-->\n // TODO(issue/24571): remove '!'\n private _inI18nBlock!: boolean;\n\n // TODO(issue/24571): remove '!'\n private\n _blockMeaningAndDesc!: string;\n\n // TODO(issue/24571): remove '!'\n private _blockChildren!: html.Node[];\n\n // TODO(issue/24571): remove '!'\n private _blockStartDepth!: number;\n\n // {<icu message>}\n // TODO(issue/24571): remove '!'\n private _inIcu!: boolean;\n\n // set to void 0 when not in a section\n private\n _msgCountAtSectionStart: number|undefined;\n\n // TODO(issue/24571): remove '!'\n private _errors!: I18nError[];\n\n // TODO(issue/24571): remove '!'\n private _mode!: _VisitorMode;\n\n // _VisitorMode.Extract\n only\n // TODO(issue/24571): remove '!'\n private _messages!: i18n.Message[];\n\n // _VisitorMode.Merge\n only\n // TODO(issue/24571): remove '!'\n private _translations!: TranslationBundle;\n\n // TODO(issue/24571): remove '!'\n private _createI18nMessage!: I18nMessageFactory;\n\n constructor(private _implicitTags: string[],\n private\n _implicitAttrs: {[k: string]: string[]}) {}\n\n /**\n * Extracts the messages from the tree\n */\n extract(nodes:\n html.Node[], interpolationConfig: InterpolationConfig): ExtractionResult {\n this._init(_VisitorMode.Extract,\n interpolationConfig);\n\n nodes.forEach(node => node.visit(this, null));\n\n if (this._inI18nBlock) {\n this._reportError(nodes[nodes.length - 1], 'Unclosed block');\n }\n\n return new\n ExtractionResult(this._messages, this._errors);\n }\n\n /**\n * Returns a tree where all translatable nodes are\n * translated\n */\n merge(\n nodes: html.Node[], translations: TranslationBundle,\n interpolationConfig:\n InterpolationConfig): ParseTreeResult {\n this._init(_VisitorMode.Merge, interpolationConfig);\n }\n}

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this._translations = translations;\n\n // Construct a single fake root element\n const wrapper = new
html.Element('wrapper', [], nodes, undefined!, undefined!, undefined);\n\n const translatedNode =
wrapper.visit(this, null);\n\n
 if (this._inI18nBlock) {\n this._reportError(nodes[nodes.length - 1], 'Unclosed block');\n }\n\n return new
ParseTreeResult(translatedNode.children, this._errors);\n }\n\n visitExpansionCase(icuCase: html.ExpansionCase,
context: any): any {\n // Parse cases for translatable html attributes\n const expression = html.visitAll(this,
icuCase.expression, context);\n\n if (this._mode === _VisitorMode.Merge) {\n return new
html.ExpansionCase(\n icuCase.value, expression, icuCase.sourceSpan, icuCase.valueSourceSpan,\n
icuCase.expSourceSpan);\n }\n }\n\n visitExpansion(icu: html.Expansion, context: any): html.Expansion {\n
this._maybeAddBlockChildren(icu);\n\n const wasInIcu = this._inIcu;\n\n if (!this._inIcu) {\n // nested ICU
messages should not be extracted but top-level translated as a whole\n if (this._isInTranslatableSection) {\n
this._addMessage([icu]);\n }\n this._inIcu = true;\n }\n\n
 const cases = html.visitAll(this, icu.cases, context);\n\n if (this._mode === _VisitorMode.Merge) {\n icu =
new html.Expansion(\n icu.switchValue, icu.type, cases, icu.sourceSpan, icu.switchValueSourceSpan);\n
}\n\n this._inIcu = wasInIcu;\n\n return icu;\n }\n\n visitComment(comment: html.Comment, context: any):
any {\n const isOpening = _isOpeningComment(comment);\n\n if (isOpening && this._isInTranslatableSection)
{\n this._reportError(comment, 'Could not start a block inside a translatable section');\n return;\n }\n\n
const isClosing = _isClosingComment(comment);\n\n if (isClosing && !this._inI18nBlock) {\n
this._reportError(comment, 'Trying to close an unopened block');\n return;\n }\n\n if (!this._inI18nNode &&
!this._inIcu) {\n if (!this._inI18nBlock) {\n if (isOpening) {\n // deprecated from v5 you should use
<ng-container i18n> instead of i18n comments\n if (!i18nCommentsWarned
&& <any>console && <any>console.warn) {\n i18nCommentsWarned = true;\n const details =
comment.sourceSpan.details ? ` ${comment.sourceSpan.details} ` : ` `;\n // TODO(ocombe): use a log service
once there is a public one available\n console.warn('I18n comments are deprecated, use an <ng-container>
element instead (${\n comment.sourceSpan.start}${details})');\n }\n this._inI18nBlock =
true;\n this._blockStartDepth = this._depth;\n this._blockChildren = [];\n
this._blockMeaningAndDesc =\n comment.value!.replace(_I18N_COMMENT_PREFIX_REGEXP,
'').trim();\n this._openTranslatableSection(comment);\n }\n } else {\n if (isClosing) {\n if
(this._depth === this._blockStartDepth) {\n this._closeTranslatableSection(comment, this._blockChildren);\n
this._inI18nBlock = false;\n const message = this._addMessage(this._blockChildren,
this._blockMeaningAndDesc);\n // merge attributes in sections\n const nodes =
this._translateMessage(comment, message);\n return html.visitAll(this, nodes);\n } else {\n
this._reportError(comment, 'I18N blocks should not cross element boundaries');\n return;\n }\n }\n }\n
}\n\n visitText(text: html.Text, context: any): html.Text {\n if (this._isInTranslatableSection) {\n
this._maybeAddBlockChildren(text);\n }\n return text;\n }\n\n visitElement(el: html.Element, context: any):
html.Element|null {\n this._maybeAddBlockChildren(el);\n this._depth++;\n const wasInI18nNode =
this._inI18nNode;\n const wasInImplicitNode = this._inImplicitNode;\n let childNodes: html.Node[] = [];\n let
translatedChildNodes: html.Node[] = undefined!;\n\n // Extract:\n // - top level nodes with the (implicit) "i18n"
attribute if not already in a section\n //
- ICU messages\n const i18nAttr = _getI18nAttr(el);\n const i18nMeta = i18nAttr ? i18nAttr.value : ` `;\n const
isImplicit = this._implicitTags.some(tag => el.name === tag) && !this._inIcu &&\n
!this._isInTranslatableSection;\n const isTopLevelImplicit = !wasInImplicitNode && isImplicit;\n
this._inImplicitNode = wasInImplicitNode || isImplicit;\n\n if (!this._isInTranslatableSection && !this._inIcu) {\n
if (i18nAttr || isTopLevelImplicit) {\n this._inI18nNode = true;\n const message =
this._addMessage(el.children, i18nMeta);\n translatedChildNodes = this._translateMessage(el, message);\n
}\n\n if (this._mode === _VisitorMode.Extract) {\n const isTranslatable = i18nAttr || isTopLevelImplicit;\n
if (isTranslatable) this._openTranslatableSection(el);\n html.visitAll(this, el.children);\n if (isTranslatable)
this._closeTranslatableSection(el, el.children);\n }\n } else {\n if (i18nAttr || isTopLevelImplicit)

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{\n this._reportError(\n el, 'Could not mark an element as translatable inside a translatable section');\n
}\n\n if (this._mode === _VisitorMode.Extract) {\n // Descend into child nodes for extraction\n html.visitAll(this, el.children);\n }\n\n if (this._mode === _VisitorMode.Merge) {\n const visitNodes = translatedChildNodes || el.children;\n visitNodes.forEach(child => {\n const visited = child.visit(this, context);\n if (visited && !this._isInTranslatableSection) {\n // Do not add the children from translatable sections (= i18n blocks here)\n // They will be added later in this loop when the block closes (i.e. on `<!-- /i18n -->`)\n childNodes = childNodes.concat(visited);\n }\n });\n }\n\n this._visitAttributesOf(el);\n this._depth--;\n this._inI18nNode = wasInI18nNode;\n this._inImplicitNode = wasInImplicitNode;\n\n if (this._mode === _VisitorMode.Merge) {\n const translatedAttrs = this._translateAttributes(el);\n return new html.Element(\n el.name, translatedAttrs, childNodes, el.sourceSpan, el.startSourceSpan,\n el.endSourceSpan);\n }\n\n return null;\n}\n\nvisitAttribute(attribute: html.Attribute, context: any): any {\n throw new Error('unreachable code');\n}\n\nprivate _init(mode: _VisitorMode, interpolationConfig: InterpolationConfig): void {\n this._mode = mode;\n this._inI18nBlock = false;\n this._inI18nNode = false;\n this._depth = 0;\n this._inIcu = false;\n this._msgCountAtSectionStart = undefined;\n this._errors = [];\n this._messages = [];\n this._inImplicitNode = false;\n this._createI18nMessage = createI18nMessageFactory(interpolationConfig);\n}\n\n// looks for translatable attributes\nprivate _visitAttributesOf(el: html.Element): void {\n const explicitAttrNameToValue: {[k: string]: string} = {};\n const implicitAttrNames: string[] = this._implicitAttrs[el.name] || [];\n\n el.attrs.filter(attr => attr.name.startsWith(_I18N_ATTR_PREFIX)).forEach(attr => explicitAttrNameToValue[attr.name.slice(_I18N_ATTR_PREFIX.length)] = attr.value);\n\n el.attrs.forEach(attr => {\n if (attr.name in explicitAttrNameToValue) {\n this._addMessage([attr, explicitAttrNameToValue[attr.name]]);\n } else if (implicitAttrNames.some(name => attr.name === name)) {\n this._addMessage([attr]);\n }\n });\n\n // add a translatable message\n private _addMessage(ast: html.Node[], msgMeta?: string): i18n.Message|null {\n if (ast.length === 0 || ast.length === 1 && ast[0] instanceof html.Attribute && !(<html.Attribute>ast[0]).value) {\n // Do not create empty messages\n return null;\n }\n\n const {meaning, description, id} = _parseMessageMeta(msgMeta);\n const message = this._createI18nMessage(ast, meaning, description, id);\n this._messages.push(message);\n return message;\n }\n\n // Translates the given message given the `TranslationBundle`\n // This is used for translating elements / blocks - see `_translateAttributes` for attributes\n // no-op when called in extraction mode (returns [])\n private _translateMessage(el: html.Node, message: i18n.Message): html.Node[] {\n if (message && this._mode === _VisitorMode.Merge) {\n const nodes = this._translations.get(message);\n if (nodes) {\n return nodes;\n }\n\n this._reportError(\n el, `Translation unavailable for message id=\"${this._translations.digest(message)}\"`);\n }\n\n return [];\n }\n\n // translate the attributes of an element and remove i18n specific attributes\n private _translateAttributes(el: html.Element): html.Attribute[] {\n const attributes = el.attrs;\n const i18nParsedMessageMeta: {[name: string]: {meaning: string, description: string, id: string}} = {};\n\n attributes.forEach(attr => {\n if (attr.name.startsWith(_I18N_ATTR_PREFIX)) {\n i18nParsedMessageMeta[attr.name.slice(_I18N_ATTR_PREFIX.length)] = _parseMessageMeta(attr.value);\n }\n });\n\n const translatedAttributes: html.Attribute[] = [];\n attributes.forEach((attr) => {\n if (attr.name === _I18N_ATTR || attr.name.startsWith(_I18N_ATTR_PREFIX)) {\n // strip i18n specific attributes\n return;\n }\n\n if (attr.value && attr.value !== " && i18nParsedMessageMeta.hasOwnProperty(attr.name)) {\n const {meaning, description, id} = i18nParsedMessageMeta[attr.name];\n const message: i18n.Message = this._createI18nMessage([attr], meaning, description, id);\n const nodes = this._translations.get(message);\n if (nodes) {\n if (nodes.length === 0) {\n translatedAttributes.push(new html.Attribute(attr.name, " ", attr.sourceSpan));\n } else if (nodes[0] instanceof

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html.Text) {\n const value = (nodes[0] as html.Text).value;\n translatedAttributes.push(new
html.Attribute(attr.name, value, attr.sourceSpan));\n } else {\n this._reportError(\n el,\n `Unexpected translation for attribute \"${attr.name}\" (id=\"${\n id ||\nthis._translations.digest(message)}\"));\n }\n } else {\n this._reportError(\n el,\n `Translation unavailable for attribute \"${attr.name}\" (id=\"${\n id ||\nthis._translations.digest(message)}\"));\n }\n } else {\n translatedAttributes.push(attr);\n }\n});\n\nreturn translatedAttributes;\n}\n\n/**\n * Add the node as a child of the block when:\n * - we are in a
block,\n * - we are not inside a ICU message (those are handled separately),\n * - the node is a \"direct child\" of
the block\n */\n private _maybeAddBlockChildren(node:
html.Node): void {\n if (this._inI18nBlock && !this._inIcu && this._depth == this._blockStartDepth) {\n
this._blockChildren.push(node);\n }\n }\n\n /**\n * Marks the start of a section, see
_closeTranslatableSection`\n */\n private _openTranslatableSection(node: html.Node): void {\n if
(this._isInTranslatableSection) {\n this._reportError(node, 'Unexpected section start');\n } else {\n
this._msgCountAtSectionStart = this._messages.length;\n }\n }\n\n /**\n * A translatable section could be:\n *
- the content of translatable element,\n * - nodes between `<!-- i18n -->` and `<!-- /i18n -->` comments\n */\n
private get _isInTranslatableSection(): boolean {\n return this._msgCountAtSectionStart !== void 0;\n }\n\n /**\n
* Terminates a section.\n */\n * If a section has only one significant children (comments not significant) then we
should not\n * keep the message from this children:\n */\n * `<p i18n=\"meaning|description\">{ICU
message}</p>` would produce two messages:\n * - one for the <p> content with meaning and description,\n * -
another one for the ICU message.\n */\n * In this case the last message is discarded as it contains less information
(the AST is\n * otherwise identical).\n */\n * Note that we should still keep messages extracted from attributes
inside the section (ie in the\n * ICU message here)\n */\n private _closeTranslatableSection(node: html.Node,
directChildren: html.Node[]): void {\n if (!this._isInTranslatableSection) {\n this._reportError(node,
'Unexpected section end');\n return;\n }\n\n const startIndex = this._msgCountAtSectionStart;\n const
significantChildren: number = directChildren.reduce(\n (count: number, node: html.Node): number => count +
(node instanceof html.Comment ? 0 : 1),\n 0);\n\n if (significantChildren == 1) {\n for (let i =
this._messages.length - 1; i >= startIndex; i--) {\n const ast =
this._messages[i].nodes;\n if (!(ast.length == 1 && ast[0] instanceof i18n.Text)) {\n
this._messages.splice(i, 1);\n }\n }\n this._msgCountAtSectionStart = undefined;\n }\n\n private _reportError(node: html.Node, msg: string): void {\n this._errors.push(new
I18nError(node.sourceSpan, msg));\n }\n\n function _isOpeningComment(n: html.Node): boolean {\n return !!
(n instanceof html.Comment && n.value && n.value.startsWith('i18n'));\n }\n\n function _isClosingComment(n:
html.Node): boolean {\n return !!
(n instanceof html.Comment && n.value && n.value === '/i18n');\n }\n\n function
_getI18nAttr(p: html.Element): html.Attribute|null {\n return p.attrs.find(attr => attr.name === _I18N_ATTR) ||
null;\n }\n\n function _parseMessageMeta(i18n?: string): {meaning: string, description: string, id: string} {\n if
(!i18n) return {meaning: \"\", description: \"\", id: \"\"};\n\n const idIndex = i18n.indexOf(ID_SEPARATOR);\n const
descIndex =
i18n.indexOf(MEANING_SEPARATOR);\n const [meaningAndDesc, id] =\n (idIndex > -1) ? [i18n.slice(0,
idIndex), i18n.slice(idIndex + 2)] : [i18n, \"\"];\n const [meaning, description] = (descIndex > -1) ?\n
[meaningAndDesc.slice(0, descIndex), meaningAndDesc.slice(descIndex + 1)] :\n [\"\", meaningAndDesc];\n\n return {meaning, description, id: id.trim()};\n }\n }\n\n /**\n
* @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {TagContentType, TagDefinition} from './tags';\n\nexport
class XmlTagDefinition implements TagDefinition {\n closedByParent: boolean = false;\n // TODO(issue/24571):
remove '!\n requiredParents!: {[key: string]: boolean};\n // TODO(issue/24571): remove '!\n parentToAdd!:
string;\n // TODO(issue/24571): remove '!\n implicitNamespacePrefix!: string;\n contentType: TagContentType
= TagContentType.PARSABLE_DATA;\n

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isVoid: boolean = false;\n ignoreFirstLf: boolean = false;\n canSelfClose: boolean = true;\n
preventNamespaceInheritance: boolean = false;\n\n requireExtraParent(currentParent: string): boolean {\n return
false;\n }\n\n isClosedByChild(name: string): boolean {\n return false;\n }\n}\n\nconst _TAG_DEFINITION =
new XmlTagDefinition();\n\nexport function getXmlTagDefinition(tagName: string): XmlTagDefinition {\n return
_TAG_DEFINITION;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {TokenizeOptions} from './lexer';\nimport {Parser, ParseTreeResult} from
'./parser';\nimport {getXmlTagDefinition} from './xml_tags';\n\nexport {ParseTreeResult, TreeError} from
'./parser';\n\nexport class XmlParser extends Parser {\n constructor() {\n super(getXmlTagDefinition);\n }\n\n parse(source:
string, url: string, options?: TokenizeOptions): ParseTreeResult {\n return super.parse(source, url, options);\n
}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport * as ml from '../ml_parser/ast';\nimport {XmlParser} from '../ml_parser/xml_parser';\nimport
{digest} from './digest';\nimport * as i18n from './i18n_ast';\nimport {I18nError} from './parse_util';\nimport
{Serializer} from './serializer';\nimport * as xml from './xml_helper';\n\nconst _VERSION = '1.2';\nconst _XMLNS
= 'urn:oasis:names:tc:xliff:document:1.2';\n// TODO(vicb): make this a param (s/_/-/)\nconst
_DEFAULT_SOURCE_LANG = 'en';\nconst _PLACEHOLDER_TAG = 'x';\nconst _MARKER_TAG =
'mrk';\n\nconst _FILE_TAG = 'file';\nconst _SOURCE_TAG = 'source';\nconst _SEGMENT_SOURCE_TAG =
'seg-source';\nconst _ALT_TRANS_TAG = 'alt-trans';\nconst
_TARGET_TAG = 'target';\nconst _UNIT_TAG = 'trans-unit';\nconst _CONTEXT_GROUP_TAG = 'context-
group';\nconst _CONTEXT_TAG = 'context';\n\n// http://docs.oasis-open.org/xliff/v1.2/os/xliff-core.html\n//
http://docs.oasis-open.org/xliff/v1.2/xliff-profile-html/xliff-profile-html-1.2.html\n\nexport class Xliff extends
Serializer {\n write(messages: i18n.Message[], locale: string|null): string {\n const visitor = new
_WriteVisitor();\n const transUnits: xml.Node[] = [];\n\n messages.forEach(message => {\n let contextTags:
xml.Node[] = [];\n message.sources.forEach((source: i18n.MessageSpan) => {\n let contextGroupTag = new
xml.Tag(_CONTEXT_GROUP_TAG, {purpose: 'location'});\n contextGroupTag.children.push(\n new
xml.CR(10),\n new xml.Tag(\n _CONTEXT_TAG, {'context-type': 'sourcefile'}, [new
xml.Text(source.filePath)],\n new xml.CR(10),\n new xml.Tag(_CONTEXT_TAG, {'context-type':
'linenumber'},\n [new xml.Text(\n\n `${source.startLine}`)],\n new
xml.CR(8)),\n contextTags.push(new xml.CR(8), contextGroupTag);\n });\n\n const transUnit = new
xml.Tag(_UNIT_TAG, {id: message.id, datatype: 'html'});\n transUnit.children.push(\n new xml.CR(8),
new xml.Tag(_SOURCE_TAG, {}, visitor.serialize(message.nodes)),\n ...contextTags);\n\n if
(message.description) {\n transUnit.children.push(\n new xml.CR(8),\n new xml.Tag(\n
 'note', {priority: '1', from: 'description'}, [new xml.Text(message.description)]);\n }\n\n if (message.meaning)
{\n transUnit.children.push(\n new xml.CR(8),\n new xml.Tag('note', {priority: '1', from:
'meaning'}, [new xml.Text(message.meaning)]);\n }\n\n transUnit.children.push(new xml.CR(6));\n\n transUnits.push(new xml.CR(6), transUnit);\n
 });\n\n const body = new xml.Tag('body', {}, [...transUnits, new xml.CR(4)]);\n const file = new xml.Tag(\n
 'file', {\n 'source-language': locale || _DEFAULT_SOURCE_LANG,\n datatype: 'plaintext',\n
 original: 'ng2.template',\n },\n [new xml.CR(4), body, new xml.CR(2)]);\n const xliff = new xml.Tag(\n
 'xliff', {version: _VERSION, xmlns: _XMLNS}, [new xml.CR(2), file, new xml.CR()]);\n return
xml.serialize([\n new xml.Declaration({version: '1.0', encoding: 'UTF-8'}), new xml.CR(), xliff, new xml.CR()\n
]);\n }\n\n load(content: string, url: string): {\n locale: string, i18nNodesByMsgId: {[msgId: string]:
i18n.Node[]}\n } {\n // xliff to xml nodes\n const xliffParser = new XliffParser();\n const {locale, msgIdToHtml,
errors} = xliffParser.parse(content, url);\n // xml nodes to i18n nodes\n const i18nNodesByMsgId: {[msgId:
string]: i18n.Node[]} = {};\n const converter = new XmlToI18n();\n }\n }\n}

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Object.keys(msgIdToHtml).forEach(msgId => {\n const {i18nNodes, errors: e} =
converter.convert(msgIdToHtml[msgId], url);\n errors.push(...e);\n i18nNodesByMsgId[msgId] =
i18nNodes;\n });\n\n if (errors.length) {\n throw new Error(`xliff parse errors:\n${errors.join("\n")}`);\n }\n\n return {locale: locale!, i18nNodesByMsgId};\n }\n\n digest(message: i18n.Message): string {\n return
digest(message);\n }\n}\n\nclass _WriteVisitor implements i18n.Visitor {\n visitText(text: i18n.Text, context?:
any): xml.Node[] {\n return [new xml.Text(text.value)];\n }\n\n visitContainer(container: i18n.Container,
context?: any): xml.Node[] {\n const nodes: xml.Node[] = [];\n container.children.forEach((node: i18n.Node) =>
nodes.push(...node.visit(this)));\n return nodes;\n }\n\n visitIcu(icu: i18n.Icu, context?: any): xml.Node[] {\n
const nodes = [new xml.Text(`${icu.expressionPlaceholder}`, `${icu.type}`, `)];\n\n
Object.keys(icu.cases).forEach((c:
string) => {\n nodes.push(new xml.Text(`${c}`, ...icu.cases[c].visit(this), new xml.Text(``));\n });\n\n
nodes.push(new xml.Text(``));\n\n return nodes;\n })\n\n visitTagPlaceholder(ph: i18n.TagPlaceholder, context?:
any): xml.Node[] {\n const ctype = getCtypeForTag(ph.tag);\n\n if (ph.isVoid) {\n // void tags have no
children nor closing tags\n return [new xml.Tag(\n _PLACEHOLDER_TAG, {id: ph.startName, ctype,
'equiv-text': `<${ph.tag}/>`});\n }\n\n const startTagPh =\n new xml.Tag(_PLACEHOLDER_TAG, {id:
ph.startName, ctype, 'equiv-text': `<${ph.tag}>`);\n const closeTagPh =\n new
xml.Tag(_PLACEHOLDER_TAG, {id: ph.closeName, ctype, 'equiv-text': `</${ph.tag}>`});\n\n return
[startTagPh, ...this.serialize(ph.children), closeTagPh];\n }\n\n visitPlaceholder(ph: i18n.Placeholder, context?:
any): xml.Node[] {\n return [new xml.Tag(_PLACEHOLDER_TAG, {id: ph.name, 'equiv-text':
`${ph.value}`});\n }\n\n visitIcuPlaceholder(ph: i18n.IcuPlaceholder, context?: any): xml.Node[] {\n const equivText =
`${ph.value.expression}, ${ph.value.type}, ${\n Object.keys(ph.value.cases).map((value: string) => value + '
{...}`).join(' ')}`;\n return [new xml.Tag(_PLACEHOLDER_TAG, {id: ph.name, 'equiv-text': equivText});\n }\n\n
serialize(nodes: i18n.Node[]): xml.Node[] {\n return [].concat(...nodes.map(node => node.visit(this)));\n }\n}\n\n// TODO(vicb): add error management (structure)\n// Extract messages as xml nodes from the xliiff
file\nclass XliffParser implements ml.Visitor {\n // TODO(issue/24571): remove '!'\n private _unitMIString!:
string|null;\n // TODO(issue/24571): remove '!'\n private _errors!: I18nError[];\n // TODO(issue/24571): remove
'!'\n private _msgIdToHtml!: {[msgId: string]: string};\n private _locale: string|null = null;\n\n parse(xliff: string,
url: string) {\n this._unitMIString = null;\n this._msgIdToHtml = {};\n\n const xml
= new XmlParser().parse(xliff, url);\n\n this._errors = xml.errors;\n ml.visitAll(this, xml.rootNodes, null);\n\n
return {\n msgIdToHtml: this._msgIdToHtml,\n errors: this._errors,\n locale: this._locale,\n };\n }\n\n visitElement(element: ml.Element, context: any): any {\n switch (element.name) {\n case _UNIT_TAG:\n
this._unitMIString = null!;\n const idAttr = element.attrs.find((attr) => attr.name === 'id');\n if (!idAttr) {\n
 this._addError(element, `<${_UNIT_TAG}> misses the "id" attribute`);\n } else {\n const id =
idAttr.value;\n if (this._msgIdToHtml.hasOwnProperty(id)) {\n this._addError(element, `Duplicated
translations for msg ${id}`);\n } else {\n ml.visitAll(this, element.children, null);\n if (typeof
this._unitMIString === 'string') {\n this._msgIdToHtml[id] = this._unitMIString;\n } else {\n
 this._addError(element,
`Message ${id} misses a translation`);\n }\n }\n break;\n\n // ignore those tags\n case
_SOURCE_TAG:\n case _SEGMENT_SOURCE_TAG:\n case _ALT_TRANS_TAG:\n break;\n\n case _TARGET_TAG:\n const innerTextStart = element.startSourceSpan.end.offset;\n const innerTextEnd
= element.endSourceSpan!.start.offset;\n const content = element.startSourceSpan.start.file.content;\n const
innerText = content.slice(innerTextStart, innerTextEnd);\n this._unitMIString = innerText;\n break;\n\n case _FILE_TAG:\n const localeAttr = element.attrs.find((attr) => attr.name === 'target-language');\n if
(localeAttr) {\n this._locale = localeAttr.value;\n }\n ml.visitAll(this, element.children, null);\n break;\n\n default:\n // TODO(vicb): assert file structure, xliiff version\n // For now only recurse on
unhandled nodes\n \n

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ml.visitAll(this, element.children, null);\n }\n }\n\n visitAttribute(attribute: ml.Attribute, context: any): any\n{\n\n visitText(text: ml.Text, context: any): any {\n\n visitComment(comment: ml.Comment, context: any): any\n{\n\n visitExpansion(expansion: ml.Expansion, context: any): any {\n\n visitExpansionCase(expansionCase:\nml.ExpansionCase, context: any): any {\n\n private _addError(node: ml.Node, message: string): void {\n\n this._errors.push(new I18nError(node.sourceSpan, message));\n }\n }\n\n// Convert ml nodes (xliff syntax) to i18n\nnodes\nnclass XmlToI18n implements ml.Visitor {\n // TODO(issue/24571): remove '!'.\n private _errors!: I18nError[];\n\n convert(message: string, url: string) {\n const xmlIcu = new XmlParser().parse(message, url,\n {tokenizeExpansionForms: true});\n this._errors = xmlIcu.errors;\n\n const i18nNodes = this._errors.length > 0 ||\n xmlIcu.rootNodes.length == 0 ?\n []:\n [].concat(...ml.visitAll(this, xmlIcu.rootNodes));\n\n return {\n i18nNodes: i18nNodes,\n errors: this._errors,\n };\n }\n\n visitText(text: ml.Text, context: any) {\n return new i18n.Text(text.value, text.sourceSpan);\n }\n\n visitElement(el: ml.Element, context: any): i18n.Placeholder|ml.Node[]|null {\n if (el.name === _PLACEHOLDER_TAG) {\n const nameAttr = el.attrs.find((attr) => attr.name === 'id');\n if (nameAttr) {\n return new i18n.Placeholder(" ", nameAttr.value, el.sourceSpan);\n }\n\n this._addError(el, `<${_PLACEHOLDER_TAG}> misses the \"id\" attribute`);\n return null;\n }\n\n if (el.name === _MARKER_TAG) {\n return [].concat(...ml.visitAll(this, el.children));\n }\n\n this._addError(el, `Unexpected tag`);\n return null;\n }\n\n visitExpansion(icu: ml.Expansion, context: any) {\n const caseMap: {[value: string]: i18n.Node} = {};\n\n ml.visitAll(this, icu.cases).forEach((c: any) => {\n caseMap[c.value] = new i18n.Container(c.nodes,\n icu.sourceSpan);\n });\n\n return new i18n.Icu(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n }\n\n visitExpansionCase(icuCase: ml.ExpansionCase, context: any): any {\n return {\n value: icuCase.value,\n nodes: ml.visitAll(this, icuCase.expression),\n };\n }\n\n visitComment(comment: ml.Comment, context: any) {\n }\n\n visitAttribute(attribute: ml.Attribute, context: any) {\n }\n\n private _addError(node: ml.Node, message: string): void {\n this._errors.push(new I18nError(node.sourceSpan, message));\n }\n }\n\nfunction\ngetCtypeForTag(tag: string): string {\n switch (tag.toLowerCase()) {\n case 'br':\n return 'lb';\n case 'img':\n return 'image';\n default:\n return `x-${tag}`;\n }\n }\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport * as ml from './ml_parser/ast';\nimport {XmlParser} from './ml_parser/xml_parser';\nimport {decimalDigest} from './digest';\nimport * as i18n from './i18n_ast';\nimport {I18nError} from './parse_util';\nimport {Serializer} from './serializer';\nimport * as xml from './xml_helper';\n\nconst _VERSION = '2.0';\nconst _XMLNS = 'urn:oasis:names:tc:xliff:document:2.0';\n\n//\nTODO(vicb): make this a param (s/-/-)\nconst _DEFAULT_SOURCE_LANG = 'en';\nconst\n_PLACEHOLDER_TAG = 'ph';\nconst _PLACEHOLDER_SPANNING_TAG = 'pc';\nconst _MARKER_TAG = 'mrk';\nconst _XLIFF_TAG = 'xliff';\nconst _SOURCE_TAG = 'source';\nconst _TARGET_TAG = 'target';\nconst _UNIT_TAG = 'unit';\n\n// http://docs.oasis-open.org/xliff/xliff-core/v2.0/os/xliff-core-v2.0-os.html\nexport class Xliff2 extends Serializer {\n write(messages: i18n.Message[], locale: string|null): string {\n const visitor = new _WriteVisitor();\n const units: xml.Node[] = [];\n\n messages.forEach(message => {\n const unit = new xml.Tag(_UNIT_TAG,\n {id: message.id});\n const notes = new xml.Tag('notes');\n\n if (message.description || message.meaning) {\n if (message.description) {\n notes.children.push(\n new xml.CR(8),\n new xml.Tag('note',\n {category: 'description'}, [new xml.Text(message.description)]);\n }\n\n if (message.meaning) {\n notes.children.push(\n new xml.CR(8),\n new xml.Tag('note', {category: 'meaning'}, [new\n xml.Text(message.meaning)]);\n }\n }\n\n message.sources.forEach((source: i18n.MessageSpan) => {\n notes.children.push(new xml.CR(8), new xml.Tag('note', {category: 'location'}, [\n new\n xml.Text(`${source.filePath}:${source.startLine}`),\n source.endLine !== source.startLine ? ',' +\n source.endLine : '']);\n });\n\n notes.children.push(new xml.CR(6));\n unit.children.push(new\n xml.CR(6), notes);\n\n const segment = new xml.Tag('segment');\n\n segment.children.push(\n new xml.CR(8), new xml.Tag(_SOURCE_TAG, {}),\n visitor.serialize(message.nodes),\n new xml.CR(6));\n\n unit.children.push(new xml.CR(6), segment, new

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this._unitMlString === 'string') {\n this._msgIdToHtml[id] = this._unitMlString;\n } else {\n
this._addError(element, `Message ${id} misses a translation`);\n }\n }\n }\n break;\n\n case
_SOURCE_TAG:\n // ignore source message\n break;\n\n case _TARGET_TAG:\n const
innerTextStart = element.startSourceSpan.end.offset;\n const innerTextEnd =
element.endSourceSpan!.start.offset;\n
 const content = element.startSourceSpan.start.file.content;\n const innerText = content.slice(innerTextStart,
innerTextEnd);\n this._unitMlString = innerText;\n break;\n\n case _XLIFF_TAG:\n const
localeAttr = element.attrs.find((attr) => attr.name === 'trgLang');\n if (localeAttr) {\n this._locale =
localeAttr.value;\n }\n const versionAttr = element.attrs.find((attr) => attr.name === 'version');\n if
(versionAttr) {\n const version = versionAttr.value;\n if (version !== '2.0') {\n this._addError(\n
 element,\n `The XLIFF file version ${version} is not compatible with XLIFF 2.0 serializer`);\n
 } else {\n ml.visitAll(this, element.children, null);\n }\n }\n break;\n default:\n
ml.visitAll(this, element.children, null);\n }\n }\n visitAttribute(attribute: ml.Attribute, context: any): any
{\n }\n visitText(text:
ml.Text, context: any): any {\n }\n visitComment(comment: ml.Comment, context: any): any {\n }\n
visitExpansion(expansion: ml.Expansion, context: any): any {\n }\n visitExpansionCase(expansionCase:
ml.ExpansionCase, context: any): any {\n }\n private _addError(node: ml.Node, message: string): void {\n
this._errors.push(new I18nError(node.sourceSpan, message));\n }\n}\n\n// Convert ml nodes (xliff syntax) to i18n
nodes\nclass XmlToI18n implements ml.Visitor {\n // TODO(issue/24571): remove '!'.\n private _errors!:
I18nError[];\n convert(message: string, url: string) {\n const xmlIcu = new XmlParser().parse(message, url,
{tokenizeExpansionForms: true});\n this._errors = xmlIcu.errors;\n const i18nNodes = this._errors.length > 0 ||
xmlIcu.rootNodes.length == 0 ?\n [] : \n [].concat(...ml.visitAll(this, xmlIcu.rootNodes));\n return {\n
i18nNodes,\n errors: this._errors,\n };\n }\n visitText(text: ml.Text, context: any) {\n
return new i18n.Text(text.value, text.sourceSpan);\n }\n visitElement(el: ml.Element, context: any):
i18n.Node[] | null {\n switch (el.name) {\n case _PLACEHOLDER_TAG:\n const nameAttr =
el.attrs.find((attr) => attr.name === 'equiv');\n if (nameAttr) {\n return [new i18n.Placeholder(",
nameAttr.value, el.sourceSpan)];\n }\n this._addError(el, `<${_PLACEHOLDER_TAG}> misses the
\"equiv\" attribute`);\n break;\n case _PLACEHOLDER_SPANNING_TAG:\n const startAttr =
el.attrs.find((attr) => attr.name === 'equivStart');\n const endAttr = el.attrs.find((attr) => attr.name ===
'equivEnd');\n if (!startAttr) {\n this._addError(el, `<${_PLACEHOLDER_TAG}> misses the
\"equivStart\" attribute`);\n } else if (!endAttr) {\n this._addError(el, `<${_PLACEHOLDER_TAG}>
misses the \"equivEnd\" attribute`);\n } else {\n const startId = startAttr.value;\n const endId =
endAttr.value;\n const nodes: i18n.Node[] = [];\n return nodes.concat(\n new i18n.Placeholder(", startId,
el.sourceSpan),\n ...el.children.map(node => node.visit(this, null)),\n new i18n.Placeholder(", endId,
el.sourceSpan));\n }\n break;\n case _MARKER_TAG:\n return [].concat(...ml.visitAll(this,
el.children));\n default:\n this._addError(el, `Unexpected tag`);\n }\n }\n return null;\n }\n }\n
visitExpansion(icu: ml.Expansion, context: any) {\n const caseMap: {[value: string]: i18n.Node} = {};\n ml.visitAll(this, icu.cases).forEach((c: any) => {\n caseMap[c.value] = new i18n.Container(c.nodes,
icu.sourceSpan);\n });\n return new i18n.Icu(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n }\n }\n
visitExpansionCase(icuCase: ml.ExpansionCase, context: any): any {\n return {\n value: icuCase.value,\n
nodes: [].concat(...ml.visitAll(this, icuCase.expression)),\n };\n }\n }\n visitComment(comment: ml.Comment, context: any) {\n }\n
visitAttribute(attribute: ml.Attribute, context: any) {\n }\n private _addError(node: ml.Node, message: string): void {\n
this._errors.push(new
I18nError(node.sourceSpan, message));\n }\n}\n\nfunction getTypeForTag(tag: string): string {\n switch
(tag.toLowerCase()) {\n case 'br':\n case 'b':\n case 'i':\n case 'u':\n return 'fmt';\n case 'img':\n return
'image';\n case 'a':\n return 'link';\n default:\n return 'other';\n }\n}\n\n"/ **\n * @license\n * Copyright
Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be

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* found in the LICENSE file at https://angular.io/license\n *\n\nimport * as ml from './../ml_parser/ast';\nimport\n{XmlParser} from './../ml_parser/xml_parser';\nimport * as i18n from './i18n_ast';\nimport {I18nError} from\n'./parse_util';\n\nimport {PlaceholderMapper, Serializer, SimplePlaceholderMapper}\nfrom './serializer';\nimport {digest, toPublicName} from './xmb';\n\nconst _TRANSLATIONS_TAG =\n'translationbundle';\nconst _TRANSLATION_TAG = 'translation';\nconst _PLACEHOLDER_TAG =\n'ph';\n\nexport class Xtb extends Serializer {\n write(messages: i18n.Message[], locale: string|null): string {\n throw new Error('Unsupported');\n }\n\n load(content: string, url: string): {\n locale: string, i18nNodesByMsgId:\n {[msgId: string]: i18n.Node[]}\n } {\n // xtb to xml nodes\n const xtbParser = new XtbParser();\n const {locale,\n msgIdToHtml, errors} = xtbParser.parse(content, url);\n // xml nodes to i18n nodes\n const\n i18nNodesByMsgId: {[msgId: string]: i18n.Node[]} = {};\n const converter = new XmlToI18n();\n // Because\n we should be able to load xtb files that rely on features not supported by angular,\n // we need to delay the\n conversion of html to i18n nodes so that non angular messages are not\n // converted\n Object.keys(msgIdToHtml).forEach(msgId\n => {\n const valueFn = function() {\n const {i18nNodes, errors} = converter.convert(msgIdToHtml[msgId],\n url);\n if (errors.length) {\n throw new Error(`xtb parse errors: \\n${errors.join('\\n')}`);\n }\n return i18nNodes;\n };\n createLazyProperty(i18nNodesByMsgId, msgId, valueFn);\n });\n if\n (errors.length) {\n throw new Error(`xtb parse errors: \\n${errors.join('\\n')}`);\n }\n return {locale: locale!,\n i18nNodesByMsgId};\n }\n\n digest(message: i18n.Message): string {\n return digest(message);\n }\n\n createNameMapper(message: i18n.Message): PlaceholderMapper {\n return new\n SimplePlaceholderMapper(message, toPublicName);\n }\n\n function createLazyProperty(messages: any, id:\n string, valueFn: () => any) {\n Object.defineProperty(messages, id, {\n configurable: true,\n enumerable: true,\n get: function() {\n const value = valueFn();\n Object.defineProperty(messages,\n id, {enumerable: true, value});\n return value;\n },\n set: _ => {\n throw new Error('Could not overwrite\n an XTB translation');\n },\n });\n }\n\n // Extract messages as xml nodes from the xtb file\n class XtbParser\n implements ml.Visitor {\n // TODO(issue/24571): remove '!'\n private _bundleDepth!: number;\n //\n TODO(issue/24571): remove '!'\n private _errors!: I18nError[];\n // TODO(issue/24571): remove '!'\n private\n _msgIdToHtml!: {[msgId: string]: string};\n private _locale: string|null = null;\n\n parse(xtb: string, url: string) {\n this._bundleDepth = 0;\n this._msgIdToHtml = {};\n // We can not parse the ICU messages at this point as\n some messages might not originate\n // from Angular that could not be lex'd.\n const xml = new\n XmlParser().parse(xtb, url);\n this._errors = xml.errors;\n ml.visitAll(this, xml.rootNodes);\n return {\n msgIdToHtml: this._msgIdToHtml,\n errors: this._errors,\n locale: this._locale,\n };\n }\n\n visitElement(element: ml.Element, context: any): any {\n switch (element.name) {\n case\n _TRANSLATIONS_TAG:\n this._bundleDepth++;\n if (this._bundleDepth > 1) {\n this._addError(element, `<${_TRANSLATIONS_TAG}> elements can not be nested`);\n }\n const\n langAttr = element.attrs.find((attr) => attr.name === 'lang');\n if (langAttr) {\n this._locale =\n langAttr.value;\n }\n ml.visitAll(this, element.children, null);\n this._bundleDepth--;\n break;\n\n case _TRANSLATION_TAG:\n const idAttr = element.attrs.find((attr) => attr.name === 'id');\n if\n (!idAttr) {\n this._addError(element, `<${_TRANSLATION_TAG}> misses the \"id\" attribute`);\n } else\n {\n const id = idAttr.value;\n if (this._msgIdToHtml.hasOwnProperty(id)) {\n this._addError(element, `Duplicated translations for msg ${id}`);\n } else {\n const innerTextStart = element.startSourceSpan.end.offset;\n const innerTextEnd =\n element.endSourceSpan!.start.offset;\n const content = element.startSourceSpan.start.file.content;\n const innerText = content.slice(innerTextStart!, innerTextEnd!);\n this._msgIdToHtml[id] = innerText;\n }\n }\n break;\n\n default:\n this._addError(element, 'Unexpected tag');\n }\n }\n\n visitAttribute(attribute: ml.Attribute, context: any): any {\n }\n\n visitText(text: ml.Text, context: any): any {\n }\n\n visitComment(comment: ml.Comment, context: any): any {\n }\n\n visitExpansion(expansion: ml.Expansion, context:\n any): any {\n }\n\n visitExpansionCase(expansionCase: ml.ExpansionCase, context: any): any {\n }\n\n private\n _addError(node: ml.Node, message: string): void {\n this._errors.push(new I18nError(node.sourceSpan,\n
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message));\n }\n}\n\n// Convert ml nodes (xtb syntax) to i18n nodes\n\nclass XmlToI18n implements ml.Visitor
{\n // TODO(issue/24571): remove '!'\n private _errors!: I18nError[];\n\n convert(message: string, url: string) {\n const xmlIcu = new XmlParser().parse(message, url, {tokenizeExpansionForms: true});\n this._errors =\n xmlIcu.errors;\n\n const i18nNodes = this._errors.length > 0 || xmlIcu.rootNodes.length == 0 ?\n [] : \n ml.visitAll(this, xmlIcu.rootNodes);\n\n return {\n i18nNodes,\n errors: this._errors,\n };\n }\n\n visitText(text: ml.Text, context: any) {\n return new i18n.Text(text.value, text.sourceSpan);\n }\n\n visitExpansion(icu: ml.Expansion, context: any) {\n const caseMap: {[value: string]: i18n.Node} = {};\n\n ml.visitAll(this, icu.cases).forEach(c => {\n caseMap[c.value] = new i18n.Container(c.nodes, icu.sourceSpan);\n });\n\n return new i18n.Icu(icu.switchValue, icu.type, caseMap, icu.sourceSpan);\n }\n\n visitExpansionCase(icuCase: ml.ExpansionCase, context: any): any {\n return {\n value: icuCase.value,\n nodes: ml.visitAll(this, icuCase.expression),\n };\n }\n\n visitElement(el: ml.Element, context: any):\n i18n.Placeholder|null {\n if (el.name === _PLACEHOLDER_TAG) {\n const nameAttr = el.attrs.find((attr =>\n attr.name === 'name'));\n if (nameAttr) {\n return new i18n.Placeholder(", " + nameAttr.value, el.sourceSpan);\n }\n this._addError(el, `<${_PLACEHOLDER_TAG}> misses the "name" attribute`);\n } else {\n this._addError(el, `Unexpected tag`);\n }\n return null;\n }\n\n visitComment(comment: ml.Comment, context:\n any) {} \n\n visitAttribute(attribute: ml.Attribute, context: any) {} \n\n private _addError(node: ml.Node, message:\n string): void {\n this._errors.push(new I18nError(node.sourceSpan, message));\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {MissingTranslationStrategy} from './core';\nimport * as html from './ml_parser/ast';\nimport\n {HtmlParser} from './ml_parser/html_parser';\nimport {Console} from './util';\n\nimport * as i18n from\n './i18n_ast';\nimport {I18nError} from './parse_util';\nimport {PlaceholderMapper, Serializer} from\n './serializers/serializer';\nimport {escapeXml} from './serializers/xml_helper';\n\n/**\n * A container for translated\n * messages\n */\nexport class TranslationBundle {\n private _i18nToHtml: I18nToHtmlVisitor;\n\n constructor(\n private _i18nNodesByMsgId: {[msgId: string]: i18n.Node[]} = {},\n locale: string|null,\n public digest: (m:\n i18n.Message) => string,\n public mapperFactory?: (m: i18n.Message) => PlaceholderMapper,\n missingTranslationStrategy: MissingTranslationStrategy = MissingTranslationStrategy.Warning,\n console?:\n Console) {\n this._i18nToHtml = new I18nToHtmlVisitor(\n _i18nNodesByMsgId, locale, digest,\n mapperFactory!, missingTranslationStrategy,\n console);\n }\n\n // Creates a `TranslationBundle` by parsing the given `content` with the `serializer`\n static\n load(\n content: string, url: string, serializer: Serializer,\n missingTranslationStrategy:\n MissingTranslationStrategy,\n console?: Console): TranslationBundle {\n const {locale, i18nNodesByMsgId}\n = serializer.load(content, url);\n const digestFn = (m: i18n.Message) => serializer.digest(m);\n const\n mapperFactory = (m: i18n.Message) => serializer.createNameMapper(m);\n return new TranslationBundle(\n i18nNodesByMsgId, locale, digestFn, mapperFactory, missingTranslationStrategy, console);\n }\n\n // Returns the\n translation as HTML nodes from the given source message.\n get(srcMsg: i18n.Message): html.Node[] {\n const\n html = this._i18nToHtml.convert(srcMsg);\n\n if (html.errors.length) {\n throw new\n Error(html.errors.join("\\n"));\n }\n\n return html.nodes;\n }\n\n has(srcMsg: i18n.Message): boolean\n {\n return this.digest(srcMsg) in this._i18nNodesByMsgId;\n }\n}\n\n\nclass I18nToHtmlVisitor implements\n i18n.Visitor {\n // TODO(issue/24571): remove '!'\n private _srcMsg!: i18n.Message;\n private _contextStack:\n {msg: i18n.Message, mapper: (name: string) => string}[] = [];\n private _errors: I18nError[] = [];\n\n //\n TODO(issue/24571): remove '!'\n private _mapper!: (name: string) => string;\n\n constructor(\n private\n _i18nNodesByMsgId: {[msgId: string]: i18n.Node[]} = {},\n private _locale: string|null,\n private _digest: (m:\n i18n.Message) => string,\n private _mapperFactory: (m: i18n.Message) => PlaceholderMapper,\n private\n _missingTranslationStrategy: MissingTranslationStrategy,\n private _console?: Console) {\n }\n\n convert(srcMsg:\n i18n.Message): {nodes: html.Node[], errors: I18nError[]} {\n this._contextStack.length = 0;\n this._errors.length\n = 0;\n\n // i18n to text\n const text = this._convertToText(srcMsg);\n\n // text to html\n
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const url = srcMsg.nodes[0].sourceSpan.start.file.url;\n const html = new HtmlParser().parse(text, url,
{tokenizeExpansionForms: true});\n\n return {\n nodes: html.rootNodes,\n errors: [...this._errors,
...html.errors],\n };\n}\n\nvisitText(text: i18n.Text, context?: any): string {\n // `convert()` uses an
`HtmlParser` to return `html.Node`s\n // we should then make sure that any special characters are escaped\n return escapeXml(text.value);\n}\n\nvisitContainer(container: i18n.Container, context?: any): any {\n return
container.children.map(n => n.visit(this)).join("");\n}\n\nvisitIcu(icu: i18n.Icu, context?: any): any {\n const
cases = Object.keys(icu.cases).map(k => `${k} {${icu.cases[k].visit(this)}}`);\n\n // TODO(vicb): Once all format
switch to using expression placeholders\n // we should throw when the placeholder is not in the source message\n
const exp = this._srcMsg.placeholders.hasOwnProperty(icu.expression) ?\n
 this._srcMsg.placeholders[icu.expression].text : \n icu.expression;\n\n return `${exp}, ${icu.type},
${cases.join(' ')}`;\n}\n\nvisitPlaceholder(ph: i18n.Placeholder, context?: any): string {\n const phName =
this._mapper(ph.name);\n if (this._srcMsg.placeholders.hasOwnProperty(phName)) {\n return
this._srcMsg.placeholders[phName].text;\n }\n\n if
(this._srcMsg.placeholderToMessage.hasOwnProperty(phName)) {\n return
this._convertToText(this._srcMsg.placeholderToMessage[phName]);\n }\n\n this._addError(ph, `Unknown
placeholder "${ph.name}"`);\n return ";\n}\n\n// Loaded message contains only placeholders (vs tag and icu
placeholders).\n// However when a translation can not be found, we need to serialize the source message\n//
which can contain tag placeholders\n visitTagPlaceholder(ph: i18n.TagPlaceholder, context?: any): string {\n
const tag = `${ph.tag}`;\n const attrs = Object.keys(ph.attrs).map(name =>
`${name}="${ph.attrs[name]}"`);\n\n if (ph.isVoid) {\n return `<${tag} ${attrs}/>`;\n }\n const children = ph.children.map((c: i18n.Node)
=> c.visit(this)).join("");\n return `<${tag} ${attrs}>${children}</${tag}>`;\n}\n\n// Loaded message contains
only placeholders (vs tag and icu placeholders).\n// However when a translation can not be found, we need to
serialize the source message\n// which can contain tag placeholders\n visitIcuPlaceholder(ph: i18n.IcuPlaceholder,
context?: any): string {\n // An ICU placeholder references the source message to be serialized\n return
this._convertToText(this._srcMsg.placeholderToMessage[ph.name]);\n}\n\n/**\n * Convert a source message to
a translated text string:\n * - text nodes are replaced with their translation,\n * - placeholders are replaced with
their content,\n * - ICU nodes are converted to ICU expressions.\n */\n private _convertToText(srcMsg:
i18n.Message): string {\n const id = this._digest(srcMsg);\n\n const mapper = this._mapperFactory ? this._mapperFactory(srcMsg) : null;\n let nodes: i18n.Node[];\n\n this._contextStack.push({msg: this._srcMsg, mapper: this._mapper});\n this._srcMsg = srcMsg;\n\n if
(this._i18nNodesByMsgId.hasOwnProperty(id)) {\n // When there is a translation use its nodes as the source\n
// And create a mapper to convert serialized placeholder names to internal names\n nodes =
this._i18nNodesByMsgId[id];\n this._mapper = (name: string) => mapper ? mapper.toInternalName(name)! :
name;\n } else {\n // When no translation has been found\n // - report an error / a warning / nothing,\n // -
use the nodes from the original message\n // - placeholders are already internal and need no mapper\n if
(this._missingTranslationStrategy === MissingTranslationStrategy.Error) {\n const ctx = this._locale ? ` for
locale "${this._locale}"` : ";\n this._addError(srcMsg.nodes[0], `Missing translation
for message "${id}"${ctx}`);\n } else if (\n this._console &&\n this._missingTranslationStrategy
=== MissingTranslationStrategy.Warning) {\n const ctx = this._locale ? ` for locale "${this._locale}"` : ";\n
this._console.warn(`Missing translation for message "${id}"${ctx}`);\n }\n nodes = srcMsg.nodes;\n
this._mapper = (name: string) => name;\n }\n const text = nodes.map(node => node.visit(this)).join("");\n const
context = this._contextStack.pop()!;\n this._srcMsg = context.msg;\n this._mapper = context.mapper;\n return
text;\n }\n\n private _addError(el: i18n.Node, msg: string) {\n this._errors.push(new I18nError(el.sourceSpan,
msg));\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {MissingTranslationStrategy} from './core';\nimport

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{HtmlParser} from './ml_parser/html_parser';\nimport {DEFAULT_INTERPOLATION_CONFIG} from
'./ml_parser/interpolation_config';\nimport {TokenizeOptions} from './ml_parser/lexer';\nimport {ParseTreeResult}
from './ml_parser/parser';\nimport {Console} from './util';\n\nimport {digest} from './digest';\nimport
{mergeTranslations} from './extractor_merger';\nimport {Serializer} from './serializers/serializer';\nimport {Xliff}
from './serializers/xliff';\nimport {Xliff2} from './serializers/xliff2';\nimport {Xmb} from './serializers/xmb';\nimport
{Xtb} from './serializers/xtb';\nimport {TranslationBundle} from './translation_bundle';\n\nexport class
I18NHtmlParser implements HtmlParser {\n // @override\n getTagDefinition: any;\n\n private _translationBundle:
TranslationBundle;\n\n constructor(\n private _htmlParser: HtmlParser, translations?: string,
translationsFormat?: string,\n missingTranslation: MissingTranslationStrategy =
MissingTranslationStrategy.Warning,\n
 console?: Console) {\n if (translations) {\n const serializer = createSerializer(translationsFormat);\n
this._translationBundle =\n TranslationBundle.load(translations, 'i18n', serializer, missingTranslation,
console);\n } else {\n this._translationBundle =\n new TranslationBundle({}, null, digest, undefined,
missingTranslation, console);\n }\n }\n\n parse(source: string, url: string, options: TokenizeOptions = {}):
ParseTreeResult {\n const interpolationConfig = options.interpolationConfig ||
DEFAULT_INTERPOLATION_CONFIG;\n const parseResult = this._htmlParser.parse(source, url,
{interpolationConfig, ...options});\n\n if (parseResult.errors.length) {\n return new
ParseTreeResult(parseResult.rootNodes, parseResult.errors);\n }\n\n return mergeTranslations(\n
parseResult.rootNodes, this._translationBundle, interpolationConfig, [], {});\n }\n\n\nfunction
createSerializer(format?: string): Serializer
{\n format = (format || 'xlf').toLowerCase();\n\n switch (format) {\n case 'xmb':\n return new Xmb();\n case
'xtb':\n return new Xtb();\n case 'xliff2':\n case 'xlf2':\n return new Xliff2();\n case 'xliff':\n case 'xlf':\n
default:\n return new Xliff();\n }\n }\n\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {OutputContext, ValueTransformer, visitValue} from './util';\nimport *
as o from './output_ast';\n\nexport const QUOTED_KEYS = '$quoted$';\n\nexport function
convertValueToOutputAst(\n ctx: OutputContext, value: any, type: o.Type|null = null): o.Expression {\n return
visitValue(value, new _ValueOutputAstTransformer(ctx), type);\n }\n\n\nclass _ValueOutputAstTransformer
implements ValueTransformer {\n constructor(private ctx: OutputContext) {}\n visitArray(arr:
any[], type: o.Type): o.Expression {\n const values: o.Expression[] = [];\n // Note Array.map() must not be used
to convert the values because it will\n // skip over empty elements in arrays constructed using `new
Array(length)`,\n // resulting in `undefined` elements. This breaks the type guarantee that\n // all values in
`o.LiteralArrayExpr` are of type `o.Expression`.\n // See test case in `value_util_spec.ts`.\n for (let i = 0; i <
arr.length; ++i) {\n values.push(visitValue(arr[i], this, null /* context */));\n }\n return o.LiteralArr(values,
type);\n }\n\n visitStringMap(map: {[key: string]: any}, type: o.MapType): o.Expression {\n const entries:
o.LiteralMapEntry[] = [];\n const quotedSet = new Set<string>(map && map[QUOTED_KEYS]);\n
Object.keys(map).forEach(key => {\n entries.push(\n new o.LiteralMapEntry(key, visitValue(map[key],
this, null), quotedSet.has(key));\n });\n return new o.LiteralMapExpr(entries, type);\n }\n\n visitPrimitive(value: any, type: o.Type): o.Expression {\n return o.literal(value, type);\n }\n\n visitOther(value: any, type: o.Type): o.Expression {\n if (value instanceof o.Expression) {\n return value;\n }
else {\n return this.ctx.importExpr(value);\n }\n }\n }\n\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {StaticSymbol} from './aot/static_symbol';\nimport
{CompileInjectableMetadata, CompileNgModuleMetadata, CompileProviderMetadata, identifierName} from
'./compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport {InjectFlags, NodeFlags}
from './core';\nimport {Identifiers} from './identifiers';\nimport * as o from './output/output_ast';\nimport
{convertValueToOutputAst} from './output/value_util';\nimport {typeSourceSpan} from './parse_util';\nimport

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{NgModuleProviderAnalyzer} from './provider_analyzer';\nimport {OutputContext} from './util';\nimport
{componentFactoryResolverProviderDef, depDef, providerDef} from './view_compiler/provider_compiler';\n\ntype
MapEntry = {\n key: string,\n quoted: boolean,\n value: o.Expression\n};\ntype MapLiteral =
MapEntry[];\n\nfunction mapEntry(key: string, value: o.Expression): MapEntry {\n return {key, value, quoted:
false};\n}\n\nexport class InjectableCompiler {\n private tokenInjector: StaticSymbol;\n constructor(private
reflector: CompileReflector, private alwaysGenerateDef: boolean) {\n this.tokenInjector =
reflector.resolveExternalReference(Identifiers.Injector);\n }\n\n private depsArray(deps: any[], ctx:
OutputContext): o.Expression[] {\n return deps.map(dep => {\n let token = dep;\n let args = [token];\n let
flags: InjectFlags = InjectFlags.Default;\n if (Array.isArray(dep)) {\n for (let i = 0; i < dep.length; i++) {\n
const v = dep[i];\n
if (v) {\n if (v.ngMetadataName === 'Optional') {\n flags |= InjectFlags.Optional;\n }
else if (v.ngMetadataName === 'SkipSelf') {\n flags |= InjectFlags.SkipSelf;\n } else if
(v.ngMetadataName === 'Self') {\n flags |= InjectFlags.Self;\n } else if (v.ngMetadataName ===
'Inject') {\n token = v.token;\n } else {\n token = v;\n }\n }\n }\n }\n
let tokenExpr: o.Expression;\n if (typeof token === 'string') {\n tokenExpr = o.literal(token);\n } else if
(token === this.tokenInjector) {\n tokenExpr = o.importExpr(Identifiers.INJECTOR);\n } else {\n
tokenExpr = ctx.importExpr(token);\n }\n\n if (flags !== InjectFlags.Default) {\n args = [tokenExpr,
o.literal(flags)];\n } else {\n args = [tokenExpr];\n }\n return
o.importExpr(Identifiers.inject).callFn(args);\n
});\n }\n\n factoryFor(injectable: CompileInjectableMetadata, ctx: OutputContext): o.Expression {\n let
retValue: o.Expression;\n if (injectable.useExisting) {\n retValue =
o.importExpr(Identifiers.inject).callFn([ctx.importExpr(injectable.useExisting)]);\n } else if
(injectable.useFactory) {\n const deps = injectable.deps || [];\n if (deps.length > 0) {\n retValue =
ctx.importExpr(injectable.useFactory).callFn(this.depsArray(deps, ctx));\n } else {\n return
ctx.importExpr(injectable.useFactory);\n }\n } else if (injectable.useValue) {\n retValue =
convertValueToOutputAst(ctx, injectable.useValue);\n } else {\n const clazz = injectable.useClass ||
injectable.symbol;\n const depArgs = this.depsArray(this.reflector.parameters(clazz), ctx);\n retValue = new
o.InstantiateExpr(ctx.importExpr(clazz), depArgs);\n }\n return o.fn(\n [], [new
o.ReturnStatement(retValue)], undefined, undefined,\n
injectable.symbol.name + '_Factory');\n }\n\n injectableDef(injectable: CompileInjectableMetadata, ctx:
OutputContext): o.Expression {\n let providedIn: o.Expression = o.NULL_EXPR;\n if (injectable.providedIn
!== undefined) {\n if (injectable.providedIn === null) {\n providedIn = o.NULL_EXPR;\n } else if
(typeof injectable.providedIn === 'string') {\n providedIn = o.literal(injectable.providedIn);\n } else {\n
providedIn = ctx.importExpr(injectable.providedIn);\n }\n }\n const def: MapLiteral = [\n
mapEntry('factory', this.factoryFor(injectable, ctx)),\n mapEntry('token',
ctx.importExpr(injectable.type.reference)),\n mapEntry('providedIn', providedIn),\n];\n return
o.importExpr(Identifiers.defineInjectable).callFn([o.literalMap(def)]);\n }\n\n compile(injectable:
CompileInjectableMetadata, ctx: OutputContext): void {\n if (this.alwaysGenerateDef || injectable.providedIn !==
undefined) {\n
const className = identifierName(injectable.type);\n const clazz = new o.ClassStmt(\n className, null,\n
[\n new o.ClassField(\n 'prov', o.INFERRED_TYPE, [o.StmtModifier.Static],\n
this.injectableDef(injectable, ctx)),\n],\n [], new o.ClassMethod(null, [], [], []);\n
ctx.statements.push(clazz);\n }\n }\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nconst STRIP_SRC_FILE_SUFFIXES = /(\\ts|\\.d\\ts|\\.js|\\.jsx|\\.tsx)$/;\nconst
GENERATED_FILE = /\\.ngfactory\\.|\\.ngsummary\\.;/;\nconst JIT_SUMMARY_FILE = /\\.ngsummary\\.;/;\nconst
JIT_SUMMARY_NAME = /NgSummary$/;\n\nexport function ngfactoryFilePath(filePath: string, forceSourceFile
= false): string {\n const urlWithSuffix = splitTypescriptSuffix(filePath, forceSourceFile);\n

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return `${urlWithSuffix[0]}.ngfactory${normalizeGenFileSuffix(urlWithSuffix[1])}`;\n\n\nexport function
stripGeneratedFileSuffix(filePath: string): string {\n return filePath.replace(GENERATED_FILE, '.');\n}\n\n\nexport
function isGeneratedFile(filePath: string): boolean {\n return GENERATED_FILE.test(filePath);\n}\n\n\nexport
function splitTypescriptSuffix(path: string, forceSourceFile = false): string[] {\n if (path.endsWith('.d.ts')) {\n
return [path.slice(0, -5), forceSourceFile ? '.ts' : '.d.ts'];\n }\n\n const lastDot = path.lastIndexOf('.');\n\n if (lastDot
!==-1) {\n return [path.substring(0, lastDot), path.substring(lastDot)];\n }\n\n return [path, ''];\n}\n\n\nexport
function normalizeGenFileSuffix(srcFileSuffix: string): string {\n return srcFileSuffix === '.tsx' ? '.ts' :
srcFileSuffix;\n}\n\n\nexport function summaryFileName(fileName: string): string {\n const fileNameWithoutSuffix
= fileName.replace(STRIP_SRC_FILE_SUFFIXES, '');\n return
`${fileNameWithoutSuffix}.ngsummary.json`;\n}\n\n\nexport
function summaryForJitFileName(fileName: string, forceSourceFile = false): string {\n const urlWithSuffix =
splitTypescriptSuffix(stripGeneratedFileSuffix(fileName), forceSourceFile);\n return
`${urlWithSuffix[0]}.ngsummary${urlWithSuffix[1]}`;\n}\n\n\nexport function
stripSummaryForJitFileSuffix(filePath: string): string {\n return filePath.replace(JIT_SUMMARY_FILE,
'.');\n}\n\n\nexport function summaryForJitName(symbolName: string): string {\n return
`${symbolName}.NgSummary`;\n}\n\n\nexport function stripSummaryForJitNameSuffix(symbolName: string): string
{\n return symbolName.replace(JIT_SUMMARY_NAME, '');\n}\n\n\nconst LOWERED_SYMBOL =
/\u0275\d+;/\n\n\nexport function isLoweredSymbol(name: string) {\n return
LOWERED_SYMBOL.test(name);\n}\n\n\nexport function createLoweredSymbol(id: number): string {\n return
`\u0275${id}`;\n}\n\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\nimport { CompileReflector }
from './compile_reflector';\n\n\nexport enum LifecycleHooks {\n OnInit,\n OnDestroy,\n DoCheck,\n OnChanges,\n
AfterContentInit,\n AfterContentChecked,\n AfterViewInit,\n AfterViewChecked\n}\n\n\nexport const
LIFECYCLE_HOOKS_VALUES = [\n LifecycleHooks.OnInit, LifecycleHooks.OnDestroy,\n LifecycleHooks.DoCheck, LifecycleHooks.OnChanges,\n LifecycleHooks.AfterContentInit,\n
LifecycleHooks.AfterContentChecked, LifecycleHooks.AfterViewInit,\n
LifecycleHooks.AfterViewChecked\n];\n\n\nexport function hasLifecycleHook(\n reflector: CompileReflector,\n
hook: LifecycleHooks, token: any): boolean {\n return reflector.hasLifecycleHook(token,\n
getHookName(hook));\n}\n\n\nexport function getAllLifecycleHooks(reflector: CompileReflector, token: any):
LifecycleHooks[] {\n return LIFECYCLE_HOOKS_VALUES.filter(hook => hasLifecycleHook(reflector, hook,\n
token));\n}\n\n\nfunction getHookName(hook:
LifecycleHooks): string {\n switch (hook) {\n case LifecycleHooks.OnInit:\n return 'ngOnInit';\n case
LifecycleHooks.OnDestroy:\n return 'ngOnDestroy';\n case LifecycleHooks.DoCheck:\n return
'ngDoCheck';\n case LifecycleHooks.OnChanges:\n return 'ngOnChanges';\n case
LifecycleHooks.AfterContentInit:\n return 'ngAfterContentInit';\n case
LifecycleHooks.AfterContentChecked:\n return 'ngAfterContentChecked';\n case
LifecycleHooks.AfterViewInit:\n return 'ngAfterViewInit';\n case LifecycleHooks.AfterViewChecked:\n
return 'ngAfterViewChecked';\n default:\n // This default case is not needed by TypeScript compiler, as the
switch is exhaustive.\n // However Closure Compiler does not understand that and reports an error in typed
mode.\n // The `throw new Error` below works around the problem, and the unexpected: never variable\n //
makes sure tsc still checks this code is unreachable.\n const
unexpected: never = hook;\n throw new Error(`unexpected ${unexpected}`);\n }\n}\n\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\nimport { StaticSymbol,\n
StaticSymbolCache } from './aot/static_symbol';\n\n\nimport { ngfactoryFilePath } from './aot/util';\n\n\nimport
{ assertArrayOfStrings, assertInterpolationSymbols } from './assertions';\n\n\nimport * as cpl from
'./compile_metadata';\n\n\nimport { CompileReflector } from './compile_reflector';\n\n\nimport { CompilerConfig } from

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'./config';\nimport { ChangeDetectionStrategy, Component, createAttribute, createComponent, createHost,
createInject, createInjectable, createInjectionToken, createNgModule, createOptional, createSelf, createSkipSelf,
Directive, Injectable, ModuleWithProviders, Provider, Query, SchemaMetadata, Type, ViewEncapsulation} from
'./core';\nimport {DirectiveNormalizer} from './directive_normalizer';\nimport
{DirectiveResolver, findLast} from './directive_resolver';\nimport {Identifiers} from './identifiers';\nimport
{getAllLifecycleHooks} from './lifecycle_reflector';\nimport {HtmlParser} from './ml_parser/html_parser';\nimport
{NgModuleResolver} from './ng_module_resolver';\nimport {PipeResolver} from './pipe_resolver';\nimport
{ElementSchemaRegistry} from './schema/element_schema_registry';\nimport {CssSelector} from
'./selector';\nimport {SummaryResolver} from './summary_resolver';\nimport {Console, isPromise, noUndefined,
resolveForwardRef, stringify, SyncAsync, syntaxError, ValueTransformer, visitValue} from './util';\n\nexport type
ErrorCollector = (error: any, type?: any) => void;\n\nexport const ERROR_COMPONENT_TYPE =
'ngComponentType';\n\n// Design notes:\n// - don't lazily create metadata:\n// For some metadata, we need to do
async work sometimes,\n// so the user has to kick off this loading.\n// But we want to report errors even when the
async
work is\n// not required to check that the user would have been able\n// to wait correctly.\n\nexport class
CompileMetadataResolver {\n private _nonNormalizedDirectiveCache =\n new Map<Type, {annotation:
Directive, metadata: cpl.CompileDirectiveMetadata}>();\n private _directiveCache = new Map<Type,
cpl.CompileDirectiveMetadata>();\n private _summaryCache = new Map<Type,
cpl.CompileTypeSummary>();\n private _pipeCache = new Map<Type, cpl.CompilePipeMetadata>();\n private
_ngModuleCache = new Map<Type, cpl.CompileNgModuleMetadata>();\n private _ngModuleOfTypes =
new Map<Type, Type>();\n private _shallowModuleCache = new Map<Type,
cpl.CompileShallowModuleMetadata>();\n\n constructor(\n private _config: CompilerConfig, private
_htmlParser: HtmlParser,\n private _ngModuleResolver: NgModuleResolver, private _directiveResolver:
DirectiveResolver,\n private _pipeResolver: PipeResolver, private _summaryResolver:
SummaryResolver<any>,\n private _schemaRegistry:
ElementSchemaRegistry,\n private _directiveNormalizer: DirectiveNormalizer, private _console: Console,\n private _staticSymbolCache: StaticSymbolCache, private _reflector: CompileReflector,\n private
_errorCollector?: ErrorCollector) {\n\n getReflector(): CompileReflector {\n return this._reflector;\n }\n\n clearCacheFor(type: Type) {\n const dirMeta = this._directiveCache.get(type);\n this._directiveCache.delete(type);\n this._nonNormalizedDirectiveCache.delete(type);\n this._summaryCache.delete(type);\n this._pipeCache.delete(type);\n this._ngModuleOfTypes.delete(type);\n //
Clear all of the NgModule as they contain transitive information!\n this._ngModuleCache.clear();\n if (dirMeta)
{\n this._directiveNormalizer.clearCacheFor(dirMeta);\n }\n }\n\n clearCache(): void {\n this._directiveCache.clear();\n this._nonNormalizedDirectiveCache.clear();\n this._summaryCache.clear();\n this._pipeCache.clear();\n this._ngModuleCache.clear();\n this._ngModuleOfTypes.clear();\n this._directiveNormalizer.clearCache();\n }\n\n private _createProxyClass(baseType: any, name: string): cpl.ProxyClass {\n let delegate: any = null;\n const proxyClass: cpl.ProxyClass = <any>function(this: unknown) {\n if (!delegate) {\n throw new Error(\n
`Illegal state: Class ${name} for type ${stringify(baseType)} is not compiled yet!`);\n }\n return
delegate.apply(this, arguments);\n };\n proxyClass.setDelegate = (d) => {\n delegate = d;\n };\n (<any>proxyClass).prototype = d.prototype;\n (<any>proxyClass).overriddenName = name;\n return proxyClass;\n }\n\n private getGeneratedClass(dirType:
any, name: string): StaticSymbol|cpl.ProxyClass {\n if (dirType instanceof StaticSymbol) {\n return
this._staticSymbolCache.get(ngfactoryFilePath(dirType.filePath), name);\n } else {\n return
this._createProxyClass(dirType,
name);\n }\n }\n\n private getComponentViewClass(dirType: any): StaticSymbol|cpl.ProxyClass {\n return
this.getGeneratedClass(dirType, cpl.viewClassName(dirType, 0));\n }\n\n getHostComponentViewClass(dirType:
any): StaticSymbol|cpl.ProxyClass {\n return this.getGeneratedClass(dirType,

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cpl.hostViewClassName(dirType));\n }\n\n getHostComponentType(dirType: any): StaticSymbol|cpl.ProxyClass
{\n const name = `${cpl.identifierName({reference: dirType})}_Host`;\n if (dirType instanceof StaticSymbol)
{\n return this._staticSymbolCache.get(dirType.filePath, name);\n }\n\n return
this._createProxyClass(dirType, name);\n }\n\n private getRendererType(dirType: any): StaticSymbol|object {\n
if (dirType instanceof StaticSymbol) {\n return this._staticSymbolCache.get(\n
ngfactoryFilePath(dirType.filePath), cpl.rendererTypeName(dirType));\n } else {\n // returning an object as
proxy,\n // that we fill later during runtime
 compilation.\n return <any>{};\n }\n }\n\n private getComponentFactory(\n selector: string, dirType: any,
inputs: {[key: string]: string}|null,\n outputs: {[key: string]: string}): StaticSymbol|object {\n if (dirType
instanceof StaticSymbol) {\n return this._staticSymbolCache.get(\n ngfactoryFilePath(dirType.filePath),
cpl.componentFactoryName(dirType));\n } else {\n const hostView =
this.getHostComponentViewClass(dirType);\n // Note: ngContentSelectors will be filled later once the template
is\n // loaded.\n const createComponentFactory =\n this._reflector.resolveExternalReference(Identifiers.createComponentFactory);\n return
createComponentFactory(selector, dirType, <any>hostView, inputs, outputs, []);\n }\n }\n\n private
initComponentFactory(factory: StaticSymbol|object, ngContentSelectors: string[]) {\n if (!(factory instanceof
StaticSymbol)) {\n (factory as any).ngContentSelectors.push(...ngContentSelectors);\n
 }\n }\n\n private _loadSummary(type: any, kind: cpl.CompileSummaryKind): cpl.CompileTypeSummary|null
{\n let typeSummary = this._summaryCache.get(type);\n if (!typeSummary) {\n const summary =
this._summaryResolver.resolveSummary(type);\n typeSummary = summary ? summary.type : null;\n
this._summaryCache.set(type, typeSummary || null);\n }\n return typeSummary &&
typeSummary.summaryKind === kind ? typeSummary : null;\n }\n\n getHostComponentMetadata(\n
compMeta: cpl.CompileDirectiveMetadata,\n hostViewType?: StaticSymbol|cpl.ProxyClass):
cpl.CompileDirectiveMetadata {\n const hostType = this.getHostComponentType(compMeta.type.reference);\n
if (!hostViewType) {\n hostViewType = this.getHostComponentViewClass(hostType);\n }\n // Note: ! is ok
here as this method should only be called with normalized directive\n // metadata, which always fills in the
selector.\n const template = CssSelector.parse(compMeta.selector!)[0].getMatchingElementTemplate();\n
 const templateUrl = "";\n const htmlAst = this._htmlParser.parse(template, templateUrl);\n return
cpl.CompileDirectiveMetadata.create({\n isHost: true,\n type: {reference: hostType, diDeps: [],
lifecycleHooks: []},\n template: new cpl.CompileTemplateMetadata({\n encapsulation:
ViewEncapsulation.None,\n template,\n templateUrl,\n htmlAst,\n styles: [],\n styleUrls: [],\n
 ngContentSelectors: [],\n animations: [],\n isInline: true,\n externalStylesheets: [],\n
 interpolation: null,\n preserveWhitespaces: false,\n }),\n exportAs: null,\n changeDetection:
ChangeDetectionStrategy.Default,\n inputs: [],\n outputs: [],\n host: {},\n isComponent: true,\n
 selector: '*',\n providers: [],\n viewProviders: [],\n queries: [],\n guards: {},\n viewQueries: [],\n
 componentViewType:
 hostViewType,\n rendererType: {id: '__Host__', encapsulation: ViewEncapsulation.None, styles: [], data: {}}
as\n object,\n entryComponents: [],\n componentFactory: null\n });\n }\n\n loadDirectiveMetadata(ngModuleType: any, directiveType: any, isSync: boolean): SyncAsync<null> {\n if
(this._directiveCache.has(directiveType)) {\n return null;\n }\n directiveType =
resolveForwardRef(directiveType);\n const {annotation, metadata} =
this.getNonNormalizedDirectiveMetadata(directiveType!);\n\n const createDirectiveMetadata =
(templateMetadata: cpl.CompileTemplateMetadata|null) => {\n const normalizedDirMeta = new
cpl.CompileDirectiveMetadata({\n isHost: false,\n type: metadata.type,\n isComponent:
metadata.isComponent,\n selector: metadata.selector,\n exportAs: metadata.exportAs,\n
 changeDetection: metadata.changeDetection,\n inputs: metadata.inputs,\n outputs: metadata.outputs,\n
 hostListeners: metadata.hostListeners,\n hostProperties: metadata.hostProperties,\n hostAttributes:
metadata.hostAttributes,\n providers: metadata.providers,\n viewProviders: metadata.viewProviders,\n

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queries: metadata.queries,\n guards: metadata.guards,\n viewQueries: metadata.viewQueries,\n entryComponents: metadata.entryComponents,\n componentViewType: metadata.componentViewType,\n rendererType: metadata.rendererType,\n componentFactory: metadata.componentFactory,\n template: templateMetadata\n });\n if (templateMetadata) {\n this.initComponentFactory(metadata.componentFactory!, templateMetadata.ngContentSelectors);\n }\n this._directiveCache.set(directiveType, normalizedDirMeta);\n this._summaryCache.set(directiveType, normalizedDirMeta.toSummary());\n return null;\n };\n\n if (metadata.isComponent) {\n const template = metadata.template !;\n\n const templateMeta = this._directiveNormalizer.normalizeTemplate({\n ngModuleType,\n componentType: directiveType,\n moduleUrl: this._reflector.componentModuleUrl(directiveType, annotation),\n encapsulation: template.encapsulation,\n template: template.template,\n templateUrl: template.templateUrl,\n styles: template.styles,\n styleUrls: template.styleUrls,\n animations: template.animations,\n interpolation: template.interpolation,\n preserveWhitespaces: template.preserveWhitespaces\n });\n if (isPromise(templateMeta) && isSync) {\n this._reportError(componentStillLoadingError(directiveType), directiveType);\n return null;\n }\n return SyncAsync.then(templateMeta, createDirectiveMetadata);\n } else {\n // directive\n createDirectiveMetadata(null);\n return null;\n }\n}\n\ngetNonNormalizedDirectiveMetadata(directiveType: any): {\n annotation: Directive, metadata: cpl.CompileDirectiveMetadata}|null {\n directiveType = resolveForwardRef(directiveType);\n if (!directiveType) {\n return null;\n }\n let cacheEntry = this._nonNormalizedDirectiveCache.get(directiveType);\n if (cacheEntry) {\n return cacheEntry;\n }\n const dirMeta = this._directiveResolver.resolve(directiveType, false);\n if (!dirMeta) {\n return null;\n }\n let nonNormalizedTemplateMetadata: cpl.CompileTemplateMetadata = undefined!;\n if (createComponent.isTypeOf(dirMeta)) {\n // component\n const compMeta = dirMeta as Component;\n assertArrayOfStrings('styles', compMeta.styles);\n assertArrayOfStrings('styleUrls', compMeta.styleUrls);\n assertInterpolationSymbols('interpolation', compMeta.interpolation);\n const animations = compMeta.animations;\n nonNormalizedTemplateMetadata = new cpl.CompileTemplateMetadata({\n encapsulation: noUndefined(compMeta.encapsulation),\n template: noUndefined(compMeta.template),\n templateUrl: noUndefined(compMeta.templateUrl),\n htmlAst: null,\n styles: compMeta.styles || [],\n styleUrls: compMeta.styleUrls || [],\n animations: animations || [],\n interpolation: noUndefined(compMeta.interpolation),\n isInline: !!compMeta.template,\n externalStyleSheets: [],\n ngContentSelectors: [],\n preserveWhitespaces: noUndefined(dirMeta.preserveWhitespaces),\n });\n }\n let changeDetectionStrategy: ChangeDetectionStrategy = null!;\n let viewProviders: cpl.CompileProviderMetadata[] = [];\n let entryComponentMetadata: cpl.CompileEntryComponentMetadata[] = [];\n let selector = dirMeta.selector;\n if (createComponent.isTypeOf(dirMeta)) {\n // Component\n const compMeta = dirMeta as Component;\n changeDetectionStrategy = compMeta.changeDetection!;\n if (compMeta.viewProviders) {\n viewProviders = this._getProvidersMetadata(\n compMeta.viewProviders, entryComponentMetadata,\n `viewProviders for "${stringifyType(directiveType)}"`, [], directiveType);\n }\n if (compMeta.entryComponents) {\n entryComponentMetadata = flattenAndDedupeArray(compMeta.entryComponents)\n .map((type) => this._getEntryComponentMetadata(type))\n .concat(entryComponentMetadata);\n }\n if (!selector) {\n selector = this._schemaRegistry.getDefaultComponentElementName();\n }\n } else {\n // Directive\n if (!selector) {\n selector = null!;\n }\n }\n let providers: cpl.CompileProviderMetadata[] = [];\n if (dirMeta.providers != null) {\n providers = this._getProvidersMetadata(\n dirMeta.providers, entryComponentMetadata,\n `providers for "${stringifyType(directiveType)}"`, [], directiveType);\n }\n let queries: cpl.CompileQueryMetadata[]

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= [];\n let viewQueries: cpl.CompileQueryMetadata[] = [];\n if (dirMeta.queries != null) {\n queries =
this._getQueriesMetadata(dirMeta.queries, false, directiveType);\n viewQueries =
this._getQueriesMetadata(dirMeta.queries, true, directiveType);\n } \n\n const metadata =
cpl.CompileDirectiveMetadata.create({\n isHost: false,\n selector: selector,\n exportAs:
noUndefined(dirMeta.exportAs),\n isComponent: !!nonNormalizedTemplateMetadata,\n type:
this._getTypeMetadata(directiveType),\n template: nonNormalizedTemplateMetadata,\n changeDetection:
changeDetectionStrategy,\n inputs: dirMeta.inputs || [],\n outputs: dirMeta.outputs || [],\n host: dirMeta.host
|| {},\n providers: providers || [],\n viewProviders: viewProviders || [],\n queries: queries || [],\n guards:
dirMeta.guards || {},\n viewQueries: viewQueries || [],\n entryComponents: entryComponentMetadata,\n componentViewType:
nonNormalizedTemplateMetadata ? this.getComponentViewClass(directiveType) : \n
null,\n rendererType: nonNormalizedTemplateMetadata ? this.getRendererType(directiveType) : null,\n
componentFactory: null\n });\n if (nonNormalizedTemplateMetadata) {\n metadata.componentFactory =\n this.getComponentFactory(selector, directiveType, metadata.inputs, metadata.outputs);\n }\n cacheEntry =
{metadata, annotation: dirMeta};\n this._nonNormalizedDirectiveCache.set(directiveType, cacheEntry);\n return
cacheEntry;\n } \n\n /**\n * Gets the metadata for the given directive.\n * This assumes
`loadNgModuleDirectiveAndPipeMetadata` has been called first.\n */\n getDirectiveMetadata(directiveType:
any): cpl.CompileDirectiveMetadata {\n const dirMeta = this._directiveCache.get(directiveType!);\n if
(!dirMeta) {\n this._reportError(\n syntaxError(\n `Illegal
state: getDirectiveMetadata can only be called after loadNgModuleDirectiveAndPipeMetadata for a module that
declares it. Directive ${\n
stringifyType(directiveType)}.`,\n directiveType);\n }\n }\n return
dirMeta;\n } \n\n getDirectiveSummary(dirType: any): cpl.CompileDirectiveSummary {\n const dirSummary =\n
<cpl.CompileDirectiveSummary>this._loadSummary(dirType, cpl.CompileSummaryKind.Directive);\n if
(!dirSummary) {\n this._reportError(\n syntaxError(\n `Illegal state: Could not load the summary
for directive ${stringifyType(dirType)}.`,\n dirType);\n }\n }\n return dirSummary;\n } \n\n isDirective(type:
any) {\n return !!this._loadSummary(type, cpl.CompileSummaryKind.Directive) ||\n
this._directiveResolver.isDirective(type);\n } \n\n isAbstractDirective(type: any): boolean {\n const summary =\n
this._loadSummary(type, cpl.CompileSummaryKind.Directive) as cpl.CompileDirectiveSummary;\n
 if (summary && !summary.isComponent) {\n return !summary.selector;\n }\n const meta =
this._directiveResolver.resolve(type, false);\n if (meta && !createComponent.isTypeOf(meta)) {\n return
!meta.selector;\n }\n return false;\n } \n\n isPipe(type: any) {\n return !!this._loadSummary(type,
cpl.CompileSummaryKind.Pipe) ||\n this._pipeResolver.isPipe(type);\n } \n\n isNgModule(type: any) {\n
return !!this._loadSummary(type, cpl.CompileSummaryKind.NgModule) ||\n
this._ngModuleResolver.isNgModule(type);\n } \n\n getNgModuleSummary(moduleType: any, alreadyCollecting:
Set<any>|null = null): \n cpl.CompileNgModuleSummary|null {\n let moduleSummary:
cpl.CompileNgModuleSummary|null =\n <cpl.CompileNgModuleSummary>this._loadSummary(moduleType,
cpl.CompileSummaryKind.NgModule);\n if (!moduleSummary) {\n const moduleMeta =
this.getNgModuleMetadata(moduleType, false, alreadyCollecting);\n moduleSummary = moduleMeta
? moduleMeta.toSummary() : null;\n if (moduleSummary) {\n this._summaryCache.set(moduleType,
moduleSummary);\n }\n }\n return moduleSummary;\n } \n\n /**\n * Loads the declared directives and
pipes of an NgModule.\n */\n loadNgModuleDirectiveAndPipeMetadata(moduleType: any, isSync: boolean,
throwIfNotFound = true): \n Promise<any> {\n const ngModule = this.getNgModuleMetadata(moduleType,
throwIfNotFound);\n const loading: Promise<any>[] = [];\n if (ngModule) {\n
ngModule.declaredDirectives.forEach((id) => {\n const promise = this.loadDirectiveMetadata(moduleType,
id.reference, isSync);\n if (promise) {\n loading.push(promise);\n }\n });\n
ngModule.declaredPipes.forEach((id) => this._loadPipeMetadata(id.reference));\n }\n return
Promise.all(loading);\n } \n\n getShallowModuleMetadata(moduleType: any):
cpl.CompileShallowModuleMetadata|null {\n let compileMeta = this._shallowModuleCache.get(moduleType);\n

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 if (compileMeta) {\n return compileMeta;\n }\n\n const ngModuleMeta =\n findLast(this._reflector.shallowAnnotations(moduleType), createNgModule.isTypeOf);\n\n compileMeta = {\n type: this._getTypeMetadata(moduleType),\n rawExports: ngModuleMeta.exports,\n rawImports:\n ngModuleMeta.imports,\n rawProviders: ngModuleMeta.providers,\n };\n\n this._shallowModuleCache.set(moduleType, compileMeta);\n return compileMeta;\n }\n\n getNgModuleMetadata(\n moduleType: any, throwIfNotFound = true,\n alreadyCollecting: Set<any>|null =\n null): cpl.CompileNgModuleMetadata|null {\n moduleType = resolveForwardRef(moduleType);\n let\n compileMeta = this._ngModuleCache.get(moduleType);\n if (compileMeta) {\n return compileMeta;\n }\n const meta = this._ngModuleResolver.resolve(moduleType, throwIfNotFound);\n if (!meta) {\n return null;\n }\n const declaredDirectives: cpl.CompileIdentifierMetadata[]\n = [];\n const exportedNonModuleIdentifiers: cpl.CompileIdentifierMetadata[] = [];\n const declaredPipes:\n cpl.CompileIdentifierMetadata[] = [];\n const importedModules: cpl.CompileNgModuleSummary[] = [];\n const\n exportedModules: cpl.CompileNgModuleSummary[] = [];\n const providers: cpl.CompileProviderMetadata[] =\n [];\n const entryComponents: cpl.CompileEntryComponentMetadata[] = [];\n const bootstrapComponents:\n cpl.CompileIdentifierMetadata[] = [];\n const schemas: SchemaMetadata[] = [];\n\n if (meta.imports) {\n flattenAndDedupeArray(meta.imports).forEach((importedType) => {\n let importedModuleType: Type =\n undefined!;\n if (isValidType(importedType)) {\n importedModuleType = importedType;\n } else if\n (importedType && importedType.ngModule) {\n const moduleWithProviders: ModuleWithProviders =\n importedType;\n importedModuleType = moduleWithProviders.ngModule;\n if\n (moduleWithProviders.providers)\n {\n providers.push(...this._getProvidersMetadata(\n moduleWithProviders.providers,\n entryComponents,\n `provider for the NgModule '${stringifyType(importedModuleType)}'`, [],\n importedType));\n }\n\n if (importedModuleType) {\n if\n (this._checkSelfImport(moduleType, importedModuleType)) return;\n if (!alreadyCollecting)\n alreadyCollecting = new Set();\n if (alreadyCollecting.has(importedModuleType)) {\n this._reportError(\n syntaxError(`${this._getTypeDescriptor(importedModuleType)} '${\n stringifyType(importedType)}' is imported recursively by the module '${\n stringifyType(moduleType)}'.`,\n moduleType);\n return;\n }\n alreadyCollecting.add(importedModuleType);\n const importedModuleSummary =\n this.getNgModuleSummary(importedModuleType, alreadyCollecting);\n\n alreadyCollecting.delete(importedModuleType);\n if (!importedModuleSummary) {\n this._reportError(\n syntaxError(`Unexpected ${this._getTypeDescriptor(importedType)} '${\n stringifyType(importedType)}' imported by the module '${\n stringifyType(moduleType)}'. Please add a\n @NgModule annotation.`,\n moduleType);\n return;\n }\n importedModules.push(importedModuleSummary);\n } else {\n this._reportError(\n syntaxError(\n `Unexpected value '${stringifyType(importedType)}' imported by the module '${\n stringifyType(moduleType)}'`,\n moduleType);\n return;\n);\n }\n\n if\n (meta.exports) {\n flattenAndDedupeArray(meta.exports).forEach((exportedType) => {\n if\n (!isValidType(exportedType)) {\n this._reportError(\n syntaxError(\n `Unexpected value '${stringifyType(exportedType)}' exported by the module '${\n stringifyType(moduleType)}'`,\n moduleType);\n return;\n);\n }\n if (!alreadyCollecting)\n alreadyCollecting = new Set();\n if (alreadyCollecting.has(exportedType)) {\n this._reportError(\n syntaxError(`${this._getTypeDescriptor(exportedType)} '${\n stringify(exportedType)}' is exported\n recursively by the module '${\n stringifyType(moduleType)}'`,\n moduleType);\n return;\n);\n }\n alreadyCollecting.add(exportedType);\n const exportedModuleSummary =\n this.getNgModuleSummary(exportedType, alreadyCollecting);\n alreadyCollecting.delete(exportedType);\n if (exportedModuleSummary) {\n exportedModules.push(exportedModuleSummary);\n } else {\n exportedNonModuleIdentifiers.push(this._getIdentifierMetadata(exportedType));\n }\n });\n }\n }\n });\n }\n }

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 }\n });\n }\n\n // Note: This will be modified later, so we rely on\n // getting a new instance every
time!\n const transitiveModule = this._getTransitiveNgModuleMetadata(importedModules, exportedModules);\n if (meta.declarations) {\n flattenAndDedupeArray(meta.declarations).forEach((declaredType) => {\n if
(!isValidType(declaredType)) {\n this._reportError(\n syntaxError(\n `Unexpected value
'${stringifyType(declaredType)}' declared by the module '${\n stringifyType(moduleType)}'`,\n moduleType);\n return;\n }\n const declaredIdentifier = this._getIdentifierMetadata(declaredType);\n if (this.isDirective(declaredType)) {\n if (this.isAbstractDirective(declaredType)) {\n this._reportError(\n syntaxError(\n `Directive ${stringifyType(declaredType)} has no selector,
please add it!`,\n declaredType);\n }\n transitiveModule.addDirective(declaredIdentifier);\n declaredDirectives.push(declaredIdentifier);\n this._addTypeToModule(declaredType, moduleType);\n } else if (this.isPipe(declaredType)) {\n transitiveModule.addPipe(declaredIdentifier);\n transitiveModule.pipes.push(declaredIdentifier);\n declaredPipes.push(declaredIdentifier);\n this._addTypeToModule(declaredType, moduleType);\n } else {\n this._reportError(\n syntaxError(`Unexpected ${this._getTypeDescriptor(declaredType)} '${\n stringifyType(declaredType)}'
declared by the module '${\n stringifyType(\n moduleType)}'. Please add a
@Pipe/@Directive/@Component annotation.`),\n moduleType);\n return;\n }\n });\n }\n\n const exportedDirectives: cpl.CompileIdentifierMetadata[] =
[];\n const exportedPipes: cpl.CompileIdentifierMetadata[] = [];\n exportedNonModuleIdentifiers.forEach((exportedId) => {\n if
(transitiveModule.directivesSet.has(exportedId.reference)) {\n exportedDirectives.push(exportedId);\n transitiveModule.addExportedDirective(exportedId);\n } else if
(transitiveModule.pipesSet.has(exportedId.reference)) {\n exportedPipes.push(exportedId);\n transitiveModule.addExportedPipe(exportedId);\n } else {\n this._reportError(\n syntaxError(`Can't
export ${this._getTypeDescriptor(exportedId.reference)} '${\n stringifyType(exportedId.reference)}' from
${\n stringifyType(moduleType)} as it was neither declared nor imported!`,\n moduleType);\n return;\n }\n });\n\n // The providers of the module have to go last\n // so that they overwrite any other
provider we already added.\n if (meta.providers) {\n providers.push(...this._getProvidersMetadata(\n meta.providers, entryComponents,\n `provider for the NgModule '${stringifyType(moduleType)}'`, [],\n moduleType));\n }\n\n if (meta.entryComponents) {\n entryComponents.push(...flattenAndDedupeArray(meta.entryComponents)\n .map(type => this._getEntryComponentMetadata(type)!));\n }\n\n if (meta.bootstrap) {\n flattenAndDedupeArray(meta.bootstrap).forEach(type => {\n if (!isValidType(type)) {\n this._reportError(\n syntaxError(`Unexpected value '${\n stringifyType(type)}' used in the
bootstrap property of module '${\n stringifyType(moduleType)}'`,\n moduleType);\n return;\n }\n bootstrapComponents.push(this._getIdentifierMetadata(type));\n });\n }\n\n entryComponents.push(\n ...bootstrapComponents.map(type => this._getEntryComponentMetadata(type.reference)!));\n\n if (meta.schemas) {\n {\n schemas.push(...flattenAndDedupeArray(meta.schemas));\n }\n }\n\n compileMeta = new
cpl.CompileNgModuleMetadata({\n type: this._getTypeMetadata(moduleType),\n providers,\n entryComponents,\n bootstrapComponents,\n schemas,\n declaredDirectives,\n exportedDirectives,\n declaredPipes,\n exportedPipes,\n importedModules,\n exportedModules,\n transitiveModule,\n id:
meta.id || null,\n });\n\n entryComponents.forEach((id) => transitiveModule.addEntryComponent(id));\n providers.forEach((provider) => transitiveModule.addProvider(provider, compileMeta!.type));\n transitiveModule.addModule(compileMeta.type);\n this._ngModuleCache.set(moduleType, compileMeta);\n return compileMeta;\n}\n\nprivate _checkSelfImport(moduleType: Type, importedModuleType: Type): boolean {\n if (moduleType === importedModuleType) {\n this._reportError(\n syntaxError(`'${stringifyType(moduleType)}' module

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can't import itself'), moduleType);\n return true;\n }\n return false;\n }\n\n private
_getTypeDescriptor(type: Type): string {\n if (isValidType(type)) {\n if (this.isDirective(type)) {\n return
'directive';\n }\n\n if (this.isPipe(type)) {\n return 'pipe';\n }\n\n if (this.isNgModule(type)) {\n
return 'module';\n }\n }\n\n if ((type as any).provide) {\n return 'provider';\n }\n\n return 'value';\n
}\n\n private _addTypeToModule(type: Type, moduleType: Type) {\n const oldModule =
this._ngModuleOfTypes.get(type);\n if (oldModule && oldModule !== moduleType) {\n this._reportError(\n
syntaxError(\n `Type ${stringifyType(type)} is part of the declarations of 2 modules: ${\n
stringifyType(oldModule)} and ${stringifyType(moduleType)}!` +\n `Please consider moving
${stringifyType(type)} to a higher module that imports ${\n
stringifyType(oldModule)} and ${stringifyType(moduleType)}.` +\n `You can also create a new
NgModule that exports and includes ${\n
stringifyType(type)} then import that NgModule in ${\n
stringifyType(oldModule)} and ${stringifyType(moduleType)}.`,\n moduleType);\n return;\n }\n
this._ngModuleOfTypes.set(type, moduleType);\n }\n\n private _getTransitiveNgModuleMetadata(\n
importedModules: cpl.CompileNgModuleSummary[],\n exportedModules: cpl.CompileNgModuleSummary[]):
cpl.TransitiveCompileNgModuleMetadata {\n // collect `providers` / `entryComponents` from all imported and all
exported modules\n const result = new cpl.TransitiveCompileNgModuleMetadata();\n const modulesByToken =
new Map<any, Set<any>>());\n importedModules.concat(exportedModules).forEach((modSummary) => {\n
modSummary.modules.forEach((mod) => result.addModule(mod));\n
modSummary.entryComponents.forEach((comp) => result.addEntryComponent(comp));\n
const addedTokens = new Set<any>();\n modSummary.providers.forEach((entry) => {\n const tokenRef
= cpl.tokenReference(entry.provider.token);\n let prevModules = modulesByToken.get(tokenRef);\n if
(!prevModules) {\n prevModules = new Set<any>();\n modulesByToken.set(tokenRef, prevModules);\n
}\n const moduleRef = entry.module.reference;\n // Note: the providers of one module may still contain
multiple providers\n // per token (e.g. for multi providers), and we need to preserve these.\n if
(addedTokens.has(tokenRef) || !prevModules.has(moduleRef)) {\n prevModules.add(moduleRef);\n
addedTokens.add(tokenRef);\n result.addProvider(entry.provider, entry.module);\n }\n });\n }\n
exportedModules.forEach((modSummary) => {\n modSummary.exportedDirectives.forEach((id) =>
result.addExportedDirective(id));\n modSummary.exportedPipes.forEach((id)
=> result.addExportedPipe(id));\n });\n importedModules.forEach((modSummary) => {\n
modSummary.exportedDirectives.forEach((id) => result.addDirective(id));\n
modSummary.exportedPipes.forEach((id) => result.addPipe(id));\n });\n return result;\n }\n\n private
_getIdentifierMetadata(type: Type): cpl.CompileIdentifierMetadata {\n type = resolveForwardRef(type);\n
return {reference: type};\n }\n\n isInjectable(type: any): boolean {\n const annotations =
this._reflector.tryAnnotations(type);\n return annotations.some(ann => createInjectable.isTypeOf(ann));\n }\n\n
getInjectableSummary(type: any): cpl.CompileTypeSummary {\n return {\n summaryKind:
cpl.CompileSummaryKind.Injectable,\n type: this._getTypeMetadata(type, null, false)\n };\n }\n\n
getInjectableMetadata(\n type: any, dependencies: any[]|null = null,\n throwOnUnknownDeps: boolean =
true): cpl.CompileInjectableMetadata|null {\n const typeSummary =
this._loadSummary(type, cpl.CompileSummaryKind.Injectable);\n const typeMetadata = typeSummary ?\n
typeSummary.type : \n this._getTypeMetadata(type, dependencies, throwOnUnknownDeps);\n\n const
annotations: Injectable[] =\n this._reflector.annotations(type).filter(ann => createInjectable.isTypeOf(ann));\n\n
if (annotations.length === 0) {\n return null;\n }\n\n const meta = annotations[annotations.length - 1];\n
return {\n symbol: type,\n type: typeMetadata,\n providedIn: meta.providedIn,\n useValue:
meta.useValue,\n useClass: meta.useClass,\n useExisting: meta.useExisting,\n useFactory:
meta.useFactory,\n deps: meta.deps,\n };\n }\n\n private _getTypeMetadata(type: Type, dependencies:
any[]|null = null, throwOnUnknownDeps = true):\n cpl.CompileTypeMetadata {\n const identifier =
this._getIdentifierMetadata(type);\n return {\n reference: identifier.reference,\n diDeps:
this._getDependenciesMetadata(identifier.reference,

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dependencies, throwOnUnknownDeps),\n lifecycleHooks: getAllLifecycleHooks(this._reflector,
identifier.reference),\n };\n\n private _getFactoryMetadata(factory: Function, dependencies: any[]|null =
null):\n cpl.CompileFactoryMetadata {\n factory = resolveForwardRef(factory);\n return {reference: factory,
diDeps: this._getDependenciesMetadata(factory, dependencies)};\n }\n\n /**\n * Gets the metadata for the given
pipe.\n * This assumes `loadNgModuleDirectiveAndPipeMetadata` has been called first.\n */\n getPipeMetadata(pipeType: any): cpl.CompilePipeMetadata|null {\n const pipeMeta =
this._pipeCache.get(pipeType);\n if (!pipeMeta) {\n this._reportError(\n syntaxError(\n `Illegal
state: getPipeMetadata can only be called after loadNgModuleDirectiveAndPipeMetadata for a module that declares
it. Pipe ${\n stringifyType(pipeType)}.`,\n pipeType);\n }\n\n return pipeMeta || null;\n }\n\n getPipeSummary(pipeType: any): cpl.CompilePipeSummary {\n const
pipeSummary =\n <cpl.CompilePipeSummary>this._loadSummary(pipeType,
cpl.CompileSummaryKind.Pipe);\n if (!pipeSummary) {\n this._reportError(\n syntaxError(\n
`Illegal state: Could not load the summary for pipe ${stringifyType(pipeType)}.`,\n pipeType);\n }\n\n return pipeSummary;\n }\n\n getOrLoadPipeMetadata(pipeType: any): cpl.CompilePipeMetadata {\n let
pipeMeta = this._pipeCache.get(pipeType);\n if (!pipeMeta) {\n pipeMeta =
this._loadPipeMetadata(pipeType);\n }\n return pipeMeta;\n }\n\n private _loadPipeMetadata(pipeType: any):
cpl.CompilePipeMetadata {\n pipeType = resolveForwardRef(pipeType);\n const pipeAnnotation =
this._pipeResolver.resolve(pipeType);\n const pipeMeta = new cpl.CompilePipeMetadata({\n type:
this._getTypeMetadata(pipeType),\n name: pipeAnnotation.name,\n pure:
!!pipeAnnotation.pure\n });\n this._pipeCache.set(pipeType, pipeMeta);\n this._summaryCache.set(pipeType,
pipeMeta.toSummary());\n return pipeMeta;\n }\n\n private _getDependenciesMetadata(\n typeOrFunc:
Type|Function, dependencies: any[]|null,\n throwOnUnknownDeps = true):
cpl.CompileDiDependencyMetadata[] {\n let hasUnknownDeps = false;\n const params = dependencies ||
this._reflector.parameters(typeOrFunc) || [];\n\n const dependenciesMetadata:
cpl.CompileDiDependencyMetadata[] = params.map((param) => {\n let isAttribute = false;\n let isHost =
false;\n let isSelf = false;\n let isSkipSelf = false;\n let isOptional = false;\n let token: any = null;\n\n if
(Array.isArray(param)) {\n param.forEach((paramEntry: any) => {\n if
(createHost.isTypeOf(paramEntry)) {\n isHost = true;\n } else if (createSelf.isTypeOf(paramEntry)) {\n
isSelf = true;\n } else if (createSkipSelf.isTypeOf(paramEntry)) {\n
isSkipSelf = true;\n } else if (createOptional.isTypeOf(paramEntry)) {\n isOptional = true;\n }
else if (createAttribute.isTypeOf(paramEntry)) {\n isAttribute = true;\n token = (paramEntry as
any).attributeName;\n } else if (createInject.isTypeOf(paramEntry)) {\n token = (paramEntry as
any).token;\n } else if (\n createInjectionToken.isTypeOf(paramEntry) ||\n (paramEntry as
any) instanceof StaticSymbol) {\n token = paramEntry;\n } else if (isValidType(paramEntry) && token
== null) {\n token = paramEntry;\n }\n });\n } else {\n token = param;\n }\n\n if (token
== null) {\n hasUnknownDeps = true;\n return {};\n }\n\n return {\n isAttribute,\n isHost,\n
isSelf,\n isSkipSelf,\n isOptional,\n token: this._getTokenMetadata(token)\n };
});\n\n if (hasUnknownDeps) {\n const depsTokens =\n dependenciesMetadata.map((dep) =>
dep.token ? stringifyType(dep.token) : '?').join(', ');\n const message =\n `Can't resolve all parameters for
${stringifyType(typeOrFunc)}: (${depsTokens}).`; \n if (throwOnUnknownDeps ||
this._config.strictInjectionParameters) {\n this._reportError(syntaxError(message), typeOrFunc);\n }\n
}\n\n return dependenciesMetadata;\n }\n\n private _getTokenMetadata(token: any): cpl.CompileTokenMetadata
{\n token = resolveForwardRef(token);\n let compileToken: cpl.CompileTokenMetadata;\n if (typeof token
=== 'string') {\n compileToken = {value: token};\n } else {\n compileToken = {identifier: {reference:
token}};\n }\n return compileToken;\n }\n\n private _getProvidersMetadata(\n providers: Provider[],
targetEntryComponents: cpl.CompileEntryComponentMetadata[],\n debugInfo?: string, compileProviders:
cpl.CompileProviderMetadata[] = [],\n type?: any): cpl.CompileProviderMetadata[] {\n
providers.forEach((provider: any, providerIdx: number) => {\n if (Array.isArray(provider)) {\n

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this._getProvidersMetadata(provider, targetEntryComponents, debugInfo, compileProviders);\n } else {\n
provider = resolveForwardRef(provider);\n let providerMeta: cpl.ProviderMeta = undefined!;\n if (provider
&& typeof provider === 'object' && provider.hasOwnProperty('provide')) {\n
this._validateProvider(provider);\n providerMeta = new cpl.ProviderMeta(provider.provide, provider);\n }
else if (isValidType(provider)) {\n providerMeta = new cpl.ProviderMeta(provider, { useClass: provider });\n
 } else if (provider === void 0) {\n this._reportError(syntaxError(`Encountered undefined provider!
Usually this means you have a circular dependencies. This might be caused by using 'barrel' index.ts
files.`));\n return;\n } else {\n const providersInfo =\n providers\n .reduce(\n
 (soFar: string[], seenProvider: any, seenProviderIdx: number) => {\n if (seenProviderIdx <
providerIdx) {\n soFar.push(`${stringifyType(seenProvider)}`);\n } else if
(seenProviderIdx === providerIdx) {\n soFar.push(`?${stringifyType(seenProvider)}?`);\n
 } else if (seenProviderIdx === providerIdx + 1) {\n soFar.push('...');\n }\n
return soFar;\n },\n [])\n .join(', ');\n this._reportError(\n
syntaxError(`Invalid ${\n debugInfo ?\n debugInfo :\n 'provider'}`) - only
instances of Provider and Type are allowed,
got: [${\n providersInfo\n }],\n type);\n return;\n }\n if (providerMeta.token ===\n this._reflector.resolveExternalReference(Identifiers.ANALYZE_FOR_ENTRY_COMPONENTS)) {\n
targetEntryComponents.push(...this._getEntryComponentsFromProvider(providerMeta, type));\n } else {\n
compileProviders.push(this.getProviderMetadata(providerMeta));\n }\n }\n);\n return
compileProviders;\n }\n\n private _validateProvider(provider: any): void {\n if
(provider.hasOwnProperty('useClass') && provider.useClass === null) {\n this._reportError(syntaxError(`Invalid
provider for ${\n stringifyType(provider.provide)}\n . useClass cannot be ${provider.useClass}.\n
Usually it happens when:\n 1. There's a circular dependency (might be caused by using index.ts (barrel) files).\n
 2. Class was used before it was declared. Use forwardRef in this case.`));\n }\n
 }\n\n private _getEntryComponentsFromProvider(provider: cpl.ProviderMeta, type?: any):\n
cpl.CompileEntryComponentMetadata[] {\n const components: cpl.CompileEntryComponentMetadata[] = [];\n
const collectedIdentifiers: cpl.CompileIdentifierMetadata[] = [];\n if (provider.useFactory || provider.useExisting
|| provider.useClass) {\n this._reportError(\n syntaxError(`The
ANALYZE_FOR_ENTRY_COMPONENTS token only supports useValue!`), type);\n return [];\n }\n\n if
(!provider.multi) {\n this._reportError(\n syntaxError(`The ANALYZE_FOR_ENTRY_COMPONENTS
token only supports 'multi = true!'`),\n type);\n return [];\n }\n\n extractIdentifiers(provider.useValue,
collectedIdentifiers);\n collectedIdentifiers.forEach((identifier) => {\n const entry =
this._getEntryComponentMetadata(identifier.reference, false);\n if (entry) {\n components.push(entry);\n
 }\n });\n return components;\n }\n\n private
_getEntryComponentMetadata(dirType: any, throwIfNotFound = true):\n
cpl.CompileEntryComponentMetadata|null {\n const dirMeta =
this.getNonNormalizedDirectiveMetadata(dirType);\n if (dirMeta && dirMeta.metadata.isComponent) {\n
return { componentType: dirType, componentFactory: dirMeta.metadata.componentFactory! };\n }\n const
dirSummary =\n <cpl.CompileDirectiveSummary>this._loadSummary(dirType,
cpl.CompileSummaryKind.Directive);\n if (dirSummary && dirSummary.isComponent) {\n return
{ componentType: dirType, componentFactory: dirSummary.componentFactory! };\n }\n if (throwIfNotFound)
{\n throw syntaxError(`${dirType.name} cannot be used as an entry component.`);\n }\n return null;\n }\n\n private _getInjectableTypeMetadata(type: Type, dependencies: any[]|null = null):\n
cpl.CompileTypeMetadata\n {\n const typeSummary = this._loadSummary(type, cpl.CompileSummaryKind.Injectable);\n if (typeSummary)
{\n return typeSummary.type;\n
 }\n return this._getTypeMetadata(type, dependencies);\n }\n\n getProviderMetadata(provider:
cpl.ProviderMeta): cpl.CompileProviderMetadata {\n let compileDeps: cpl.CompileDependencyMetadata[] =
undefined!;\n let compileTypeMetadata: cpl.CompileTypeMetadata = null!;\n let compileFactoryMetadata:

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cpl.CompileFactoryMetadata = null!;\n let token: cpl.CompileTokenMetadata =
this._getTokenMetadata(provider.token);\n\n if (provider.useClass) {\n compileTypeMetadata =\nthis._getInjectableTypeMetadata(provider.useClass, provider.dependencies);\n compileDeps =
compileTypeMetadata.diDeps;\n if (provider.token === provider.useClass) {\n // use the
compileTypeMetadata as it contains information about lifecycleHooks...\n token = {identifier:
compileTypeMetadata};\n }\n } else if (provider.useFactory) {\n compileFactoryMetadata =
this._getFactoryMetadata(provider.useFactory, provider.dependencies);\n compileDeps
= compileFactoryMetadata.diDeps;\n }\n\n return {\n token: token,\n useClass: compileTypeMetadata,\n useValue: provider.useValue,\n useFactory: compileFactoryMetadata,\n useExisting: provider.useExisting ?
this._getTokenMetadata(provider.useExisting) : undefined,\n deps: compileDeps,\n multi: provider.multi\n};\n\n\n private _getQueriesMetadata(\n queries: {[key: string]: Query}, isViewQuery: boolean,\n directiveType: Type): cpl.CompileQueryMetadata[] {\n const res: cpl.CompileQueryMetadata[] = [];\n\n Object.keys(queries).forEach((propertyName: string) => {\n const query = queries[propertyName];\n if
(query.isViewQuery === isViewQuery) {\n res.push(this._getQueryMetadata(query, propertyName,
directiveType));\n }\n });\n\n return res;\n }\n\n private _queryVarBindings(selector: any): string[] {\n
return selector.split(/\\s*,\\s*/);\n }\n\n private _getQueryMetadata(q: Query, propertyName:
string, typeOrFunc: Type|Function):\n cpl.CompileQueryMetadata {\n let selectors:
cpl.CompileTokenMetadata[];\n if (typeof q.selector === 'string') {\n selectors =\nthis._queryVarBindings(q.selector).map(varName => this._getTokenMetadata(varName));\n } else {\n if
(!q.selector) {\n this._reportError(\n syntaxError(`Can't construct a query for the property
'${propertyName}' of '${stringifyType(typeOrFunc)}' since the query selector wasn't defined.`),\n typeOrFunc);\n selectors = [];\n } else {\n selectors = [this._getTokenMetadata(q.selector)];\n }\n }\n\n return {\n selectors,\n first: q.first,\n descendants: q.descendants,\n propertyName,\n read: q.read ? this._getTokenMetadata(q.read) : null!,\n static: q.static\n };\n }\n\n private _reportError(error:
any, type?: any, otherType?: any) {\n if (this._errorCollector) {\n this._errorCollector(error, type);\n if (otherType) {\n this._errorCollector(error, otherType);\n }\n }
else {\n throw error;\n }\n }\n\n\n function flattenArray(tree: any[], out: Array<any> = []): Array<any> {\n if
(tree) {\n for (let i = 0; i < tree.length; i++) {\n const item = resolveForwardRef(tree[i]);\n if
(Array.isArray(item)) {\n flattenArray(item, out);\n } else {\n out.push(item);\n }\n }\n }\n return
out;\n }\n\n function dedupeArray(array: any[]): Array<any> {\n if (array) {\n return Array.from(new
Set(array));\n }\n return [];\n }\n\n function flattenAndDedupeArray(tree: any[]): Array<any> {\n return
dedupeArray(flattenArray(tree));\n }\n\n function isValidType(value: any): boolean {\n return (value instanceof
StaticSymbol) || (value instanceof Type);\n }\n\n function extractIdentifiers(value: any, targetIdentifiers:
cpl.CompileIdentifierMetadata[]) {\n visitValue(value, new _CompileValueConverter(),
targetIdentifiers);\n }\n\n class _CompileValueConverter extends ValueTransformer {\n visitOther(value: any,
targetIdentifiers: cpl.CompileIdentifierMetadata[]): any {\n targetIdentifiers.push({reference: value});\n }\n\n function stringifyType(type: any): string {\n if (type instanceof StaticSymbol) {\n return `${type.name}
in ${type.filePath}`;\n } else {\n return stringify(type);\n }\n }\n\n /**\n * Indicates that a component is still being
loaded in a synchronous compile.\n */\n function componentStillLoadingError(compType: Type) {\n const error =\n Error(`Can't compile synchronously as ${stringify(compType)} is still being loaded!`);\n (error as
any)[ERROR_COMPONENT_TYPE] = compType;\n return error;\n }\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n import {CompileDiDependencyMetadata,
CompileEntryComponentMetadata,
CompileProviderMetadata, CompileTokenMetadata} from '../compile_metadata';\n import {CompileReflector} from
'../compile_reflector';\n import {DepFlags, NodeFlags} from '../core';\n import {createTokenForExternalReference,
Identifiers} from '../identifiers';\n import {LifecycleHooks} from '../lifecycle_reflector';\n import * as o from
'../output/output_ast';\n import {convertValueToOutputAst} from '../output/value_util';\n import {ProviderAst,

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ProviderAstType} from './template_parser/template_ast';\nimport {OutputContext} from './util';\n\nexport function
providerDef(ctx: OutputContext, providerAst: ProviderAst): {\n providerExpr: o.Expression,\n flags: NodeFlags,\n depsExpr: o.Expression,\n tokenExpr: o.Expression\n} {\n let flags = NodeFlags.None;\n if (!providerAst.eager)
{\n flags |= NodeFlags.LazyProvider;\n }\n if (providerAst.providerType === ProviderAstType.PrivateService)
{\n flags |= NodeFlags.PrivateProvider;\n }\n if (providerAst.isModule) {\n
 flags |= NodeFlags.TypeModuleProvider;\n }\n providerAst.lifecycleHooks.forEach((lifecycleHook) => {\n //
for regular providers, we only support ngOnDestroy\n if (lifecycleHook === LifecycleHooks.OnDestroy ||\n providerAst.providerType === ProviderAstType.Directive ||\n providerAst.providerType ===
ProviderAstType.Component) {\n flags |= lifecycleHookToNodeFlag(lifecycleHook);\n }\n });\n const
{providerExpr, flags: providerFlags, depsExpr} = providerAst.multiProvider ?\n multiProviderDef(ctx, flags,
providerAst.providers) :\n singleProviderDef(ctx, flags, providerAst.providerType, providerAst.providers[0]);\n return {\n providerExpr,\n flags: providerFlags,\n depsExpr,\n tokenExpr: tokenExpr(ctx,
providerAst.token),\n };\n}\n\nfunction multiProviderDef(\n ctx: OutputContext, flags: NodeFlags, providers:
CompileProviderMetadata[]):\n {\n providerExpr: o.Expression, flags: NodeFlags, depsExpr: o.Expression\n} {\n
const allDepDefs:
o.Expression[] = [];\n const allParams: o.FnParam[] = [];\n const exprs = providers.map((provider, providerIndex)
=> {\n let expr: o.Expression;\n if (provider.useClass) {\n const depExprs = convertDeps(providerIndex,
provider.deps || provider.useClass.diDeps);\n expr =
ctx.importExpr(provider.useClass.reference).instantiate(depExprs);\n } else if (provider.useFactory) {\n const
depExprs = convertDeps(providerIndex, provider.deps || provider.useFactory.diDeps);\n expr =
ctx.importExpr(provider.useFactory.reference).callFn(depExprs);\n } else if (provider.useExisting) {\n const
depExprs = convertDeps(providerIndex, [{token: provider.useExisting}]);\n expr = depExprs[0];\n } else {\n
expr = convertValueToOutputAst(ctx, provider.useValue);\n }\n return expr;\n });\n const providerExpr =\n o.fn(allParams, [new o.ReturnStatement(o.literalArr(exprs))], o.INFERRED_TYPE);\n return {\n providerExpr,\n flags: flags | NodeFlags.TypeFactoryProvider,\n
 depsExpr: o.literalArr(allDepDefs)\n };\n}\n\nfunction convertDeps(providerIndex: number, deps:
CompileDiDependencyMetadata[]) {\n return deps.map((dep, depIndex) => {\n const paramName =
`p${providerIndex}_${depIndex}`;\n allParams.push(new o.FnParam(paramName, o.DYNAMIC_TYPE));\n allDepDefs.push(depDef(ctx, dep));\n return o.variable(paramName);\n });\n}\n\nfunction
singleProviderDef(\n ctx: OutputContext, flags: NodeFlags, providerType: ProviderAstType,\n providerMeta:
CompileProviderMetadata):\n {\n providerExpr: o.Expression, flags: NodeFlags, depsExpr: o.Expression\n} {\n
let providerExpr: o.Expression;\n let deps: CompileDiDependencyMetadata[];\n if (providerType ===
ProviderAstType.Directive || providerType === ProviderAstType.Component) {\n providerExpr =
ctx.importExpr(providerMeta.useClass!.reference);\n flags |= NodeFlags.TypeDirective;\n deps =
providerMeta.deps || providerMeta.useClass!.diDeps;\n
 } else {\n if (providerMeta.useClass) {\n providerExpr = ctx.importExpr(providerMeta.useClass.reference);\n flags |= NodeFlags.TypeClassProvider;\n deps = providerMeta.deps || providerMeta.useClass.diDeps;\n } else
if (providerMeta.useFactory) {\n providerExpr = ctx.importExpr(providerMeta.useFactory.reference);\n flags
|= NodeFlags.TypeFactoryProvider;\n deps = providerMeta.deps || providerMeta.useFactory.diDeps;\n } else if
(providerMeta.useExisting) {\n providerExpr = o.NULL_EXPR;\n flags |=
NodeFlags.TypeUseExistingProvider;\n deps = [{token: providerMeta.useExisting}];\n } else {\n
providerExpr = convertValueToOutputAst(ctx, providerMeta.useValue);\n flags |=
NodeFlags.TypeValueProvider;\n deps = [];\n }\n }\n const depsExpr = o.literalArr(deps.map(dep =>
depDef(ctx, dep)));\n return {providerExpr, flags, depsExpr};\n}\n\nfunction tokenExpr(ctx: OutputContext,
tokenMeta: CompileTokenMetadata): o.Expression
{\n return tokenMeta.identifier ? ctx.importExpr(tokenMeta.identifier.reference) :\n o.literal(tokenMeta.value);\n}\n\nexport function depDef(ctx: OutputContext, dep:
CompileDiDependencyMetadata): o.Expression {\n // Note: the following fields have already been normalized out

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by provider_analyzer:\n // - isAttribute, isHost\n const expr = dep.isValue ? convertValueToOutputAst(ctx,
dep.value) : tokenExpr(ctx, dep.token!);\n let flags = DepFlags.None;\n if (dep.isSkipSelf) {\n flags |=
DepFlags.SkipSelf;\n }\n if (dep.isOptional) {\n flags |= DepFlags.Optional;\n }\n if (dep.isSelf) {\n flags |=
DepFlags.Self;\n }\n if (dep.isValue) {\n flags |= DepFlags.Value;\n }\n return flags === DepFlags.None ? expr
: o.literalArr([o.literal(flags), expr]);\n}\n\nexport function lifecycleHookToNodeFlag(lifecycleHook:
LifecycleHooks): NodeFlags {\n let nodeFlag = NodeFlags.None;\n switch (lifecycleHook) {\n case
LifecycleHooks.AfterContentChecked:\n
nodeFlag = NodeFlags.AfterContentChecked;\n break;\n case LifecycleHooks.AfterContentInit:\n
nodeFlag = NodeFlags.AfterContentInit;\n break;\n case LifecycleHooks.AfterViewChecked:\n nodeFlag =
NodeFlags.AfterViewChecked;\n break;\n case LifecycleHooks.AfterViewInit:\n nodeFlag =
NodeFlags.AfterViewInit;\n break;\n case LifecycleHooks.DoCheck:\n nodeFlag = NodeFlags.DoCheck;\n
break;\n case LifecycleHooks.OnChanges:\n nodeFlag = NodeFlags.OnChanges;\n break;\n case
LifecycleHooks.OnDestroy:\n nodeFlag = NodeFlags.OnDestroy;\n break;\n case LifecycleHooks.OnInit:\n
nodeFlag = NodeFlags.OnInit;\n break;\n }\n return nodeFlag;\n}\n\nexport function
componentFactoryResolverProviderDef(\n reflector: CompileReflector, ctx: OutputContext, flags: NodeFlags,\n entryComponents: CompileEntryComponentMetadata[]): {\n providerExpr: o.Expression,\n flags: NodeFlags,\n depsExpr: o.Expression,\n tokenExpr: o.Expression\n} {\n const entryComponentFactories =\n entryComponents.map((entryComponent) => ctx.importExpr(entryComponent.componentFactory));\n const token
= createTokenForExternalReference(reflector, Identifiers.ComponentFactoryResolver);\n const classMeta = {\n
diDeps: [\n {isValue: true, value: o.literalArr(entryComponentFactories)},\n {token: token, isSkipSelf: true,
isOptional: true},\n {token: createTokenForExternalReference(reflector, Identifiers.NgModuleRef)},\n],\n
lifecycleHooks: [],\n reference:
reflector.resolveExternalReference(Identifiers.CodegenComponentFactoryResolver)\n };\n const {providerExpr,
flags: providerFlags, depsExpr} =\n singleProviderDef(ctx, flags, ProviderAstType.PrivateService, {\n
token,\n multi: false,\n useClass: classMeta,\n });\n return {providerExpr, flags: providerFlags,
depsExpr, tokenExpr: tokenExpr(ctx, token)};\n}\n\n"/**\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileNgModuleMetadata,
CompileProviderMetadata, identifierName} from './compile_metadata';\nimport {CompileReflector} from
'./compile_reflector';\nimport {NodeFlags} from './core';\nimport {Identifiers} from './identifiers';\nimport * as o
from './output/output_ast';\nimport {typeSourceSpan} from './parse_util';\nimport {NgModuleProviderAnalyzer}
from './provider_analyzer';\nimport {OutputContext} from './util';\nimport {componentFactoryResolverProviderDef,
depDef, providerDef} from './view_compiler/provider_compiler';\n\nexport class NgModuleCompileResult {\n
constructor(public ngModuleFactoryVar: string) {} }\n\nconst LOG_VAR = o.variable('_l');\n\nexport class
NgModuleCompiler {\n constructor(private reflector: CompileReflector) {} \n compile(\n ctx: OutputContext,
ngModuleMeta:
CompileNgModuleMetadata,\n extraProviders: CompileProviderMetadata[]): NgModuleCompileResult {\n
const sourceSpan = typeSourceSpan('NgModule', ngModuleMeta.type);\n const entryComponentFactories =
ngModuleMeta.transitiveModule.entryComponents;\n const bootstrapComponents =
ngModuleMeta.bootstrapComponents;\n const providerParser =\n new
NgModuleProviderAnalyzer(this.reflector, ngModuleMeta, extraProviders, sourceSpan);\n const providerDefs =\n
[componentFactoryResolverProviderDef(\n this.reflector, ctx, NodeFlags.None,
entryComponentFactories)]\n .concat(providerParser.parse().map((provider) => providerDef(ctx,
provider)))\n .map(({providerExpr, depsExpr, flags, tokenExpr}) => {\n return
o.importExpr(Identifiers.moduleProviderDef).callFn([\n o.literal(flags), tokenExpr, providerExpr,
depsExpr\n]);\n });\n const ngModuleDef =
o.importExpr(Identifiers.moduleDef).callFn([o.literalArr(providerDefs)]);\n

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const ngModuleDefFactory = \n o.fn([new o.FnParam(LOG_VAR.name!)], [new
o.ReturnStatement(ngModuleDef)], o.INFERRED_TYPE);\n\n const ngModuleFactoryVar =
`${identifierName(ngModuleMeta.type)}NgFactory`; \n this._createNgModuleFactory(\n ctx,
ngModuleMeta.type.reference, o.importExpr(Identifiers.createModuleFactory).callFn([\n
ctx.importExpr(ngModuleMeta.type.reference),\n o.literalArr(bootstrapComponents.map(id =>
ctx.importExpr(id.reference))),\n ngModuleDefFactory\n]));\n\n if (ngModuleMeta.id) {\n const id =
typeof ngModuleMeta.id === 'string' ? o.literal(ngModuleMeta.id) :\n ctx.importExpr(ngModuleMeta.id);\n const registerFactoryStmt =
o.importExpr(Identifiers.RegisterModuleFactoryFn)\n .callFn([id,
o.variable(ngModuleFactoryVar)])\n .toStmt();\n ctx.statements.push(registerFactoryStmt);\n } \n\n return new
NgModuleCompileResult(ngModuleFactoryVar);\n } \n\n createStub(ctx: OutputContext, ngModuleReference:
any) {\n this._createNgModuleFactory(ctx, ngModuleReference, o.NULL_EXPR);\n } \n\n private
_createNgModuleFactory(ctx: OutputContext, reference: any, value: o.Expression) {\n const ngModuleFactoryVar =
`${identifierName({reference: reference})}NgFactory`; \n const ngModuleFactoryStmt =\n o.variable(ngModuleFactoryVar)\n .set(value)\n .toDeclStmt(\n o.importType(\n Identifiers.NgModuleFactory, [o.expressionType(ctx.importExpr(reference))],\n [o.TypeModifier.Const]),\n [o.StmtModifier.Final, o.StmtModifier.Exported]);\n\n ctx.statements.push(ngModuleFactoryStmt);\n } \n\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that
can be\n * found in the LICENSE file at https://angular.io/license\n * \n\nimport { CompileReflector } from
'./compile_reflector';\nimport { createNgModule, NgModule, Type } from './core';\nimport { findLast } from
'./directive_resolver';\nimport { stringify } from './util';\n\n\n/*\n * Resolves types to { @link NgModule }. \n
*\n\nexport class NgModuleResolver {\n constructor(private _reflector: CompileReflector) {\n }\n\n isNgModule(type: any) {\n return this._reflector.annotations(type).some(createNgModule.isTypeOf);\n }\n\n resolve(type: Type, throwIfNotFound = true): NgModule|null {\n const ngModuleMeta: NgModule =\n findLast(this._reflector.annotations(type), createNgModule.isTypeOf);\n\n if (ngModuleMeta) {\n return
ngModuleMeta;\n } else {\n if (throwIfNotFound) {\n throw new Error(`No NgModule metadata found for
'${stringify(type)}'.`);\n }\n return null;\n }\n }\n\n\n", "/*\n * @license\n * Copyright Google LLC All
Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n * \n\nimport { AbstractEmitterVisitor, CATCH_ERROR_VAR, CATCH_STACK_VAR,
EmitterVisitorContext, OutputEmitter } from './abstract_emitter';\nimport * as o from './output_ast';\n\nexport
function debugOutputAstAsTypeScript(ast: o.Statement|o.Expression|o.Type|any[]): string {\n const converter =
new _TsEmitterVisitor();\n const ctx = EmitterVisitorContext.createRoot();\n const asts: any[] = Array.isArray(ast)
? ast : [ast];\n\n asts.forEach((ast) => {\n if (ast instanceof o.Statement) {\n ast.visitStatement(converter,
ctx);\n } else if (ast instanceof o.Expression) {\n ast.visitExpression(converter, ctx);\n } else if (ast instanceof
o.Type) {\n ast.visitType(converter, ctx);\n } else {\n throw new Error(`Don't know how to print debug info
for ${ast}`);\n }\n });\n return ctx.toSource();\n}\n\n\nexport type ReferenceFilter
= (reference: o.ExternalReference) => boolean;\n\nexport class TypeScriptEmitter implements OutputEmitter {\n
 emitStatementsAndContext(\n genFilePath: string, stmts: o.Statement[], preamble: string = "\n
emitSourceMaps: boolean = true, referenceFilter?: ReferenceFilter,\n importFilter?: ReferenceFilter):
{sourceText: string, context: EmitterVisitorContext} {\n const converter = new _TsEmitterVisitor(referenceFilter,
importFilter);\n\n const ctx = EmitterVisitorContext.createRoot();\n\n converter.visitAllStatements(stmts,
ctx);\n\n const preambleLines = preamble ? preamble.split("\n") : [];\n converter.reexports.forEach((reexports,
exportedModuleName) => {\n const reexportsCode =\n reexports.map(reexport => `${reexport.name} as
${reexport.as}`).join(',');\n preambleLines.push(`export {${reexportsCode}} from
'${exportedModuleName}';`);\n });\n\n converter.importsWithPrefixes.forEach((prefix, importedModuleName)

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=> {\n
 // Note: can't write the real word for import as it screws up system.js auto detection...\n preambleLines.push(\n
 `imp` +\n `ort * as ${prefix} from '${importedModuleName}';`);\n });\n\n const sm =
emitSourceMaps ?\n ctx.toSourceMapGenerator(genFilePath, preambleLines.length).toJsComment() :\n
";\n const lines = [...preambleLines, ctx.toSource(), sm];\n if (sm) {\n // always add a newline at the end, as
some tools have bugs without it.\n lines.push("");\n }\n ctx.setPreambleLineCount(preambleLines.length);\n
return {sourceText: lines.join("\n"), context: ctx};\n }\n\n emitStatements(genFilePath: string, stmts: o.Statement[],
preamble: string = "") {\n return this.emitStatementsAndContext(genFilePath, stmts, preamble).sourceText;\n
}\n}\n\n\nclass _TsEmitterVisitor extends AbstractEmitterVisitor implements o.TypeVisitor {\n private
typeExpression = 0;\n\n constructor(private referenceFilter?: ReferenceFilter,
private importFilter?: ReferenceFilter) {\n super(false);\n }\n\n importsWithPrefixes = new Map<string,
string>();\n reexports = new Map<string, {name: string, as: string}[]>();\n\n visitType(t: o.Type|null, ctx:
EmitterVisitorContext, defaultType: string = 'any') {\n if (t) {\n this.typeExpression++;\n t.visitType(this,
ctx);\n this.typeExpression--;\n } else {\n ctx.print(null, defaultType);\n }\n }\n\n visitLiteralExpr(ast:
o.LiteralExpr, ctx: EmitterVisitorContext): any {\n const value = ast.value;\n if (value == null && ast.type !=
o.INFERRED_TYPE) {\n ctx.print(ast, `(${value} as any)`);\n return null;\n }\n return
super.visitLiteralExpr(ast, ctx);\n }\n\n\n // Temporary workaround to support strictNullCheck enabled consumers
of ngc emit.\n // In SNC mode, [] have the type never[], so we cast here to any[].\n // TODO: narrow the cast to a
more explicit type, or use a pattern that does not\n // start with [].concat.
see https://github.com/angular/angular/pull/11846\n visitLiteralArrayExpr(ast: o.LiteralArrayExpr, ctx:
EmitterVisitorContext): any {\n if (ast.entries.length === 0) {\n ctx.print(ast, '()');\n }\n const result =
super.visitLiteralArrayExpr(ast, ctx);\n if (ast.entries.length === 0) {\n ctx.print(ast, ' as any[]');\n }\n
return result;\n }\n\n visitExternalExpr(ast: o.ExternalExpr, ctx: EmitterVisitorContext): any {\n
this._visitIdentifier(ast.value, ast.typeParams, ctx);\n return null;\n }\n\n visitAssertNotNullExpr(ast:
o.AssertNotNull, ctx: EmitterVisitorContext): any {\n const result = super.visitAssertNotNullExpr(ast, ctx);\n
ctx.print(ast, '!');\n return result;\n }\n\n visitDeclareVarStmt(stmt: o.DeclareVarStmt, ctx:
EmitterVisitorContext): any {\n if (stmt.hasModifier(o.StmtModifier.Exported) && stmt.value instanceof
o.ExternalExpr &&\n !stmt.type) {\n // check for a reexport\n const {name, moduleName} =
stmt.value.value;\n if (moduleName) {\n let reexports = this.reexports.get(moduleName);\n if
(!reexports) {\n reexports = [];\n this.reexports.set(moduleName, reexports);\n }\n
reexports.push({name: name!, as: stmt.name});\n return null;\n }\n }\n if
(stmt.hasModifier(o.StmtModifier.Exported)) {\n ctx.print(stmt, `export `);\n }\n if
(stmt.hasModifier(o.StmtModifier.Final)) {\n ctx.print(stmt, `const`);\n } else {\n ctx.print(stmt, `var`);\n
}\n ctx.print(stmt, ` ${stmt.name}`);\n this._printColonType(stmt.type, ctx);\n if (stmt.value) {\n
ctx.print(stmt, ` = `);\n stmt.value.visitExpression(this, ctx);\n }\n ctx.println(stmt, `);\n return null;\n
}\n\n visitWrappedNodeExpr(ast: o.WrappedNodeExpr<any>, ctx: EmitterVisitorContext): never {\n throw new
Error('Cannot visit a WrappedNodeExpr when outputting Typescript.);\n }\n\n visitCastExpr(ast: o.CastExpr,
ctx: EmitterVisitorContext): any {\n ctx.print(ast, `(<`);\n ast.type!.visitType(this, ctx);\n ctx.print(ast, `>`);\n
ast.value.visitExpression(this, ctx);\n ctx.print(ast, `)`);\n return null;\n }\n\n visitInstantiateExpr(ast:
o.InstantiateExpr, ctx: EmitterVisitorContext): any {\n ctx.print(ast, `new `);\n this.typeExpression++;\n
ast.classExpr.visitExpression(this, ctx);\n this.typeExpression--;\n ctx.print(ast, ` `);\n
this.visitAllExpressions(ast.args, ctx, ',');\n ctx.print(ast, `)`);\n return null;\n }\n\n visitDeclareClassStmt(stmt:
o.ClassStmt, ctx: EmitterVisitorContext): any {\n ctx.pushClass(stmt);\n if
(stmt.hasModifier(o.StmtModifier.Exported)) {\n ctx.print(stmt, `export `);\n }\n ctx.print(stmt, `class
${stmt.name}`);\n if (stmt.parent != null) {\n ctx.print(stmt, ` extends `);\n this.typeExpression++;\n
stmt.parent.visitExpression(this, ctx);\n this.typeExpression--;\n }\n ctx.println(stmt,
` `);\n ctx.incIndent();\n stmt.fields.forEach((field) => this._visitClassField(field, ctx));\n if
(stmt.constructorMethod != null) {\n this._visitClassConstructor(stmt, ctx);\n }\n stmt.getters.forEach((getter)
```

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=> this._visitClassGetter(getter, ctx);\n stmt.methods.forEach((method) => this._visitClassMethod(method,
ctx));\n ctx.decIndent();\n ctx.println(stmt, `}`);\n ctx.popClass();\n return null;\n}\n\nprivate
_visitClassField(field: o.ClassField, ctx: EmitterVisitorContext) {\n if (field.hasModifier(o.StmtModifier.Private))
{\n // comment out as a workaround for #10967\n ctx.print(null, `/*private*/`);\n }\n if
(field.hasModifier(o.StmtModifier.Static)) {\n ctx.print(null, 'static ');\n }\n ctx.print(null, field.name);\n this._printColonType(field.type, ctx);\n if (field.initializer) {\n ctx.print(null, '= ');\n }\n field.initializer.visitExpression(this, ctx);\n}\n ctx.println(null,
`);\n}\n\nprivate _visitClassGetter(getter: o.ClassGetter, ctx: EmitterVisitorContext) {\n if
(getter.hasModifier(o.StmtModifier.Private)) {\n ctx.print(null, `private `);\n }\n ctx.print(null, `get
${getter.name}()`);\n this._printColonType(getter.type, ctx);\n ctx.println(null, `{`);\n ctx.incIndent();\n this.visitAllStatements(getter.body, ctx);\n ctx.decIndent();\n ctx.println(null, `}`);\n}\n\nprivate
_visitClassConstructor(stmt: o.ClassStmt, ctx: EmitterVisitorContext) {\n ctx.print(stmt, `constructor`);\n this._visitParams(stmt.constructorMethod.params, ctx);\n ctx.println(stmt, `)`);\n ctx.incIndent();\n this.visitAllStatements(stmt.constructorMethod.body, ctx);\n ctx.decIndent();\n ctx.println(stmt, `}`);\n}\n\nprivate _visitClassMethod(method: o.ClassMethod, ctx: EmitterVisitorContext) {\n if
(method.hasModifier(o.StmtModifier.Private)) {\n ctx.print(null, `private `);\n }\n ctx.print(null,
`${method.name}()`);\n this._visitParams(method.params, ctx);\n ctx.print(null, `)`);\n this._printColonType(method.type, ctx, 'void');\n ctx.println(null, `{`);\n ctx.incIndent();\n this.visitAllStatements(method.body, ctx);\n ctx.decIndent();\n ctx.println(null, `}`);\n}\n\nvisitFunctionExpr(ast: o.FunctionExpr, ctx: EmitterVisitorContext): any {\n if (ast.name) {\n ctx.print(ast,
'function ');\n ctx.print(ast, ast.name);\n }\n ctx.print(ast, `(`);\n this._visitParams(ast.params, ctx);\n ctx.print(ast, `)`);\n this._printColonType(ast.type, ctx, 'void');\n if (!ast.name) {\n ctx.print(ast, `=>`);\n }\n ctx.println(ast, `{`);\n ctx.incIndent();\n this.visitAllStatements(ast.statements, ctx);\n ctx.decIndent();\n ctx.print(ast, `}`);\n}\n\nreturn null;\n}\n\nvisitDeclareFunctionStmt(stmt: o.DeclareFunctionStmt, ctx:
EmitterVisitorContext): any {\n if (stmt.hasModifier(o.StmtModifier.Exported))
{\n ctx.print(stmt, `export `);\n }\n ctx.print(stmt, `function ${stmt.name}()`);\n this._visitParams(stmt.params, ctx);\n ctx.print(stmt, `)`);\n this._printColonType(stmt.type, ctx, 'void');\n ctx.println(stmt, `{`);\n ctx.incIndent();\n this.visitAllStatements(stmt.statements, ctx);\n ctx.decIndent();\n ctx.println(stmt, `}`);\n}\n\nreturn null;\n}\n\nvisitTryCatchStmt(stmt: o.TryCatchStmt, ctx: EmitterVisitorContext):
any {\n ctx.println(stmt, `try {`);\n ctx.incIndent();\n this.visitAllStatements(stmt.bodyStmts, ctx);\n ctx.decIndent();\n ctx.println(stmt, `} catch (${CATCH_ERROR_VAR.name}) {`);\n ctx.incIndent();\n const
catchStmts =\n [<o.Statement>CATCH_STACK_VAR.set(CATCH_ERROR_VAR.prop('stack',
null)).toDeclStmt(null, [\n o.StmtModifier.Final\n])].concat(stmt.catchStmts);\n this.visitAllStatements(catchStmts, ctx);\n ctx.decIndent();\n ctx.println(stmt, `}`);\n}\n\nreturn null;\n}\n\nvisitBuiltinType(type: o.BuiltinType, ctx: EmitterVisitorContext): any {\n let typeStr: string;\n switch
(type.name) {\n case o.BuiltinTypeName.Bool:\n typeStr = 'boolean';\n break;\n case
o.BuiltinTypeName.Dynamic:\n typeStr = 'any';\n break;\n case o.BuiltinTypeName.Function:\n typeStr = 'Function';\n break;\n case o.BuiltinTypeName.Number:\n typeStr = 'number';\n break;\n case o.BuiltinTypeName.Int:\n typeStr = 'number';\n break;\n case o.BuiltinTypeName.String:\n typeStr = 'string';\n break;\n case o.BuiltinTypeName.None:\n typeStr = 'never';\n break;\n default:\n throw new Error(`Unsupported builtin type ${type.name}`);\n }\n ctx.print(null, typeStr);\n return null;\n}\n\nvisitExpressionType(ast: o.ExpressionType, ctx: EmitterVisitorContext): any {\n ast.value.visitExpression(this, ctx);\n if (ast.typeParams
!==(null)) {\n ctx.print(null, '<');\n this.visitAllObjects(type => this.visitType(type, ctx), ast.typeParams, ctx,
',');\n ctx.print(null, '>');\n }\n return null;\n}\n\nvisitArrayType(type: o.ArrayType, ctx:
EmitterVisitorContext): any {\n this.visitType(type.of, ctx);\n ctx.print(null, `[`);\n return null;\n}\n\nvisitMapType(type: o.MapType, ctx: EmitterVisitorContext): any {\n ctx.print(null, `{[key: string]:`);\n this.visitType(type.valueType, ctx);\n ctx.print(null, `}`);\n return null;\n}\n\ngetBuiltinMethodName(method:

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o.BuiltinMethod): string {\n let name: string;\n switch (method) {\n case o.BuiltinMethod.ConcatArray:\n name = 'concat';\n break;\n case o.BuiltinMethod.SubscribeObservable:\n name = 'subscribe';\n break;\n case o.BuiltinMethod.Bind:\n name = 'bind';\n break;\n default:\n throw new\n Error(`Unknown builtin method: ${method}`);\n }\n\n return name;\n}\n\nprivate _visitParams(params: o.FnParam[], ctx: EmitterVisitorContext): void {\n this.visitAllObjects(param => {\n ctx.print(null, param.name);\n this._printColonType(param.type, ctx);\n },\n params, ctx, ',');\n}\n\nprivate _visitIdentifier(\n value: o.ExternalReference, typeParams: o.Type[]|null, ctx:\n EmitterVisitorContext): void {\n const {name, moduleName} = value;\n if (this.referenceFilter &&\n this.referenceFilter(value)) {\n ctx.print(null, '(null as any)');\n return;\n }\n if (moduleName &&\n (!this.importFilter || !this.importFilter(value))) {\n let prefix = this.importsWithPrefixes.get(moduleName);\n if (prefix == null) {\n prefix = `i${this.importsWithPrefixes.size}`;\n this.importsWithPrefixes.set(moduleName, prefix);\n }\n ctx.print(null, `${prefix}.`);\n }\n ctx.print(null,\n name!);\n\n if (this.typeExpression > 0) {\n // If we are in a type expression that\n refers to a generic type then supply\n // the required type parameters. If there were not enough type parameters\n // supplied, supply any as the type. Outside a type expression the reference\n // should not supply type\n parameters and be treated as a simple value reference\n // to the constructor function itself.\n const\n suppliedParameters = typeParams || [];\n if (suppliedParameters.length > 0) {\n ctx.print(null, '<');\n this.visitAllObjects(type => type.visitType(this, ctx), typeParams!, ctx, ',');\n ctx.print(null, '>');\n }\n }\n\n private _printColonType(type: o.Type|null, ctx: EmitterVisitorContext, defaultType?: string) {\n if (type\n !== o.INFERRED_TYPE) {\n ctx.print(null, ':');\n this.visitType(type, ctx, defaultType);\n }\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n governed by an MIT-style license that can be\n * found in the LICENSE\n file at https://angular.io/license\n */\n\nimport {CompileReflector} from './compile_reflector';\nimport {createPipe,\n Pipe, Type} from './core';\nimport {findLast} from './directive_resolver';\nimport {resolveForwardRef, stringify}\n from './util';\n\n/**\n * Resolve a `Type` for { @link Pipe }.\n * This interface can be overridden by the\n application developer to create custom behavior.\n * See { @link Compiler }\n */\nexport class PipeResolver {\n constructor(private _reflector: CompileReflector) {\n\n isPipe(type: Type) {\n const typeMetadata =\n this._reflector.annotations(resolveForwardRef(type));\n return typeMetadata &&\n typeMetadata.some(createPipe.isTypeOf);\n }\n\n /**\n * Return { @link Pipe } for a given `Type`.\n */\n resolve(type: Type, throwIfNotFound = true): Pipe|null {\n const metas =\n this._reflector.annotations(resolveForwardRef(type));\n if (metas) {\n const annotation = findLast(metas,\n createPipe.isTypeOf);\n if (annotation) {\n return annotation;\n }\n }\n if (throwIfNotFound) {\n throw new Error(`No Pipe decorator found on\n ${stringify(type)}`);\n }\n return null;\n }\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights\n Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n\nimport {AotCompilerOptions} from\n './aot/compiler_options';\nimport {StaticReflector} from './aot/static_reflector';\nimport {StaticSymbol} from\n './aot/static_symbol';\nimport {CompileDirectiveMetadata, CompilePipeSummary} from\n './compile_metadata';\nimport {BindingForm, convertActionBinding, convertPropertyBinding,\n convertPropertyBindingBuiltins, EventHandlerVars, LocalResolver} from\n './compiler_util/expression_converter';\nimport {AST, ASTWithSource, Interpolation} from\n './expression_parser/ast';\nimport * as o from './output/output_ast';\nimport {ParseSourceSpan} from\n './parse_util';\nimport {AttrAst,\n BoundDirectivePropertyAst, BoundElementPropertyAst, BoundEventAst, BoundTextAst, DirectiveAst,\n ElementAst, EmbeddedTemplateAst, NgContentAst, ReferenceAst, TemplateAst, TemplateAstVisitor,\n templateVisitAll, TextAst, VariableAst} from './template_parser/template_ast';\nimport {OutputContext} from\n './util';\n\n/**\n * Generates code that is used to type check templates.\n */\nexport class TypeCheckCompiler {\n constructor(private options: AotCompilerOptions, private reflector: StaticReflector) {\n\n /**\n * Important

```



notes:\n \* - This must not produce new `import` statements, but only refer to types outside\n \* of the file via the variables provided via externalReferenceVars.\n \* This allows Typescript to reuse the old program's structure as no imports have changed.\n \* - This must not produce any exports, as this would pollute the .d.ts file\n \* and also violate the point above.\n \*/\n compileComponent(\n componentId: string, component:

CompileDirectiveMetadata,

```
template: TemplateAst[],\n usedPipes: CompilePipeSummary[], externalReferenceVars: Map<StaticSymbol,\n string>,\n ctx: OutputContext): o.Statement[] {\n const pipes = new Map<string, StaticSymbol>();\n usedPipes.forEach(p => pipes.set(p.name, p.type.reference));\n let embeddedViewCount = 0;\n const\n viewBuilderFactory =\n (parent: ViewBuilder|null, guards: GuardExpression[]): ViewBuilder => {\n const\n embeddedViewIndex = embeddedViewCount++;\n return new ViewBuilder(\n this.options,\n this.reflector, externalReferenceVars, parent, component.type.reference,\n component.isHost,\n embeddedViewIndex, pipes, guards, ctx, viewBuilderFactory);\n };\n const visitor =\n viewBuilderFactory(null, []);\n visitor.visitAll([], template);\n\n return visitor.build(componentId);\n }\n}\n\ninterface GuardExpression {\n guard: StaticSymbol;\n useIf: boolean;\n expression:
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Expression;\n}\n\ninterface ViewBuilderFactory
```

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{\n (parent: ViewBuilder, guards: GuardExpression[]): ViewBuilder;\n}\n\n// Note: This is used as key in Map and\n should therefore be\n// unique per value.\ntype OutputVarType = o.BuiltinTypeName|StaticSymbol;\n\ninterface\n Expression {\n context: OutputVarType;\n sourceSpan: ParseSourceSpan;\n value: AST;\n}\n\nconst\n DYNAMIC_VAR_NAME = '_any';\n\nclass TypeCheckLocalResolver implements LocalResolver {\n\n notifyImplicitReceiverUse(): void {\n getLocal(name: string): o.Expression|null {\n if (name ===\n EventHandlerVars.event.name) {\n // References to the event should not be type-checked.\n // TODO(chuckj):\n determine a better type for the event.\n return o.variable(DYNAMIC_VAR_NAME);\n }\n return null;\n }\n}\n\nconst defaultResolver = new TypeCheckLocalResolver();\n\nclass ViewBuilder implements\n TemplateAstVisitor, LocalResolver {\n private refOutputVars = new Map<string, OutputVarType>();\n private\n variables: VariableAst[] = [];\n private children:
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ViewBuilder[] = [];\n private updates: Expression[] = [];\n private actions: Expression[] = [];\n\n constructor(\n private options: AotCompilerOptions, private reflector: StaticReflector,\n private externalReferenceVars:\n Map<StaticSymbol, string>, private parent: ViewBuilder|null,\n private component: StaticSymbol, private\n isHostComponent: boolean,\n private embeddedViewIndex: number, private pipes: Map<string,\n StaticSymbol>,\n private guards: GuardExpression[], private ctx: OutputContext,\n private\n viewBuilderFactory: ViewBuilderFactory) {\n\n private getOutputVar(type: o.BuiltinTypeName|StaticSymbol):\n string {\n let varName: string|undefined;\n if (type === this.component && this.isHostComponent) {\n varName =\n DYNAMIC_VAR_NAME;\n } else if (type instanceof StaticSymbol) {\n varName =\n this.externalReferenceVars.get(type);\n } else {\n varName = DYNAMIC_VAR_NAME;\n }\n if\n (!varName) {\n throw new Error(\n
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`Illegal State: referring to a type without a variable ${JSON.stringify(type)}`);\n }\n return varName;\n }\n\n private getTypeGuardExpressions(ast: EmbeddedTemplateAst): GuardExpression[] {\n const result =\n [...this.guards];\n for (let directive of ast.directives) {\n for (let input of directive.inputs) {\n const guard =\n directive.directive.guards[input.directiveName];\n if (guard) {\n const useIf = guard === 'UseIf';\n result.push({\n guard,\n useIf,\n expression: {\n context: this.component,\n value: input.value,\n sourceSpan: input.sourceSpan,\n },\n });\n }\n }\n }\n return\n result;\n }\n\n visitAll(variables: VariableAst[], astNodes: TemplateAst[]) {\n this.variables = variables;\n templateVisitAll(this, astNodes);\n }\n\n build(componentId: string, targetStatements: o.Statement[] = []):\n o.Statement[] {\n
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this.children.forEach((child) => child.build(componentId, targetStatements));\n let viewStmts: o.Statement[]\n =\n [o.variable(DYNAMIC_VAR_NAME).set(o.NULL_EXPR).toDeclStmt(o.DYNAMIC_TYPE)];\n let\n bindingCount = 0;\n this.updates.forEach((expression) => {\n const {sourceSpan, context, value} =\n this.preprocessUpdateExpression(expression);\n const bindingId = `${bindingCount++}`;\n const
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nameResolver = context === this.component ? this : defaultResolver;\n const {stmts, currValExpr} =
convertPropertyBinding(\n nameResolver, o.variable(this.getOutputVar(context)), value, bindingId,\nBindingForm.General);\n stmts.push(new o.ExpressionStatement(currValExpr));\n viewStmts.push(...stmts.map(\n (stmt: o.Statement) => o.applySourceSpanToStatementIfNeeded(stmt,
sourceSpan));\n });\n this.actions.forEach(((sourceSpan, context, value) => {\n const bindingId =
`${bindingCount++}`;\n const nameResolver =
context === this.component ? this : defaultResolver;\n const {stmts} = convertActionBinding(\n
nameResolver, o.variable(this.getOutputVar(context)), value, bindingId);\n viewStmts.push(...stmts.map(\n
(stmt: o.Statement) => o.applySourceSpanToStatementIfNeeded(stmt, sourceSpan));\n }));\n if
(this.guards.length) {\n let guardExpression: o.Expression|undefined = undefined;\n for (const guard of
this.guards) {\n const {context, value} = this.preprocessUpdateExpression(guard.expression);\n const
bindingId = `${bindingCount++}`;\n const nameResolver = context === this.component ? this :
defaultResolver;\n // We only support support simple expressions and ignore others as they\n // are unlikely
to affect type narrowing.\n const {stmts, currValExpr} = convertPropertyBinding(\n nameResolver,
o.variable(this.getOutputVar(context)), value, bindingId,\n BindingForm.TrySimple);\n if
(stmts.length === 0) {\n const guardClause =\n guard.useIf ? currValExpr :
this.ctx.importExpr(guard.guard).callFn([currValExpr]);\n guardExpression = guardExpression ?
guardExpression.and(guardClause) : guardClause;\n }\n if (guardExpression) {\n viewStmts =
[new o.IfStmt(guardExpression, viewStmts)];\n }\n const viewName =
`_View_${componentId}_${this.embeddedViewIndex}`;\n const viewFactory = new
o.DeclareFunctionStmt(viewName, [], viewStmts);\n targetStatements.push(viewFactory);\n return
targetStatements;\n };\n visitBoundText(ast: BoundTextAst, context: any): any {\n const astWithSource =
<ASTWithSource>ast.value;\n const inter = <Interpolation>astWithSource.ast;\n inter.expressions.forEach(\n
(expr) =>{\n this.updates.push({context: this.component, value: expr, sourceSpan: ast.sourceSpan});\n
 });\n visitEmbeddedTemplate(ast: EmbeddedTemplateAst, context: any):
any {\n this.visitElementOrTemplate(ast);\n // Note: The old view compiler used to use an `any` type\n // for
the context in any embedded view.\n // We keep this behavior behind a flag for now.\n if
(this.options.fullTemplateTypeCheck) {\n // Find any applicable type guards. For example, NgIf has a type guard
on ngIf\n // (see NgIf.ngIfTypeGuard) that can be used to indicate that a template is only\n // stamped out if
ngIf is truthy so any bindings in the template can assume that,\n // if a nullable type is used for ngIf, that
expression is not null or undefined.\n const guards = this.getTypeGuardExpressions(ast);\n const childVisitor
= this.viewBuilderFactory(this, guards);\n this.children.push(childVisitor);\n childVisitor.visitAll(ast.variables, ast.children);\n }\n visitElement(ast: ElementAst, context: any): any {\n
 this.visitElementOrTemplate(ast);\n let inputDefs: o.Expression[] = [];\n let updateRendererExpressions:
Expression[] = [];\n let outputDefs: o.Expression[] = [];\n ast.inputs.forEach((inputAst) => {\n
 this.updates.push(\n {context: this.component, value: inputAst.value, sourceSpan: inputAst.sourceSpan});\n
 });\n templateVisitAll(this, ast.children);\n }\n private visitElementOrTemplate(ast: {\n outputs:
BoundEventAst[],\n directives: DirectiveAst[],\n references: ReferenceAst[],\n }) {\n ast.directives.forEach((dirAst) => {\n
 this.visitDirective(dirAst);\n });\n ast.references.forEach((ref) => {\n
 let outputVarType: OutputVarType = null!;\n // Note: The old view compiler used to use an `any` type\n //
for directives exposed via `exportAs`.\n // We keep this behavior behind a flag for now.\n if (ref.value &&
ref.value.identifier && this.options.fullTemplateTypeCheck) {\n outputVarType =
ref.value.identifier.reference;\n } else {\n outputVarType = o.BuiltinTypeName.Dynamic;\n }\n this.refOutputVars.set(ref.name, outputVarType);\n });\n ast.outputs.forEach((outputAst) => {\n
 this.actions.push(\n {context: this.component, value: outputAst.handler, sourceSpan:
outputAst.sourceSpan});\n });\n }\n }\n visitDirective(dirAst: DirectiveAst) {\n const dirType =
dirAst.directive.type.reference;\n dirAst.inputs.forEach(\n (input) => this.updates.push(\n {context:
this.component, value: input.value, sourceSpan: input.sourceSpan});\n }\n }\n }\n // Note: The old view compiler used to use

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an `any` type\n // for expressions in host properties / events.\n // We keep this behavior behind a flag for now.\nif (this.options.fullTemplateTypeCheck) {\n dirAst.hostProperties.forEach(\n (inputAst) =>\n this.updates.push(\n {context: dirType, value: inputAst.value, sourceSpan: inputAst.sourceSpan});\n dirAst.hostEvents.forEach((hostEventAst) => this.actions.push({\n context: dirType,\n value: hostEventAst.handler,\n sourceSpan: hostEventAst.sourceSpan\n }));\n}\n\nnotifyImplicitReceiverUse(): void {\n getLocal(name: string): o.Expression|null {\n if (name ==\n EventHandlerVars.event.name) {\n return o.variable(this.getOutputVar(o.BuiltinTypeName.Dynamic));\n }\n for (let currBuilder: ViewBuilder|null = this; currBuilder; currBuilder = currBuilder.parent) {\n let\n outputVarType: OutputVarType|undefined;\n // check references\n outputVarType =\n currBuilder.refOutputVars.get(name);\n if (outputVarType == null) {\n // check variables\n const varAst\n = currBuilder.variables.find((varAst) => varAst.name === name);\n if (varAst) {\n outputVarType =\n o.BuiltinTypeName.Dynamic;\n }\n }\n if (outputVarType != null) {\n return\n o.variable(this.getOutputVar(outputVarType));\n }\n return null;\n }\n\n private pipeOutputVar(name:\n string): string {\n const pipe = this.pipes.get(name);\n if (!pipe) {\n throw new Error(\n `Illegal State: Could not find pipe\n ${name} in template of ${this.component}`);\n }\n return this.getOutputVar(pipe);\n }\n\n private\n preprocessUpdateExpression(expression: Expression): Expression {\n return {\n sourceSpan:\n expression.sourceSpan,\n context: expression.context,\n value: convertPropertyBindingBuiltins(\n {\n createLiteralArrayConverter: (argCount: number) => (args: o.Expression[]) => {\n const arr =\n o.literalArr(args);\n // Note: The old view compiler used to use an `any` type\n // for arrays.\n return this.options.fullTemplateTypeCheck ? arr : arr.cast(o.DYNAMIC_TYPE);\n },\n createLiteralMapConverter: (keys: {key: string, quoted: boolean}[]) => {\n (values: o.Expression[]) => {\n const entries = keys.map((k, i) => ({\n key: k.key,\n value: values[i],\n quoted:\n k.quoted,\n }));\n const map = o.literalMap(entries);\n // Note: The\n old view compiler used to use an `any` type\n // for maps.\n return\n this.options.fullTemplateTypeCheck ? map : map.cast(o.DYNAMIC_TYPE);\n },\n createPipeConverter: (name: string, argCount: number) => (args: o.Expression[]) => {\n // Note: The old\n view compiler used to use an `any` type\n // for pipes.\n const pipeExpr =\n this.options.fullTemplateTypeCheck ?\n o.variable(this.pipeOutputVar(name)) :\n o.variable(this.getOutputVar(o.BuiltinTypeName.Dynamic));\n return pipeExpr.callMethod('transform',\n args);\n },\n expression.value);\n }\n }\n\n visitNgContent(ast: NgContentAst, context: any): any {\n visitText(ast:\n TextAst, context: any): any {\n visitDirectiveProperty(ast: BoundDirectivePropertyAst, context: any): any {\n visitReference(ast: ReferenceAst, context: any): any {\n visitVariable(ast: VariableAst, context: any): any {\n visitEvent(ast: BoundEventAst, context: any): any {\n visitElementProperty(ast: BoundElementPropertyAst,\n context: any): any {\n visitAttr(ast: AttrAst, context: any): any {\n\n },\n /**\n * @license\n * Copyright Google\n LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\n in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileDirectiveMetadata, CompilePipeSummary,\nCompileQueryMetadata, rendererTypeName, tokenReference, viewClassName} from\n'./compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport {BindingForm,\nBuiltinConverter, convertActionBinding,\nconvertPropertyBinding, convertPropertyBindingBuiltins, EventHandlerVars, LocalResolver} from\n'./compiler_util/expression_converter';\nimport {ArgumentType, BindingFlags, ChangeDetectionStrategy,\nNodeFlags, QueryBindingType, QueryValueType, ViewFlags} from './core';\nimport {AST, ASTWithSource,\nInterpolation} from './expression_parser/ast';\nimport {Identifiers} from './identifiers';\nimport {LifecycleHooks}\nfrom './lifecycle_reflector';\nimport {isNgContainer} from './ml_parser/tags';\nimport * as o from\n'./output/output_ast';\nimport {convertValueToOutputAst} from './output/value_util';\nimport {ParseSourceSpan}

```

```

from './parse_util';\nimport { AttrAst, BoundDirectivePropertyAst, BoundElementPropertyAst, BoundEventAst,
BoundTextAst, DirectiveAst, ElementAst, EmbeddedTemplateAst, NgContentAst, PropertyBindingType,
ProviderAst, QueryMatch, ReferenceAst, TemplateAst, TemplateAstVisitor, templateVisitAll, TextAst,
VariableAst} from './template_parser/template_ast';\nimport
{OutputContext} from './util';\n\nimport {componentFactoryResolverProviderDef, depDef,
lifecycleHookToNodeFlag, providerDef} from './provider_compiler';\n\nconst CLASS_ATTR = 'class';\nconst
STYLE_ATTR = 'style';\nconst IMPLICIT_TEMPLATE_VAR = '$implicit';\n\nexport class ViewCompileResult
{\n constructor(public viewClassName: string, public rendererTypeVar: string) {}\n}\n\nexport class ViewCompiler
{\n constructor(private _reflector: CompileReflector) {}\n\n compileComponent(\n outputCtx: OutputContext,
 component: CompileDirectiveMetadata, template: TemplateAst[],\n styles: o.Expression, usedPipes:
CompilePipeSummary[]): ViewCompileResult {\n let embeddedViewCount = 0;\n\n let
renderComponentVarName: string = undefined;\n if (!component.isHost) {\n const template =
component.template !;\n const customRenderData: o.LiteralMapEntry[] = [];\n if (template.animations &&
template.animations.length) {\n customRenderData.push(new o.LiteralMapEntry(\n
 'animation', convertValueToOutputAst(outputCtx, template.animations), true));\n }\n\n const
renderComponentVar = o.variable(rendererTypeName(component.type.reference));\n renderComponentVarName = renderComponentVar.name!;\n outputCtx.statements.push(\n
renderComponentVar\n .set(o.importExpr(Identifiers.createRendererType2).callFn([new
o.LiteralMapExpr([\n new o.LiteralMapEntry('encapsulation', o.literal(template.encapsulation), false),\n
 new o.LiteralMapEntry('styles', styles, false),\n new o.LiteralMapEntry('data', new
o.LiteralMapExpr(customRenderData), false)\n]]))\n .toDeclStmt(\n
o.importType(Identifiers.RendererType2),\n [o.StmtModifier.Final, o.StmtModifier.Exported]));\n }\n\n const viewBuilderFactory = (parent: ViewBuilder|null): ViewBuilder => {\n const embeddedViewIndex =
embeddedViewCount++;\n\n return new ViewBuilder(\n this._reflector, outputCtx, parent, component, embeddedViewIndex, usedPipes,\n viewBuilderFactory);\n };\n\n const visitor = viewBuilderFactory(null);\n visitor.visitAll([],
template);\n\n outputCtx.statements.push(...visitor.build());\n\n return new
ViewCompileResult(visitor.viewName, renderComponentVarName);\n }\n}\n\ninterface ViewBuilderFactory {\n
(parent: ViewBuilder): ViewBuilder;\n}\n\ninterface UpdateExpression {\n context: o.Expression;\n nodeIndex:
number;\n bindingIndex: number;\n sourceSpan: ParseSourceSpan;\n value: AST;\n}\n\nconst LOG_VAR =
o.variable('_l');\nconst VIEW_VAR = o.variable('_v');\nconst CHECK_VAR = o.variable('_ck');\nconst
COMP_VAR = o.variable('_co');\nconst EVENT_NAME_VAR = o.variable('en');\nconst
ALLOW_DEFAULT_VAR = o.variable('ad');\n\nclass ViewBuilder implements TemplateAstVisitor,
LocalResolver {\n private compType: o.Type;\n private nodes: (() => {\n sourceSpan: ParseSourceSpan
| null,\n nodeDef: o.Expression,\n nodeFlags: NodeFlags,\n updateDirectives?: UpdateExpression[],\n
updateRenderer?: UpdateExpression[]\n })[] = [];\n private purePipeNodeIndices: {[pipeName: string]: number} =
Object.create(null);\n // Need Object.create so that we don't have builtin values...\n private refNodeIndices:
{[refName: string]: number} = Object.create(null);\n private variables: VariableAst[] = [];\n private children:
ViewBuilder[] = [];\n\n public readonly viewName: string;\n\n constructor(\n private reflector:
CompileReflector, private outputCtx: OutputContext,\n private parent: ViewBuilder|null, private component:
CompileDirectiveMetadata,\n private embeddedViewIndex: number, private usedPipes:
CompilePipeSummary[],\n private viewBuilderFactory: ViewBuilderFactory) {\n // TODO(tbosch): The old
view compiler used to use an `any` type\n // for the context in any embedded view. We keep this behavior for
now\n // to be able
to introduce the new view compiler without too many errors.\n this.compType = this.embeddedViewIndex > 0 ?\n
o.DYNAMIC_TYPE : \n o.expressionType(outputCtx.importExpr(this.component.type.reference));\n\n this.viewName = viewClassName(this.component.type.reference, this.embeddedViewIndex);\n }\n\n visitAll(variables: VariableAst[], astNodes: TemplateAst[]) {\n this.variables = variables;\n // create the pipes

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for the pure pipes immediately, so that we know their indices.\n if (!this.parent) {\n
this.usedPipes.forEach((pipe) => {\n if (pipe.pure) {\n this.purePipeNodeIndices[pipe.name] =
this._createPipe(null, pipe);\n }\n });\n}\n\n if (!this.parent) {\n
this.component.viewQueries.forEach((query, queryIndex) => {\n // Note: queries start with id 1 so we can use
the number in a Bloom filter!\n const queryId = queryIndex + 1;\n const bindingType = query.first ?
QueryBindingType.First : QueryBindingType.All;\n
 const flags = NodeFlags.TypeViewQuery | calcStaticDynamicQueryFlags(query);\n this.nodes.push(() =>
({\n sourceSpan: null,\n nodeFlags: flags,\n nodeDef:
o.importExpr(Identifiers.queryDef).callFn([\n o.literal(flags), o.literal(queryId),\n
new o.LiteralMapExpr([new o.LiteralMapEntry(\n query.propertyName, o.literal(bindingType),
false)])\n])\n }));\n });\n}\n\n templateVisitAll(this, astNodes);\n if
(this.parent && (astNodes.length === 0 || needsAdditionalRootNode(astNodes))) {\n // if the view is an
embedded view, then we need to add an additional root node in some cases\n this.nodes.push(() => ({\n
 sourceSpan: null,\n nodeFlags: NodeFlags.TypeElement,\n nodeDef:
o.importExpr(Identifiers.anchorDef).callFn([\n o.literal(NodeFlags.None), o.NULL_EXPR,\n
o.NULL_EXPR, o.literal(0)\n])\n }));\n }\n}\n\n build(targetStatements:
o.Statement[] = []): o.Statement[] {\n this.children.forEach((child) => child.build(targetStatements));\n\n const
{updateRendererStmts, updateDirectivesStmts, nodeDefExprs} =\n this._createNodeExpressions();\n\n const
updateRendererFn = this._createUpdateFn(updateRendererStmts);\n const updateDirectivesFn =
this._createUpdateFn(updateDirectivesStmts);\n\n let viewFlags = ViewFlags.None;\n if (!this.parent &&
this.component.changeDetection === ChangeDetectionStrategy.OnPush) {\n viewFlags |= ViewFlags.OnPush;\n
 }\n const viewFactory = new o.DeclareFunctionStmt(\n this.viewName, [new
o.FnParam(LOG_VAR.name!),\n [new o.ReturnStatement(o.importExpr(Identifiers.viewDef).callFn([\n
o.literal(viewFlags),\n
 o.literalArr(nodeDefExprs),\n updateDirectivesFn,\n updateRendererFn,\n])],\n
o.importType(Identifiers.ViewDefinition),\n this.embeddedViewIndex === 0 ? [o.StmtModifier.Exported] :
[]);\n\n targetStatements.push(viewFactory);\n return targetStatements;\n }\n\n private
_createUpdateFn(updateStmts: o.Statement[]): o.Expression {\n let updateFn: o.Expression;\n if
(updateStmts.length > 0) {\n const preStmts: o.Statement[] = [];\n if (!this.component.isHost &&
o.findReadVarNames(updateStmts).has(COMP_VAR.name!)) {\n
preStmts.push(COMP_VAR.set(VIEW_VAR.prop('component')).toDeclStmt(this.compType));\n }\n
updateFn = o.fn(\n [\n new o.FnParam(CHECK_VAR.name!, o.INFERRED_TYPE),\n new
o.FnParam(VIEW_VAR.name!, o.INFERRED_TYPE)\n],\n [...preStmts, ...updateStmts],
o.INFERRED_TYPE);\n } else {\n updateFn = o.NULL_EXPR;\n }\n return updateFn;\n
 }\n\n visitNgContent(ast: NgContentAst, context: any): any {\n // ngContentDef(ngContentIndex: number,
index: number): NodeDef;\n this.nodes.push(() => ({\n sourceSpan: ast.sourceSpan,\n
nodeFlags: NodeFlags.TypeNgContent,\n nodeDef: o.importExpr(Identifiers.ngContentDef)\n
 .callFn([o.literal(ast.ngContentIndex), o.literal(ast.index)])\n }));\n }\n\n visitText(ast:
TextAst, context: any): any {\n // Static text nodes have no check function\n const checkIndex = -1;\n
this.nodes.push(() => ({\n sourceSpan: ast.sourceSpan,\n nodeFlags:
NodeFlags.TypeText,\n nodeDef: o.importExpr(Identifiers.textDef).callFn([\n
o.literal(checkIndex),\n o.literal(ast.ngContentIndex),\n
o.literalArr([o.literal(ast.value)])\n])\n }));\n }\n\n visitBoundText(ast: BoundTextAst, context: any): any {\n const nodeIndex =
this.nodes.length;\n // reserve the space in the nodeDefs array\n this.nodes.push(null!);\n\n const
astWithSource = <ASTWithSource>ast.value;\n const inter = <Interpolation>astWithSource.ast;\n\n const
updateRendererExpressions = inter.expressions.map(\n (expr, bindingIndex) =>
this._preprocessUpdateExpression(\n {nodeIndex, bindingIndex, sourceSpan: ast.sourceSpan, context:

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COMP_VAR, value: expr));\n\n // Check index is the same as the node index during compilation\n // They
might only differ at runtime\n const checkIndex = nodeIndex;\n\n this.nodes[nodeIndex] = () => ({\n
sourceSpan: ast.sourceSpan,\n nodeFlags: NodeFlags.TypeText,\n nodeDef:
o.importExpr(Identifiers.textDef).callFn([\n o.literal(checkIndex),\n o.literal(ast.ngContentIndex),\n
o.literalArr(inter.strings.map(s
=> o.literal(s))),\n]),\n updateRenderer: updateRendererExpressions\n }));\n\n\n
visitEmbeddedTemplate(ast: EmbeddedTemplateAst, context: any): any {\n const nodeIndex =
this.nodes.length;\n // reserve the space in the nodeDefs array\n this.nodes.push(null!);\n\n const {flags,
queryMatchesExpr, hostEvents} = this._visitElementOrTemplate(nodeIndex, ast);\n\n const childVisitor =
this.viewBuilderFactory(this);\n this.children.push(childVisitor);\n childVisitor.visitAll(ast.variables,
ast.children);\n\n const childCount = this.nodes.length - nodeIndex - 1;\n\n // anchorDef(\n // flags:
NodeFlags, matchedQueries: [string, QueryValueType][], ngContentIndex: number,\n // childCount: number,
handleEventFn?: ElementHandleEventFn, templateFactory?:\n // ViewDefinitionFactory): NodeDef;\n
this.nodes[nodeIndex] = () => ({\n sourceSpan: ast.sourceSpan,\n nodeFlags: NodeFlags.TypeElement |
flags,\n nodeDef: o.importExpr(Identifiers.anchorDef).callFn([\n
o.literal(flags),\n queryMatchesExpr,\n o.literal(ast.ngContentIndex),\n o.literal(childCount),\n
this._createElementHandleEventFn(nodeIndex, hostEvents),\n o.variable(childVisitor.viewName),\n])\n
});\n\n\n visitElement(ast: ElementAst, context: any): any {\n const nodeIndex = this.nodes.length;\n //
reserve the space in the nodeDefs array so we can add children\n this.nodes.push(null!);\n\n // Using a null
element name creates an anchor.\n const elName: string|null = isNgContainer(ast.name) ? null : ast.name;\n\n
const {flags, usedEvents, queryMatchesExpr, hostBindings: dirHostBindings, hostEvents} =\n
this._visitElementOrTemplate(nodeIndex, ast);\n\n let inputDefs: o.Expression[] = [];\n let
updateRendererExpressions: UpdateExpression[] = [];\n let outputDefs: o.Expression[] = [];\n if (elName) {\n
const hostBindings: any[] = ast.inputs\n
.map((inputAst) => ({\n context: COMP_VAR as o.Expression,\n
inputAst,\n dirAst: null as any,\n })))\n
.concat(dirHostBindings);\n if (hostBindings.length) {\n updateRendererExpressions =\n
hostBindings.map((hostBinding, bindingIndex) => this._preprocessUpdateExpression({\n context:
hostBinding.context,\n nodeIndex,\n bindingIndex,\n sourceSpan:
hostBinding.inputAst.sourceSpan,\n value: hostBinding.inputAst.value\n }));\n inputDefs =
hostBindings.map(\n hostBinding => elementBindingDef(hostBinding.inputAst, hostBinding.dirAst));\n
}\n outputDefs = usedEvents.map(\n ([target, eventName]) => o.literalArr([o.literal(target),
o.literal(eventName)]));\n
}\n\n templateVisitAll(this, ast.children);\n\n const childCount = this.nodes.length - nodeIndex - 1;\n\n const
compAst = ast.directives.find(dirAst => dirAst.directive.isComponent);\n let compRendererType =
o.NULL_EXPR as o.Expression;\n let compView = o.NULL_EXPR as o.Expression;\n if (compAst) {\n
compView = this.outputCtx.importExpr(compAst.directive.componentViewType);\n compRendererType =
this.outputCtx.importExpr(compAst.directive.rendererType);\n }\n\n // Check index is the same as the node
index during compilation\n // They might only differ at runtime\n const checkIndex = nodeIndex;\n\n
this.nodes[nodeIndex] = () => ({\n sourceSpan: ast.sourceSpan,\n nodeFlags: NodeFlags.TypeElement |
flags,\n nodeDef: o.importExpr(Identifiers.elementDef).callFn([\n o.literal(checkIndex),\n
o.literal(flags),\n queryMatchesExpr,\n o.literal(ast.ngContentIndex),\n o.literal(childCount),\n
o.literal(elName),\n elName ? fixedAttrsDef(ast) : o.NULL_EXPR,\n inputDefs.length ?
o.literalArr(inputDefs) : o.NULL_EXPR,\n outputDefs.length ? o.literalArr(outputDefs) : o.NULL_EXPR,\n
this._createElementHandleEventFn(nodeIndex, hostEvents),\n compView,\n compRendererType,\n
]),\n updateRenderer: updateRendererExpressions\n }));\n\n\n private _visitElementOrTemplate(nodeIndex:
number, ast: {\n hasViewContainer: boolean,\n outputs: BoundEventAst[],\n directives: DirectiveAst[],\n
providers: ProviderAst[],\n references: ReferenceAst[],\n queryMatches: QueryMatch[]\n }): {\n flags:

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NodeFlags,\n usedEvents: [string|null, string][],\n queryMatchesExpr: o.Expression,\n hostBindings:\n {context: o.Expression, inputAst: BoundElementPropertyAst, dirAst: DirectiveAst}[],\n hostEvents: {context: o.Expression, eventAst: BoundEventAst, dirAst: DirectiveAst}[],\n } {\n let flags = NodeFlags.None;\n if (ast.hasViewContainer) {\n flags |= NodeFlags.EmbeddedViews;\n }\n const usedEvents = new Map<string, [string | null, string]>();\n ast.outputs.forEach((event) => {\n const {name, target} = elementEventNameAndTarget(event, null);\n usedEvents.set(elementEventFullName(target, name), [target, name]);\n });\n ast.directives.forEach((dirAst) => {\n dirAst.hostEvents.forEach((event) => {\n const {name, target} = elementEventNameAndTarget(event, dirAst);\n usedEvents.set(elementEventFullName(target, name), [target, name]);\n });\n });\n const hostBindings:\n {context: o.Expression, inputAst: BoundElementPropertyAst, dirAst: DirectiveAst}[] = [];\n const hostEvents:\n {context: o.Expression, eventAst: BoundEventAst, dirAst: DirectiveAst}[] = [];\n this._visitComponentFactoryResolverProvider(ast.directives);\n ast.providers.forEach(providerAst => {\n let dirAst: DirectiveAst = undefined!;\n ast.directives.forEach(localDirAst => {\n if (localDirAst.directive.type.reference === tokenReference(providerAst.token)) {\n dirAst = localDirAst;\n }\n });\n if (dirAst) {\n const {hostBindings: dirHostBindings, hostEvents: dirHostEvents} =\n this._visitDirective(providerAst, dirAst, ast.references, ast.queryMatches, usedEvents);\n hostBindings.push(...dirHostBindings);\n hostEvents.push(...dirHostEvents);\n } else {\n this._visitProvider(providerAst, ast.queryMatches);\n }\n });\n let queryMatchExprs: o.Expression[] = [];\n ast.queryMatches.forEach((match) => {\n let valueType: QueryValueType = undefined!;\n if (tokenReference(match.value) ===\n this.reflector.resolveExternalReference(Identifiers.ElementRef)) {\n valueType = QueryValueType.ElementRef;\n } else if (\n tokenReference(match.value) ===\n this.reflector.resolveExternalReference(Identifiers.ViewContainerRef)) {\n valueType = QueryValueType.ViewContainerRef;\n } else if (\n tokenReference(match.value) ===\n this.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n valueType = QueryValueType.TemplateRef;\n }\n if (valueType !== null) {\n queryMatchExprs.push(o.literalArr([o.literal(match.queryId), o.literal(valueType)]));\n }\n });\n ast.references.forEach((ref) => {\n let valueType: QueryValueType = undefined!;\n if (!ref.value) {\n valueType = QueryValueType.RenderElement;\n } else if (\n tokenReference(ref.value) ===\n this.reflector.resolveExternalReference(Identifiers.TemplateRef)) {\n valueType = QueryValueType.TemplateRef;\n }\n if (valueType !== null) {\n this.refNodeIndices[ref.name] = nodeIndex;\n queryMatchExprs.push(o.literalArr([o.literal(ref.name), o.literal(valueType)]));\n }\n });\n ast.outputs.forEach((outputAst) => {\n hostEvents.push({context: COMP_VAR, eventAst: outputAst, dirAst: null!});\n });\n return {\n flags,\n usedEvents: Array.from(usedEvents.values()),\n queryMatchesExpr: queryMatchExprs.length ? o.literalArr(queryMatchExprs) : o.NULL_EXPR,\n hostBindings,\n hostEvents: hostEvents\n };\n\n private _visitDirective(\n providerAst: ProviderAst, dirAst: DirectiveAst, refs: ReferenceAst[],\n queryMatches: QueryMatch[], usedEvents: Map<string, any>): {\n hostBindings:\n {context: o.Expression, inputAst: BoundElementPropertyAst, dirAst: DirectiveAst}[],\n hostEvents: {context: o.Expression, eventAst: BoundEventAst, dirAst: DirectiveAst}[]\n } {\n const nodeIndex = this.nodes.length;\n // reserve the space in the nodeDefs array so we can add children\n this.nodes.push(null!);\n dirAst.directive.queries.forEach((query, queryIndex) => {\n const queryId = dirAst.contentQueryStartId + queryIndex;\n const flags = NodeFlags.TypeContentQuery | calcStaticDynamicQueryFlags(query);\n const bindingType = query.first ? QueryBindingType.First : QueryBindingType.All;\n this.nodes.push(() => ({\n sourceSpan: dirAst.sourceSpan,\n nodeFlags: flags,\n nodeDef: o.importExpr(Identifiers.queryDef).callFn([\n o.literal(flags), o.literal(queryId),\n new o.LiteralMapExpr([new o.LiteralMapEntry(\n query.propertyName, o.literal(bindingType), false)])\n]),\n }));\n });\n // Note: the operation below might also create new

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nodeDefs,\n // but we don't want them to be a child of a directive,\n // as they might be a provider/pipe on their
own.\n // I.e. we only allow queries as children of directives nodes.\n const childCount = this.nodes.length -
nodeIndex -
1;\n\n let {flags, queryMatchExprs, providerExpr, depsExpr} =\n this._visitProviderOrDirective(providerAst,
queryMatches);\n\n refs.forEach((ref) => {\n if (ref.value && tokenReference(ref.value) ===
tokenReference(providerAst.token)) {\n this.refNodeIndices[ref.name] = nodeIndex;\n
queryMatchExprs.push(\n o.literalArr([o.literal(ref.name), o.literal(QueryValueType.Provider)]);\n })\n
});\n\n if (dirAst.directive.isComponent) {\n flags |= NodeFlags.Component;\n }\n\n const inputDefs =
dirAst.inputs.map((inputAst, inputIndex) => {\n const mapValue = o.literalArr([o.literal(inputIndex),
o.literal(inputAst.directiveName)]);\n // Note: it's important to not quote the key so that we can capture renames
by minifiers!\n return new o.LiteralMapEntry(inputAst.directiveName, mapValue, false);\n });\n\n const
outputDefs: o.LiteralMapEntry[] = [];\n const dirMeta = dirAst.directive;\n
Object.keys(dirMeta.outputs).forEach((propName)
=> {\n const eventName = dirMeta.outputs[propName];\n if (usedEvents.has(eventName)) {\n // Note:
it's important to not quote the key so that we can capture renames by minifiers!\n outputDefs.push(new
o.LiteralMapEntry(propName, o.literal(eventName), false);\n });\n\n let updateDirectiveExpressions:
UpdateExpression[] = [];\n if (dirAst.inputs.length || (flags & (NodeFlags.DoCheck | NodeFlags.OnInit)) > 0) {\n
updateDirectiveExpressions =\n dirAst.inputs.map((input, bindingIndex) =>
this._preprocessUpdateExpression({\n nodeIndex,\n bindingIndex,\n sourceSpan:
input.sourceSpan,\n context: COMP_VAR,\n value: input.value\n }));\n }\n\n const
dirContextExpr =\n o.importExpr(Identifiers.nodeValue).callFn([VIEW_VAR, o.literal(nodeIndex)]);\n const
hostBindings = dirAst.hostProperties.map((inputAst) => ({\n
context: dirContextExpr,\n dirAst,\n inputAst,\n }));\n const hostEvents = dirAst.hostEvents.map((hostEventAst) =>
({\n context: dirContextExpr,\n dirAst,\n eventAst: hostEventAst,\n }));\n\n // Check index is the same as the node
index during compilation\n // They might only differ at runtime\n const checkIndex = nodeIndex;\n\n
this.nodes[nodeIndex] = () => ({\n sourceSpan: dirAst.sourceSpan,\n nodeFlags: NodeFlags.TypeDirective |
flags,\n nodeDef: o.importExpr(Identifiers.directiveDef).callFn([o.literal(checkIndex),\n
o.literal(flags),\n queryMatchExprs.length ? o.literalArr(queryMatchExprs)
: o.NULL_EXPR,\n o.literal(childCount),\n providerExpr,\n depsExpr,\n inputDefs.length ? new
o.LiteralMapExpr(inputDefs) : o.NULL_EXPR,\n outputDefs.length ? new o.LiteralMapExpr(outputDefs) :
o.NULL_EXPR,\n]),\n updateDirectives: updateDirectiveExpressions,\n directive: dirAst.directive.type,\n
});\n\n return {hostBindings, hostEvents};\n })\n\n private _visitProvider(providerAst: ProviderAst,
queryMatches: QueryMatch[]): void {\n this._addProviderNode(this._visitProviderOrDirective(providerAst,
queryMatches));\n }\n\n private _visitComponentFactoryResolverProvider(directives: DirectiveAst[]) {\n const
componentDirMeta = directives.find(dirAst => dirAst.directive.isComponent);\n if (componentDirMeta &&
componentDirMeta.directive.entryComponents.length) {\n const {providerExpr, depsExpr, flags, tokenExpr} =
componentFactoryResolverProviderDef(\n this.reflector, this.outputCtx, NodeFlags.PrivateProvider,\n
componentDirMeta.directive.entryComponents);\n this._addProviderNode({\n providerExpr,\n
depsExpr,\n flags,\n tokenExpr,\n queryMatchExprs: [],\n sourceSpan:
componentDirMeta.sourceSpan\n });\n }\n\n private _addProviderNode(data: {\n flags: NodeFlags,\n
queryMatchExprs: o.Expression[],\n providerExpr: o.Expression,\n depsExpr: o.Expression,\n tokenExpr:
o.Expression,\n sourceSpan: ParseSourceSpan\n }) {\n // providerDef\n // flags: NodeFlags,\n
matchedQueries: [string, QueryValueType][], token:any,\n // value: any, deps: ([DepFlags, any] | any)[]:
NodeDef;\n this.nodes.push(\n () => ({\n sourceSpan: data.sourceSpan,\n nodeFlags: data.flags,\n
nodeDef: o.importExpr(Identifiers.providerDef).callFn([o.literal(data.flags),\n
data.queryMatchExprs.length ? o.literalArr(data.queryMatchExprs) : o.NULL_EXPR,\n

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 data.tokenExpr, data.providerExpr, data.depsExpr\n))\n));\n }\n\n private
_visitProviderOrDirective(providerAst: ProviderAst, queryMatches: QueryMatch[]): {\n flags: NodeFlags,\n tokenExpr: o.Expression,\n sourceSpan: ParseSourceSpan,\n queryMatchExprs: o.Expression[],\n providerExpr: o.Expression,\n depsExpr: o.Expression\n } {\n let flags = NodeFlags.None;\n let
queryMatchExprs: o.Expression[] = [];\n queryMatches.forEach((match) => {\n if
(tokenReference(match.value) === tokenReference(providerAst.token)) {\n queryMatchExprs.push(\n
o.literalArr([o.literal(match.queryId), o.literal(QueryValueType.Provider)]);\n }\n });\n const {providerExpr,
depsExpr, flags: providerFlags, tokenExpr} =\n providerDef(this.outputCtx, providerAst);\n return {\n
flags: flags | providerFlags,\n queryMatchExprs,\n providerExpr,\n depsExpr,\n tokenExpr,\n
sourceSpan: providerAst.sourceSpan\n
 };\n }\n\n getLocal(name: string): o.Expression|null {\n if (name == EventHandlerVars.event.name) {\n
return EventHandlerVars.event;\n }\n let currViewExpr: o.Expression = VIEW_VAR;\n for (let currBuilder:
ViewBuilder|null = this; currBuilder; currBuilder = currBuilder.parent,\n currViewExpr =
currViewExpr.prop('parent').cast(o.DYNAMIC_TYPE)) {\n // check references\n const refNodeIndex =
currBuilder.refNodeIndices[name];\n if (refNodeIndex != null) {\n return
o.importExpr(Identifiers.nodeValue).callFn([currViewExpr, o.literal(refNodeIndex)]);\n }\n\n // check
variables\n const varAst = currBuilder.variables.find((varAst) => varAst.name === name);\n if (varAst) {\n
const varValue = varAst.value || IMPLICIT_TEMPLATE_VAR;\n return
currViewExpr.prop('context').prop(varValue);\n }\n }\n return null;\n }\n\n notifyImplicitReceiverUse():
void {\n // Not needed
 in View Engine as View Engine walks through the generated\n // expressions to figure out if the implicit receiver
is used and needs\n // to be generated as part of the pre-update statements.\n }\n\n private
_createLiteralArrayConverter(sourceSpan: ParseSourceSpan, argCount: number):\n BuiltinConverter {\n if
(argCount === 0) {\n const valueExpr = o.importExpr(Identifiers.EMPTY_ARRAY);\n return () =>
valueExpr;\n }\n\n const checkIndex = this.nodes.length;\n this.nodes.push(() => ({\n
sourceSpan,\n nodeFlags: NodeFlags.TypePureArray,\n nodeDef:
o.importExpr(Identifiers.pureArrayDef).callFn([\n o.literal(checkIndex),\n
o.literal(argCount),\n])\n }));\n return (args: o.Expression[]) =>
callCheckStmt(checkIndex, args);\n }\n\n private _createLiteralMapConverter(\n sourceSpan: ParseSourceSpan,
keys: {key: string, quoted: boolean}[]): BuiltinConverter {\n if (keys.length === 0) {\n const valueExpr =
o.importExpr(Identifiers.EMPTY_MAP);\n return () => valueExpr;\n }\n\n const map =
o.literalMap(keys.map((e, i) => ({...e, value: o.literal(i)}));\n const checkIndex = this.nodes.length;\n
this.nodes.push(() => ({\n sourceSpan,\n nodeFlags: NodeFlags.TypePureObject,\n
nodeDef: o.importExpr(Identifiers.pureObjectDef).callFn([\n o.literal(checkIndex),\n
map,\n])\n }));\n return (args: o.Expression[]) => callCheckStmt(checkIndex,
args);\n }\n\n private _createPipeConverter(expression: UpdateExpression, name: string, argCount: number):\n
BuiltinConverter {\n const pipe = this.usedPipes.find((pipeSummary) => pipeSummary.name === name);\n if
(pipe.pure) {\n const checkIndex = this.nodes.length;\n
this.nodes.push(() => ({\n sourceSpan: expression.sourceSpan,\n nodeFlags:
NodeFlags.TypePurePipe,\n nodeDef: o.importExpr(Identifiers.purePipeDef).callFn([\n
o.literal(checkIndex),\n o.literal(argCount),\n])\n }));\n\n // find
underlying pipe in the component view\n let compViewExpr: o.Expression = VIEW_VAR;\n let
compBuilder: ViewBuilder = this;\n while (compBuilder.parent) {\n compBuilder = compBuilder.parent;\n
compViewExpr = compViewExpr.prop('parent').cast(o.DYNAMIC_TYPE);\n }\n const pipeNodeIndex =
compBuilder.purePipeNodeIndices[name];\n const pipeValueExpr: o.Expression =\n o.importExpr(Identifiers.nodeValue).callFn([compViewExpr, o.literal(pipeNodeIndex)]);\n return (args:
o.Expression[]) => callUnwrapValue(\n expression.nodeIndex,

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expression.bindingIndex,\n callCheckStmt(checkIndex, [pipeValueExpr].concat(args));\n } else {\nconst nodeIndex = this._createPipe(expression.sourceSpan, pipe);\n const nodeValueExpr =\n o.importExpr(Identifiers.nodeValue).callFn([VIEW_VAR, o.literal(nodeIndex)]);\n return (args:\n o.Expression[]) => callUnwrapValue(\n expression.nodeIndex, expression.bindingIndex,\n nodeValueExpr.callMethod('transform', args));\n }\n\n private _createPipe(sourceSpan:\n ParseSourceSpan|null, pipe: CompilePipeSummary): number {\n const nodeIndex = this.nodes.length;\n let flags\n = NodeFlags.None;\n pipe.type.lifecycleHooks.forEach((lifecycleHook) => {\n // for pipes, we only support\n ngOnDestroy\n if (lifecycleHook === LifecycleHooks.OnDestroy) {\n flags |=\n lifecycleHookToNodeFlag(lifecycleHook);\n }\n });\n const depExprs = pipe.type.diDeps.map((diDep) =>\n depDef(this.outputCtx,\n diDep));\n // function pipeDef(\n // flags: NodeFlags, ctor: any, deps: ([DepFlags, any] | any)[]): NodeDef{\n this.nodes.push(\n () => ({\n sourceSpan,\n nodeFlags: NodeFlags.TypePipe,\n nodeDef:\n o.importExpr(Identifiers.pipeDef).callFn([\n o.literal(flags), this.outputCtx.importExpr(pipe.type.reference),\n o.literalArr(depExprs)\n])\n }));\n return nodeIndex;\n }\n\n /**\n * For the AST in\n `UpdateExpression.value`:\n * - create nodes for pipes, literal arrays and, literal maps,\n * - update the AST to\n replace pipes, literal arrays and, literal maps with calls to check fn.\n *\n * WARNING: This might create new\n nodeDefs (for pipes and literal arrays and literal maps)!\n *\n private _preprocessUpdateExpression(expression:\n UpdateExpression): UpdateExpression {\n return {\n nodeIndex: expression.nodeIndex,\n bindingIndex:\n expression.bindingIndex,\n sourceSpan: expression.sourceSpan,\n context: expression.context,\n value: convertPropertyBindingBuiltins(\n {\n createLiteralArrayConverter: (argCount: number) =>\n this._createLiteralArrayConverter(expression.sourceSpan, argCount),\n createLiteralMapConverter: (keys:\n {key: string, quoted: boolean}) =>\n this._createLiteralMapConverter(expression.sourceSpan, keys),\n createPipeConverter: (name: string, argCount: number) =>\n this._createPipeConverter(expression,\n name, argCount)\n },\n expression.value)\n };\n }\n\n private _createNodeExpressions(): {\n updateRendererStmts: o.Statement[],\n updateDirectivesStmts: o.Statement[],\n nodeDefExprs: o.Expression[]\n } {\n const self = this;\n let updateBindingCount = 0;\n const updateRendererStmts: o.Statement[] = [];\n const updateDirectivesStmts: o.Statement[] = [];\n const nodeDefExprs = this.nodes.map((factory, nodeIndex)\n => {\n const {nodeDef, nodeFlags, updateDirectives, updateRenderer, sourceSpan} = factory();\n if\n (updateRenderer) {\n updateRendererStmts.push(\n ...createUpdateStatements(nodeIndex, sourceSpan,\n updateRenderer, false));\n }\n if (updateDirectives) {\n updateDirectivesStmts.push(...createUpdateStatements(\n nodeIndex, sourceSpan, updateDirectives,\n (nodeFlags & (NodeFlags.DoCheck | NodeFlags.OnInit)) > 0));\n }\n // We use a comma expression to call\n the log function before\n // the nodeDef function, but still use the result of the nodeDef function\n // as the\n value.\n // Note: We only add the logger to elements / text nodes,\n // so we don't generate too much code.\n const logWithNodeDef = nodeFlags & NodeFlags.CatRenderNode ?\n new\n o.CommaExpr([LOG_VAR.callFn([]).callFn([], nodeDef)]):\n nodeDef;\n return\n o.applySourceSpanToExpressionIfNeeded(logWithNodeDef,\n sourceSpan);\n };\n return {updateRendererStmts, updateDirectivesStmts, nodeDefExprs};\n }\n\n function\n createUpdateStatements(\n nodeIndex: number, sourceSpan: ParseSourceSpan|null, expressions:\n UpdateExpression[],\n allowEmptyExprs: boolean): o.Statement[] {\n const updateStmts: o.Statement[] =\n [];\n const exprs = expressions.map(({sourceSpan, context, value}) => {\n const bindingId =\n `${updateBindingCount++}`;\n const nameResolver = context === COMP_VAR ? self : null;\n const\n {stmts, currValExpr} =\n convertPropertyBinding(nameResolver, context, value, bindingId,\n BindingForm.General);\n updateStmts.push(...stmts.map(\n (stmt: o.Statement) =>\n o.applySourceSpanToStatementIfNeeded(stmt, sourceSpan));\n return\n o.applySourceSpanToExpressionIfNeeded(currValExpr, sourceSpan);\n });\n if (expressions.length ||\n allowEmptyExprs) {\n updateStmts.push(o.applySourceSpanToStatementIfNeeded(\n

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 callCheckStmt(nodeIndex, exprs).toStmt(), sourceSpan));\n }\n return updateStmts;\n }\n}\n\nprivate _createElementHandleEventFn(\n nodeIndex: number,\n handlers: {context: o.Expression, eventAst: BoundEventAst, dirAst: DirectiveAst}[]) {\n const handleEventStmts: o.Statement[] = [];\n let\n handleEventBindingCount = 0;\n handlers.forEach(({context, eventAst, dirAst}) => {\n const bindingId =\n `${handleEventBindingCount++}`;\n const nameResolver = context === COMP_VAR ? this : null;\n const\n {stmts, allowDefault} =\n convertActionBinding(nameResolver, context, eventAst.handler, bindingId);\n const trueStmts = stmts;\n if (allowDefault) {\n trueStmts.push(ALLOW_DEFAULT_VAR.set(allowDefault.and(ALLOW_DEFAULT_VAR)).toStmt());\n }\n const {target: eventTarget, name: eventName} = elementEventNameAndTarget(eventAst, dirAst);\n const\n fullEventName = elementEventFullName(eventTarget, eventName);\n handleEventStmts.push(o.applySourceSpanToStatementIfNeeded(\n new\n o.IfStmt(o.literal(fullEventName).identical(EVENT_NAME_VAR), trueStmts),\n eventAst.sourceSpan));\n });\n let handleEventFn: o.Expression;\n if (handleEventStmts.length > 0) {\n const preStmts: o.Statement[]\n =\n [ALLOW_DEFAULT_VAR.set(o.literal(true)).toDeclStmt(o.BOOL_TYPE)];\n if\n (!this.component.isHost && o.findReadVarNames(handleEventStmts).has(COMP_VAR.name!)) {\n preStmts.push(COMP_VAR.set(VIEW_VAR.prop('component')).toDeclStmt(this.compType));\n }\n handleEventFn = o.fn(\n [\n new o.FnParam(VIEW_VAR.name!, o.INFERRED_TYPE),\n new\n o.FnParam(EVENT_NAME_VAR.name!, o.INFERRED_TYPE),\n new\n o.FnParam(EventHandlerVars.event.name!, o.INFERRED_TYPE)\n],\n [...preStmts,\n ...handleEventStmts, new o.ReturnStatement(ALLOW_DEFAULT_VAR)],\n o.INFERRED_TYPE);\n } else {\n handleEventFn\n = o.NULL_EXPR;\n }\n return handleEventFn;\n}\n\nfunction visitDirective(ast: DirectiveAst, context: {usedEvents: Set<string>}): any {\n visitDirectiveProperty(ast: BoundDirectivePropertyAst, context: any): any {\n visitReference(ast: ReferenceAst, context: any): any {\n visitVariable(ast: VariableAst, context: any): any {\n visitEvent(ast: BoundEventAst, context: any): any {\n visitElementProperty(ast: BoundElementPropertyAst,\n context: any): any {\n visitAttr(ast: AttrAst, context: any): any {\n \n }\n }\n }\n }\n }\n }\n}\n\nfunction\n needsAdditionalRootNode(astNodes: TemplateAst[]): boolean {\n const lastAstNode = astNodes[astNodes.length - 1];\n if (lastAstNode instanceof EmbeddedTemplateAst) {\n return lastAstNode.hasViewContainer;\n }\n if\n (lastAstNode instanceof ElementAst) {\n if (isNgContainer(lastAstNode.name) && lastAstNode.children.length)\n {\n return needsAdditionalRootNode(lastAstNode.children);\n }\n return lastAstNode.hasViewContainer;\n }\n return lastAstNode\n instanceof NgContentAst;\n }\n}\n\nfunction elementBindingDef(inputAst: BoundElementPropertyAst, dirAst: DirectiveAst): o.Expression {\n const inputType = inputAst.type;\n switch (inputType) {\n case\n PropertyBindingType.Attribute:\n return o.literalArr([\n o.literal(BindingFlags.TypeElementAttribute),\n o.literal(inputAst.name),\n o.literal(inputAst.securityContext)\n]);\n case\n PropertyBindingType.Property:\n return o.literalArr([\n o.literal(BindingFlags.TypeProperty),\n o.literal(inputAst.name),\n o.literal(inputAst.securityContext)\n]);\n case\n PropertyBindingType.Animation:\n const bindingType = BindingFlags.TypeProperty | (\n dirAst &&\n dirAst.directive.isComponent ? BindingFlags.SyntheticHostProperty :\n BindingFlags.SyntheticProperty);\n return o.literalArr([\n o.literal(bindingType),\n o.literal('@' +\n inputAst.name),\n o.literal(inputAst.securityContext)\n]);\n case PropertyBindingType.Class:\n return o.literalArr([\n [o.literal(BindingFlags.TypeElementClass), o.literal(inputAst.name), o.NULL_EXPR];\n]);\n case\n PropertyBindingType.Style:\n return o.literalArr([\n o.literal(BindingFlags.TypeElementStyle),\n o.literal(inputAst.name),\n o.literal(inputAst.unit)\n]);\n default:\n // This default case is not needed by\n TypeScript compiler, as the switch is exhaustive.\n // However Closure Compiler does not understand that and\n reports an error in typed mode.\n // The `throw new Error` below works around the problem, and the unexpected:\n never variable\n // makes sure tsc still checks this code is unreachable.\n const unexpected: never =

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inputType;\n throw new Error(`unexpected ${unexpected}`);\n }\n}\n\nfunction fixedAttrsDef(elementAst:
ElementAst): o.Expression {\n const mapResult: {[key: string]: string} = Object.create(null);\n elementAst.attrs.forEach(attrAst =>
 {\n mapResult[attrAst.name] = attrAst.value;\n });\n elementAst.directives.forEach(dirAst => {\n
Object.keys(dirAst.directive.hostAttributes).forEach(name => {\n const value =
dirAst.directive.hostAttributes[name];\n const prevValue = mapResult[name];\n mapResult[name] =
prevValue != null ? mergeAttributeValue(name, prevValue, value) : value;\n });\n});\n // Note: We need to sort
to get a defined output order\n // for tests and for caching generated artifacts...\n return
o.literalArr(Object.keys(mapResult).sort().map(\n (attrName) => o.literalArr([o.literal(attrName),
o.literal(mapResult[attrName])])));\n}\n\nfunction mergeAttributeValue(attrName: string, attrValue1: string,
attrValue2: string): string {\n if (attrName == CLASS_ATTR || attrName == STYLE_ATTR) {\n return
`${attrValue1} ${attrValue2}`;\n } else {\n return attrValue2;\n }\n}\n\nfunction callCheckStmt(nodeIndex:
number, exprs: o.Expression[]): o.Expression {\n if (exprs.length
> 10) {\n return CHECK_VAR.callFn(\n [VIEW_VAR, o.literal(nodeIndex),
o.literal(ArgumentType.Dynamic), o.literalArr(exprs)];\n)\n } else {\n return CHECK_VAR.callFn(\n
[VIEW_VAR, o.literal(nodeIndex), o.literal(ArgumentType.Inline), ...exprs]);\n }\n}\n\nfunction
callUnwrapValue(nodeIndex: number, bindingIdx: number, expr: o.Expression): o.Expression {\n return
o.importExpr(Identifiers.unwrapValue).callFn([\n VIEW_VAR, o.literal(nodeIndex), o.literal(bindingIdx), expr\n
]);\n}\n\nfunction elementEventNameAndTarget(\n eventAst: BoundEventAst, dirAst: DirectiveAst|null): {name:
string, target: string|null} {\n if (eventAst.isAnimation) {\n return {\n name:
`@${eventAst.name}.${eventAst.phase}`,\n target: dirAst && dirAst.directive.isComponent ? 'component' :
null;\n };\n } else {\n return eventAst;\n }\n}\n\nfunction calcStaticDynamicQueryFlags(query:
CompileQueryMetadata) {\n let flags = NodeFlags.None;\n // Note: We only make queries
static that query for a single item and the user specifically\n // set the to be static. This is because of backwards
compatibility with the old view compiler...\n if (query.first && query.static) {\n flags |=
NodeFlags.StaticQuery;\n } else {\n flags |= NodeFlags.DynamicQuery;\n }\n return flags;\n}\n\nexport function
elementEventFullName(target: string|null, name: string): string {\n return target ? `${target}.${name}` :
name;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {HtmlParser} from '../ml_parser/html_parser';\nimport {InterpolationConfig} from
'../ml_parser/interpolation_config';\nimport {ParseError} from '../parse_util';\nimport {extractMessages} from
'./extractor_merger';\nimport * as i18n from './i18n_ast';\nimport {PlaceholderMapper, Serializer} from
'./serializers/serializer';\n\n/**\n * A container for message extracted from the templates.\n */\nexport class MessageBundle {\n private _messages:
i18n.Message[] = [];\n\n constructor(\n private _htmlParser: HtmlParser, private _implicitTags: string[],\n private _implicitAttrs: {[k: string]: string[]}, private _locale: string|null = null) {}\n\n updateFromTemplate(html:
string, url: string, interpolationConfig: InterpolationConfig):\n ParseError[] {\n const htmlParserResult =\n this._htmlParser.parse(html, url, {tokenizeExpansionForms: true, interpolationConfig});\n\n if
(htmlParserResult.errors.length) {\n return htmlParserResult.errors;\n }\n\n const i18nParserResult =
extractMessages(\n htmlParserResult.rootNodes, interpolationConfig, this._implicitTags,
this._implicitAttrs);\n\n if (i18nParserResult.errors.length) {\n return i18nParserResult.errors;\n }\n\n this._messages.push(...i18nParserResult.messages);\n return [];\n }\n\n // Return the
message in the internal format\n // The public (serialized) format might be different, see the `write` method.\n
getMessages(): i18n.Message[] {\n return this._messages;\n }\n\n write(serializer: Serializer, filterSources?:
(path: string) => string): string {\n const messages: {[id: string]: i18n.Message} = {};\n const mapperVisitor =
new MapPlaceholderNames();\n // Deduplicate messages based on their ID\n this._messages.forEach(message
=> {\n const id = serializer.digest(message);\n if (!messages.hasOwnProperty(id)) {\n messages[id] =
message;\n } else {\n messages[id].sources.push(...message.sources);\n }\n });\n\n // Transform

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placeholder names using the serializer mapping\n const msgList = Object.keys(messages).map(id => {\n const\n mapper = serializer.createNameMapper(messages[id]);\n const src = messages[id];\n const nodes = mapper ?\n mapperVisitor.convert(src.nodes, mapper) : src.nodes;\n let transformedMessage\n = new i18n.Message(nodes, {}, {}, src.meaning, src.description, id);\n transformedMessage.sources =\n src.sources;\n if (filterSources) {\n transformedMessage.sources.forEach(\n (source:\n i18n.MessageSpan) => source.filePath = filterSources(source.filePath));\n }\n return transformedMessage;\n });\n\n return serializer.write(msgList, this._locale);\n }\n}\n\n// Transform an i18n AST by renaming the\nplaceholder nodes with the given mapper\nclass MapPlaceholderNames extends i18n.CloneVisitor {\n convert(nodes: i18n.Node[], mapper: PlaceholderMapper): i18n.Node[] {\n return mapper ? nodes.map(n =>\n n.visit(this, mapper)) : nodes;\n }\n\n visitTagPlaceholder(ph: i18n.TagPlaceholder, mapper: PlaceholderMapper):\n i18n.TagPlaceholder {\n const startName = mapper.toPublicName(ph.startName)!;\n const closeName =\n ph.closeName ? mapper.toPublicName(ph.closeName)! : ph.closeName;\n const children = ph.children.map(n =>\n n.visit(this,\n\n mapper));\n return new i18n.TagPlaceholder(\n ph.tag, ph.attrs, startName, closeName, children, ph.isVoid,\n ph.sourceSpan,\n ph.startSourceSpan, ph.endSourceSpan);\n }\n\n visitPlaceholder(ph: i18n.Placeholder,\n mapper: PlaceholderMapper): i18n.Placeholder {\n return new i18n.Placeholder(ph.value,\n mapper.toPublicName(ph.name)!, ph.sourceSpan);\n }\n\n visitIcuPlaceholder(ph: i18n.IcuPlaceholder, mapper:\n PlaceholderMapper): i18n.IcuPlaceholder {\n return new i18n.IcuPlaceholder(ph.value,\n mapper.toPublicName(ph.name)!, ph.sourceSpan);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All\nRights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\nLICENSE file at https://angular.io/license\n */\n\nimport {areAllEquivalent, Statement} from\n'./output/output_ast';\nimport {TypeScriptEmitter} from './output/ts_emitter';\n\nexport class GeneratedFile {\n public source: string|null;\n public stmts: Statement[]|null;\n\n constructor(\n public srcFileUrl: string, public genFileUrl: string, sourceOrStmts: string|Statement[]) {\n if\n (typeof sourceOrStmts === 'string') {\n this.source = sourceOrStmts;\n this.stmts = null;\n } else {\n this.source = null;\n this.stmts = sourceOrStmts;\n }\n }\n\n isEquivalent(other: GeneratedFile): boolean {\n if (this.genFileUrl !== other.genFileUrl) {\n return false;\n }\n if (this.source) {\n return this.source ===\n other.source;\n }\n if (other.stmts === null) {\n return false;\n }\n // Note: the constructor guarantees that if\n this.source is not filled,\n // then this.stmts is.\n return areAllEquivalent(this.stmts!, other.stmts!);\n }\n}\n\nexport function toTypeScript(file: GeneratedFile, preamble: string = ""): string {\n if (!file.stmts) {\n throw\n new Error(`Illegal state: No stmts present on GeneratedFile ${file.genFileUrl}`);\n }\n return new\n TypeScriptEmitter().emitStatements(file.genFileUrl,\n file.stmts, preamble);\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this\nsource code is governed by an MIT-style license that can be\n * found in the LICENSE file at\nhttps://angular.io/license\n */\n\nimport {CompileNgModuleMetadata, tokenReference} from\n'./compile_metadata';\nimport {Route} from './core';\nimport {StaticReflector} from './static_reflector';\nimport\n{StaticSymbol} from './static_symbol';\n\nexport interface LazyRoute {\n module: StaticSymbol;\n route: string;\n referencedModule: StaticSymbol;\n}\n\nexport function listLazyRoutes(\n moduleMeta:\n CompileNgModuleMetadata, reflector: StaticReflector): LazyRoute[] {\n const allLazyRoutes: LazyRoute[] = [];\n for (const {provider, module} of moduleMeta.transitiveModule.providers) {\n if (tokenReference(provider.token)\n === reflector.ROUTES) {\n const loadChildren = _collectLoadChildren(provider.useValue);\n for (const\n route of loadChildren)\n {\n allLazyRoutes.push(parseLazyRoute(route, reflector, module.reference));\n }\n }\n }\n return\n allLazyRoutes;\n}\n\nfunction _collectLoadChildren(routes: string|Route|Route[], target: string[] = []): string[] {\n if (typeof routes === 'string') {\n target.push(routes);\n } else if (Array.isArray(routes)) {\n for (const route of\n routes) {\n _collectLoadChildren(route, target);\n }\n } else if (routes.loadChildren) {\n _collectLoadChildren(routes.loadChildren, target);\n } else if (routes.children) {\n _collectLoadChildren(routes.children, target);\n }\n return target;\n}\n\nexport function parseLazyRoute(\n route:
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string, reflector: StaticReflector, module?: StaticSymbol): LazyRoute {\n const [routePath, routeName] =
route.split('#');\n const referencedModule = reflector.resolveExternalReference(\n {\n moduleName:
routePath,\n name: routeName,\n },\n module ? module.filePath : undefined);\n return {route:
route, module: module || referencedModule, referencedModule};\n}\n"/**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {SummaryResolver} from
'./summary_resolver';\nimport {ValueTransformer, visitValue} from './util';\nimport {StaticSymbol,
StaticSymbolCache} from './static_symbol';\nimport {isGeneratedFile, stripSummaryForJitFileSuffix,
stripSummaryForJitNameSuffix, summaryForJitFileName, summaryForJitName} from './util';\n\nconst TS =
/^(?!.*\\.d\\.ts$).*.ts$/;\n\nexport class ResolvedStaticSymbol {\n constructor(public symbol: StaticSymbol, public
metadata: any) {}\n}\n\n/**\n * The host of the SymbolResolverHost disconnects the implementation from
TypeScript / other\n * language\n * services and from underlying file systems.\n */\nexport interface
StaticSymbolResolverHost {\n /**\n * Return a ModuleMetadata
for the given module.\n * Angular CLI will produce this metadata for a module whenever a .d.ts files is\n *
produced and the module has exported variables or classes with decorators. Module metadata can\n * also be
produced directly from TypeScript sources by using MetadataCollector in tools/metadata.\n *\n * @param
modulePath is a string identifier for a module as an absolute path.\n * @returns the metadata for the given
module.\n */\n getMetadataFor(modulePath: string): {[key: string]: any}[]|undefined;\n\n /**\n * Converts a
module name that is used in an `import` to a file path.\n * I.e.\n * `path/to/containingFile.ts` containing `import
{...} from 'module-name'`.\n */\n moduleNameToFileName(moduleName: string, containingFile?: string):
string|null;\n\n /**\n * Get a file suitable for display to the user that should be relative to the project directory\n *
or the current directory.\n */\n getOutputName(filePath: string): string;\n}\n\nconst
SUPPORTED_SCHEMA_VERSION
= 4;\n\n/**\n * This class is responsible for loading metadata per symbol,\n * and normalizing references between
symbols.\n *\n * Internally, it only uses symbols without members,\n * and deduces the values for symbols with
members based\n * on these symbols.\n */\nexport class StaticSymbolResolver {\n private metadataCache = new
Map<string, {[key: string]: any}>();\n // Note: this will only contain StaticSymbols without members!\n private
resolvedSymbols = new Map<StaticSymbol, ResolvedStaticSymbol>();\n // Note: this will only contain
StaticSymbols without members!\n private importAs = new Map<StaticSymbol, StaticSymbol>();\n private
symbolResourcePaths = new Map<StaticSymbol, string>();\n private symbolFromFile = new Map<string,
StaticSymbol[]>();\n private knownFileNameToModuleNames = new Map<string, string>();\n\n constructor(\n
private host: StaticSymbolResolverHost, private staticSymbolCache: StaticSymbolCache,\n private
summaryResolver:
SummaryResolver<StaticSymbol>,\n private errorRecorder?: (error: any, fileName?: string) => void) {}\n\n
resolveSymbol(staticSymbol: StaticSymbol): ResolvedStaticSymbol {\n if (staticSymbol.members.length > 0) {\n
return this._resolveSymbolMembers(staticSymbol)!;\n }\n // Note: always ask for a summary first,\n // as we
might have read shallow metadata via a .d.ts file\n // for the symbol.\n const resultFromSummary =
this._resolveSymbolFromSummary(staticSymbol)!;\n if (resultFromSummary) {\n return
resultFromSummary;\n }\n const resultFromCache = this.resolvedSymbols.get(staticSymbol);\n if
(resultFromCache) {\n return resultFromCache;\n }\n // Note: Some users use libraries that were not
compiled with ngc, i.e. they don't\n // have summaries, only .d.ts files. So we always need to check both, the
summary\n // and metadata.\n this._createSymbolsOf(staticSymbol.filePath);\n return
this.resolvedSymbols.get(staticSymbol)!;\n}\n\n /**\n * getImportAs produces a symbol that can be used to import the given symbol.\n * The import might
be different than the symbol if the symbol is exported from\n * a library with a summary; in which case we want to
import the symbol from the\n * ngfactory re-export instead of directly to avoid introducing a direct dependency\n *
on an otherwise indirect dependency.\n *\n * @param staticSymbol the symbol for which to generate a import
symbol\n */\n getImportAs(staticSymbol: StaticSymbol, useSummaries: boolean = true): StaticSymbol|null {\n

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if (staticSymbol.members.length) {\n const baseSymbol = this.getStaticSymbol(staticSymbol.filePath,
staticSymbol.name);\n const baseImportAs = this.getImportAs(baseSymbol, useSummaries);\n return
baseImportAs ?\n this.getStaticSymbol(baseImportAs.filePath, baseImportAs.name, staticSymbol.members)
:\n null;\n }\n const summarizedFileName = stripSummaryForJitFileSuffix(staticSymbol.filePath);\n
 if (summarizedFileName !== staticSymbol.filePath) {\n const summarizedName =
stripSummaryForJitNameSuffix(staticSymbol.name);\n const baseSymbol =\nthis.getStaticSymbol(summarizedFileName, summarizedName, staticSymbol.members);\n const baseImportAs =
this.getImportAs(baseSymbol, useSummaries);\n return baseImportAs ? this.getStaticSymbol(\n
 summaryForJitFileName(baseImportAs.filePath),\n
summaryForJitName(baseImportAs.name), baseSymbol.members) :\n null;\n }\n let result =
(useSummaries && this.summaryResolver.getImportAs(staticSymbol)) || null;\n if (!result) {\n result =
this.importAs.get(staticSymbol);\n }\n return result;\n }\n\n /**\n * getResourcePath produces the path to the
original location of the symbol and should\n * be used to determine the relative location of resource references
recorded in\n * symbol metadata.\n
 */\n getResourcePath(staticSymbol: StaticSymbol): string {\n return
this.symbolResourcePaths.get(staticSymbol) || staticSymbol.filePath;\n }\n\n /**\n * getTypeArity returns the
number of generic type parameters the given symbol\n * has. If the symbol is not a type the result is null.\n */\n
getTypeArity(staticSymbol: StaticSymbol): number|null {\n // If the file is a factory/ngsummary file, don't resolve
the symbol as doing so would\n // cause the metadata for an factory/ngsummary file to be loaded which doesn't
exist.\n // All references to generated classes must include the correct arity whenever\n // generating code.\n if
(isGeneratedFile(staticSymbol.filePath)) {\n return null;\n }\n let resolvedSymbol =
unwrapResolvedMetadata(this.resolveSymbol(staticSymbol));\n while (resolvedSymbol &&
resolvedSymbol.metadata instanceof StaticSymbol) {\n resolvedSymbol =
unwrapResolvedMetadata(this.resolveSymbol(resolvedSymbol.metadata));\n
 }\n return (resolvedSymbol && resolvedSymbol.metadata && resolvedSymbol.metadata.arity) || null;\n }\n\n
getKnownModuleName(filePath: string): string|null {\n return this.knownFileNameToModuleNames.get(filePath)
|| null;\n }\n\n recordImportAs(sourceSymbol: StaticSymbol, targetSymbol: StaticSymbol) {\n
sourceSymbol.assertNoMembers();\n targetSymbol.assertNoMembers();\n this.importAs.set(sourceSymbol,
targetSymbol);\n }\n\n recordModuleNameForFileName(fileName: string, moduleName: string) {\n
this.knownFileNameToModuleNames.set(fileName, moduleName);\n }\n\n /**\n * Invalidate all information
derived from the given file and return the\n * static symbols contained in the file.\n */\n * @param fileName the
file to invalidate\n */\n invalidateFile(fileName: string): StaticSymbol[] {\n
this.metadataCache.delete(fileName);\n const symbols = this.symbolFromFile.get(fileName);\n if (!symbols) {\n
return [];\n }\n this.symbolFromFile.delete(fileName);\n
 for (const symbol of symbols) {\n this.resolvedSymbols.delete(symbol);\n this.importAs.delete(symbol);\n
this.symbolResourcePaths.delete(symbol);\n }\n return symbols;\n }\n\n /** @internal */\n
ignoreErrorsFor<T>(cb: () => T) {\n const recorder = this.errorRecorder;\n this.errorRecorder = () => {};\n try
{\n return cb();\n } finally {\n this.errorRecorder = recorder;\n }\n }\n\n private
_resolveSymbolMembers(staticSymbol: StaticSymbol): ResolvedStaticSymbol|null {\n const members =
staticSymbol.members;\n const baseResolvedSymbol =\nthis.resolveSymbol(this.getStaticSymbol(staticSymbol.filePath, staticSymbol.name);\n if (!baseResolvedSymbol)
{\n return null;\n }\n let baseMetadata = unwrapResolvedMetadata(baseResolvedSymbol.metadata);\n if
(baseMetadata instanceof StaticSymbol) {\n return new ResolvedStaticSymbol(\n staticSymbol,
this.getStaticSymbol(baseMetadata.filePath,
baseMetadata.name, members));\n } else if (baseMetadata && baseMetadata.__symbolic === 'class') {\n if
(baseMetadata.statics && members.length === 1) {\n return new ResolvedStaticSymbol(staticSymbol,
baseMetadata.statics[members[0]]);\n }\n } else {\n let value = baseMetadata;\n for (let i = 0; i <
members.length && value; i++) {\n value = value[members[i]];\n }\n return new

```

```

ResolvedStaticSymbol(staticSymbol, value);\n } \n return null;\n } \n\n private
_resolveSymbolFromSummary(staticSymbol: StaticSymbol): ResolvedStaticSymbol|null {\n const summary =
this.summaryResolver.resolveSummary(staticSymbol);\n return summary ? new
ResolvedStaticSymbol(staticSymbol, summary.metadata) : null;\n } \n\n /** \n * getStaticSymbol produces a Type
whose metadata is known but whose implementation is not loaded. \n * All types passed to the StaticResolver
should be pseudo-types returned by this method. \n * \n * @param declarationFile
the absolute path of the file where the symbol is declared \n * @param name the name of the type. \n * @param
members a symbol for a static member of the named type \n * \n * getStaticSymbol(declarationFile: string, name:
string, members?: string[]): StaticSymbol {\n return this.staticSymbolCache.get(declarationFile, name,
members);\n } \n\n /** \n * hasDecorators checks a file's metadata for the presence of decorators without
evaluating the \n * metadata. \n * \n * @param filePath the absolute path to examine for decorators. \n * @returns
true if any class in the file has a decorator. \n * \n * hasDecorators(filePath: string): boolean {\n const metadata =
this.getModuleMetadata(filePath);\n if (metadata['metadata']) {\n return
Object.keys(metadata['metadata']).some((metadataKey) => {\n const entry =
metadata['metadata'][metadataKey];\n return entry && entry.__symbolic === 'class' && entry.decorators;\n
});\n } \n return false;\n } \n\n getSymbolsOf(filePath: string): StaticSymbol[] {\n const summarySymbols =
this.summaryResolver.getSymbolsOf(filePath);\n if (summarySymbols) {\n return summarySymbols;\n } \n
// Note: Some users use libraries that were not compiled with ngc, i.e. they don't \n // have summaries, only .d.ts
files, but `summaryResolver.isLibraryFile` returns true. \n this._createSymbolsOf(filePath);\n return
this.symbolFromFile.get(filePath) || [];\n } \n\n private _createSymbolsOf(filePath: string) {\n if
(this.symbolFromFile.has(filePath)) {\n return;\n } \n const resolvedSymbols: ResolvedStaticSymbol[] = [];\n
const metadata = this.getModuleMetadata(filePath);\n if (metadata['importAs']) {\n // Index bundle indices
should use the importAs module name defined \n // in the bundle. \n
this.knownFileNameToModuleNames.set(filePath, metadata['importAs']);\n } \n // handle the symbols in one of
the re-export location \n if (metadata['exports']) {\n
for (const moduleExport of metadata['exports']) {\n // handle the symbols in the list of explicitly re-
exported symbols. \n if (moduleExport.export) {\n moduleExport.export.forEach((exportSymbol: any) => {\n
let symbolName: string;\n if (typeof exportSymbol === 'string') {\n symbolName =
exportSymbol;\n } else {\n symbolName = exportSymbol.as;\n } \n symbolName =
unescapeIdentifier(symbolName);\n let symName = symbolName;\n if (typeof exportSymbol !==
'string') {\n symName = unescapeIdentifier(exportSymbol.name);\n } \n const resolvedModule
= this.resolveModule(moduleExport.from, filePath);\n if (resolvedModule) {\n const targetSymbol =
this.getStaticSymbol(resolvedModule, symName);\n const sourceSymbol = this.getStaticSymbol(filePath,
symbolName);\n resolvedSymbols.push(this.createExport(sourceSymbol,
targetSymbol));\n } \n });\n } else {\n // Handle the symbols loaded by 'export *' directives. \n
const resolvedModule = this.resolveModule(moduleExport.from, filePath);\n if (resolvedModule &&
resolvedModule !== filePath) {\n const nestedExports = this.getSymbolsOf(resolvedModule);\n
nestedExports.forEach((targetSymbol) => {\n const sourceSymbol = this.getStaticSymbol(filePath,
targetSymbol.name);\n resolvedSymbols.push(this.createExport(sourceSymbol, targetSymbol));\n
});\n } \n } \n } \n } \n\n // handle the actual metadata. Has to be after the exports \n // as there might
be collisions in the names, and we want the symbols \n // of the current module to win over reexports. \n if
(metadata['metadata']) {\n // handle direct declarations of the symbol \n const topLevelSymbolNames = \n
new Set<string>(Object.keys(metadata['metadata']).map(unescapeIdentifier));\n
const origins: {[index: string]: string} = metadata['origins'] || {};\n
Object.keys(metadata['metadata']).forEach((metadataKey) => {\n const symbolMeta =
metadata['metadata'][metadataKey];\n const name = unescapeIdentifier(metadataKey);\n const symbol =
this.getStaticSymbol(filePath, name);\n const origin = origins.hasOwnProperty(metadataKey) &&

```





```

StaticSymbol, targetSymbol: StaticSymbol):\n ResolvedStaticSymbol {\n sourceSymbol.assertNoMembers();\n targetSymbol.assertNoMembers();\n if (this.summaryResolver.isLibraryFile(sourceSymbol.filePath) &&\n this.summaryResolver.isLibraryFile(targetSymbol.filePath)) {\n // This case is for an ng library importing\n symbols from a plain ts library\n // transitively.\n // Note: We rely on the fact that we discover symbols in the direction\n // from source files to library files\n this.importAs.set(targetSymbol, this.getImportAs(sourceSymbol) || sourceSymbol);\n }\n return new\n ResolvedStaticSymbol(sourceSymbol, targetSymbol);\n }\n\n private reportError(error: Error, context?:\n StaticSymbol, path?: string) {\n if (this.errorRecorder) {\n this.errorRecorder(error, (context &&\n context.filePath) || path);\n } else {\n throw error;\n }\n }\n\n /**\n * @param module an absolute path to a\n module file.\n */\n private getModuleMetadata(module: string): {[key: string]: any} {\n let moduleMetadata =\n this.metadataCache.get(module);\n if (!moduleMetadata) {\n const moduleMetadatas =\n this.host.getMetadataFor(module);\n if (moduleMetadatas) {\n let maxVersion = -1;\n moduleMetadatas.forEach((md) => {\n if (md && md['version'] > maxVersion) {\n maxVersion =\n md['version'];\n\n moduleMetadata = md;\n }\n });\n if (!moduleMetadata) {\n moduleMetadata =\n {\n __symbolic: 'module', version: SUPPORTED_SCHEMA_VERSION, module: module, metadata: {};\n }\n if (moduleMetadata['version'] != SUPPORTED_SCHEMA_VERSION) {\n const errorMessage =\n moduleMetadata['version'] == 2 ?\n `Unsupported metadata version ${moduleMetadata['version']} for\n module ${\n module\n }. This module should be compiled with a newer version of ngc`\n : `Metadata\n version mismatch for module ${\n this.host.getOutputName(module)\n }, found version ${\n moduleMetadata['version']\n }, expected ${SUPPORTED_SCHEMA_VERSION}`;\n this.reportError(new\n Error(errorMessage));\n }\n this.metadataCache.set(module, moduleMetadata);\n }\n return\n moduleMetadata;\n }\n\n getSymbolByModule(module: string, symbolName: string, containingFile?: string):\n StaticSymbol\n {\n const filePath = this.resolveModule(module, containingFile);\n if (!filePath) {\n this.reportError(new\n Error(`Could not resolve module ${module}${\n containingFile ? ' relative to ' +\n this.host.getOutputName(containingFile) : ''`));\n return this.getStaticSymbol(`ERROR:${module}`,\n symbolName);\n }\n return this.getStaticSymbol(filePath, symbolName);\n }\n\n private\n resolveModule(module: string, containingFile?: string): string|null {\n try {\n return\n this.host.moduleNameToFile(module, containingFile);\n } catch (e) {\n console.error(`Could not resolve\n module '${module}' relative to file ${containingFile}`);\n this.reportError(e, undefined, containingFile);\n }\n return null;\n }\n }\n\n // Remove extra underscore from escaped identifier.\n // See\n https://github.com/Microsoft/TypeScript/blob/master/src/compiler/utilities.ts\n function\n unescapeIdentifier(identifier: string): string {\n return identifier.startsWith('__')\n ? identifier.substr(1) : identifier;\n }\n\n function\n unwrapResolvedMetadata(metadata: any): any {\n if\n (metadata && metadata.__symbolic === 'resolved') {\n return metadata.symbol;\n }\n return\n metadata;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code\n is governed by an MIT-style license that can be\n found in the LICENSE file at https://angular.io/license\n */\n import {CompileDirectiveMetadata, CompileDirectiveSummary, CompileNgModuleMetadata,\n CompileNgModuleSummary, CompilePipeMetadata, CompileProviderMetadata, CompileSummaryKind,\n CompileTypeMetadata, CompileTypeSummary} from './compile_metadata';\n import * as o from\n './output/output_ast';\n import {Summary, SummaryResolver} from './summary_resolver';\n import {OutputContext,\n ValueTransformer, ValueVisitor, visitValue} from './util';\n import {StaticSymbol, StaticSymbolCache} from\n './static_symbol';\n import {ResolvedStaticSymbol, StaticSymbolResolver,\n unwrapResolvedMetadata} from './static_symbol_resolver';\n import {isLoweredSymbol, ngfactoryFilePath,\n summaryForJitFileName, summaryForJitName} from './util';\n\n function\n serializeSummaries(\n srcFileName: string, forJitCtx: OutputContext|null,\n summaryResolver: SummaryResolver<StaticSymbol>,\n symbolResolver: StaticSymbolResolver,\n symbols: ResolvedStaticSymbol[], types: {\n summary:

```



```

TypeSummaries, e.g. DirectiveSummary.\n const clone: {[key: string]: any} = {};\n
Object.keys(metadata).forEach((propName) => {\n if (propName !== 'decorators') {\n
clone[propName] = metadata[propName];\n });\n metadata = clone;\n } else if
(isCall(metadata)) {\n if (!isFunctionCall(metadata) && !isMethodCallOnVariable(metadata)) {\n // Don't
store complex calls as we won't be able to simplify them anyways later on.\n metadata = {\n
__symbolic: 'error',\n message: 'Complex function calls are not supported.',\n };\n }\n }\n //
Note: We need to keep storing ctor calls for e.g.\n // `export const x = new InjectionToken(...)`\n
unprocessedSummary.metadata = metadata;\n processedSummary.metadata = this.processValue(metadata,
SerializationFlags.ResolveValue);\n if (metadata instanceof StaticSymbol &&\n
this.summaryResolver.isLibraryFile(metadata.filePath)) {\n const declarationSymbol =
this.symbols[this.indexBySymbol.get(metadata)!];\n if (!isLoweredSymbol(declarationSymbol.name)) {\n
// Note: symbols that were introduced during codegen in the user file can have a reexport\n // if a user used
`export *`. However, we can't rely on this as tsickle will change\n // `export *` into named exports, using only
the information from the typechecker.\n // As we introduce the new symbols after typecheck, Tsickle does not
know about them,\n // and omits them when expanding `export *`.\n // So we have to keep reexporting
these symbols manually via .ngfactory files.\n this.reexportedBy.set(declarationSymbol, summary.symbol);\n
 }\n }\n }\n if (!unprocessedSummary.type && summary.type) {\n unprocessedSummary.type =
summary.type;\n // Note: We don't add the summaries of all referenced symbols as for the ResolvedSymbols,\n
// as the type summaries already contain the transitive data that they require\n // (in a minimal way).\n
processedSummary.type = this.processValue(summary.type, SerializationFlags.None);\n // except for reexported
directives / pipes, so we need to store\n // their summaries explicitly.\n if (summary.type.summaryKind ===
CompileSummaryKind.NgModule) {\n const ngModuleSummary =
<CompileNgModuleSummary>summary.type;\n
ngModuleSummary.exportedDirectives.concat(ngModuleSummary.exportedPipes).forEach((id) => {\n const
symbol: StaticSymbol = id.reference;\n if (this.summaryResolver.isLibraryFile(symbol.filePath) &&\n
!this.unprocessedSymbolSummariesBySymbol.has(symbol)) {\n const summary
= this.summaryResolver.resolveSummary(symbol);\n if (summary) {\n
this.addSummary(summary);\n }\n });\n }\n }\n }\n }\n }\n }\n }\n }\n }\n
createExternalSymbolReexports Whether external static symbols should be re-exported.\n * This can be enabled if
external symbols should be re-exported by the current module in\n * order to avoid dynamically generated module
dependencies which can break strict dependency\n * enforcements (as in Google3). Read more here:
https://github.com/angular/angular/issues/25644\n * \n serialize(createExternalSymbolReexports: boolean):\n
{json: string, exportAs: {symbol: StaticSymbol, exportAs: string}[]} {\n const exportAs: {symbol: StaticSymbol,
exportAs: string}[] = [];\n const json = JSON.stringify({\n moduleName: this.moduleName,\n summaries:
this.processedSummaries,\n symbols: this.symbols.map((symbol, index) => {\n
symbol.assertNoMembers();\n
let importAs: string|number = undefined!;\n if (this.summaryResolver.isLibraryFile(symbol.filePath)) {\n
const reexportSymbol = this.reexportedBy.get(symbol);\n if (reexportSymbol) {\n // In case the given
external static symbol is already manually exported by the\n // user, we just proxy the external static symbol
reference to the manual export.\n // This ensures that the AOT compiler imports the external symbol through
the\n // user export and does not introduce another dependency which is not needed.\n importAs =
this.indexBySymbol.get(reexportSymbol)!;\n } else if (createExternalSymbolReexports) {\n // In this
case, the given external static symbol is *not* manually exported by\n // the user, and we manually create a
re-export in the factory file so that we\n // don't introduce another module dependency. This is useful when
running within\n // Bazel so
that the AOT compiler does not introduce any module dependencies\n // which can break the strict
dependency enforcement. (e.g. as in Google3)\n // Read more about this here:
https://github.com/angular/angular/issues/25644\n const summary =

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this.unprocessedSymbolSummariesBySymbol.get(symbol);\n if (!summary || !summary.metadata ||
summary.metadata.__symbolic !== 'interface') {\n importAs = `${symbol.name}_${index}`;\n
exportAs.push({symbol, exportAs: importAs});\n }\n }\n return {\n __symbol:
index,\n name: symbol.name,\n filePath: this.summaryResolver.toSummaryFileName(symbol.filePath,
this.srcFileName),\n importAs: importAs\n };\n }\n return {json, exportAs};\n}\n\n private
processValue(value: any, flags: SerializationFlags): any {\n return visitValue(value, this, flags);\n}\n\n
visitOther(value: any, context:
any): any {\n if (value instanceof StaticSymbol) {\n let baseSymbol =
this.symbolResolver.getStaticSymbol(value.filePath, value.name);\n const index =
this.visitStaticSymbol(baseSymbol, context);\n return {__symbol: index, members: value.members};\n }\n
}\n\n /**\n * Strip line and character numbers from ngsummaries.\n * Emitting them causes white spaces
changes to retrigger upstream\n * recompilations in bazel.\n * TODO: find out a way to have line and character
numbers in errors without\n * excessive recompilation in bazel.\n */\n visitStringMap(map: {[key: string]: any},
context: any): any {\n if (map['__symbolic'] === 'resolved') {\n return visitValue(map['symbol'], this,
context);\n }\n if (map['__symbolic'] === 'error') {\n delete map['line'];\n delete map['character'];\n }\n
return super.visitStringMap(map, context);\n}\n\n /**\n * Returns null if the options.resolveValue is true, and the
summary for the symbol\n
* resolved to a type or could not be resolved.\n */\n private visitStaticSymbol(baseSymbol: StaticSymbol, flags:
SerializationFlags): number {\n let index: number|undefined|null = this.indexBySymbol.get(baseSymbol);\n let
summary: Summary<StaticSymbol>|null = null;\n if (flags & SerializationFlags.ResolveValue &&\n
this.summaryResolver.isLibraryFile(baseSymbol.filePath)) {\n if
(this.unprocessedSymbolSummariesBySymbol.has(baseSymbol)) {\n // the summary for this symbol was
already added\n // -> nothing to do.\n return index!;\n }\n summary =
this.loadSummary(baseSymbol);\n if (summary && summary.metadata instanceof StaticSymbol) {\n // The
summary is a reexport\n index = this.visitStaticSymbol(summary.metadata, flags);\n // reset the summary as
it is just a reexport, so we don't want to store it.\n summary = null;\n }\n } else if (index !== null) {\n //
Note: == on purpose to compare
with undefined!\n // No summary and the symbol is already added -> nothing to do.\n return index;\n }\n
// Note: == on purpose to compare with undefined!\n if (index === null) {\n index = this.symbols.length;\n
this.symbols.push(baseSymbol);\n }\n this.indexBySymbol.set(baseSymbol, index);\n if (summary) {\n
this.addSummary(summary);\n }\n return index;\n}\n\n private loadSummary(symbol: StaticSymbol):
Summary<StaticSymbol>|null {\n let summary = this.summaryResolver.resolveSummary(symbol);\n if
(!summary) {\n // some symbols might originate from a plain typescript library\n // that just exported .d.ts and
.metadata.json files, i.e. where no summary\n // files were created.\n const resolvedSymbol =
this.symbolResolver.resolveSymbol(symbol);\n if (resolvedSymbol) {\n summary = {symbol:
resolvedSymbol.symbol, metadata: resolvedSymbol.metadata};\n }\n }\n return summary;\n}\n}\n\n nclass
ForJitSerializer {\n private data: Array<{\n summary: CompileTypeSummary,\n metadata:
CompileNgModuleMetadata|CompileDirectiveMetadata|CompilePipeMetadata\n CompileTypeMetadata\n },\n isLibrary: boolean\n > = [];\n\n constructor(\n private outputCtx: OutputContext, private symbolResolver:
StaticSymbolResolver,\n private summaryResolver: SummaryResolver<StaticSymbol>) {\n }\n\n addSourceType(\n summary: CompileTypeSummary,\n metadata:
CompileNgModuleMetadata|CompileDirectiveMetadata|CompilePipeMetadata\n CompileTypeMetadata) {\n
this.data.push({summary, metadata, isLibrary: false});\n }\n\n addLibType(summary: CompileTypeSummary) {\n
this.data.push({summary, metadata: null, isLibrary: true});\n }\n\n serialize(exportAsArr: {symbol: StaticSymbol,
exportAs: string}[]): void {\n const exportAsBySymbol = new Map<StaticSymbol, string>();\n for (const
{symbol, exportAs} of exportAsArr) {\n exportAsBySymbol.set(symbol, exportAs);\n }\n const ngModuleSymbols = new Set<StaticSymbol>();\n for (const {summary, metadata, isLibrary} of
this.data) {\n if (summary.summaryKind === CompileSummaryKind.NgModule) {\n // collect the symbols

```

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that refer to NgModule classes.\n // Note: we can't just rely on `summary.type.summaryKind` to determine this
as\n // we don't add the summaries of all referenced symbols when we serialize type summaries.\n // See
serializeSummaries for details.\n ngModuleSymbols.add(summary.type.reference);\n const modSummary =
<CompileNgModuleSummary>summary;\n for (const mod of modSummary.modules) {\n
ngModuleSymbols.add(mod.reference);\n }\n }\n if (!isLibrary) {\n const fnName =
summaryForJitName(summary.type.reference.name);\n createSummaryForJitFunction(\n this.outputCtx,
summary.type.reference,\n this.serializeSummaryWithDeps(summary, metadata!));\n }\n }\n\n ngModuleSymbols.forEach((ngModuleSymbol) => {\n if
(this.summaryResolver.isLibraryFile(ngModuleSymbol.filePath)) {\n let exportAs =
exportAsBySymbol.get(ngModuleSymbol) || ngModuleSymbol.name;\n const jitExportAsName =
summaryForJitName(exportAs);\n this.outputCtx.statements.push(o.variable(jitExportAsName)\n
.set(this.serializeSummaryRef(ngModuleSymbol))\n .toDeclStmt(null,
[o.StmtModifier.Exported]));\n }\n });\n }\n\n private serializeSummaryWithDeps(\n summary:
CompileTypeSummary,\n metadata:
CompileNgModuleMetadata|CompileDirectiveMetadata|CompilePipeMetadata|\n CompileTypeMetadata):
o.Expression {\n const expressions: o.Expression[] = [this.serializeSummary(summary)];\n let providers:
CompileProviderMetadata[] = [];\n if (metadata instanceof CompileNgModuleMetadata) {\n
expressions.push(...\n // For directives
/ pipes, we only add the declared ones,\n // and rely on transitively importing NgModules to get the
transitive\n // summaries.\n
metadata.declaredDirectives.concat(metadata.declaredPipes)\n .map(type => type.reference)\n
// For modules,\n // we also add the summaries for modules\n // from
libraries.\n // This is ok as we produce reexports for all transitive modules.\n
.concat(metadata.transitiveModule.modules.map(type => type.reference)\n .filter(ref => ref
!== metadata.type.reference))\n .map((ref) => this.serializeSummaryRef(ref));\n // Note: We
don't use `NgModuleSummary.providers`, as that one is transitive,\n // and we already have transitive modules.\n
providers = metadata.providers;\n
 } else if (summary.summaryKind === CompileSummaryKind.Directive) {\n const dirSummary =
<CompileDirectiveSummary>summary;\n providers =
dirSummary.providers.concat(dirSummary.viewProviders);\n }\n // Note: We can't just refer to the
`ngsummary.ts` files for `useClass` providers (as we do for\n // declaredDirectives / declaredPipes), as we allow\n
// providers without ctor arguments to skip the `@Injectable` decorator,\n // i.e. we didn't generate .ngsummary.ts
files for these.\n expressions.push(\n ...providers.filter(provider => !!provider.useClass).map(provider =>
this.serializeSummary({\n summaryKind: CompileSummaryKind.Injectable,\n type: provider.useClass\n
 } as CompileTypeSummary));\n return o.literalArr(expressions);\n }\n\n private
serializeSummaryRef(typeSymbol: StaticSymbol): o.Expression {\n const jitImportedSymbol =
this.symbolResolver.getStaticSymbol(\n summaryForJitFileName(typeSymbol.filePath),
summaryForJitName(typeSymbol.name));\n return this.outputCtx.importExpr(jitImportedSymbol);\n }\n\n
 private serializeSummary(data: {[key: string]: any}): o.Expression {\n const outputCtx = this.outputCtx;\n
 class Transformer implements ValueVisitor {\n visitArray(arr: any[], context: any): any {\n return
o.literalArr(arr.map(entry => visitValue(entry, this, context)));\n }\n visitStringMap(map: {[key: string]: any},
context: any): any {\n return new o.LiteralMapExpr(Object.keys(map).map(\n (key) => new
o.LiteralMapEntry(key, visitValue(map[key], this, context), false));\n }\n visitPrimitive(value: any, context:
any): any {\n return o.literal(value);\n }\n visitOther(value: any, context: any): any {\n if (value
instanceof StaticSymbol) {\n return outputCtx.importExpr(value);\n } else {\n throw new
Error('Illegal State: Encountered value ${value}');\n }\n }\n
 }\n\n return visitValue(data, new Transformer(), null);\n }\n\n class FromJsonDeserializer extends
ValueTransformer {\n // TODO(issue/24571): remove '!'.\n private symbols!: StaticSymbol[];\n\n constructor(\n

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private symbolCache: StaticSymbolCache,\n private summaryResolver: SummaryResolver<StaticSymbol>) {\n
super();\n }\n\n deserialize(libraryFileName: string, json: string): {\n moduleName: string|null,\n summaries:
Summary<StaticSymbol>[],\n importAs: {symbol: StaticSymbol, importAs: StaticSymbol}[]\n } {\n const data:
{moduleName: string|null, summaries: any[], symbols: any[]} = JSON.parse(json);\n const allImportAs: {symbol:
StaticSymbol, importAs: StaticSymbol}[] = [];\n this.symbols = data.symbols.map(\n (serializedSymbol) =>
this.symbolCache.get(\n this.summaryResolver.fromSummaryFileName(serializedSymbol.filePath,
libraryFileName),\n serializedSymbol.name));\n data.symbols.forEach((serializedSymbol,
index) => {\n const symbol = this.symbols[index];\n const importAs = serializedSymbol.importAs;\n if
(typeof importAs === 'number') {\n allImportAs.push({symbol, importAs: this.symbols[importAs]});\n }
else if (typeof importAs === 'string') {\n allImportAs.push(\n {symbol, importAs:
this.symbolCache.get(ngfactoryFilePath(libraryFileName), importAs)});\n }\n });\n const summaries =
visitValue(data.summaries, this, null) as Summary<StaticSymbol>[];\n return {moduleName: data.moduleName,
summaries, importAs: allImportAs};\n }\n\n visitStringMap(map: {[key: string]: any}, context: any): any {\n if
('__symbol' in map) {\n const baseSymbol = this.symbols[map['__symbol']];\n const members =
map['members'];\n return members.length ? this.symbolCache.get(baseSymbol.filePath, baseSymbol.name,
members) : \n baseSymbol;\n } else {\n return super.visitStringMap(map, context);\n }\n
}\n\n\nfunction isCall(metadata: any): boolean {\n return metadata && metadata.__symbolic ===
'call';\n}\n\nfunction isFunctionCall(metadata: any): boolean {\n return isCall(metadata) &&
unwrapResolvedMetadata(metadata.expression) instanceof StaticSymbol;\n}\n\nfunction
isMethodCallOnVariable(metadata: any): boolean {\n return isCall(metadata) && metadata.expression &&
metadata.expression.__symbolic === 'select' &&\n unwrapResolvedMetadata(metadata.expression.expression)
instanceof StaticSymbol;\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {CompileDirectiveMetadata, CompileIdentifierMetadata,
CompileInjectableMetadata, CompileNgModuleMetadata, CompilePipeMetadata, CompilePipeSummary,
CompileProviderMetadata, CompileShallowModuleMetadata, CompileStylesheetMetadata, CompileTypeMetadata,
CompileTypeSummary,
componentFactoryName, flatten, identifierName, templateUrl} from './compile_metadata';\nimport
{CompilerConfig} from './config';\nimport {ConstantPool} from './constant_pool';\nimport {ViewEncapsulation}
from './core';\nimport {MessageBundle} from './i18n/message_bundle';\nimport
{createTokenForExternalReference, Identifiers} from './identifiers';\nimport {InjectableCompiler} from
'./injectable_compiler';\nimport {CompileMetadataResolver} from './metadata_resolver';\nimport {HtmlParser}
from './ml_parser/html_parser';\nimport {removeWhitespaces} from './ml_parser/html_whitespaces';\nimport
{DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig} from './ml_parser/interpolation_config';\nimport
{NgModuleCompiler} from './ng_module_compiler';\nimport {OutputEmitter} from
'./output/abstract_emitter';\nimport * as o from './output/output_ast';\nimport {ParseError} from
'./parse_util';\nimport {compileNgModuleFromRender2 as compileR3Module} from
'./render3/r3_module_compiler';\nimport
{compilePipeFromRender2 as compileR3Pipe} from './render3/r3_pipe_compiler';\nimport
{htmlAstToRender3Ast} from './render3/r3_template_transform';\nimport {compileComponentFromRender2 as
compileR3Component, compileDirectiveFromRender2 as compileR3Directive} from
'./render3/view/compiler';\nimport {DomElementSchemaRegistry} from
'./schema/dom_element_schema_registry';\nimport {CompiledStylesheet, StyleCompiler} from
'./style_compiler';\nimport {SummaryResolver} from './summary_resolver';\nimport {BindingParser} from
'./template_parser/binding_parser';\nimport {TemplateAst} from './template_parser/template_ast';\nimport
{TemplateParser} from './template_parser/template_parser';\nimport {error, newArray, OutputContext, syntaxError,
ValueVisitor, visitValue} from './util';\nimport {TypeCheckCompiler} from
'./view_compiler/type_check_compiler';\nimport {ViewCompiler, ViewCompileResult} from

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'./view_compiler/view_compiler';\n\nimport { AotCompilerHost } from './compiler_host';\nimport
{ AotCompilerOptions } from './compiler_options';\nimport { GeneratedFile } from './generated_file';\nimport
{ LazyRoute, listLazyRoutes, parseLazyRoute } from './lazy_routes';\nimport { PartialModule } from
'./partial_module';\nimport { StaticReflector } from './static_reflector';\nimport { StaticSymbol } from
'./static_symbol';\nimport { StaticSymbolResolver } from './static_symbol_resolver';\nimport { createForJitStub,
serializeSummaries } from './summary_serializer';\nimport { ngfactoryFilePath, normalizeGenFileSuffix,
splitTypescriptSuffix, summaryFileName, summaryForJitFileName } from './util';\n\nconst enum StubEmitFlags {\n
Basic = 1 << 0,\n TypeCheck = 1 << 1,\n All = TypeCheck | Basic\n}\n\nexport class AotCompiler {\n private
_templateAstCache =\n new Map<StaticSymbol, { template: TemplateAst[], pipes:
CompilePipeSummary[] }>();\n private _analyzedFiles = new Map<string, NgAnalyzedFile>();\n private
_analyzedFilesForInjectables = new Map<string, NgAnalyzedFileWithInjectables>();\n\n constructor(\n private _config: CompilerConfig, private _options: AotCompilerOptions,\n private _host:
AotCompilerHost, readonly reflector: StaticReflector,\n private _metadataResolver: CompileMetadataResolver,
private _templateParser: TemplateParser,\n private _styleCompiler: StyleCompiler, private _viewCompiler:
ViewCompiler,\n private _typeCheckCompiler: TypeCheckCompiler, private _ngModuleCompiler:
NgModuleCompiler,\n private _injectableCompiler: InjectableCompiler, private _outputEmitter:
OutputEmitter,\n private _summaryResolver: SummaryResolver<StaticSymbol>,\n private _symbolResolver:
StaticSymbolResolver) {\n\n clearCache() {\n this._metadataResolver.clearCache();\n }\n\n analyzeModulesSync(rootFiles: string[]): NgAnalyzedModules {\n const analyzeResult =
analyzeAndValidateNgModules(\n rootFiles, this._host, this._symbolResolver, this._metadataResolver);\n
analyzeResult.ngModules.forEach(\n
ngModule => this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(\n
ngModule.type.reference, true));\n return analyzeResult;\n }\n\n analyzeModulesAsync(rootFiles: string[]):
Promise<NgAnalyzedModules> {\n const analyzeResult = analyzeAndValidateNgModules(\n rootFiles,
this._host, this._symbolResolver, this._metadataResolver);\n return Promise\n.all(analyzeResult.ngModules.map(\n
ngModule =>
this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(\n
ngModule.type.reference, false)))\n
.then(() => analyzeResult);\n }\n\n private _analyzeFile(fileName: string): NgAnalyzedFile {\n let analyzedFile
= this._analyzedFiles.get(fileName);\n if (!analyzedFile) {\n analyzedFile =\n analyzeFile(this._host,
this._symbolResolver, this._metadataResolver, fileName);\n this._analyzedFiles.set(fileName, analyzedFile);\n
}\n return analyzedFile;\n }\n\n private _analyzeFileForInjectables(fileName:
string): NgAnalyzedFileWithInjectables {\n let analyzedFile = this._analyzedFilesForInjectables.get(fileName);\n
if (!analyzedFile) {\n analyzedFile = analyzeFileForInjectables(\n this._host, this._symbolResolver,
this._metadataResolver, fileName);\n this._analyzedFilesForInjectables.set(fileName, analyzedFile);\n }\n
return analyzedFile;\n }\n\n findGeneratedFileNames(fileName: string): string[] {\n const genFileNames: string[]
= [];\n const file = this._analyzeFile(fileName);\n // Make sure we create a .ngfactory if we have a
injectable/directive/pipe/ngModule\n // or a reference to a non source file.\n // Note: This is overestimating the
required .ngfactory files as the real calculation is harder.\n // Only do this for StubEmitFlags.Basic, as adding a
type check block\n // does not change this file (as we generate type check blocks based on NgModules).\n if
(this._options.allowEmptyCodegenFiles || file.directives.length
|| file.pipes.length ||\n file.injectables.length || file.ngModules.length || file.exportsNonSourceFiles) {\n
genFileNames.push(ngfactoryFilePath(file.fileName, true));\n if (this._options.enableSummariesForJit) {\n
genFileNames.push(summaryForJitFileName(file.fileName, true));\n }\n }\n const fileSuffix =
normalizeGenFileSuffix(splitTypescriptSuffix(file.fileName, true)[1]);\n file.directives.forEach((dirSymbol) =>
{\n const compMeta =\n
this._metadataResolver.getNonNormalizedDirectiveMetadata(dirSymbol).metadata;\n if
(!compMeta.isComponent) {\n return;\n }\n // Note: compMeta is a component and therefore template is
non null.\n compMeta.template!.styleUrls.forEach((styleUrl) => {\n const normalizedUrl =

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this._host.resourceNameToFileName(styleUrl, file.fileName);\n if (!normalizedUrl) {\n throw
syntaxError(`Couldn't resolve resource ${styleUrl} relative to ${file.fileName}`);\n
 }\n const needsShim = (compMeta.template !.encapsulation ||\n
this._config.defaultEncapsulation) === ViewEncapsulation.Emulated;\n
genFileNames.push(_stylesModuleUrl(normalizedUrl, needsShim, fileSuffix));\n if
(this._options.allowEmptyCodegenFiles) {\n genFileNames.push(_stylesModuleUrl(normalizedUrl,
!needsShim, fileSuffix));\n }\n }\n return genFileNames;\n}\n\n emitBasicStub(genFileName:
string, originalFileName?: string): GeneratedFile {\n const outputCtx =
this._createOutputContext(genFileName);\n if (genFileName.endsWith('.ngfactory.ts')) {\n if
(!originalFileName) {\n throw new Error(\n `Assertion error: require the original file for .ngfactory.ts
stubs. File: ${\n genFileName}`);\n }\n const originalFile = this._analyzeFile(originalFileName);\n
 this._createNgFactoryStub(outputCtx, originalFile, StubEmitFlags.Basic);\n }
 else if (genFileName.endsWith('.ngsummary.ts')) {\n if (this._options.enableSummariesForJit) {\n if
(!originalFileName) {\n throw new Error(\n `Assertion error: require the original file for
.ngsummary.ts stubs. File: ${\n genFileName}`);\n }\n const originalFile =
this._analyzeFile(originalFileName);\n _createEmptyStub(outputCtx);\n
 originalFile.ngModules.forEach(ngModule => {\n // create exports that user code can reference\n
createForJitStub(outputCtx, ngModule.type.reference);\n });\n }\n } else if
(genFileName.endsWith('.ngstyle.ts')) {\n _createEmptyStub(outputCtx);\n }\n // Note: for the stubs, we don't
need a property srcFileUrl,\n // as later on in emitAllImpls we will create the proper GeneratedFiles with the\n //
correct srcFileUrl.\n // This is good as e.g. for .ngstyle.ts files we can't derive\n // the url of components based on
the genFileUrl.\n
 return this._codegenSourceModule('unknown', outputCtx);\n}\n\n emitTypeCheckStub(genFileName: string,
originalFileName: string): GeneratedFile|null {\n const originalFile = this._analyzeFile(originalFileName);\n
 const outputCtx = this._createOutputContext(genFileName);\n if (genFileName.endsWith('.ngfactory.ts')) {\n
 this._createNgFactoryStub(outputCtx, originalFile, StubEmitFlags.TypeCheck);\n }\n return
outputCtx.statements.length > 0 ?\n this._codegenSourceModule(originalFile.fileName, outputCtx) :\n
 null;\n}\n\n loadFilesAsync(fileNames: string[], tsFiles: string[]): Promise<\n {analyzedModules:
NgAnalyzedModules, analyzedInjectables: NgAnalyzedFileWithInjectables[]}> {\n const files =
fileNames.map(fileName => this._analyzeFile(fileName));\n const loadingPromises:
Promise<NgAnalyzedModules>[] = [];\n files.forEach(\n file => file.ngModules.forEach(\n ngModule
=>\n loadingPromises.push(this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(\n
 ngModule.type.reference, false));\n const analyzedInjectables = tsFiles.map(tsFile =>
this._analyzeFileForInjectables(tsFile));\n return Promise.all(loadingPromises).then(_ => ({\n
 analyzedModules: mergeAndValidateNgFiles(files),\n analyzedInjectables:
analyzedInjectables,\n }\n));\n }\n\n loadFilesSync(fileNames: string[], tsFiles:
string[]):\n {analyzedModules: NgAnalyzedModules, analyzedInjectables: NgAnalyzedFileWithInjectables[]}\n
{\n const files = fileNames.map(fileName => this._analyzeFile(fileName));\n files.forEach(\n file =>
file.ngModules.forEach(\n ngModule =>
this._metadataResolver.loadNgModuleDirectiveAndPipeMetadata(\n ngModule.type.reference, true));\n
 const analyzedInjectables = tsFiles.map(tsFile =>
this._analyzeFileForInjectables(tsFile));\n return {\n analyzedModules: mergeAndValidateNgFiles(files),\n
 analyzedInjectables: analyzedInjectables,\n };\n}\n\n private _createNgFactoryStub(\n outputCtx:
OutputContext, file: NgAnalyzedFile, emitFlags: StubEmitFlags) {\n let componentId = 0;\n
 file.ngModules.forEach((ngModuleMeta, ngModuleIndex) => {\n // Note: the code below needs to executed for
StubEmitFlags.Basic and StubEmitFlags.TypeCheck,\n // so we don't change the .ngfactory file too much when
adding the type-check block.\n // create exports that user code can reference\n
this._ngModuleCompiler.createStub(outputCtx, ngModuleMeta.type.reference);\n }\n // add references to the

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symbols from the metadata.\n // These can be used by the type check block for components,\n // and they also
cause TypeScript to include these files into the program too,\n // which will make them part of the
analyzedFiles.\n const externalReferences:
StaticSymbol[] = [\n // Add references that are available from all the modules and imports.\n
...ngModuleMeta.transitiveModule.directives.map(d => d.reference),\n
...ngModuleMeta.transitiveModule.pipes.map(d => d.reference),\n ...ngModuleMeta.importedModules.map(m
=> m.type.reference),\n ...ngModuleMeta.exportedModules.map(m => m.type.reference),\n\n // Add
references that might be inserted by the template compiler.\n
...this._externalIdentifierReferences([Identifiers.TemplateRef, Identifiers.ElementRef]),\n];\n\n const
externalReferenceVars = new Map<any, string>();\n externalReferences.forEach((ref, typeIndex) => {\n
externalReferenceVars.set(ref, `_decl${ngModuleIndex}_${typeIndex}`);\n });\n
externalReferenceVars.forEach((varName, reference) => {\n outputCtx.statements.push(\n
o.variable(varName)\n .set(o.NULL_EXPR.cast(o.DYNAMIC_TYPE))\n
 .toDeclStmt(o.expressionType(outputCtx.importExpr(\n reference, /* typeParams */ null, /*
useSummaries */ false)))));\n });\n\n if (emitFlags & StubEmitFlags.TypeCheck) {\n // add the type-check
block for all components of the NgModule\n ngModuleMeta.declaredDirectives.forEach((dirId) => {\n
const compMeta = this._metadataResolver.getDirectiveMetadata(dirId.reference);\n if
(!compMeta.isComponent) {\n return;\n }\n componentId++;\n
this._createTypeCheckBlock(\n outputCtx, `${compMeta.type.reference.name}_Host_${componentId}`,
ngModuleMeta,\n this._metadataResolver.getHostComponentMetadata(compMeta), [compMeta.type],\n
 externalReferenceVars);\n this._createTypeCheckBlock(\n outputCtx,
`${compMeta.type.reference.name}_${componentId}`, ngModuleMeta, compMeta,\n
ngModuleMeta.transitiveModule.directives, externalReferenceVars);\n
 });\n });\n\n if (outputCtx.statements.length === 0) {\n _createEmptyStub(outputCtx);\n }\n
}\n\n private _externalIdentifierReferences(references: o.ExternalReference[]): StaticSymbol[] {\n const result:
StaticSymbol[] = [];\n for (let reference of references) {\n const token =
createTokenForExternalReference(this.reflector, reference);\n if (token.identifier) {\n
result.push(token.identifier.reference);\n }\n }\n return result;\n }\n\n private _createTypeCheckBlock(\n
ctx: OutputContext, componentId: string, moduleMeta: CompileNgModuleMetadata,\n compMeta:
CompileDirectiveMetadata, directives: CompileIdentifierMetadata[],\n externalReferenceVars: Map<any,
string>) {\n const {template: parsedTemplate, pipes: usedPipes} =\n this._parseTemplate(compMeta,
moduleMeta, directives);\n ctx.statements.push(...this._typeCheckCompiler.compileComponent(\n
componentId, compMeta, parsedTemplate,
usedPipes, externalReferenceVars, ctx));\n }\n\n emitMessageBundle(analyzeResult: NgAnalyzedModules, locale:
string|null): MessageBundle {\n const errors: ParseError[] = [];\n const htmlParser = new HtmlParser();\n //
TODO(vicb): implicit tags & attributes\n const messageBundle = new MessageBundle(htmlParser, [], {},
locale);\n\n analyzeResult.files.forEach(file => {\n const compMetas: CompileDirectiveMetadata[] = [];\n
file.directives.forEach(directiveType => {\n const dirMeta =
this._metadataResolver.getDirectiveMetadata(directiveType);\n if (dirMeta && dirMeta.isComponent) {\n
compMetas.push(dirMeta);\n }\n });\n compMetas.forEach(compMeta => {\n const html =
compMeta.template !.template !;\n // Template URL points to either an HTML or TS file depending on
whether\n // the file is used with `templateUrl:` or `template:`, respectively.\n const templateUrl =
compMeta.template
!.templateUrl!;\n const interpolationConfig =\n InterpolationConfig.fromArray(compMeta.template
!.interpolation);\n errors.push(...messageBundle.updateFromTemplate(html, templateUrl,
interpolationConfig)!);\n });\n });\n\n if (errors.length) {\n throw new Error(errors.map(e =>
e.toString()).join("\n"));\n }\n\n return messageBundle;\n }\n\n emitAllPartialModules(\n
{ngModuleByPipeOrDirective, files}: NgAnalyzedModules,\n r3Files: NgAnalyzedFileWithInjectables[]):

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PartialModule[] {\n const contextMap = new Map<string, OutputContext>();\n\n const getContext = (fileName:
string): OutputContext => {\n if (!contextMap.has(fileName)) {\n contextMap.set(fileName,
this._createOutputContext(fileName));\n }\n return contextMap.get(fileName)!;\n };\n\n files.forEach(\n
 file => this._compilePartialModule(\n file.fileName, ngModuleByPipeOrDirective, file.directives, file.pipes,
file.ngModules,\n
 file.injectables, getContext(file.fileName));\n r3Files.forEach(\n file =>
this._compileShallowModules(\n file.fileName, file.shallowModules, getContext(file.fileName));\n\n
return Array.from(contextMap.values())\n .map(context => ({\n fileName: context.genFilePath,\n
statements: [...context.constantPool.statements, ...context.statements],\n }));\n }\n\n private
_compileShallowModules(\n fileName: string, shallowModules: CompileShallowModuleMetadata[],\n
context: OutputContext): void {\n shallowModules.forEach(module => compileR3Module(context, module,
this._injectableCompiler));\n }\n\n private _compilePartialModule(\n fileName: string,
ngModuleByPipeOrDirective: Map<StaticSymbol, CompileNgModuleMetadata>,\n directives: StaticSymbol[],
pipes: StaticSymbol[], ngModules: CompileNgModuleMetadata[],\n injectables: CompileInjectableMetadata[],
context: OutputContext):
void {\n const errors: ParseError[] = [];\n const schemaRegistry = new DomElementSchemaRegistry();\n
const hostBindingParser = new BindingParser(\n this._templateParser.expressionParser,
DEFAULT_INTERPOLATION_CONFIG, schemaRegistry, [],\n errors);\n // Process all components and
directives\n directives.forEach(directiveType => {\n const directiveMetadata =
this._metadataResolver.getDirectiveMetadata(directiveType);\n if (directiveMetadata.isComponent) {\n
const module = ngModuleByPipeOrDirective.get(directiveType);\n module ||\n error(`Cannot determine
the module for component '${\n identifierName(directiveMetadata.type)}')`);\n let htmlAst =
directiveMetadata.template!.htmlAst!;\n const preserveWhitespaces = directiveMetadata!.template
!.preserveWhitespaces;\n if (!preserveWhitespaces) {\n htmlAst = removeWhitespaces(htmlAst);\n
}\n const render3Ast = htmlAstToRender3Ast(htmlAst.rootNodes,
hostBindingParser);\n // Map of StaticType by directive selectors\n const directiveTypeBySel = new
Map<string, any>();\n const directives = module.transitiveModule.directives.map(\n dir =>
this._metadataResolver.getDirectiveSummary(dir.reference));\n directives.forEach(directive => {\n if
(directive.selector) {\n directiveTypeBySel.set(directive.selector, directive.type.reference);\n }\n
});\n // Map of StaticType by pipe names\n const pipeTypeByName = new Map<string, any>();\n const
pipes = module.transitiveModule.pipes.map(\n pipe =>
this._metadataResolver.getPipeSummary(pipe.reference));\n pipes.forEach(pipe => {\n
pipeTypeByName.set(pipe.name, pipe.type.reference);\n });\n compileR3Component(\n context,
directiveMetadata, render3Ast, this.reflector, hostBindingParser,\n directiveTypeBySel,
pipeTypeByName);\n } else {\n compileR3Directive(context, directiveMetadata, this.reflector,
hostBindingParser);\n }\n pipes.forEach(pipeType => {\n const pipeMetadata =
this._metadataResolver.getPipeMetadata(pipeType);\n if (pipeMetadata) {\n compileR3Pipe(context,
pipeMetadata, this.reflector);\n }\n });\n injectables.forEach(injectable =>
this._injectableCompiler.compile(injectable, context));\n }\n\n emitAllPartialModules2(files:
NgAnalyzedFileWithInjectables[]): PartialModule[] {\n // Using reduce like this is a select many pattern (where
map is a select pattern)\n return files.reduce<PartialModule[]>((r, file) => {\n
r.push(...this._emitPartialModule2(file.fileName, file.injectables));\n return r;\n }, [],);\n\n private
_emitPartialModule2(fileName: string, injectables: CompileInjectableMetadata[]):\n PartialModule[] {\n const
context = this._createOutputContext(fileName);\n\n injectables.forEach(injectable => this._injectableCompiler.compile(injectable, context));\n\n if
(context.statements && context.statements.length > 0) {\n return [{fileName, statements:
[...context.constantPool.statements, ...context.statements]}];\n }\n return [];\n }\n\n emitAllImpls(analyzeResult: NgAnalyzedModules): GeneratedFile[] {\n const {ngModuleByPipeOrDirective,

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files} = analyzeResult;\n const sourceModules = files.map(\n file => this._compileImplFile(\n
file.fileName, ngModuleByPipeOrDirective, file.directives, file.pipes, file.ngModules,\n file.injectables));\n
return flatten(sourceModules);\n } \n\n private _compileImplFile(\n srcFileUrl: string,
ngModuleByPipeOrDirective: Map<StaticSymbol, CompileNgModuleMetadata>,\n directives: StaticSymbol[],
pipes: StaticSymbol[], ngModules: CompileNgModuleMetadata[],\n injectables: CompileInjectableMetadata[]):
GeneratedFile[] {\n const fileSuffix = normalizeGenFileSuffix(splitTypescriptSuffix(srcFileUrl,
true)[1]);\n const generatedFiles: GeneratedFile[] = [];\n\n const outputCtx =
this._createOutputContext(ngfactoryFilePath(srcFileUrl, true));\n\n generatedFiles.push(\n
...this._createSummary(srcFileUrl, directives, pipes, ngModules, injectables, outputCtx));\n\n // compile all ng
modules\n ngModules.forEach((ngModuleMeta) => this._compileModule(outputCtx, ngModuleMeta));\n\n //
compile components\n directives.forEach((dirType) => {\n const compMeta =
this._metadataResolver.getDirectiveMetadata(<any>dirType);\n if (!compMeta.isComponent) {\n return;\n
 }\n const ngModule = ngModuleByPipeOrDirective.get(dirType);\n if (!ngModule) {\n throw new
Error(`Internal Error: cannot determine the module for component ${\n
identifierName(compMeta.type)}!`);\n }\n\n // compile styles\n const componentStylesheet =
this._styleCompiler.compileComponent(outputCtx,
compMeta);\n // Note: compMeta is a component and therefore template is non null.\n compMeta.template
!externalStylesheets.forEach((stylesheetMeta) => {\n // Note: fill non shim and shim style files as they might\n
// be shared by component with and without ViewEncapsulation.\n const shim =
this._styleCompiler.needsStyleShim(compMeta);\n generatedFiles.push(\n
this._codegenStyles(srcFileUrl, compMeta, stylesheetMeta, shim, fileSuffix));\n if
(this._options.allowEmptyCodegenFiles) {\n generatedFiles.push(\n this._codegenStyles(srcFileUrl,
compMeta, stylesheetMeta, !shim, fileSuffix));\n }\n });\n\n // compile components\n const
compViewVars = this._compileComponent(\n outputCtx, compMeta, ngModule,
ngModule.transitiveModule.directives, componentStylesheet,\n fileSuffix);\n this._compileComponentFactory(outputCtx, compMeta, ngModule, fileSuffix);\n });\n
 if (outputCtx.statements.length > 0 || this._options.allowEmptyCodegenFiles) {\n const srcModule =
this._codegenSourceModule(srcFileUrl, outputCtx);\n generatedFiles.unshift(srcModule);\n }\n return
generatedFiles;\n } \n\n private _createSummary(\n srcFileName: string, directives: StaticSymbol[], pipes:
StaticSymbol[],\n ngModules: CompileNgModuleMetadata[], injectables: CompileInjectableMetadata[],\n ngFactoryCtx: OutputContext): GeneratedFile[] {\n const symbolSummaries =
this._symbolResolver.getSymbolsOf(srcFileName)\n .map(symbol =>
this._symbolResolver.resolveSymbol(symbol));\n const typeData: {\n summary: CompileTypeSummary,\n
metadata: CompileNgModuleMetadata|CompileDirectiveMetadata|CompilePipeMetadata|\n
CompileTypeMetadata\n }[] =\n [\n ...ngModules.map(\n meta => ({\n summary:
this._metadataResolver.getNgModuleSummary(meta.type.reference)!,\n
 metadata: this._metadataResolver.getNgModuleMetadata(meta.type.reference)!\n })),\n
...directives.map(ref => ({\n summary: this._metadataResolver.getDirectiveSummary(ref)!,\n
 metadata: this._metadataResolver.getDirectiveMetadata(ref)!\n })),\n
...pipes.map(ref => ({\n summary: this._metadataResolver.getPipeSummary(ref)!,\n
 metadata: this._metadataResolver.getPipeMetadata(ref)!\n })),\n
...injectables.map(\n ref
=> ({\n summary: this._metadataResolver.getInjectableSummary(ref.symbol)!,\n
 metadata:
this._metadataResolver.getInjectableSummary(ref.symbol)!.type\n })),\n];\n const forJitOutputCtx =
this._options.enableSummariesForJit ?\n this._createOutputContext(summaryForJitFileName(srcFileName,
true)) : \n null;\n const {json, exportAs} = serializeSummaries(\n srcFileName, forJitOutputCtx,
this._summaryResolver, this._symbolResolver, symbolSummaries,\n typeData,
this._options.createExternalSymbolFactoryReexports);\n exportAs.forEach((entry) => {\n

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ngFactoryCtx.statements.push(\n
o.variable(entry.exportAs).set(ngFactoryCtx.importExpr(entry.symbol)).toDeclStmt(null, [\n
o.StmtModifier.Exported\n]));\n });\n const summaryJson = new GeneratedFile(srcFileName,
summaryFileName(srcFileName), json);\n const result = [summaryJson];\n if (forJitOutputCtx) {\n
result.push(this._codegenSourceModule(srcFileName, forJitOutputCtx));\n }\n return result;\n }\n\n private
_compileModule(outputCtx: OutputContext, ngModule: CompileNgModuleMetadata): void {\n const providers:
CompileProviderMetadata[] = [];\n if (this._options.locale) {\n const normalizedLocale =
this._options.locale.replace(/_/g, '-');\n providers.push({\n
 token: createTokenForExternalReference(this.reflector, Identifiers.LOCALE_ID),\n useValue:
normalizedLocale,\n });\n }\n\n if (this._options.i18nFormat) {\n providers.push({\n token:
createTokenForExternalReference(this.reflector, Identifiers.TRANSLATIONS_FORMAT),\n useValue:
this._options.i18nFormat,\n });\n }\n\n this._ngModuleCompiler.compile(outputCtx, ngModule, providers);\n }\n\n private _compileComponentFactory(\n outputCtx: OutputContext, compMeta:
CompileDirectiveMetadata,\n ngModule: CompileNgModuleMetadata, fileSuffix: string): void {\n const
hostMeta = this._metadataResolver.getHostComponentMetadata(compMeta);\n const hostViewFactoryVar =\nthis._compileComponent(outputCtx, hostMeta, ngModule, [compMeta.type], null, fileSuffix)\n.viewClassVar;\n const compFactoryVar = componentFactoryName(compMeta.type.reference);\n const
inputsExprs: o.LiteralMapEntry[] = [];\n
 for (let propName in compMeta.inputs) {\n const templateName = compMeta.inputs[propName];\n // Don't
quote so that the key gets minified...\n inputsExprs.push(new o.LiteralMapEntry(propName,
o.literal(templateName), false));\n }\n const outputsExprs: o.LiteralMapEntry[] = [];\n for (let propName in
compMeta.outputs) {\n const templateName = compMeta.outputs[propName];\n // Don't quote so that the key
gets minified...\n outputsExprs.push(new o.LiteralMapEntry(propName, o.literal(templateName), false));\n }\n\n outputCtx.statements.push(\n o.variable(compFactoryVar)\n .set(o.importExpr(Identifiers.createComponentFactory).callFn([\n o.literal(compMeta.selector),
outputCtx.importExpr(compMeta.type.reference),\n o.variable(hostViewFactoryVar), new
o.LiteralMapExpr(inputsExprs),\n new o.LiteralMapExpr(outputsExprs),\n o.literalArr(\n
compMeta.template!.ngContentSelectors.map(selector
=> o.literal(selector)))\n]))\n .toDeclStmt(\n o.importType(\n
Identifiers.ComponentFactory,\n
[o.expressionType(outputCtx.importExpr(compMeta.type.reference))],\n [o.TypeModifier.Const]),\n
[o.StmtModifier.Final, o.StmtModifier.Exported]));\n }\n\n private _compileComponent(\n outputCtx:
OutputContext, compMeta: CompileDirectiveMetadata,\n ngModule: CompileNgModuleMetadata,
directiveIdentifiers: CompileIdentifierMetadata[],\n componentStyles: CompiledStylesheet|null, fileSuffix:
string): ViewCompileResult {\n const {template: parsedTemplate, pipes: usedPipes} =\nthis._parseTemplate(compMeta, ngModule, directiveIdentifiers);\n const stylesExpr = componentStyles ?
o.variable(componentStyles.stylesVar) : o.literalArr([]);\n const viewResult =
this._viewCompiler.compileComponent(\n outputCtx, compMeta, parsedTemplate,
stylesExpr, usedPipes);\n if (componentStyles) {\n _resolveStyleStatements(\n this._symbolResolver,
componentStyles, this._styleCompiler.needsStyleShim(compMeta),\n fileSuffix);\n }\n return
viewResult;\n }\n\n private _parseTemplate(\n compMeta: CompileDirectiveMetadata, ngModule:
CompileNgModuleMetadata,\n directiveIdentifiers: CompileIdentifierMetadata[]):\n {template:
TemplateAst[], pipes: CompilePipeSummary[]} {\n if (this._templateAstCache.has(compMeta.type.reference)) {\n
return this._templateAstCache.get(compMeta.type.reference)!;\n }\n const preserveWhitespaces =
compMeta!.template!.preserveWhitespaces;\n const directives =\n directiveIdentifiers.map(dir =>
this._metadataResolver.getDirectiveSummary(dir.reference));\n const pipes =
ngModule.transitiveModule.pipes.map(\n pipe => this._metadataResolver.getPipeSummary(pipe.reference));\n const result = this._templateParser.parse(\n

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 compMeta, compMeta.template !.htmlAst!, directives, pipes, ngModule.schemas,\n
 templateUrl(ngModule.type, compMeta, compMeta.template !), preserveWhitespaces);\n
 this._templateAstCache.set(compMeta.type.reference, result);\n return result;\n } \n\n private
_createOutputContext(genFilePath: string): OutputContext {\n const importExpr =\n (symbol: StaticSymbol,\n typeParams: o.Type[]|null = null, useSummaries: boolean = true) => {\n if (!(symbol instanceof\n StaticSymbol)) {\n throw new Error('Internal error: unknown identifier ${JSON.stringify(symbol)}');\n }\n const arity = this._symbolResolver.getTypeArity(symbol) || 0;\n const {filePath, name, members} =\n this._symbolResolver.getImportAs(symbol, useSummaries) || symbol;\n const importModule =\n this._fileNameToModuleName(filePath, genFilePath);\n\n // It should be good enough to compare filePath to\n genFilePath and if they are equal\n\n // there is a self reference. However, ngfactory files generate to .ts but their\n // symbols have .d.ts so a\n simple compare is insufficient. They should be canonical\n // and is tracked by #17705.\n const\n selfReference = this._fileNameToModuleName(genFilePath, genFilePath);\n const moduleName =\n importModule === selfReference ? null : importModule;\n\n // If we are in a type expression that refers to a\n generic type then supply\n // the required type parameters. If there were not enough type parameters\n // supplied, supply any as the type. Outside a type expression the reference\n // should not supply type\n parameters and be treated as a simple value reference\n // to the constructor function itself.\n const\n suppliedTypeParams = typeParams || [];\n const missingTypeParamsCount = arity -\n suppliedTypeParams.length;\n const allTypeParams =\n suppliedTypeParams.concat(new Array(missingTypeParamsCount,\n o.DYNAMIC_TYPE));\n return members.reduce(\n (expr, memberName) =>\n expr.prop(memberName),\n <o.Expression>o.importExpr(\n new\n o.ExternalReference(moduleName, name, null), allTypeParams));\n };\n\n return {statements: [], genFilePath,\n importExpr, constantPool: new ConstantPool()};\n }\n\n private _fileNameToModuleName(importedFilePath:\n string, containingFilePath: string): string {\n return\n this._summaryResolver.getKnownModuleName(importedFilePath) ||\n this._symbolResolver.getKnownModuleName(importedFilePath) ||\n this._host.fileNameToModuleName(importedFilePath, containingFilePath);\n }\n\n private _codegenStyles(\n srcFileUrl: string, compMeta: CompileDirectiveMetadata,\n stylesheetMetadata: CompileStylesheetMetadata,\n isShimmed: boolean,\n fileSuffix: string): GeneratedFile {\n const outputCtx = this._createOutputContext(\n _stylesModuleUrl(stylesheetMetadata.moduleUrl!,\n isShimmed, fileSuffix));\n const compiledStylesheet =\n this._styleCompiler.compileStyles(outputCtx,\n compMeta, stylesheetMetadata, isShimmed);\n _resolveStyleStatements(this._symbolResolver,\n compiledStylesheet, isShimmed, fileSuffix);\n return this._codegenSourceModule(srcFileUrl, outputCtx);\n }\n\n private _codegenSourceModule(srcFileUrl: string, ctx: OutputContext): GeneratedFile {\n return new\n GeneratedFile(srcFileUrl, ctx.genFilePath, ctx.statements);\n }\n\n listLazyRoutes(entryRoute?: string,\n analyzedModules?: NgAnalyzedModules): LazyRoute[] {\n const self = this;\n if (entryRoute) {\n const\n symbol = parseLazyRoute(entryRoute, this.reflector).referencedModule;\n return visitLazyRoute(symbol);\n }\n else if (analyzedModules) {\n const allLazyRoutes: LazyRoute[] = [];\n for (const ngModule of\n analyzedModules.ngModules) {\n const lazyRoutes = listLazyRoutes(ngModule, this.reflector);\n for (const lazyRoute of lazyRoutes) {\n allLazyRoutes.push(lazyRoute);\n }\n }\n return\n allLazyRoutes;\n }\n else {\n throw new Error('Either route or analyzedModules has to be specified!');\n }\n }\n\n function visitLazyRoute(\n symbol: StaticSymbol, seenRoutes = new Set<StaticSymbol>(),\n allLazyRoutes: LazyRoute[] = []): LazyRoute[] {\n // Support pointing to default exports, but stop recursing\n there,\n // as the StaticReflector does not yet support default exports.\n if (seenRoutes.has(symbol) ||\n !symbol.name) {\n return allLazyRoutes;\n }\n seenRoutes.add(symbol);\n const lazyRoutes =\n listLazyRoutes(self._metadataResolver.getNgModuleMetadata(symbol, true)!, self.reflector);\n for (const\n lazyRoute of lazyRoutes) {\n allLazyRoutes.push(lazyRoute);\n }\n }

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visitLazyRoute(lazyRoute.referencedModule, seenRoutes, allLazyRoutes);\n }\n return allLazyRoutes;\n }\n}\n\nfunction\n_createEmptyStub(outputCtx: OutputContext) {\n // Note: We need to produce at least one import statement so\n that\n // TypeScript knows that the file is an es6 module. Otherwise our generated\n // exports / imports won't be\n emitted properly by TypeScript.\n outputCtx.statements.push(o.importExpr(Identifiers.ComponentFactory).toStmt());\n}\n\nfunction\n_resolveStyleStatements(\n symbolResolver: StaticSymbolResolver, compileResult: CompiledStylesheet,\n needsShim: boolean,\n fileSuffix: string): void {\n compileResult.dependencies.forEach((dep) => {\n dep.setValue(symbolResolver.getStaticSymbol(\n _stylesModuleUrl(dep.moduleUrl, needsShim, fileSuffix),\n dep.name));\n });\n}\n\nfunction _stylesModuleUrl(stylesheetUrl: string, shim: boolean, suffix: string): string {\n return `${stylesheetUrl}${shim ? '.shim' : ''}.ngstyle${suffix}`;\n}\n\nexport interface NgAnalyzedModules {\n ngModules: CompileNgModuleMetadata[];\n ngModuleByPipeOrDirective: Map<StaticSymbol,\n CompileNgModuleMetadata>;\n files: NgAnalyzedFile[];\n symbolsMissingModule?:\n StaticSymbol[];\n}\n\nexport interface NgAnalyzedFileWithInjectables {\n fileName: string;\n injectables:\n CompileInjectableMetadata[];\n shallowModules: CompileShallowModuleMetadata[];\n}\n\nexport interface\n NgAnalyzedFile {\n fileName: string;\n directives: StaticSymbol[];\n abstractDirectives: StaticSymbol[];\n pipes:\n StaticSymbol[];\n ngModules: CompileNgModuleMetadata[];\n injectables: CompileInjectableMetadata[];\n exportsNonSourceFiles: boolean;\n}\n\nexport interface NgAnalyzeModulesHost {\n isSourceFile(filePath: string):\n boolean;\n}\n\nexport function analyzeNgModules(\n fileNames: string[], host: NgAnalyzeModulesHost,\n staticSymbolResolver: StaticSymbolResolver,\n metadataResolver: CompileMetadataResolver):\n NgAnalyzedModules {\n const files = _analyzeFilesIncludingNonProgramFiles(\n fileNames, host,\n staticSymbolResolver, metadataResolver);\n return mergeAnalyzedFiles(files);\n}\n\nexport\n function analyzeAndValidateNgModules(\n fileNames: string[], host: NgAnalyzeModulesHost,\n staticSymbolResolver: StaticSymbolResolver,\n metadataResolver: CompileMetadataResolver):\n NgAnalyzedModules {\n return validateAnalyzedModules(\n analyzeNgModules(fileNames, host,\n staticSymbolResolver, metadataResolver));\n }\n\nfunction validateAnalyzedModules(analyzedModules:\n NgAnalyzedModules): NgAnalyzedModules {\n if (analyzedModules.symbolsMissingModule &&\n analyzedModules.symbolsMissingModule.length) {\n const messages =\n analyzedModules.symbolsMissingModule.map((s) => `Cannot determine the module for class ${s.name} in\n ${s.filePath}! Add ${s.name} to the NgModule to fix it.`);\n throw syntaxError(messages.join('\\n'));\n }\n return analyzedModules;\n}\n\n// Analyzes all of the program files,\n// including files that are not part of the\n// program\n// but are referenced by an NgModule.\nfunction _analyzeFilesIncludingNonProgramFiles(\n fileNames: string[], host: NgAnalyzeModulesHost, staticSymbolResolver: StaticSymbolResolver,\n metadataResolver: CompileMetadataResolver): NgAnalyzedFile[] {\n const seenFiles = new Set<string>();\n const\n files: NgAnalyzedFile[] = [];\n const visitFile = (fileName: string) => {\n if (seenFiles.has(fileName) ||\n !host.isSourceFile(fileName)) {\n return false;\n }\n seenFiles.add(fileName);\n const analyzedFile =\n analyzeFile(host, staticSymbolResolver, metadataResolver, fileName);\n files.push(analyzedFile);\n analyzedFile.ngModules.forEach((ngModule) => {\n ngModule.transitiveModule.modules.forEach((modMeta) =>\n visitFile(modMeta.reference.filePath));\n });\n }; fileNames.forEach((fileName) => visitFile(fileName));\n return files;\n}\n\nexport function analyzeFile(\n host: NgAnalyzeModulesHost, staticSymbolResolver:\n StaticSymbolResolver,\n metadataResolver: CompileMetadataResolver, fileName: string): NgAnalyzedFile {\n const abstractDirectives:\n StaticSymbol[] = [];\n const directives: StaticSymbol[] = [];\n const pipes: StaticSymbol[] = [];\n const\n injectables: CompileInjectableMetadata[] = [];\n const ngModules: CompileNgModuleMetadata[] = [];\n const\n hasDecorators = staticSymbolResolver.hasDecorators(fileName);\n let exportsNonSourceFiles = false;\n const\n isDeclarationFile = fileName.endsWith('.d.ts');\n // Don't analyze .d.ts files that have no decorators as a shortcut\n // to speed up the analysis. This prevents us from\n // resolving the references in these files.\n // Note:\n exportsNonSourceFiles is only needed when compiling with summaries,\n // which is not the case when .d.ts files

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are treated as input files.\n if (!isDeclarationFile || hasDecorators) {\n
staticSymbolResolver.getSymbolsOf(fileName).forEach((symbol) => {\n const resolvedSymbol =
staticSymbolResolver.resolveSymbol(symbol);\n const symbolMeta = resolvedSymbol.metadata;\n if
(!symbolMeta || symbolMeta.__symbolic ===
'error') {\n return;\n }\n let isNgSymbol = false;\n if (symbolMeta.__symbolic === 'class') {\n if
(metadataResolver.isDirective(symbol)) {\n isNgSymbol = true;\n // This directive either has a selector
or doesn't. Selector-less directives get tracked\n // in abstractDirectives, not directives. The compiler doesn't
deal with selector-less\n // directives at all, really, other than to persist their metadata. This is done so that\n
// apps will have an easier time migrating to Ivy, which requires the selector-less\n // annotations to be
applied.\n if (!metadataResolver.isAbstractDirective(symbol)) {\n // The directive is an ordinary
directive.\n directives.push(symbol);\n } else {\n // The directive has no selector and is an
\"abstract\" directive, so track it\n // accordingly.\n abstractDirectives.push(symbol);\n }\n
 } else if (metadataResolver.isPipe(symbol)) {\n isNgSymbol = true;\n pipes.push(symbol);\n }
else if (metadataResolver.isNgModule(symbol)) {\n const ngModule =
metadataResolver.getNgModuleMetadata(symbol, false);\n if (ngModule) {\n isNgSymbol = true;\n
ngModules.push(ngModule);\n }\n } else if (metadataResolver.isInjectable(symbol)) {\n
isNgSymbol = true;\n const injectable = metadataResolver.getInjectableMetadata(symbol, null, false);\n
if (injectable) {\n injectables.push(injectable);\n }\n }\n }\n if (!isNgSymbol) {\n
exportsNonSourceFiles =\n exportsNonSourceFiles || isValueExportingNonSourceFile(host, symbolMeta);\n }\n
});\n}\n}\nreturn {\n fileName,\n directives,\n abstractDirectives,\n pipes,\n ngModules,\n
injectables,\n exportsNonSourceFiles,\n};\n}\n\nexport function analyzeFileForInjectables(\n
host: NgAnalyzeModulesHost, staticSymbolResolver: StaticSymbolResolver,\n metadataResolver:
CompileMetadataResolver, fileName: string): NgAnalyzedFileWithInjectables {\n const injectables:
CompileInjectableMetadata[] = [];\n const shallowModules: CompileShallowModuleMetadata[] = [];\n if
(staticSymbolResolver.hasDecorators(fileName)) {\n
staticSymbolResolver.getSymbolsOf(fileName).forEach((symbol) => {\n const resolvedSymbol =
staticSymbolResolver.resolveSymbol(symbol);\n const symbolMeta = resolvedSymbol.metadata;\n if
(!symbolMeta || symbolMeta.__symbolic === 'error') {\n return;\n }\n if (symbolMeta.__symbolic ===
'class') {\n if (metadataResolver.isInjectable(symbol)) {\n const injectable =
metadataResolver.getInjectableMetadata(symbol, null, false);\n if (injectable) {\n
injectables.push(injectable);\n }\n } else if (metadataResolver.isNgModule(symbol)) {\n const
module = metadataResolver.getShallowModuleMetadata(symbol);\n if (module) {\n
shallowModules.push(module);\n }\n }\n });\n}\n}\nreturn {fileName, injectables,
shallowModules};\n}\n\nfunction isValueExportingNonSourceFile(host: NgAnalyzeModulesHost, metadata: any):
boolean {\n let exportsNonSourceFiles = false;\n\n class Visitor implements ValueVisitor {\n visitArray(arr:
any[], context: any): any {\n arr.forEach(v => visitValue(v, this, context));\n }\n visitStringMap(map: {[key:
string]: any}, context: any): any {\n Object.keys(map).forEach((key) => visitValue(map[key], this, context));\n
 }\n visitPrimitive(value: any, context: any): any {\n visitOther(value: any, context: any): any {\n if (value
instanceof StaticSymbol && !host.isSourceFile(value.filePath)) {\n exportsNonSourceFiles = true;\n }\n
 }\n }\n visitValue(metadata, new Visitor(), null);\n return exportsNonSourceFiles;\n }\n\n export
function mergeAnalyzedFiles(analyzedFiles: NgAnalyzedFile[]): NgAnalyzedModules {\n const allNgModules:
CompileNgModuleMetadata[] = [];\n const ngModuleByPipeOrDirective = new Map<StaticSymbol,
CompileNgModuleMetadata>();\n const allPipesAndDirectives = new Set<StaticSymbol>();\n\n analyzedFiles.forEach(af => {\n af.ngModules.forEach(ngModule => {\n allNgModules.push(ngModule);\n
ngModule.declaredDirectives.forEach(d => ngModuleByPipeOrDirective.set(d.reference, ngModule));\n
ngModule.declaredPipes.forEach(p => ngModuleByPipeOrDirective.set(p.reference, ngModule));\n });\n
af.directives.forEach(d => allPipesAndDirectives.add(d));\n af.pipes.forEach(p =>
allPipesAndDirectives.add(p));\n });\n\n const symbolsMissingModule: StaticSymbol[] = [];\n

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allPipesAndDirectives.forEach(ref => {\n if (!ngModuleByPipeOrDirective.has(ref)) {\n
symbolsMissingModule.push(ref);\n }\n});\n return {\n ngModules: allNgModules,\n
 ngModuleByPipeOrDirective,\n symbolsMissingModule,\n files: analyzedFiles\n};\n}\n\nfunction
mergeAndValidateNgFiles(files: NgAnalyzedFile[]): NgAnalyzedModules {\n return
validateAnalyzedModules(mergeAnalyzedFiles(files));\n}\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {syntaxError} from './util';\n\nexport interface Position
{\n fileName: string;\n line: number;\n column: number;\n}\n\nexport interface FormattedMessageChain {\n
message: string;\n position?: Position;\n next?: FormattedMessageChain[];\n}\n\nexport type FormattedError =
Error & {\n chain: FormattedMessageChain;\n position?: Position;\n};\n\nconst FORMATTED_MESSAGE =
'ngFormattedMessage';\n\nfunction indentStr(level: number): string {\n if (level <= 0) return '';\n if (level < 6)
return [' ', ' ', ' ', ' ', ' ', ' '][level];\n
const half = indentStr(Math.floor(level / 2));\n return half + half + (level % 2 === 1 ? ' ': '');\n}\n\nfunction
formatChain(chain: FormattedMessageChain | undefined, indent: number = 0): string {\n if (!chain) return '';\n const
position = chain.position ? {\n chain.position.fileName,\n chain.position.line + 1,\n chain.position.column +
1\n } : {\n chain.position.fileName,\n chain.position.line + 1,\n chain.position.column + 1\n};\n const prefix =
position && indent === 0 ? ` ${position} ` : '';\n const postfix = position && indent
!<= 0 ? ` at ${position} ` : '';\n let message = `${prefix}${chain.message}${postfix}`;\n if (chain.next) {\n for
(const kid of chain.next) {\n message += '\\n' + formatChain(kid, indent + 2);\n }\n }\n return
`${indentStr(indent)}${message}`;\n}\n\nexport function formattedError(chain: FormattedMessageChain):
FormattedError {\n const message = formatChain(chain) + ' ';\n const error = syntaxError(message) as
FormattedError;\n (error as any)[FORMATTED_MESSAGE] = true;\n error.chain = chain;\n
error.position = chain.position;\n return error;\n}\n\nexport function isFormattedError(error: Error): error is
FormattedError {\n return !!(error as any)[FORMATTED_MESSAGE];\n}\n\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompileSummaryKind} from
'./compile_metadata';\nimport {CompileReflector} from './compile_reflector';\nimport {createAttribute,
createComponent, createContentChild, createContentChildren, createDirective, createHost, createHostBinding,
createHostListener, createInject, createInjectable, createInput, createNgModule, createOptional, createOutput,
createPipe, createSelf, createSkipSelf, createViewChild, createViewChildren, MetadataFactory} from
'./core';\nimport * as o from './output/output_ast';\nimport {SummaryResolver} from
'./summary_resolver';\nimport {syntaxError} from './util';\n\nimport
{formattedError, FormattedMessageChain} from './formatted_error';\nimport {StaticSymbol} from
'./static_symbol';\nimport {StaticSymbolResolver} from './static_symbol_resolver';\n\nconst ANGULAR_CORE =
'@angular/core';\nconst ANGULAR_ROUTER = '@angular/router';\nconst HIDDEN_KEY =
'^\\$.*\\$\\$';\n\nconst IGNORE = {\n __symbolic: 'ignore'\n};\n\nconst USE_VALUE = 'useValue';\nconst
PROVIDE = 'provide';\nconst REFERENCE_SET = new Set([USE_VALUE, 'useFactory', 'data', 'id',
'loadChildren']);\nconst TYPEGUARD_POSTFIX = 'TypeGuard';\nconst USE_IF = 'UseIf';\n\nfunction
shouldIgnore(value: any): boolean {\n return value && value.__symbolic === 'ignore';\n}\n\n/**\n * A static
reflector implements enough of the Reflector API that is necessary to compile\n * templates statically.\n */\n\nexport
class StaticReflector implements CompileReflector {\n private annotationCache = new Map<StaticSymbol,
any[]>();\n private shallowAnnotationCache = new Map<StaticSymbol, any[]>();\n private
propertyCache = new Map<StaticSymbol, {[key: string]: any[]}>();\n private parameterCache = new
Map<StaticSymbol, any[]>();\n private methodCache = new Map<StaticSymbol, {[key: string]: boolean}>();\n
private staticCache = new Map<StaticSymbol, string[]>();\n private conversionMap = new Map<StaticSymbol,
(context: StaticSymbol, args: any[]) => any>();\n private resolvedExternalReferences = new Map<string,
StaticSymbol>();\n // TODO(issue/24571): remove '!'.\n private injectionToken!: StaticSymbol;\n //
TODO(issue/24571): remove '!'.\n private opaqueToken!: StaticSymbol;\n // TODO(issue/24571): remove '!'.\n
private ROUTES!: StaticSymbol;\n // TODO(issue/24571): remove '!'.\n private

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ANALYZE_FOR_ENTRY_COMPONENTS!: StaticSymbol;\n private
annotationForParentClassWithSummaryKind =\n new Map<CompileSummaryKind,
MetadataFactory<any>[]>()>);\n\n constructor(\n private summaryResolver: SummaryResolver<StaticSymbol>,\n private symbolResolver: StaticSymbolResolver,\n knownMetadataClasses:
{name: string, filePath: string, ctor: any}[] = [],\n knownMetadataFunctions: {name: string, filePath: string, fn:
any}[] = [],\n private errorRecorder?: (error: any, fileName?: string) => void) {\n
this.initializeConversionMap();\n knownMetadataClasses.forEach(\n (kc) =>
this._registerDecoratorOrConstructor(\n this.getStaticSymbol(kc.filePath, kc.name), kc.ctor));\n
knownMetadataFunctions.forEach(\n (kf) => this._registerFunction(this.getStaticSymbol(kf.filePath, kf.name),
kf.fn));\n this.annotationForParentClassWithSummaryKind.set(\n CompileSummaryKind.Directive,
[createDirective, createComponent]);\n
this.annotationForParentClassWithSummaryKind.set(CompileSummaryKind.Pipe, [createPipe]);\n
this.annotationForParentClassWithSummaryKind.set(CompileSummaryKind.NgModule, [createNgModule]);\n
this.annotationForParentClassWithSummaryKind.set(\n CompileSummaryKind.Injectable,\n [createInjectable,
createPipe, createDirective, createComponent, createNgModule]);\n } \n\n componentModuleUrl(typeOrFunc:
StaticSymbol): string {\n const staticSymbol = this.findSymbolDeclaration(typeOrFunc);\n return
this.symbolResolver.getResourcePath(staticSymbol);\n } \n\n /**\n * Invalidate the specified `symbols` on
program change.\n * @param symbols\n */\n invalidateSymbols(symbols: StaticSymbol[]) {\n for (const
symbol of symbols) {\n this.annotationCache.delete(symbol);\n
this.shallowAnnotationCache.delete(symbol);\n this.propertyCache.delete(symbol);\n
this.parameterCache.delete(symbol);\n this.methodCache.delete(symbol);\n this.staticCache.delete(symbol);\n
this.conversionMap.delete(symbol);\n } \n\n resolveExternalReference(ref: o.ExternalReference,
containingFile?: string): StaticSymbol {\n let key: string|undefined = undefined;\n if (!containingFile) {\n key
= `${ref.moduleName}:${ref.name}`;\n const declarationSymbol
= this.resolvedExternalReferences.get(key);\n if (declarationSymbol) return declarationSymbol;\n } \n const
refSymbol =\n this.symbolResolver.getSymbolByModule(ref.moduleName!, ref.name!, containingFile);\n const declarationSymbol = this.findSymbolDeclaration(refSymbol);\n if (!containingFile) {\n
this.symbolResolver.recordModuleNameForFileName(refSymbol.filePath, ref.moduleName!);\n
this.symbolResolver.recordImportAs(declarationSymbol, refSymbol);\n } \n if (key) {\n
this.resolvedExternalReferences.set(key, declarationSymbol);\n } \n return declarationSymbol;\n } \n\n
findDeclaration(moduleUrl: string, name: string, containingFile?: string): StaticSymbol {\n return
this.findSymbolDeclaration(\n this.symbolResolver.getSymbolByModule(moduleUrl, name, containingFile));\n } \n\n
tryFindDeclaration(moduleUrl: string, name: string, containingFile?: string): StaticSymbol {\n return
this.symbolResolver.ignoreErrorsFor(\n () => this.findDeclaration(moduleUrl, name, containingFile));\n } \n\n
findSymbolDeclaration(symbol:
StaticSymbol): StaticSymbol {\n const resolvedSymbol = this.symbolResolver.resolveSymbol(symbol);\n if
(resolvedSymbol) {\n let resolvedMetadata = resolvedSymbol.metadata;\n if (resolvedMetadata &&
resolvedMetadata.__symbolic === 'resolved') {\n resolvedMetadata = resolvedMetadata.symbol;\n } \n if
(resolvedMetadata instanceof StaticSymbol) {\n return
this.findSymbolDeclaration(resolvedSymbol.metadata);\n } \n return symbol;\n } \n\n public
tryAnnotations(type: StaticSymbol): any[] {\n const originalRecorder = this.errorRecorder;\n this.errorRecorder
= (error: any, fileName?: string) => {};\n try {\n return this.annotations(type);\n } finally {\n
this.errorRecorder = originalRecorder;\n } \n } \n\n public annotations(type: StaticSymbol): any[] {\n return
this._annotations(\n type, (type: StaticSymbol,
decorators: any) => this.simplify(type, decorators),\n this.annotationCache);\n } \n\n public
shallowAnnotations(type: StaticSymbol): any[] {\n return this._annotations(\n type, (type: StaticSymbol,
decorators: any) => this.simplify(type, decorators, true),\n this.shallowAnnotationCache);\n } \n\n private

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_annotations(\n type: StaticSymbol, simplify: (type: StaticSymbol, decorators: any) => any,\n annotationCache: Map<StaticSymbol, any[]>): any[] {\n let annotations = annotationCache.get(type);\n if\n (!annotations) {\n annotations = [];\n const classMetadata = this.getTypeMetadata(type);\n const\n parentType = this.findParentType(type, classMetadata);\n if (parentType) {\n const parentAnnotations =\n this.annotations(parentType);\n annotations.push(...parentAnnotations);\n }\n let ownAnnotations: any[] =\n [];\n if (classMetadata['decorators']) {\n ownAnnotations = simplify(type, classMetadata['decorators']);\n if (ownAnnotations) {\n annotations.push(...ownAnnotations);\n }\n }\n if (parentType &&\n !this.summaryResolver.isLibraryFile(type.filePath) &&\n this.summaryResolver.isLibraryFile(parentType.filePath)) {\n const summary =\n this.summaryResolver.resolveSummary(parentType);\n if (summary && summary.type) {\n const\n requiredAnnotationTypes =\n this.annotationForParentClassWithSummaryKind.get(summary.type.summaryKind!);\n const\n typeHasRequiredAnnotation = requiredAnnotationTypes.some(\n (requiredType) =>\n ownAnnotations.some(ann => requiredType.isTypeOf(ann)));\n if (!typeHasRequiredAnnotation) {\n this.reportError(\n formatMetadataError(\n metadataError(\n `Class\n ${type.name} in ${type.filePath} extends from a ${\n CompileSummaryKind[summary.type.summaryKind!]\n }} in another compilation unit without duplicating the decorator`,\n /* summary */ undefined,\n `Please add a ${\n requiredAnnotationTypes.map((type) => type.ngMetadataName)\n .join(' or ')` decorator to the class`,\n type),\n type);\n }\n }\n annotationCache.set(type, annotations.filter(ann => !!ann));\n }\n return annotations;\n }\n\n public\n propMetadata(type: StaticSymbol): {[key: string]: any[]} {\n let propMetadata = this.propertyCache.get(type);\n if (!propMetadata) {\n const classMetadata = this.getTypeMetadata(type);\n propMetadata = {};\n const\n parentType = this.findParentType(type, classMetadata);\n if (parentType) {\n const parentPropMetadata =\n this.propMetadata(parentType);\n Object.keys(parentPropMetadata).forEach((parentProp) => {\n propMetadata[parentProp]\n = parentPropMetadata[parentProp];\n });\n }\n const members = classMetadata['members'] || {};\n Object.keys(members).forEach((propName) => {\n const propData = members[propName];\n const prop =\n (<any[]>propData)\n .find(a => a['__symbolic'] == 'property' || a['__symbolic'] == 'method');\n const decorators: any[] = [];\n // hasOwnProperty() is used here to make sure we do not look up methods\n // on `Object.prototype`.\n if (propMetadata?.hasOwnProperty(propName)) {\n decorators.push(...propMetadata[propName]);\n }\n propMetadata[propName] = decorators;\n if\n (prop && prop['decorators']) {\n decorators.push(...this.simplify(type, prop['decorators']));\n }\n });\n this.propertyCache.set(type, propMetadata);\n }\n return propMetadata;\n }\n\n public\n parameters(type:\n StaticSymbol): any[] {\n if (!(type instanceof StaticSymbol))\n {\n this.reportError(\n new Error(`parameters received ${JSON.stringify(type)} which is not a\n StaticSymbol`,\n type);\n return [];\n }\n try {\n let parameters = this.parameterCache.get(type);\n if (!parameters) {\n const classMetadata = this.getTypeMetadata(type);\n const parentType =\n this.findParentType(type, classMetadata);\n const members = classMetadata ? classMetadata['members'] :\n null;\n const ctorData = members ? members['__ctor__'] : null;\n if (ctorData) {\n const ctor =\n (<any[]>ctorData).find(a => a['__symbolic'] == 'constructor');\n const rawParameterTypes =\n <any[]>ctor['parameters'] || [];\n const parameterDecorators = <any[]>this.simplify(type,\n ctor['parameterDecorators'] || []);\n parameters = [];\n rawParameterTypes.forEach((rawParamType,\n index) => {\n const nestedResult: any[] = [];\n const paramType = this.trySimplify(type,\n rawParamType);\n if (paramType) nestedResult.push(paramType);\n const decorators =\n parameterDecorators ? parameterDecorators[index] : null;\n if (decorators) {\n nestedResult.push(...decorators);\n }\n parameters!.push(nestedResult);\n });\n } else if\n (parentType) {\n parameters = this.parameters(parentType);\n }\n if (!parameters) {\n
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parameters = [];\n }\n this.parameterCache.set(type, parameters);\n }\n return parameters;\n } catch
(e) {\n console.error(`Failed on type ${JSON.stringify(type)} with error ${e}`);\n throw e;\n }\n}\n\nprivate _methodNames(type: any): {[key: string]: boolean} {\n let methodNames = this.methodCache.get(type);\n if (!methodNames) {\n const classMetadata = this.getTypeMetadata(type);\n methodNames = {};\n const
parentType = this.findParentType(type, classMetadata);\n if (parentType) {\n const parentMethodNames = this._methodNames(parentType);\n Object.keys(parentMethodNames).forEach((parentProp) => {\n methodNames![parentProp] =
parentMethodNames[parentProp];\n });\n }\n const members = classMetadata['members'] || {};\n Object.keys(members).forEach((propName) => {\n const propData = members[propName];\n const
isMethod = (<any[]>propData).some(a => a['__symbolic'] == 'method');\n methodNames![propName] =
methodNames![propName] || isMethod;\n });\n this.methodCache.set(type, methodNames);\n }\n return
methodNames;\n}\n\nprivate _staticMembers(type: StaticSymbol): string[] {\n let staticMembers =
this.staticCache.get(type);\n if (!staticMembers) {\n const classMetadata = this.getTypeMetadata(type);\n const staticMemberData = classMetadata['statics'] || {};\n staticMembers = Object.keys(staticMemberData);\n this.staticCache.set(type, staticMembers);\n }\n return staticMembers;\n}\n\nprivate findParentType(type: StaticSymbol, classMetadata: any):
StaticSymbol|undefined {\n const parentType = this.trySimplify(type, classMetadata['extends']);\n if
(parentType instanceof StaticSymbol) {\n return parentType;\n }\n}\n\nhasLifecycleHook(type: any,
lcProperty: string): boolean {\n if (!(type instanceof StaticSymbol)) {\n this.reportError(\n new Error(\n
 `hasLifecycleHook received ${JSON.stringify(type)} which is not a StaticSymbol`),\n type);\n }\n try
{\n return !!this._methodNames(type)[lcProperty];\n } catch (e) {\n console.error(`Failed on type
${JSON.stringify(type)} with error ${e}`);\n throw e;\n }\n}\n\nguards(type: any): {[key: string]:
StaticSymbol} {\n if (!(type instanceof StaticSymbol)) {\n this.reportError(\n new Error(`guards received
${JSON.stringify(type)} which is not a StaticSymbol`), type);\n }\n return {};\n}\n const staticMembers = this._staticMembers(type);\n const result: {[key: string]:
StaticSymbol} = {};\n for (let name of staticMembers) {\n if (name.endsWith(TYPEGUARD_POSTFIX)) {\n
 let property = name.substr(0, name.length - TYPEGUARD_POSTFIX.length);\n let value: any;\n if
(property.endsWith(USE_IF)) {\n property = name.substr(0, property.length - USE_IF.length);\n value =
USE_IF;\n } else {\n value = this.getStaticSymbol(type.filePath, type.name, [name]);\n }\n result[property] = value;\n }\n }\n return result;\n}\n\nprivate _registerDecoratorOrConstructor(type:
StaticSymbol, ctor: any): void {\n this.conversionMap.set(type, (context: StaticSymbol, args: any[]) => new
ctor(...args));\n}\n\nprivate _registerFunction(type: StaticSymbol, fn: any): void {\n this.conversionMap.set(type, (context: StaticSymbol, args: any[]) => fn.apply(undefined, args));\n}\n\nprivate initializeConversionMap(): void {\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'Injectable'), createInjectable);\n this.injectionToken =
this.findDeclaration(ANGULAR_CORE, 'InjectionToken');\n this.opaqueToken =
this.findDeclaration(ANGULAR_CORE, 'OpaqueToken');\n this.ROUTES =
this.tryFindDeclaration(ANGULAR_ROUTER, 'ROUTES');\n this.ANALYZE_FOR_ENTRY_COMPONENTS
= \n this.findDeclaration(ANGULAR_CORE, 'ANALYZE_FOR_ENTRY_COMPONENTS');\n this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Host'), createHost);\n this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Self'), createSelf);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'SkipSelf'), createSkipSelf);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'Inject'), createInject);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'Optional'), createOptional);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'Attribute'), createAttribute);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'ContentChild'), createContentChild);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'ContentChildren'),

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createContentChildren);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE,
'ViewChild'), createViewChild);\n this._registerDecoratorOrConstructor(\n
this.findDeclaration(ANGULAR_CORE, 'ViewChildren'), createViewChildren);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Input'), createInput);\n
this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'Output'), createOutput);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Pipe'), createPipe);\n
this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'HostBinding'),
createHostBinding);\n this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE,
'HostListener'), createHostListener);\n this._registerDecoratorOrConstructor(\n
this.findDeclaration(ANGULAR_CORE, 'Directive'), createDirective);\n this._registerDecoratorOrConstructor(\n
this.findDeclaration(ANGULAR_CORE, 'Component'), createComponent);\n
this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'NgModule'),
createNgModule);\n\n // Note: Some metadata classes can be used directly with Provider.deps.\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Host'), createHost);\n
this._registerDecoratorOrConstructor(this.findDeclaration(ANGULAR_CORE, 'Self'), createSelf);\n
this._registerDecoratorOrConstructor(\n this.findDeclaration(ANGULAR_CORE, 'SkipSelf'), createSkipSelf);\n
this._registerDecoratorOrConstructor(\n
this.findDeclaration(ANGULAR_CORE, 'Optional'), createOptional);\n }\n\n /**\n * getStaticSymbol
produces a Type whose metadata is known but whose implementation is not loaded.\n * All types passed to the
StaticResolver should be pseudo-types returned by this method.\n * \n * @param declarationFile the absolute path
of the file where the symbol is declared\n * @param name the name of the type.\n * \n
getStaticSymbol(declarationFile: string, name: string, members?: string[]): StaticSymbol {\n return
this.symbolResolver.getStaticSymbol(declarationFile, name, members);\n }\n\n /**\n * Simplify but discard any
errors\n * \n private trySimplify(context: StaticSymbol, value: any): any {\n const originalRecorder =
this.errorRecorder;\n this.errorRecorder = (error: any, fileName?: string) => {};\n const result =
this.simplify(context, value);\n this.errorRecorder = originalRecorder;\n return result;\n }\n\n /**
@internal *\n public simplify(context: StaticSymbol, value: any, lazy: boolean = false): any {\n const self =
this;\n let scope = BindingScope.empty;\n const calling = new Map<StaticSymbol, boolean>();\n const
rootContext = context;\n function simplifyInContext(\n context: StaticSymbol, value: any, depth: number,
references: number): any {\n function resolveReferenceValue(staticSymbol: StaticSymbol): any {\n const
resolvedSymbol = self.symbolResolver.resolveSymbol(staticSymbol);\n return resolvedSymbol ?
resolvedSymbol.metadata : null;\n }\n\n function simplifyEagerly(value: any): any {\n return
simplifyInContext(context, value, depth, 0);\n }\n\n function simplifyLazily(value: any): any {\n return
simplifyInContext(context, value, depth, references + 1);\n }\n\n function simplifyNested(nestedContext:
StaticSymbol, value: any): any {\n if (nestedContext === context) {\n // If the
context hasn't changed let the exception propagate unmodified.\n return simplifyInContext(nestedContext,
value, depth + 1, references);\n }\n try {\n return simplifyInContext(nestedContext, value, depth + 1,
references);\n } catch (e) {\n if (isMetadataError(e)) {\n // Propagate the message text up but add a
message to the chain that explains how we got\n // here.\n // e.chain implies e.symbol\n const
summaryMsg = e.chain ? 'references \\' + e.symbol!.name + \'' : errorSummary(e);\n const summary =
`$${nestedContext.name}' $${summaryMsg}`;\n const chain = {message: summary, position: e.position, next:
e.chain};\n // TODO(chuckj): retrieve the position information indirectly from the collectors node\n //
map if the metadata is from a .ts file.\n self.error(\n {\n message: e.message,\n
advise:
e.advise,\n context: e.context,\n chain,\n symbol: nestedContext\n },\n
context);\n } else {\n // It is probably an internal error.\n throw e;\n }\n }\n\n
function simplifyCall(\n functionSymbol: StaticSymbol, targetFunction: any, args: any[],
targetExpression: any) {\n if (targetFunction && targetFunction['__symbolic'] == 'function') {\n if

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(calling.get(functionSymbol)) {\n self.error(\n {\n message: 'Recursion is not
supported',\n summary: `called '${functionSymbol.name}' recursively`,\n value:
targetFunction\n },\n functionSymbol);\n }\n try {\n const value =
targetFunction['value'];\n if (value && (depth !== 0 || value.__symbolic !== 'error')) {\n const
parameters:
string[] = targetFunction['parameters'];\n const defaults: any[] = targetFunction.defaults;\n args =
args.map(arg => simplifyNested(context, arg))\n .map(arg => shouldIgnore(arg) ? undefined : arg);\n if (defaults && defaults.length > args.length) {\n
args.push(...defaults.slice(args.length).map((value: any) => simplify(value)));\n }\n
calling.set(functionSymbol, true);\n const functionScope = BindingScope.build();\n for (let i = 0; i <
parameters.length; i++) {\n functionScope.define(parameters[i], args[i]);\n }\n const
oldScope = scope;\n let result: any;\n try {\n scope = functionScope.done();\n
result = simplifyNested(functionSymbol, value);\n } finally {\n scope = oldScope;\n }\n
return result;\n
}\n } finally {\n calling.delete(functionSymbol);\n }\n }\n if (depth === 0) {\n
// If depth is 0 we are evaluating the top level expression that is describing element\n // decorator. In this case,
it is a decorator we don't understand, such as a custom\n // non-angular decorator, and we should just ignore
it.\n return IGNORE;\n }\n let position: Position|undefined = undefined;\n if (targetExpression
&& targetExpression.__symbolic === 'resolved') {\n const line = targetExpression.line;\n const character
= targetExpression.character;\n const fileName = targetExpression.fileName;\n if (fileName !== null &&
line !== null && character !== null) {\n position = { fileName, line, column: character};\n }\n }\n
self.error(\n {\n message: FUNCTION_CALL_NOT_SUPPORTED,\n context:
functionSymbol,\n
value: targetFunction,\n position\n },\n context);\n }\n function
simplify(expression: any): any {\n if (isPrimitive(expression)) {\n return expression;\n }\n if
(Array.isArray(expression)) {\n const result: any[] = [];\n for (const item of (<any>expression)) {\n
// Check for a spread expression\n if (item && item.__symbolic === 'spread') {\n // We call with
references as 0 because we require the actual value and cannot\n // tolerate a reference here.\n const
spreadArray = simplifyEagerly(item.expression);\n if (Array.isArray(spreadArray)) {\n for (const
spreadItem of spreadArray) {\n result.push(spreadItem);\n }\n continue;\n }\n
}\n const value = simplify(item);\n if (shouldIgnore(value)) {\n
continue;\n }\n result.push(value);\n }\n return result;\n }\n if (expression
instanceof StaticSymbol) {\n // Stop simplification at builtin symbols or if we are in a reference context and\n
// the symbol doesn't have members.\n if (expression === self.injectionToken ||
self.conversionMap.has(expression) ||\n (references > 0 && !expression.members.length)) {\n return
expression;\n } else {\n const staticSymbol = expression;\n const declarationValue =
resolveReferenceValue(staticSymbol);\n if (declarationValue !== null) {\n return
simplifyNested(staticSymbol, declarationValue);\n } else {\n return staticSymbol;\n }\n
}\n }\n if (expression) {\n if (expression['__symbolic']) {\n let staticSymbol: StaticSymbol;\n
switch (expression['__symbolic'])
{\n case 'binop':\n let left = simplify(expression['left']);\n if (shouldIgnore(left)) return
left;\n let right = simplify(expression['right']);\n if (shouldIgnore(right)) return right;\n
switch (expression['operator']) {\n case '&&':\n return left && right;\n case '||':\n
return left || right;\n case '':\n return left | right;\n case '^':\n
return left ^ right;\n case '&':\n return left & right;\n case '===':
return
left === right;\n case '!==':\n return left !== right;\n case '===':\n return left
=== right;\n case '!==':\n return left !== right;\n

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 case '<':\n return left < right;\n case '>':\n return left > right;\n case
'<=':\n return left <= right;\n case '>=':\n return left >= right;\n case
'<<':\n return left << right;\n case '>>':\n return left >> right;\n case
'+':\n return left + right;\n case '-':\n return left - right;\n case '*':\n
 return left * right;\n case '/':\n return left / right;\n case '%':\n
return left % right;\n }\n return null;\n case 'if':\n let condition =
simplify(expression['condition']);\n return condition ? simplify(expression['thenExpression']) :\n
 simplify(expression['elseExpression']);\n case 'pre':\n let operand =
simplify(expression['operand']);\n if (shouldIgnore(operand)) return operand;\n switch
(expression['operator']) {\n case '+':\n return operand;\n case '-':\n return
-operand;\n case '!':\n return !operand;\n case '~':\n return ~operand;\n
 }\n return null;\n case 'index':\n let indexTarget =
simplifyEagerly(expression['expression']);\n let index = simplifyEagerly(expression['index']);\n if
(indexTarget && isPrimitive(index)) return indexTarget[index];\n return null;\n case 'select':\n
const member = expression['member'];\n let selectContext = context;\n
 let selectTarget = simplify(expression['expression']);\n if (selectTarget instanceof StaticSymbol)
{\n const members = selectTarget.members.concat(member);\n selectContext =\n
self.getStaticSymbol(selectTarget.filePath, selectTarget.name, members);\n const declarationValue =
resolveReferenceValue(selectContext);\n if (declarationValue != null) {\n return
simplifyNested(selectContext, declarationValue);\n } else {\n return selectContext;\n
 }\n }\n if (selectTarget && isPrimitive(member))\n return
simplifyNested(selectContext, selectTarget[member]);\n return null;\n case 'reference':\n
// Note: This only has to deal with variable references, as symbol references have\n // been converted into
'resolved'\n // in the StaticSymbolResolver.\n const name: string = expression['name'];\n
const localValue = scope.resolve(name);\n if (localValue != BindingScope.missing) {\n return
localValue;\n }\n break;\n case 'resolved':\n try {\n return
simplify(expression.symbol);\n } catch (e) {\n // If an error is reported evaluating the symbol
record the position of the\n // reference in the error so it can\n // be reported in the error
message generated from the exception.\n if (isMetadataError(e) && expression.fileName != null &&\n
 expression.line != null && expression.character != null) {\n e.position = {\n
fileName: expression.fileName,\n line: expression.line,\n
 column: expression.character\n };\n }\n throw e;\n }\n case
'class':\n return context;\n case 'function':\n return context;\n case 'new':\n
case 'call':\n // Determine if the function is a built-in conversion\n staticSymbol =
simplifyInContext(\n context, expression['expression'], depth + 1, /* references */ 0);\n if
(staticSymbol instanceof StaticSymbol) {\n if (staticSymbol === self.injectionToken || staticSymbol ===
self.opaqueToken) {\n // if somebody calls new InjectionToken, don't create an InjectionToken,\n
 // but rather return the symbol to which the InjectionToken is assigned to.\n // OpaqueToken is
supported too as it is required by the language service to\n // support
v4 and prior versions of Angular.\n return context;\n }\n const argExpressions:
any[] = expression['arguments'] || [];\n let converter = self.conversionMap.get(staticSymbol);\n
if (converter) {\n const args = argExpressions.map(arg => simplifyNested(context, arg));\n
 .map(arg => shouldIgnore(arg) ? undefined : arg);\n return converter(context, args);\n
 } else {\n // Determine if the function is one we can simplify.\n const targetFunction =
resolveReferenceValue(staticSymbol);\n return simplifyCall(\n staticSymbol,\n
targetFunction, argExpressions, expression['expression']);\n }\n }\n return IGNORE;\n
 case 'error':\n let message = expression.message;\n

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 if (expression['line'] != null) {\n self.error(\n {\n message,\n context: expression.context,\n value: expression,\n position: {\n fileName: expression['fileName'],\n line: expression['line'],\n column:\n expression['character']\n }\n },\n context);\n } else {\n self.error({ message, context: expression.context }, context);\n }\n return IGNORE;\n }\n case\n 'ignore':\n return expression;\n }\n return null;\n }\n return\n mapStringMap(expression, (value, name) => {\n if (REFERENCE_SET.has(name)) {\n if (name ===\n USE_VALUE && PROVIDE in expression) {\n // If\n this is a provider expression, check for special tokens that need the value\n // during analysis.\n const provide = simplify(expression.provide);\n if (provide === self.ROUTES || provide ==\n self.ANALYZE_FOR_ENTRY_COMPONENTS) {\n return simplify(value);\n }\n return simplifyLazily(value);\n }\n return simplify(value);\n });\n });\n return\n IGNORE;\n }\n return simplify(value);\n }\n let result: any;\n try {\n result =\n simplifyInContext(context, value, 0, lazy ? 1 : 0);\n } catch (e) {\n if (this.errorRecorder) {\n this.reportError(e, context);\n } else {\n throw formatMetadataError(e, context);\n }\n }\n if\n (shouldIgnore(result)) {\n return undefined;\n }\n return result;\n }\n private getTypeMetadata(type:\n StaticSymbol): {[key: string]: any} {\n const resolvedSymbol\n = this.symbolResolver.resolveSymbol(type);\n return resolvedSymbol && resolvedSymbol.metadata ?\n resolvedSymbol.metadata :\n {\n __symbolic: 'class';\n }\n }\n private\n reportError(error: Error, context: StaticSymbol, path?: string) {\n if (this.errorRecorder) {\n this.errorRecorder(\n formatMetadataError(error, context), (context && context.filePath) || path);\n } else {\n throw error;\n }\n }\n private error(\n {\n message, summary, advise, position, context, value, symbol,\n chain\n }:\n {\n message: string,\n summary?: string,\n advise?: string,\n position?: Position,\n context?: any,\n value?: any,\n symbol?: StaticSymbol,\n chain?: MetadataMessageChain\n },\n reportingContext: StaticSymbol) {\n this.reportError(\n metadataError(message, summary, advise, position,\n symbol, context, chain),\n reportingContext);\n }\n }\n }\n interface Position {\n fileName: string;\n line: number;\n column: number;\n }\n interface\n MetadataMessageChain {\n message: string;\n summary?: string;\n position?: Position;\n context?: any;\n symbol?: StaticSymbol;\n next?: MetadataMessageChain;\n }\n type MetadataError = Error & {\n position?:\n Position;\n advise?: string;\n summary?: string;\n context?: any;\n symbol?: StaticSymbol;\n chain?:\n MetadataMessageChain;\n };\n const METADATA_ERROR = 'ngMetadataError';\n function metadataError(\n message: string, summary?: string, advise?: string, position?: Position, symbol?: StaticSymbol,\n context?: any,\n chain?: MetadataMessageChain): MetadataError {\n const error = syntaxError(message) as MetadataError;\n (error\n as any)[METADATA_ERROR] = true;\n if (advise) error.advise = advise;\n if (position) error.position =\n position;\n if (summary) error.summary = summary;\n if (context) error.context = context;\n if (chain) error.chain\n = chain;\n if (symbol)\n error.symbol = symbol;\n return error;\n }\n function isMetadataError(error: Error): error is MetadataError {\n return\n !!(error as any)[METADATA_ERROR];\n }\n const REFERENCE_TO_NONEXPORTED_CLASS =\n 'Reference to non-exported class';\n const VARIABLE_NOT_INITIALIZED = 'Variable not initialized';\n const\n DESTRUCTURE_NOT_SUPPORTED = 'Destructuring not supported';\n const COULD_NOT_RESOLVE_TYPE\n = 'Could not resolve type';\n const FUNCTION_CALL_NOT_SUPPORTED = 'Function call not supported';\n const\n REFERENCE_TO_LOCAL_SYMBOL = 'Reference to a local symbol';\n const LAMBDA_NOT_SUPPORTED =\n 'Lambda not supported';\n function expandedMessage(message: string, context: any): string {\n switch (message)\n {\n case REFERENCE_TO_NONEXPORTED_CLASS:\n if (context && context.className) {\n return\n `References to a non-exported class are not supported in decorators but ${\n context.className\n } was\n referenced.`;\n }\n break;\n case VARIABLE_NOT_INITIALIZED:\n return\n 'Only initialized variables and constants can be referenced in decorators because the value of this variable is needed\n by the template compiler';\n case DESTRUCTURE_NOT_SUPPORTED:\n return 'Referencing an exported

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destructured variable or constant is not supported in decorators and this value is needed by the template compiler';\n
case COULD_NOT_RESOLVE_TYPE:\n if (context && context.typeName) {\n return `Could not resolve
type ${context.typeName}`;\n }\n break;\n case FUNCTION_CALL_NOT_SUPPORTED:\n if (context
&& context.name) {\n return `Function calls are not supported in decorators but '${context.name}' was
called`;\n }\n return 'Function calls are not supported in decorators';\n case
REFERENCE_TO_LOCAL_SYMBOL:\n if (context && context.name) {\n return `Reference to a local
(non-exported) symbols are not supported in decorators but '${context.name}' was referenced`;\n }\n break;\n case
LAMBDA_NOT_SUPPORTED:\n return `Function expressions are not supported in decorators`;\n }\n return
message;\n}\n\nfunction messageAdvise(message: string, context: any): string|undefined {\n switch (message) {\n
case REFERENCE_TO_NONEXPORTED_CLASS:\n if (context && context.className) {\n return
`Consider exporting '${context.className}`;\n }\n break;\n case DESTRUCTURE_NOT_SUPPORTED:\n
return 'Consider simplifying to avoid destructuring';\n case REFERENCE_TO_LOCAL_SYMBOL:\n if
(context && context.name) {\n return `Consider exporting '${context.name}`;\n }\n break;\n case
LAMBDA_NOT_SUPPORTED:\n return `Consider changing the function expression into an exported
function`;\n }\n return undefined;\n}\n\nfunction errorSummary(error: MetadataError): string {\n if
(error.summary) {\n return error.summary;\n }\n switch (error.message) {\n case
REFERENCE_TO_NONEXPORTED_CLASS:\n if (error.context && error.context.className) {\n
 return `references non-exported class ${error.context.className}`;\n }\n break;\n case
VARIABLE_NOT_INITIALIZED:\n return 'is not initialized';\n case
DESTRUCTURE_NOT_SUPPORTED:\n return 'is a destructured variable';\n case
COULD_NOT_RESOLVE_TYPE:\n return 'could not be resolved';\n case
FUNCTION_CALL_NOT_SUPPORTED:\n if (error.context && error.context.name) {\n return `calls
`${error.context.name}`;\n }\n return `calls a function`;\n case REFERENCE_TO_LOCAL_SYMBOL:\n
if (error.context && error.context.name) {\n return `references local variable ${error.context.name}`;\n }\n
 return `references a local variable`;\n }\n return 'contains the error';\n }\n}\n\nfunction mapStringMap(input: {[key:
string]: any}, transform: (value: any, key: string) => any): {[key: string]: any} {\n if (!input) return {};\n const
result: {[key: string]: any} = {};\n Object.keys(input).forEach((key)
=> {\n const value = transform(input[key], key);\n if (!shouldIgnore(value)) {\n if
(HIDDEN_KEY.test(key)) {\n Object.defineProperty(result, key, {enumerable: false, configurable: true, value:
value});\n } else {\n result[key] = value;\n }\n }\n });\n return result;\n}\n\nfunction isPrimitive(o:
any): boolean {\n return o === null || (typeof o !== 'function' && typeof o !== 'object');\n}\n\ninterface
BindingScopeBuilder {\n define(name: string, value: any): BindingScopeBuilder;\n done():
BindingScope;\n}\n\nabstract class BindingScope {\n abstract resolve(name: string): any;\n public static missing =
{};\n public static empty: BindingScope = {resolve: name => BindingScope.missing};\n\n public static build():
BindingScopeBuilder {\n const current = new Map<string, any>();\n return {\n define: function(name, value)
{\n current.set(name, value);\n return this;\n },\n done: function() {\n
 return current.size > 0 ? new PopulatedScope(current) : BindingScope.empty;\n }\n };\n }\n}\n\nclass
PopulatedScope extends BindingScope {\n constructor(private bindings: Map<string, any>) {\n super();\n }\n\n resolve(name: string): any {\n return this.bindings.has(name) ? this.bindings.get(name) : BindingScope.missing;\n }\n}\n\nfunction formatMetadataMessageChain(chain: MetadataMessageChain, advise: string|undefined):
FormattedMessageChain {\n const expanded = expandedMessage(chain.message, chain.context);\n const nesting =
chain.symbol ? `in '${chain.symbol.name}` : `:`;\n const message = `${expanded}${nesting}`;\n const position =
chain.position;\n const next: FormattedMessageChain|undefined = chain.next ?\n formatMetadataMessageChain(chain.next, advise) :\n advise ? {message: advise} : undefined;\n return
{message, position, next: next ? [next] : undefined};\n}\n\nfunction formatMetadataError(e: Error, context:
StaticSymbol): Error {\n if

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(isMetadataError(e)) {\n // Produce a formatted version of the and leaving enough information in the original
error\n // to recover the formatting information to eventually produce a diagnostic error message.\n const
position = e.position;\n const chain: MetadataMessageChain = {\n message: `Error during template compile of
'${context.name}`,\n position: position,\n next: {message: e.message, next: e.chain, context: e.context,
symbol: e.symbol}\n };\n const advise = e.advise || messageAdvise(e.message, e.context);\n return
formattedError(formatMetadataMessageChain(chain, advise));\n } \n return e;\n}\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Summary,
SummaryResolver} from '../summary_resolver';\nimport {StaticSymbol, StaticSymbolCache} from
'./static_symbol';\nimport
{deserializeSummaries} from './summary_serializer';\nimport {stripGeneratedFileSuffix, summaryFileName} from
'./util';\n\nexport interface AotSummaryResolverHost {\n /**\n * Loads an NgModule/Directive/Pipe summary
file\n */\n loadSummary(filePath: string): string|null;\n /**\n * Returns whether a file is a source file or not.\n
*/\n isSourceFile(sourceFilePath: string): boolean;\n /**\n * Converts a file name into a representation that should
be stored in a summary file.\n * This has to include changing the suffix as well.\n * E.g.\n * `some_file.ts` ->
`some_file.d.ts`\n */\n toSummaryFileName(fileName: string, referringSrcFileName: string): string;\n /**\n * Converts a fileName that
was processed by `toSummaryFileName` back into a real fileName\n * given the fileName of the library that is
referring to it.\n */\n fromSummaryFileName(fileName: string, referringLibFileName:
string): string;\n}\n\nexport class AotSummaryResolver implements SummaryResolver<StaticSymbol> {\n //
Note: this will only contain StaticSymbols without members!\n private summaryCache = new Map<StaticSymbol,
Summary<StaticSymbol>>();\n private loadedFilePaths = new Map<string, boolean>();\n // Note: this will only
contain StaticSymbols without members!\n private importAs = new Map<StaticSymbol, StaticSymbol>();\n private knownFileNameToModuleNames = new Map<string, string>();\n constructor(private host:
AotSummaryResolverHost, private staticSymbolCache: StaticSymbolCache) {\n }\n isLibraryFile(filePath: string):
boolean {\n // Note: We need to strip the .ngfactory. file path,\n // so this method also works for generated files\n
 // (for which host.isSourceFile will always return false).\n return
!this.host.isSourceFile(stripGeneratedFileSuffix(filePath));\n }\n toSummaryFileName(filePath: string,
referringSrcFileName: string) {\n return this.host.toSummaryFileName(filePath,
referringSrcFileName);\n }\n fromSummaryFileName(fileName: string, referringLibFileName: string) {\n
return this.host.fromSummaryFileName(fileName, referringLibFileName);\n }\n resolveSummary(staticSymbol:
StaticSymbol): Summary<StaticSymbol>|null {\n const rootSymbol = staticSymbol.members.length ?\n
this.staticSymbolCache.get(staticSymbol.filePath, staticSymbol.name) : \n staticSymbol;\n let summary =
this.summaryCache.get(rootSymbol);\n if (!summary) {\n this._loadSummaryFile(staticSymbol.filePath);\n
summary = this.summaryCache.get(staticSymbol);\n }\n return (rootSymbol === staticSymbol && summary) ||
null;\n }\n getSymbolsOf(filePath: string): StaticSymbol[]|null {\n if (this._loadSummaryFile(filePath)) {\n
return Array.from(this.summaryCache.keys()).filter((symbol) => symbol.filePath === filePath);\n }\n return
null;\n }\n getImportAs(staticSymbol: StaticSymbol): StaticSymbol {\n staticSymbol.assertNoMembers();\n
return this.importAs.get(staticSymbol);\n }\n /**\n * Converts a file path to a module name that can be used
as an `import`.\n */\n getKnownModuleName(importedFilePath: string): string|null {\n return
this.knownFileNameToModuleNames.get(importedFilePath) || null;\n }\n addSummary(summary:
Summary<StaticSymbol>) {\n this.summaryCache.set(summary.symbol, summary);\n }\n private
_loadSummaryFile(filePath: string): boolean {\n let hasSummary = this.loadedFilePaths.get(filePath);\n if
(hasSummary != null) {\n return hasSummary;\n }\n let json: string|null = null;\n if
(this.isLibraryFile(filePath)) {\n const summaryFilePath = summaryFileName(filePath);\n try {\n json =
this.host.loadSummary(summaryFilePath);\n } catch (e) {\n console.error(`Error loading summary file
${summaryFilePath}`);\n throw e;\n }\n }\n hasSummary = json != null;\n
this.loadedFilePaths.set(filePath,

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hasSummary));\n if (json) {\n const {moduleName, summaries, importAs} =\n deserializeSummaries(this.staticSymbolCache, this, filePath, json);\n summaries.forEach((summary) =>\n this.summaryCache.set(summary.symbol, summary));\n if (moduleName) {\n this.knownFileNameToModuleNames.set(filePath, moduleName);\n }\n importAs.forEach((importAs) => {\n this.importAs.set(importAs.symbol, importAs.importAs);\n });\n }\n return hasSummary;\n}\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {CompilerConfig} from './config';\nimport {ViewEncapsulation} from './core';\nimport\n{DirectiveNormalizer} from './directive_normalizer';\nimport {DirectiveResolver} from\n'./directive_resolver';\nimport {Lexer} from './expression_parser/lexer';\nimport {Parser} from\n'./expression_parser/parser';\nimport {I18NHtmlParser} from './i18n/i18n_html_parser';\nimport\n{InjectableCompiler} from './injectable_compiler';\nimport {CompileMetadataResolver} from\n'./metadata_resolver';\nimport {HtmlParser} from './ml_parser/html_parser';\nimport {NgModuleCompiler} from\n'./ng_module_compiler';\nimport {NgModuleResolver} from './ng_module_resolver';\nimport {TypeScriptEmitter}\nfrom './output/ts_emitter';\nimport {PipeResolver} from './pipe_resolver';\nimport {DomElementSchemaRegistry}\nfrom './schema/dom_element_schema_registry';\nimport {StyleCompiler} from './style_compiler';\nimport\n{TemplateParser} from './template_parser/template_parser';\nimport {UrlResolver} from './url_resolver';\nimport\n{syntaxError} from './util';\nimport {TypeCheckCompiler} from './view_compiler/type_check_compiler';\nimport\n{ViewCompiler} from './view_compiler/view_compiler';\nimport {AotCompiler} from './compiler';\nimport\n{AotCompilerHost} from './compiler_host';\nimport\n{AotCompilerOptions} from './compiler_options';\nimport {StaticReflector} from './static_reflector';\nimport\n{StaticSymbolCache} from './static_symbol';\nimport {StaticSymbolResolver} from\n'./static_symbol_resolver';\nimport {AotSummaryResolver} from './summary_resolver';\n\nexport function\ncreateAotUrlResolver(\n host: {resourceNameToFileName(resource: string, containingFileName: string):\n string|null};\n UrlResolver {\n return {\n resolve: (basePath: string, url: string) => {\n const filePath =\n host.resourceNameToFileName(url, basePath);\n if (!filePath) {\n throw syntaxError('Couldn't resolve\n resource ${url} from ${basePath}')\n }\n return filePath;\n }\n }\n }\n);\n\n/**\n * Creates a new\nAotCompiler based on options and a host.\n */\nexport function createAotCompiler(\n compilerHost:\n AotCompilerHost, options: AotCompilerOptions,\n errorCollector?: (error: any, type?: any) => void):\n {compiler: AotCompiler, reflector: StaticReflector}\n{\n let translations: string = options.translations || '';\n const urlResolver =\n createAotUrlResolver(compilerHost);\n const symbolCache = new StaticSymbolCache();\n const\n summaryResolver = new AotSummaryResolver(compilerHost, symbolCache);\n const symbolResolver = new\n StaticSymbolResolver(compilerHost, symbolCache, summaryResolver);\n const staticReflector =\n new\n StaticReflector(summaryResolver, symbolResolver, [], [], errorCollector);\n let htmlParser: I18NHtmlParser;\n if\n (!!options.enableIvy) {\n // Ivy handles i18n at the compiler level so we must use a regular parser\n htmlParser =\n new HtmlParser() as I18NHtmlParser;\n } else {\n htmlParser = new I18NHtmlParser(\n new HtmlParser(),\n translations, options.i18nFormat, options.missingTranslation, console);\n }\n const config = new\n CompilerConfig({\n defaultEncapsulation: ViewEncapsulation.Emulated,\n useJit: false,\n missingTranslation:\n options.missingTranslation,\n preserveWhitespaces:\n options.preserveWhitespaces,\n strictInjectionParameters: options.strictInjectionParameters,\n });\n const\n normalizer = new DirectiveNormalizer(\n {get: (url: string) => compilerHost.loadResource(url)}, urlResolver,\n htmlParser, config);\n const expressionParser = new Parser(new Lexer());\n const elementSchemaRegistry = new\n DomElementSchemaRegistry();\n const tmpParser = new TemplateParser(\n config, staticReflector,\n expressionParser, elementSchemaRegistry, htmlParser, console);\n const resolver = new\n CompileMetadataResolver(\n config, htmlParser, new NgModuleResolver(staticReflector),\n new\n DirectiveResolver(staticReflector), new PipeResolver(staticReflector), summaryResolver,\n elementSchemaRegistry, normalizer, console, symbolCache, staticReflector, errorCollector);\n // TODO(vich): do

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not pass options.i18nFormat here\n const viewCompiler = new ViewCompiler(staticReflector);\n const
typeCheckCompiler = new TypeCheckCompiler(options,
staticReflector);\n const compiler = new AotCompiler(\n config, options, compilerHost, staticReflector,
resolver, tmplParser,\n new StyleCompiler(urlResolver), viewCompiler, typeCheckCompiler,\n new
NgModuleCompiler(staticReflector),\n new InjectableCompiler(staticReflector, !!options.enableIvy), new
TypeScriptEmitter(),\n summaryResolver, symbolResolver);\n return {compiler, reflector:
staticReflector};\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {MissingTranslationStrategy} from './core';\n\nexport interface AotCompilerOptions {\n locale?:
string;\n i18nFormat?: string;\n i18nUseExternalIds?: boolean;\n translations?: string;\n missingTranslation?:
MissingTranslationStrategy;\n enableSummariesForJit?: boolean;\n preserveWhitespaces?: boolean;\n
fullTemplateTypeCheck?:
boolean;\n allowEmptyCodegenFiles?: boolean;\n strictInjectionParameters?: boolean;\n enableIvy?:
boolean|'ngtsc';\n createExternalSymbolFactoryReexports?: boolean;\n}\n", "/*\n * @license\n * Copyright Google
LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n *\n\nimport {StaticSymbolResolverHost} from
'./static_symbol_resolver';\nimport {AotSummaryResolverHost} from './summary_resolver';\n\n/*\n * The host of
the AotCompiler disconnects the implementation from TypeScript / other language\n * services and from underlying
file systems.\n *\nexport interface AotCompilerHost extends StaticSymbolResolverHost,
AotSummaryResolverHost {\n /**\n * Converts a file path to a module name that can be used as an `import`.\n *
I.e. `path/to/importedFile.ts` should be imported by `path/to/containingFile.ts`.\n *\n * See ImportResolver.\n
*\n fileNameToModuleName(importedFilePath:
string, containingFilePath: string): string;\n /**\n * Converts a path that refers to a resource into an absolute
filePath\n * that can be later on used for loading the resource via `loadResource`.\n *\n
resourceNameToFileName(resourceName: string, containingFileName: string): string|null;\n /**\n * Loads a
resource (e.g. html / css)\n *\n loadResource(path: string): Promise<string>|string;\n}\n", "/*\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport * as o from
'./output/output_ast';\n\nexport interface PartialModule {\n fileName: string;\n statements:
o.Statement[];\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {CompileTypeSummary}
from './compile_metadata';\nimport {Type} from './core';\n\nexport interface Summary<T> {\n symbol: T;\n
metadata: any;\n type?: CompileTypeSummary;\n}\n\nexport abstract class SummaryResolver<T> {\n abstract
isLibraryFile(fileName: string): boolean;\n abstract toSummaryFileName(fileName: string, referringSrcFileName:
string): string;\n abstract fromSummaryFileName(fileName: string, referringLibFileName: string): string;\n
abstract resolveSummary(reference: T): Summary<T>|null;\n abstract getSymbolsOf(filePath: string): T[]|null;\n
abstract getImportAs(reference: T): T;\n abstract getKnownModuleName(fileName: string): string|null;\n abstract
addSummary(summary: Summary<T>): void;\n}\n\nexport class JitSummaryResolver implements
SummaryResolver<Type> {\n private _summaries = new Map<Type, Summary<Type>>();\n isLibraryFile():
boolean {\n return false;\n }\n toSummaryFileName(fileName: string): string {\n return fileName;\n }\n
fromSummaryFileName(fileName:
string): string {\n return fileName;\n }\n resolveSummary(reference: Type): Summary<Type>|null {\n return
this._summaries.get(reference) || null;\n }\n getSymbolsOf(): Type[] {\n return [];\n }\n getImportAs(reference:
Type): Type {\n return reference;\n }\n getKnownModuleName(fileName: string) {\n return null;\n }\n
addSummary(summary: Summary<Type>) {\n this._summaries.set(summary.symbol, summary);\n }\n}\n", "/*\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {CompileReflector}

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from './compile_reflector';\nimport * as o from './output_ast';\nimport {debugOutputAstAsTypeScript} from
 './ts_emitter';\n\nexport function interpretStatements(\n statements: o.Statement[], reflector: CompileReflector):
 {[key: string]: any} {\n const ctx = new _ExecutionContext(null, null, null, new Map<string,
 any>());\n const visitor = new StatementInterpreter(reflector);\n visitor.visitAllStatements(statements, ctx);\n const result: {[key: string]: any} = {};\n ctx.exports.forEach((exportName) => {\n result[exportName] =
 ctx.vars.get(exportName);\n });\n return result;\n}\n\nfunction _executeFunctionStatements(\n varNames:
 string[], varValues: any[], statements: o.Statement[], ctx: _ExecutionContext,\n visitor: StatementInterpreter): any {\n const childCtx = ctx.createChildWithLocalVars();\n for (let i = 0; i < varNames.length; i++) {\n
 childCtx.vars.set(varNames[i], varValues[i]);\n }\n const result = visitor.visitAllStatements(statements,
 childCtx);\n return result ? result.value : null;\n}\n\n\nclass _ExecutionContext {\n exports: string[] = [];\n \n
 constructor(\n public parent: _ExecutionContext|null, public instance: Object|null,\n public className:
 string|null, public vars: Map<string, any>) {} \n\n createChildWithLocalVars(): _ExecutionContext
 {\n return new _ExecutionContext(this, this.instance, this.className, new Map<string, any>());\n }\n}\n\n\nclass
 ReturnValue {\n constructor(public value: any) {} \n}\n\nfunction createDynamicClass(\n _classStmt:
 o.ClassStmt, _ctx: _ExecutionContext, _visitor: StatementInterpreter): Function {\n const propertyDescriptors:
 {[key: string]: any} = {};\n \n _classStmt.getters.forEach((getter: o.ClassGetter) => {\n // Note: use `function`
 instead of arrow function to capture `this`\n propertyDescriptors[getter.name] = {\n configurable: false,\n
 get: function() {\n const instanceCtx = new _ExecutionContext(_ctx, this, _classStmt.name, _ctx.vars);\n
 return _executeFunctionStatements([], [], getter.body, instanceCtx, _visitor);\n }\n }; \n });\n \n
 _classStmt.methods.forEach(function(method: o.ClassMethod) {\n const paramNames =
 method.params.map(param => param.name);\n // Note: use `function` instead of arrow function to capture `this`\n
 propertyDescriptors[method.name!] = {\n writable: false,\n configurable: false,\n value: function(...args:
 any[]) {\n const instanceCtx = new _ExecutionContext(_ctx, this, _classStmt.name, _ctx.vars);\n return
 _executeFunctionStatements(paramNames, args, method.body, instanceCtx, _visitor);\n }\n }; \n });\n \n
 const ctorParamNames = _classStmt.constructorMethod.params.map(param => param.name);\n // Note: use `function`
 instead of arrow function to capture `this`\n const ctor = function(this: Object, ...args: any[]) {\n const instanceCtx
 = new _ExecutionContext(_ctx, this, _classStmt.name, _ctx.vars);\n _classStmt.fields.forEach((field) => {\n
 (this as any)[field.name] = undefined;\n });\n _executeFunctionStatements(\n ctorParamNames, args,\n
 _classStmt.constructorMethod.body, instanceCtx, _visitor);\n }; \n const superClass = _classStmt.parent ?
 _classStmt.parent.visitExpression(_visitor, _ctx) : Object;\n ctor.prototype
 = Object.create(superClass.prototype, propertyDescriptors);\n return ctor;\n}\n\n\nclass StatementInterpreter
 implements o.StatementVisitor, o.ExpressionVisitor {\n constructor(private reflector: CompileReflector) {} \n\n
 debugAst(ast: o.Expression|o.Statement|o.Type): string {\n return debugOutputAstAsTypeScript(ast);\n }\n\n
 visitDeclareVarStmt(stmt: o.DeclareVarStmt, ctx: _ExecutionContext): any {\n const initialValue = stmt.value ?
 stmt.value.visitExpression(this, ctx) : undefined;\n ctx.vars.set(stmt.name, initialValue);\n if
 (stmt.hasModifier(o.StmtModifier.Exported)) {\n ctx.exports.push(stmt.name);\n }\n return null;\n }\n\n
 visitWriteVarExpr(expr: o.WriteVarExpr, ctx: _ExecutionContext): any {\n const value =
 expr.value.visitExpression(this, ctx);\n let currCtx = ctx;\n while (currCtx != null) {\n if
 (currCtx.vars.has(expr.name)) {\n currCtx.vars.set(expr.name, value);\n return value;\n }\n currCtx =
 currCtx.parent!\n }\n throw new Error(`Not declared variable ${expr.name}`);\n }\n\n visitWrappedNodeExpr(ast:
 o.WrappedNodeExpr<any>, ctx: _ExecutionContext): never {\n throw new Error('Cannot interpret a
 WrappedNodeExpr.);\n }\n\n visitTypeofExpr(ast: o.TypeofExpr, ctx: _ExecutionContext): never {\n throw new
 Error('Cannot interpret a TypeofExpr);\n }\n\n visitReadVarExpr(ast: o.ReadVarExpr, ctx: _ExecutionContext): any
 {\n let varName = ast.name!;\n if (ast.builtin != null) {\n switch (ast.builtin) {\n case
 o.BuiltinVar.Super:\n return Object.getPrototypeOf(ctx.instance);\n case o.BuiltinVar.This:\n return
 ctx.instance;\n case o.BuiltinVar.CatchError:\n varName = CATCH_ERROR_VAR;\n break;\n case
 o.BuiltinVar.CatchStack:\n varName = CATCH_STACK_VAR;\n break;\n default:\n

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throw new Error(`Unknown builtin variable ${ast.builtin}`);\n }\n }\n let currCtx = ctx;\n while\n (currCtx != null) {\n if (currCtx.vars.has(varName)) {\n return currCtx.vars.get(varName);\n }\n currCtx = currCtx.parent!;\n }\n throw new Error(`Not declared variable ${varName}`);\n }\n\n visitWriteKeyExpr(expr: o.WriteKeyExpr, ctx: _ExecutionContext): any {\n const receiver =\n expr.receiver.visitExpression(this, ctx);\n const index = expr.index.visitExpression(this, ctx);\n const value =\n expr.value.visitExpression(this, ctx);\n receiver[index] = value;\n return value;\n }\n\n visitWritePropExpr(expr: o.WritePropExpr, ctx: _ExecutionContext): any {\n const receiver = expr.receiver.visitExpression(this, ctx);\n const value = expr.value.visitExpression(this, ctx);\n receiver[expr.name] = value;\n return value;\n }\n\n visitInvokeMethodExpr(expr: o.InvokeMethodExpr, ctx: _ExecutionContext): any {\n const receiver =\n expr.receiver.visitExpression(this, ctx);\n const args = this.visitAllExpressions(expr.args, ctx);\n let\n result: any;\n if (expr.builtin != null) {\n switch (expr.builtin) {\n case o.BuiltinMethod.ConcatArray:\n result = receiver.concat(...args);\n break;\n case o.BuiltinMethod.SubscribeObservable:\n result =\n receiver.subscribe({next: args[0]});\n break;\n case o.BuiltinMethod.Bind:\n result =\n receiver.bind(...args);\n break;\n default:\n throw new Error(`Unknown builtin method\n ${expr.builtin}`);\n }\n } else {\n result = receiver[expr.name!].apply(receiver, args);\n }\n return\n result;\n }\n\n visitInvokeFunctionExpr(stmt: o.InvokeFunctionExpr, ctx: _ExecutionContext): any {\n const args =\n this.visitAllExpressions(stmt.args, ctx);\n const fnExpr = stmt.fn;\n if (fnExpr instanceof o.ReadVarExpr &&\n fnExpr.builtin === o.BuiltinVar.Super) {\n ctx.instance!.constructor.prototype.constructor.apply(ctx.instance,\n args);\n return null;\n } else {\n const\n fn = stmt.fn.visitExpression(this, ctx);\n return fn.apply(null, args);\n }\n }\n\n visitReturnStmt(stmt:\n o.ReturnStatement, ctx: _ExecutionContext): any {\n return new ReturnValue(stmt.value.visitExpression(this,\n ctx));\n }\n\n visitDeclareClassStmt(stmt: o.ClassStmt, ctx: _ExecutionContext): any {\n const clazz =\n createDynamicClass(stmt, ctx, this);\n ctx.vars.set(stmt.name, clazz);\n if\n (stmt.hasModifier(o.StmtModifier.Exported)) {\n ctx.exports.push(stmt.name);\n }\n return null;\n }\n\n visitExpressionStmt(stmt: o.ExpressionStatement, ctx: _ExecutionContext): any {\n return\n stmt.expr.visitExpression(this, ctx);\n }\n\n visitIfStmt(stmt: o.IfStmt, ctx: _ExecutionContext): any {\n const\n condition = stmt.condition.visitExpression(this, ctx);\n if (condition) {\n return\n this.visitAllStatements(stmt.trueCase, ctx);\n } else if (stmt.falseCase != null) {\n return\n this.visitAllStatements(stmt.falseCase, ctx);\n }\n return null;\n }\n\n visitTryCatchStmt(stmt: o.TryCatchStmt, ctx: _ExecutionContext): any {\n try {\n return\n this.visitAllStatements(stmt.bodyStmts, ctx);\n } catch (e) {\n const childCtx =\n ctx.createChildWithLocalVars();\n childCtx.vars.set(CATCH_ERROR_VAR, e);\n childCtx.vars.set(CATCH_STACK_VAR, e.stack);\n return this.visitAllStatements(stmt.catchStmts, childCtx);\n }\n }\n\n visitThrowStmt(stmt: o.ThrowStmt, ctx: _ExecutionContext): any {\n throw\n stmt.error.visitExpression(this, ctx);\n }\n\n visitInstantiateExpr(ast: o.InstantiateExpr, ctx: _ExecutionContext): any\n {\n const args = this.visitAllExpressions(ast.args, ctx);\n const clazz = ast.classExpr.visitExpression(this, ctx);\n return new clazz(...args);\n }\n\n visitLiteralExpr(ast: o.LiteralExpr, ctx: _ExecutionContext): any {\n return\n ast.value;\n }\n\n visitLocalizedString(ast: o.LocalizedString, context: any): any {\n return null;\n }\n\n visitExternalExpr(ast: o.ExternalExpr, ctx: _ExecutionContext):\n any {\n return this.reflector.resolveExternalReference(ast.value);\n }\n\n visitConditionalExpr(ast:\n o.ConditionalExpr, ctx: _ExecutionContext): any {\n if (ast.condition.visitExpression(this, ctx)) {\n return\n ast.trueCase.visitExpression(this, ctx);\n } else if (ast.falseCase != null) {\n return\n ast.falseCase.visitExpression(this, ctx);\n }\n return null;\n }\n\n visitNotExpr(ast: o.NotExpr, ctx:\n _ExecutionContext): any {\n return !ast.condition.visitExpression(this, ctx);\n }\n\n visitAssertNotNullExpr(ast:\n o.AssertNotNull, ctx: _ExecutionContext): any {\n return ast.condition.visitExpression(this, ctx);\n }\n\n visitCastExpr(ast: o.CastExpr, ctx: _ExecutionContext): any {\n return ast.value.visitExpression(this, ctx);\n }\n\n visitFunctionExpr(ast: o.FunctionExpr, ctx: _ExecutionContext): any {\n const paramNames =\n ast.params.map((param) => param.name);\n return _declareFn(paramNames, ast.statements, ctx, this);\n }\n
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visitDeclareFunctionStmt(stmt:
 o.DeclareFunctionStmt, ctx: _ExecutionContext): any {\n const paramNames = stmt.params.map((param) =>
 param.name);\n ctx.vars.set(stmt.name, _declareFn(paramNames, stmt.statements, ctx, this));\n if
 (stmt.hasModifier(o.StmtModifier.Exported)) {\n ctx.exports.push(stmt.name);\n }\n return null;\n }\n
visitUnaryOperatorExpr(ast: o.UnaryOperatorExpr, ctx: _ExecutionContext): any {\n const rhs = () =>
 ast.expr.visitExpression(this, ctx);\n switch (ast.operator) {\n case o.UnaryOperator.Plus:\n return
 +rhs();\n case o.UnaryOperator.Minus:\n return -rhs();\n default:\n throw new Error(`Unknown
 operator ${ast.operator}`);\n }\n }\n
visitBinaryOperatorExpr(ast: o.BinaryOperatorExpr, ctx:
 _ExecutionContext): any {\n const lhs = () => ast.lhs.visitExpression(this, ctx);\n const rhs = () =>
 ast.rhs.visitExpression(this, ctx);\n switch (ast.operator) {\n case o.BinaryOperator.Equals:\n
 return lhs() == rhs();\n case o.BinaryOperator.Idential:\n return lhs() === rhs();\n case
 o.BinaryOperator.NotEquals:\n return lhs() != rhs();\n case o.BinaryOperator.NotIdentical:\n return lhs()
 !== rhs();\n case o.BinaryOperator.And:\n return lhs() && rhs();\n case o.BinaryOperator.Or:\n
 return lhs() || rhs();\n case o.BinaryOperator.Plus:\n return lhs() + rhs();\n case o.BinaryOperator.Minus:\n
 return lhs() - rhs();\n case o.BinaryOperator.Divide:\n return lhs() / rhs();\n case
 o.BinaryOperator.Multiply:\n return lhs() * rhs();\n case o.BinaryOperator.Modulo:\n return lhs() %
 rhs();\n case o.BinaryOperator.Lower:\n return lhs() < rhs();\n case o.BinaryOperator.LowerEquals:\n
 return lhs() <= rhs();\n case o.BinaryOperator.Bigger:\n return lhs() > rhs();\n case
 o.BinaryOperator.BiggerEquals:\n return lhs() >= rhs();\n default:\n throw new Error(`Unknown operator
 ${ast.operator}`);\n }\n }\n
visitReadPropExpr(ast:
 o.ReadPropExpr, ctx: _ExecutionContext): any {\n let result: any;\n const receiver =
 ast.receiver.visitExpression(this, ctx);\n result = receiver[ast.name];\n return result;\n }\n
visitReadKeyExpr(ast: o.ReadKeyExpr, ctx: _ExecutionContext): any {\n const receiver =
 ast.receiver.visitExpression(this, ctx);\n const prop = ast.index.visitExpression(this, ctx);\n return
 receiver[prop];\n }\n
visitLiteralArrayExpr(ast: o.LiteralArrayExpr, ctx: _ExecutionContext): any {\n return
 this.visitAllExpressions(ast.entries, ctx);\n }\n
visitLiteralMapExpr(ast: o.LiteralMapExpr, ctx:
 _ExecutionContext): any {\n const result: {[k: string]: any} = {};\n ast.entries.forEach(entry => result[entry.key]
 = entry.value.visitExpression(this, ctx));\n return result;\n }\n
visitCommaExpr(ast: o.CommaExpr, context: any):
 any {\n const values = this.visitAllExpressions(ast.parts,
 context);\n return values[values.length - 1];\n }\n
visitAllExpressions(expressions: o.Expression[], ctx:
 _ExecutionContext): any {\n return expressions.map((expr) => expr.visitExpression(this, ctx));\n }\n
visitAllStatements(statements: o.Statement[], ctx: _ExecutionContext): ReturnValue|null {\n for (let i = 0; i <
 statements.length; i++) {\n const stmt = statements[i];\n const val = stmt.visitStatement(this, ctx);\n if (val
 instanceof ReturnValue) {\n return val;\n }\n }\n return null;\n }\n
function _declareFn(\n varNames: string[], statements: o.Statement[], ctx: _ExecutionContext,\n visitor: StatementInterpreter): Function
 {\n return (...args: any[]) => _executeFunctionStatements(varNames, args, statements, ctx, visitor);\n }\n
const
 CATCH_ERROR_VAR = 'error';\nconst CATCH_STACK_VAR = 'stack';\n"/**\n * @license\n * Copyright
 Google LLC All Rights Reserved.\n *\n * Use of this source code
 is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
 *\n\nimport { CompileDirectiveMetadata, CompileIdentifierMetadata, CompileNgModuleMetadata,
 CompilePipeSummary, CompileProviderMetadata, CompileStylesheetMetadata, CompileTypeSummary,
 identifierName, ngModuleJitUrl, ProviderMeta, ProxyClass, sharedStylesheetJitUrl, templateJitUrl,
 templateSourceUrl} from './compile_metadata';\nimport { CompileReflector} from './compile_reflector';\nimport
 { CompilerConfig} from './config';\nimport { ConstantPool} from './constant_pool';\nimport { Type} from
 './core';\nimport { CompileMetadataResolver} from './metadata_resolver';\nimport { NgModuleCompiler} from
 './ng_module_compiler';\nimport * as ir from './output/output_ast';\nimport { interpretStatements} from
 './output/output_interpreter';\nimport { JitEvaluator} from './output/output_jit';\nimport { CompiledStylesheet,
 StyleCompiler} from './style_compiler';\nimport { SummaryResolver} from

```

```

'../summary_resolver';\nimport {TemplateAst} from '../template_parser/template_ast';\nimport {TemplateParser}
from '../template_parser/template_parser';\nimport {Console, OutputContext, stringify, SyncAsync} from
'../util';\nimport {ViewCompiler} from '../view_compiler/view_compiler';\n\nexport interface
ModuleWithComponentFactories {\n ngModuleFactory: object;\n componentFactories: object[];\n}\n\n/**\n * An
internal module of the Angular compiler that begins with component types,\n * extracts templates, and eventually
produces a compiled version of the component\n * ready for linking into an application.\n *\n * @security When
compiling templates at runtime, you must ensure that the entire template comes\n * from a trusted source. Attacker-
controlled data introduced by a template could expose your\n * application to XSS risks. For more detail, see the
[Security Guide](http://g.co/ng/security).\n *\n */\nexport class JitCompiler {\n private _compiledTemplateCache =
new Map<Type, CompiledTemplate>();\n\n private _compiledHostTemplateCache = new Map<Type, CompiledTemplate>();\n private
_compiledDirectiveWrapperCache = new Map<Type, Type>();\n private _compiledNgModuleCache = new
Map<Type, object>();\n private _sharedStylesheetCount = 0;\n private _addedAotSummaries = new Set<() =>
any[]>();\n\n constructor(\n private _metadataResolver: CompileMetadataResolver, private _templateParser:
TemplateParser,\n private _styleCompiler: StyleCompiler, private _viewCompiler: ViewCompiler,\n private _ngModuleCompiler: NgModuleCompiler, private _summaryResolver: SummaryResolver<Type>,\n private _reflector: CompileReflector, private _jitEvaluator: JitEvaluator,\n private _compilerConfig: CompilerConfig,\n private _console: Console,\n private getExtraNgModuleProviders: (ngModule: any) =>
CompileProviderMetadata[]) {\n\n compileModuleSync(moduleType: Type): object {\n return
SyncAsync.assertSync(this._compileModuleAndComponents(moduleType, true));\n }\n\n compileModuleAsync(moduleType: Type): Promise<object> {\n return
Promise.resolve(this._compileModuleAndComponents(moduleType, false));\n }\n\n compileModuleAndAllComponentsSync(moduleType: Type): ModuleWithComponentFactories {\n return
SyncAsync.assertSync(this._compileModuleAndAllComponents(moduleType, true));\n }\n\n compileModuleAndAllComponentsAsync(moduleType: Type): Promise<ModuleWithComponentFactories> {\n return
Promise.resolve(this._compileModuleAndAllComponents(moduleType, false));\n }\n\n getComponentFactory(component: Type): object {\n const summary =
this._metadataResolver.getDirectiveSummary(component);\n return summary.componentFactory as object;\n }\n\n loadAotSummaries(summaries: () => any[]) {\n this.clearCache();\n this._addAotSummaries(summaries);\n }\n\n private _addAotSummaries(fn: () => any[]) {\n if
(this._addedAotSummaries.has(fn)) {\n return;\n }\n this._addedAotSummaries.add(fn);\n const summaries
= fn();\n for (let i = 0; i < summaries.length; i++) {\n const entry = summaries[i];\n if (typeof entry ===
'function') {\n this._addAotSummaries(entry);\n } else {\n const summary = entry as
CompileTypeSummary;\n this._summaryResolver.addSummary({\n symbol: summary.type.reference,\n metadata: null, type: summary\n });\n }\n }\n }\n\n hasAotSummary(ref: Type) {\n return
!!this._summaryResolver.resolveSummary(ref);\n }\n\n private _filterJitIdentifiers(ids:
CompileIdentifierMetadata[]): any[] {\n return ids.map(mod => mod.reference).filter((ref) =>
!this.hasAotSummary(ref));\n }\n\n private _compileModuleAndComponents(moduleType: Type, isSync:
boolean): SyncAsync<object> {\n return SyncAsync.then(this._loadModules(moduleType, isSync), () => {\n this._compileComponents(moduleType, null);\n return this._compileModule(moduleType);\n });\n }\n\n private _compileModuleAndAllComponents(moduleType: Type, isSync:
boolean):\n SyncAsync<ModuleWithComponentFactories> {\n return
SyncAsync.then(this._loadModules(moduleType, isSync), () => {\n const componentFactories: object[] = [];\n this._compileComponents(moduleType, componentFactories);\n return {\n ngModuleFactory:
this._compileModule(moduleType),\n componentFactories: componentFactories\n };\n });\n }\n\n private _loadModules(mainModule: any, isSync: boolean): SyncAsync<any> {\n const loading: Promise<any>[] = [];\n const mainNgModule = this._metadataResolver.getNgModuleMetadata(mainModule)!;\n // Note: for runtime
compilation, we want to transitively compile all modules,\n // so we also need to load the declared directives /

```



```

pipes for all nested modules.\n
this._filterJitIdentifiers(mainNgModule.transitiveModule.modules).forEach((nestedNgModule) => {\n //
getNgModuleMetadata only returns null if the value passed in is not an NgModule\n const moduleMeta =
this._metadataResolver.getNgModuleMetadata(nestedNgModule)!;\n
 this._filterJitIdentifiers(moduleMeta.declaredDirectives).forEach((ref) => {\n const promise =\nthis._metadataResolver.loadDirectiveMetadata(moduleMeta.type.reference, ref, isSync);\n if (promise) {\nloading.push(promise);\n }\n });\n this._filterJitIdentifiers(moduleMeta.declaredPipes)\n.forEach((ref) => this._metadataResolver.getOrLoadPipeMetadata(ref));\n});\n return SyncAsync.all(loading);\n}\n\nprivate _compileModule(moduleType: Type): object {\n let ngModuleFactory =
this._compiledNgModuleCache.get(moduleType)!;\n if (!ngModuleFactory) {\n const moduleMeta =
this._metadataResolver.getNgModuleMetadata(moduleType)!;\n // Always provide a bound Compiler\n const
extraProviders = this.getExtraNgModuleProviders(moduleMeta.type.reference);\n const outputCtx =
createOutputContext();\n const compileResult = this._ngModuleCompiler.compile(outputCtx,
moduleMeta, extraProviders);\n ngModuleFactory = this._interpretOrJit(\n ngModuleJitUrl(moduleMeta),
outputCtx.statements)[compileResult.ngModuleFactoryVar];\n
this._compiledNgModuleCache.set(moduleMeta.type.reference, ngModuleFactory);\n }\n return
ngModuleFactory;\n}\n\n/**\n * @internal\n */\n _compileComponents(mainModule: Type,
allComponentFactories: object[]|null) {\n const ngModule =
this._metadataResolver.getNgModuleMetadata(mainModule)!;\n const moduleByJitDirective = new Map<any,
CompileNgModuleMetadata>();\n const templates = new Set<CompiledTemplate>();\n\n const transJitModules
= this._filterJitIdentifiers(ngModule.transitiveModule.modules);\n transJitModules.forEach((localMod) => {\n
const localModuleMeta = this._metadataResolver.getNgModuleMetadata(localMod)!;\n
this._filterJitIdentifiers(localModuleMeta.declaredDirectives).forEach((dirRef) => {\n
moduleByJitDirective.set(dirRef, localModuleMeta);\n
 const dirMeta = this._metadataResolver.getDirectiveMetadata(dirRef);\n if (dirMeta.isComponent) {\n
templates.add(this._createCompiledTemplate(dirMeta, localModuleMeta));\n if (allComponentFactories) {\n
const template =\n this._createCompiledHostTemplate(dirMeta.type.reference, localModuleMeta);\n
templates.add(template);\n allComponentFactories.push(dirMeta.componentFactory as object);\n
}\n }\n });\n transJitModules.forEach((localMod) => {\n const localModuleMeta =
this._metadataResolver.getNgModuleMetadata(localMod)!;\n
this._filterJitIdentifiers(localModuleMeta.declaredDirectives).forEach((dirRef) => {\n const dirMeta =
this._metadataResolver.getDirectiveMetadata(dirRef);\n if (dirMeta.isComponent) {\n
dirMeta.entryComponents.forEach((entryComponentType) => {\n const moduleMeta =
moduleByJitDirective.get(entryComponentType.componentType)!;\n
 templates.add(\n this._createCompiledHostTemplate(entryComponentType.componentType,
moduleMeta));\n });\n }\n });\n localModuleMeta.entryComponents.forEach((entryComponentType) => {\n if
(!this.hasAotSummary(entryComponentType.componentType)) {\n const moduleMeta =
moduleByJitDirective.get(entryComponentType.componentType)!;\n templates.add(\n this._createCompiledHostTemplate(entryComponentType.componentType, moduleMeta));\n }\n });\n templates.forEach((template) => this._compileTemplate(template));\n}\n\n clearCacheFor(type: Type) {\n
this._compiledNgModuleCache.delete(type);\n this._metadataResolver.clearCacheFor(type);\n
this._compiledHostTemplateCache.delete(type);\n const compiledTemplate =
this._compiledTemplateCache.get(type);\n if (compiledTemplate) {\n
this._compiledTemplateCache.delete(type);\n }\n}\n\n clearCache():
void {\n // Note: don't clear the _addedAotSummaries, as they don't change!\n
this._metadataResolver.clearCache();\n this._compiledTemplateCache.clear();\n
this._compiledHostTemplateCache.clear();\n this._compiledNgModuleCache.clear();\n}\n\nprivate

```

```

_createCompiledHostTemplate(compType: Type, ngModule: CompileNgModuleMetadata):\n
CompiledTemplate {\n if (!ngModule) {\n throw new Error(`Component ${\n stringify(\n
compType)} is not part of any NgModule or the module has not been imported into your module.`);\n }\n let\n
compiledTemplate = this._compiledHostTemplateCache.get(compType);\n if (!compiledTemplate) {\n const\n
compMeta = this._metadataResolver.getDirectiveMetadata(compType);\n assertComponent(compMeta);\n\n const hostMeta = this._metadataResolver.getHostComponentMetadata(\n compMeta,\n
(compMeta.componentFactory as any).viewDefFactory);\n compiledTemplate =\n new\n
CompiledTemplate(true,\n
 compMeta.type, hostMeta, ngModule, [compMeta.type]);\n this._compiledHostTemplateCache.set(compType,\n
compiledTemplate);\n }\n return compiledTemplate;\n }\n\n private _createCompiledTemplate(\n
compMeta: CompileDirectiveMetadata, ngModule: CompileNgModuleMetadata): CompiledTemplate {\n let\n
compiledTemplate = this._compiledTemplateCache.get(compMeta.type.reference);\n if (!compiledTemplate) {\n\n
assertComponent(compMeta);\n compiledTemplate = new CompiledTemplate(\n false, compMeta.type,\n
compMeta, ngModule, ngModule.transitiveModule.directives);\n\n
this._compiledTemplateCache.set(compMeta.type.reference, compiledTemplate);\n }\n return\n
compiledTemplate;\n }\n\n private _compileTemplate(template: CompiledTemplate) {\n if\n
(template.isCompiled) {\n return;\n }\n const compMeta = template.compMeta;\n const\n
externalStylesheetsByModuleUrl = new Map<string, CompiledStylesheet>();\n const outputContext =\n
createOutputContext();\n\n const componentStylesheet = this._styleCompiler.compileComponent(outputContext, compMeta);\n\n
compMeta.template!.externalStylesheets.forEach((stylesheetMeta) => {\n const compiledStylesheet =\n
this._styleCompiler.compileStyles(createOutputContext(), compMeta, stylesheetMeta);\n\n
externalStylesheetsByModuleUrl.set(stylesheetMeta.moduleUrl!, compiledStylesheet);\n });\n\n
this._resolveStylesCompileResult(componentStylesheet, externalStylesheetsByModuleUrl);\n const pipes =\n
template.ngModule.transitiveModule.pipes.map(\n pipe =>\n
this._metadataResolver.getPipeSummary(pipe.reference));\n const {template: parsedTemplate, pipes: usedPipes}\n
= {\n this._parseTemplate(compMeta, template.ngModule, template.directives);\n const compileResult =\n
this._viewCompiler.compileComponent(\n outputContext, compMeta, parsedTemplate,\n
ir.variable(componentStylesheet.stylesVar),\n usedPipes);\n const evalResult = this._interpretOrJit(\n
 templateJitUrl(template.ngModule.type, template.compMeta), outputContext.statements);\n const viewClass\n
= evalResult[compileResult.viewClassVar];\n const rendererType =\n
evalResult[compileResult.rendererTypeVar];\n template.compiled(viewClass, rendererType);\n }\n\n private\n
_parseTemplate(\n compMeta: CompileDirectiveMetadata, ngModule: CompileNgModuleMetadata,\n
directiveIdentifiers: CompileIdentifierMetadata[]):\n {\n template: TemplateAst[], pipes: CompilePipeSummary[]\n }\n {\n // Note: ! is ok here as components always have a template.\n const preserveWhitespaces =\n
compMeta.template!.preserveWhitespaces;\n const directives =\n directiveIdentifiers.map(dir =>\n
this._metadataResolver.getDirectiveSummary(dir.reference));\n const pipes =\n
ngModule.transitiveModule.pipes.map(\n pipe => this._metadataResolver.getPipeSummary(pipe.reference));\n\n
return this._templateParser.parse(\n compMeta, compMeta.template!.htmlAst!,\n
 directives, pipes, ngModule.schemas,\n templateSourceUrl(ngModule.type, compMeta, compMeta.template!),\n
preserveWhitespaces);\n }\n\n private _resolveStylesCompileResult(\n result: CompiledStylesheet,\n
externalStylesheetsByModuleUrl: Map<string, CompiledStylesheet>) {\n result.dependencies.forEach((dep, i) =>\n
{\n const nestedCompileResult = externalStylesheetsByModuleUrl.get(dep.moduleUrl!);\n const\n
nestedStylesArr = this._resolveAndEvalStylesCompileResult(\n nestedCompileResult,\n
externalStylesheetsByModuleUrl);\n dep.setValue(nestedStylesArr);\n });\n }\n\n private\n
_resolveAndEvalStylesCompileResult(\n result: CompiledStylesheet,\n
externalStylesheetsByModuleUrl:\n
Map<string, CompiledStylesheet>): string[] {\n this._resolveStylesCompileResult(result,\n
externalStylesheetsByModuleUrl);\n return this._interpretOrJit(\n sharedStylesheetJitUrl(result.meta,\n

```

```

this._sharedStylesheetCount++),\n result.outputCtx.statements)[result.stylesVar];\n }\n\n private _interpretOrJit(sourceUrl: string, statements: ir.Statement[]): any {\n if\n (this._compilerConfig.useJit) {\n return interpretStatements(statements, this._reflector);\n } else {\n return\n this._jitEvaluator.evaluateStatements(\n sourceUrl, statements, this._reflector,\n this._compilerConfig.jitDevMode);\n }\n }\n\n nclass CompiledTemplate {\n private _viewClass: Function =\n null!;\n isCompiled = false;\n\n constructor(\n public isHost: boolean, public compType:\n CompileIdentifierMetadata,\n public compMeta: CompileDirectiveMetadata, public ngModule:\n CompileNgModuleMetadata,\n public directives: CompileIdentifierMetadata[]) {\n\n compiled(viewClass:\n Function, rendererType: any) {\n this._viewClass = viewClass;\n\n (<ProxyClass>this.compMeta.componentViewType).setDelegate(viewClass);\n for (let prop in rendererType) {\n (<any>this.compMeta.rendererType)[prop] = rendererType[prop];\n }\n\n this.isCompiled = true;\n }\n }\n\n nfunction assertComponent(meta: CompileDirectiveMetadata) {\n if\n (!meta.isComponent) {\n throw new Error(\n `Could not compile '${identifierName(meta.type)}' because it is\n not a component.`);\n }\n }\n\n nfunction createOutputContext(): OutputContext {\n const importExpr = (symbol:\n any) =>\n ir.importExpr({ name: identifierName(symbol), moduleName: null, runtime: symbol});\n return\n {\n statements: [], genFilePath: "", importExpr, constantPool: new ConstantPool();\n };\n\n n" ,"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license\n * that can be\n * found in the LICENSE file at https://angular.io/license\n */\n nimport { Component } from\n './core';\n nimport * as o from './output/output_ast';\n n"/**\n * Provides access to reflection data about symbols that the\n * compiler needs.\n */\n nexport abstract class CompileReflector {\n abstract parameters(typeOrFunc: /*Type*/ any):\n any[];\n\n abstract annotations(typeOrFunc: /*Type*/ any): any[];\n abstract shallowAnnotations(typeOrFunc: /*Type*/\n any): any[];\n abstract tryAnnotations(typeOrFunc: /*Type*/ any): any[];\n abstract propMetadata(typeOrFunc:\n /*Type*/ any): {[key: string]: any[]};\n abstract hasLifecycleHook(type: any, lcProperty: string): boolean;\n abstract guards(typeOrFunc: /*Type*/ any): {[key: string]: any};\n abstract componentModuleUrl(type: /*Type*/\n any, cmpMetadata: Component): string;\n abstract resolveExternalReference(ref: o.ExternalReference):\n any;\n\n n" ,"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n * governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n n"/**\n * Create a { @link UrlResolver } with no package prefix.\n */\n nexport function\n createUrlResolverWithoutPackagePrefix(): UrlResolver {\n return new UrlResolver();\n }\n\n nexport function\n createOfflineCompileUrlResolver(): UrlResolver\n {\n return new UrlResolver('.');\n }\n\n n"/**\n * Used by the { @link Compiler } when resolving HTML and CSS\n * template URLs.\n * This class can be overridden by the application developer to create custom behavior.\n */\n nSee { @link Compiler }\n n## Example\n * { @example compiler/ts/url_resolver/url_resolver.ts\n region='url_resolver' }\n * @security When compiling templates at runtime, you must\n * ensure that the entire\n * template comes from a trusted source.\n * Attacker-controlled data introduced by a template could expose your\n * application to XSS risks. For more detail, see the [Security Guide](http://g.co/ng/security).\n */\n nexport interface\n UrlResolver {\n resolve(baseUrl: string, url: string): string;\n }\n\n nexport interface UrlResolverCtor {\n new(packagePrefix?: string|null): UrlResolver;\n }\n\n nexport const UrlResolver: UrlResolverCtor = class\n UrlResolverImpl {\n constructor(private _packagePrefix: string|null = null) {\n\n /**\n * Resolves the `url`\n * given the `baseUrl`:\n * - when the `url` is null, the `baseUrl` is returned,\n * - if `url` is relative ('path/to/here',\n * './path/to/here'), the resolved url is a combination of\n * `baseUrl` and `url`,\n * - if `url` is absolute (it has a\n * scheme: 'http://', 'https://' or start with '/'), the `url` is\n * returned as is (ignoring the `baseUrl`)\n */\n\n resolve(baseUrl: string, url: string): string {\n let resolvedUrl = url;\n if (baseUrl != null && baseUrl.length > 0)\n {\n resolvedUrl = _resolveUrl(baseUrl, resolvedUrl);\n }\n const resolvedParts = _split(resolvedUrl);\n let\n prefix = this._packagePrefix;\n if (prefix != null && resolvedParts != null &&\n resolvedParts[_ComponentIndex.Scheme] == 'package') {\n let path = resolvedParts[_ComponentIndex.Path];\n prefix = prefix.replace(/\\/+$/, "");\n path = path.replace(/^\\/+/,"");\n return `${prefix}/${path}`;\n }\n }\n }\n }\n n"

```

return resolvedUrl;\n }\n);\n\n\*\*\n \* Extract the scheme of a URL.\n \*\nnextport function getUrlScheme(url: string): string {\n const match = \_split(url);\n return (match && match[\_ComponentIndex.Scheme]) || '';\n}\n\n// The code below is adapted from Tracur:\n// https://github.com/google/tracur-compiler/blob/9511c1dafa972bf0de1202a8a863bad02f0f95a8/src/runtime/url.js\n\n\*\*\n \* Builds a URI string from already-encoded parts.\n \*\n \* No encoding is performed. Any component may be omitted as either null or\n \* undefined.\n \*\n \* @param opt\_scheme The scheme such as 'http'.\n \* @param opt\_userInfo The user name before the '@'.  
 \* @param opt\_domain The domain such as 'www.google.com', already\n \* URI-encoded.  
 \* @param opt\_port The port number.  
 \* @param opt\_path The path, already URI-encoded. If it is not\n \* empty, it must begin with a slash.  
 \* @param opt\_queryData The URI-encoded query data.  
 \* @param opt\_fragment The URI-encoded fragment identifier.  
 \* @return The fully combined URI.\n \*\nfunction \_buildFromEncodedParts(\n opt\_scheme?: string, opt\_userInfo?: string, opt\_domain?: string, opt\_port?: string,\n opt\_path?: string, opt\_queryData?: string, opt\_fragment?: string): string {\n const out: string[] = [];\n if (opt\_scheme != null) {\n out.push(opt\_scheme + ':');\n }\n if (opt\_domain != null) {\n out.push('/');\n if (opt\_userInfo != null) {\n out.push(opt\_userInfo + '@');\n }\n out.push(opt\_domain);\n if (opt\_port != null) {\n out.push(': ' + opt\_port);\n }\n }\n if (opt\_path != null) {\n out.push(opt\_path);\n }\n if (opt\_queryData != null) {\n out.push('? ' + opt\_queryData);\n }\n if (opt\_fragment != null) {\n out.push('# ' + opt\_fragment);\n }\n return out.join('');\n}\n\n\*\*\n \* A regular expression for breaking a URI into its component parts.\n \*\n \* { @link http://www.gbiv.com/protocols/uri/rfc/rfc3986.html#RFC2234 } says\n \* As the "first-match-wins" algorithm is identical to the "greedy"\n \* disambiguation method used by POSIX regular expressions, it is natural and\n \* commonplace to use a regular expression for parsing the potential five\n \* components of a URI reference.\n \*\n \* The following line is the regular expression for breaking-down a\n \* well-formed URI reference into its components.\n \*\n

```
\n^(?:[^\?#]+):(?:/[^\?#]*)?(?:[^\?#]*(?:[^\?#]*)?(\#(?:.)*))?\n 1 2 3 4 5 6 7 8 9
```

\n\n \* The numbers in the second line above are only to assist readability; they\n \* indicate the reference points for each subexpression (i.e., each paired\n \* parenthesis). We refer to the value matched for subexpression <n> as \$<n>.\n \*\n \* For example, matching the above expression to\n \* 

```
http://www.ics.uci.edu/pub/ietf/uri/#Related
```

\n \* results in the following subexpression matches:\n \* 

```
$1 = http $2 = http $3 = //www.ics.uci.edu $4 = /pub/ietf/uri/ $5 = <undefined> $6 = <undefined> $7 = <undefined> $8 = #Related $9 = Related
```

\n \* where <undefined> indicates that the component is not present, as is the\n \* case for the query component in the above example. Therefore, we can\n \* determine the value of the five components as\n \* 

```
scheme = $2 authority = $4 path = $5 query = $7 fragment = $9
```

\n \* The regular expression has been modified slightly to expose the\n \* userInfo, domain, and port separately from the authority.\n \* The modified version yields\n \* 

```
$1 = http scheme $2 = <undefined> userInfo = $3 = www.ics.uci.edu domain | authority $4 = <undefined> port = $5 = /pub/ietf/uri/ path $6 = <undefined> query without $7 = Related fragment without # $8 = <pre>\n * @internal\n *const _splitRe = new RegExp(\n '^ +\n '(?: +\n '([^\?#]+)' + // scheme\n - ignore special characters\n // used by other URL parts such as :, // ?, /, #, and .\n ')?' +\n '?(?:/ +\n '?(?:[^\?#]*)@'? +\n // userInfo\n '([\\\\\\\\w\\\\\\\\d\\\\\\\\-\\\\\\\\u0100-\\\\\\\\uffff.%]*)' + // domain - restrict to letters,\n // digits, dashes, dots, percent\n // escapes, and unicode characters.\n '?(?:([0-9]+))?' +\n // port\n ')?' +\n '([^\?#]+)?' +\n // path\n '?(?:[^\?#]*(?:[^\?#]*)?)?' +\n // query\n '?(#(?:.)*)' +\n // fragment\n '$');\n
```

\n\n \* The index of each URI component in the return value of goog.uri.utils.split.\n \* @enum {number}\n \*/\nenum \_ComponentIndex {\n Scheme = 1,\n UserInfo,\n Domain,\n Port,\n Path,\n QueryData,\n Fragment\n}\n\n\*\*\n \* Splits a URI into its component parts.\n \*\n \* Each component can be accessed via the component indices; for example:\n \* 

```
goog.uri.utils.split(someStr)[goog.uri.utils.ComponentIndex.QUERY_DATA];
```

\n \* @param uri The URI string to examine.\n \* @return Each component still URI-encoded. Each component that is present will

contain the encoded value, whereas components that are not present will be undefined or empty, depending on the browser's regular expression implementation. Never null, since arbitrary strings may still look like path names.

```

function _split(uri: string): Array<string> {
 return uri.match(_splitRe)!;
}

function _removeDotSegments(path: string): string {
 if (path == '/') return '/';

 const leadingSlash = path[0] == '/' ? '/' : '';
 const trailingSlash = path[path.length - 1] === '/' ? '/' : '';
 const segments = path.split('/');

 const out: string[] = [];
 let up = 0;
 for (let pos = 0; pos < segments.length; pos++) {
 const segment = segments[pos];
 switch (segment) {
 case '':
 case '.':
 break;
 case '..':
 if (out.length > 0) {
 out.pop();
 } else {
 up++;
 }
 break;
 default:
 out.push(segment);
 }
 }

 if (leadingSlash == '') {
 while (up-- > 0) {
 out.unshift('.');
 }
 }

 if (out.length === 0) {
 out.push('.');
 }

 return leadingSlash + out.join('/') + trailingSlash;
}

function _joinAndCanonicalizePath(parts: any[]): string {
 let path = parts[_ComponentIndex.Path];
 path = path == null ? '' : _removeDotSegments(path);
 parts[_ComponentIndex.Path] = path;

 return _buildFromEncodedParts(
 parts[_ComponentIndex.Scheme],
 parts[_ComponentIndex.UserInfo], parts[_ComponentIndex.Domain],
 parts[_ComponentIndex.Port], path,
 parts[_ComponentIndex.QueryData], parts[_ComponentIndex.Fragment]);
}

function _resolveUrl(base: string, url: string): string {
 const parts = _split(encodeURI(url));
 const baseParts = _split(base);

 if (parts[_ComponentIndex.Scheme] != null) {
 return _joinAndCanonicalizePath(parts);
 } else {
 parts[_ComponentIndex.Scheme] = baseParts[_ComponentIndex.Scheme];
 }

 for (let i = _ComponentIndex.Scheme; i <= _ComponentIndex.Port; i++) {
 if (parts[i] == null) {
 parts[i] = baseParts[i];
 }
 }

 if (parts[_ComponentIndex.Path][0] == '/') {
 return _joinAndCanonicalizePath(parts);
 }

 let path = baseParts[_ComponentIndex.Path];
 if (path == null) path = '';

 const index = path.lastIndexOf('/');
 path = path.substring(0, index + 1) + parts[_ComponentIndex.Path];
 parts[_ComponentIndex.Path] = path;

 return _joinAndCanonicalizePath(parts);
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 *
 * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at
 * https://angular.io/license
 */
import {
 analyzeAndValidateNgModules
} from './aot/compiler';
import {
 createAotUriResolver
} from './aot/compiler_factory';
import {
 StaticReflector
} from './aot/static_reflector';
import {
 StaticSymbolCache
} from './aot/static_symbol';
import {
 StaticSymbolResolver, StaticSymbolResolverHost
} from './aot/static_symbol_resolver';
import {
 AotSummaryResolver, AotSummaryResolverHost
} from './aot/summary_resolver';
import {
 CompileDirectiveMetadata
} from './compile_metadata';
import {
 CompilerConfig
} from './config';
import {
 ViewEncapsulation
} from './core';
import {
 DirectiveNormalizer
} from './directive_normalizer';
import {
 DirectiveResolver
} from './directive_resolver';
import {
 CompileMetadataResolver
} from './metadata_resolver';
import {
 HtmlParser
} from './ml_parser/html_parser';
import {
 InterpolationConfig
} from './ml_parser/interpolation_config';
import {
 NgModuleResolver
} from './ng_module_resolver';
import {
 ParseError
} from './parse_util';
import {
 PipeResolver
} from './pipe_resolver';
import {
 DomElementSchemaRegistry
} from './schema/dom_element_schema_registry';
import {
 syntaxError
} from './util';
import {
 MessageBundle
} from './message_bundle';

The host of the Extractor disconnects the implementation from TypeScript / other language services and from underlying file systems.

export interface ExtractorHost extends
 StaticSymbolResolverHost, AotSummaryResolverHost {
 /**
 * Converts a path that refers to a resource into an absolute filePath that can be later on used for loading the resource via `loadResource`.
 */
 resourceNameToFileName(path: string, containingFile: string): string | null;
 /**
 * Loads a resource (e.g. html / css)
 */
 loadResource(path: string): Promise<string> | string;
}

export class Extractor {

```

```

constructor(\n public host: ExtractorHost, private staticSymbolResolver: StaticSymbolResolver,\n private\nmessageBundle: MessageBundle, private metadataResolver: CompileMetadataResolver) {\n}\n\nextract(rootFiles:\nstring[]): Promise<MessageBundle> {\n const {files, ngModules} = analyzeAndValidateNgModules(\nrootFiles, this.host, this.staticSymbolResolver, this.metadataResolver);\n return Promise\n.all(ngModules.map(\n ngModule => this.metadataResolver.loadNgModuleDirectiveAndPipeMetadata(\n ngModule.type.reference, false)))\n .then(() => {\n const errors: ParseError[] = [];\n\nfiles.forEach(file => {\n const compMetas: CompileDirectiveMetadata[] = [];\n\n file.directives.forEach(directiveType => {\n const dirMeta =\nthis.metadataResolver.getDirectiveMetadata(directiveType);\n if (dirMeta && dirMeta.isComponent) {\n compMetas.push(dirMeta);\n }\n });\n compMetas.forEach(compMeta => {\n\nconst html = compMeta.template !.template !;\n // Template URL points to either an HTML or TS file\ndepending on\n // whether the file is used with `templateUrl:` or `template:`,\n // respectively.\n const templateUrl = compMeta.template !.templateUrl!;\n const interpolationConfig =\nInterpolationConfig.fromArray(compMeta.template !.interpolation);\n\nerrors.push(...this.messageBundle.updateFromTemplate(\n html, templateUrl, interpolationConfig)!);\n\n });\n });\n if (errors.length) {\n throw new Error(errors.map(e\n=> e.toString()).join("\\n"));\n }\n return this.messageBundle;\n });\n}\n\nstatic create(host:\nExtractorHost, locale: string|null): {\n extractor: Extractor, staticReflector: StaticReflector\n} {\n const htmlParser\n= new HtmlParser();\n const urlResolver = createAotUrlResolver(host);\n const symbolCache = new\nStaticSymbolCache();\n const summaryResolver = new AotSummaryResolver(host, symbolCache);\n const\nstaticSymbolResolver = new StaticSymbolResolver(host, symbolCache, summaryResolver);\n const\nstaticReflector = new StaticReflector(summaryResolver, staticSymbolResolver);\n\n const config =\nnew\nCompilerConfig({defaultEncapsulation: ViewEncapsulation.Emulated, useJit: false});\n const normalizer = new\nDirectiveNormalizer(\n {get: (url: string) => host.loadResource(url)}, urlResolver, htmlParser, config);\n const elementSchemaRegistry = new DomElementSchemaRegistry();\n const resolver = new\nCompileMetadataResolver(\n config, htmlParser, new NgModuleResolver(staticReflector),\n new DirectiveResolver(staticReflector),\n new PipeResolver(staticReflector), summaryResolver,\n elementSchemaRegistry, normalizer, console,\n symbolCache, staticReflector);\n\n // TODO(vicb): implicit tags & attributes\n const messageBundle = new\nMessageBundle(htmlParser, [], {}, locale);\n const extractor = new Extractor(host, staticSymbolResolver,\nmessageBundle, resolver);\n return {extractor, staticReflector};\n}\n}\n\n"/**\n * @license\n * Copyright Google\nLLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found\nin the LICENSE file at https://angular.io/license\n */\nexport {computeMsgId} from './digest';\nexport {Extractor,\nExtractorHost} from './extractor';\nexport {I18NHtmlParser} from './i18n_html_parser';\nexport {MessageBundle}\nfrom './message_bundle';\nexport {Serializer} from './serializers/serializer';\nexport\n{Xliff} from './serializers/xliff';\nexport {Xliff2} from './serializers/xliff2';\nexport {Xmb} from\n'./serializers/xmb';\nexport {Xtb} from './serializers/xtb';\n"/**\n * @license\n * Copyright Google LLC All Rights\nReserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\nLICENSE file at https://angular.io/license\n */\n\nimport {ChangeDetectionStrategy, ViewEncapsulation} from\n'./../core';\nimport {InterpolationConfig} from './../ml_parser/interpolation_config';\nimport * as o from\n'./../output/output_ast';\nimport {ParseSourceSpan} from './../parse_util';\nimport * as t from './r3_ast';\nimport\n{R3DependencyMetadata} from './r3_factory';\nimport {R3Reference} from './util';\n\n/**\n * Information\nneeded to compile a directive for the render3 runtime.\n */\nexport interface R3DirectiveMetadata {\n /**\n * Name of the directive type.\n */\n name: string;\n /**\n * An expression representing a reference to the\ndirective itself.\n */\n type: R3Reference;\n /**\n * An expression representing a reference to the directive\nbeing compiled, intended for use within\n */\n a class definition itself.\n */\n * This can differ from the outer `type`\nif the class is being compiled by ngcc and is inside\n */\n * an IIFE structure that uses a different name internally.\n */\n internalType: o.Expression;\n /**\n * Number of generic type parameters of the type itself.\n */\n /\n
```

typeArgumentCount: number;\n\n /\*\*\n \* A source span for the directive type.\n \*/\n typeSourceSpan: ParseSourceSpan;\n\n /\*\*\n \* Dependencies of the directive's constructor.\n \*/\n deps: R3DependencyMetadata[]\n\n /\*\*\n \* Unparsed selector of the directive, or `null` if there was no selector.\n \*/\n selector: string|null;\n\n /\*\*\n \* Information about the content queries made by the directive.\n \*/\n queries: R3QueryMetadata[];\n\n /\*\*\n \* Information about the view queries made by the directive.\n \*/\n viewQueries: R3QueryMetadata[];\n\n /\*\*\n \* Mappings indicating how the directive interacts with its host element (host bindings, listeners, etc).\n \*/\n host: R3HostMetadata;\n\n /\*\*\n \* Information about usage of specific lifecycle events which require special treatment in the code generator.\n \*/\n lifecycle: {\n /\*\*\n \* Whether the directive uses ngOnChanges.\n \*/\n usesOnChanges: boolean;\n };\n\n /\*\*\n \* A mapping of input field names to the property names.\n \*/\n inputs: {[field: string]: string|[string, string]};\n\n /\*\*\n \* A mapping of output field names to the property names.\n \*/\n outputs: {[field: string]: string};\n\n /\*\*\n \* Whether or not the component or directive inherits from another class\n \*/\n usesInheritance: boolean;\n\n /\*\*\n \* Whether or not the component or directive inherits its entire decorator from its base class.\n \*/\n fullInheritance: boolean;\n\n /\*\*\n \* Reference name under which to export the directive's type in a template,\n \* if any.\n \*/\n exportAs: string[]|null;\n\n /\*\*\n \* The list of providers defined in the directive.\n \*/\n providers: o.Expression|null;\n\n /\*\*\n \* Information needed to compile a component for the render3 runtime.\n \*/\n\n export interface R3ComponentMetadata extends R3DirectiveMetadata {\n\n /\*\*\n \* Information about the component's template.\n \*/\n template: {\n\n /\*\*\n \* Parsed nodes of the template.\n \*/\n nodes: t.Node[];\n\n /\*\*\n \* Any ng-content selectors extracted from the template. Contains `null` when an ng-content element without selector is present.\n \*/\n ngContentSelectors: string[];\n };\n\n /\*\*\n \* A map of pipe names to an expression referencing the pipe type which are in the scope of the compilation.\n \*/\n pipes: Map<string, o.Expression>;\n\n /\*\*\n \* A list of directive selectors and an expression referencing the directive type which are in the scope of the compilation.\n \*/\n directives: {selector: string, expression: o.Expression}[];\n\n /\*\*\n \* Whether to wrap the 'directives' and/or 'pipes' array, if one is generated, in a closure.\n \*/\n \* This is done when the directives or pipes contain forward references.\n \*/\n wrapDirectivesAndPipesInClosure: boolean;\n\n /\*\*\n \* A collection of styling data that will be applied and scoped to the component.\n \*/\n styles: string[];\n\n /\*\*\n \* An encapsulation policy for the template and CSS styles. One of:\n \* - `ViewEncapsulation.Emulated`: Use shimmed CSS that emulates the native behavior.\n \* - `ViewEncapsulation.None`: Use global CSS without any encapsulation.\n \* - `ViewEncapsulation.ShadowDom`: Use the latest ShadowDOM API to natively encapsulate styles\n \* into a shadow root.\n \*/\n encapsulation: ViewEncapsulation;\n\n /\*\*\n \* A collection of animation triggers that will be used in the component template.\n \*/\n\n animations: o.Expression|null;\n\n /\*\*\n \* The list of view providers defined in the component.\n \*/\n viewProviders: o.Expression|null;\n\n /\*\*\n \* Path to the .ts file in which this template's generated code will be included, relative to\n \* the compilation root. This will be used to generate identifiers that need to be globally\n \* unique in certain contexts (such as g3).\n \*/\n relativeContextFilePath: string;\n\n /\*\*\n \* Whether translation variable name should contain external message id\n \* (used by Closure Compiler's output of `goog.getMsg` for transition period).\n \*/\n i18nUseExternalIds: boolean;\n\n /\*\*\n \* Overrides the default interpolation start and end delimiters ({ and }).\n \*/\n interpolation: InterpolationConfig;\n\n /\*\*\n \* Strategy used for detecting changes in the component.\n \*/\n changeDetection?: ChangeDetectionStrategy;\n\n /\*\*\n \* Information needed to compile a query (view or content).\n \*/\n\n export interface R3QueryMetadata {\n\n /\*\*\n \* Name of the property on the class to update with query results.\n \*/\n propertyName: string;\n\n /\*\*\n \* Whether to read only the first matching result, or an array of results.\n \*/\n first: boolean;\n\n /\*\*\n \* Either an expression representing a type or `InjectionToken` for the query\n \* predicate, or a set of string selectors.\n \*/\n predicate: o.Expression|string[];\n\n /\*\*\n \* Whether to include only direct children or all descendants.\n \*/\n descendants: boolean;\n\n /\*\*\n \* An expression representing a type to read from each matched node, or null if the default value\n \* for a given node is to be returned.\n \*/\n read:

o.Expression|null;\n\n /\*\*\n \* Whether or not this query should collect only static results.\n \*\n \* If static is true, the query's results will be set on the component after nodes are created,\n \* but before change detection runs. This means that any results that relied upon change detection\n \* to run (e.g. results inside \*ngIf or \*ngFor views) will not be collected. Query results are\n \* available in the ngOnInit hook.\n \*\n \* If static is false, the query's results will be set on the component after change detection\n \* runs. This means that the query results can contain nodes inside \*ngIf or \*ngFor views, but\n \* the results will not be available in the ngOnInit hook (only in the ngAfterContentInit for\n \* content hooks and ngAfterViewInit for view hooks).\n \*/\n static: boolean;\n}\n\n/\*\*\n \* Output of render3 directive compilation.\n \*/\nexport interface R3DirectiveDef {\n expression: o.Expression;\n type: o.Type;\n}\n\n/\*\*\n \* Output of render3 component compilation.\n \*/\nexport interface R3ComponentDef {\n expression: o.Expression;\n type: o.Type;\n}\n\n/\*\*\n \* Mappings indicating how the class interacts with its\n \* host element (host bindings, listeners, etc).\n \*/\nexport interface R3HostMetadata {\n /\*\*\n \* A mapping of attribute binding keys to `o.Expression`s.\n \*\n attributes: {[key: string]: o.Expression};\n\n /\*\*\n \* A mapping of event binding keys to unparsed expressions.\n \*\n listeners: {[key: string]: string};\n\n /\*\*\n \* A mapping of property binding keys to unparsed expressions.\n \*\n properties: {[key: string]: string};\n\n specialAttributes: {styleAttr?: string; classAttr?: string;};\n}\n\n", "/\*\n \* @license\n \* Copyright Google LLC All Rights Reserved.\n \*\n \* Use of this source code is governed by an MIT-style license that can be\n \* found in the LICENSE file at <https://angular.io/license>\n \*/\n\nimport {AST} from '../expression\_parser/ast';\nimport {BoundAttribute, BoundEvent, Element, Node, Reference, Template, TextAttribute, Variable} from '../r3\_ast';\n\n/\*\n \* t2 is the replacement for the `TemplateDefinitionBuilder`. It handles the operations of\n \* analyzing Angular templates, extracting semantic info, and ultimately producing a template\n \* definition function which renders the template using Ivy instructions.\n \*\n \* t2 data is also utilized by the template type-checking facilities to understand a template enough\n \* to generate type-checking code for it.\n \*/\n\n/\*\*\n \* A logical target for analysis, which could contain a template or other types of bindings.\n \*/\nexport interface Target {\n template?: Node[];\n}\n\n/\*\*\n \* A data structure which can indicate whether a given property name is present or not.\n \*\n \* This is used to represent the set of inputs or outputs present on a directive, and allows the\n \* binder to query for the presence of a mapping for property names.\n \*/\nexport interface InputOutputPropertySet {\n hasBindingPropertyName(propertyName: string): boolean;\n}\n\n/\*\*\n \* Metadata regarding a directive that's needed to match it against template elements. This is\n \* provided by a consumer of the t2 APIs.\n \*/\nexport interface DirectiveMeta {\n /\*\*\n \* Name of the directive class (used for debugging).\n \*\n name: string;\n\n /\*\*\n \* The selector for the directive or `null` if there isn't one.\n \*\n selector: string|null;\n\n /\*\*\n \* Whether the directive is a component.\n \*\n isComponent: boolean;\n\n /\*\*\n \* Set of inputs which this directive claims.\n \*\n \* Goes from property names to field names.\n \*\n inputs: InputOutputPropertySet;\n\n /\*\*\n \* Set of outputs which this directive claims.\n \*\n \* Goes from property names to field names.\n \*\n outputs: InputOutputPropertySet;\n\n /\*\*\n \* Name under which the directive is exported, if any (exportAs in Angular).\n \*\n \* Null otherwise.\n \*\n exportAs: string[]|null;\n}\n\n/\*\*\n \* Interface to the binding API, which processes a template and returns an object similar to the\n \* `ts.TypeChecker`.\n \*\n \* The returned `BoundTarget` has an API for extracting information about the processed target.\n \*/\nexport interface TargetBinder<D> extends DirectiveMeta {\n bind(target: Target): BoundTarget<D>;\n}\n\n/\*\*\n \* Result of performing the binding operation against a `Target`.\n \*\n \* The original `Target` is accessible, as well as a suite of methods for extracting binding\n \* information regarding the `Target`.\n \*\n \* @param DirectiveT directive metadata type\n \*/\nexport interface BoundTarget<DirectiveT> extends DirectiveMeta {\n /\*\*\n \* Get the original `Target` that was bound.\n \*\n readonly target: Target;\n\n /\*\*\n \* For a given template node (either an `Element` or a `Template`), get the set of directives\n \* which matched the node, if any.\n \*\n getDirectivesOfNode(node: Element|Template): DirectiveT[]|null;\n\n /\*\*\n \* For a given `Reference`, get the reference's target - either an `Element`, a `Template`, or\n \* a directive on a particular node.\n \*\n getReferenceTarget(ref: Reference): {directive: DirectiveT, node: Element|Template}|Element|Template|null;\n\n /\*\*\n \* For a given binding, get the entity to which the binding is being made.\n \*\n \* This will either



```

be a directive or the node itself.\n */\n getConsumerOfBinding(binding:
BoundAttribute|BoundEvent|TextAttribute): DirectiveT|Element\n |Template|null;\n\n /**\n * If the given
`AST` expression refers to a `Reference` or `Variable` within the `Target`, then\n * return that.\n */\n *
Otherwise, returns `null`.\n */\n * This is only defined for `AST` expressions that read or write to a property of
an\n * `ImplicitReceiver`.\n */\n getExpressionTarget(expr: AST): Reference|Variable|null;\n\n /**\n * Given a
particular `Reference` or `Variable`, get the `Template` which created it.\n */\n * All `Variable`s are defined on
templates, so this will always return a value for a `Variable`\n * from the `Target`. For `Reference`s this only
returns a value if the `Reference` points to a\n * `Template`. Returns `null` otherwise.\n */\n
getTemplateOfSymbol(symbol: Reference|Variable): Template|null;\n\n /**\n * Get the nesting level of a
particular `Template`.\n
*/\n * This starts at 1 for top-level `Template`s within the `Target` and increases for `Template`s\n * nested at
deeper levels.\n */\n getNestingLevel(template: Template): number;\n\n /**\n * Get all `Reference`s and
`Variables` visible within the given `Template` (or at the top level,\n * if `null` is passed).\n */\n
getEntitiesInTemplateScope(template: Template|null): ReadonlySet<Reference|Variable>;\n\n /**\n * Get a list of
all the directives used by the target.\n */\n getUsedDirectives(): DirectiveT[];\n\n /**\n * Get a list of all the
pipes used by the target.\n */\n getUsedPipes(): string[];\n\n"/**\n * @license\n * Copyright Google LLC All
Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {AST, BindingPipe, ImplicitReceiver, MethodCall,
PropertyRead, PropertyWrite, RecursiveAstVisitor, SafeMethodCall, SafePropertyRead} from
'./../expression_parser/ast';\nimport {SelectorMatcher} from './../selector';\nimport {BoundAttribute, BoundEvent,
BoundText, Content, Element, Icu, Node, Reference, Template, Text, TextAttribute, Variable, Visitor} from
'./r3_ast';\nimport {BoundTarget, DirectiveMeta, Target, TargetBinder} from './t2_api';\nimport
{createCssSelector} from './template';\nimport {getAttrsForDirectiveMatching} from './util';\n\n\n/**\n * Processes
`Target`s with a given set of directives and performs a binding operation, which\n * returns an object similar to
TypeScript's `ts.TypeChecker` that contains knowledge about the\n * target.\n */\n\nexport class
R3TargetBinder<DirectiveT extends DirectiveMeta> implements TargetBinder<DirectiveT> {\n
constructor(private directiveMatcher: SelectorMatcher<DirectiveT>) {}\n\n /**\n * Perform a binding operation
on the given `Target` and return a `BoundTarget` which contains\n * metadata about the types referenced in the
template.\n */\n bind(target: Target):
BoundTarget<DirectiveT> {\n if (!target.template) {\n // TODO(alxhub): handle targets which contain things
like HostBindings, etc.\n throw new Error('Binding without a template not yet supported');\n }\n\n // First,
parse the template into a `Scope` structure. This operation captures the syntactic\n // scopes in the template and
makes them available for later use.\n const scope = Scope.apply(target.template);\n\n // Use the `Scope` to
extract the entities present at every level of the template.\n const templateEntities =
extractTemplateEntities(scope);\n\n // Next, perform directive matching on the template using the
`DirectiveBinder`. This returns:\n // - directives: Map of nodes (elements & ng-templates) to the directives on
them.\n // - bindings: Map of inputs, outputs, and attributes to the directive/element that claims\n // them.
TODO(alxhub): handle multiple directives claiming an input/output/etc.\n // - references:
Map of #references to their targets.\n const {directives, bindings, references} =\n
DirectiveBinder.apply(target.template, this.directiveMatcher);\n\n // Finally, run the TemplateBinder to bind
references, variables, and other entities within the\n // template. This extracts all the metadata that doesn't depend
on directive matching.\n const {expressions, symbols, nestingLevel, usedPipes} =\n
TemplateBinder.apply(target.template, scope);\n\n return new R3BoundTarget(\n target, directives, bindings,
references, expressions, symbols, nestingLevel,\n templateEntities, usedPipes);\n }\n\n\n/**\n * Represents a
binding scope within a template.\n */\n * Any variables, references, or other named entities declared within the
template will\n * be captured and available by name in `namedEntities`. Additionally, child templates will\n * be
analyzed and have their child `Scope`s available in `childScopes`.\n */\n\nclass Scope implements Visitor {\n\n

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Named members of the `Scope`, such as `Reference`s or `Variable`s.\n
*/\n
readonly namedEntities = new
Map<string, Reference|Variable>();\n\n
/**\n
 * Child `Scope`s for immediately nested `Template`s.\n
*/\n
readonly childScopes = new Map<Template, Scope>();\n\n
private constructor(readonly parentScope: Scope|null,
readonly template: Template|null) {} \n\n
static newRootScope(): Scope {\n
return new Scope(null, null);\n
}\n\n
/**\n
 * Process a template (either as a `Template` sub-template with variables, or a plain array of\n
 * `Node`s) and construct its `Scope`.\n
*/\n
static apply(template: Node[]): Scope {\n
const scope =
Scope.newRootScope();\n
scope.ingest(template);\n
return scope;\n
}\n\n
/**\n
 * Internal method to process
the template and populate the `Scope`.\n
*/\n
private ingest(template: Template|Node[]): void {\n
if (template
instanceof Template) {\n
// Variables on an <ng-template> are defined in the inner scope.\n
template.variables.forEach(node => this.visitVariable(node));\n
// Process the nodes of the template.\n
template.children.forEach(node => node.visit(this));\n
} else {\n
// No overarching `Template` instance, so
process the nodes directly.\n
template.forEach(node => node.visit(this));\n
}\n
}\n\n
visitElement(element:
Element) {\n
// `Element`s in the template may have `Reference`s which are captured in the scope.\n
element.references.forEach(node => this.visitReference(node));\n
// Recurse into the `Element`s children.\n
element.children.forEach(node => node.visit(this));\n
}\n\n
visitTemplate(template: Template) {\n
// References
on a <ng-template> are defined in the outer scope, so capture them before\n
// processing the template's child
scope.\n
template.references.forEach(node => this.visitReference(node));\n
// Next, create an inner scope and
process the template within it.\n
const scope = new Scope(this, template);\n
scope.ingest(template);\n
this.childScopes.set(template, scope);\n
}\n\n
visitVariable(variable: Variable) {\n
// Declare the variable if it's not already.\n
this.maybeDeclare(variable);\n
}\n\n
visitReference(reference:
Reference) {\n
// Declare the variable if it's not already.\n
this.maybeDeclare(reference);\n
}\n\n
// Unused
visitors.\n
visitContent(content: Content) {} \n
visitBoundAttribute(attr: BoundAttribute) {} \n
visitBoundEvent(event: BoundEvent) {} \n
visitBoundText(text: BoundText) {} \n
visitText(text: Text) {} \n
visitTextAttribute(attr: TextAttribute) {} \n
visitIcu(icu: Icu) {} \n\n
private maybeDeclare(thing:
Reference|Variable) {\n
// Declare something with a name, as long as that name isn't taken.\n
if
(!this.namedEntities.has(thing.name)) {\n
this.namedEntities.set(thing.name, thing);\n
}\n
}\n\n
/**\n
 * Look
up a variable within this `Scope`.\n
*/\n
 * This can recurse into a parent `Scope` if it's available.\n
*/\n
lookup(name: string): Reference|Variable|null {\n
if (this.namedEntities.has(name)) {\n
// Found in the
local scope.\n
return this.namedEntities.get(name)!;\n
} else if (this.parentScope !== null) {\n
// Not in the
local scope, but there's a parent scope so check there.\n
return this.parentScope.lookup(name);\n
} else {\n
//
At the top level and it wasn't found.\n
return null;\n
}\n
}\n\n
/**\n
 * Get the child scope for a `Template`.\n
*/\n
 * This should always be defined.\n
*/\n
getChildScope(template: Template): Scope {\n
const res =
this.childScopes.get(template);\n
if (res === undefined) {\n
throw new Error(`Assertion error: child scope for
${template} not found`);\n
}\n
return res;\n
}\n
}\n\n
/**\n
 * Processes a template and matches directives on
nodes (elements and templates).\n
*/\n
 * Usually used via the static `apply()` method.\n
*/\n
nclass
DirectiveBinder<DirectiveT extends DirectiveMeta> implements Visitor
{\n
constructor(\n
private matcher: SelectorMatcher<DirectiveT>,\n
private directives:
Map<Element|Template, DirectiveT[]>,\n
private bindings: Map<BoundAttribute|BoundEvent|TextAttribute,
DirectiveT|Element|Template>,\n
private references:\n
Map<Reference, {directive: DirectiveT, node:
Element|Template}|Element|Template>) {} \n\n
/**\n
 * Process a template (list of `Node`s) and perform directive
matching against each node.\n
*/\n
 * @param template the list of template `Node`s to match (recursively).\n
 *
@param selectorMatcher a `SelectorMatcher` containing the directives that are in scope for\n
 * this template.\n
 *
@returns three maps which contain information about directives in the template: the\n
 * `directives` map which
lists directives matched on each node, the `bindings` map which\n
 * indicates which directives claimed which
bindings (inputs, outputs, etc), and the `references`\n
 * map which resolves #references (`Reference`s) within
the template to the named directive or\n
 * template node.\n
*/\n
static apply<DirectiveT extends
DirectiveMeta>(\n
template: Node[], selectorMatcher: SelectorMatcher<DirectiveT>): {\n
directives:
Map<Element|Template, DirectiveT[]>,\n
bindings: Map<BoundAttribute|BoundEvent|TextAttribute,

```

```

DirectiveT|Element|Template>,\n references: Map<Reference, {directive: DirectiveT, node:
Element|Template}|Element|Template>,\n } {\n const directives = new Map<Element|Template,
DirectiveT|>();\n const bindings =\n new Map<BoundAttribute|BoundEvent|TextAttribute,
DirectiveT|Element|Template>();\n const references =\n new Map<Reference, {directive: DirectiveT, node:
Element|Template}|Element|Template>();\n const matcher = new DirectiveBinder(selectorMatcher, directives,
bindings, references);\n matcher.ingest(template);\n return {directives, bindings, references};\n }\n\n private
ingest(template: Node[]): void {\n template.forEach(node
=> node.visit(this));\n }\n\n visitElement(element: Element): void {\n
this.visitElementOrTemplate(element.name, element);\n }\n\n visitTemplate(template: Template): void {\n
this.visitElementOrTemplate('ng-template', template);\n }\n\n visitElementOrTemplate(elementName: string, node:
Element|Template): void {\n // First, determine the HTML shape of the node for the purpose of directive
matching.\n // Do this by building up a `CssSelector` for the node.\n const cssSelector =
createCssSelector(elementName, getAttrsForDirectiveMatching(node));\n // Next, use the `SelectorMatcher` to
get the list of directives on the node.\n const directives: DirectiveT[] = [];\n this.matcher.match(cssSelector, (_,
directive) => directives.push(directive));\n if (directives.length > 0) {\n this.directives.set(node, directives);\n
}\n\n // Resolve any references that are created on this node.\n node.references.forEach(ref => {\n let
dirTarget: DirectiveT|null
= null;\n\n // If the reference expression is empty, then it matches the `\"primary\"` directive on the node\n // (if
there is one). Otherwise it matches the host node itself (either an element or\n // <ng-template> node).\n if
(ref.value.trim() === '') {\n // This could be a reference to a component if there is one.\n dirTarget =
directives.find(dir => dir.isComponent) || null;\n } else {\n // This should be a reference to a directive
exported via exportAs.\n dirTarget =\n directives.find(\n dir => dir.exportAs !== null &&
dir.exportAs.some(value => value === ref.value)) ||\n null;\n // Check if a matching directive was
found.\n if (dirTarget === null) {\n // No matching directive was found - this reference points to an
unknown target. Leave it\n // unmapped.\n return;\n }\n }\n\n if (dirTarget !== null) {\n //
This reference
points to a directive.\n this.references.set(ref, {directive: dirTarget, node});\n } else {\n // This reference
points to the node itself.\n this.references.set(ref, node);\n }\n });\n\n // Associate attributes/bindings on
the node with directives or with the node itself.\n type BoundNode = BoundAttribute|BoundEvent|TextAttribute;\n
const setAttributeBinding =\n (attribute: BoundNode, ioType: keyof Pick<DirectiveMeta, 'inputs'|'outputs'>)\n
=> {\n const dir = directives.find(dir => dir[ioType].hasBindingPropertyName(attribute.name));\n const
binding = dir !== undefined ? dir : node;\n this.bindings.set(attribute, binding);\n };\n\n // Node inputs
(bound attributes) and text attributes can be bound to an\n // input on a directive.\n node.inputs.forEach(input =>
setAttributeBinding(input, 'inputs'));\n node.attributes.forEach(attr => setAttributeBinding(attr, 'inputs'));\n if
(node instanceof
Template) {\n node.templateAttrs.forEach(attr => setAttributeBinding(attr, 'inputs'));\n }\n\n // Node outputs
(bound events) can be bound to an output on a directive.\n node.outputs.forEach(output =>
setAttributeBinding(output, 'outputs'));\n\n // Recurse into the node's children.\n node.children.forEach(child =>
child.visit(this));\n }\n\n // Unused visitors.\n visitContent(content: Content): void {} \n visitVariable(variable:
Variable): void {} \n visitReference(reference: Reference): void {} \n visitTextAttribute(attribute: TextAttribute):
void {} \n visitBoundAttribute(attribute: BoundAttribute): void {} \n visitBoundEvent(attribute: BoundEvent): void
{} \n visitBoundAttributeOrEvent(node: BoundAttribute|BoundEvent) {} \n visitText(text: Text): void {} \n
visitBoundText(text: BoundText): void {} \n visitIcu(icu: Icu): void {} \n }\n\n /**\n * Processes a template and
extract metadata about expressions and symbols within.\n * This is a companion to the `DirectiveBinder`
that doesn't require knowledge of directives matched\n * within the template in order to operate.\n * \n *
Expressions are visited by the superclass `RecursiveAstVisitor`, with custom logic provided\n * by overridden
methods from that visitor.\n */\n class TemplateBinder extends RecursiveAstVisitor implements Visitor {\n private
visitNode: (node: Node) => void;\n private pipesUsed: string[] = [];\n\n private constructor(\n private

```

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bindings: Map<AST, Reference|Variable>,\n private symbols: Map<Reference|Variable, Template>,\n private\n usedPipes: Set<string>,\n private nestingLevel: Map<Template, number>,\n private scope: Scope,\n private\n template: Template|null,\n private level: number) {\n super();\n\n // Save a bit of processing time by constructing\n this closure in advance.\n this.visitNode = (node: Node) => node.visit(this);\n }\n\n // This method is defined to\n reconcile the type of TemplateBinder since both\n // RecursiveAstVisitor and Visitor\n define the visit() method in their\n // interfaces.\n visit(node: AST|Node, context?: any) {\n if (node instanceof\n AST) {\n node.visit(this, context);\n } else {\n node.visit(this);\n }\n }\n\n /**\n * Process a template\n and extract metadata about expressions and symbols within.\n *\n * @param template the nodes of the template to\n process\n *\n * @param scope the `Scope` of the template being processed.\n *\n * @returns three maps which contain\n metadata about the template: `expressions` which interprets\n * special `AST` nodes in expressions as pointing to\n references or variables declared within the\n * template, `symbols` which maps those variables and references to\n the nested `Template` which\n * declares them, if any, and `nestingLevel` which associates each `Template` with a\n integer\n * nesting level (how many levels deep within the template structure the `Template` is), starting\n * at\n 1.\n */\n static apply(template: Node[], scope: Scope): {\n\n expressions: Map<AST, Reference|Variable>,\n symbols: Map<Variable|Reference, Template>,\n\n nestingLevel: Map<Template, number>,\n usedPipes: Set<string>,\n } {\n const expressions = new Map<AST,\n Reference|Variable>();\n const symbols = new Map<Variable|Reference, Template>();\n const nestingLevel =\n new Map<Template, number>();\n const usedPipes = new Set<string>();\n // The top-level template has nesting\n level 0.\n const binder = new TemplateBinder(\n expressions, symbols, usedPipes, nestingLevel, scope,\n template instanceof Template ? template : null, 0);\n binder.ingest(template);\n return {expressions, symbols,\n nestingLevel, usedPipes};\n }\n\n private ingest(template: Template|Node[]): void {\n if (template instanceof\n Template) {\n // For <ng-template>s, process only variables and child nodes. Inputs, outputs, templateAttrs,\n // and references were all processed in the scope of the containing template.\n template.variables.forEach(this.visitNode);\n\n template.children.forEach(this.visitNode);\n\n // Set the nesting level.\n this.nestingLevel.set(template,\n this.level);\n } else {\n // Visit each node from the top-level template.\n template.forEach(this.visitNode);\n }\n }\n\n visitElement(element: Element) {\n // Visit the inputs, outputs, and children of the element.\n element.inputs.forEach(this.visitNode);\n element.outputs.forEach(this.visitNode);\n element.children.forEach(this.visitNode);\n }\n\n visitTemplate(template: Template) {\n // First, visit inputs,\n outputs and template attributes of the template node.\n template.inputs.forEach(this.visitNode);\n template.outputs.forEach(this.visitNode);\n template.templateAttrs.forEach(this.visitNode);\n\n // References are\n also evaluated in the outer context.\n template.references.forEach(this.visitNode);\n\n // Next, recurse into the\n template using its scope, and bumping the\n nesting level up by one.\n const childScope = this.scope.getChildScope(template);\n const binder = new\n TemplateBinder(\n this.bindings, this.symbols, this.usedPipes, this.nestingLevel, childScope, template,\n this.level + 1);\n binder.ingest(template);\n }\n\n visitVariable(variable: Variable) {\n // Register the `Variable`\n as a symbol in the current `Template`.\n if (this.template !== null) {\n this.symbols.set(variable,\n this.template);\n }\n }\n\n visitReference(reference: Reference) {\n // Register the `Reference` as a symbol in\n the current `Template`.\n if (this.template !== null) {\n this.symbols.set(reference, this.template);\n }\n }\n\n // Unused template visitors\n visitText(text: Text) {\n visitContent(content: Content) {\n }\n\n visitTextAttribute(attribute: TextAttribute) {\n }\n\n visitIcu(icu: Icu): void {\n Object.keys(icu.vars).forEach(key =>\n icu.vars[key].visit(this));\n Object.keys(icu.placeholders).forEach(key\n => icu.placeholders[key].visit(this));\n }\n\n // The remaining visitors are concerned with processing AST\n expressions within template bindings\n visitBoundAttribute(attribute: BoundAttribute) {\n attribute.value.visit(this);\n }\n\n visitBoundEvent(event: BoundEvent) {\n event.handler.visit(this);\n }\n\n visitBoundText(text: BoundText) {\n text.value.visit(this);\n }\n\n visitPipe(ast: BindingPipe, context: any): any\n {\n this.usedPipes.add(ast.name);\n return super.visitPipe(ast, context);\n }\n }\n\n // These five types of AST\n expressions can refer to expression roots, which could be variables\n // or references in the current scope.\n
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//\n//\n\n/*\n * @module\n * @description\n * Entry point for all APIs of the compiler package.\n * \n * <div class="callout is-critical">\n * <header>Unstable APIs</header>\n * <p>\n * All compiler apis are currently considered experimental and private!\n * </p>\n * <p>\n * We expect the APIs in this package to keep on changing. Do not rely on them.\n * </p>\n * </div>\n * \n\nimport * as core from './core';\nimport {publishFacade} from './jit_compiler_facade';\nimport {global} from './util';\n\nexport {CUSTOM_ELEMENTS_SCHEMA, NO_ERRORS_SCHEMA, SchemaMetadata} from './core';\n\nexport {core};\n\nexport * from './version';\nexport * from './template_parser/template_ast';\nexport {CompilerConfig, preserveWhitespacesDefault} from './config';\nexport * from './compile_metadata';\nexport * from './aot/compiler_factory';\nexport * from './aot/compiler';\nexport * from './aot/generated_file';\nexport * from './aot/compiler_options';\n\nexport * from './aot/compiler_host';\nexport * from './aot/formatted_error';\nexport * from './aot/partial_module';\nexport * from './aot/static_reflector';\nexport * from './aot/static_symbol';\nexport * from './aot/static_symbol_resolver';\nexport * from './aot/summary_resolver';\nexport {isLoweredSymbol, createLoweredSymbol} from './aot/util';\nexport {LazyRoute} from './aot/lazy_routes';\nexport * from './ast_path';\nexport * from './summary_resolver';\nexport {Identifiers} from './identifiers';\nexport {JitCompiler} from './jit/compiler';\nexport * from './compile_reflector';\nexport * from './url_resolver';\nexport * from './resource_loader';\nexport {ConstantPool} from './constant_pool';\nexport {DirectiveResolver} from './directive_resolver';\nexport {PipeResolver} from './pipe_resolver';\nexport {NgModuleResolver} from './ng_module_resolver';\nexport {DEFAULT_INTERPOLATION_CONFIG, InterpolationConfig} from './ml_parser/interpolation_config';\nexport * from './schema/element_schema_registry';\n\nexport * from './i18n/index';\nexport * from './directive_normalizer';\nexport * from './expression_parser/ast';\nexport * from './expression_parser/lexer';\nexport * from './expression_parser/parser';\nexport * from './metadata_resolver';\nexport * from './ml_parser/ast';\nexport * from './ml_parser/html_parser';\nexport * from './ml_parser/html_tags';\nexport * from './ml_parser/interpolation_config';\nexport * from './ml_parser/tags';\nexport {LexerRange} from './ml_parser/lexer';\nexport * from './ml_parser/xml_parser';\nexport {NgModuleCompiler} from './ng_module_compiler';\nexport {ArrayType, AssertNotNull, DYNAMIC_TYPE, BinaryOperator, BinaryOperatorExpr, BuiltinMethod, BuiltinType, BuiltinTypeName, BuiltinVar, CastExpr, ClassField, ClassMethod, ClassStmt, CommaExpr, ConditionalExpr, DeclareFunctionStmt, DeclareVarStmt, Expression, ExpressionStatement, ExpressionType, ExpressionVisitor, ExternalExpr, ExternalReference, literalMap, FunctionExpr, IfStmt, InstantiateExpr, InvokeFunctionExpr, InvokeMethodExpr, LiteralArrayExpr, LiteralExpr, LiteralMapExpr, MapType, NotExpr, NONE_TYPE, ReadKeyExpr, ReadPropExpr, ReadVarExpr, ReturnStatement, StatementVisitor, ThrowStmt, TryCatchStmt, Type, TypeVisitor, WrappedNodeExpr, WriteKeyExpr, WritePropExpr, WriteVarExpr, StmtModifier, Statement, STRING_TYPE, TypeofExpr, collectExternalReferences, jsDocComment, leadingComment, LeadingComment, JSDocComment, UnaryOperator, UnaryOperatorExpr, LocalizedString} from './output/output_ast';\nexport {EmitterVisitorContext} from './output/abstract_emitter';\nexport {JitEvaluator} from './output/output_jit';\nexport * from './output/ts_emitter';\nexport * from './parse_util';\nexport * from './schema/dom_element_schema_registry';\nexport * from './selector';\nexport * from './style_compiler';\nexport * from './template_parser/template_parser';\nexport {ViewCompiler} from './view_compiler/view_compiler';\nexport {getParseErrors, isSyntaxError, syntaxError, Version} from './util';\n\nexport {SourceMap} from './output/source_map';\nexport * from './injectable_compiler_2';\nexport * from './render3/view/api';\nexport {BoundAttribute as TmplAstBoundAttribute, BoundEvent as TmplAstBoundEvent, BoundText as TmplAstBoundText, Content as TmplAstContent, Element as TmplAstElement, Icu as TmplAstIcu, Node as TmplAstNode, RecursiveVisitor as TmplAstRecursiveVisitor, Reference as TmplAstReference, Template as TmplAstTemplate, Text as TmplAstText, TextAttribute as TmplAstTextAttribute, Variable as TmplAstVariable} from './render3/r3_ast';\nexport * from './render3/view/t2_api';\nexport * from './render3/view/t2_binder';\nexport {Identifiers as R3Identifiers} from './render3/r3_identifiers';\nexport {R3DependencyMetadata, R3ResolvedDependencyType, compileFactoryFunction, R3FactoryMetadata, R3FactoryTarget} from
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./render3/r3_factory';\nextport {compileInjector, compileNgModule, R3InjectorMetadata, R3NgModuleMetadata}
from './render3/r3_module_compiler';\nextport {compilePipeFromMetadata,
R3PipeMetadata} from './render3/r3_pipe_compiler';\nextport {makeBindingParser, ParsedTemplate,
parseTemplate, ParseTemplateOptions} from './render3/view/template';\nextport {R3Reference} from
./render3/util';\nextport {compileComponentFromMetadata, compileDirectiveFromMetadata, parseHostBindings,
ParsedHostBindings, verifyHostBindings} from './render3/view/compiler';\nextport {publishFacade} from
./jit_compiler_facade';\n// This file only reexports content of the `src` folder. Keep it that way.\n\n// This function
call has a global side effects and publishes the compiler into global namespace for\n// the late binding of the
Compiler to the @angular/core for jit compilation.\npublishFacade(global);\n"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\n/**\n * @module\n * @description\n * Entry point
for all public

```

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APIs of this package.\n */\nextport * from './src/compiler';\n\n// This file only reexports content of the `src` folder.
Keep it that way.\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n// This file is not used to build this module. It is only used during editing\n// by the TypeScript language
service and during build for verification. `ngc`\n// replaces this file with production index.ts when it rewrites private
symbol\n// names.\n\nexport * from './public_api';\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n// This file is not used to build this module. It is only used during
editing\n// by the TypeScript language service and during build for verification.

```

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`ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'/compiler';\n"], "names": ["Type", "o.variable", "o.Expression", "o.LiteralExpr", "o.FunctionExpr", "o.ReturnStatement",
"o.INFERRED_TYPE", "o.StmtModifier", "o.LiteralArrayExpr", "o.literalArr", "o.literalMap", "o.FnParam", "o.DYN
AMIC_TYPE", "o.fn", "o.ReadVarExpr", "CORE", "Identifiers", "o.literal", "o.expressionType", "o.ExternalExpr", "o.Bi
naryOperatorExpr", "o.BinaryOperator", "o.TypeOfExpr", "o.WrappedNodeExpr", "Text", "Icu", "i18n.RecurseVisitor",
"_Visitor", "xml.Tag", "xml.Text", "xml.CR", "xml.serialize", "xml.Declaration", "xml.Doctype", "digest", "i18n.Messag
e", "i18n.Icu", "i18n.Container", "i18n.Placeholder", "o.DeclareVarStmt", "invalid", "o.isNull", "t.Template", "o.importE
xpr", "o.NONE_TYPE", "o.InstantiateExpr", "R3", "o.NULL_EXPR", "o.ifStmt", "o.InvokeFunctionExpr", "o.Expressio
nType", "CATCH_ERROR_VAR", "CATCH_STACK_VAR", "o.JSDocComment", "o.BuiltinVar", "o.UnaryOperator",
"o.BuiltinMethod", "o.LiteralMapExpr", "o.LiteralMapEntry", "chars.$LF", "o.ClassStmt", "o.ClassField", "o.ClassM
ethod", "o.ReadPropExpr", "o.typeofExpr", "RecursiveAstVisitor", "AstTransformer", "cdAst.Interpolation", "cdAst.Ast
Transformer", "o.UnaryOperatorExpr", "cdAst.ThisReceiver", "cdAst.ImplicitReceiver", "o.not", "o.assertNotNull", "cd
Ast.PropertyRead", "cdAst.SafeMethodCall", "cdAst.MethodCall", "o.ExpressionStatement", "cdAst.FunctionCall", "o.
ArrayType", "o.TypeModifier", "Element", "visitAll", "RecursiveVisitor", "chars.$EOF", "chars.$LT", "chars.$BANG",
"chars.$LBRACKET", "chars.$MINUS", "chars.$SLASH", "chars.$RBRACE", "chars.$AMPERSAND", "chars.$HASH",
"chars.$x", "chars.$X", "chars.$SEMICOLON", "chars.$GT", "chars.$COLON", "chars.isAsciiLetter", "chars.$EQ",
"chars.$SQ", "chars.$DQ", "chars.$LBRACE", "chars.$COMMA", "chars.isWhitespace", "chars.$a", "chars.$z", "chars.
$a", "chars.$Z", "chars.$0", "chars.$9", "chars.isAsciiHexDigit", "chars.isNewLine", "chars.$BACKSLASH", "chars.$n",
"chars.$r", "chars.$CR", "chars.$v", "chars.$VTAB", "chars.$t", "chars.$TAB", "chars.$b", "chars.$BSPACE", "chars.$
f", "chars.$FF", "chars.$u", "chars.isOctalDigit", "lex.tokenize", "lex.TokenType", "html.Comment", "html.Expansion",
"lex.Token", "html.ExpansionCase", "html.Text", "html.Element", "html.Attribute", "html.visitAll", "TEMPLATE_ATT
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beddedTemplateAst", "t.ElementAst", "t.BoundEventAst", "t.BoundElementPropertyAst", "t.ReferenceAst", "t.Directiv
eAst", "t.BoundDirectivePropertyAst", "parseStyle", "TokenType", "Token", "chars.$SPACE", "chars.isDigit", "chars.$
PERIOD", "chars.$LPAREN", "chars.$RPAREN", "chars.$RBRACKET", "chars.$PLUS", "chars.$STAR", "chars.$PE
RCENT", "chars.$CARET", "chars.$QUESTION", "chars.$BAR", "chars.$NBSP", "chars.$_", "chars.$$", "chars.$e", "c
hars.$E", "chars.$BT", "Parser", "BIND_NAME_REGEXP", "KW_BIND_IDX", "KW_LET_IDX", "KW_REF_IDX",

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"KW\_ON\_IDX","KW\_BINDON\_IDX","KW\_AT\_IDX","IDENT\_KW\_IDX","IDENT\_BANANA\_BOX\_IDX","IDENT\_PROPERTY\_IDX","IDENT\_EVENT\_IDX","t.Variable","NON\_BINDABLE\_VISITOR","t.Content","t.Element","t.TextAttribute","t.BoundText","t.Icu","t.BoundAttribute","t.Text","t.Reference","NonBindableVisitor","t.BoundEvent","ExpressionParser","ExpressionLexer","i18n.TagPlaceholder","i18n.IcuPlaceholder","i18n.Text","html.NodeWithI18n","o.jsDocComment","variable","serializerVisitor","localizedString","o.localizedString","o.LiteralPiece","o.PlaceholderPiece","NG\_CONTENT\_SELECT\_ATTR","t.visitAll","core.parseSelectorToR3Selector","o.NUMBER\_TYPE","isNgContainer","checkIsNgContainer","o.TYPED\_NULL\_EXPR","literal","core.SecurityContext","o.STRING\_TYPE","core.ViewEncapsulation","core.ChangeDetectionStrategy","HOST\_REG\_EXP","wrapReference","VERSION","\_PLACEHOLDER\_TAG","\_SOURCE\_TAG","ml.visitAll","\_VERSION","\_XMLNS","\_DEFAULT\_SOURCE\_LANG","\_MARKER\_TAG","\_TARGET\_TAG","\_UNIT\_TAG","\_WriteVisitor","XmlToI18n","mapEntry","cpl.viewClassName","cpl.hostViewClassName","cpl.identifierName","cpl.rendererTypeName","cpl.componentFactoryName","cpl.CompileDirectiveMetadata","cpl.CompileTemplateMetadata","cpl.CompileSummaryKind","cpl.CompileNgModuleMetadata","cpl.TransitiveCompileNgModuleMetadata","cpl.tokenReference","cpl.CompilePipeMetadata","cpl.ProviderMeta","o.importType","o.Statement","o.Type","o.BuiltinTypeName","o.applySourceSpanToStatementIfNeeded","o.IfStmt","o.DeclareFunctionStmt","CLASS\_ATTR","ViewBuilder","LOG\_VAR","o.findReadVarNames","o.CommaExpr","o.applySourceSpanToExpressionIfNeeded","o.BOOL\_TYPE","i18n.CloneVisitor","compileR3Module","compileR3Component","compileR3Directive","compileR3Pipe","importExpr","o.ExternalReference","USE\_VALUE","BindingScope","ir.variable","ir.importExpr","global","mappings":":":";";AAAA;::;IAQY;AAAZ,WAAy,cAAc;IACxB,2DAAQ,CAAA;IACR,+EAAkB,CAAA;IACIB,qEAAa,CAAA;AACf,CAAC,EAJW,cAAc,KAAc,cAAc,QAIzB;SAce,WAAW,CAAC,WAAmB;IAC7C,IAAI,WAAW,CAAC,CAAC,CAAC,IAAI,GAAG,EAAE;QACzB,OAAO,CAAC,IAAI,EAAE,WAAW,CAAC,CAAC;KAC5B;IAED,MAAM,UAAU,GAAG,WAAW,CAAC,OAAO,CAAC,GAAG,EAAE,CAAC,CAAC,CAAC;IAE/C,IAAI,UAAU,IAAI,CAAC,CAAC,EAAE;QACpB,MAAM,IAAI,KAAK,CAAC,uBAAuB,WAAW,+BAA+B,CAAC,CAAC;KACpF;IAED,OAAO,CAAC,WAAW,CAAC,KAAK,CAAC,CAAC,EAAE,UAAU,CAAC,EAAE,WAAW,CAAC,KAAK,CAAC,UAAU,GAAG,CAAC,CAAC,CAAC,CAAC;AAC/E,CAAC;AAED;SACgB,aAAa,CAAC,OAAe;IAC3C,OAAO,WAAW,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,KAAK,cAAc,CAAC;AACpD,CAAC;AAED;SACgB,WAAW,CAAC,OAAe;IACzC,OAAO,WAAW,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,KAAK,YAAy,CAAC;AACID,CAAC;AAED;SACgB,YAAy,CAAC,OAAe;IAC1C,OAAO,WAAW,CAAC,OAAO,CAAC,CAAC,CAAC,CAAC,KAAK,aAAa,CAAC;AACnD,CAAC;SAIe,WAAW,CAAC,QAAqB;IAC/C,OAAO,QAAQ,KAAK,IAAI,GAAG,IAAI,GAAG,WAAW,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC;AAC7D,CAAC;SAEe,cAAc,CAAC,MAAc,EAAE,SAAiB;IAC9D,OAAO,MAAM,GAAG,IAAI,MAAM,IAAI,SAAS,EAAE,GAAG,SAAS,CAAC;AACxD,CAAC;AAED;AACa;AACa;AACa;AACa;MACa,cAAc,GAA0B;IACnD,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,OAAO,EAAE,QAAQ;IACjB,OAAO,EAAE,QAAQ;IACjB,OAAO,EAAE,QAAQ;IACjB,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,SAAS,EAAE,QAAQ;IACnB,OAAO,EAAE,QAAQ;IACjB,OAAO,EAAE,QAAQ;IACjB,KAAK,EAAE,GAAG;IACV,KAAK,EAAE,QAAQ;IACf,KAAK,EAAE,QAAQ;IACf,MAAM,EAAE,QAAQ;IACbB,OAAO,EAAE,QAAQ;IACjB,OAAO,EAAE,QAAQ;IACjB,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,MAAM,EAAE,QAAQ;IACbB,MAAM,EAAE,QAAQ;IACbB,OAAO,EAAE,QAAQ;IACjB,MAAM,EAAE,QAAQ;IACbB,KAAK,EAAE,QAAQ;IACf,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,OAAO,EAAE,QAAQ;IACjB,MAAM,EAAE,QAAQ;IACbB,KAAK,EAAE,QAAQ;IACf,KAAK,EAAE,QAAQ;IACf,MAAM,EAAE,QAAQ;IACbB,OAAO,EAAE,QAAQ;IACjB,MAAM,EAAE,QAAQ;IACbB,MAAM,EAAE,QAAQ;IACbB,OAAO,EAAE,QAAQ;IACjB,KAAK,EAAE,QAAQ;IACf,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,MAAM,EAAE,QAAQ;IACbB,MAAM,EAAE,QAAQ;IACbB,KAAK,EAAE,QAAQ;IACf,OAAO,EAAE,QAAQ;IACjB,OAAO,EAAE,QAAQ;IACjB,QAAQ,EAAE,QAAQ;IACIB,QAAQ,EAAE,QAAQ;IACIB,OAAO,EAAE,QAAQ;IACjB,MAAM,EAAE,QAAQ;IACbB,MAAM,EAAE,QAAQ;IACbB,SAAS,EAAE,QAAQ;IACnB,SAAS,EAAE,QAAQ;IACnB,OAAO,EAAE,Q



Open Source Used In NBAR SD-AVC 4.4.0 6421

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 ,EAAE,UAAU,EAAED,MAAI,EAAC,CAAC;AAC/DC,4BAAc,GAAwB,EAAC,IAAI,EAAE,kBAaKB,EAAE,UA  
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 D,MAAI,EAAC,CAAC;AACrEC,uBAAS,GAAwB,EAAC,IAAI,EAAE,aAAa,EAAE,UAAU,EAAED,MAAI,EA

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EAAC;;ActUIF;;;;;;;AAYA;;;SAGgB,kBAaKB,CAAC,GAA4C;IAC7E,MAAM,MAAM,GAAG,MAAM,CAAC,IAAI,CAAC,GAAG,CAAC,CAAC,GAAG,CAC/B,GAAG,KAAK;QACN,GAAG;;;QAGH,KAAK,EAAE,GAAG,C AAC,GAAG,CAAE;QACbB,MAAM,EAAE,KAAK;KACd,CAAC,CAAC,CAAC;IACR,OAAOL,UAA Y,CAAC, MAAM,CAAC,CAAC;AAC9B,CAAC;AAED;;;;;SAGgB,mBAaMB,CAAC,IAAS,EAAE,GAaKB;IAC/D,IAAI,K AAK,CAAC,OAAO,CAAC,IAAI,CAAC,EAAE;QACvB,OAAOD,UAA Y,CAAC,IAAI,CAAC,GAAG,CAAC,KA AK,IAAI,mBAaMB,CAAC,KAAK,EAAE,GAAG,CAAC,CAAC,CAAC,CAAC;KACzE;IACD,IAAI,IAAI,YAA Y ,YAA Y,EAAE;QACbC,OAAO,GAAG,CAAC,UAAU,CAAC,IAAI,CAAC,CAAC;KAC7B;IACD,IAAI,IAAI,IAA I,IAAI,EAAE;QACbB,OAAOQ,OAAS,CAAC,IAAI,CAAC,CAAC;KACxB;IAED,MAAM,IAAI,KAAK,CAAC,o DAAoD,IAAI,EAAE,CAAC,CAAC;AAC9E,CAAC;SAEe,kBAaKB,CAAC,IAaKB,EAAE,SAAiB;IACtE,IAAI,S AAS,KAAK,CAAC,EAAE;QACnB,OAAOC,cAAgB,CAAC,IAAI,CAAC,CAAC;KAC/B;IACD,MAAM,MAAM, GAAa,EAAE,CAAC;IAC5B,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,SAAS,EAAE,CAAC,EAA E,EAAE;QACIC,MAAM,CAAC,IAAI,CAACN,YAAc,CAAC,CAAC;KAC7B;IACD,OAAOM,cAAgB,CAAC,IA AI,EAAE,SAAS,EAAE,MAAM,CAAC,CAAC;AACnD,CAAC;AAOD,MAAM,qBAaQB,GAAG,GAAG,CAAC;S ACIB,4BAA4B,CAAC,IAAY;IACvD,OAAO,GAAG,qBAaQB,GAAG,IAAI,EAAE,CAAC;AAC3C,CAAC;SAEe, 4BAA4B,CAAC,IAAY,EAAE,KAAa;IACtE,OAAO,GAAG,qBAaQB,GAAG,IAAI,IAAI,KAAK,EAAE,CAAC;A ACpD,CAAC;SAEe,6BAA6B,CAAC,IAAY;IACxD,OAAO,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,IAAI,qB AAqB,CAAC;AACjD,CAAC;SAEe,wBAaWB,CAAC,IAAY;;;IAGnD,MAAM,CAAC,GAAG,IAAI,CAAC,OAA O,CAAC,GAAG,CAAC,CAAC;IAC5B,IAAI,GAAG,CAAC,GAAG,CAAC,GAAG,IAAI,CAAC,SAAS,CAAC,C AAC,EAAE,CAAC,CAAC,GAAG,IAAI,CAAC;IAC3C,IAAI,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,KAAK, qBAaQB,EAAE;QAC5C,IAAI,GAAG,qBAaQB,GAAG,IAAI,CAAC;KACrC;IACD,OAAO,IAAI,CAAC;AACd,C AAC;SAEe,oCAAoC,CAAC,IAAY,EAAE,KAAa;IAC9E,OAAO,aAAa,IAAI,IAAI,KAAK,EAAE,CAAC;AACtC, CAAC;SAEe,wBAaWB,CAAC,IAaKB;IACzD,MAAM,SAAS,GAAG,IAAIC,YAAc,CAAC,EAAC,IAAI,EAAE, WAAW,EAAE,UAAU,EAAE,IAAI,EAAC,CAAC,CAAC;IAC5E,MAAM,iBAaIB,GAAG,IAAIC,kBAaOB,CAC 9CC,cAAgB,CAAC,SAAS,EAAE,IAAIC,UAA Y,CAAC,SAAS,CAAC,EAAEL,OAAS,CAAC,WAAW,CAAC,CA AC,CAAC;IACrF,MAAM,sBAAsB,GAAG,IAAIG,kBAaOB,CACnDC,cAAgB,CAAC,EAAE,EAAE,iBAaIB,EA AE,SAAS,aAAa,SAAS;qBACtD,SAAS,EAAE,IAAI,CAAC,CAAC;IACtC,OAAO,IAAID,kBAaOB,CAACC,cAA gB,CAAC,GAAG,EAAE,sBAAsB,EAAE,IAAI,CAAC,CAAC;AACtF,CAAC;SAEe,aAAa,CAAC,KAAU;IACtC, MAAM,OAAO,GAAG,IAAIE,eAAiB,CAAC,KAAK,CAAC,CAAC;IAC7C,OAAO,EAAC,KAAK,EAAE,OAAO, EAAE,IAAI,EAAE,OAAO,EAAC,CAAC;AACzC;;ACvGA;;;;;;;MAkBa,IAAI;IACf,YAAmB,KAAa,EAAS,UAA 2B;QAAjD,UAAK,GAAL,KAAK,CAAQ;QAAS,eAAU,GA AV,UAAU,CAAiB;KAAI;IACxE,KAAK,CAAS,OAA wB;QACpC,OAAO,OAAO,CAAC,SAAS,CAAC,IAAI,CAAC,CAAC;KACbC;CACF;MAEY,SAAS;IACpB,YAA mB,KAAU,EAAS,UAA2B,EAAS,IAAe;QAAIE,UAAK,GAAL,KAAK,CAAK;QAAS,eAAU,GA AV,UAAU,CAA iB;QAAS,SAAI,GA AJ,IAAI,CAAW;KAAI;IAC7F,KAAK,CAAS,OAAwB;QACpC,OAAO,OAAO,CAAC,cAAc, CAAC,IAAI,CAAC,CAAC;KACrC;CACF;MAEY,aAAa;IACxB,YACW,IAAY,EAAS,KAAa,EAAS,UAA2B,EA CtE,SA A2B,EAAS,IAAe;QADnD,SAAI,GA AJ,IAAI,CAAQ;QAAS,UAAK,GAAL,KAAK,CAAQ;QAAS,eAAU, GA AV,UAAU,CAAiB;QACtE,cAAS,GAAT,SAAS,CAaKB;QAAS,SAAI,GA AJ,IAAI,CAAW;KAAI;IACIE,KAA K,CAAS,OAAwB;QACpC,OAAO,OAAO,CAAC,kBAaKB,CAAC,IAAI,CAAC,CAAC;KACzC;CACF;MAEY,c AA c;IACzB,YACW,IAAY,EAAS,IAAiB,EAAS,eAAgC,EAC/E,KAAU,EAAS,IAAiB,EAAS,UAA2B,EACtE,OA AwB,EAAS,SAAoC,EACvE,IAAwB;QAHxB,SAAI,GA AJ,IAAI,CAAQ;QAAS,SAAI,GA AJ,IAAI,CAAa;QAAS, oBAAe,GA Af,eAAe,CAAiB;QAC/E,UAAK,GAAL,KAAK,CAAK;QAAS,SAAI,GA AJ,IAAI,CAAa;QAAS,eAAU ,GA AV,UAAU,CAAiB;QACtE,YAAO,GAAP,OAAO,CAAiB;QAAS,cAAS,GAAT,SAAS,CAA2B;QACvE,SAAI ,GA AJ,IAAI,CAAoB;KAAI;IAEvC,OAAO,wBAaWB,CAAC,IAA0B,EAAE,IAAe;QACzE,IAAI,IAAI,CAAC,OA AO,KAAK,SAAS,EAAE;YAC9B,MAAM,IAAI,KAAK,CACX,kFACI,IAAI,CAAC,IAAI,KAAK,IAAI,CAAC,U AAU,EAAE,CAAC,CAAC;SAC1C;QACD,OAAO,IAAI,cAAc,CACrB,IAAI,CAAC,IAAI,EAAE,IAAI,CAAC,IA AI,EAAE,IAAI,CAAC,eAAe,EAAE,IAAI,CAAC,KAAK,EAAE,IAAI,CAAC,IAAI,EAAE,IAAI,CAAC,UAAU,E ACIF,IAAI,CAAC,OAAO,EAAE,IAAI,CAAC,SAAS,EAAE,IAAI,CAAC,CAAC;KACzC;IAED,KAAK,CAAS,O AAwB;QACpC,OAAO,OAAO,CAAC,mBAaMB,CAAC,IAAI,CAAC,CAAC;KAC1C;CACF;MAEY,UAAU;IAC rB,YACW,IAAY,EAAS,IAAqB,EAAS,OAAY,EAC/D,MAAmB,EAAS,KAAKB,EAAS,UAA2B,EACIF,WAA4B;

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AW,EAAE,WAaw,EAAE,eAAe,EAAE,OAAO,CAAC,CAAC;KACzF;IAED,oBAAoB,CAAC,KAAkB,EAAE,QAAa,EAAE,cAAaB;QAC5E,MAAM,IAAI,GAAG,IAAI,SAAS,CAAC,CAAC,EAAE,KAAK,IAAI,IAAI,GAAG,CAAC,GAAG,KAAK,CAAC,MAAM,CAAC,CAAC;QACHe,OAAO,IAAI,aAAa,CACpB,IAAI,gBAAGB,CAAC,IAAI,EAAE,IAAI,CAAC,UAAU,CAAC,cAAc,CAAC,EAAE,KAAK,CAAC,EAAE,KAAK,EAAE,QAAQ,EACnF,cAAc,EAAE,IAAI,CAAC,MAAM,CAAC,CAAC;KACIC;IAEO,cAAc,CAAC,KAAa;QACIC,MAAM,CAAC,GAA G,IAAI,CAAC,aAAa,CAAC,KAAK,CAAC,CAAC;QACpC,OAAO,CAAC,IAAI,IAAI,GAAG,KAAK,CAAC,SAAS,CAAC,CAAC,EAAE,CAAC,CAAC,CAAC,IAAI,EAAE,GAAG,KAAK,CAAC;KACzD;IAEO,aAAa,CAAC,KAAa;QACjC,IAAI,UAAU,GAAGB,IAAI,CAAC;QACnC,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAA G,KAAK,CAAC,MAAM,GAAG,CAAC,EAAE,CAAC,EAAE,EAAE;YACzC,MAAM,IAAI,GAAG,KAAK,CAAC,UAAU,CAAC,CAAC,CAAC,CAAC;YACjC,MAAM,QAAQ,GAAG,KAAK,CAAC,UAAU,CAAC,CAAC,GAA G,CAAC,CAAC,CAAC;YAEzC,IAAI,IAAI,KAAKnF,MAAY,IAAI,QAAQ,IAAIA,MAAY,IAAI,UAAU,IAAI,IAAI;gBAAE,OAAO,CAAC,CAAC;YAEtF,IAAI,UAAU,KAAK,IAAI,EAAE;gBACvB,UAAU,GAAG,IAAI,CAAC;aACnB;iBAAM,IAAI,UAAU,IAAI,IAAI,IAAI,OAAO,CAAC,IAAI,CAAC,EAAE;gBAC9C,UAAU,GAAG,IAAI,CAAC;aACnB;SACF;QACD,OAAO,IAAI,CAAC;KACb;IAEO,qBAaQB,CACzB,KAAa,EAAE,QAAa,EAAE,mBAAwC;QACxE,MAAM,MAAM,GAAG,qBAaQB,CAAC,mBAaMB,CAAC,CAAC;QAC1D,MAAM,KAAK,GAA G,KAAK,CAAC,KAAK,CAAC,MAAM,CAAC,CAAC;QACIC,IAAI,KAAK,CAAC,MAAM,GAAG,CAAC,EAA E;YACpB,IAAI,CAAC,YAAY,CACb,sBAAsB,mBAaMB,CAAC,KAAK,GAC3C,mBAaMB,CAAC,GAAG,iCA AiC,EAC5D,KAAK,EACL,aAAa,IAAI,CAAC,6BAA6B,CAAC,KAAK,EAAE,CAAC,EAAE,mBAaMB,CAAC,KAAK,EACnF,QAAQ,CAAC,CAAC;SACf;KACF;IAEO,6BAA6B,CACjC,KAAe,EAAE,YAAoB,EAAE,mBAAw C;QACjF,IAAI,WAaw,GAAG,EAAE,CAAC;QACrB,KAAK,IAAI,CAAC,GAAG,CAAC,EAAE,CAAC,GAAG,YAAY,EAAE,CAAC,EAAE,EAAE;YACrC,WAaw,IAAI,CAAC,GAAG,CAAC,KAAK,CAAC;gBACtB,KAAK,CAAC,CAAC,CAAC;gBACR,GAAG,mBAaMB,CAAC,KAAK,GAAG,KAAK,CAAC,CAAC,CAAC,GAAG,mBAAmB,CAAC,GAAG,EAAE,CAAC;SACzE;QAED,OAAO,WAaw,CAAC,MAAM,CAAC;KAC3B;CACF;MAE Y,SAAU,SAAQmF,QAAM;IAArC;;QACE,4BAaUB,GAAG,0BAA0B,CAAC;KACtD;CAAA;AAED;AACA,IAA K,iBAUJ;AAVD,WAak,iBAAiB;IACpB,yDAAQ,CAAA;,,,,,IAQR,iEAAY,CAAA;AACd,CAAC,EAVI,iBAAi B,KAAjB,iBAAiB,QAURB;MAEY,SAAS;IACpB,YACW,KAAa,EAAS,QAAa,EAAS,cAAaB,EACIE,MAAE,EAAS,WAaMB,EAAS,WAaOB,EACvE,MAAQb,EAaU,MAAc;QAF9C,UAAK,GAAL,KAAK,CAAQ;QAAS,aAAQ,GAAR,QAAQ,CAAK;QAAS,mBAAC,GAAd,cAAc,CAAQ;QACIE,WAAM,GAAN,MAAM,CAAS;QAAS,gBAAW,GAAX,WAaw,CAAQ;QAAS,gBAAW,GAAX,WAaw,CAAS;QACvE,WAAM,GAAN,MAAM,CAAE;QAAU,WAAM,GAAN,MAAM,CAAQ;QAhBjD,oBAaE,GAAG,CAAC,CAAC;QACpB,sBAaIB,GAAG,CAAC,CAAC;QACtB,oBAaE,GAAG,CAAC,CAAC;QACpB,YAAO,GAAG,iBAaIB,CAAC,IAAI,CAAC;,,,QAMjC,oBAaE,GAAG,IAAI,GAAG,EAa8B,CAAC;QAEhE,UAAK,GAaw,CAAC,CAAC;KAK2C;IAE7D,IAAI,CAAC,MAAc;QACjB,MAAM,CAAC,GAAG,IAAI,CAAC,KAAK,GAAG,MAAM,CAAC;QAC9B,OAAO,CAAC,GAAG,IAAI,CAAC,MAAM,CAAC,MAAM,GAAG,IAAI,CAAC,MAAM,CAAC,CAAC,CAAC,GAAG,GAAG,CAAC;KACtD;IAED,IAAI,IAAI;QACN,OAAO,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC;KACrB;;IAGD,IAAI,KAAK;QACP,OAAO,IAAI,CAAC,KAAK,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,CAAC;KACzC;,,,IAMD,IAAI,UAAU;QACZ,OAAO,IAAI,CAAC,KAAK,GAAG,IAAI,CAAC,eAAe,GAAG,IAAI,CAAC,IAAI,CAAC,KAAK,GAAG,IAAI,CAAC,MAAM,CAAC;KACIE;,,,IAMD,IAAI,eAAe;QACjB,IAAI,IAAI,CAAC,KAAK,GAAG,CAAC,EAA E;YACIB,MAAM,QAAQ,GAAG,IAAI,CAAC,IAAI,CAAC,CAAC,CAAC,CAAC,CAAC;YAC/B,OAAO,QAAQ,CAAC,GAAG,GAAG,IAAI,CAAC,MAAM,CAAC;SACnC;;QAGD,IAAI,IAAI,CAAC,MAAM,CAAC,MAAM,KAAK,CAAC,EAAE;YAC5B,OAAO,IAAI,CAAC,WAaw,GAAG,IAAI,CAAC,MAAM,CAAC;SACvC;QACD,OAAO,IAAI,CAAC,IAAI,CAAC,KAAK,GAAG,IAAI,CAAC,MAAM,CAAC;KACtC;,,,IAKD,IAAI,qBAaQB;QACvB,OAAO,IAAI,CAAC,cAAc,GAAG,IAAI,CAAC,UAAU,CAAC;KAC9C;IAED,IAAI,CAAC,KAAa;QACb,OAAO,IAAI,SAAS,CAAC,KAAK,EAAE,IAAI,CAAC,eAAe,CAAC,CAAC;KACnD;IAED,UAAU,CAAC,KAAa;QACtB,MAAM,MAAM,GAAG,GAAG,KAAK,IAAI,IAAI,CAAC,UAAU,EAAE,CAAC;QAC7C,IAAI,CAAC,IAAI,CAAC,eAAe,CAAC,GAAG,CAAC,MAAM,CAAC,EAAE;YACrC,IAAI,CAAC,eAAe,CAAC,GAAG,CAAC,MAAM,EAAE,IAAI,CAAC,IAAI,CAAC,KAAK,CAAC,CAAC,UAAU,CAAC,IAAI,CAAC,cAAc,CAAC,CAAC,CAAC;SACpF;QACD,OAAO,IAAI,CAAC,eAAe,CAAC,GAAG,CAAC,MAAM,CAAE,CAAC;KACIC;IAED,OA

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AAI,CAAC,IAAIR,QAAU,CAAC,UAAU,EAAE,KAAK,EAAE,UAAU,EAAE,OAAO,EAAE,SAAS,CAAC,CAAC,CAAC;KACnF;IAEO,cAAc,CACIB,UAAkB,EAAE,KAAa,EAAE,UAA2B,EAC9D,SAAoC,EAAE,UAAyB;QACjE,IAAI,UAAU,CAAC,OAAO,CAAC,GAAG,CAAC,GAAG,CAAC,CAAC,EAAE;YACbC,IAAI,CAAC,WAAW,CAAC,uCAAUc,EAAE,UAAU,CAAC,CAAC;SACvE;aAAM,IAAI,UAAU,CAAC,MAAM,KAAK,CAAC,EAAE;YACIC,IAAI,CAAC,WAAW,CAAC,gCAAgC,EAAE,UAAU,CAAC,CAAC;SACbE;QAED,UAAU,CAAC,IAAI,CAAC,IAAIS,SAAW,CAAC,UAAU,EAAE,KAAK,EAAE,UAAU,EAAE,SAAS,CAAC,CAAC,CAAC;KAC5E;IAEO,oBAAoB,CACxB,IAAY,EAAE,UAAkB,EAAE,UAA2B,EAC7D,SAAoC,EAAE,oBAAgC,EACtE,WAA2B;QAC7B,MAAM,MAAM,GAakB,EAAE,CAAC;QACjC,IAAI,CAAC,aAAa,CAAC,UAAU,CACzB,GAAG,IAAI,QAAQ,EAAE,GAAG,UAAU,SAAS,EAAE,UAAU,EAAE,SAAS,IAAI,UAAU,EAC5E,oBAAoB,EAAE,MAAM,CAAC,CAAC;QACIC,SAAS,CAAC,MAAM,EAAE,WAAW,CAAC,CAAC;KACbC;IAEO,WAAW,CACf,OAAe,EAAE,UAA2B,EAC5C,QAAyB,eAAe,CAAC,KAAK;QACbD,IAAI,CAAC,MAAM,CAAC,IAAI,CAAC,IAAI,UAAU,CAAC,UAAU,EAAE,OAAO,EAAE,KAAK,CAAC,CAAC,CAAC;KAC9D;CACF;AAED,MAAMC,oBAAkB;IACtB,YAAY,CAAC,GAaiB;QAC5B,MAAM,gBAAgB,GAAG,eAAe,CAAC,GAAG,CAAC,CAAC;QAC9C,IAAI,gBAAgB,CAAC,IAAI,KAAK,oBAAoB,CAAC,MAAM;YACrD,gBAAgB,CAAC,IAAI,KAAK,oBAAoB,CAAC,KAAK;YACpD,gBAAgB,CAAC,IAAI,KAAK,oBAAoB,CAAC,UAAU,EAAE;;;YAI7D,OAAO,IAAI,CAAC;SACb;QAED,MAAM,QAAQ,GAAa1D,UAAa,CAAC,IAAI,EAAE,GAAG,CAAC,QAAQ,EAAE,IAAI,CAAC,CAAC;QACnE,OAAO,IAAIImD,OAAc,CACbB,GAAG,CAAC,IAAI,EAAEnD,UAAa,CAAC,IAAI,EAAE,GAAG,C AAC,KAAK,CAASb;qBACjD,EAAE,gBAaE,EAAE,EAAE,QAAQ,mBAAmB,EAAE,EAAE,GAAG,CAAC,UAAU,EAC9E,GAAG,CAAC,eAAe,EAAE,GAAG,CAAC,aAAa,CAAC,CAAC;KAC7C;IAED,YAAY,CAAC,OAAqB;QACbC,OAAO,IAAI,CAAC;KACb;IAED,cAAc,CAAC,SAAYB;QACtC,OAAO,IAAIoD,aAAe,CACtB,SAAS,C AAC,IAAI,EAAE,SAAS,CAAC,KAAK,EAAE,SAAS,CAAC,UAAU,EAAE,SAAS,EAAE,SAAS,CAAC,IAAI,CAAC,CAAC;KACvF;IAED,SAAS,CAAC,IAAe;QACvB,OAAO,IAAI,IAAM,CAAC,IAAI,CAAC,KAAK,EAAE,IAAI,CAAC,UAAU,CAAC,CAAC;KACbD;IAED,cAAc,CAAC,SAAYB;QACtC,OAAO,IAAI,CAAC;KACb;IAED,kBAaKB,CAAC,aAAiC;QACID,OAAO,IAAI,CAAC;KACb;CACF;AAED,MAAMP,sBAAoB,GAAG,IAAIS,oBAAkB,EAAE,CAAC;AAEtD,SAAS,sBAASB,CAAC,QAAgB;IAC9C,OAAO,SAAS,CAAC,IAAI,CAAC,QAAQ,C AAC,GAAG,QAAQ,CAAC,SAAS,CAAC,CAAC,CAAC,GAAG,QAAQ,CAAC;AACrE,CAAC;AAED,SAAS,SAAS,CAAC,MAAqB,EAAE,WAA2B;IACnE,WAAW,CAAC,IAAI,CAAC,GAAG,MAAM,CAAC,GAAG,CAAC,C AAC,IAAIC,UAAy,CAAC,eAAe,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;AACxE,CAAC;AAED,SAAS,eAAe,CAAC,IAAe;IACtC,OAAO,IAAI,YAAY9D,MAAS,IAAI,IAAI,CAAC,KAAK,CAAC,IAAI,EAAE,CAAC,MAAM,IAAI,CAAC,CAAC;AACpE,CAAC;AAED,SAAS,aAAa,CAAC,IAAe;IACpC,OAAO,IAAI,YAAYJ,OAAy,CAAC;AACtC,CAAC;AAED,SAAS,YAAY,CAAC,IAAkB;IACtC,IAAI,IAAI,CAAC,QAAQ,CAAC,MAAM,KAAK,CAAC,IAAI,EAAE,IAAI,CAAC,QAAQ,CAAC,CAAC,CAAC,YAAYI,MAAS,CAAC,EAAE;QACIE,OAAO,IAAI,CAAC;KACb;SAAM;QACL,OAAQ,IAAI,CAAC,QAAQ,CAAC,CAAC,CAAE,CAAC,KAAK,CAAC;KAC9C;AACH;;ACjhBA;;;;AAcA,IAAK,OAGJ;AAHD,WAAK,OAAO;IACV,2CAAO,CAAA;IACP,6CAAQ,CAAA;AACV,CAAC,EAHI,OAAO,KAAP,OAAO,QAGX;AAED;;;AAGA,SAAS,aAAa;IACpB,OAAO,EAAC,WAAW,EAAE,qBAAqB,EAAE,EAAE,IAAI,EAAE,IAAI,GAAG,EAAiB,EAAC,CAAC;AACbF,CAAC;AAED;;;;;;;;MAea,WAAW;IAStB,YACa,KAAa,EAaw,GAakB,EAaw,QAAGB,CAAC,EACtE,gBAA6B,IAAI,EAaw,IAAmB,EACbE,QAAc;QAFb,UAAK,GAAL,KAAK,CAAQ;QAAW,QAAG,GAAG,GAAG,CAAE;QAAW,UAAK,GAAL,KAAK,CAAY;QACtE,kBAaA,GAAb,aAAa,CAAOB;QAAW,SAAI,GAAJ,IAAI,CAAE;QACbE,aAAQ,GAAR,QAAQ,CAAM;QAVnB,aAAQ,GAAG,IAAI,GAAG,EAAO,CAAC;QACIB,iBAAY,GAAG,IAAI,GAAG,EAAiB,CAAC;QACxC,cAAS,GAAY,KAAK,CAAC;QAGIB,wBAAmB,GAaw,CAAC,CAAC;QAMtC,IAAI,CAAC,SAAS,GAAG,QAAQ,IAAI,aAAa,EAAE,CAAC;QAC7C,IAAI,CAAC,EAAE,GAAG,IAAI,CAAC,SAAS,CAAC,WAAW,EAAE,CAAC;KACxC;IAEO,SAAS,CAAC,IAAa,EAAE,IAAYB,EAAE,KAAa,EAAE,MAAGB;QACzF,IAAI,IAAIL,CAAC,MAAM,IAAI,MAAM,EAAE;YACzB,OAAO;SACR;QACD,MAAM,EAAE,GAAG,IAAI,CAAC,MAAM,IAAI,CAAC,MAAM,GAAG,IAAI,CAAC,SAAS,GAAG,IAAI,CAAC,SAAS,CAAC;QACpE,MAAM,OAAO,GAAG,EAAC,IAAI,EAAE,KAAK,EAAE,GAAG,EAAE,IAAI,CAAC,EAAE,EAAE,MAAM,EAAE,IAAI,CAAC,MAAM,EAAE,MAAM,EAAC,CAAC;QACzE,oBAAoB,CAAC,IAAI,CAAC,YAAY,EAAE,EAAE,EAAE,OAAO,CAAC,CAAC;KACtD;IAED,IAAI,IAAI;QACN,OAAO,IAAI,CAAC,SAAS,CAAC,IAAI,CAAC;KAC5B;IACD,IAAI

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 AAY,CAACG,aAAE,CAAC,SAAS,CAAC,CAAC,MAAM,CAAC,CAAC7B,OAAS,CAAC,IAAI,CAAC,CAAC,C  
 AAC,CAAC,CAAC;gBAC9E,OAAO,eAAe,CAAC,MAAM,CAAC,OAAO,CAAC,WAAW,EAAE,CAAC,CAAC;  
 aACtD,EAAE,IAAI,CAAC,CAAC;YACb,OAAO,CAAC,SAAS,CAAC,IAAI,EAAE,SAAS,CAAC,KAAK,CAAC,

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AAC, WAAW, EAAE, UAAU, CAAC, CAAC; aACvE, CAAC, CAAC; YACH, IAAI, WAAW, CAAC, MAAM, IAAI, eA  
Ae, EAAE; gBACzC, WAAW, CAAC, IAAI, CAACR, kCAAoC, CACjD, aAAa, CAAC, SAAS, EAAE, KAAK, CAAC, C  
AAC, MAAM, EAAE, EAAE, UAAU, CAAC, CAAC, CAAC; aAC5D; YACD, OAAO, WAAW, CAAC; SACpB; KACF; I  
AEO, 2BAA2B, CAC/B, SAAiB, EACjB, QAAkF; QACpF, MAAM, gBAAGB, GAAkB, EAAE, CAAC; QAC3C, IAAI, u  
BAAuB, GAAG, CAAC, CAAC; QACHC, QAAQ, CAAC, OAAO, CAAC, CAAC, EAAC, OAAO, EAAE, QAAQ, EAAE,  
MAAM, EAAC; YAC3C, MAAM, SAAS, GAAG, GAAG, uBAAuB, EAAE, EAAE, CAAC; YACjD, MAAM, YAAy, G  
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AC, GACvB, oBAAoB, CAAC, YAAy, EAAE, OAAO, EAAE, QAAQ, CAAC, OAAO, EAAE, SAAS, CAAC, CAAC; Y  
AC7E, MAAM, SAAS, GAAG, KAAK, CAAC; YACxB, IAAI, YAAy, EAAE; gBACHb, SAAS, CAAC, IAAI, CAAC, iB  
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CAAC; aACrF; YACD, MAAM, EAAC, MAAM, EAAE, WAAW, EAAE, IAAI, EAAE, SAAS, EAAC, GAAG, yBAAyB,  
CAAC, QAAQ, EAAE, MAAM, CAAC, CAAC; YAC3F, MAAM, aAAa, GAAG, oBAAoB, CAAC, WAAW, EAAE, SA  
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, CAAC, EAAE; YAC/B, MAAM, QAAQ, GACV, CAAC, iBAAiB, CAAC, GAAG, CAACA, OAAS, CAAC, IAAI, CAA  
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B, CAAC, CAAC, EAC5EC, aAAe, CAAC, CAAC; SACtB; aAAM; YACL, aAAa, GAAGyC, SAAW, CAAC; SAC7B; Q  
ACD, OAAO, aAAa, CAAC; KACtB; IAED, cAAc, CAAC, GAAiB, EAAE, OAAkC, KAAS; IAC7E, sBAAsB, CAAC, G  
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AE, OAAY, KAAS; IACrD, UAAU, CAAC, GAAGB, EAAE, OAAY, KAAS; IACpD, oBAAoB, CAAC, GAA4B, EAAE,  
OAAY, KAAS; IACxE, SAAS, CAAC, GAAY, EAAE, OAAY, KAAS; CAC9C; AAED, SAAS, uBAAuB, CAAC, QAAu  
B; IACtD, MAAM, WAAW, GAAG, QAAQ, CAAC, QAAQ, CAAC, MAAM, GAAG, CAAC, CAAC, CAAC; IACID, IA  
AI, WAAW, YAAy, mBAAmB, EAAE; QAC9C, OAAO, WAAW, CAAC, gBAAGB, CAAC; KACrC; IAED, IAAI, WAA  
W, YAAy, UAAU, EAAE; QACrC, IAAI, aAAa, CAAC, WAAW, CAAC, IAAI, CAAC, IAAI, WAAW, CAAC, QAAQ, C  
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SAAS, iBAAiB, CAAC, QAAiC, EAAE, MAaOB; IACHF, MAAM, SAAS, GAAG, QAAQ, CAAC, IAAI, CAAC; IACHC,  
QAAQ, SAAS; QACf; YACE, OAAOtC, UAAy, CAAC; gBACIBQ, OAAS, 8BAAmC, EAAEA, OAAS, CAAC, QAAQ,  
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MAAM, IAAI, MAAM, CAAC, SAAS, CAAC, WAAW; +CACKC, CAAC; YAC9E, OAAOR, UAAy, CAAC; gBACIBQ  
, OAAS, CAAC, WAAW, CAAC, EAAEA, OAAS, CAAC, GAAG, GAAG, QAAQ, CAAC, IAAI, CAAC, EAAEA, OAAS  
, CAAC, QAAQ, CAAC, eAAe, CAAC; aAC5F, CAAC, CAAC; QACL; YACE, OAAOR, UAAy, CACf, CAACQ, OAAS,  
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EA, OAAS, CAAC, QAAQ, CAAC, IAAI, CAAC; aAC7F, CAAC, CAAC; QACL; ;;; YAKE, MAAM, UAAU, GAAU, SA  
AS, CAAC; YACpC, MAAM, IAAI, KAAK, CAAC, cAAc, UAAU, EAAE, CAAC, CAAC; KAC/C; AACH, CAAC; AAG  
D, SAAS, aAAa, CAAC, UAAsB; IAC3C, MAAM, SAAS, GAA4B, MAAM, CAAC, MAAM, CAAC, IAAI, CAAC, CAA  
C; IAC/D, UAAU, CAAC, KAAK, CAAC, OAAO, CAAC, OAAO; QAC9B, SAAS, CAAC, OAAO, CAAC, IAAI, CAAC,

GAAG,OAAO,CAAC,KAAC,CAAC;KACzC,CAAC,CAAC;IACH,UAAU,CAAC,UAAU,CAAC,OAAO,CAAC,MAAM;QACIC,MAAM,CAAC,IAAI,CAAC,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,CAAC,OAAO,CAAC,IAAI;YACvD,MAAM,KAAC,GAAG,MAAM,CAAC,SAAS,CAAC,cAAc,CAAC,IAAI,CAAC,CAAC;YACpD,MAAM,SAAS,GAAG,SAAS,CAAC,IAAI,CAAC,CAAC;YACIC,SAAS,CAAC,IAAI,CAAC,GAAG,SAAS,IAAI,IAAI,GAAG,mBAAmB,CAAC,IAAI,EAAE,SAAS,EAAE,KAAC,CAAC,GAAG,KAAC,CAAC;SAC3F,CAAC,CAAC;KACJ,CAAC,CAAC;;;IAGH,OAAOR,UAAy,CAAC,MAAM,CAAC,IAAI,CAAC,SAAS,CAAC,CAAC,IAAI,EAAE,CAAC,GAAG,CACjD,CAAC,QAAQ,KAACA,UAAy,CAAC,CAACQ,OAAS,CAAC,QAAQ,CAAC,EAAEA,OAAS,CAAC,SAAS,CAAC,QAAQ,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC,CAAC;AACIF,CAAC;AAED,SAAS,mBAAmB,CAAC,QAAgB,EAAE,UAAkB,EAAE,UAAkB;IACnF,IAAI,QAAQ,IAAI+O,YAAU,IAAI,QAAQ,IAAI,UAAU,EAAE;QACpD,OAAO,GAAG,UAAU,IAAI,UAAU,EAAE,CAAC;KACtC;SAAM;QACL,OAAO,UAAU,CAAC;KACnB;AACH,CAAC;AAED,SAAS,aAAa,CAAC,SAAiB,EAAE,KAAqB;IAC7D,IAAI,KAAC,CAAC,MAAM,GAAG,EAAE,EAAE;QACrB,OAAO,SAAS,CAAC,MAAM,CACnB,CAAC,QAAQ,EAAE/O,OAAS,CAAC,SAAS,CAAC,EAAEA,OAAS,iBAAsB,EAAER,UAAy,CAAC,KAAC,CAAC,CAAC,CAAC,CAAC;KAC7F;SAAM;QACL,OAAO,SAAS,CAAC,MAAM,CACnB,CAAC,QAAQ,EAAEQ,OAAS,CAAC,SAAS,CAAC,EAAEA,OAAS,gBAaB,EAAE,GAAG,KAAC,CAAC,CAAC,CAAC;KACjF;AACH,CAAC;AAED,SAAS,eAAe,CAAC,SAAiB,EAAE,UAAkB,EAAE,IAAkB;IACf,OAAO0B,UAAy,CAAC,WAAW,CAAC,WAAW,CAAC,CAAC,MAAM,CAAC;QACID,QAAQ,EAAE1B,OAAS,CAAC,SAAS,CAAC,EAAEA,OAAS,CAAC,UAAU,CAAC,EAAE,IAAI;KAC5D,CAAC,CAAC;AACL,CAAC;AAED,SAAS,yBAaYB,CAC9B,QAAuB,EAAE,MAAYB;IACpD,IAAI,QAAQ,CAAC,WAAW,EAAE;QACxB,OAAO;YACL,IAAI,EAAE,IAAI,QAAQ,CAAC,IAAI,IAAI,QAAQ,CAAC,KAAC,EAAE;YAC3C,MAAM,EAAE,MAAM,IAAI,MAAM,CAAC,SAAS,CAAC,WAAW,GAAG,WAAW,GAAG,IAAI;SACpE,CAAC;KACH;SAAM;QACL,OAAO,QAAQ,CAAC;KACjB;AACH,CAAC;AAED,SAAS,2BAA2B,CAAC,KAA2B;IAC9D,IAAI,KAAC,gBAaKB;;;IAG3B,IAAI,KAAC,KAAC,IAAI,KAAC,CAAC,MAAM,EAAE;QAC/B,KAAC,gCAA0B;KACbC;SAAM;QACL,KAAC,iCAA2B;KACjC;IACD,OAAO,KAAC,CAAC;AACf,CAAC;SAEe,oBAa0B,CAAC,MAAmB,EAAE,IAAY;IACpE,OAAO,MAAM,GAAG,GAAG,MAAM,IAAI,IAAI,EAAE,GAAG,IAAI,CAAC;AAC7C;;ACphCA;;;;;AAiBA;;;MAGa,aAAa;IAGxB,YACY,WAAuB,EAAU,aAAuB,EACxD,cAAuC,EAAU,UAAuB,IAAI;QAD5E,gBAaW,GAAX,WAAW,CAAY;QAAU,kBAaA,GAAb,aAAa,CAAU;QACxD,mBAAc,GAAd,cAAc,CAAYB;QAAU,YAAO,GAAP,OAAO,CAA0B;QAJhF,cAAS,GAAmB,EAAE,CAAC;KAIqD;IAE5F,kBAaKB,CAAC,IAAY,EAAE,GAAW,EAAE,mBAaWc;QAEpF,MAAM,gBAaGB,GACIB,IAAI,CAAC,WAAW,CAAC,KAAC,CAAC,IAAI,EAAE,GAAG,EAAE,EAAC,sBAAsB,EAAE,IAAI,EAAE,mBAAmB,EAAC,CAAC,CAAC;QAE3F,IAAI,gBAaGB,CAAC,MAAM,CAAC,MAAM,EAAE;YACIC,OAAO,gBAaGB,CAAC,MAAM,CAAC;SACbC;QAED,MAAM,gBAaGB,GAAG,eAAe,CACpC,gBAaGB,CAAC,SAAS,EAAE,mBAAmB,EAAE,IAAI,CAAC,aAAa,EAAE,IAAI,CAAC,cAAc,CAAC,CAAC;QAE9F,IAAI,gBAaGB,CAAC,MAAM,CAAC,MAAM,EAAE;YACIC,OAAO,gBAaGB,CAAC,MAAM,CAAC;SACbC;QAED,IAAI,CAAC,SAAS,CAAC,IAAI,CAAC,GAAG,gBAaGB,CAAC,QAAQ,CAAC,CAAC;QACID,OAAO,EAAE,CAAC;KACX;;;IAID,WAAW;QACT,OAAO,IAAI,CAAC,SAAS,CAAC;KACvB;IAED,KAAC,CAAC,UAAsB,EAAE,aAAwC;QACpE,MAAM,QAAQ,GAaiC,EAAE,CAAC;QACID,MAAM,aAAa,GAAG,IAAI,mBAAmB,EAAE,CAAC;;QAGhD,IAAI,CAAC,SAAS,CAAC,OAAO,CAAC,OAAO;YAC5B,MAAM,EAAE,GAAG,UAAU,CAAC,MAAM,CAAC,OAAO,CAAC,CAAC;YACtC,IAAI,CAAC,QAAQ,CAAC,cAAc,CAAC,EAAE,CAAC,EAAE;gBACbC,QAAQ,CAAC,EAAE,CAAC,GAAG,OAAO,CAAC;aACxB;iBAAM;gBACL,QAAQ,CAAC,EAAE,CAAC,CAAC,OAAO,CAAC,IAAI,CAAC,GAAG,OAAO,CAAC,OAAO,CAAC,CAAC;aAC/C;SACF,CAAC,CAAC;;QAGH,MAAM,OAAO,GAAG,MAAM,CAAC,IAAI,CAAC,QAAQ,CAAC,CAAC,GAAG,CAAC,EAAE;YACIC,MAAM,MAAM,GAAG,UAAU,CAAC,gBAaGB,CAAC,QAAQ,CAAC,EAAE,CAAC,CAAC,CAAC;YACzD,MAAM,GAAG,GAAG,QAAQ,CAAC,EAAE,CAAC,CAAC;YACzB,MAAM,KAAC,GAAG,MAAM,GAAG,aAAa,CAAC,OAAO,CAAC,GAAG,CAAC,KAAC,EAAE,MAAM,CAAC,GAAG,GAAG,CAAC,KAAC,CAAC;YAC5E,IAAI,kBAaKB,GAAG,IAAIkB,OAAY,CAAC,KAAC,EAAE,EAAE,EAAE,EAAE,EAAE,GAAG,CAAC,OAAO,EAAE,GAAG,CAAC,WAAW,EAAE,EAAE,CAAC,CAAC;YAC3F,kBAaKB,CAAC,OAAO,GAAG,GAAG,CAAC,OAAO,CAAC;YACzC,IAAI,aAAa,EAAE;gBACjB,kBAaKB,CAAC,OAAO,CAAC,OAAO,CAC9B,CAAC,MAAwB,KAAC,MAAM,CAAC,QAAQ,GAAG,aAAa,CAAC,MAAM,CAAC,QAAQ,CAAC,CAAC,CAAC;aA

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AAO6H,eAAe1I,EAAS,aAAc,CAAEsC,OAAO","sourcesContent":["/**\n
```

```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\nrequire('@angular/compiler')) :\n typeof define === 'function' && define.amd ?\ndefine('@angular/compiler/testing', ['exports', '@angular/compiler'], factory) :\n (global = global || self,\nfactory((global.ng = global.ng || {}), global.ng.compiler = global.ng.compiler || {}, global.ng.compiler.testing = {}),\nglobal.ng.compiler);\n})(this, (function (exports, compiler) { 'use strict';\n\n /*!
```

\*\*\*\*\*\n

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\*\*\*\*\*\n /\* global

```
Reflect, Promise *\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n ({ __proto__: [] } instanceof Array && function\n (d, b) { d.__proto__ = b; }) ||\n function (d, b) { for (var p in b)\n if (b.hasOwnProperty(p))\n d[p] = b[p]; }; return extendStatics(d, b); }\n function __extends(d, b) {\n extendStatics(d, b);\n function __() { this.constructor = d; }\n d.prototype = b === null ? Object.create(b) : (__proto__ =\nb.prototype, new __()); }\n var __assign = function () {\n __assign = Object.assign || function __assign(t)\n {\n for (var s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in\ns)\n if (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p]; }\n return t;\n };\n return __assign.apply(this, arguments);\n };\n function __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s,\np) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && typeof Object.getOwnPropertySymbols ===\n\"function\")\n for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\n if\n(e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n }\n return t;\n }\n function __decorate(decorators, target, key, desc) {\n var c = arguments.length, r = c\n< 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof Reflect\n=== \"object\" && typeof Reflect.decorate === \"function\")\n r = Reflect.decorate(decorators, target, key,\ndesc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\n return c > 3 && r &&\n Object.defineProperty(target,
```



```

 }\n }\n return ar;\n }\n function __spread() {\n for (var ar = [], i = 0; i < arguments.length;
i++)\n ar = ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for
(var s = 0, i = 0, il = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k =
0, i = 0; i < il; i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return r;\n }\n ;\n function __await(v) {\n return this instanceof __await ? (this.v = v, this) : new
__await(v);\n }\n function __asyncGenerator(thisArg, _arguments, generator) {\n if
(!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator is not defined.");\n var g =
generator.apply(thisArg, _arguments || []), i, q = [];\n return i = { }, verb("next"), verb("throw"),
verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i;\n function verb(n) { if (g[n])\n i[n] = function (v)
{ return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }, i;\n function resume(n, v) {\n
try {\n step(g[n](v));\n }\n catch (e) {\n settle(q[0][3], e);\n }\n function step(r) {\n
r.value instanceof __await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\n function
fulfill(value) { resume("next", value); }\n function reject(value) { resume("throw", value); }\n function
settle(f, v) { if (f(v), q.shift(), q.length)\n resume(q[0][0], q[0][1]); }\n }\n function __asyncDelegator(o)
{\n var i, p;\n return i = { }, verb("next"), verb("throw"), function (e) { throw e; }, verb("return"),
i[Symbol.iterator] = function () { return this; }, i;\n function verb(n, f) { i[n] = o[n] ? function (v)
{ return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\n }\n function
__asyncValues(o) {\n if (!Symbol.asyncIterator)\n throw new TypeError("Symbol.asyncIterator is not
defined.");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](), i = { }, verb("next"), verb("throw"), verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) {\n
return new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }, i;\n }\n function
settle(resolve, reject, d, v) { Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject);
}\n }\n function __makeTemplateObject(cooked, raw) {\n if (Object.defineProperty) {\n
Object.defineProperty(cooked, "raw", { value: raw });\n }\n else {\n cooked.raw = raw;\n }\n return cooked;\n }\n ;\n var __setModuleDefault =
Object.create ? (function (o, v) {\n Object.defineProperty(o, "default", { enumerable: true, value: v });\n }) :
function (o, v) {\n o["default"] = v;\n }\n ;\n function __importStar(mod) {\n if (mod &&
mod.__esModule)\n return mod;\n var result = {};\n if (mod != null)\n for (var k in mod)\n if (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod
&& mod.__esModule) ? mod : { default: mod }\n }\n function __classPrivateFieldGet(receiver, privateMap)
{\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to get private field on non-
instance");\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver, privateMap, value) {\n if (!privateMap.has(receiver))\n throw new TypeError("attempted to set private field on non-instance");\n privateMap.set(receiver,
value);\n return value;\n }\n /**\n * A mock implementation of {@link ResourceLoader} that allows
outgoing requests to be mocked\n * and responded to within a single test, without going to the network.\n */\n var MockResourceLoader = /** @class */ (function (_super) {\n __extends(MockResourceLoader, _super);\n function MockResourceLoader() {\n var _this = _super.apply(this, __spread(arguments)) || this;\n _this._expectations = [];\n _this._definitions = new Map();\n _this._requests = [];\n return
_this;\n }\n MockResourceLoader.prototype.get = function (url) {\n var request = new
_PendingRequest(url);\n this._requests.push(request);\n return request.getPromise();\n }\n MockResourceLoader.prototype.hasPendingRequests = function () {\n return !!this._requests.length;\n }\n /**\n * Add an expectation for the given URL. Incoming requests will be checked against\n * the
next expectation (in FIFO order). The `verifyNoOutstandingExpectations` method\n * can be used to check if

```

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any expectations have not yet been met.\n *\n * The response given will be returned if the expectation
matches.\n *\n MockResourceLoader.prototype.expect = function (url, response) {\n var
expectation = new _Expectation(url, response);\n this._expectations.push(expectation);\n };\n /**\n * Add a definition for the given URL to return the given response. Unlike expectations,\n * definitions have
no order and will satisfy any matching request at
any time. Also\n * unlike expectations, unused definitions do not cause `verifyNoOutstandingExpectations`\n
 * to return an error.\n *\n MockResourceLoader.prototype.when = function (url, response) {\n
this._definitions.set(url, response);\n };\n /**\n * Process pending requests and verify there are no
outstanding expectations. Also fails\n * if no requests are pending.\n *\n
MockResourceLoader.prototype.flush = function () {\n if (this._requests.length === 0) {\n throw
new Error('No pending requests to flush');\n }\n do {\n
this._processRequest(this._requests.shift());\n } while (this._requests.length > 0);\n
this.verifyNoOutstandingExpectations();\n };\n /**\n * Throw an exception if any expectations have
not been satisfied.\n *\n MockResourceLoader.prototype.verifyNoOutstandingExpectations
= function () {\n if (this._expectations.length === 0)\n return;\n var urls = [];\n for
(var i = 0; i < this._expectations.length; i++) {\n var expectation = this._expectations[i];\n
urls.push(expectation.url);\n }\n throw new Error("\nUnsatisfied requests: " + urls.join(', '));\n };\n
 MockResourceLoader.prototype._processRequest = function (request) {\n var url = request.url;\n if
(this._expectations.length > 0) {\n var expectation = this._expectations[0];\n if (expectation.url
=== url) {\n remove(this._expectations, expectation);\n
request.complete(expectation.response);\n return;\n }\n }\n if
(this._definitions.has(url)) {\n var response = this._definitions.get(url);\n
request.complete(response
=== null ? null : response);\n return;\n }\n throw new Error("Unexpected request " + url);\n
 };\n return MockResourceLoader;\n }(compiler.ResourceLoader));\n var _PendingRequest = /** @class
*/ (function () {\n function _PendingRequest(url) {\n var _this = this;\n this.url = url;\n
this.promise = new Promise(function (res, rej) {\n _this.resolve = res;\n _this.reject = rej;\n
});\n }\n _PendingRequest.prototype.complete = function (response) {\n if (response === null) {\n
this.reject("Failed to load " + this.url);\n }\n else {\n this.resolve(response);\n
 }\n };\n _PendingRequest.prototype.getPromise = function () {\n return this.promise;\n };\n
return _PendingRequest;\n }());\n var _Expectation = /** @class
*/ (function () {\n function _Expectation(url, response) {\n this.url = url;\n this.response =
response;\n }\n return _Expectation;\n }());\n function remove(list, el) {\n var index =
list.indexOf(el);\n if (index > -1) {\n list.splice(index, 1);\n }\n }\n /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style
license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n var
MockSchemaRegistry = /** @class */ (function () {\n function MockSchemaRegistry(existingProperties,
attrPropMapping, existingElements, invalidProperties, invalidAttributes) {\n this.existingProperties =
existingProperties;\n this.attrPropMapping = attrPropMapping;\n this.existingElements =
existingElements;\n this.invalidProperties = invalidProperties;\n
 this.invalidAttributes = invalidAttributes;\n }\n MockSchemaRegistry.prototype.hasProperty =
function (tagName, property, schemas) {\n var value = this.existingProperties[property];\n return value
=== void 0 ? true : value;\n };\n MockSchemaRegistry.prototype.hasElement = function (tagName,
schemaMetas) {\n var value = this.existingElements[tagName.toLowerCase()];\n return value ===
void 0 ? true : value;\n };\n MockSchemaRegistry.prototype.allKnownElementNames = function () {\n
return Object.keys(this.existingElements);\n };\n MockSchemaRegistry.prototype.securityContext =
function (selector, property, isAttribute) {\n return compiler.core.SecurityContext.NONE;\n };\n
MockSchemaRegistry.prototype.getMappedPropName = function (attrName) {\n return

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this.attrPropMapping[attrName] || attrName;\n };\n
MockSchemaRegistry.prototype.getDefaultComponentElementName
= function () {\n return 'ng-component';\n };\n
MockSchemaRegistry.prototype.validateProperty =
function (name) {\n if (this.invalidProperties.indexOf(name) > -1) {\n return { error: true, msg:
\"Binding to property \" + name + \" is disallowed for security reasons\" };\n } else {\n
return { error: false };\n };\n
MockSchemaRegistry.prototype.validateAttribute = function (name)
{\n if (this.invalidAttributes.indexOf(name) > -1) {\n return {\n error: true,\n
msg: \"Binding to attribute \" + name + \" is disallowed for security reasons\"\n };\n } else
{\n return { error: false };\n };\n
MockSchemaRegistry.prototype.normalizeAnimationStyleProperty = function (propName) {\n return
propName;\n };\n
MockSchemaRegistry.prototype.normalizeAnimationStyleValue = function
(camelCaseProp, userProvidedProp, val) {\n return { error: null, value: val.toString() };\n };\n
return
MockSchemaRegistry;\n }());\n\n /**\n * An implementation of {@link DirectiveResolver} that allows
overriding\n * various properties of directives.\n */\n var MockDirectiveResolver = /** @class */ (function
(_super) {\n __extends(MockDirectiveResolver, _super);\n function MockDirectiveResolver(reflector) {\n
 var _this = _super.call(this, reflector) || this;\n _this._directives = new Map();\n return _this;\n
 }\n MockDirectiveResolver.prototype.resolve = function (type, throwIfNotFound) {\n if
(throwIfNotFound === void 0) { throwIfNotFound = true; }\n return this._directives.get(type) ||
_super.prototype.resolve.call(this, type, throwIfNotFound);\n };\n /**\n * Overrides the {@link core.Directive} for a directive.\n */\n
MockDirectiveResolver.prototype.setDirective = function (type, metadata) {\n this._directives.set(type,
metadata);\n };\n return MockDirectiveResolver;\n })(compiler.DirectiveResolver);\n\n var
MockNgModuleResolver = /** @class */ (function (_super) {\n __extends(MockNgModuleResolver,
_super);\n function MockNgModuleResolver(reflector) {\n var _this = _super.call(this, reflector) || this;\n
 _this._ngModules = new Map();\n return _this;\n }\n /**\n * Overrides the {@link
NgModule} for a module.\n */\n MockNgModuleResolver.prototype.setNgModule = function (type,
metadata) {\n this._ngModules.set(type, metadata);\n };\n /**\n * Returns the {@link
NgModule} for a module:\n * - Set the {@link NgModule} to the overridden view when it exists
or fallback to the\n * default\n * `NgModuleResolver`, see `setNgModule`.\n */\n
MockNgModuleResolver.prototype.resolve = function (type, throwIfNotFound) {\n if (throwIfNotFound ===
void 0) { throwIfNotFound = true; }\n return this._ngModules.get(type) || _super.prototype.resolve.call(this,
type, throwIfNotFound);\n };\n return MockNgModuleResolver;\n })(compiler.NgModuleResolver);\n\n var
MockPipeResolver = /** @class */ (function (_super) {\n __extends(MockPipeResolver, _super);\n function
MockPipeResolver(reflector) {\n var _this = _super.call(this, reflector) || this;\n _this._pipes =
new Map();\n return _this;\n }\n /**\n * Overrides the {@link Pipe} for a pipe.\n */\n
MockPipeResolver.prototype.setPipe = function (type, metadata) {\n this._pipes.set(type, metadata);\n
 };\n /**\n * Returns
the {@link Pipe} for a pipe:\n * - Set the {@link Pipe} to the overridden view when it exists or fallback to
the\n * default\n * `PipeResolver`, see `setPipe`.\n */\n MockPipeResolver.prototype.resolve =
function (type, throwIfNotFound) {\n if (throwIfNotFound === void 0) { throwIfNotFound = true; }\n var
metadata = this._pipes.get(type);\n if (!metadata) {\n metadata =
_super.prototype.resolve.call(this, type, throwIfNotFound);\n }\n return metadata;\n };\n
return MockPipeResolver;\n })(compiler.PipeResolver);\n\n /**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n *
found in the LICENSE file at https://angular.io/license\n */\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
 */\n // This file only reexports content of the `src` folder. Keep it that way.\n\n /**\n * @license\n */

```





# 1.450 protractor-http-client 1.0.4

## 1.450.1 Available under license :

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MIT

# 1.451 angular-upgrade 11.0.2

## 1.451.1 Available under license :

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```
/**
 * @license
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 *
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 * found in the LICENSE file at https://angular.io/license
 */
```

Found in path(s):

- \* /upgrade-11-0-2-tgz/package/esm2015/static/src/downgrade\_module.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/testing/src/create\_angularjs\_testing\_module.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/constants.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/downgrade\_component.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/downgrade\_component\_adapter.js

- \* /upgrade-11-0-2-tgz/package/esm2015/static/src/util.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/testing/src/create\_angular\_testing\_module.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/index.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/src/angular1\_providers.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/dynamic/src/upgrade\_ng1\_adapter.js
- \*
- /upgrade-11-0-2-tgz/package/esm2015/public\_api.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/testing/public\_api.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/src/upgrade\_module.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/component\_info.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/upgrade\_helper.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/downgrade\_injectable.js
- \* /upgrade-11-0-2-tgz/package/esm2015/index.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/promise\_util.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/src/upgrade\_component.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/version.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/angular1.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/common/src/util.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/public\_api.js
- \* /upgrade-11-0-2-tgz/package/esm2015/static/testing/index.js
- \* /upgrade-11-0-2-tgz/package/esm2015/src/dynamic/src/upgrade\_adapter.js

No license file was found, but licenses were detected in source scan.

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PrototypeOf", "__proto__", "Array", "p", "__read", "o", "n", "m", "Symbol", "iterator", "r", "i", "call", "ar", "next", "done", "p
ush", "value", "error", "__spread", "arguments", "length", "concat", "INJECTOR_KEY", "PropertyBinding", "prop", "attr"
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ctor", "create", "providers", "provide", "useValue", "parent", "componentRef", "viewChangeDetector", "ChangeDetector
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", "registerApplication", "location", "nativeElement", "hookupNgModel", "supportsNgModel", "writeValue", "registerO
nChange", "$render", "$viewValue", "$setViewValue", "bind", "registerOnTouched", "$setTouched", "setupInputs", "ma
nuallyAttachView", "propagateDigest", "inputs", "_loop_1", "prevValue", "input", "propName", "templateName", "expr"
, "observeFn_1", "currValue", "strictEquals", "val1", "val2", "updateInput", "$observe", "unwatch_1", "this_1", "$watch",
"watchFn", "detectChanges", "componentType", "ngOnChanges", "markForCheck", "unwatch_2", "ApplicationRef", "att
achView", "hostView", "setupOutputs", "outputs", "j", "output", "substring", "subscribeToOutput", "isAssignment", "gette
r", "setter", "assign", "emitter", "subscribe", "v", "$event", "registerCleanup", "testabilityRegistry", "destroyComponentRe
```

f","destroy","destroyed","on","\$destroy","\$on","unregisterApplication","getInjector","SimpleChange","groupNodes  
BySelector","ngContentSelectors","ii","jj","node","ngContentIndex","findMatchingNgContentIndex","contents","ng  
ContentIndices","wildcardNgContentIndex","selector","matchesSelector","sort","el","elProto","Element","matches",  
"mozMatchesSelector","msMatchesSelector","oMatchesSelector","webkitMatchesSelector","nodeType","Node","E  
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 AC1BoL,EAAmB3X,KAAK0X,GAAqB,WACzC,IAAIi,EAAiB7Z,EAASsE,IAAIhF,EAAKsI,aACnCisE,EAAeC,  
 WACfxL,IAGAuL,EAAeF,WAAWC,EAAcpR,KAAKiR,EAAqBnL,QAK9E,OADAmL,EAAoBE,WAAaC,EAC1  
 BH,KAIfrV,EAAUC,IA5oDd,cA6oDikV,EAASC,UA7oDb,YA6oDkC,CAjpD1C,YAmpDQ,SAAUO,GAIN,IAAIC  
 ,EAABK,SAAUC,EAAIC,EAAOC,EAAOC,GAEP9C,IADA,IAAIC,EAAO,GACF5E,EAABK,EAAGA,EAAKIT,UA  
 AUC,OAAQiT,IACpC4E,EAAB5E,EAABK,GAAKIT,UAAUkT,GAEP7B,OAAOxP,EAAM8S,OAAOuB,mBAABK,  
 WACIC,OAAOP,EAAiBrE,WAAm,EAAQpT,EAAS,CAAC,WAExC,IADA,IAAIkT,EAAO,GACFC,EAABK,EAA



GA,EA AKIT,UAAUC,OAAQiT,IACpCD,EA AKC,GA AMIT,UAAUkT,GAMzB8E,YAAW,WACPtU,EAAM8S,OAAOyB,KAAI,WAAc,OAAOP,EAAGvE,WAAM,EA AQpT,EA ASkT,WAER0E,EA AOC,EA AOC,GAAcC,QAI3C,OADAL,EA AwB,OAAID,EA AiBU,OACtCT,QAMtBQ,IAAI,CA hrDD,YA krDJ,SAAUpW,GACN6B,EAAM7B,UAA YA,EA EI6K,EA AmB7K,GACnB6B,EAAMjG,SAASsE,IAtRdf,aAw rDAvE,EA AQiZ,GA AwTk,KAAK9K,EA AclB,GA AeUD,EAAMjG,UAI3Dua,YAAW,WACP,IAAIG,EA AatW,EA AUE,IAAI,cAC3BqW,EA Ae1U,EAAM8S,OAAO6B,iBA AiBzP,WAAU,WACvD,OAAIuP,EA AWG,SACPvb,EA AKwb,aACLC,QAAQC,KAAK,0IAE VN,EA AW0,cAEfP,EA AWQ,aAEtBR,EA AW7O,IAAI,YA AY,WACvB8O,EA AaQ,mBAEIB,MAGSza,EA3rDF,kBA2rD+B,CAACyY,GA AKB1W,OAAOwW,KA EvEmC,EA AGb/a,OA AGb,QA OpC,GANA+a,EA Acjb,qBA AkB D,EA EhCV,KAAKuZ,OAAOyB,KAAI,YArhER,SAAU3Z,EA AGoY,EA ASC,GA AiBrZ,EA AQC,UAAUe,EA AGoY,EA ASC,GA ShEzEpZ,CAAUKZ,EA AW,CA ACK,EA AcxV,MAAOqV,MAG3CkC,EA Acjb,gBA AiB,CAC/B,IA AIkb,EA A4BD,EA Acjb,gBAC1Cmb,EA AW9b,KAAKuZ,OACpBqC,EA Acjb,gBA AkB,WAC5B,IAAI8F,EA AQzG,KACRgW,EA AOjT,UAEX,OAD A6Y,EA Acjb,gBA AkBkb,EACzBC,EA ASd,KAAI,WAAc,OAAOY,EA Acjb,gBA AGBuV,MAAMzP,EA AOuP,SAIzFsD,EA tIuB,GA wIICA,EA AcL,WAAa,CACvB,CAAE1U,KAAMzE,EA AKic,SAAU/F,KAAM,CAAC,CAAE xO,UAAW,CAACsI,OA EhDwJ,EA AcH,eAAiB,WAAc,MAAO,CACHD,CAAE5U,KAAMzE,EA AKwH,UACb,CAAE/C,KAAMzE,EA AKkc;;;;;;;;;;;;;AAwBjB3c,EA AQqX,iBA AmBA,EAC3BrX,EA AQia,cAAgBA,EACx Bja,EA AQiQ,QAAUA,EAClBjQ,EA AQ4c,mBA3uCR,SAASA,EA AmBC,GACxB,IAAIC,EA AmB,SAAUpW,EA AUnB,EA AWoB,GASID,IAEIuT,EA FA6C,EA AmD,IAA jCrX,EA AkBH,GACpCsB,EAAGBkW,EA AiD,SAAUC,GAAM,OAAO,WAAc,OAAOvc,EA AKkc,OAAOM,kBA AoBD,IAAO9C,EA AOyB,IAAIqB,KAA7H,SAAUA,GAAM,OAAOA,GAGzDE,EA A+BH,GAAoBzX,EA AyBC,GAAa,EAC7F,MAAO,CACH4X,SAAU,IACVnL,UAAU,EACV9R,QAAS,CA1hBE,uBACA,YA0hBX2R,KAAM,SAAUtL,EA ORf,EAASoF,EA AO8W,GAInC,IAAI5W,EA AU4W,EAAS,GACnB3W,EA AiB2W,EAAS,GAC1BC,OA AiBhc,EACjBic,GAAW,EACf,IAAK7W,GA AkByW,EA A8B,CACjD,IAAIrX,EA AmBgX,EA AKhX,kBA AoB,GAC5C0X,EA XiBF,yBAwiB4C1X,EAC1CE,EA AkB,4BA A8Bd,EA AY4X,EA AKjU,WAAa,IACIFhD,EA AQBL,EA AWM,EA AkB0X,EA AkBxX,GACpE,IAAIyX,EA AGBjY,EA AUE,IAAI8X,GACICF,EA AiBG,EA Acre,UAA Yqc,EA AcC,QAmC7D,IAKC,EA Ac,SAAUvc,EA AUkc,GAGlC,IACIzW,EAD2ByW,EA Ae5X,IAAIhF,EA AKkd,0BACPC,wBA AwBf,EA AKjU,WAC7E,IAAKhC,EACD,MAAM,IAAI/F,MAAM,mCAAqCoE,EA AY4X,EA AKjU,YAE1E,IAAIiV,EA AkB,IAAIInO,EAASBxO,GAC5C4c,EAAS,IAAIzX,EA A0BnF,EAASoF,EA AOC,EA AOC,EAASrF,EA AUoE,EA AWmB,EA AUC,EA AQC,EA AkBC,GACHlkB,EA AmB+V,EA AO3W,kBAC9B2W,EA AOHW,gBAAGBC,GACvB+V,EA AOHu,YAAYiT,EA AiBF,EA AK7S,iBACzC8T,EA OnS,eACPmS,EA ORr,kBACPoR,EA AGzO,QAAQ00,EA AO5Q,eAC3BoQ,GAGA/W,EAAM6V,YAAW,gBAGrB2B,EA AhB,EA AGC,SAAUiB,EA AWC,GAC/D/D,IACDA,EAAS8D,EA AUvY,IAAIhF,EA AKkc,SA EhC9V,GAAa,WAAc,OAAO6W,EAAYM,EA AWC,KAAzDpX,IAJiC6W,EA UrC9O,EAAYG,IAAI,CArCuTl,GA AkB4W,EA IlBA,GA AkB5W,IAkCvC+I,MAAK,SAAU9N,GACHb,IAAIwc,EA AKxb,EA AOHB,EA AI,GACpB,OAAOqc,EAD6BG,EAAG,GAAGBA,EAAG,OAG9DZ,GA AW,KAMvB,OADAR,EA A0B,QAAI,CAhpBnB,WAKC,YAEH,UA0oBFA,GAwnCX9c,EA AQme;;;;;;;;;AA1hCR,SAASA,EA AoBrN,EA AOjL,QACP,IAArBA,IAA+BA,EA AmB,IACtD,IAAI9F,EA AU,SAAUwF,GACpB,IAAIqK,EA Ac,GA AK/L,EA AegC,EA EICE,EA AkB,8BADDJ,EA AWmL,GAAS7L,EA AY6L,GAASiJ,OA AOjJ,IACC,IACtEIL,EA AqBL,EA AWM,EA AkB+J,EA Aa7J,GAC/D,IAEI,OADeR,EA AUE,IAAI mK,GACbnK,IAAIqL,GA ExB,MAAOsN,GACH,MAAM,IAAIvd,MAAM,eAAiBkF,EA AkB,MAAQqY,EA AIC,SAAWD,MAIIF,OADAre,EA AiB,QAAI,CAzvBT,aA0vBLA;;;;;;;;;QA2gCXC,EA AQse,gBAp0BR,SAASA,EA AGBC,GACrB,IAMlPd,EANAqd,EA AiBjE,0BAAkCtJ,EACnDsM,EA t7Bc,yBA s7B4BiB,EAC1CC,EA AkB,GA AK5a,EA Ae2a,EACtCE,EA Ac/Y,EA AW4Y,GACzBA,EACA,SAAU,I,GA AkB,OAAOje,EA AGBA,gBAAGBie,GAAGBC,uBA AUbL,IAkC9G,OA/BA1c,EA AQ2c,EA AGB,IACnB/D,SA57BkB,0BA47Ba,GAC/B1a,QAAQ8D,EA Ac,CAAC4a,EA AiBvN,IACxCnR,QAAQ0e,GAAiB,WAC1B,IAAKtd,EACD,MAAM,IAAIN,MAAM,6FAGpB,OAAOM,KAENpB,QAv8Ba,yBAu8BY,CAACwd,EA AkBrM,IAC5CnR,QAAQwd,EA AkB,CAr9BnB,YAu9BR,SAAUhY,GACN6K,EA AmB7K,GACnB,IAAIsZ,EAAS,CACTpB,QAASiB,EAAYjO,GA AmBjB,MAAK,SAAU sP,GAGnD,OAF A3d,EA AW0d,EA AO1d,SAAW,IAAIyP,EA AkBkO,EA AI3d,WAC9CsE,IA59Bb,aA69BWtE,MAGf,OAAO0d,KAGVxE,OAAO,CAn+BA,YAGD,WAk+BP,SAAU9U,EA AWmV,GACjBA,EA ASD,SA59Ba,iCA49ByBnV,EA AyBC,GAAa,MAGtFiZ,GA6xBXxe,EA AQ4B,mBA AqBA,EAC7B5B,EA AQ+e,cA/IER,SAASA,IACL,OAAOnd,KA+IEX5B,EA AQ2B,mBA AqBA,EA

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C7B3B,EAAQgf,cAzmER,SAASA,GAACle,GACnBqB,EAAmBrB,IAymEvBN,EAAQif,0CAA4C5O,EACpDrQ,
EAAQkf,0CAA4C5O,EACpDtQ,EAAQmf,0CAA4C5O,EACpDvQ,EAAQof,0CAA4C5O,EACpDxQ,EAAQqf,0C
AA4C5O,EAEPdpO,OAAOid,eAAetf,EAAS,aAAc,CAAEuD,OAAO","sourcesContent":["/**\n
 * @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n */\n\n(function
(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,
 require('@angular/core'), require('@angular/platform-browser')) :\n typeof define === 'function' && define.amd ?
 define('@angular/upgrade/static', ['exports', '@angular/core', '@angular/platform-browser'], factory) :\n (global =
 global || self, factory((global.ng = global.ng || {}, global.ng.upgrade = global.ng.upgrade || {}),
 global.ng.upgrade.static = {}), global.ng.core, global.ng.platformBrowser));\n})(this, (function (exports, core,
platformBrowser) { 'use strict';\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
 https://angular.io/license\n *\n function noNg() {\n throw new Error('AngularJS v1.x is not loaded!');\n }\n var noNgElement = (function () { return noNg(); });\n noNgElement.cleanData = noNg;\n var angular =
 {\n bootstrap: noNg,\n module: noNg,\n element: noNgElement,\n injector: noNg,\n version: undefined,\n resumeBootstrap: noNg,\n getTestability: noNg\n };\n try {\n if (window.hasOwnProperty('angular')) {\n angular = window.angular;\n }\n } catch
 (_a) {\n // ignore in CJS mode.\n }\n /**\n * @deprecated Use `setAngularJSGlobal` instead.\n *\n *
 @publicApi\n *\n function setAngularLib(ng) {\n setAngularJSGlobal(ng);\n }\n /**\n *
 @deprecated Use `getAngularJSGlobal` instead.\n *\n * @publicApi\n *\n function getAngularLib() {\n
 return getAngularJSGlobal();\n }\n /**\n * Resets the AngularJS global.\n *\n * Used when AngularJS
 is loaded lazily, and not available on `window`.\n *\n * @publicApi\n *\n function
 setAngularJSGlobal(ng) {\n angular = ng;\n }\n /**\n * Returns the current AngularJS global.\n *\n
 * @publicApi\n *\n function getAngularJSGlobal()\n {\n return angular;\n }\n var bootstrap = function (e, modules, config) { return angular.bootstrap(e,
 modules, config); };\n // Do not declare as `module` to avoid webpack bug\n // (see
 https://github.com/angular/angular/issues/30050).\n var module_ = function (prefix, dependencies) { return
 angular.module(prefix, dependencies); }\n var element = (function (e) { return angular.element(e); });\n
 element.cleanData = function (nodes) { return angular.element.cleanData(nodes); };\n var injector = function
 (modules, strictDi) { return angular.injector(modules, strictDi); };\n var resumeBootstrap = function () { return
 angular.resumeBootstrap(); };\n var getTestability = function (e) { return angular.getTestability(e); };\n\n /*!
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 Microsoft Corporation.\n\n Permission to use, copy, modify, and/or distribute this software for any\n purpose
 with or without fee is hereby granted.\n\n THE SOFTWARE IS PROVIDED \"AS IS\" AND THE AUTHOR
 DISCLAIMS ALL WARRANTIES WITH\n REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
 WARRANTIES OF MERCHANTABILITY\n AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE
 LIABLE FOR ANY SPECIAL, DIRECT,\n INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY
 DAMAGES WHATSOEVER RESULTING FROM\n LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
 ACTION OF CONTRACT, NEGLIGENCE OR\n OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
 CONNECTION WITH THE USE OR\n PERFORMANCE OF THIS SOFTWARE.\n\n
 ****\n\n ****\n */\n /* global
 Reflect, Promise\n var extendStatics = function (d, b) {\n extendStatics = Object.setPrototypeOf ||\n
 ({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\n function (d, b) { for (var p in
 b)\n if (b.hasOwnProperty(p))\n d[p] = b[p];\n };\n return extendStatics(d, b);\n };\n function __extends(d, b) {\n extendStatics(d, b);\n function
 __() { this.constructor = d; }\n d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new
 __());\n }\n var __assign = function () {\n __assign = Object.assign || function __assign(t) {\n for (var
 s, i = 1, n = arguments.length; i < n; i++) {\n s = arguments[i];\n for (var p in s)\n if
 (Object.prototype.hasOwnProperty.call(s, p))\n t[p] = s[p];\n }\n return t;\n };\n
 }

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return __assign.apply(this, arguments);\n };\n function __rest(s, e) {\n var t = {};\n for (var p in s)\n if (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\n t[p] = s[p];\n if (s != null && \n typeof Object.getOwnPropertySymbols === "function")\n for (var i = 0, p = Object.getOwnPropertySymbols(s); i < p.length; i++) {\n if (e.indexOf(p[i]) < 0 && \n Object.prototype.propertyIsEnumerable.call(s, p[i]))\n t[p[i]] = s[p[i]];\n }\n return t;\n }\n function __decorate(decorators, target, key, desc) {\n var c = arguments.length, r = c < 3 ? target : desc === null\n ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\n if (typeof Reflect === "object" && typeof \n Reflect.decorate === "function")\n r = Reflect.decorate(decorators, target, key, desc);\n else\n for (var i = decorators.length - 1; i >= 0; i--)\n if (d = decorators[i])\n r = (c < 3 ? d(r) : c > 3 ? \n d(target, key, r) : d(target, key)) || r;\n return c > 3 && r && Object.defineProperty(target, key, r, r);\n }\n function __param(paramIndex, decorator) {\n return function (target, key) { decorator(target, key, paramIndex);\n };\n }\n function __metadata(metadataKey, metadataValue) {\n if (typeof Reflect === "object" && typeof \n Reflect.metadata === "function")\n return Reflect.metadata(metadataKey, metadataValue);\n }\n function __awaiter(thisArg, _arguments, P, generator) {\n function adopt(value) { return value instanceof P ? \n value : new P(function (resolve) { resolve(value); }); }\n return new (P || (P = Promise))(function (resolve, \n reject) {\n function fulfilled(value) { try { step(generator.next(value)); }\n catch (e) { reject(e); } }\n function rejected(value) { try { \n step(generator["throw"](value));\n } catch (e) { reject(e); } }\n function \n step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\n step((generator = generator.apply(thisArg, \n _arguments || [])).next());\n });\n }\n function __generator(thisArg, body) {\n var _ = { label: 0, sent: \n function () { if (t[0] & 1)\n throw t[1]; return t[1]; }, trys: [], ops: [] }, f, y, t, g;\n return g = { next: \n verb(0), "throw": verb(1), "return": verb(2) }, typeof Symbol === "function" && (g[Symbol.iterator] = function \n () { return this; }), g;\n function verb(n) { return function (v) { return step([n, v]); }; }\n function step(op) {\n if (f)\n throw new TypeError("Generator is already executing.");\n while (_)\n try {\n if (f = 1, y && (t = op[0] & 2 ? y["return"] : op[0] ? y["throw"] || ((t = y["return"]) && \n t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done)\n return t;\n if (y = 0, t)\n op = [op[0] & 2, t.value];\n switch (op[0]) {\n case 0:\n t = op;\n break;\n case 1:\n _label++;\n return { value: op[1], done: false };\n case 5:\n _label++;\n y = op[1];\n op = [0];\n continue;\n case 7:\n op = _ops.pop();\n _trys.pop();\n continue;\n default:\n if (!(t = _trys, t = t.length > 0 && t[t.length - 1]) && (op[0] === 6 || op[0] \n === 2)) {\n _ = 0;\n continue;\n }\n if \n (op[0] === 3 && (!t || (op[1] > t[0] && op[1] < t[3]))) {\n _label = op[1];\n break;\n }\n if (op[0] === 6 && \n _label < t[1]) {\n _label = t[1];\n t = op;\n break;\n }\n if (t && _label < t[2]) {\n _label = t[2];\n if (t[2])\n _ops.push(op);\n break;\n }\n if (t[2])\n _ops.pop();\n _trys.pop();\n continue;\n }\n op = \n body.call(thisArg, _);\n catch (e) {\n op = [6, e];\n y = 0;\n }\n finally {\n f = t = 0;\n }\n }\n if (op[0] & 5)\n throw op[1];\n return { value: op[0] ? op[1] : void 0, done: true };\n }\n }\n var __createBinding = Object.create ? (function (o, m, k, k2) {\n if (k2 === undefined)\n k2 = \n k;\n Object.defineProperty(o, k2, { enumerable: true, get: function () { return m[k]; } });\n }) : (function (o, m, \n k, k2) {\n if (k2 === undefined)\n k2 = k;\n o[k2] = m[k];\n });\n function __exportStar(m, \n exports) {\n for (var p in m)\n if (p !== "default" && !exports.hasOwnProperty(p))\n
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__createBinding(exports, m, p);\n }\n function __values(o) {\n var s = typeof Symbol === \"function\" &&\n Symbol.iterator, m = s && o[s], i = 0;\n if (m)\n return m.call(o);\n if (o && typeof o.length ===\n \"number\")\n return {\n next: function () {\n if (o && i >= o.length)\n o = void 0;\n return { value: o && o[i++], done: !o }; }\n };\n throw\n new TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is not defined.\");\n }\n function __read(o, n) {\n var m = typeof Symbol === \"function\" && o[Symbol.iterator];\n if (!m)\n return o;\n var i =\n m.call(o), r, ar = [], e;\n try {\n while ((n === void 0 || n-- > 0) && !(r = i.next()).done)\n ar.push(r.value);\n } catch (error) {\n e = { error: error };\n } finally {\n try {\n if (r && !r.done && (m = i[\"return\"]))\n m.call(i);\n } finally {\n if\n (e)\n throw e.error;\n }\n }\n return ar;\n }\n function __spread() {\n for (var ar =\n [], i = 0; i < arguments.length; i++)\n ar\n = ar.concat(__read(arguments[i]));\n return ar;\n }\n function __spreadArrays() {\n for (var s = 0, i = 0,\n il = arguments.length; i < il; i++)\n s += arguments[i].length;\n for (var r = Array(s), k = 0, i = 0; i < il;\n i++)\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\n r[k] = a[j];\n return r;\n }\n ;\n function __await(v) {\n return this instanceof __await ? (this.v = v, this) : new __await(v);\n }\n function __asyncGenerator(thisArg, _arguments, generator) {\n if (!Symbol.asyncIterator)\n throw new\n TypeError(\"Symbol.asyncIterator is not defined.\");\n var g = generator.apply(thisArg, _arguments || []), i, q =\n [];\n return i = {}, verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return\n this; }, i;\n function verb(n) { if (g[n])\n i[n] = function (v) { return new Promise(function\n (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); };\n function resume(n, v) { try {\n step(g[n](v));\n } catch (e) {\n settle(q[0][3], e);\n } }\n function step(r) { r.value instanceof __await ?\n Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\n function fulfill(value) { resume(\"next\", value); }\n function reject(value) { resume(\"throw\", value); }\n function settle(f, v) { if (f(v), q.shift(),\n q.length)\n resume(q[0][0], q[0][1]); }\n }\n function __asyncDelegator(o) {\n var i, p;\n return i\n = {}, verb(\"next\"), verb(\"throw\"), function (e) { throw e; }, verb(\"return\"), i[Symbol.iterator] = function () {\n return this; }, i;\n function verb(n, f) { i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)),\n done: n === \"return\" } : f ? f(v) : v; } : f; }\n }\n function __asyncValues(o) {\n if\n (!Symbol.asyncIterator)\n throw new TypeError(\"Symbol.asyncIterator is not defined.\");\n var m = o[Symbol.asyncIterator], i;\n return m ? m.call(o) : (o = typeof __values === \"function\" ? __values(o) : o[Symbol.iterator](), i = {},\n verb(\"next\"), verb(\"throw\"), verb(\"return\"), i[Symbol.asyncIterator] = function () { return this; }, i);\n function verb(n) { i[n] = o[n] && function (v) { return new Promise(function (resolve, reject) { v = o[n](v),\n settle(resolve, reject, v.done, v.value); }); };\n function settle(resolve, reject, d, v) {\n Promise.resolve(v).then(function (v) { resolve({ value: v, done: d }); }, reject); }\n }\n function\n __makeTemplateObject(cooked, raw) {\n if (Object.defineProperty) {\n Object.defineProperty(cooked,\n \"raw\", { value: raw });\n } else {\n cooked.raw = raw;\n }\n return cooked;\n }\n ;\n var __setModuleDefault = Object.create ? (function (o,\n v) {\n Object.defineProperty(o, \"default\", { enumerable: true, value: v });\n }) : function (o, v) {\n o[\"default\"] = v;\n };\n function __importStar(mod) {\n if (mod && mod.__esModule)\n return\n mod;\n var result = {};\n if (mod != null)\n for (var k in mod)\n if\n (Object.hasOwnProperty.call(mod, k))\n __createBinding(result, mod, k);\n __setModuleDefault(result, mod);\n return result;\n }\n function __importDefault(mod) {\n return (mod\n && mod.__esModule) ? mod : { default: mod };\n }\n function __classPrivateFieldGet(receiver, privateMap)\n {\n if (!privateMap.has(receiver))\n throw new TypeError(\"attempted to get private field on non-\n instance\");\n return privateMap.get(receiver);\n }\n function __classPrivateFieldSet(receiver,\n privateMap, value) {\n if (!privateMap.has(receiver))\n throw\n new TypeError(\"attempted to set private field on non-instance\");\n privateMap.set(receiver, value);\n return value;\n }\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use

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https://angular.io/license
var $COMPILE = '$compile';
var $CONTROLLER = '$controller';
var $DELEGATE = '$delegate';
var $EXCEPTION_HANDLER = '$exceptionHandler';
var $HTTP_BACKEND = '$httpBackend';
var $INJECTOR = '$injector';
var $INTERVAL = '$interval';
var $PARSE = '$parse';
var $PROVIDE = '$provide';
var $ROOT_SCOPE = '$rootScope';
var $SCOPE = '$scope';
var $TEMPLATE_CACHE = '$templateCache';
var $TEMPLATE_REQUEST = '$templateRequest';
var $$TESTABILITY = '$$testability';
var COMPILER_KEY = '$$angularCompiler';
var DOWNGRADED_MODULE_COUNT_KEY = '$$angularDowngradedModuleCount';
var GROUP_PROJECTABLE_NODES_KEY = '$$angularGroupProjectableNodes';
var INJECTOR_KEY = '$$angularInjector';
var LAZY_MODULE_REF = '$$angularLazyModuleRef';
var NG_ZONE_KEY = '$$angularNgZone';
var UPGRADE_APP_TYPE_KEY = '$$angularUpgradeAppType';
var REQUIRE_INJECTOR = '?^^' + INJECTOR_KEY;
var REQUIRE_NG_MODEL = '?ngModel';
var UPGRADE_MODULE_NAME = '$$UpgradeModule';

/**
 * @license
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 * in the LICENSE file at https://angular.io/license
 * A `PropertyBinding` represents a mapping
 * between a property name and an attribute name. It is parsed from a string of the form
 * `"prop: attr";` or simply `"propAndAttr"` where the property and attribute have the same identifier.
 */
var PropertyBinding = /** @class */ (function () {
 function PropertyBinding(prop, attr) {
 this.prop = prop;
 this.attr = attr;
 this.parseBinding();
 }
 PropertyBinding.prototype.parseBinding = function () {
 this.bracketAttr = "[" + this.attr + "]";
 this.parenAttr = "(" + this.attr + ")";
 this.bracketParenAttr = "[" + this.attr + "]";
 var capitalAttr = this.attr.charAt(0).toUpperCase() + this.attr.substr(1);
 this.onAttr = "on" + capitalAttr;
 this.bindAttr = "bind" + capitalAttr;
 this.bindonAttr = "bindon" + capitalAttr;
 };
 return PropertyBinding;
})();

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 * in the LICENSE file at https://angular.io/license
 */
var DIRECTIVE_PREFIX_REGEXP = /^(?:x|data)[\:-_]/i;
var DIRECTIVE_SPECIAL_CHARS_REGEXP = /[:\-_.+]/g;
function onError(e) {
 // TODO: (misko): We seem to not have a stack trace here!
 if (console.error) {
 console.error(e, e.stack);
 } else {
 // tslint:disable-next-line:no-console
 console.log(e, e.stack);
 }
 throw e;
}
function controllerKey(name) {
 return '$' + name + 'Controller';
}
function directiveNormalize(name) {
 return name.replace(DIRECTIVE_PREFIX_REGEXP, "").replace(DIRECTIVE_SPECIAL_CHARS_REGEXP, function (_, letter) {
 return letter.toUpperCase();
 });
}
function getTypeName(type) {
 // Return the name of the type or the first line of its stringified version.
 return type.overriddenName || type.name || type.toString().split("\n")[0];
}
function getDowngradedModuleCount($injector) {
 return $injector.has(DOWNGRADED_MODULE_COUNT_KEY) ? $injector.get(DOWNGRADED_MODULE_COUNT_KEY) : 0;
}
function getUpgradeAppType($injector) {
 return $injector.has(UPGRADE_APP_TYPE_KEY) ? $injector.get(UPGRADE_APP_TYPE_KEY) : 0 /* None */;
}
function isFunction(value) {
 return typeof value === 'function';
}
function validateInjectionKey($injector, downgradedModule, injectionKey, attemptedAction) {
 var upgradeAppType = getUpgradeAppType($injector);
 var downgradedModuleCount = getDowngradedModuleCount($injector);
 // Check for common errors.
 switch (upgradeAppType) {
 case 1 /* Dynamic */:
 case 2 /* Static */:
 if (downgradedModule) {
 throw new Error("Error while " + attemptedAction + ": 'downgradedModule' unexpectedly specified." + "\n" + "You should not specify a value for 'downgradedModule', unless you are downgrading");
 }
 break;
 case 3 /* Lite */:
 if (!downgradedModule && (downgradedModuleCount >= 2)) {
 throw new Error("more than one Angular module (via 'downgradeModule()').");
 }
 break;
 }
}

```

```

 throw new Error("Error while \'' + attemptedAction + \": 'downgradedModule' not specified.\n" +\n
 'This application contains more than one downgraded Angular module, thus you need to \'' +\n
 'always specify \''downgradedModule\' when downgrading components and injectables.');
```

```

 }\n
 if (!$injector.has(injectionKey)) {\n throw new Error("Error while \'' + attemptedAction + \": Unable to\n
 find the specified downgraded module.\n" +\n 'Did you forget to downgrade an Angular module or\n
 include it in the AngularJS \'' +\n 'application?');\n }\n break;\n default:\n
 throw new Error("Error while \'' + attemptedAction + \": Not a valid '@angular/upgrade' application.\n" +\n
 'Did you forget to downgrade an Angular module or include it in the AngularJS \'' +\n
 'application?');\n }\n }\n var Deferred = /** @class */ (function () {\n function Deferred() {\n var\n
 _this = this;\n this.promise = new Promise(function (res, rej) {\n _this.resolve = res;\n
 _this.reject = rej;\n });\n return Deferred;\n }());\n /**\n * @return Whether the passed-in\n
 component implements the subset of the\n * `ControlValueAccessor` interface needed for AngularJS `ng-\n
 model`\n * compatibility.\n */\n function supportsNgModel(component) {\n return typeof\n
 component.writeValue === 'function' &&\n typeof component.registerOnChange === 'function';\n }\n
 /**\n * Glue\n
 the AngularJS `NgModelController` (if it exists) to the component\n * (if it implements the needed subset of the\n
 `ControlValueAccessor` interface).\n */\n function hookupNgModel(ngModel, component) {\n if (ngModel\n
 && supportsNgModel(component)) {\n ngModel.$render = function () {\n
 component.writeValue(ngModel.$viewValue);\n };\n
 component.registerOnChange(ngModel.$setViewValue.bind(ngModel));\n if (typeof\n
 component.registerOnTouched === 'function') {\n
 component.registerOnTouched(ngModel.$setTouched.bind(ngModel));\n }\n }\n /**\n * Test\n
 two values for strict equality, accounting for the fact that `NaN !== NaN`.\n */\n function strictEquals(val1,\n
 val2) {\n return val1 === val2 || (val1 !== val1 && val2 !== val2);\n }\n /**\n * @license\n
 Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed\n
 by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var\n
 INITIAL_VALUE = {\n __UNINITIALIZED__: true\n };\n var DowngradeComponentAdapter = /**\n
 @class */ (function () {\n function DowngradeComponentAdapter(element, attrs, scope, ngModel,\n
 parentInjector, $injector, $compile, $parse, componentFactory, wrapCallback) {\n this.element = element;\n
 this.attrs = attrs;\n this.scope = scope;\n this.ngModel = ngModel;\n this.parentInjector =\n
 parentInjector;\n this.$injector = $injector;\n this.$compile = $compile;\n this.$parse =\n
 $parse;\n this.componentFactory = componentFactory;\n this.wrapCallback = wrapCallback;\n
 this.implementsOnChanges = false;\n this.inputChangeCount = 0;\n this.inputChanges = {};\n
 this.componentScope = scope.$new();\n }\n DowngradeComponentAdapter.prototype.compileContents\n
 = function () {\n var _this = this;\n var compiledProjectableNodes = [];\n var projectableNodes\n
 = this.groupProjectableNodes();\n var linkFns = projectableNodes.map(function (nodes) { return\n
 _this.$compile(nodes); });\n this.element.empty();\n linkFns.forEach(function (linkFn) {\n
 linkFn(_this.scope, function (clone) {\n compiledProjectableNodes.push(clone);\n
 _this.element.append(clone);\n });\n });\n return compiledProjectableNodes;\n };\n
 DowngradeComponentAdapter.prototype.createComponent = function (projectableNodes) {\n var providers\n
 = [{ provide: $$SCOPE, useValue: this.componentScope }];\n var childInjector = core.Injector.create({\n
 providers: providers, parent: this.parentInjector, name: 'DowngradeComponentAdapter'\n });\n this.componentRef\n
 =\n this.componentFactory.create(childInjector, projectableNodes, this.element[0]);\n
 this.viewChangeDetector = this.componentRef.injector.get(core.ChangeDetectorRef);\n this.changeDetector\n
 = this.componentRef.changeDetectorRef;\n this.component = this.componentRef.instance;\n //\n
 testability hook is commonly added during component bootstrap in\n //\n
 packages/core/src/application_ref.bootstrap()\n // in downgraded application, component creation will take

```

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place here as well as adding the // testability hook.\n var testability =
this.componentRef.injector.get(core.Testability, null);\n if (testability) {\n
this.componentRef.injector.get(core.TestabilityRegistry)\n
.registerApplication(this.componentRef.location.nativeElement, testability);\n }\n
hookupNgModel(this.ngModel, this.component);\n };\n
DowngradeComponentAdapter.prototype.setupInputs = function (manuallyAttachView, propagateDigest) {\n
var _this = this;\n if (propagateDigest === void 0) { propagateDigest = true; }\n var attrs =
this.attrs;\n var inputs = this.componentFactory.inputs || [];\n var _loop_1 = function (i) {\n
var input = new PropertyBinding(inputs[i].propName, inputs[i].templateName);\n var expr = null;\n
 if (attrs.hasOwnProperty(input.attr)) {\n var observeFn_1 = (function (prop) {\n var
prevValue = INITIAL_VALUE;\n return function (currValue) {\n // Initially, both
`$observe()` and `$watch()` will call this function.\n if (!strictEquals(prevValue, currValue)) {\n
 if (prevValue === INITIAL_VALUE) {\n prevValue = currValue;\n
 }\n _this.updateInput(prop, prevValue, currValue);\n
prevValue = currValue;\n }\n };\n })(input.prop);\n
 attrs.$observe(input.attr, observeFn_1);\n // Use `$watch()` (in addition to `$observe()`) in order to
initialize the input in time\n // for `ngOnChanges()`. This is necessary if we are already in a `$digest`,
which means that\n // `ngOnChanges()` (which is called by a watcher) will run before the `$observe()`,
callback.\n var unwatch_1 = this._1.componentScope.$watch(function () {\n
unwatch_1();\n unwatch_1 = null;\n observeFn_1(attrs[input.attr]);\n });\n
 };\n else if (attrs.hasOwnProperty(input.bindAttr)) {\n
 expr = attrs[input.bindAttr];\n }\n else if (attrs.hasOwnProperty(input.bracketAttr)) {\n
 expr = attrs[input.bracketAttr];\n }\n else if (attrs.hasOwnProperty(input.bindonAttr)) {\n
 expr = attrs[input.bindonAttr];\n }\n else if
(attrs.hasOwnProperty(input.bracketParenAttr)) {\n expr = attrs[input.bracketParenAttr];\n }\n
 if (expr != null) {\n var watchFn = (function (prop) { return function (currValue, prevValue) {\n
return _this.updateInput(prop, prevValue, currValue); }; })(input.prop);\n
 this._1.componentScope.$watch(expr, watchFn);\n }\n };\n var this_1 = this;\n for (var
i = 0; i < inputs.length; i++) {\n _loop_1(i);\n }\n // Invoke `ngOnChanges()` and Change
Detection (when
necessary)\n var detectChanges = function () { return _this.changeDetector.detectChanges(); }; \n var
prototype = this.componentFactory.componentType.prototype;\n this.implementsOnChanges = !(prototype
&& prototype.ngOnChanges);\n this.componentScope.$watch(function () { return _this.inputChangeCount;
}, this.wrapCallback(function () {\n // Invoke `ngOnChanges()`,\n if
(_this.implementsOnChanges) {\n var inputChanges = _this.inputChanges;\n
 _this.inputChanges = {};\n _this.component.ngOnChanges(inputChanges);\n }\n
 _this.viewChangeDetector.markForCheck();\n // If opted out of propagating digests, invoke change
detection when inputs change.\n if (!propagateDigest) {\n detectChanges();\n }\n
 }));\n // If not opted out of propagating digests, invoke
change detection on every digest\n if (propagateDigest) {\n
this.componentScope.$watch(this.wrapCallback(detectChanges));\n }\n // If necessary, attach the view
so that it will be dirty-checked.\n // (Allow time for the initial input values to be set and `ngOnChanges()` to
be called.)\n if (manuallyAttachView || !propagateDigest) {\n var unwatch_2 =
this.componentScope.$watch(function () {\n unwatch_2();\n unwatch_2 = null;\n
 });\n
 var appRef = _this.parentInjector.get(core.ApplicationRef);\n
 appRef.attachView(_this.componentRef.hostView);\n }\n }\n
DowngradeComponentAdapter.prototype.setupOutputs = function () {\n var attrs = this.attrs;\n var
outputs = this.componentFactory.outputs || [];\n for (var j = 0; j < outputs.length; j++) {\n

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 var output = new PropertyBinding(outputs[j].propName, outputs[j].templateName);\n var bindonAttr =
output.bindonAttr.substring(0, output.bindonAttr.length - 6);\n var bracketParenAttr = \"[\" +
output.bracketParenAttr.substring(2, output.bracketParenAttr.length - 8) + \"]\";\n // order below is
important - first update bindings then evaluate expressions\n if (attrs.hasOwnProperty(bindonAttr)) {\n
 this.subscribeToOutput(output, attrs[bindonAttr], true);\n }\n if
(attrs.hasOwnProperty(bracketParenAttr)) {\n this.subscribeToOutput(output, attrs[bracketParenAttr],
true);\n }\n if (attrs.hasOwnProperty(output.onAttr)) {\n
this.subscribeToOutput(output, attrs[output.onAttr]);\n }\n if
(attrs.hasOwnProperty(output.parenAttr)) {\n this.subscribeToOutput(output, attrs[output.parenAttr]);\n
 }\n }\n DowngradeComponentAdapter.prototype.subscribeToOutput = function
(output, expr, isAssignment) {\n var _this = this;\n if (isAssignment === void 0) { isAssignment =
false; }\n var getter = this.$parse(expr);\n var setter = getter.assign;\n if (isAssignment &&
!setter) {\n throw new Error(\"Expression \" + expr + \" is not assignable!\");\n }\n var
emitter = this.component[output.prop];\n if (emitter) {\n emitter.subscribe({\n next:
isAssignment ? function (v) { return setter(_this.scope, v); } : \n function (v) { return
getter(_this.scope, { 'Sevent': v }); }\n });\n }\n else {\n throw new Error(\"Missing
emitter \" + output.prop + \" on component \" + getTypeName(this.componentFactory.componentType)
+ \"!\");\n }\n }\n DowngradeComponentAdapter.prototype.registerCleanup = function () {\n
var _this = this;\n var testabilityRegistry = this.componentRef.injector.get(core.TestabilityRegistry);\n
var destroyComponentRef = this.wrapCallback(function () { return _this.componentRef.destroy(); });\n var
destroyed = false;\n this.element.on('$destroy', function () { return _this.componentScope.$destroy(); });\n
 this.componentScope.$on('$destroy', function () {\n if (!destroyed) {\n destroyed = true;\n
 testabilityRegistry.unregisterApplication(_this.componentRef.location.nativeElement);\n
 }\n });\n }\n DowngradeComponentAdapter.prototype.getInjector = function () {\n return this.componentRef.injector;\n
 };\n DowngradeComponentAdapter.prototype.updateInput
= function (prop, prevValue, currValue) {\n if (this.implementsOnChanges) {\n
this.inputChanges[prop] = new core.SimpleChange(prevValue, currValue, prevValue === currValue);\n }\n
 this.inputChangeCount++;\n this.component[prop] = currValue;\n };\n DowngradeComponentAdapter.prototype.groupProjectableNodes = function () {\n var ngContentSelectors =
this.componentFactory.ngContentSelectors;\n return groupNodesBySelector(ngContentSelectors,
this.element.contents());\n };\n return DowngradeComponentAdapter;\n})();\n /**\n * Group a set of
DOM nodes into `ngContent` groups, based on the given content selectors.\n */\n function
groupNodesBySelector(ngContentSelectors, nodes) {\n var projectableNodes = [];\n var
wildcardNgContentIndex;\n for (var i = 0, ii = ngContentSelectors.length; i < ii; ++i) {\n
 projectableNodes[i]
= [];\n }\n for (var j = 0, jj = nodes.length; j < jj; ++j) {\n var node = nodes[j];\n var
ngContentIndex = findMatchingNgContentIndex(node, ngContentSelectors);\n if (ngContentIndex != null)
{\n projectableNodes[ngContentIndex].push(node);\n }\n }\n return projectableNodes;\n
 }\n function findMatchingNgContentIndex(element, ngContentSelectors) {\n var ngContentIndices = [];\n
var wildcardNgContentIndex = -1;\n for (var i = 0; i < ngContentSelectors.length; i++) {\n var selector =
ngContentSelectors[i];\n if (selector === '*') {\n wildcardNgContentIndex = i;\n }\n
 else {\n if (matchesSelector(element, selector)) {\n ngContentIndices.push(i);\n }\n
 }\n }\n ngContentIndices.sort();\n if (wildcardNgContentIndex !== -1) {\n
 ngContentIndices.push(wildcardNgContentIndex);\n }\n return ngContentIndices.length ? ngContentIndices[0] : null;\n }\n var _matches;\n function
matchesSelector(el, selector) {\n if (!_matches) {\n var elProto = Element.prototype;\n _matches =
elProto.matches || elProto.matchesSelector || elProto.mozMatchesSelector || elProto.msMatchesSelector ||

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elProto.oMatchesSelector || elProto.webkitMatchesSelector;\n }\n return el.nodeType ===
Node.ELEMENT_NODE ? _matches.call(el, selector) : false;\n }\n\n /**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n */\n function isThenable(obj) {\n return
!!obj && isFunction(obj.then);\n }\n\n /**\n * Synchronous, promise-like object.\n */\n var SyncPromise =
/** @class */
(function () {\n function SyncPromise() {\n this.resolved = false;\n this.callbacks = [];\n }\n SyncPromise.all = function (valuesOrPromises) {\n var aggrPromise = new SyncPromise();\n var
resolvedCount = 0;\n var results = [];\n var resolve = function (idx, value) {\n results[idx] =
value;\n if (++resolvedCount === valuesOrPromises.length)\n aggrPromise.resolve(results);\n };\n valuesOrPromises.forEach(function (p, idx) {\n if (isThenable(p)) {\n p.then(function (v) { return resolve(idx, v); });\n } else {\n resolve(idx, p);\n }\n });\n return aggrPromise;\n }; SyncPromise.prototype.resolve = function (value) {\n // Do nothing, if already resolved.\n if (this.resolved)\n return;\n this.value = value;\n this.resolved = true;\n // Run the queued callbacks.\n this.callbacks.forEach(function (callback) { return callback(value); });\n this.callbacks.length = 0;\n };\n SyncPromise.prototype.then = function (callback) {\n if (this.resolved) {\n callback(this.value);\n } else {\n this.callbacks.push(callback);\n }\n };\n return SyncPromise;\n })();\n\n /**\n * @description\n *\n * A helper function that allows an Angular
component to be used from AngularJS.\n *\n * Part of the [upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that support AOT compilation.\n *\n * This helper function returns a factory
function to be used for registering\n * an AngularJS wrapper directive for "downgrading" an Angular
component.\n *\n * @usageNotes\n * ### Examples\n *\n * Let's assume that you have an Angular component called
`ng2Heroes` that needs\n * to be made available in AngularJS templates.\n *\n * { @example\n * upgrade/static/ts/full/module.ts region=`ng2-heroes`\n * }\n *\n * We must create an AngularJS
[directive](https://docs.angularjs.org/guide/directive)\n * that will make this Angular component available inside
AngularJS templates.\n * The `downgradeComponent()` function returns a factory function that we\n * can use
to define the AngularJS directive that wraps the "downgraded" component.\n *\n * { @example\n * upgrade/static/ts/full/module.ts region=`ng2-heroes-wrapper`\n * }\n *\n * For more details and examples on
downgrading Angular components to AngularJS components please\n * visit the [Upgrade
guide](guide/upgrade#using-angular-components-from-angularjs-code).\n *\n * @param info contains
information about the Component that is
being downgraded:\n *\n * - `component: Type<any>`: The type of the Component that will be downgraded\n * - `downgradedModule?: string`: The name of the downgraded module (if any) that the component\n * belongs to, as returned by a call to `downgradeModule()`. It is the module, whose\n * corresponding Angular
module will be bootstrapped, when the component needs to be instantiated.\n *
\n * (This option is
only necessary when using `downgradeModule()` to downgrade more than one\n * Angular module.)\n * -
`propagateDigest?: boolean`: Whether to perform { @link ChangeDetectorRef#detectChanges\n * change
detection} on the component on every\n *\n * [$digest](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest). If set to `false`,\n * change detection
will still be performed when any of the component's inputs changes.\n * (Default: true)\n *\n * @returns a
factory function that can be used to register
the component in an\n * AngularJS module.\n *\n * @publicApi\n */\n function
downgradeComponent(info) {\n var directiveFactory = function ($compile, $injector, $parse) {\n //
When using `downgradeModule()`, we need to handle certain things specially. For example:\n // - We always
need to attach the component view to the `ApplicationRef` for it to be\n // dirty-checked.\n // - We
need to ensure callbacks to Angular APIs (e.g. change detection) are run inside the\n // Angular zone.\n

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// NOTE: This is not needed, when using `UpgradeModule`, because `digest()` will be run inside
the Angular zone (except if explicitly escaped, in which case we shouldn't force it back in).
var isNgUpgradeLite = getUpgradeAppType($injector) === 3 /* Lite */;
var wrapCallback =
!isNgUpgradeLite ? function (cb) { return cb; } : function
(cb) { return function () { return core.NgZone.isInAngularZone() ? cb() : ngZone.run(cb); }; };
var ngZone;
// When downgrading multiple modules, special handling is needed wrt injectors.
var hasMultipleDowngradedModules = isNgUpgradeLite && (getDowngradedModuleCount($injector) > 1);
return {
 restrict: 'E',
 terminal: true,
 require: [REQUIRE_INJECTOR,
REQUIRE_NG_MODEL],
 link: function (scope, element, attrs, required) {
 // We might
 have to compile the contents asynchronously, because this might have been
 // triggered by
 `UpgradeNg1ComponentAdapterBuilder`, before the Angular templates have
 // been compiled.
 var ngModel = required[1];
 var parentInjector = required[0];
 var moduleInjector =
undefined;
 var ranAsync = false;
 if (!parentInjector || hasMultipleDowngradedModules) {
 var downgradedModule =
info.downgradedModule || "";
 var lazyModuleRefKey = "\"" + LAZY_MODULE_REF +
downgradedModule;
 var attemptedAction = "\"instantiating component \"" +
getTypeName(info.component) + "\"";
 validateInjectionKey($injector, downgradedModule,
lazyModuleRefKey, attemptedAction);
 var lazyModuleRef = $injector.get(lazyModuleRefKey);
 moduleInjector = lazyModuleRef.injector || lazyModuleRef.promise;
 }
 //
Notes:
 // There are two injectors: `finalModuleInjector` and `finalParentInjector` (they
 might be
 // the same instance, but that is irrelevant):
 // - `finalModuleInjector` is used to
 retrieve `ComponentFactoryResolver`, thus it
 must be
 // on the same tree as the `NgModule` that declares this downgraded component.
 // - `finalParentInjector` is used for all other injection purposes.
 // (Note that Angular knows to only
 traverse the component-tree part of that injector,
 // when looking for an injectable and then switch to
 the module injector.)
 // There are basically three cases:
 // - If there is no
 parent component (thus no `parentInjector`), we bootstrap the downgraded
 // `NgModule` and use its
 injector as both `finalModuleInjector` and
 // `finalParentInjector`.
 // - If there is a parent
 component (and thus a `parentInjector`) and we are sure that it
 // belongs to the same `NgModule` as
 this downgraded component (e.g. because there is only
 // one
 downgraded module, we use that `parentInjector` as both `finalModuleInjector` and
 //
 `finalParentInjector`.
 // - If there is a parent component, but it may belong to a different `NgModule`,
 then we
 // use the `parentInjector` as `finalParentInjector` and this downgraded component's
 // declaring `NgModule`'s injector as `finalModuleInjector`.
 // Note 1: If the `NgModule` is
 already bootstrapped, we just get its injector (we don't
 // bootstrap again).
 // Note
 2: It is possible that (while there are multiple downgraded modules) this
 // downgraded
 component and its parent component both belong to the same NgModule.
 // In that case, we
 could have used the `parentInjector` as both
 // `finalModuleInjector` and `finalParentInjector`,
 but
 (for simplicity) we are
 // treating this case as if they belong to different `NgModule`s. That
 doesn't
 // really affect anything, since `parentInjector` has `moduleInjector` as ancestor
 // and trying to resolve `ComponentFactoryResolver` from either one will return
 // the
 same instance.
 // If there is a parent component, use its injector as parent injector.
 // If
 this is a "top-level" Angular component, use the module injector.
 var finalParentInjector =
parentInjector || moduleInjector;
 // If this is a "top-level" Angular component or the parent
 component may belong to a
 // different `NgModule`, use the module injector for module-specific
 dependencies.
 // If there is a parent component that belongs to the same `NgModule`, use its injector.

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 var finalModuleInjector = moduleInjector || parentInjector;\n
(injector, moduleInjector) {\n
 // Retrieve `ComponentFactoryResolver` from the injector tied to the\n
 `NgModule` this\n
 // component belongs to.\n
 var componentFactoryResolver =\n
 moduleInjector.get(core.ComponentFactoryResolver);\n
 var componentFactory =\n
 componentFactoryResolver.resolveComponentFactory(info.component);\n
 if (!componentFactory)\n
 {\n
 throw new Error("Expecting ComponentFactory for: \" + getTypeName(info.component));\n
 }\n
 var injectorPromise = new ParentInjectorPromise(element);\n
 var facade\n
 = new DowngradeComponentAdapter(element, attrs, scope, ngModel, injector, $injector, $compile, $parse,\n
 componentFactory, wrapCallback);\n
 var projectableNodes = facade.compileContents();\n
 facade.createComponent(projectableNodes);\n
 facade.setupInputs(isNgUpgradeLite,\n
 info.propagateDigest);\n
 facade.setupOutputs();\n
 facade.registerCleanup();\n
 injectorPromise.resolve(facade.getInjector());\n
 if (ranAsync) {\n
 // If this is run\n
 // digest and initial input values will not be\n
 // detected.\n
 scope.$evalAsync(function () { });\n
 }\n
 var\n
 downgradeFn = !isNgUpgradeLite ? doDowngrade : function (pInjector, mInjector) {\n
 if (!ngZone)\n
 {\n
 ngZone = pInjector.get(core.NgZone);\n
 }\n
 wrapCallback(function\n
 () { return doDowngrade(pInjector, mInjector); }());\n
 };\n
 // NOTE:\n
 // Not\n
 using `ParentInjectorPromise.all()` (which is inherited from `SyncPromise`), because\n
 // Closure\n
 Compiler (or some related tool) complains:\n
 // `TypeError:\n
 ...$.src$.downgrade_component_ParentInjectorPromise.all is not a function`\n
 SyncPromise.all([finalParentInjector, finalModuleInjector])\n
 .then(function (_a) {\n
 var _b = __read(_a, 2), pInjector = _b[0], mInjector = _b[1];\n
 return downgradeFn(pInjector,\n
 mInjector);\n
 });\n
 ranAsync = true;\n
 });\n
 // bracket-\n
 notation because of closure - see #14441\n
 directiveFactory['$inject'] = [$COMPILER, $INJECTOR,\n
 $PARSE];\n
 return directiveFactory;\n
 }\n
 /**\n
 * Synchronous\n
 promise-like object to wrap parent injectors,\n
 * to preserve the synchronous nature of AngularJS's `$compile`.\n
 */\n
 var ParentInjectorPromise = /** @class */ (function (_super) {\n
 __extends(ParentInjectorPromise,\n
 _super);\n
 function ParentInjectorPromise(element) {\n
 var _this = _super.call(this) || this;\n
 _this.element = element;\n
 _this.injectorKey = controllerKey(INJECTOR_KEY);\n
 // Store the\n
 promise on the element.\n
 element.data(_this.injectorKey, _this);\n
 return _this;\n
 }\n
 ParentInjectorPromise.prototype.resolve = function (injector) {\n
 // Store the real injector on the element.\n
 this.element.data(this.injectorKey, injector);\n
 // Release the element to prevent memory leaks.\n
 this.element = null;\n
 // Resolve the promise.\n
 _super.prototype.resolve.call(this, injector);\n
 };\n
 return\n
 ParentInjectorPromise;\n
 })(SyncPromise);\n
 /**\n
 * @license\n
 * Copyright Google LLC All Rights\n
 Reserved.\n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found in the\n
 LICENSE file at https://angular.io/license\n
 */\n
 /**\n
 * @description\n
 * A helper function to allow\n
 an Angular service to be accessible from AngularJS.\n
 * Part of the\n
 [upgrade/static](api?query=upgrade%2Fstatic)\n
 * library for hybrid upgrade apps that support AOT\n
 compilation.\n
 * This helper function returns a factory function that provides access to the Angular\n
 service identified by the `token` parameter.\n
 * @usageNotes\n
 * ### Examples\n
 * First ensure\n
 that the service to be downgraded is provided in an `NgModule`\n
 * that will be part of the upgrade application.\n
 For example, let's assume we have\n
 * defined `HeroesService`\n
 * {\n
 * @example\n
 upgrade/static/ts/full/module.ts\n
 region=\"ng2-heroes-service\" }\n
 * and that we have included this in our upgrade app `NgModule`\n
 * {\n
 * @example upgrade/static/ts/full/module.ts region=\"ng2-module\" }\n
 * Now we can register the

```

```

`downgradeInjectable` factory function for the service\n
 * on an AngularJS module.\n
 * \n
 * { @example
upgrade/static/ts/full/module.ts region="downgrade-ng2-heroes-service"}\n
 * \n
 * Inside an AngularJS
component's controller we can get hold of the\n
 * downgraded service via the name we gave when
downgrading.\n
 * \n
 * { @example upgrade/static/ts/full/module.ts region="example-app"}\n
 * \n
 * <div
class="alert is-important">\n
 * \n
 * When using `downgradeModule()`, downgraded injectables will not be
available until the Angular\n
 * module that provides them is instantiated. In order to be safe, you need to ensure
that the\n
 * downgraded injectables are not used anywhere _outside_
the part of the app where it is\n
 * guaranteed that their module has been instantiated.\n
 * \n
 * For example,
it is _OK_ to use a downgraded service in an upgraded component that is only used\n
 * from a downgraded
Angular component provided by the same Angular module as the injectable, but\n
 * it is _not OK_ to use it in an
AngularJS component that may be used independently of Angular or\n
 * use it in a downgraded Angular
component from a different module.\n
 * \n
 * </div>\n
 * \n
 * @param token an `InjectionToken` that
identifies a service provided from Angular.\n
 * @param downgradedModule the name of the downgraded module
(if any) that the injectable\n
 * belongs to, as returned by a call to `downgradeModule()`. It is the module,
whose injector will\n
 * be used for instantiating the injectable.
\n
 * (This option is only necessary when
using `downgradeModule()` to downgrade more than one Angular\n
 * module.)\n
 * \n
 * @returns a [factory function](https://docs.angularjs.org/guide/di) that can be\n
 * used to register the
service on an AngularJS module.\n
 * \n
 * @publicApi\n
 * /\n
function downgradeInjectable(token,
downgradedModule) {\n
 if (downgradedModule === void 0) { downgradedModule = ""; }\n
 var factory =
function ($injector) {\n
 var injectorKey = "\" + INJECTOR_KEY + downgradedModule;\n
 var
injectableName = isFunction(token) ? getTypeName(token) : String(token);\n
 var attemptedAction =
\"instantiating injectable \" + injectableName + "\";\n
 validateInjectionKey($injector, downgradedModule,
injectorKey, attemptedAction);\n
 try {\n
 var injector = $injector.get(injectorKey);\n
 return
injector.get(token);\n
 }\n
 catch (err) {\n
 throw new Error("Error while \" + attemptedAction
+ \": \" + (err.message || err));\n
 }\n
 };\n
 factory['$inject'] = [$INJECTOR];\n
 return factory;\n
}\n
\n
/**\n
 * @license\n
 *
Copyright Google LLC All Rights Reserved.\n
 * \n
 * Use of this source code is governed by an MIT-style
license that can be\n
 * found in the LICENSE file at https://angular.io/license\n
 * /\n
\n
/**\n
 * @publicApi\n
 * /\n
var VERSION = new core.Version('11.0.2');\n
\n
/**\n
 * @license\n
 * Copyright Google LLC All
Rights Reserved.\n
 * \n
 * Use of this source code is governed by an MIT-style license that can be\n
 * found
in the LICENSE file at https://angular.io/license\n
 * /\n
// We have to do a little dance to get the ng1 injector into
the module injector.\n
// We store the ng1 injector so that the provider in the module injector can access it\n
//
Then we \"get\" the ng1 injector from the module injector, which triggers the provider to read\n
// the stored
injector and release the reference to it.\n
var tempInjectorRef = null;\n
function setTempInjectorRef(injector) {\n
 tempInjectorRef = injector;\n
}\n
function injectorFactory() {\n
 if (!tempInjectorRef) {\n
 throw new Error("Trying to get the AngularJS
injector before it being set.");\n
 }\n
 var injector = tempInjectorRef;\n
 tempInjectorRef = null; // clear the
value to prevent memory leaks\n
 return injector;\n
}\n
function rootScopeFactory(i) {\n
 return
i.get('$rootScope');\n
}\n
function compileFactory(i) {\n
 return i.get('$compile');\n
}\n
function
parseFactory(i) {\n
 return i.get('$parse');\n
}\n
var angular1Providers = [\n
 // We must use exported
named functions for the ng2 factories to keep the compiler happy;\n
 // > Metadata collected contains an error
that will be reported at runtime;\n
 // > Function calls are not supported.\n
 // > Consider replacing the
function or lambda with a reference
to an exported function\n
 { provide: '$injector', useFactory: injectorFactory, deps: [] },\n
 { provide:
'$rootScope', useFactory: rootScopeFactory, deps: ['$injector'] },\n
 { provide: '$compile', useFactory:
compileFactory, deps: ['$injector'] },\n
 { provide: '$parse', useFactory: parseFactory, deps: ['$injector'] }\n
];\n
\n
/**\n
 * @license\n
 * Copyright Google LLC All Rights Reserved.\n
 * \n
 * Use of this source code
is governed by an MIT-style license that can be\n
 * found in the LICENSE file at https://angular.io/license\n

```

```

*/\n var NgAdapterInjector = /** @class */ (function () {\n function NgAdapterInjector(modInjector) {\n this.modInjector = modInjector;\n }\n // When Angular locate a service in the component injector tree, the\n not found value is set to\n // `NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR`. In such a case we\n should not walk up to the module\n // injector.\n // AngularJS only supports a single tree and should always check the module injector.\n NgAdapterInjector.prototype.get = function (token, notFoundValue) {\n if (notFoundValue ===\n core.NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n return notFoundValue;\n }\n return this.modInjector.get(token, notFoundValue);\n };\n return NgAdapterInjector;\n }());\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by\n an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var\n moduleUid = 0;\n /**\n * @description\n * A helper function for creating an AngularJS module that\n can bootstrap an Angular module\n * `"on-demand"` (possibly lazily) when a { @link downgradeComponent\n downgraded component} needs to be\n * instantiated.\n * Part of the\n [upgrade/static](api?query=upgrade/static)\n library for hybrid upgrade apps that\n * support AOT compilation.\n * It allows loading/bootstrapping\n the Angular part of a hybrid application lazily and not having to\n * pay the cost up-front. For example, you can\n have an AngularJS application that uses Angular for\n * specific routes and only instantiate the Angular modules\n if/when the user visits one of these\n * routes.\n * The Angular module will be bootstrapped once (when\n requested for the first time) and the same\n * reference will be used from that point onwards.\n * `downgradeModule()` requires either an `NgModuleFactory` or a function:\n * - `NgModuleFactory`: If you pass\n an `NgModuleFactory`, it will be used to instantiate a module\n * using `platformBrowser`'s { @link\n PlatformRef#bootstrapModuleFactory bootstrapModuleFactory() }.\n * - `Function`: If you pass a function, it is\n expected to return a promise resolving to an\n * `NgModuleRef`.\n The function is called with an array of extra { @link StaticProvider Providers}\n * that are expected to be\n available from the returned `NgModuleRef`'s `Injector`.\n * `downgradeModule()` returns the name of the\n created AngularJS wrapper module. You can use it to\n * declare a dependency in your main AngularJS\n module.\n * { @example upgrade/static/ts/lite/module.ts region="basic-how-to"}\n * For more\n details on how to use `downgradeModule()` see\n * [Upgrading for Performance](guide/upgrade-performance).\n * @usageNotes\n * Apart from `UpgradeModule`, you can use the rest of the `upgrade/static`\n helpers as usual to\n * build a hybrid application. Note that the Angular pieces (e.g. downgraded services) will not\n be\n * available until the downgraded module has been bootstrapped, i.e. by instantiating a downgraded\n * component.\n * <div class="alert is-important">\n * You cannot use `downgradeModule()` and `UpgradeModule` in the same hybrid application.</div>\n * Use\n one or the other.\n * </div>\n * ### Differences with `UpgradeModule`\n * Besides their\n different API, there are two important internal differences between\n * `downgradeModule()` and\n `UpgradeModule` that affect the behavior of hybrid applications:\n * 1. Unlike `UpgradeModule`,\n `downgradeModule()` does not bootstrap the main AngularJS module\n * inside the { @link NgZone Angular\n zone}.\n * 2. Unlike `UpgradeModule`, `downgradeModule()` does not automatically run a\n [$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest) when changes are\n * detected in\n the Angular part of the application.\n * What this means is that applications using `UpgradeModule` will\n run change detection more\n * frequently in order to ensure that both frameworks are properly notified about\n possible changes.\n * This will inevitably result in more change detection runs than necessary.\n * `downgradeModule()`, on the other side, does not try to tie the two change detection systems as\n * tightly,\n restricting the explicit change detection runs only to cases where it knows it is\n * necessary (e.g. when the inputs\n of a downgraded component change). This improves performance,\n * especially in change-detection-heavy\n applications, but leaves it up to the developer to manually\n * notify each framework as needed.\n * For a\n more detailed discussion of the differences and their implications, see\n * [Upgrading for\n Performance](guide/upgrade-performance).\n * <div class="alert is-helpful">\n * You can

```

manually trigger a change detection run in AngularJS using

```
[scope.$apply(...)](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$apply) or
[$rootScope.$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest).
```

You can manually trigger a change detection run in Angular using `{ @link NgZone#run`

```
ngZone.run(...)}.
```

### Downgrading multiple modules

It is possible to downgrade multiple modules and include them in an AngularJS application. In that case, each downgraded module will be bootstrapped when an associated downgraded component or injectable needs to be instantiated.

Things to keep in mind, when downgrading multiple modules:

- Each downgraded component/injectable needs to be explicitly associated with a downgraded module. See ``downgradeComponent()`` and ``downgradeInjectable()`` for more details.
- If you want some injectables to be shared among all downgraded modules, you can provide them as ``StaticProvider``s, when creating the ``PlatformRef`` (e.g. via ``platformBrowser`` or ``platformBrowserDynamic``).
- When using `{ @link PlatformRef#bootstrapmodule `bootstrapModule()` }` or `{ @link PlatformRef#bootstrapmodulefactory `bootstrapModuleFactory()` }` to bootstrap the downgraded modules, each one is considered a `"root"` module. As a consequence, a new instance will be created for every injectable provided in `"root"` (via `{ @link Injectable#providedIn `providedIn` }`).

If this is not your intention, you can have a shared module (that will act as the `"root"` module) and create all downgraded modules using that module's injector:

```
{ @example upgrade/static/ts/lite-multi-shared/module.ts region="shared-root-module" }
@publicApi
function
downgradeModule(moduleFactoryOrBootstrapFn) {
 var lazyModuleName = UPGRADE_MODULE_NAME +
 ".lazy" + ++moduleId;
 var lazyModuleRefKey = "" + LAZY_MODULE_REF + lazyModuleName;
 var
 lazyInjectorKey = "" + INJECTOR_KEY + lazyModuleName;
 var bootstrapFn =
 isFunction(moduleFactoryOrBootstrapFn) ?
 moduleFactoryOrBootstrapFn :
 function
 (extraProviders) { return
 platformBrowser.platformBrowser(extraProviders).bootstrapModuleFactory(moduleFactoryOrBootstrapFn); }
 var injector;
 // Create an ng1 module to bootstrap.
 module_(lazyModuleName, [])
 .constant(UPGRADE_APP_TYPE_KEY, 3 /* Lite */)
 .factory(INJECTOR_KEY, [lazyInjectorKey,
 identity])
 .factory(lazyInjectorKey, function () {
 if (!injector) {
 throw new
 Error("Trying to get the Angular injector before bootstrapping the corresponding ' +
 'Angular module.");
 }
 return injector;
 })
 .factory(LAZY_MODULE_REF,
 [lazyModuleRefKey, identity])
 .factory(lazyModuleRefKey, [
 $INJECTOR,
 function
 ($injector)
 {
 setTempInjectorRef($injector);
 var result = {
 promise:
 bootstrapFn(angular1Providers).then(function (ref) {
 injector = result.injector = new
 NgAdapterInjector(ref.injector);
 injector.get($INJECTOR);
 return injector;
 })
 };
 return result;
 }
])
 .config([
 $INJECTOR,
 $PROVIDE,
 function ($injector, $provide) {
 $provide.constant(DOWNGRADED_MODULE_COUNT_KEY, getDowngradedModuleCount($injector) + 1);
 }
]);
 return lazyModuleName;
}
function identity(x) {
 return x;
}
// Constants
var REQUIRE_PREFIX_RE = /^(\\|^\\^?)?(\\|\\^\\^?)?;/
// Classes
var UpgradeHelper = /**
 * @class */ (function () {
 function UpgradeHelper(injector, name, elementRef,
 directive) {
 this.injector = injector;
 this.name = name;
 this.$injector =
 injector.get($INJECTOR);
 this.$compile = this.$injector.get($COMPILE);
 this.$controller =
 this.$injector.get($CONTROLLER);
 this.element = elementRef.nativeElement;
 this.$element =
 element(this.element);
 this.directive = directive || UpgradeHelper.getDirective(this.$injector, name);
 }
 UpgradeHelper.getDirective = function ($injector, name) {
 var directives = $injector.get(name +
 'Directive');
 if (directives.length > 1) {
 throw new Error("Only support single directive

```

```

definition for: \" + name);\n }\n var directive = directives[0];\n // AngularJS will transform
`link: xyz` to `compile: () => xyz`. So we can only tell there was a\n // user-defined `compile` if there is no
`link`. In other cases, we will just
ignore `compile`.\n if (directive.compile && !directive.link)\n notSupported(name, 'compile');\n if (directive.replace)\n notSupported(name, 'replace');\n if (directive.terminal)\n notSupported(name, 'terminal');\n return directive;\n };\n UpgradeHelper.getTemplate = function
($injector, directive, fetchRemoteTemplate, $element) {\n if (fetchRemoteTemplate === void 0) {\n fetchRemoteTemplate = false;\n }\n if (directive.template !== undefined) {\n return
getOrCall(directive.template, $element);\n }\n else if (directive.templateUrl) {\n var
$templateCache_1 = $injector.get($TEMPLATE_CACHE);\n var url_1 = getOrCall(directive.templateUrl,
$element);\n var template = $templateCache_1.get(url_1);\n if (template !== undefined) {\n
 return template;\n }\n else if (!fetchRemoteTemplate) {\n throw new Error('loading directive templates
asynchronously is not supported');\n }\n return new Promise(function (resolve, reject) {\n
 var $httpBackend = $injector.get($HTTP_BACKEND);\n $httpBackend('GET', url_1, null, function
(status, response) {\n if (status === 200) {\n resolve($templateCache_1.put(url_1,
response));\n }\n else {\n reject(\"GET component template from \" +
url_1 + \" returned \" + status + \": \" + response + \"\");\n }\n });\n });\n }\n else {\n throw new Error(\"Directive \" + directive.name + \" is not a component, it is missing
template.\");\n }\n };\n UpgradeHelper.prototype.buildController
= function (controllerType, $scope) {\n // TODO: Document that we do not pre-assign bindings on the
controller instance.\n // Quoted properties below so that this code can be optimized with Closure Compiler.\n var locals = { '$scope': $scope, '$element': this.$element };\n var controller =
this.$controller(controllerType, locals, null, this.directive.controllerAs);\n this.$element.data(controllerKey(this.directive.name), controller);\n return controller;\n };\n UpgradeHelper.prototype.compileTemplate = function (template) {\n if (template === undefined) {\n template =\n UpgradeHelper.getTemplate(this.$injector, this.directive, false, this.$element);\n }\n return this.compileHtml(template);\n };\n UpgradeHelper.prototype.onDestroy = function
($scope, controllerInstance) {\n if (controllerInstance &&
isFunction(controllerInstance.$onDestroy)) {\n controllerInstance.$onDestroy();\n }\n $scope.$destroy();\n // Clean the jQuery/jqLite data on the component+child elements.\n // Equivalent
to how jQuery/jqLite invoke `cleanData` on an Element (this.element)\n //
https://github.com/jquery/jquery/blob/e743cbd28553267f955f71ea7248377915613fd9/src/manipulation.js#L223\n //
https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/jqLite.js#L306-L312\n // `cleanData` will invoke the AngularJS `$destroy` DOM event\n //
https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/Angular.js#L1911-L1924\n element.cleanData([this.element]);\n element.cleanData(this.element.querySelectorAll('*'));\n };\n UpgradeHelper.prototype.prepareTransclusion = function () {\n var _this = this;\n var transclude = this.directive.transclude;\n var contentChildNodes = this.extractChildNodes();\n var attachChildrenFn = function (scope, cloneAttachFn) {\n // Since AngularJS v1.5.8, `cloneAttachFn`
will try to destroy the transclusion scope if\n // ``$template` is empty. Since the transcluded content comes
from Angular, not AngularJS,\n // there will be no transclusion scope here.\n // Provide a dummy
`scope.$destroy()` method to prevent `cloneAttachFn` from throwing.\n scope = scope || { $destroy:
function () { return undefined; } };\n return cloneAttachFn($template, scope);\n }; \n var
$template = contentChildNodes;\n if (transclude) {\n var slots_1 = Object.create(null);\n if
(typeof transclude === 'object') {\n $template = [];\n var slotMap_1 = Object.create(null);\n }

```

```

 var filledSlots_1 = Object.create(null);\n // Parse the element selectors.\n
Object.keys(transclude).forEach(function (slotName) {\n var selector = transclude[slotName];\n
 var optional = selector.charAt(0) === '?';\n selector = optional ? selector.substring(1) :
selector;\n slotMap_1[selector] = slotName;\n slots_1[slotName] = null; // `null` :
Defined but not yet filled.\n filledSlots_1[slotName] = optional; // Consider optional slots as filled.\n
 });\n // Add the matching elements into their slot.\n
contentChildNodes.forEach(function (node) {\n var slotName =
slotMap_1[directiveNormalize(node.nodeName.toLowerCase())];\n if (slotName) {\n
filledSlots_1[slotName] =
true;\n slots_1[slotName] = slots_1[slotName] || [];\n
slots_1[slotName].push(node);\n }\n else {\n $template.push(node);\n
 }\n });\n // Check for required slots that were not filled.\n
Object.keys(filledSlots_1).forEach(function (slotName) {\n if (!filledSlots_1[slotName]) {\n
 throw new Error("Required transclusion slot \"" + slotName + "\" on directive: \"" + _this.name);\n
 });\n });\n Object.keys(slots_1).filter(function (slotName) { return slots_1[slotName];
}).forEach(function (slotName) {\n var nodes = slots_1[slotName];\n slots_1[slotName]
= function (scope, cloneAttach) {\n return cloneAttach(nodes,
scope);\n });\n });\n // Attach `$$slots` to default slot transclude
fn.\n attachChildrenFn.$$slots = slots_1;\n // AngularJS v1.6+ ignores empty or whitespace-only
transcluded text nodes. But Angular\n // removes all text content after the first interpolation and updates it
later, after\n // evaluating the expressions. This would result in AngularJS failing to recognize text\n
 // nodes that start with an interpolation as transcluded content and use the fallback\n // content instead.\n
 // To avoid this issue, we add a\n // [zero-width non-joiner
character](https://en.wikipedia.org/wiki/Zero-width_non-joiner)\n // to empty text nodes (which can only
be a result of Angular removing their initial content).\n // NOTE: Transcluded text content that starts with
whitespace
 followed by an interpolation\n // will still fail to be detected by AngularJS v1.6+\n
$template.forEach(function (node) {\n if (node.nodeType === Node.TEXT_NODE &&
!node.nodeValue) {\n node.nodeValue = "\u200C";\n });\n });\n
return attachChildrenFn;\n });\n UpgradeHelper.prototype.resolveAndBindRequiredControllers = function
(controllerInstance) {\n var directiveRequire = this.getDirectiveRequire();\n var requiredControllers =
this.resolveRequire(directiveRequire);\n if (controllerInstance && this.directive.bindToController &&
isMap(directiveRequire)) {\n var requiredControllersMap_1 = requiredControllers;\n
Object.keys(requiredControllersMap_1).forEach(function (key) {\n controllerInstance[key] =
requiredControllersMap_1[key];\n });\n
 });\n return requiredControllers;\n });\n UpgradeHelper.prototype.compileHtml = function
(html) {\n this.element.innerHTML = html;\n return this.$compile(this.element.childNodes);\n
 });\n UpgradeHelper.prototype.extractChildNodes = function () {\n var childNodes = [];\n var
childNode;\n while (childNode = this.element.firstChild) {\n
this.element.removeChild(childNode);\n childNodes.push(childNode);\n }\n return
childNodes;\n });\n UpgradeHelper.prototype.getDirectiveRequire = function () {\n var require =
this.directive.require || (this.directive.controller && this.directive.name);\n if (isMap(require)) {\n
Object.keys(require).forEach(function (key) {\n var value = require[key];\n var match =
value.match(REQUIRE_PREFIX_RE);\n var
name = value.substring(match[0].length);\n if (!name) {\n require[key] = match[0] +
key;\n }\n });\n });\n return require;\n });\n
UpgradeHelper.prototype.resolveRequire = function (require, controllerInstance) {\n var _this = this;\n
if (!require) {\n return null;\n }\n else if (Array.isArray(require)) {\n return

```



```

require.map(function (req) { return _this.resolveRequire(req); });\n }\n else if (typeof require ===
'object') {\n var value_1 = {};\n Object.keys(require).forEach(function (key) { return
value_1[key] = _this.resolveRequire(require[key]); });\n return value_1;\n }\n else if (typeof
require === 'string') {\n var match = require.match(REQUIRE_PREFIX_RE);\n var inheritType
= match[1]
|| match[3];\n var name = require.substring(match[0].length);\n var isOptional = !!match[2];\n
 var searchParents = !!inheritType;\n var startOnParent = inheritType === '^';\n var ctrlKey
= controllerKey(name);\n var elem = startOnParent ? this.$element.parent() : this.$element;\n var
value = searchParents ? elem.inheritedData(ctrlKey) : elem.data(ctrlKey);\n if (!value && !isOptional) {\n
 throw new Error("Unable to find required \"" + require + "\" in upgraded directive \"" + this.name +
\".\"");\n }\n return value;\n }\n else {\n throw new Error("Unrecognized
'require' syntax on upgraded directive \"" + this.name + \": \"" + require);\n }\n };\n return
UpgradeHelper;\n }();\n function getOrCall(property) {\n var args = [];\n for
 (var _i = 1; _i < arguments.length; _i++) {\n args[_i - 1] = arguments[_i];\n }\n return
isFunction(property) ? property.apply(void 0, __spread(args)) : property;\n }\n // NOTE: Only works for `typeof
T !== 'object`.\n function isMap(value) {\n return value && !Array.isArray(value) && typeof value ===
'object';\n }\n function notSupported(name, feature) {\n throw new Error("Upgraded directive \"" + name +
\"\" contains unsupported feature: \"" + feature + "\"");\n }\n /**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n *
found in the LICENSE file at https://angular.io/license\n */\n var NOT_SUPPORTED =
'NOT_SUPPORTED';\n var INITIAL_VALUES$1 = {\n __UNINITIALIZED__: true\n }; \n var Bindings
= /** @class */ (function () {\n function Bindings() {\n this.twoWayBoundProperties
= [];\n this.twoWayBoundLastValues = [];\n this.expressionBoundProperties = [];\n
 this.propertyToOutputMap = {};\n }\n return Bindings;\n })();\n /**\n * @description\n * A
helper class that allows an AngularJS component to be used from Angular.\n * Part of the
[upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that support AOT
compilation.\n * This helper class should be used as a base class for creating Angular directives\n * that
wrap AngularJS components that need to be "upgraded".\n * @usageNotes\n * ### Examples\n *\n * Let's assume that you have an AngularJS component called `ng1Hero` that needs\n * to be made available in
Angular templates.\n * { @example upgrade/static/ts/full/module.ts region="ng1-hero" }\n * We
must create a `Directive` that will make this AngularJS component\n * available
inside Angular templates.\n * { @example upgrade/static/ts/full/module.ts region="ng1-hero-wrapper" }\n
 * In this example you can see that we must derive from the `UpgradeComponent`\n * base class but also
provide an { @link Directive `@Directive` } decorator. This is\n * because the AOT compiler requires that this
information is statically available at\n * compile time.\n * Note that we must do the following:\n *
specify the directive's selector (`ng1-hero`)\n * specify all inputs and outputs that the AngularJS component
expects\n * derive from `UpgradeComponent`\n * call the base class from the constructor, passing\n *
the AngularJS name of the component (`ng1Hero`)\n * the `ElementRef` and `Injector` for the component
wrapper\n * @publicApi\n */\n var UpgradeComponent = /** @class */ (function () {\n /**\n
 * Create a new `UpgradeComponent` instance. You should
not normally need to do this.\n * Instead you should derive a new class from this one and call the super
constructor\n * from the base class.\n * { @example upgrade/static/ts/full/module.ts
region="ng1-hero-wrapper" }\n * The `name` parameter should be the name of the AngularJS
directive.\n * The `elementRef` and `injector` parameters should be acquired from Angular by dependency\n
 * injection into the base class constructor.\n */\n function UpgradeComponent(name, elementRef,
injector) {\n this.name = name;\n this.elementRef = elementRef;\n this.injector = injector;\n
 this.helper = new UpgradeHelper(injector, name, elementRef);\n this.$injector = this.helper.$injector;\n
 this.element = this.helper.element;\n this.$element = this.helper.$element;\n this.directive =

```

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this.helper.directive;\n this.bindings
= this.initializeBindings(this.directive);\n // We ask for the AngularJS scope from the Angular injector,
since\n // we will put the new component scope onto the new injector for each component\n var
$parentScope = injector.get($SCOPE);\n // QUESTION 1: Should we create an isolated scope if the scope is
only true?\n // QUESTION 2: Should we make the scope accessible through
`$element.scope()/isolateScope()`?\n this.$componentScope = $parentScope.$new(!this.directive.scope);\n this.initializeOutputs();\n }\n UpgradeComponent.prototype.ngOnInit = function () {\n var _this
= this;\n // Collect contents, insert and compile template\n var attachChildNodes =
this.helper.prepareTransclusion();\n var linkFn = this.helper.compileTemplate();\n // Instantiate
controller\n var controllerType = this.directive.controller;\n var
bindToController = this.directive.bindToController;\n if (controllerType) {\n this.controllerInstance
= this.helper.buildController(controllerType, this.$componentScope);\n }\n else if (bindToController)
{\n throw new Error("Upgraded directive \"" + this.directive.name + "\" specifies 'bindToController' but no
controller.");\n }\n // Set up outputs\n this.bindingDestination = bindToController ?
this.controllerInstance : this.$componentScope;\n this.bindOutputs();\n // Require other controllers\n var requiredControllers = this.helper.resolveAndBindRequiredControllers(this.controllerInstance);\n //
Hook: $onChanges\n if (this.pendingChanges) {\n this.forwardChanges(this.pendingChanges);\n this.pendingChanges = null;\n }\n // Hook: $onInit\n if (this.controllerInstance &&
isFunction(this.controllerInstance.$onInit))
{\n this.controllerInstance.$onInit();\n }\n // Hook: $doCheck\n if
(this.controllerInstance && isFunction(this.controllerInstance.$doCheck)) {\n var callDoCheck = function
() { return _this.controllerInstance.$doCheck(); }; \n this.unregisterDoCheckWatcher =
this.$componentScope.$parent.$watch(callDoCheck);\n callDoCheck();\n }\n // Linking\n var link = this.directive.link;\n var preLink = typeof link == 'object' && link.pre;\n var postLink =
typeof link == 'object' ? link.post : link;\n var attrs = NOT_SUPPORTED;\n var transcludeFn =
NOT_SUPPORTED;\n if (preLink) {\n preLink(this.$componentScope, this.$element, attrs,
requiredControllers, transcludeFn);\n }\n linkFn(this.$componentScope, null, {\n parentBoundTranscludeFn: attachChildNodes
});\n if (postLink) {\n postLink(this.$componentScope, this.$element, attrs, requiredControllers,
transcludeFn);\n }\n // Hook: $postLink\n if (this.controllerInstance &&
isFunction(this.controllerInstance.$postLink)) {\n this.controllerInstance.$postLink();\n }\n }\n UpgradeComponent.prototype.ngOnChanges = function (changes) {\n if (!this.bindingDestination) {\n this.pendingChanges = changes;\n }\n else {\n this.forwardChanges(changes);\n }\n }\n UpgradeComponent.prototype.ngDoCheck = function () {\n var _this = this;\n var
twoWayBoundProperties = this.bindings.twoWayBoundProperties;\n var twoWayBoundLastValues =
this.bindings.twoWayBoundLastValues;\n var propertyToOutputMap =
this.bindings.propertyToOutputMap;\n twoWayBoundProperties.forEach(function
(propName, idx) {\n var newValue = _this.bindingDestination[propName];\n var oldValue =
twoWayBoundLastValues[idx];\n if (!Object.is(newValue, oldValue)) {\n var outputName =
propertyToOutputMap[propName];\n var eventEmitter = _this[outputName];\n eventEmitter.emit(newValue);\n twoWayBoundLastValues[idx] = newValue;\n }\n });\n UpgradeComponent.prototype.ngOnDestroy = function () {\n if
(isFunction(this.unregisterDoCheckWatcher)) {\n this.unregisterDoCheckWatcher();\n }\n this.helper.onDestroy(this.$componentScope, this.controllerInstance);\n }\n }\n UpgradeComponent.prototype.initializeBindings = function (directive) {\n var _this = this;\n var
btcIsObject = typeof directive.bindToController === 'object';\n if (btcIsObject
&& Object.keys(directive.scope).length) {\n throw new Error("Binding definitions on scope and
controller at the same time is not supported.");\n }\n var context = btcIsObject ?

```

```

directive.bindToController : directive.scope;\n var bindings = new Bindings();\n if (typeof context ==
'object') {\n Object.keys(context).forEach(function (propName) {\n var definition =
context[propName];\n var bindingType = definition.charAt(0);\n // QUESTION: What about
`=*? Ignore? Throw? Support?\n switch (bindingType) {\n case '@':\n case
'<':\n // We don't need to do anything special. They will be defined as inputs on the\n
// upgraded component facade and the change propagation will be handled by\n //
`ngOnChanges().\n
 break;\n case '=':\n
bindings.twoWayBoundProperties.push(propName);\n
bindings.twoWayBoundLastValues.push(INITIAL_VALUE$1);\n
bindings.propertyToOutputMap[propName] = propName + 'Change';\n break;\n case
'&':\n bindings.expressionBoundProperties.push(propName);\n
bindings.propertyToOutputMap[propName] = propName;\n break;\n default:\n
 var json = JSON.stringify(context);\n throw new Error("Unexpected mapping \"" +
bindingType + "\" in \"" + json + "\" in \"" + _this.name + "\" directive.");\n }\n });\n }\n
 return bindings;\n });\n UpgradeComponent.prototype.initializeOutputs = function
() {\n var _this = this;\n // Initialize the outputs for `=` and `&` bindings\n
this.bindings.twoWayBoundProperties.concat(this.bindings.expressionBoundProperties)\n
.forEach(function (propName) {\n var outputName = _this.bindings.propertyToOutputMap[propName];\n
 _this[outputName] = new core.EventEmitter();\n });\n });\n
UpgradeComponent.prototype.bindOutputs = function () {\n var _this = this;\n // Bind `&` bindings to
the corresponding outputs\n this.bindings.expressionBoundProperties.forEach(function (propName) {\n
 var outputName = _this.bindings.propertyToOutputMap[propName];\n var emitter =
_this[outputName];\n _this.bindingDestination[propName] = function (value) { return emitter.emit(value);
});\n });\n });\n UpgradeComponent.prototype.forwardChanges = function (changes) {\n
 var _this = this;\n // Forward input changes to `bindingDestination`\n
Object.keys(changes).forEach(function (propName) { return _this.bindingDestination[propName] =
changes[propName].currentValue; });\n if (isFunction(this.bindingDestination.$onChanges)) {\n
this.bindingDestination.$onChanges(changes);\n }\n });\n return UpgradeComponent;\n }());\n
UpgradeComponent.decorators = [\n { type: core.Directive }\n];\n UpgradeComponent.ctorParameters =
function () { return [\n { type: String },\n { type: core.ElementRef },\n { type: core.Injector }\n];
};\n /**\n * @description\n * An `NgModule`, which you import to provide AngularJS core
services,\n * and has an instance method used to bootstrap the hybrid upgrade application.\n *\n * **Part of
the [upgrade/static](api?query=upgrade/static)\n * library for hybrid upgrade apps that
support AOT compilation*\n *\n * The `upgrade/static` package contains helpers that allow AngularJS and
Angular components\n * to be used together inside a hybrid upgrade application, which supports AOT
compilation.\n *\n * Specifically, the classes and functions in the `upgrade/static` module allow the
following:\n *\n * 1. Creation of an Angular directive that wraps and exposes an AngularJS component so\n * that it can be used in an Angular template. See `UpgradeComponent`.\n * 2. Creation of an AngularJS
directive that wraps and exposes an Angular component so\n * that it can be used in an AngularJS template. See
`downgradeComponent`.\n * 3. Creation of an Angular root injector provider that wraps and exposes an
AngularJS\n * service so that it can be injected into an Angular context. See\n * { @link
UpgradeModule#upgrading-an-angular-1-service Upgrading an AngularJS service} below.\n * 4. Creation of an
AngularJS service
that wraps and exposes an Angular injectable\n * so that it can be injected into an AngularJS context. See
`downgradeInjectable`.\n * 3. Bootstrapping of a hybrid Angular application which contains both of the
frameworks\n * coexisting in a single application.\n *\n * @usageNotes\n *\n * ```ts\n * import
{ UpgradeModule } from '@angular/upgrade/static';\n * ```\n *\n * See also the { @link

```

UpgradeModule#examples examples} below.

### Mental Model

When reasoning about how a hybrid application works it is useful to have a mental model which describes what is happening and explains what is happening at the lowest level.

1. There are two independent frameworks running in a single application, each framework treats the other as a black box.
2. Each DOM element on the page is owned exactly by one framework. Whichever framework instantiated the element is the owner. Each framework only updates/interacts with its own DOM elements and ignores others.
3. AngularJS directives always execute inside the AngularJS framework codebase regardless of where they are instantiated.
4. Angular components always execute inside the Angular framework codebase regardless of where they are instantiated.
5. An AngularJS component can be "upgraded" to an Angular component. This is achieved by defining an Angular directive, which bootstraps the AngularJS component at its location in the DOM. See `UpgradeComponent``.
6. An Angular component can be "downgraded" to an AngularJS component. This is achieved by defining an AngularJS directive, which bootstraps the Angular component at its location in the DOM. See `downgradeComponent``.
7. Whenever an "upgraded"/"downgraded" component is instantiated the host element is owned by the framework doing the instantiation. The other framework then instantiates and owns the view for that component.
8. This implies that the component bindings will always follow the semantics of the instantiation framework.
9. The DOM attributes are parsed by the framework that owns the current template. So attributes in AngularJS templates must use kebab-case, while Angular templates must use camelCase.
10. However the template binding syntax will always use the Angular style, e.g. square brackets `[...]` for property binding.
11. Angular is bootstrapped first; AngularJS is bootstrapped second. AngularJS always owns the root component of the application.
12. The new application is running in an Angular zone, and therefore it no longer needs calls to `$apply()`.

### The `UpgradeModule` class

This class is an `NgModule``, which you import to provide AngularJS core services, and has an instance method used to bootstrap the hybrid upgrade application.

Core AngularJS services

Importing this `NgModule`` will add providers for the core [AngularJS services](https://docs.angularjs.org/api/ng/service) to the root injector.

Bootstrap

The runtime instance of this class contains a `{ @link UpgradeModule#bootstrap`bootstrap() }` method, which you use to bootstrap the top level AngularJS module onto an element in the DOM for the hybrid upgrade app.

It also contains properties to access the `{ @link UpgradeModule#injector root injector }`, the `bootstrap`NgZone`` and the `[AngularJS $injector](https://docs.angularjs.org/api/auto/service/$injector)`.

### Examples

Import the `UpgradeModule`` into your top level `{ @link NgModule Angular `NgModule` }`.

`{ @example upgrade/static/ts/full/module.ts region='ng2-module' }`

Then inject `UpgradeModule`` into your Angular `NgModule`` and use it to bootstrap the top level `[AngularJS module](https://docs.angularjs.org/api/ng/type/angular.Module)` in the ``ngDoBootstrap()`` method.

`{ @example upgrade/static/ts/full/module.ts region='bootstrap-ng1' }`

Finally, kick off the whole process, by bootstrapping your top level Angular `NgModule``.

`{ @example upgrade/static/ts/full/module.ts region='bootstrap-ng2' }`

`{ @a upgrading-an-angular-1-service }`

### Upgrading an AngularJS service

There is no specific API for upgrading an AngularJS service. Instead you should just follow the following recipe:

Let's say you have an AngularJS service:

`{ @example upgrade/static/ts/full/module.ts region='ng1-text-formatter-service' }`

Then you should define an Angular provider to be included in your `NgModule` providers`` property.

`{ @example upgrade/static/ts/full/module.ts region='upgrade-ng1-service' }`

Then you can use the "upgraded" AngularJS service by injecting it into an Angular component or service.

`{ @example upgrade/static/ts/full/module.ts region='use-ng1-upgraded-service' }`

`@publicApi``

`var UpgradeModule = /** @class */ (function () {`

`function UpgradeModule(injector, ngZone) {`

`/** The root `Injector` for the upgrade application.`

`/** The bootstrap zone for the upgrade application`

```

{\n this.ngZone = ngZone;\n this.injector = new NgAdapterInjector(injector);\n }\n /**\n * Bootstrap an AngularJS application from this NgModule\n * @param element the element on which to\n bootstrap the AngularJS application\n * @param [modules] the AngularJS modules\n to bootstrap for this application\n * @param [config] optional extra AngularJS bootstrap configuration\n */\n UpgradeModule.prototype.bootstrap = function (element$1, modules, config\n /*angular.IAngularBootstrapConfig*/) {\n var _this = this;\n if (modules === void 0) { modules = [];\n }\n var INIT_MODULE_NAME = UPGRADE_MODULE_NAME + '.init';\n // Create an ng1 module\n to bootstrap\n var initModule = module_(INIT_MODULE_NAME, [])\n .constant(UPGRADE_APP_TYPE_KEY, 2 /* Static */)\n .value(INJECTOR_KEY, this.injector)\n .factory(LAZY_MODULE_REF, [INJECTOR_KEY, function (injector) { return ({ injector: injector }); }])\n .config([\n $PROVIDE, $INJECTOR,\n function ($provide, $injector) {\n if\n ($injector.has($$TESTABILITY)) {\n $provide.decorator($$TESTABILITY, [\n $DELEGATE,\n function (testabilityDelegate) {\n var\n originalWhenStable = testabilityDelegate.whenStable;\n var injector = _this.injector;\n // Cannot use arrow function below because we need the context\n var newWhenStable =\n function (callback) {\n originalWhenStable.call(testabilityDelegate, function () {\n var ng2Testability = injector.get(core.Testability);\n if\n (ng2Testability.isStable()) {\n callback();\n }\n else {\n ng2Testability.whenStable(newWhenStable.bind(testabilityDelegate,\n callback));\n }\n });\n testabilityDelegate.whenStable = newWhenStable;\n return testabilityDelegate;\n }\n });\n testabilityDelegate.whenStable = newWhenStable;\n }\n return testabilityDelegate;\n }\n });\n if\n ($injector.has($INTERVAL)) {\n $provide.decorator($INTERVAL, [\n $DELEGATE,\n function (intervalDelegate) {\n // Wrap the $interval service so\n that setInterval is called outside NgZone,\n // but the callback is still invoked within it. This is so\n that $interval\n // won't block stability, which preserves the behavior from AngularJS.\n var wrappedInterval = function (fn, delay, count, invokeApply) {\n var pass = [];\n\n for (var _i = 4; _i < arguments.length; _i++) {\n pass[_i - 4] = arguments[_i];\n }\n return _this.ngZone.runOutsideAngular(function () {\n return intervalDelegate.apply(void 0, __spread([function () {\n var args = [];\n for (var _i = 0; _i < arguments.length; _i++) {\n args[_i] =\n arguments[_i];\n }\n // Run callback in the next VM turn -\n $interval calls\n // $rootScope.$apply, and running the callback in NgZone will\n // cause a '$digest already in progress' error if it's in the\n // same vm turn.\n setTimeout(function () {\n _this.ngZone.run(function () { return fn.apply(void 0, __spread(args)); });\n }, delay, count, invokeApply, pass);\n });\n wrappedInterval['cancel'] = intervalDelegate.cancel;\n return wrappedInterval;\n })\n });\n }\n])\n }\n $INJECTOR,\n function ($injector) {\n _this.$injector = $injector;\n // Initialize\n the ng1 $injector provider\n setTempInjectorRef($injector);\n _this.injector.get($INJECTOR);\n\n // Put the injector on the DOM, so that it can be \"required\"\n element(element$1).data(controllerKey(INJECTOR_KEY), _this.injector);\n // Wire up the ng1\n rootScope to run a digest cycle whenever the zone settles\n // We need to do this in the next tick so that\n we don't prevent the bootstrap\n // stabilizing\n setTimeout(function () {\n var\n $rootScope = $injector.get('$rootScope');\n var subscription =

```

```

_this.ngZone.onMicrotaskEmpty.subscribe(function () {\n
 if (core.isDevMode()) {\n
 console.warn('A digest was triggered while one was already in
progress. This may mean that something is triggering digests outside the Angular zone.');

```

Found in path(s):

\* /upgrade-11-0-2-tgz/package/bundles/upgrade-static.umd.min.js.map

No license file was found, but licenses were detected in source scan.

```

/**
 * @license Angular v11.0.2
 * (c) 2010-2020 Google LLC. https://angular.io/
 * License: MIT
 */
/**
 * @license

```

```

* Copyright Google LLC All Rights Reserved.
*
* Use of this source code is governed by an MIT-style license that can be
* found in the LICENSE file at https://angular.io/license
*/

```

Found in path(s):

```

* /upgrade-11-0-2-tgz/package/bundles/upgrade-static-testing.umd.min.js
* /upgrade-11-0-2-tgz/package/bundles/upgrade-static-testing.umd.js
* /upgrade-11-0-2-tgz/package/bundles/upgrade-static.umd.min.js

```

No license file was found, but licenses were detected in source scan.

```

{"version":3,"file":"static.js","sources":["../../../../../packages/upgrade/src/common/src/angular1.ts","../../../../../pa
ckages/upgrade/src/common/src/constants.ts","../../../../../packages/upgrade/src/common/src/component_info.ts","..
../../../../../packages/upgrade/src/common/src/util.ts","../../../../../packages/upgrade/src/common/src/downgrade_co
mponent_adapter.ts","../../../../../packages/upgrade/src/common/src/promise_util.ts","../../../../../packages/upgrade
/src/common/src/downgrade_component.ts","../../../../../packages/upgrade/src/common/src/downgrade_injectable.t
s","../../../../../packages/upgrade/src/common/src/version.ts","../../../../../packages/upgrade/static/src/angular1_pro
viders.ts","../../../../../packages/upgrade/static/src/util.ts","../../../../../packages/upgrade/static/src/downgrade_mod
ule.ts","../../../../../packages/upgrade/src/common/src/upgrade_helper.ts","../../../../../packages/upgrade/static/src/u
pgrade_component.ts","../../../../../packages/upgrade/static/src/upgrade_module.ts","../../../../../packages/upgrade/s
tatic/public_api.ts","../../../../../packages/upgrade/static/index.ts","../../../../../packages/upgrade/static/static.ts"],"so
urcesContent":["/*\n

```

```

* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nexport type
Ng1Token = string;\n\nexport type Ng1Expression = string|Function;\n\nexport interface IAnnotatedFunction
extends Function {\n // Older versions of `@types/angular` typings extend the global `Function` interface with\n //
`$inject?: string[]`, which is not compatible with `$inject?: ReadonlyArray<string>` (used in\n // latest versions).\n
$inject?: Function extends {$inject?: string[]}? Ng1Token[]: ReadonlyArray<Ng1Token>;\n}\n\nexport type
IInjectable
= (Ng1Token|Function)[]|IAnnotatedFunction;\n\nexport type SingleOrListOrMap<T> = T|T[]|{[key: string]:
T};\n\nexport interface IModule {\n name: string;\n requires: (string|IInjectable)[];\n config(fn: IInjectable):
IModule;\n directive(selector: string, factory: IInjectable): IModule;\n component(selector: string, component:
IComponent): IModule;\n controller(name: string, type: IInjectable): IModule;\n factory(key: Ng1Token,
factoryFn: IInjectable): IModule;\n value(key: Ng1Token, value: any): IModule;\n constant(token: Ng1Token,
value: any): IModule;\n run(a: IInjectable): IModule;\n}\n\nexport interface ICompileService {\n (element:
Element|NodeList|Node[])string, transclude?: Function): ILinkFn;\n}\n\nexport interface ILinkFn {\n (scope: IScope,
cloneAttachFn?: ICloneAttachFunction, options?: ILinkFnOptions): IAugmentedJQuery;\n $$slots?: {[slotName:
string]: ILinkFn};\n}\n\nexport interface ILinkFnOptions {\n parentBoundTranscludeFn?: Function;\n
transcludeControllers?:
{[key: string]: any};\n futureParentElement?: Node;\n}\n\nexport interface IRootScopeService {\n $new(isolate?:
boolean): IScope;\n $id: string;\n $parent: IScope;\n $root: IScope;\n $watch(exp: Ng1Expression, fn?: (a1?: any,
a2?: any) => void): Function;\n $on(event: string, fn?: (event?: any, ...args: any[]) => void): Function;\n $destroy():
any;\n $apply(exp?: Ng1Expression): any;\n $digest(): any;\n $evalAsync(exp: Ng1Expression, locals?: any):
void;\n $on(event: string, fn?: (event?: any, ...args: any[]) => void): Function;\n $$childTail: IScope;\n
$$childHead: IScope;\n $$nextSibling: IScope;\n [key: string]: any;\n}\n\nexport interface IScope extends
IRootScopeService {\n}\n\nexport interface IAngularBootstrapConfig {\n strictDi?: boolean;\n}\n\nexport interface
IDirective {\n compile?: IDirectiveCompileFn;\n controller?: IController;\n controllerAs?: string;\n

```

```

bindToController?: boolean|{[key: string]: string};\n link?: IDirectiveLinkFn|IDirectivePrePost;\n
 name?: string;\n priority?: number;\n replace?: boolean;\n require?: DirectiveRequireProperty;\n restrict?:
string;\n scope?: boolean|{[key: string]: string};\n template?: string|Function;\n templateUrl?: string|Function;\n
templateNamespace?: string;\n terminal?: boolean;\n transclude?: DirectiveTranscludeProperty;\n}\n\nexport type
DirectiveRequireProperty = SingleOrListOrMap<string>;\n\nexport type DirectiveTranscludeProperty =
boolean|'element'|{[key: string]: string};\n\nexport interface IDirectiveCompileFn {\n (templateElement:
IAugmentedJQuery, templateAttributes: IAttributes,\n transclude: ITranscludeFunction):
IDirectivePrePost;\n}\n\nexport interface IDirectivePrePost {\n pre?: IDirectiveLinkFn;\n post?:
IDirectiveLinkFn;\n}\n\nexport interface IDirectiveLinkFn {\n (scope: IScope, instanceElement: IAugmentedJQuery,
instanceAttributes: IAttributes,\n controller: any, transclude: ITranscludeFunction): void;\n}\n\nexport interface
IComponent {\n bindings?: {[key: string]:
string};\n controller?: string|IInjectable;\n controllerAs?: string;\n require?: DirectiveRequireProperty;\n
 template?: string|Function;\n templateUrl?: string|Function;\n transclude?:
DirectiveTranscludeProperty;\n}\n\nexport interface IAttributes {\n $observe(attr: string, fn: (v: string) => void):
void;\n [key: string]: any;\n}\n\nexport interface ITranscludeFunction {\n // If the scope is provided, then the
cloneAttachFn must be as well.\n (scope: IScope, cloneAttachFn: ICloneAttachFunction): IAugmentedJQuery;\n //
If one argument is provided, then it's assumed to be the cloneAttachFn.\n (cloneAttachFn?: ICloneAttachFunction):
IAugmentedJQuery;\n}\n\nexport interface ICloneAttachFunction {\n (clonedElement: IAugmentedJQuery, scope:
IScope): any;\n}\n\nexport type IAugmentedJQuery = Node[]&{\n on?: (name: string, fn: () => void) => void;\n
 data?: (name: string, value?: any) => any;\n text?: () => string;\n inheritedData?: (name: string, value?: any) =>
any;\n contents?:
() => IAugmentedJQuery;\n parent?: () => IAugmentedJQuery;\n empty?: () => void;\n append?: (content:
IAugmentedJQuery|string) => IAugmentedJQuery;\n controller?: (name: string) => any;\n isolateScope?: () =>
IScope;\n injector?: () => IInjectorService;\n triggerHandler?: (eventTypeOrObject: string|Event, extraParameters?:
any[]) => IAugmentedJQuery;\n remove?: () => void;\n removeData?: () => void;\n};\n\nexport interface IProvider
{\n $get: IInjectable;\n}\n\nexport interface IProvideService {\n provider(token: Ng1Token, provider: IProvider):
IProvider;\n factory(token: Ng1Token, factory: IInjectable): IProvider;\n service(token: Ng1Token, type:
IInjectable): IProvider;\n value(token: Ng1Token, value: any): IProvider;\n constant(token: Ng1Token, value: any):
void;\n decorator(token: Ng1Token, factory: IInjectable): void;\n}\n\nexport interface IParseService {\n (expression:
string): ICompiledExpression;\n}\n\nexport interface ICompiledExpression {\n (context: any, locals: any):
any;\n assign?: (context: any, value: any) => any;\n}\n\nexport interface IHttpBackendService {\n (method: string,
url: string, post?: any, callback?: Function, headers?: any, timeout?: number,\n withCredentials?: boolean):
void;\n}\n\nexport interface ICacheObject {\n put<T>(key: string, value?: T): T;\n get(key: string): any;\n}\n\nexport
interface ITemplateCacheService extends ICacheObject {}\n\nexport interface ITemplateRequestService {\n
(template: string|any /* TrustedResourceUrl */, ignoreRequestError?: boolean): Promise<string>;\n
totalPendingRequests: number;\n}\n\nexport type IController = string|IInjectable;\n\nexport interface IControllerService
{\n (controllerConstructor: IController, locals?: any, later?: any, ident?: any): any;\n (controllerName: string,
locals?: any): any;\n}\n\nexport interface IInjectorService {\n get(key: string): any;\n has(key: string):
boolean;\n}\n\nexport interface IIntervalService {\n (func: Function, delay: number, count?: number,
invokeApply?:
boolean,\n ...args: any[]): Promise<any>;\n cancel(promise: Promise<any>): boolean;\n}\n\nexport interface
ITestabilityService {\n findBindings(element: Element, expression: string, opt_exactMatch?: boolean): Element[];\n
 findModels(element: Element, expression: string, opt_exactMatch?: boolean): Element[];\n getLocation(): string;\n
 setLocation(url: string): void;\n whenStable(callback: Function): void;\n}\n\nexport interface INgModelController
{\n $render(): void;\n $isEmpty(value: any): boolean;\n $setValidity(validationErrorKey: string, isValid: boolean):
void;\n $setPristine(): void;\n $setDirty(): void;\n $setUntouched(): void;\n $setTouched(): void;\n
 $rollbackViewValue(): void;\n $validate(): void;\n $commitViewValue(): void;\n $setViewValue(value: any,
trigger: string): void;\n $viewValue: any;\n $modelValue: any;\n $parsers: Function[];\n $formatters:

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Function[];\n $validators: {[key: string]: Function};\n $asyncValidators: {[key: string]: Function};\n
$viewChangeListener: Function[];\n $error: Object;\n $pending: Object;\n $untouched: boolean;\n $touched:
boolean;\n $pristine: boolean;\n $dirty: boolean;\n $valid: boolean;\n $invalid: boolean;\n $name:
string;\n}\n\nfunction noNg(): never {\n throw new Error('AngularJS v1.x is not loaded!');\n}\n\nconst
noNgElement: typeof angular.element = ((() => noNg()) as any);\nnoNgElement.cleanData = noNg;\n\nlet angular:
{\n bootstrap: (e: Element, modules: (string|IInjectable)[], config?: IAngularBootstrapConfig) =>\n
InjectorService,\n module: (prefix: string, dependencies?: string[]) => IModule,\n element: {\n (e:
string|Element|Document|IAugmentedJQuery): IAugmentedJQuery;\n cleanData: (nodes: Node[]|NodeList) =>
void;\n },\n injector: (modules: Array<string|IInjectable>, strictDi?: boolean) => InjectorService,\n version:
{major: number},\n resumeBootstrap: () => void,\n getTestability: (e: Element) => ITestabilityService\n} = {\n
bootstrap: noNg,\n
module: noNg,\n element: noNgElement,\n injector: noNg,\n version: undefined as any,\n resumeBootstrap:
noNg,\n getTestability: noNg\n};\n\ntry {\n if (window.hasOwnProperty('angular')) {\n angular =
(<any>window).angular;\n }\n} catch {\n // ignore in CJS mode.\n}\n\n/**\n * @deprecated Use
`setAngularJSGlobal` instead.\n *\n * @publicApi\n */\n\nexport function setAngularLib(ng: any): void {\n
setAngularJSGlobal(ng);\n}\n\n/**\n * @deprecated Use `getAngularJSGlobal` instead.\n *\n * @publicApi\n */\n\nexport function getAngularLib(): any {\n return getAngularJSGlobal();\n}\n\n/**\n * Resets the AngularJS
global.\n *\n * Used when AngularJS is loaded lazily, and not available on `window`.\n *\n * @publicApi\n */\n\nexport function setAngularJSGlobal(ng: any): void {\n angular = ng;\n}\n\n/**\n * Returns the current
AngularJS global.\n *\n * @publicApi\n */\n\nexport function getAngularJSGlobal(): any {\n return
angular;\n}\n\nexport const bootstrap: typeof angular.bootstrap
= (e, modules, config?) =>\n angular.bootstrap(e, modules, config);\n\n// Do not declare as `module` to avoid
webpack bug\n// (see https://github.com/angular/angular/issues/30050).\nexport const module_: typeof
angular.module = (prefix, dependencies?) =>\n angular.module(prefix, dependencies);\n\nexport const element:
typeof angular.element = (e => angular.element(e)) as typeof angular.element;\nelement.cleanData = nodes =>
angular.element.cleanData(nodes);\n\nexport const injector: typeof angular.injector =\n (modules:
Array<string|IInjectable>, strictDi?: boolean) => angular.injector(modules, strictDi);\n\nexport const
resumeBootstrap: typeof angular.resumeBootstrap = () => angular.resumeBootstrap();\n\nexport const
getTestability: typeof angular.getTestability = e => angular.getTestability(e);\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at
https://angular.io/license\n */\n\nexport const $COMPILE = '$compile';\nexport const $CONTROLLER =
'$controller';\nexport const $DELEGATE = '$delegate';\nexport const $EXCEPTION_HANDLER =
'$exceptionHandler';\nexport const $HTTP_BACKEND = '$httpBackend';\nexport const $INJECTOR =
'$injector';\nexport const $INTERVAL = '$interval';\nexport const $PARSE = '$parse';\nexport const $PROVIDE =
'$provide';\nexport const $ROOT_SCOPE = '$rootScope';\nexport const $SCOPE = '$scope';\nexport const
$TEMPLATE_CACHE = '$templateCache';\nexport const $TEMPLATE_REQUEST =
'$templateRequest';\n\nexport const $$TESTABILITY = '$$testability';\n\nexport const COMPILER_KEY =
'$$angularCompiler';\nexport const DOWNGRADED_MODULE_COUNT_KEY =
'$$angularDowngradedModuleCount';\nexport const GROUP_PROJECTABLE_NODES_KEY =
'$$angularGroupProjectableNodes';\nexport const INJECTOR_KEY = '$$angularInjector';\nexport const
LAZY_MODULE_REF = '$$angularLazyModuleRef';\nexport const NG_ZONE_KEY =
'$$angularNgZone';\n\nexport
const UPGRADE_APP_TYPE_KEY = '$$angularUpgradeAppType';\n\nexport const REQUIRE_INJECTOR =
'?^^' + INJECTOR_KEY;\nexport const REQUIRE_NG_MODEL = '?ngModel';\n\nexport const
UPGRADE_MODULE_NAME = '$$UpgradeModule';\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n/**\n * A `PropertyBinding` represents a mapping between a

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property name\n * and an attribute name. It is parsed from a string of the form\n * `"prop: attr"`; or simply
`"propAndAttr"` where the property\n * and attribute have the same identifier.\n * /\nexport class PropertyBinding
{\n // TODO(issue/24571): remove '!'\n bracketAttr!: string;\n // TODO(issue/24571): remove '!'\n
bracketParenAttr!: string;\n // TODO(issue/24571): remove '!'\n parenAttr!: string;\n // TODO(issue/24571):
remove '!'\n onAttr!: string;\n // TODO(issue/24571): remove '!'\n
bindAttr!: string;\n // TODO(issue/24571): remove '!'\n bindonAttr!: string;\n\n constructor(public prop: string,
public attr: string) {\n this.parseBinding();\n }\n\n private parseBinding() {\n this.bracketAttr =
`[${this.attr}]`; \n this.parenAttr = `(${this.attr})`; \n this.bracketParenAttr = `[(${this.attr})]`; \n const
capitalAttr = this.attr.charAt(0).toUpperCase() + this.attr.substr(1);\n this.onAttr = `on${capitalAttr}`;\n
this.bindAttr = `bind${capitalAttr}`;\n this.bindonAttr = `bindon${capitalAttr}`;\n }\n}\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n * /\n\nimport {Injector, Type} from
'@angular/core';\n\nimport {IInjectorService, INgModelController} from './angular1';\n\nimport
{DOWNGRADED_MODULE_COUNT_KEY, UPGRADE_APP_TYPE_KEY} from './constants';\n\nconst
DIRECTIVE_PREFIX_REGEXP
= /^(?:x|data)[\:\-_\]/i;\nconst DIRECTIVE_SPECIAL_CHARS_REGEXP = /[\:\-_\+]/g;\n\nexport function
onError(e: any) {\n // TODO: (misko): We seem to not have a stack trace here!\n if (console.error) {\n
console.error(e, e.stack);\n } else {\n // tslint:disable-next-line:no-console\n console.log(e, e.stack);\n }\n throw
e;\n}\n\nexport function controllerKey(name: string): string {\n return '$' + name + 'Controller';\n}\n\nexport
function directiveNormalize(name: string): string {\n return name.replace(DIRECTIVE_PREFIX_REGEXP, "")\n
.replace(DIRECTIVE_SPECIAL_CHARS_REGEXP, (_, letter) => letter.toUpperCase());\n}\n\nexport function
getTypeName(type: Type<any>): string {\n // Return the name of the type or the first line of its stringified
version.\n return (type as any).overriddenName || type.name || type.toString().split("\n")[0];\n}\n\nexport function
getDowngradedModuleCount($injector: IInjectorService): number {\n return
$injector.has(DOWNGRADED_MODULE_COUNT_KEY)
? $injector.get(DOWNGRADED_MODULE_COUNT_KEY) : 0;\n}\n\nexport
function getUpgradeAppType($injector: IInjectorService): UpgradeAppType {\n return
$injector.has(UPGRADE_APP_TYPE_KEY) ? $injector.get(UPGRADE_APP_TYPE_KEY) :
UpgradeAppType.None;\n}\n\nexport function isFunction(value: any): value is Function {\n return typeof
value === 'function';\n}\n\nexport function validateInjectionKey(\n $injector: IInjectorService,
downgradedModule: string, injectionKey: string,\n attemptedAction: string): void {\n const upgradeAppType =
getUpgradeAppType($injector);\n const downgradedModuleCount = getDowngradedModuleCount($injector);\n\n
// Check for common errors.\n switch (upgradeAppType) {\n case UpgradeAppType.Dynamic:\n case
UpgradeAppType.Static:\n if (downgradedModule) {\n throw new Error(`Error while
${attemptedAction}: 'downgradedModule'
unexpectedly specified.` +\n `You should not specify a value for `downgradedModule`, unless you are
downgrading ` +\n `more than one Angular module (via `downgradeModule`).`);\n } \n break;\n
case UpgradeAppType.Lite:\n if (!downgradedModule && (downgradedModuleCount >= 2)) {\n throw new
Error(`Error while ${attemptedAction}: 'downgradedModule' not specified.` +\n `This application
contains more than one downgraded Angular module, thus you need to ` +\n `always specify
`downgradedModule` when downgrading components and injectables.`);\n } \n\n if
(!$injector.has(injectionKey)) {\n throw new Error(`Error while ${attemptedAction}: Unable to find
the specified downgraded module.` +\n `Did you forget to downgrade an Angular module or include it in
the AngularJS ` +\n `application?`);\n } \n\n break;\n default:\n throw
new Error(`Error while ${attemptedAction}: Not a valid '@angular/upgrade' application.` +\n `Did
you forget to downgrade an Angular module or include it in the AngularJS ` +\n `application?`);\n
}\n}\n\nexport class Deferred<R> {\n promise: Promise<R>;\n // TODO(issue/24571): remove '!'\n resolve!:
(value?: R|PromiseLike<R>) => void;\n // TODO(issue/24571): remove '!'\n reject!: (error?: any) => void;\n\n

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constructor() {\n this.promise = new Promise((res, rej) => {\n this.resolve = res;\n this.reject = rej;\n });\n}\n}\n\nexport interface LazyModuleRef {\n injector?: Injector;\n promise?: Promise<Injector>;\n}\n\nexport\nconst enum UpgradeAppType {\n // App NOT using `@angular/upgrade`. (This should never happen in an\n `ngUpgrade` app.)\n None,\n // App using the deprecated `@angular/upgrade` APIs (a.k.a. dynamic\n `ngUpgrade`).\n Dynamic,\n // App using `@angular/upgrade/static` with `UpgradeModule`.\n Static,\n // App using `@angular/upgrade/static` with `downgradeModule()` (a.k.a `ngUpgrade-lite`).\n Lite,\n}\n\n/**\n * @return Whether the passed-in component implements the subset of the\n * `ControlValueAccessor` interface needed for AngularJS `ng-model`\n * compatibility.\n */\nfunction supportsNgModel(component: any) {\n return\n typeof component.writeValue === 'function' &&\n typeof component.registerOnChange ===\n 'function';\n}\n\n/**\n * Glue the AngularJS `NgModelController` (if it exists) to the component\n * (if it implements the needed subset of the `ControlValueAccessor`\n * interface).\n */\nexport function\nhookupNgModel(ngModel: INgModelController, component: any) {\n if (ngModel &&\n supportsNgModel(component)) {\n ngModel.$render = () => {\n component.writeValue(ngModel.$viewValue);\n };\n component.registerOnChange(ngModel.$setViewValue.bind(ngModel));\n if (typeof\n component.registerOnTouched === 'function') {\n component.registerOnTouched(ngModel.$setTouched.bind(ngModel));\n }\n }\n}\n\n/**\n * Test two values for strict equality, accounting for the fact that `NaN !== NaN`.\n */\nexport\nfunction strictEquals(val1: any, val2: any): boolean {\n return val1 === val2 || (val1 !== val1 && val2 !==\n val2);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is\n * governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {ApplicationRef, ChangeDetectorRef, ComponentFactory, ComponentRef, EventEmitter, Injector,\n OnChanges, SimpleChange, SimpleChanges, StaticProvider, Testability, TestabilityRegistry, Type} from\n '@angular/core';\nimport {IAttributes, IAugmentedJQuery, ICompileService, IInjectorService,\n INgModelController, IParseService, IScope} from './angular1';\nimport {PropertyBinding} from\n './component_info';\nimport {$SCOPE} from './constants';\nimport {getTypeName, hookupNgModel, strictEquals}\n from './util';\n\nconst\n INITIAL_VALUE = {\n __UNINITIALIZED__: true\n };\n\nexport class DowngradeComponentAdapter {\n private implementsOnChanges = false;\n private inputChangeCount: number = 0;\n private inputChanges:\n SimpleChanges = {};\n private componentScope: IScope;\n // TODO(issue/24571): remove '!'.\n private\n componentRef!: ComponentRef<any>;\n private component: any;\n // TODO(issue/24571): remove '!'.\n private\n changeDetector!: ChangeDetectorRef;\n // TODO(issue/24571): remove '!'.\n private viewChangeDetector!\n : ChangeDetectorRef;\n\n constructor(\n private element: IAugmentedJQuery, private attrs: IAttributes, private\n scope: IScope,\n private ngModel: INgModelController, private parentInjector: Injector,\n private $injector:\n IInjectorService, private $compile: ICompileService,\n private $parse: IParseService, private componentFactory:\n ComponentFactory<any>,\n private wrapCallback: <T>(cb: () => T) => () => T) {\n this.componentScope =\n scope.$new();\n }\n\n compileContents(): Node[][] {\n const compiledProjectableNodes: Node[][] = [];\n const projectableNodes:\n Node[][] = this.groupProjectableNodes();\n const linkFns = projectableNodes.map(nodes =>\n this.$compile(nodes));\n this.element.empty!();\n linkFns.forEach(linkFn => {\n linkFn(this.scope,\n (clone: Node[]) => {\n compiledProjectableNodes.push(clone);\n this.element.append!(clone);\n });\n });\n return compiledProjectableNodes;\n }\n\n createComponent(projectableNodes: Node[][]): {\n const\n providers: StaticProvider[] = [{provide: $SCOPE, useValue: this.componentScope}];\n const childInjector =\n Injector.create(\n {\n providers: providers,\n parent: this.parentInjector,\n name:\n 'DowngradeComponentAdapter'\n });\n this.componentRef =\n this.componentFactory.create(childInjector,\n projectableNodes, this.element[0]);\n this.viewChangeDetector =\n this.componentRef.injector.get(ChangeDetectorRef);\n this.changeDetector =

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this.componentRef.changeDetectorRef;\n this.component = this.componentRef.instance;\n\n // testability hook
is commonly added during component bootstrap in\n // packages/core/src/application_ref.bootstrap()\n // in
downgraded application, component creation will take place here as well as adding the\n // testability hook.\n
const testability = this.componentRef.injector.get(Testability, null);\n if (testability) {\n
this.componentRef.injector.get(TestabilityRegistry)\n
.registerApplication(this.componentRef.location.nativeElement, testability);\n }\n\n
hookupNgModel(this.ngModel, this.component);\n }\n\n setupInputs(manuallyAttachView: boolean,
propagateDigest = true): void {\n const attrs = this.attrs;\n const inputs = this.componentFactory.inputs || [];\n
for (let i = 0; i < inputs.length; i++) {\n const input = new PropertyBinding(inputs[i].propName,
inputs[i].templateName);\n let expr: string|null = null;\n if (attrs.hasOwnProperty(input.attr))
{\n const observeFn = (prop => {\n let prevValue = INITIAL_VALUE;\n return (currValue: any)
=> {\n // Initially, both `$observe()` and `$watch()` will call this function.\n if
(!strictEquals(prevValue, currValue)) {\n if (prevValue === INITIAL_VALUE) {\n prevValue =
currValue;\n }\n this.updateInput(prop, prevValue, currValue);\n prevValue =
currValue;\n }\n });\n })(input.prop);\n attrs.$observe(input.attr, observeFn);\n\n // Use
`$watch()` (in addition to `$observe()`) in order to initialize the input in time\n // for `ngOnChanges()`. This is
necessary if we are already in a `$digest`, which means that\n // `ngOnChanges()` (which is called by a watcher)
will run before the `$observe()` callback.\n let unwatch: Function|null = this.componentScope.$watch(() => {\n
unwatch!();\n
unwatch = null;\n observeFn(attrs[input.attr]);\n });\n\n } else if
(attrs.hasOwnProperty(input.bindAttr)) {\n expr = attrs[input.bindAttr];\n } else if
(attrs.hasOwnProperty(input.bracketAttr)) {\n expr = attrs[input.bracketAttr];\n } else if
(attrs.hasOwnProperty(input.bindonAttr)) {\n expr = attrs[input.bindonAttr];\n } else if
(attrs.hasOwnProperty(input.bracketParenAttr)) {\n expr = attrs[input.bracketParenAttr];\n }\n if (expr !=
null) {\n const watchFn =\n (prop => (currValue: any, prevValue: any) =>\n
this.updateInput(prop, prevValue, currValue))(input.prop);\n this.componentScope.$watch(expr, watchFn);\n
}\n }\n\n // Invoke `ngOnChanges()` and Change Detection (when necessary)\n const detectChanges = () =>
this.changeDetector.detectChanges();\n const prototype = this.componentFactory.componentType.prototype;\n
this.implementsOnChanges
= !(prototype && (<OnChanges>prototype).ngOnChanges);\n\n this.componentScope.$watch(() =>
this.inputChangeCount, this.wrapCallback(() => {\n // Invoke `ngOnChanges()`\n if
(this.implementsOnChanges) {\n const inputChanges = this.inputChanges;\n this.inputChanges = {};\n
(<OnChanges>this.component).ngOnChanges(inputChanges!);\n }\n\n
this.viewChangeDetector.markForCheck();\n\n // If opted out of propagating digests, invoke change detection
when inputs change.\n if (!propagateDigest) {\n detectChanges();\n }\n });\n\n // If not opted out of
propagating digests, invoke change detection on every digest\n if (propagateDigest) {\n
this.componentScope.$watch(this.wrapCallback(detectChanges));\n }\n\n // If necessary, attach the view so that
it will be dirty-checked.\n // (Allow time for the initial input values to be set and `ngOnChanges()` to be called.)\n
if (manuallyAttachView || !propagateDigest)
{\n let unwatch: Function|null = this.componentScope.$watch(() => {\n unwatch!();\n unwatch =
null;\n\n const appRef = this.parentInjector.get<ApplicationRef>(ApplicationRef);\n
appRef.attachView(this.componentRef.hostView);\n });\n }\n\n setupOutputs() {\n const attrs =
this.attrs;\n const outputs = this.componentFactory.outputs || [];\n for (let j = 0; j < outputs.length; j++) {\n
const output = new PropertyBinding(outputs[j].propName, outputs[j].templateName);\n const bindonAttr =
output.bindonAttr.substring(0, output.bindonAttr.length - 6);\n const bracketParenAttr =\n
`${($ {output.bracketParenAttr.substring(2, output.bracketParenAttr.length - 8)})}`;\n // order below is important -
first update bindings then evaluate expressions\n if (attrs.hasOwnProperty(bindonAttr)) {\n
this.subscribeToOutput(output, attrs[bindonAttr], true);\n }\n if (attrs.hasOwnProperty(bracketParenAttr))

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{\n this.subscribeToOutput(output, attrs[bracketParenAttr], true);\n }\n if\n(attrs.hasOwnProperty(output.onAttr)) {\n this.subscribeToOutput(output, attrs[output.onAttr]);\n }\n if\n(attrs.hasOwnProperty(output.parenAttr)) {\n this.subscribeToOutput(output, attrs[output.parenAttr]);\n }\n }\n\n private subscribeToOutput(output: PropertyBinding, expr: string, isAssignment: boolean = false) {\n const getter = this.$parse(expr);\n const setter = getter.assign;\n if (isAssignment && !setter) {\n throw new\nError(`Expression '${expr}' is not assignable!`);\n }\n const emitter = this.component[output.prop] as\nEventEmitter<any>;\n if (emitter) {\n emitter.subscribe({\n next: isAssignment ? (v: any) =>\nsetter!(this.scope, v) :\n\n (v: any) => getter(this.scope, {'$event': v})\n });\n } else {\n throw\nnew Error(`Missing emitter '${output.prop}' on component '${\n\n getTypeName(this.componentFactory.componentType)}'!`);\n }\n }\n\n registerCleanup() {\n const\ntestabilityRegistry = this.componentRef.injector.get(TestabilityRegistry);\n const destroyComponentRef =\nthis.wrapCallback(() => this.componentRef.destroy());\n let destroyed = false;\n\n this.element.on!('$destroy', ()\n=> this.componentScope.$destroy());\n this.componentScope.$on('$destroy', () => {\n if (!destroyed) {\n destroyed = true;\n testabilityRegistry.unregisterApplication(this.componentRef.location.nativeElement);\n destroyComponentRef();\n }\n });\n }\n\n getInjector(): Injector {\n return this.componentRef.injector;\n }\n\n private updateInput(prop: string, prevValue: any, currValue: any) {\n if (this.implementsOnChanges) {\n this.inputChanges[prop] = new SimpleChange(prevValue, currValue, prevValue === currValue);\n }\n\n this.inputChangeCount++;\n this.component[prop] = currValue;\n }\n\n groupProjectableNodes() {\n let ngContentSelectors = this.componentFactory.ngContentSelectors;\n return\ngroupNodesBySelector(ngContentSelectors, this.element.contents!());\n }\n\n /**\n * Group a set of DOM nodes\ninto `ngContent` groups, based on the given content selectors.\n */\n nexport function\ngroupNodesBySelector(ngContentSelectors: string[], nodes: Node[]): Node[][] {\n const projectableNodes:\nNode[][] = [];\n let wildcardNgContentIndex: number;\n\n for (let i = 0, ii = ngContentSelectors.length; i < ii; ++i)\n{\n projectableNodes[i] = [];\n }\n\n for (let j = 0, jj = nodes.length; j < jj; ++j) {\n const node = nodes[j];\n const ngContentIndex = findMatchingNgContentIndex(node, ngContentSelectors);\n if (ngContentIndex != null)\n{\n projectableNodes[ngContentIndex].push(node);\n }\n }\n\n return projectableNodes;\n }\n\n function\nfindMatchingNgContentIndex(element: any, ngContentSelectors: string[]): number|null {\n const ngContentIndices:\nnumber[]\n= [];\n let wildcardNgContentIndex: number = -1;\n\n for (let i = 0; i < ngContentSelectors.length; i++) {\n const\nselector = ngContentSelectors[i];\n if (selector === '*') {\n wildcardNgContentIndex = i;\n } else {\n if\n(matchesSelector(element, selector)) {\n ngContentIndices.push(i);\n }\n }\n }\n\n ngContentIndices.sort();\n\n if (wildcardNgContentIndex !== -1) {\n ngContentIndices.push(wildcardNgContentIndex);\n }\n\n return ngContentIndices.length ? ngContentIndices[0] :\nnull;\n }\n\n let _matches: (this: any, selector: string) => boolean;\n\n function matchesSelector(el: any, selector:\nstring): boolean {\n if (!_matches) {\n const elProto = <any>Element.prototype;\n _matches = elProto.matches\n|| elProto.matchesSelector\n|| elProto.msMatchesSelector\n|| elProto.oMatchesSelector\n|| elProto.webkitMatchesSelector;\n }\n\n return el.nodeType ===\nNode.ELEMENT_NODE ? _matches.call(el, selector) : false;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an\nMIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n import {isFunction}\nfrom './util';\n\n nexport interface Thenable<T> {\n then(callback: (value: T) => any): any;\n }\n\n nexport function\nisThenable<T>(obj: unknown): obj is Thenable<T> {\n return !!obj && isFunction((obj as any).then);\n }\n\n /**\n * Synchronous, promise-like object.\n */\n nexport class SyncPromise<T> {\n protected value: T|undefined;\n\n private resolved = false;\n private callbacks: ((value: T) => unknown)[] = [];\n\n static all<T>(valuesOrPromises:\n(T|Thenable<T>[]): SyncPromise<T> {\n const aggrPromise = new SyncPromise<T>();\n let\nresolvedCount = 0;\n const results: T[] = [];\n const resolve = (idx: number, value: T) => {\n results[idx] =\nvalue;\n if (++resolvedCount === valuesOrPromises.length) aggrPromise.resolve(results);\n }\n }\n }\n}
```

```

};\n\n valuesOrPromises.forEach((p, idx) => {\n if (isThenable(p)) {\n p.then(v => resolve(idx, v));\n } else {\n resolve(idx, p);\n }\n});\n\n return aggrPromise;\n }\n\n resolve(value: T): void {\n // Do nothing, if already resolved.\n if (this.resolved) return;\n\n this.value = value;\n this.resolved = true;\n\n // Run the queued callbacks.\n this.callbacks.forEach(callback => callback(value));\n this.callbacks.length = 0;\n\n}\n\n then(callback: (value: T) => unknown): void {\n if (this.resolved) {\n callback(this.value!);\n } else {\n this.callbacks.push(callback);\n }\n}\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { ComponentFactory, ComponentFactoryResolver, Injector, NgZone, Type } from '@angular/core';\n\nimport {\n IAnnotatedFunction, IAttributes, IAugmentedJQuery, ICompileService, IDirective, IInjectorService, INgModelController, IParseService, IScope\n} from './angular1';\n\nimport { $COMPILE, $INJECTOR, $PARSE, INJECTOR_KEY, LAZY_MODULE_REF, REQUIRE_INJECTOR, REQUIRE_NG_MODEL } from './constants';\n\nimport { DowngradeComponentAdapter } from './downgrade_component_adapter';\n\nimport { SyncPromise, Thenable } from './promise_util';\n\nimport { controllerKey, getDowngradedModuleCount, getTypeName, getUpgradeAppType, LazyModuleRef, UpgradeAppType, validateInjectionKey } from './util';\n\n/**\n * @description\n * A helper function that allows an Angular component to be used from AngularJS.\n * Part of the [upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that support AOT compilation.\n * This helper function returns a factory function to be used for registering\n * an AngularJS wrapper directive for "downgrading" an Angular component.\n * @usageNotes\n * ###\n * Examples\n *\n * Let's assume that you have an Angular component called `ng2Heroes` that needs\n * to be made available in AngularJS templates.\n * { @example upgrade/static/ts/full/module.ts region="ng2-heroes" }\n * We must create an AngularJS [directive](https://docs.angularjs.org/guide/directive)\n * that will make this Angular component available inside AngularJS templates.\n * The `downgradeComponent()` function returns a factory function that we\n * can use to define the AngularJS directive that wraps the "downgraded" component.\n * { @example upgrade/static/ts/full/module.ts region="ng2-heroes-wrapper" }\n * For more details and examples on downgrading Angular components to AngularJS components please\n * visit the [Upgrade guide](guide/upgrade#using-angular-components-from-angularjs-code).\n * @param info contains information about the Component that is being downgraded:\n * - `component: Type<any>`: The type of the Component that will be downgraded\n * - `downgradedModule?: string`: The name of the downgraded module (if any) that the component\n * belongs to", as returned by a call to `downgradeModule()`. It is the module, whose\n * corresponding Angular module will be bootstrapped, when the component needs to be instantiated.\n * (This option is only necessary when using `downgradeModule()` to downgrade more than one\n * Angular module.)\n * - `propagateDigest?: boolean`: Whether to perform { @link ChangeDetectorRef#detectChanges\n * change detection } on the component on every\n * [$digest](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest). If set to `false`,\n * change detection will still be performed when any of the component's inputs changes.\n * (Default: true)\n * @returns a factory function that can be used to register the component in an\n * AngularJS module.\n * @publicApi\n *\n * @next export function downgradeComponent(info: {\n * component: Type<any>;\n * downgradedModule?: string;\n * propagateDigest?: boolean;\n * }) /** @deprecated since v4. This parameter is no longer used *\n * inputs?: string[];\n * /** @deprecated since v4. This parameter is no longer used *\n * outputs?: string[];\n * /** @deprecated since v4. This parameter is no longer used *\n * selectors?: string[]; }): any /* angular.IInjectable */ {\n * const\n * directiveFactory: IAnnotatedFunction = function(\n * $compile: ICompileService, $injector: IInjectorService,\n * $parse: IParseService): IDirective {\n * // When using `downgradeModule()`, we need to handle certain things specially. For example:\n * // - We always need to attach the component view to the `ApplicationRef` for it to be\n * // dirty-checked.\n * // - We need to ensure callbacks to Angular APIs (e.g. change detection) are run inside the\n * // Angular zone.\n * // NOTE: This is not needed, when using `UpgradeModule`, because `digest()` will be run\n * // inside the Angular zone (except if explicitly escaped, in

```

```

which case we shouldn't\n // force it back in).\n const isNgUpgradeLite = getUpgradeAppType($injector)
=== UpgradeAppType.Lite;\n const wrapCallback: <T>(cb: () => T) => typeof cb =\n !isNgUpgradeLite ? cb
=> cb : cb => () => NgZone.isInAngularZone() ? cb() : ngZone.run(cb);\n let ngZone: NgZone;\n\n // When
downgrading multiple modules, special handling is needed wrt injectors.\n const hasMultipleDowngradedModules
=\n isNgUpgradeLite && (getDowngradedModuleCount($injector) > 1);\n\n return {\n restrict: 'E',\n
terminal: true,\n require: [REQUIRE_INJECTOR, REQUIRE_NG_MODEL],\n link: (scope: IScope,
element: IAugmentedJQuery, attrs: IAttributes, required: any[]) => {\n // We might have to compile the
contents asynchronously, because this might have been\n // triggered by
`UpgradeNg1ComponentAdapterBuilder`, before the Angular templates have\n // been compiled.\n\n const
ngModel: INgModelController
= required[1];\n const parentInjector: Injector|Thenable<Injector>|undefined = required[0];\n let
moduleInjector: Injector|Thenable<Injector>|undefined = undefined;\n let ranAsync = false;\n\n if
(!parentInjector || hasMultipleDowngradedModules) {\n const downgradedModule = info.downgradedModule
|| "";\n const lazyModuleRefKey = `${LAZY_MODULE_REF}${downgradedModule}`;\n const
attemptedAction = `instantiating component '${getTypeName(info.component)}';\n\n
validateInjectionKey($injector, downgradedModule, lazyModuleRefKey, attemptedAction);\n\n const
lazyModuleRef = $injector.get(lazyModuleRefKey) as LazyModuleRef;\n moduleInjector =
lazyModuleRef.injector || lazyModuleRef.promise as Promise<Injector>;\n }\n\n // Notes:\n //\n //
There are two injectors: `finalModuleInjector` and `finalParentInjector` (they might be\n // the same instance,
but that is irrelevant);\n\n
// - `finalModuleInjector` is used to retrieve `ComponentFactoryResolver`, thus it must be\n // on the same
tree as the `NgModule` that declares this downgraded component.\n // - `finalParentInjector` is used for all other
injection purposes.\n // (Note that Angular knows to only traverse the component-tree part of that injector,\n
// when looking for an injectable and then switch to the module injector.)\n //\n // There are basically three
cases:\n // - If there is no parent component (thus no `parentInjector`), we bootstrap the downgraded\n //
`NgModule` and use its injector as both `finalModuleInjector` and\n // `finalParentInjector`.\n // - If there
is a parent component (and thus a `parentInjector`) and we are sure that it\n // belongs to the same `NgModule`
as this downgraded component (e.g. because there is only\n // one downgraded module, we use that
`parentInjector` as both `finalModuleInjector`
and\n // `finalParentInjector`.\n // - If there is a parent component, but it may belong to a different
`NgModule`, then we\n // use the `parentInjector` as `finalParentInjector` and this downgraded component's\n
// declaring `NgModule`'s injector as `finalModuleInjector`.\n // Note 1: If the `NgModule` is already
bootstrapped, we just get its injector (we don't\n // bootstrap again).\n // Note 2: It is possible that
(while there are multiple downgraded modules) this\n // downgraded component and its parent component
both belong to the same NgModule.\n // In that case, we could have used the `parentInjector` as both\n
// `finalModuleInjector` and `finalParentInjector`, but (for simplicity) we are\n // treating this case
as if they belong to different `NgModule`s. That doesn't\n // really affect anything, since `parentInjector`
has `moduleInjector` as ancestor\n // and trying to resolve `ComponentFactoryResolver` from either one
will return\n // the same instance.\n\n // If there is a parent component, use its injector as parent
injector.\n // If this is a "top-level" Angular component, use the module injector.\n const
finalParentInjector = parentInjector || moduleInjector!;\n\n // If this is a "top-level" Angular component or the
parent component may belong to a\n // different `NgModule`, use the module injector for module-specific
dependencies.\n // If there is a parent component that belongs to the same `NgModule`, use its injector.\n
const finalModuleInjector = moduleInjector || parentInjector!;\n\n const doDowngrade = (injector: Injector,
moduleInjector: Injector) => {\n // Retrieve `ComponentFactoryResolver` from the injector tied to the
`NgModule` this\n // component belongs to.\n\n
const componentFactoryResolver: ComponentFactoryResolver =\n
moduleInjector.get(ComponentFactoryResolver);\n const componentFactory: ComponentFactory<any> =\n

```

```

componentFactoryResolver.resolveComponentFactory(info.component)!;\n\n if (!componentFactory) {\n throw new Error(`Expecting ComponentFactory for: ${getTypeName(info.component)}`);\n }\n\n const injectorPromise = new ParentInjectorPromise(element);\n const facade = new DowngradeComponentAdapter(\n element, attrs, scope, ngModel, injector, $injector, $compile, $parse,\n componentFactory, wrapCallback);\n\n const projectableNodes = facade.compileContents();\n\n facade.createComponent(projectableNodes);\n facade.setupInputs(isNgUpgradeLite, info.propagateDigest);\n\n facade.setupOutputs();\n facade.registerCleanup();\n\n injectorPromise.resolve(facade.getInjector());\n\n if (ranAsync) {\n // If this is run async, it is possible that it is not run inside a digest and initial input values will not be detected.\n scope.$evalAsync(() => {});\n }\n\n const downgradeFn = (\n !isNgUpgradeLite ? doDowngrade : (pInjector: Injector, mInjector: Injector) => {\n if (!ngZone) {\n ngZone = pInjector.get(NgZone);\n }\n\n wrapCallback(() => doDowngrade(pInjector, mInjector));\n });\n\n // NOTE:\n // Not using `ParentInjectorPromise.all()` (which is inherited from `SyncPromise`, because\n // Closure Compiler (or some related tool) complains:\n // `TypeError: ...src.downgrade_component_ParentInjectorPromise.all is not a function`\n\n SyncPromise.all([finalParentInjector, finalModuleInjector]).then(([pInjector, mInjector]) => downgradeFn(pInjector, mInjector));\n\n ranAsync = true;\n };\n};\n\n// bracket-notation because of closure - see #14441\nexport directiveFactory['$inject'] = [$COMPILER, $INJECTOR, $PARSE];\nreturn directiveFactory;\n}\n\n/**\n * Synchronous promise-like object to wrap parent injectors,\n * to preserve the synchronous nature of AngularJS's `$compile`.\n */\nclass ParentInjectorPromise extends SyncPromise<Injector> {\n private injectorKey: string = controllerKey(INJECTOR_KEY);\n\n constructor(private element: IAugmentedJQuery) {\n super();\n\n // Store the promise on the element.\n element.data!(this.injectorKey, this);\n }\n\n resolve(injector: Injector): void {\n // Store the real injector on the element.\n this.element.data!(this.injectorKey, injector);\n\n // Release the element to prevent memory leaks.\n this.element = null!\n\n // Resolve the promise.\n super.resolve(injector);\n }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\nimport {Injector} from '@angular/core';\nimport {IInjectorService} from './angular1';\nimport {$INJECTOR, INJECTOR_KEY} from './constants';\nimport {getTypeName, isFunction, validateInjectionKey} from './util';\n\n/**\n * @description\n *\n * A helper function to allow an Angular service to be accessible from AngularJS.\n *\n * Part of the [upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that support AOT compilation.\n *\n * This helper function returns a factory function that provides access to the Angular\n * service identified by the `token` parameter.\n *\n * @usageNotes\n * ### Examples\n *\n * First ensure that the service to be downgraded is provided in an `NgModule` that will be part of the upgrade application. For example, let's assume we have defined `HeroesService`\n *\n * {@example upgrade/static/ts/full/module.ts region=\"ng2-heroes-service\"}\n *\n * and that we have included this in our upgrade app `NgModule`\n *\n * {@example upgrade/static/ts/full/module.ts region=\"ng2-module\"}\n *\n * Now we can register the `downgradeInjectable` factory function for the service on an AngularJS module.\n *\n * {@example upgrade/static/ts/full/module.ts region=\"downgrade-ng2-heroes-service\"}\n *\n * Inside an AngularJS component's controller we can get hold of the downgraded service via the name we gave when downgrading.\n *\n * {@example upgrade/static/ts/full/module.ts region=\"example-app\"}\n *\n * <div class=\"alert is-important\">\n *\n * When using `downgradeModule()`, downgraded injectables will not be available until the Angular\n * module that provides them is instantiated. In order to be safe, you need to ensure that the downgraded injectables are not used anywhere _outside_ the part of the app where it is guaranteed that their module has been instantiated.\n *\n * For example, it is _OK_ to use a downgraded service in an upgraded component that is only used from a downgraded Angular component provided by the same Angular module as the injectable, but it is _not OK_ to

```



use it in an AngularJS component that may be used independently of Angular or use it in a downgraded Angular component from a different module.

`@param token` an `InjectionToken` that identifies a service provided from Angular.

`@param downgradedModule` the name of the downgraded module (if any) that the injectable "belongs to", as returned by a call to `downgradeModule()`. It is the module, whose injector will be used for instantiating the injectable.

(This option is only necessary when using `downgradeModule()` to downgrade more than one Angular module.)

`@returns` a [factory function](https://docs.angularjs.org/guide/di) that can be used to register the service on an AngularJS module.

```

*

*@publicApi

*export function downgradeInjectable(token: any, downgradedModule: string = ""): Function {

function($injector: IInjectorService) {

 const injectorKey = `${INJECTOR_KEY}${downgradedModule}`;

 const injectableName = isFunction(token) ? getTypeName(token) : String(token);

 const attemptedAction =

 `instantiating injectable '${injectableName}'`;

 validateInjectionKey($injector, downgradedModule,

 injectorKey, attemptedAction);

 try {

 const injector: Injector = $injector.get(injectorKey);

 return injector.get(token);

 } catch (err) {

 throw new Error(`Error while ${attemptedAction}: ${err.message ||

err}`);

 }

 (factory as any)['$inject'] = [$INJECTOR];

 return factory;

}

}/**

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 */

@module

@description

Entry point for all public APIs of the common package.

import {Version} from

'@angular/core';

@publicApi

export const VERSION = new Version('11.0.2');

/**

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 */

import

{IInjectorService} from '../src/common/src/angular1';

// We have to do a little dance to get the ng1 injector into

the module injector.

// We store the ng1 injector so that the provider in the module injector can access it

// Then

we "get" the ng1 injector from the module injector, which triggers the provider to read

// the stored injector and

release the reference to it.

let tempInjectorRef: IInjectorService | null = null;

export function

setTempInjectorRef(injector: IInjectorService) {

 tempInjectorRef = injector;

}

export function

injectorFactory() {

 if

 (!tempInjectorRef) {

 throw new Error("Trying to get the AngularJS injector before it being set.");

 }

 const

 injector: IInjectorService = tempInjectorRef;

 tempInjectorRef = null; // clear the value to prevent memory leaks

 return injector;

}

export function rootScopeFactory(i: IInjectorService) {

 return

 i.get('$rootScope');

}

export function compileFactory(i: IInjectorService) {

 return

 i.get('$compile');

}

export function parseFactory(i: IInjectorService) {

 return i.get('$parse');

}

export

const angular1Providers = [

 // We must use exported named functions for the ng2 factories to keep the compiler

happy:

 // > Metadata collected contains an error that will be reported at runtime:

 // > Function calls are not

supported.

 // > Consider replacing the function or lambda with a reference to an exported function

{provide:

'$injector', useFactory: injectorFactory, deps: []},

{provide: '$rootScope', useFactory: rootScopeFactory, deps:

 ['$injector']},

{provide: '$compile', useFactory: compileFactory, deps: ['$injector']},

{provide: '$parse',

 useFactory: parseFactory, deps: ['$injector']};

];

/**

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LICENSE file at https://angular.io/license

 */

import {Injector,

NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR as

NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR} from '@angular/core';

export class

NgAdapterInjector implements Injector {

 constructor(private modInjector: Injector) {}

// When Angular

locate a service in the component injector tree, the not found value is set to

//

`NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR`. In such a case we should not walk up to the module

// injector.

// AngularJS only supports a single tree and should always check the module injector.

get(token:

any, notFoundValue?: any): any {

 if (notFoundValue ===

NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR)

```

```
{
 return notFoundValue;
}

return this.modInjector.get(token, notFoundValue);
}

"/**
 *
 * @license
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 * style license that can be found in the LICENSE file at https://angular.io/license
 */
import { Injector, NgModuleFactory, NgModuleRef, StaticProvider } from '@angular/core';
import { platformBrowser } from '@angular/platform-browser';
import { IInjectorService, IProvideService, module_ as angularModule } from './src/common/src/angular1';
import { $INJECTOR, $PROVIDE, DOWNGRADED_MODULE_COUNT_KEY, INJECTOR_KEY, LAZY_MODULE_REF, UPGRADE_APP_TYPE_KEY, UPGRADE_MODULE_NAME } from './src/common/src/constants';
import { getDowngradedModuleCount, isFunction, LazyModuleRef, UpgradeAppType } from './src/common/src/util';
import { angular1Providers, setTempInjectorRef } from './angular1_providers';
import { NgAdapterInjector } from './util';

let
 moduleUid = 0;

/**
 * @description
 * A helper function for creating an AngularJS module that can bootstrap an Angular module
 * "on-demand" (possibly lazily) when a { @link downgradeComponent
 * downgraded component } needs to be instantiated.
 * Part of the [upgrade/static](api?query=upgrade/static) library for hybrid upgrade apps that support AOT compilation.
 * It allows loading/bootstrapping the Angular part of a hybrid application lazily and not having to pay the cost up-front. For example, you can have an AngularJS application that uses Angular for specific routes and only instantiate the Angular modules if/when the user visits one of these routes.
 * The Angular module will be bootstrapped once (when requested for the first time) and the same reference will be used from that point onwards.
 * `downgradeModule()` requires either an `NgModuleFactory` or a function:
 * - `NgModuleFactory`: If you pass an `NgModuleFactory`, it will be used to instantiate a module using `platformBrowser`'s { @link PlatformRef#bootstrapModuleFactory bootstrapModuleFactory() }.
 * - `Function`: If you pass a function, it is expected to return a promise resolving to an `NgModuleRef`. The function is called with an array of extra { @link StaticProvider Providers } that are expected to be available from the returned `NgModuleRef`'s `Injector`.
 * `downgradeModule()` returns the name of the created AngularJS wrapper module. You can use it to declare a dependency in your main AngularJS module.
 * { @example upgrade/static/ts/lite/module.ts region="basic-how-to" }
 * For more details on how to use `downgradeModule()` see [Upgrading for Performance](guide/upgrade-performance).
 *
 * @usageNotes
 * Apart from `UpgradeModule`, you can use the rest of the `upgrade/static` helpers as usual to build a hybrid application. Note that the Angular pieces (e.g. downgraded services) will not be available until the downgraded module has been bootstrapped, i.e. by instantiating a downgraded component.
 * <div class="alert is-important">
 * You cannot use `downgradeModule()` and `UpgradeModule` in the same hybrid application.
 * Use one or the other.
 * </div>
 * ###
 * Differences with `UpgradeModule`
 * Besides their different API, there are two important internal differences between `downgradeModule()` and `UpgradeModule` that affect the behavior of hybrid applications:
 * 1. Unlike `UpgradeModule`, `downgradeModule()` does not bootstrap the main AngularJS module inside the { @link NgZone Angular zone }.
 * 2. Unlike `UpgradeModule`, `downgradeModule()` does not automatically run a [$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest) when changes are detected in the Angular part of the application.
 * What this means is that applications using `UpgradeModule` will run change detection more frequently in order to ensure that both frameworks are properly notified about possible changes.
 * This will inevitably result in more change detection runs than necessary.
 * `downgradeModule()`, on the other side, does not try to tie the two change detection systems as tightly, restricting the explicit change detection runs only to cases where it knows it is necessary (e.g. when the inputs of a downgraded component change). This improves performance, especially in change-detection-heavy applications, but leaves it up to the developer to manually notify each framework as needed.
 * For a more detailed discussion of the differences and their implications, see [Upgrading for Performance](guide/upgrade-performance).
 * <div class="alert is-helpful">
 * You can manually trigger a change detection run in AngularJS using [scope.$apply()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$apply) or

```

\* `[RootScope.$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest).`

\* You can manually trigger a change detection run in Angular using `{ @link NgZone#run ngZone.run(...) }`.

### Downgrading multiple modules

It is possible to downgrade multiple modules and include them in an AngularJS application. In that case, each downgraded module will be bootstrapped when an associated downgraded component or injectable needs to be instantiated.

Things to keep in mind, when downgrading multiple modules:

- Each downgraded component/injectable needs to be explicitly associated with a downgraded module. See ``downgradeComponent()`` and ``downgradeInjectable()`` for more details.
- If you want some injectables to be shared among all downgraded modules, you can provide them as ``StaticProvider``s, when creating the ``PlatformRef`` (e.g. via ``platformBrowser`` or ``platformBrowserDynamic``).

```

UpgradeHelper {\n public readonly $injector: IInjectorService;\n
 public readonly element: Element;\n public readonly $element: IAugmentedJQuery;\n public readonly directive:
 IDirective;\n\n private readonly $compile: ICompileService;\n private readonly $controller: IControllerService;\n\n\n
 constructor(\n private injector: Injector, private name: string, elementRef: ElementRef,\n directive?:
 IDirective) {\n this.$injector = injector.get($INJECTOR);\n this.$compile = this.$injector.get($COMPILE);\n
 this.$controller = this.$injector.get($CONTROLLER);\n\n this.element = elementRef.nativeElement;\n
 this.$element = angularElement(this.element);\n\n this.directive = directive ||
 UpgradeHelper.getDirective(this.$injector, name);\n }\n\n static getDirective($injector: IInjectorService, name:
 string): IDirective {\n const directives: IDirective[] = $injector.get(name + 'Directive');\n if (directives.length >
 1) {\n throw new Error(`Only support single directive definition for: ${name}`);\n }\n\n const directive = directives[0];\n\n // AngularJS will transform `link: xyz` to `compile: () => xyz`. So we can only
 tell there was a\n // user-defined `compile` if there is no `link`. In other cases, we will just ignore `compile`.\n if
 (directive.compile && !directive.link) notSupported(name, 'compile');\n if (directive.replace) notSupported(name,
 'replace');\n if (directive.terminal) notSupported(name, 'terminal');\n\n return directive;\n }\n\n static
 getTemplate(\n $injector: IInjectorService, directive: IDirective, fetchRemoteTemplate = false,\n $element?:
 IAugmentedJQuery): string|Promise<string> {\n if (directive.template !== undefined) {\n return
 getOrCall<string>(directive.template, $element);\n } else if (directive.templateUrl) {\n const $templateCache =
 $injector.get($TEMPLATE_CACHE) as ITemplateCacheService;\n const url =
 getOrCall<string>(directive.templateUrl, $element);\n const template = $templateCache.get(url);\n\n if (template !== undefined) {\n return template;\n } else if (!fetchRemoteTemplate) {\n throw new
 Error('loading directive templates asynchronously is not supported');\n }\n\n return new Promise((resolve,
 reject) => {\n const $httpBackend = $injector.get($HTTP_BACKEND) as IHttpBackendService;\n
 $httpBackend('GET', url, null, (status: number, response: string) => {\n if (status === 200) {\n
 resolve($templateCache.put(url, response));\n } else {\n reject(`GET component template from '${url}'
 returned '${status}: ${response}'`);\n }\n });\n } else {\n throw new Error(`Directive
 '${directive.name}' is not a component, it is missing template.`);\n }\n }\n }\n\n buildController(controllerType:
 IController, $scope: IScope) {\n // TODO: Document that we do not pre-assign bindings on the controller
 instance.\n // Quoted properties below so that this code can be optimized
 with Closure Compiler.\n const locals = {'$scope': $scope, '$element': this.$element};\n const controller =
 this.$controller(controllerType, locals, null, this.directive.controllerAs);\n\n this.$element.data!(controllerKey(this.directive.name!), controller);\n\n return controller;\n }\n\n compileTemplate(template?: string): ILinkFn {\n if (template === undefined) {\n template =\n
 UpgradeHelper.getTemplate(this.$injector, this.directive, false, this.$element) as string;\n }\n\n return
 this.compileHtml(template);\n }\n\n onDestroy($scope: IScope, controllerInstance?: any) {\n if
 (controllerInstance && isFunction(controllerInstance.$onDestroy)) {\n controllerInstance.$onDestroy();\n }\n
 $scope.$destroy();\n\n // Clean the jQuery/jqLite data on the component+child elements.\n // Equivalent to how
 jQuery/jqLite invoke `cleanData` on an Element (this.element)\n //
 https://github.com/jquery/jquery/blob/e743cbd28553267f955f71ea7248377915613fd9/src/manipulation.js#L223\n
 // https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/jqLite.js#L306-
 L312\n // `cleanData` will invoke the AngularJS `$destroy` DOM event\n //
 https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/Angular.js#L1911-
 L1924\n angularElement.cleanData([this.element]);\n
 angularElement.cleanData(this.element.querySelectorAll('*'));\n }\n\n prepareTransclusion(): ILinkFn|undefined
 {\n const transclude = this.directive.transclude;\n const contentChildNodes = this.extractChildNodes();\n const
 attachChildrenFn: ILinkFn = (scope, cloneAttachFn) => {\n // Since AngularJS v1.5.8, `cloneAttachFn` will try
 to destroy the transclusion scope if\n // `template` is empty. Since the transcluded content comes from Angular,
 not AngularJS,\n // there will be no transclusion scope here.\n // Provide a dummy `scope.$destroy()` method
 to prevent `cloneAttachFn`

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from throwing.\n scope = scope || {$destroy: () => undefined};\n return cloneAttachFn!($template, scope);\n};\n\nlet $template = contentChildNodes;\n\nif (transclude) {\n const slots = Object.create(null);\n\n if (typeof transclude === 'object') {\n $template = [];\n const slotMap = Object.create(null);\n const filledSlots = Object.create(null);\n\n // Parse the element selectors.\n Object.keys(transclude).forEach(slotName => {\n let selector = transclude[slotName];\n const optional = selector.charAt(0) === '?';\n selector = optional ? selector.substring(1) : selector;\n slotMap[selector] = slotName;\n slots[slotName] = null;\n // `null`: Defined but not yet filled.\n filledSlots[slotName] = optional;\n // Consider optional slots as filled.\n });\n\n // Add the matching elements into their slot.\n contentChildNodes.forEach(node => {\n const slotName = slotMap[directiveNormalize(node.nodeName.toLowerCase())];\n if (slotName) {\n filledSlots[slotName] = true;\n slots[slotName] = slots[slotName] || [];\n slots[slotName].push(node);\n } else {\n $template.push(node);\n }\n });\n\n // Check for required slots that were not filled.\n Object.keys(filledSlots).forEach(slotName => {\n if (!filledSlots[slotName]) {\n throw new Error('Required transclusion slot \'' + slotName + '\'' on directive: ' + this.name);\n }\n });\n\n Object.keys(slots).filter(slotName => slots[slotName]).forEach(slotName => {\n const nodes = slots[slotName];\n slots[slotName] = (scope: IScope, cloneAttach: ICloneAttachFunction) => {\n return cloneAttach!(nodes, scope);\n }\n });\n\n // Attach `$$slots` to default slot transclude fn.\n attachChildrenFn.$$slots = slots;\n\n // AngularJS v1.6+ ignores empty or whitespace-only transcluded text nodes. But AngularJS removes all text content after the first interpolation and updates it later, after evaluating the expressions. This would result in AngularJS failing to recognize text content and use the fallback content instead.\n // To avoid this issue, we add a [zero-width non-joiner character](https://en.wikipedia.org/wiki/Zero-width_non-joiner) to empty text nodes (which can only be a result of Angular removing their initial content).\n // NOTE: Transcluded text content that starts with whitespace followed by an interpolation will still fail to be detected by AngularJS v1.6+\n $template.forEach(node => {\n if (node.nodeType === Node.TEXT_NODE && !node.nodeValue) {\n node.nodeValue = '\\u200C';\n }\n });\n\n return attachChildrenFn;\n }\n\n resolveAndBindRequiredControllers(controllerInstance: IControllerInstance|null) {\n const directiveRequire = this.getDirectiveRequire();\n const requiredControllers = this.resolveRequire(directiveRequire);\n\n if (controllerInstance && this.directive.bindToController && isMap(directiveRequire)) {\n const requiredControllersMap = requiredControllers as {[key: string]: IControllerInstance};\n Object.keys(requiredControllersMap).forEach(key => {\n controllerInstance[key] = requiredControllersMap[key];\n });\n }\n\n return requiredControllers;\n }\n\n private compileHtml(html: string): ILinkFn {\n this.element.innerHTML = html;\n return this.$compile(this.element.childNodes);\n }\n\n private extractChildNodes(): Node[] {\n const childNodes: Node[] = [];\n let childNode: Node|null;\n\n while (childNode = this.element.firstChild) {\n this.element.removeChild(childNode);\n childNodes.push(childNode);\n }\n\n return childNodes;\n }\n\n private getDirectiveRequire(): DirectiveRequireProperty {\n const require = this.directive.require || (this.directive.controller && this.directive.name);\n\n if (isMap(require)) {\n Object.keys(require).forEach(key => {\n const value = require[key];\n const match = value.match(REQUIRE_PREFIX_RE);\n const name = match ? match[0].length : 0;\n\n if (!name) {\n require[key] = match[0] + key;\n }\n });\n }\n\n return require;\n }\n\n private resolveRequire(require: DirectiveRequireProperty, controllerInstance?: any) {\n SingleOrListOrMap<IControllerInstance>|null {\n if (!require) {\n return null;\n } else if (Array.isArray(require)) {\n return require.map(req => this.resolveRequire(req));\n } else if (typeof require === 'object') {\n const value: {[key: string]: IControllerInstance} = {};\n Object.keys(require).forEach(key => value[key] = this.resolveRequire(require[key]));\n return value;\n } else if (typeof require === 'string') {\n const match = require.match(REQUIRE_PREFIX_RE);\n const inheritType = match[1] || match[3];\n
```

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const name = require.substring(match[0].length);\n const isOptional = !!match[2];\n const searchParents =
!!inheritType;\n const startOnParent = inheritType === '^';\n const ctrlKey = controllerKey(name);\n const elem = startOnParent ? this.$element.parent() : this.$element;\n const value = searchParents ?
elem.inheritedData!(ctrlKey) : elem.data!(ctrlKey);\n if (!value && !isOptional) {\n throw new Error(\n
 `Unable to find required '${require}' in upgraded directive '${this.name}'.`);\n }\n return value;\n } else
{\n throw new Error(\n
 `Unrecognized 'require' syntax on upgraded directive '${this.name}': ${require}`);\n }\n }\n}\n\nfunction getOrCall<T>(property:
T|Function, ...args: any[]): T {\n return isFunction(property) ? property(...args) : property;\n}\n\n// NOTE: Only
works for `typeof T !== 'object'.\nfunction isMap<T>(value: SingleOrListOrMap<T>): value is {[key: string]: T}
{\n return value && !Array.isArray(value) && typeof value === 'object';\n}\n\nfunction notSupported(name:
string, feature: string) {\n throw new Error(`Upgraded directive '${name}' contains unsupported feature:
'${feature}'.`);\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Directive, DoCheck, ElementRef, EventEmitter, Injector, OnChanges, OnDestroy, OnInit,
SimpleChanges} from '@angular/core';\n\nimport {IAttributes, IAugmentedJQuery, IDirective, IInjectorService,
ILinkFn, IScope, ITranscludeFunction} from '../src/common/src/angular1';\n\nimport {$SCOPE} from
'../src/common/src/constants';\n\nimport
{IBindingDestination, IControllerInstance, UpgradeHelper} from '../src/common/src/upgrade_helper';\n\nimport
{isFunction} from '../src/common/src/util';\n\nconst NOT_SUPPORTED: any = 'NOT_SUPPORTED';\nconst
INITIAL_VALUE = {\n __UNINITIALIZED__: true;\n};\n\nclass Bindings {\n twoWayBoundProperties: string[]
= [];\n twoWayBoundLastValues: any[] = [];\n expressionBoundProperties: string[] = [];\n
 propertyToOutputMap: {[propName: string]: string} = {};\n}\n\n/*\n * @description\n * \n * A helper class that
allows an AngularJS component to be used from Angular.\n * \n * Part of the
[upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that support AOT
compilation.\n * \n * This helper class should be used as a base class for creating Angular directives\n * that wrap
AngularJS components that need to be `upgraded`. \n * \n * @usageNotes\n * \n * ### Examples\n * \n * Let's assume
that you have an AngularJS component called `ng1Hero` that
needs\n * to be made available in Angular templates.\n * \n * { @example upgrade/static/ts/full/module.ts
region="ng1-hero"}\n * \n * We must create a `Directive` that will make this AngularJS component\n * available
inside Angular templates.\n * \n * { @example upgrade/static/ts/full/module.ts region="ng1-hero-wrapper"}\n * \n *
In this example you can see that we must derive from the `UpgradeComponent`\n * base class but also provide an
{ @link Directive `@Directive` } decorator. This is\n * because the AOT compiler requires that this information is
statically available at\n * compile time.\n * \n * Note that we must do the following:\n * \n * * specify the directive's
selector (`ng1-hero`)\n * \n * * specify all inputs and outputs that the AngularJS component expects\n * \n * * derive from
`UpgradeComponent`\n * \n * * call the base class from the constructor, passing\n * \n * * the AngularJS name of the
component (`ng1Hero`)\n * \n * * the `ElementRef` and `Injector` for the component wrapper\n * \n * @publicApi\n
*/\n\n@Directive()\nexport class UpgradeComponent implements OnInit, OnChanges, DoCheck, OnDestroy {\n
 private helper: UpgradeHelper;\n
 private $injector: IInjectorService;\n
 private element: ElementRef;\n
 private $element: IAugmentedJQuery;\n
 private $componentScope: IScope;\n
 private directive: IDirective;\n
 private bindings: Bindings;\n
 // TODO(issue/24571): remove '!'.\n
 private controllerInstance!: IControllerInstance;\n
 //
 TODO(issue/24571): remove '!'.\n
 private bindingDestination!: IBindingDestination;\n
 // We will be instantiating
 the controller in the `ngOnInit` hook, when the\n
 // first `ngOnChanges` will have been already triggered. We store
 the\n
 // `SimpleChanges` and `play them back` later.\n
 // TODO(issue/24571): remove '!'.\n
 private
 pendingChanges!: SimpleChanges|null;\n
 // TODO(issue/24571): remove '!'.\n
 private
 unregisterDoCheckWatcher!: Function;\n
 /**\n
 * Create a new `UpgradeComponent` instance. You should not
 normally need
 to do this.\n
 * Instead you should derive a new class from this one and call the super constructor\n
 * from the
 base class.\n
 * \n * { @example upgrade/static/ts/full/module.ts region="ng1-hero-wrapper"}\n
 * \n * The

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`name` parameter should be the name of the AngularJS directive.\n * * The `elementRef` and `injector` parameters
should be acquired from Angular by dependency\n * injection into the base class constructor.\n */\n
constructor(private name: string, private elementRef: ElementRef, private injector: Injector) {\n this.helper = new
UpgradeHelper(injector, name, elementRef);\n this.$injector = this.helper.$injector;\n this.element =
this.helper.element;\n this.$element = this.helper.$element;\n this.directive = this.helper.directive;\n
this.bindings = this.initializeBindings(this.directive);\n // We ask for the AngularJS scope from the Angular
injector, since\n // we will put the new component scope onto the new injector for
each component\n const $parentScope = injector.get($SCOPE);\n // QUESTION 1: Should we create an
isolated scope if the scope is only true?\n // QUESTION 2: Should we make the scope accessible through
`$element.scope()/isolateScope()`?\n this.$componentScope = $parentScope.$new(!this.directive.scope);\n
this.initializeOutputs();\n }\n\n ngOnInit() {\n // Collect contents, insert and compile template\n const
attachChildNodes: ILinkFn|undefined = this.helper.prepareTransclusion();\n const linkFn =
this.helper.compileTemplate();\n // Instantiate controller\n const controllerType = this.directive.controller;\n
const bindToController = this.directive.bindToController;\n if (controllerType) {\n this.controllerInstance =
this.helper.buildController(controllerType, this.$componentScope);\n } else if (bindToController) {\n throw
new Error('Upgraded directive \'' + this.directive.name + '\' specifies \'bindToController\' but no controller.);\n
 }\n\n // Set up outputs\n this.bindingDestination = bindToController ? this.controllerInstance :
this.$componentScope;\n this.bindOutputs();\n // Require other controllers\n const requiredControllers =\n this.helper.resolveAndBindRequiredControllers(this.controllerInstance);\n // Hook: $onChanges\n if
(this.pendingChanges) {\n this.forwardChanges(this.pendingChanges);\n this.pendingChanges = null;\n }\n\n // Hook: $onInit\n if (this.controllerInstance && isFunction(this.controllerInstance.$onInit)) {\n
this.controllerInstance.$onInit();\n }\n\n // Hook: $doCheck\n if (this.controllerInstance &&
isFunction(this.controllerInstance.$doCheck)) {\n const callDoCheck = () =>
this.controllerInstance.$doCheck!();\n this.unregisterDoCheckWatcher =
this.$componentScope.$parent.$watch(callDoCheck);\n callDoCheck();\n }\n\n // Linking\n const link =
this.directive.link;\n const preLink = typeOf
link == 'object' && link.pre;\n const postLink = typeOf link == 'object' ? link.post : link;\n const attrs:
IAttributes = NOT_SUPPORTED;\n const transcludeFn: ITranscludeFunction = NOT_SUPPORTED;\n if
(preLink) {\n preLink(this.$componentScope, this.$element, attrs, requiredControllers, transcludeFn);\n }\n\n
linkFn(this.$componentScope, null!, {parentBoundTranscludeFn: attachChildNodes});\n if (postLink) {\n
postLink(this.$componentScope, this.$element, attrs, requiredControllers, transcludeFn);\n }\n\n // Hook:
$postLink\n if (this.controllerInstance && isFunction(this.controllerInstance.$postLink)) {\n
this.controllerInstance.$postLink();\n }\n\n ngOnChanges(changes: SimpleChanges) {\n if
(!this.bindingDestination) {\n this.pendingChanges = changes;\n } else {\n this.forwardChanges(changes);\n }\n }\n\n ngDoCheck() {\n const twoWayBoundProperties = this.bindings.twoWayBoundProperties;\n const
twoWayBoundLastValues
= this.bindings.twoWayBoundLastValues;\n const propertyToOutputMap =
this.bindings.propertyToOutputMap;\n\n twoWayBoundProperties.forEach((propName, idx) => {\n const
newValue = this.bindingDestination[propName];\n const oldValue = twoWayBoundLastValues[idx];\n if
(!Object.is(newValue, oldValue)) {\n const outputName = propertyToOutputMap[propName];\n const
eventEmitter: EventEmitter<any> = (this as any)[outputName];\n eventEmitter.emit(newValue);\n
twoWayBoundLastValues[idx] = newValue;\n }\n });\n }\n\n ngOnDestroy() {\n if
(isFunction(this.unregisterDoCheckWatcher)) {\n this.unregisterDoCheckWatcher();\n }\n\n this.helper.onDestroy(this.$componentScope, this.controllerInstance);\n }\n\n private initializeBindings(directive:
IDirective) {\n const btcIsObject = typeOf directive.bindToController === 'object';\n if (btcIsObject &&
Object.keys(directive.scope!).length) {\n throw new Error(\n
`Binding definitions on scope and controller at the same time is not supported.`);\n }\n\n const context =
btcIsObject ? directive.bindToController : directive.scope;\n const bindings = new Bindings();\n if (typeOf

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context == 'object') {\n Object.keys(context).forEach(propName => {\n const definition =
context[propName];\n const bindingType = definition.charAt(0);\n\n // QUESTION: What about `=*`?
Ignore? Throw? Support?\n switch (bindingType) {\n case '@':\n case '<':\n // We don't need
to do anything special. They will be defined as inputs on the\n // upgraded component facade and the change
propagation will be handled by\n // `ngOnChanges()`.\n break;\n case '=':\n bindings.twoWayBoundProperties.push(propName);\n bindings.twoWayBoundLastValues.push(INITIAL_VALUE);\n bindings.propertyToOutputMap[propName]
= propName +
'Change';\n break;\n case '&':\n bindings.expressionBoundProperties.push(propName);\n bindings.propertyToOutputMap[propName] = propName;\n break;\n default:\n let json =
JSON.stringify(context);\n throw new Error(\n `Unexpected mapping '${bindingType}' in '${json}'
in '${this.name}' directive.`);\n }\n });\n }\n }\n return bindings;\n }\n private initializeOutputs() {\n //
Initialize the outputs for `=` and `&` bindings\n this.bindings.twoWayBoundProperties.concat(this.bindings.expressionBoundProperties)\n .forEach(propName
=> {\n const outputName = this.bindings.propertyToOutputMap[propName];\n (this as
any)[outputName] = new EventEmitter();\n });\n }\n private bindOutputs() {\n // Bind `&` bindings to the
corresponding outputs\n this.bindings.expressionBoundProperties.forEach(propName => {\n const outputName
= this.bindings.propertyToOutputMap[propName];\n const emitter = (this as any)[outputName];\n this.bindingDestination[propName] = (value: any) =>
emitter.emit(value);\n });\n }\n private forwardChanges(changes: SimpleChanges) {\n // Forward input
changes to `bindingDestination`\n Object.keys(changes).forEach(\n propName =>
this.bindingDestination[propName] = changes[propName].currentValue);\n }\n if
(isFunction(this.bindingDestination.$onChanges)) {\n this.bindingDestination.$onChanges(changes);\n }\n }\n}\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { Injector, isDevMode, NgModule, NgZone, Testability } from '@angular/core';\nimport { bootstrap,
element as angularElement, IInjectorService, IIntervalService, IProvideService, ITestabilityService, module_ as
angularModule } from '../src/common/src/angular1';\nimport
{ $$TESTABILITY, $DELEGATE, $INJECTOR, $INTERVAL, $PROVIDE, INJECTOR_KEY,
LAZY_MODULE_REF, UPGRADE_APP_TYPE_KEY, UPGRADE_MODULE_NAME } from
'../src/common/src/constants';\nimport { controllerKey, LazyModuleRef, UpgradeAppType } from
'../src/common/src/util';\nimport { angular1Providers, setTempInjectorRef } from './angular1_providers';\nimport
{ NgAdapterInjector } from './util';\n\n/**\n * @description\n * An `NgModule`, which you import to provide
AngularJS core services,\n * and has an instance method used to bootstrap the hybrid upgrade application.\n *\n *
*Part of the [upgrade/static](api?query=upgrade/static)\n * library for hybrid upgrade apps that support AOT
compilation*\n *\n * The `upgrade/static` package contains helpers that allow AngularJS and Angular components\n
* to be used together inside a hybrid upgrade application, which supports AOT compilation.\n *\n * Specifically, the
classes and functions in the `upgrade/static`\n
module allow the following:\n *\n * 1. Creation of an Angular directive that wraps and exposes an AngularJS
component so\n * that it can be used in an Angular template. See `UpgradeComponent`.\n *\n * 2. Creation of an
AngularJS directive that wraps and exposes an Angular component so\n * that it can be used in an AngularJS
template. See `downgradeComponent`.\n *\n * 3. Creation of an Angular root injector provider that wraps and exposes
an AngularJS\n * service so that it can be injected into an Angular context. See\n * { @link
UpgradeModule#upgrading-an-angular-1-service Upgrading an AngularJS service } below.\n *\n * 4. Creation of an
AngularJS service that wraps and exposes an Angular injectable\n * so that it can be injected into an AngularJS
context. See `downgradeInjectable`.\n *\n * 3. Bootstrapping of a hybrid Angular application which contains both of the
frameworks\n * coexisting in a single application.\n *\n * @usageNotes\n *\n * ```ts\n * import { UpgradeModule }
from '@angular/upgrade/static';\n

```



\* ``\n \* See also the { @link UpgradeModule#examples examples } below.\n \* ### Mental Model\n \* When reasoning about how a hybrid application works it is useful to have a mental model which\n \* describes what is happening and explains what is happening at the lowest level.\n \* 1. There are two independent frameworks running in a single application, each framework treats\n \* the other as a black box.\n \* 2. Each DOM element on the page is owned exactly by one framework. Whichever framework\n \* instantiated the element is the owner. Each framework only updates/interacts with its own\n \* DOM elements and ignores others.\n \* 3. AngularJS directives always execute inside the AngularJS framework codebase regardless of\n \* where they are instantiated.\n \* 4. Angular components always execute inside the Angular framework codebase regardless of\n \* where they are instantiated.\n \* 5. An AngularJS component can be \"upgraded\" to an Angular component. This is achieved by\n \* defining an Angular directive, which bootstraps the AngularJS component at its location\n \* in the DOM. See `UpgradeComponent`.\n \* 6. An Angular component can be \"downgraded\" to an AngularJS component. This is achieved by\n \* defining an AngularJS directive, which bootstraps the Angular component at its location\n \* in the DOM. See `downgradeComponent`.\n \* 7. Whenever an \"upgraded\"/\"downgraded\" component is instantiated the host element is owned by\n \* the framework doing the instantiation. The other framework then instantiates and owns the\n \* view for that component.\n \* 1. This implies that the component bindings will always follow the semantics of the\n \* instantiation framework.\n \* 2. The DOM attributes are parsed by the framework that owns the current template. So\n \* attributes in AngularJS templates must use kebab-case, while AngularJS templates must use\n \* camelCase.\n \* 3. However the template binding syntax will always use the Angular style, e.g. square\n \* brackets ([...]) for property binding.\n \* 8. Angular is bootstrapped first; AngularJS is bootstrapped second. AngularJS always owns the\n \* root component of the application.\n \* 9. The new application is running in an Angular zone, and therefore it no longer needs calls to\n \* `\$apply()`.\n \* ### The `UpgradeModule` class\n \* This class is an `NgModule`, which you import to provide AngularJS core services,\n \* and has an instance method used to bootstrap the hybrid upgrade application.\n \* \* Core AngularJS services\n \* Importing this `NgModule` will add providers for the core\n \* [AngularJS services](https://docs.angularjs.org/api/ng/service) to the root injector.\n \* \* Bootstrap\n \* The runtime instance of this class contains a { @link UpgradeModule#bootstrap `bootstrap()` }\n \* method, which you use to bootstrap the top level AngularJS module onto an element in the\n \* DOM for the hybrid upgrade app.\n \* It also contains properties to access the { @link UpgradeModule#injector root injector }, the\n \* bootstrap `NgZone` and the\n \* [AngularJS \$injector](https://docs.angularjs.org/api/auto/service/\$injector).\n \* ### Examples\n \* Import the `UpgradeModule` into your top level { @link NgModule Angular `NgModule` }.\n \* { @example upgrade/static/ts/full/module.ts region='ng2-module' }\n \* Then inject `UpgradeModule` into your Angular `NgModule` and use it to bootstrap the top level\n \* [AngularJS module](https://docs.angularjs.org/api/ng/type/angular.Module) in the\n \* `ngDoBootstrap()` method.\n \* { @example upgrade/static/ts/full/module.ts region='bootstrap-ng1' }\n \* Finally, kick off the whole process, by bootstrapping your top level Angular `NgModule`.\n \* { @example upgrade/static/ts/full/module.ts region='bootstrap-ng2' }\n \* { @a upgrading-an-angular-1-service }\n \* ### Upgrading an AngularJS service\n \* There is no specific API for upgrading an AngularJS service. Instead you should just follow the\n \* following recipe:\n \* Let's say you have an AngularJS service:\n \* { @example upgrade/static/ts/full/module.ts region='ng1-text-formatter-service' }\n \* Then you should define an Angular provider to be included in your `NgModule`\n \* `providers` property.\n \* { @example upgrade/static/ts/full/module.ts region='upgrade-ng1-service' }\n \* Then you can use the \"upgraded\" AngularJS service by injecting it into an Angular component\n \* or service.\n \* { @example upgrade/static/ts/full/module.ts region='use-ng1-upgraded-service' }\n \* @publicApi\n \* @NgModule({ providers: [angular1Providers] })\n \* export class UpgradeModule {\n \* /\*\*\n \* The AngularJS \$injector for the upgrade application.\n \*/\n \* public \$injector: any\n \* /\*\*\n \* The Angular Injector\n \*/\n \* public injector: Injector;\n \* constructor(\n \* /\*\*\n \* The root `Injector` for the upgrade

```

application.*\n injector: Injector,\n /** The bootstrap zone for the upgrade application */\n public
ngZone: NgZone) {\n this.injector = new NgAdapterInjector(injector);\n }\n\n /**\n * Bootstrap an AngularJS
application from this NgModule\n * @param element the element on which to bootstrap the AngularJS
application\n * @param [modules] the AngularJS modules to bootstrap for this application\n * @param [config]
optional extra AngularJS bootstrap configuration\n */\n bootstrap(\n element: Element, modules: string[] = [],
config?: any /*angular.IAngularBootstrapConfig*/) {\n const INIT_MODULE_NAME =
UPGRADE_MODULE_NAME + '.init';\n\n // Create an ng1 module to bootstrap\n const initModule =\nangularModule(INIT_MODULE_NAME, [])\n\n .constant(UPGRADE_APP_TYPE_KEY,
UpgradeAppType.Static)\n\n .value(INJECTOR_KEY, this.injector)\n\n .factory(\n
LAZY_MODULE_REF,\n [INJECTOR_KEY,
(injector: Injector) => ({ injector } as LazyModuleRef)])\n\n .config([\n $PROVIDE, $INJECTOR,\n
($provide: IProvideService, $injector: IInjectorService) => {\n if ($injector.has($$TESTABILITY))
{\n $provide.decorator($$TESTABILITY, [\n $DELEGATE,\n
(testabilityDelegate: ITestabilityService) => {\n const originalWhenStable: Function =
testabilityDelegate.whenStable;\n const injector = this.injector;\n // Cannot use arrow
function below because we need the context\n const newWhenStable = function(callback: Function)
{\n originalWhenStable.call(testabilityDelegate, function() {\n const ng2Testability:
Testability = injector.get(Testability);\n if (ng2Testability.isStable()) {\n
callback();\n
 } else {\n ng2Testability.whenStable(\n
newWhenStable.bind(testabilityDelegate, callback));\n
 testabilityDelegate.whenStable = newWhenStable;\n return testabilityDelegate;\n
}\n });\n }\n\n if ($injector.has($INTERVAL)) {\n
$provide.decorator($INTERVAL, [\n $DELEGATE,\n (intervalDelegate: IIntervalService)
=> {\n // Wrap the $interval service so that setInterval is called outside NgZone,\n // but
the callback is still invoked within it. This is so that $interval\n // won't block stability, which preserves
the behavior from AngularJS.\n let wrappedInterval =\n (fn: Function, delay: number, count?: number, invokeApply?: boolean,\n ...pass: any[]) => {\n return this.ngZone.runOutsideAngular(() => {\n return intervalDelegate(...args: any[])
=> {\n // Run callback in the next VM turn - $interval calls\n //
$rootScope.$apply, and running the callback in NgZone will\n // cause a '$digest already in
progress' error if it's in the\n // same vm turn.\n setTimeout(() => {\n
 this.ngZone.run(() => fn(...args));\n });\n }, delay, count,
invokeApply, ...pass);\n });\n };\n (wrappedInterval as any)['cancel']
= intervalDelegate.cancel;\n return wrappedInterval;\n }\n });\n }\n }\n })\n .run([\n
 $INJECTOR,\n ($injector: IInjectorService) => {\n this.$injector = $injector;\n //
Initialize the ng1 $injector provider\n setTempInjectorRef($injector);\n
this.injector.get($INJECTOR);\n // Put the injector on the DOM, so that it can be \"required\"\n
angularElement(element).data!(controllerKey(INJECTOR_KEY), this.injector);\n // Wire up the ng1
rootScope to run a digest cycle whenever the zone settles\n // We need to do this in the next tick so that we
don't prevent the bootstrap\n // stabilizing\n setTimeout(() => {\n const $rootScope =
$injector.get('$rootScope');\n const subscription = this.ngZone.onMicrotaskEmpty.subscribe()\n => {\n if ($rootScope.$$phase) {\n if (isDevMode()) {\n console.warn(\n
 'A digest was triggered while one was already in progress. This may mean that something is triggering
digests outside the Angular zone.);\n }\n return $rootScope.$evalAsync();\n
}\n return $rootScope.$digest();\n });\n $rootScope.$on('$destroy', () => {\n
 subscription.unsubscribe();\n });\n }, 0);\n }\n });\n const

```

```

upgradeModule = angularModule(UPGRADE_MODULE_NAME,
[INIT_MODULE_NAME].concat(modules));\n\n // Make sure resumeBootstrap() only exists if the current
bootstrap is deferred\n\n const windowAngular = (window as any)['angular'];\n\n windowAngular.resumeBootstrap
= undefined;\n\n // Bootstrap the AngularJS application
inside our zone\n\n this.ngZone.run(() => {\n\n bootstrap(element, [upgradeModule.name], config);\n\n });\n\n\n //
Patch resumeBootstrap() to run inside the ngZone\n\n if (windowAngular.resumeBootstrap) {\n\n const
originalResumeBootstrap: () => void = windowAngular.resumeBootstrap;\n\n const ngZone = this.ngZone;\n\n
windowAngular.resumeBootstrap = function() {\n\n let args = arguments;\n\n
windowAngular.resumeBootstrap = originalResumeBootstrap;\n\n return ngZone.run(() =>
windowAngular.resumeBootstrap.apply(this, args));\n\n }; \n\n }\n\n }\n\n\n"/**\n\n * @license\n\n * Copyright
Google LLC All Rights Reserved.\n\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n\n */\n\n\nexport { getAngularJSGlobal, getAngularLib,
setAngularJSGlobal, setAngularLib} from './src/common/src/angular1';\n\nexport { downgradeComponent} from
'./src/common/src/downgrade_component';\n\nexport { downgradeInjectable}
from './src/common/src/downgrade_injectable';\n\nexport { VERSION} from './src/common/src/version';\n\nexport
{ downgradeModule} from './src/downgrade_module';\n\nexport { UpgradeComponent} from
'./src/upgrade_component';\n\nexport { UpgradeModule} from './src/upgrade_module';\n\n\n// This file only re-exports
items to appear in the public api. Keep it that way.\n\n"/**\n\n * @license\n\n * Copyright Google LLC All Rights
Reserved.\n\n * Use of this source code is governed by an MIT-style license that can be\n\n * found in the
LICENSE file at https://angular.io/license\n\n */\n\n\n// This file is not used to build this module. It is only used during
editing\n\n// by the TypeScript language service and during build for verification. `ngc`\n\n// replaces this file with
production index.ts when it rewrites private symbol\n\n names.\n\n\nexport * from './public_api';\n\n"/**\n\n * Generated
bundle index. Do not edit.\n\n */\n\n\nexport * from './index';\n\n\nexport { angular1Providers as
angular_packages_upgrade_static_static_e, compileFactory
as angular_packages_upgrade_static_static_c, injectorFactory as
angular_packages_upgrade_static_static_a, parseFactory as
angular_packages_upgrade_static_static_d, rootScopeFactory as angular_packages_upgrade_static_static_b} from
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 * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nexport type
Ng1Token = string;\n\nexport type Ng1Expression = string|Function;\n\nexport interface IAnnotatedFunction
extends Function {\n // Older versions of `@types/angular` typings extend the global `Function` interface with\n //
`$inject?: string[]`, which is not compatible with `$inject?: ReadonlyArray<string>` (used in\n // latest versions).\n
$inject?: Function extends {$inject?: string[]}? Ng1Token[]: ReadonlyArray<Ng1Token>;\n}\n\nexport
type IInjectable = (Ng1Token|Function)[]|IAnnotatedFunction;\n\nexport type SingleOrListOrMap<T> =
T|T[]|{[key: string]: T};\n\nexport interface IModule {\n name: string;\n requires: (string|IInjectable)[];\n
config(fn: IInjectable): IModule;\n directive(selector: string, factory: IInjectable): IModule;\n component(selector:
string, component: IComponent): IModule;\n controller(name: string, type: IInjectable): IModule;\n factory(key:
Ng1Token, factoryFn: IInjectable): IModule;\n value(key: Ng1Token, value: any): IModule;\n constant(token:
Ng1Token, value: any): IModule;\n run(a: IInjectable): IModule;\n}\n\nexport interface ICompileService {\n
(element: Element|NodeList|Node[]|string, transclude?: Function): ILinkFn;\n}\n\nexport interface ILinkFn {\n
(scope: IScope, cloneAttachFn?: ICloneAttachFunction, options?: ILinkFnOptions): IAugmentedJQuery;\n
$$slots?: {[slotName: string]: ILinkFn};\n}\n\nexport interface ILinkFnOptions {\n parentBoundTranscludeFn?:
Function;\n
transcludeControllers?: {[key: string]: any};\n futureParentElement?: Node;\n}\n\nexport interface
IRootScopeService {\n $new(isolate?: boolean): IScope;\n $id: string;\n $parent: IScope;\n $root: IScope;\n
$watch(exp: Ng1Expression, fn?: (a1?: any, a2?: any) => void): Function;\n $on(event: string, fn?: (event?: any,
...args: any[]) => void): Function;\n $destroy(): any;\n $apply(exp?: Ng1Expression): any;\n $digest(): any;\n
$evalAsync(exp: Ng1Expression, locals?: any): void;\n $on(event: string, fn?: (event?: any, ...args: any[]) => void):
Function;\n $$childTail: IScope;\n $$childHead: IScope;\n $$nextSibling: IScope;\n [key: string]: any;\n}\n\nexport
interface IScope extends IRootScopeService {\n}\n\nexport interface IAngularBootstrapConfig {\n strictDi?:
boolean;\n}\n\nexport interface IDirective {\n compile?: IDirectiveCompileFn;\n controller?: IController;\n
controllerAs?: string;\n bindToController?: boolean|{[key: string]: string};\n link?:
IDirectiveLinkFn|IDirectivePrePost;\n
name?: string;\n priority?: number;\n replace?: boolean;\n require?: DirectiveRequireProperty;\n restrict?:
string;\n scope?: boolean|{[key: string]: string};\n template?: string|Function;\n templateUrl?: string|Function;\n
templateNamespace?: string;\n terminal?: boolean;\n transclude?: DirectiveTranscludeProperty;\n}\n\nexport type
DirectiveRequireProperty = SingleOrListOrMap<string>;\n\nexport type DirectiveTranscludeProperty =
boolean|element|{[key: string]: string};\n\nexport interface IDirectiveCompileFn {\n (templateElement:
IAugmentedJQuery, templateAttributes: IAttributes,\n transclude: ITranscludeFunction):
IDirectivePrePost;\n}\n\nexport interface IDirectivePrePost {\n pre?: IDirectiveLinkFn;\n post?:
IDirectiveLinkFn;\n}\n\nexport interface IDirectiveLinkFn {\n (scope: IScope, instanceElement: IAugmentedJQuery,
instanceAttributes: IAttributes,\n controller: any, transclude: ITranscludeFunction): void;\n}\n\nexport interface
IComponent {\n bindings?:
{[key: string]: string};\n controller?: string|IInjectable;\n controllerAs?: string;\n require?:
DirectiveRequireProperty;\n template?: string|Function;\n templateUrl?: string|Function;\n transclude?:
DirectiveTranscludeProperty;\n}\n\nexport interface IAttributes {\n $observe(attr: string, fn: (v: string) => void):

```

```

void;\n [key: string]: any;\n}\n\nexport interface ITranscludeFunction {\n // If the scope is provided, then the
cloneAttachFn must be as well.\n (scope: IScope, cloneAttachFn: ICloneAttachFunction): IAugmentedJQuery;\n //
If one argument is provided, then it's assumed to be the cloneAttachFn.\n (cloneAttachFn?: ICloneAttachFunction):
IAugmentedJQuery;\n}\n\nexport interface ICloneAttachFunction {\n (clonedElement: IAugmentedJQuery, scope:
IScope): any;\n}\n\nexport type IAugmentedJQuery = Node[] & {\n on?: (name: string, fn: () => void) => void;\n
data?: (name: string, value?: any) => any;\n text?: () => string;\n inheritedData?: (name: string, value?: any) =>
any;\n contents?: () => IAugmentedJQuery;\n parent?: () => IAugmentedJQuery;\n empty?: () => void;\n
append?: (content: IAugmentedJQuery|string) => IAugmentedJQuery;\n controller?: (name: string) => any;\n
isolateScope?: () => IScope;\n injector?: () => IInjectorService;\n triggerHandler?: (eventTypeOrObject:
string|Event, extraParameters?: any[]) => IAugmentedJQuery;\n remove?: () => void;\n removeData?: () =>
void;\n};\n\nexport interface IProvider {\n $get: IInjectable;\n}\n\nexport interface IProvideService {\n provider(token:
Ng1Token, provider: IProvider): IProvider;\n factory(token: Ng1Token, factory: IInjectable): IProvider;\n
service(token: Ng1Token, type: IInjectable): IProvider;\n value(token: Ng1Token, value: any): IProvider;\n
constant(token: Ng1Token, value: any): void;\n decorator(token: Ng1Token, factory: IInjectable): void;\n}\n\nexport
interface IParseService {\n (expression: string): ICompiledExpression;\n}\n\nexport interface ICompiledExpression
{\n (context:
any, locals: any): any;\n assign?: (context: any, value: any) => any;\n}\n\nexport interface IHttpBackendService {\n
(method: string, url: string, post?: any, callback?: Function, headers?: any, timeout?: number, withCredentials?:
boolean): void;\n}\n\nexport interface ICacheObject {\n put<T>(key: string, value?: T): T;\n get(key: string):
any;\n}\n\nexport interface ITemplateCacheService extends ICacheObject {}\n\nexport interface
ITemplateRequestService {\n (template: string|any /* TrustedResourceUrl */, ignoreRequestError?: boolean):
Promise<string>;\n totalPendingRequests: number;\n}\n\nexport type IController = string|IInjectable;\n\nexport
interface IControllerService {\n (controllerConstructor: IController, locals?: any, later?: any, ident?: any): any;\n
(controllerName: string, locals?: any): any;\n}\n\nexport interface IInjectorService {\n get(key: string): any;\n
has(key: string): boolean;\n}\n\nexport interface IIntervalService {\n (func: Function, delay: number, count?:
number, invokeApply?: boolean, ...args: any[]): Promise<any>;\n cancel(promise: Promise<any>):
boolean;\n}\n\nexport interface ITestabilityService {\n findBindings(element: Element, expression: string,
opt_exactMatch?: boolean): Element[];\n findModels(element: Element, expression: string, opt_exactMatch?:
boolean): Element[];\n getLocation(): string;\n setLocation(url: string): void;\n whenStable(callback: Function):
void;\n}\n\nexport interface INgModelController {\n $render(): void;\n $isEmpty(value: any): boolean;\n
$setValidity(validationErrorKey: string, isValid: boolean): void;\n $setPristine(): void;\n $setDirty(): void;\n
$setUntouched(): void;\n $setTouched(): void;\n $rollbackViewValue(): void;\n $validate(): void;\n
$commitViewValue(): void;\n $setViewValue(value: any, trigger: string): void;\n\n $viewValue: any;\n
$modelValue: any;\n $parsers: Function[];\n $formatters: Function[];\n $validators: {[key: string]: Function};\n
$asyncValidators:
{[key: string]: Function};\n $viewChangeListeners: Function[];\n $error: Object;\n $pending: Object;\n
$untouched: boolean;\n $touched: boolean;\n $pristine: boolean;\n $dirty: boolean;\n $valid: boolean;\n $invalid:
boolean;\n $name: string;\n}\n\nfunction noNg(): never {\n throw new Error('AngularJS v1.x is not
loaded!');\n}\n\nconst noNgElement: typeof angular.element = ((() => noNg()) as any);\nnoNgElement.cleanData =
noNg;\n\nlet angular: {\n bootstrap: (e: Element, modules: (string|IInjectable)[], config?: IAngularBootstrapConfig)
=>{\n IInjectorService,\n module: (prefix: string, dependencies?: string[]) => IModule,\n element: {\n (e:
string|Element|Document|IAugmentedJQuery): IAugmentedJQuery;\n cleanData: (nodes: Node[]|NodeList) =>
void;\n },\n injector: (modules: Array<string|IInjectable>, strictDi?: boolean) => IInjectorService,\n version:
{major: number},\n resumeBootstrap: () => void,\n getTestability: (e: Element) => ITestabilityService\n} =
{\n bootstrap: noNg,\n module: noNg,\n element: noNgElement,\n injector: noNg,\n version: undefined as any,\n
resumeBootstrap: noNg,\n getTestability: noNg\n};\n\ntry {\n if (window.hasOwnProperty('angular')) {\n angular
= (<any>window).angular;\n }\n} catch {\n // ignore in CJS mode.\n}\n\n/**\n * @deprecated Use
`setAngularJSGlobal` instead.\n *\n * @publicApi\n */\n\nexport function setAngularLib(ng: any): void {\n

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setAngularJSGlobal(ng);\n\n\n * @deprecated Use `getAngularJSGlobal` instead.\n * @publicApi\n * \nexport function getAngularLib(): any {\n return getAngularJSGlobal();\n}\n\n * Resets the AngularJS\n global.\n * \n * Used when AngularJS is loaded lazily, and not available on `window`.\n * @publicApi\n * \nexport function setAngularJSGlobal(ng: any): void {\n angular = ng;\n}\n\n * Returns the current\n AngularJS global.\n * @publicApi\n * \nexport function getAngularJSGlobal(): any {\n return\n angular;\n}\n\nexport const bootstrap: typeof\n angular.bootstrap = (e, modules, config?) =>\n angular.bootstrap(e, modules, config);\n\n// Do not declare as\n `module` to avoid webpack bug\n// (see https://github.com/angular/angular/issues/30050).\nexport const module_:\n typeof angular.module = (prefix, dependencies?) =>\n angular.module(prefix, dependencies);\n\nexport const\n element: typeof angular.element = (e => angular.element(e)) as typeof angular.element;\n element.cleanData = nodes\n => angular.element.cleanData(nodes);\n\nexport const injector: typeof angular.injector = (\n modules:\n Array<string|IInjectable>, strictDi?: boolean) => angular.injector(modules, strictDi);\n\nexport const\n resumeBootstrap: typeof angular.resumeBootstrap = () => angular.resumeBootstrap();\n\nexport const\n getTestability: typeof angular.getTestability = e => angular.getTestability(e);\n\n", "/*!\n

```

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and/or distribute this software for any\r\npurpose with or without fee is hereby granted.\r\n\r\nTHE SOFTWARE IS PROVIDED \"AS IS\" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH\r\nREGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY\r\nAND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT,\r\nINDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM\r\nLOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR\r\nOTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR\r\nPERFORMANCE OF THIS SOFTWARE.\r\n\*\*\*\*\*

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 * \r\n * global Reflect, Promise * \r\n\r\nvar extendStatics = function(d, b) {\r\n extendStatics =\n Object.setPrototypeOf ||\r\n ({ __proto__: [] } instanceof Array && function (d, b) { d.__proto__ = b; }) ||\r\n function (d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; }; \r\n\r\n return extendStatics(d, b);\r\n}; \r\n\r\nexport function __extends(d, b) {\r\n extendStatics(d, b);\r\n function\n __() { this.constructor = d; }\r\n d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new\n __());\r\n}\r\n\r\nexport var __assign = function() {\r\n __assign = Object.assign || function __assign(t) {\r\n for (var s, i = 1, n = arguments.length; i < n; i++) {\r\n s = arguments[i];\r\n for (var p in s) if\n (Object.prototype.hasOwnProperty.call(s, p)) t[p] = s[p];\r\n }\r\n return t;\r\n }\r\n return\n __assign.apply(this, arguments);\r\n}\r\n\r\nexport function __rest(s, e) {\r\n var t = {};\r\n for (var p in s) if\n (Object.prototype.hasOwnProperty.call(s, p) && e.indexOf(p) < 0)\r\n t[p] = s[p];\r\n if (s != null && typeof\n Object.getOwnPropertySymbols === \"function\")\r\n for (var i = 0, p = Object.getOwnPropertySymbols(s); i <\n p.length; i++) {\r\n if (e.indexOf(p[i])\n < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\r\n t[p[i]] = s[p[i]];\r\n }\r\n return\n t;\r\n}\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n var c = arguments.length, r = c < 3 ?\n target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\r\n if (typeof Reflect ===\n \"object\" && typeof Reflect.decorate === \"function\") r = Reflect.decorate(decorators, target, key, desc);\r\n else\n for (var i = decorators.length - 1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target,\n key)) || r;\r\n return c > 3 && r && Object.defineProperty(target, key, r, r);\r\n}\r\n\r\nexport function\n __param(paramIndex, decorator) {\r\n return function (target, key) { decorator(target, key, paramIndex);\n }\r\n}\r\n\r\nexport function __metadata(metadataKey, metadataValue) {\r\n if (typeof Reflect === \"object\" &&\n typeof Reflect.metadata === \"function\") return\n Reflect.metadata(metadataKey, metadataValue);\r\n}\r\n\r\nexport function __awaiter(thisArg, _arguments, P,\n generator) {\r\n function adopt(value) { return value instanceof P ? value : new P(function (resolve) {\n resolve(value); }); }\r\n return new (P || (P = Promise))(function (resolve, reject) {\r\n function fulfilled(value)

```





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{ i[n] = o[n] ? function (v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f;
}\r\n}\r\n\r\nexport
function __asyncValues(o) {\r\n if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n var m = o[Symbol.asyncIterator], i;\r\n return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i);\r\n function verb(n) { i[n] = o[n] && function (v) { return
new Promise(function (resolve, reject) { v = o[n](v), settle(resolve, reject, v.done, v.value); }); }; }\r\n function
settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) { resolve({ value: v, done: d }); }, reject);
}\r\n}\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n if (Object.defineProperty) {
Object.defineProperty(cooked, "raw", { value: raw }); } else { cooked.raw = raw; }\r\n return
cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n Object.defineProperty(o,
"default", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n o["default"] = v;\r\n};\r\n\r\nexport
function __importStar(mod) {\r\n if (mod && mod.__esModule) return mod;\r\n var result = {};\r\n if (mod !=
null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n __setModuleDefault(result, mod);\r\n return result;\r\n}\r\n\r\nexport function __importDefault(mod) {\r\n
return (mod && mod.__esModule) ? mod : { default: mod };\r\n}\r\n\r\nexport function
__classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver)) {\r\n throw new
TypeError("attempted to get private field on non-instance");\r\n }\r\n return
privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver)) {\r\n throw new TypeError("attempted to set private field on non-instance");\r\n }\r\n privateMap.set(receiver,
value);\r\n return value;\r\n}\r\n\r\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use
of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport const $COMPILE = 'scompile';\nexport const $CONTROLLER =
'scontroller';\nexport const $DELEGATE = 'sdelegate';\nexport const $EXCEPTION_HANDLER =
'sexceptionHandler';\nexport const $HTTP_BACKEND = 'httpBackend';\nexport const $INJECTOR =
'sinjector';\nexport const $INTERVAL = 'sinterval';\nexport const $PARSE = 'sparse';\nexport const $PROVIDE =
'sprovide';\nexport const $ROOT_SCOPE = 'srootScope';\nexport const $SCOPE = 'scope';\nexport const
$TEMPLATE_CACHE = 'stemplateCache';\nexport const $TEMPLATE_REQUEST =
'stemplateRequest';\n\nexport const $TESTABILITY = '$testability';\n\nexport const COMPILER_KEY =
'$angularCompiler';\nexport const DOWNGRADED_MODULE_COUNT_KEY =
'$angularDowngradedModuleCount';\nexport
const GROUP_PROJECTABLE_NODES_KEY = '$angularGroupProjectableNodes';\nexport const
INJECTOR_KEY = '$angularInjector';\nexport const LAZY_MODULE_REF =
'$angularLazyModuleRef';\nexport const NG_ZONE_KEY = '$angularNgZone';\nexport const
UPGRADE_APP_TYPE_KEY = '$angularUpgradeAppType';\n\nexport const REQUIRE_INJECTOR = '?^^' +
INJECTOR_KEY;\nexport const REQUIRE_NG_MODEL = '?ngModel';\n\nexport const
UPGRADE_MODULE_NAME = '$UpgradeModule';\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n\n * A `PropertyBinding` represents a mapping between a
property name\n * and an attribute name. It is parsed from a string of the form\n * `"prop: attr"`; or simply
`"propAndAttr"` where the property\n * and attribute have the same identifier.\n */\n\nexport class PropertyBinding
{\n // TODO(issue/24571): remove '!'.\n bracketAttr!:
string;\n // TODO(issue/24571): remove '!'.\n bracketParenAttr!: string;\n // TODO(issue/24571): remove '!'.\n
 parenAttr!: string;\n // TODO(issue/24571): remove '!'.\n onAttr!: string;\n // TODO(issue/24571): remove '!'.\n
 bindAttr!: string;\n // TODO(issue/24571): remove '!'.\n bindonAttr!: string;\n\n constructor(public prop: string,
public attr: string) {\n this.parseBinding();\n }\n\n private parseBinding() {\n this.bracketAttr =
`${this.attr}`;\n this.parenAttr = `(${this.attr})`;\n this.bracketParenAttr = `[(${this.attr})]`; \n const

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capitalAttr = this.attr.charAt(0).toUpperCase() + this.attr.substr(1);\n this.onAttr = `on${capitalAttr}`;\n
this.bindAttr = `bind${capitalAttr}`;\n this.bindonAttr = `bindon${capitalAttr}`;\n } }\n\n"/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Injector, Type} from '@angular/core';\nimport {IInjectorService, INgModelController} from
'./angular1';\nimport {DOWNGRADED_MODULE_COUNT_KEY, UPGRADE_APP_TYPE_KEY} from
'./constants';\n\nconst DIRECTIVE_PREFIX_REGEXP = /^(?:x|data)[:|-_]/i;\nconst
DIRECTIVE_SPECIAL_CHARS_REGEXP = /[:|-_]+/g;\n\nexport function onError(e: any) {\n // TODO:
(misko): We seem to not have a stack trace here!\n if (console.error) {\n console.error(e, e.stack);\n } else {\n //
tslint:disable-next-line:no-console\n console.log(e, e.stack);\n }\n throw e;\n}\n\nexport function
controllerKey(name: string): string {\n return '$' + name + 'Controller';\n}\n\nexport function
directiveNormalize(name: string): string {\n return name.replace(DIRECTIVE_PREFIX_REGEXP, "")\n
.replace(DIRECTIVE_SPECIAL_CHARS_REGEXP, (_, letter) => letter.toUpperCase());\n}\n\nexport function
getTypeName(type: Type<any>): string {\n // Return the name of the type or the first line of its stringified
version.\n return (type as any).overriddenName || type.name || type.toString().split("\\n")[0];\n}\n\nexport function
getDowngradedModuleCount($injector: IInjectorService): number {\n return
$injector.has(DOWNGRADED_MODULE_COUNT_KEY) ?
$injector.get(DOWNGRADED_MODULE_COUNT_KEY) : 0;\n}\n\nexport
function getUpgradeAppType($injector: IInjectorService): UpgradeAppType {\n return
$injector.has(UPGRADE_APP_TYPE_KEY) ? $injector.get(UPGRADE_APP_TYPE_KEY) :\n
 UpgradeAppType.None;\n}\n\nexport function isFunction(value: any): value is Function {\n return typeof
value === 'function';\n}\n\nexport function validateInjectionKey(\n $injector: IInjectorService,\n
 downgradedModule: string, injectionKey: string,\n attemptedAction: string): void {\n const upgradeAppType =
getUpgradeAppType($injector);\n const downgradedModuleCount = getDowngradedModuleCount($injector);\n\n
// Check
 for common errors.\n switch (upgradeAppType) {\n case UpgradeAppType.Dynamic:\n case
UpgradeAppType.Static:\n if (downgradedModule) {\n throw new Error(\n `Error while
${attemptedAction}: 'downgradedModule' unexpectedly specified.\\n` +\n 'You should not specify a value for
\\'downgradedModule\\', unless you are downgrading ' +\n 'more than one Angular module (via
\\'downgradeModule()\\').');\n }\n break;\n case UpgradeAppType.Lite:\n if (!downgradedModule &&
(downgradedModuleCount >= 2)) {\n throw new Error(\n `Error while ${attemptedAction}:
'downgradedModule' not specified.\\n` +\n 'This application contains more than one downgraded Angular
module, thus you need to ' +\n 'always specify \\'downgradedModule\\' when downgrading components and
injectables.);\n }\n if (!$injector.has(injectionKey)) {\n throw new Error(\n `Error while
${attemptedAction}:
Unable to find the specified downgraded module.\\n` +\n 'Did you forget to downgrade an Angular module
or include it in the AngularJS ' +\n 'application?');\n }\n break;\n default:\n throw new Error(\n
`Error while ${attemptedAction}: Not a valid '@angular/upgrade' application.\\n` +\n 'Did you forget to
downgrade an Angular module or include it in the AngularJS ' +\n 'application?');\n }\n }\n\nexport class
Deferred<R> {\n promise: Promise<R>;\n // TODO(issue/24571): remove '!'.\n resolve!: (value?:
R|PromiseLike<R>) => void;\n // TODO(issue/24571): remove '!'.\n reject!: (error?: any) => void;\n\n
constructor() {\n this.promise = new Promise((res, rej) => {\n this.resolve = res;\n this.reject = rej;\n });\n
}\n}\n\nexport interface LazyModuleRef {\n injector?: Injector;\n promise?: Promise<Injector>;\n}\n\nexport
const enum UpgradeAppType {\n // App NOT using `@angular/upgrade`. (This
should never happen in an `ngUpgrade` app.)\n None,\n // App using the deprecated `@angular/upgrade` APIs
(a.k.a. dynamic `ngUpgrade`).\n Dynamic,\n // App using `@angular/upgrade/static` with `UpgradeModule`.\n
Static,\n // App using `@angular/upgrade/static` with `downgradeModule()` (a.k.a `ngUpgrade-lite`).\n
Lite,\n }\n\n/**\n * @return Whether the passed-in component implements the subset of the\n *

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`ControlValueAccessor` interface needed for AngularJS `ng-model` \n * compatibility.\n */\nfunction
supportsNgModel(component: any) {\n return typeof component.writeValue === 'function' &&\n typeof
component.registerOnChange === 'function';\n}\n\n/**\n * Glue the AngularJS `NgModelController` (if it exists) to
the component\n * (if it implements the needed subset of the `ControlValueAccessor` interface).\n */\nexport
function hookupNgModel(ngModel: INgModelController, component: any) {\n if (ngModel &&
supportsNgModel(component)) {\n ngModel.$render = ()
=> {\n component.writeValue(ngModel.$viewValue);\n };\n component.registerOnChange(ngModel.$setViewValue.bind(ngModel));\n if (typeof
component.registerOnTouched === 'function') {\n component.registerOnTouched(ngModel.$setTouched.bind(ngModel));\n }\n }\n}\n\n/**\n * Test two values for
strict equality, accounting for the fact that `NaN !== NaN`.\n */\nexport function strictEquals(val1: any, val2: any):
boolean {\n return val1 === val2 || (val1 !== val1 && val2 !== val2);\n}\n\n", "/*\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport { ApplicationRef, ChangeDetectorRef,
ComponentFactory, ComponentRef, EventEmitter, Injector, OnChanges, SimpleChange, SimpleChanges,
StaticProvider, Testability, TestabilityRegistry, Type } from '@angular/core';\n\nimport { IAttributes,
IAugmentedJQuery, ICompileService, IInjectorService,
INgModelController, IParseService, IScope } from './angular1';\nimport { PropertyBinding } from
'./component_info';\nimport { $SCOPE } from './constants';\nimport { getTypeName, hookupNgModel, strictEquals }
from './util';\n\nconst INITIAL_VALUE = {\n __UNINITIALIZED__: true\n};\n\nexport class
DowngradeComponentAdapter {\n private implementsOnChanges = false;\n private inputChangeCount: number =
0;\n private inputChanges: SimpleChanges = {};\n private componentScope: IScope;\n // TODO(issue/24571):
remove '!\n private componentRef!: ComponentRef<any>;\n private component: any;\n // TODO(issue/24571):
remove '!\n private changeDetector!: ChangeDetectorRef;\n // TODO(issue/24571): remove '!\n private
viewChangeDetector!: ChangeDetectorRef;\n\n constructor(\n private element: IAugmentedJQuery, private
attrs: IAttributes, private scope: IScope,\n private ngModel: INgModelController, private parentInjector:
Injector,\n private $injector: IInjectorService,\n private $compile: ICompileService,\n private $parse: IParseService, private componentFactory:
ComponentFactory<any>,\n private wrapCallback: <T>(cb: () => T) => () => T) {\n this.componentScope =
scope.$new();\n }\n\n compileContents(): Node[][] {\n const compiledProjectableNodes: Node[][] = [];\n const
projectableNodes: Node[][] = this.groupProjectableNodes();\n const linkFns = projectableNodes.map(nodes =>
this.$compile(nodes));\n\n this.element.empty!();\n\n linkFns.forEach(linkFn => {\n linkFn(this.scope,
(clone: Node[]) => {\n compiledProjectableNodes.push(clone);\n this.element.append!(clone);\n });\n });\n\n return compiledProjectableNodes;\n }\n\n createComponent(projectableNodes: Node[][]): {\n const
providers: StaticProvider[] = [{ provide: $SCOPE, useValue: this.componentScope }];\n const childInjector =
Injector.create(\n { providers: providers, parent: this.parentInjector, name:
'DowngradeComponentAdapter' });\n\n this.componentRef =\n this.componentFactory.create(childInjector, projectableNodes, this.element[0]);\n\n this.viewChangeDetector = this.componentRef.injector.get(ChangeDetectorRef);\n this.changeDetector =
this.componentRef.changeDetectorRef;\n this.component = this.componentRef.instance;\n\n // testability hook is
commonly added during component bootstrap in\n // packages/core/src/application_ref.bootstrap()\n // in
downgraded application, component creation will take place here as well as adding the\n // testability hook.\n\n const testability = this.componentRef.injector.get(Testability, null);\n if (testability) {\n this.componentRef.injector.get(TestabilityRegistry)\n .registerApplication(this.componentRef.location.nativeElement, testability);\n }\n\n hookupNgModel(this.ngModel, this.component);\n }\n\n setupInputs(manuallyAttachView: boolean,
propagateDigest = true): void {\n const attrs = this.attrs;\n

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 const inputs = this.componentFactory.inputs || [];
 for (let i = 0; i < inputs.length; i++) {
 const input = new
 PropertyBinding(inputs[i].propName, inputs[i].templateName);
 let expr: string|null = null;
 if
 (attrs.hasOwnProperty(input.attr)) {
 const observeFn = (prop => {
 let prevValue =
 INITIAL_VALUE;
 return (currValue: any) => {
 // Initially, both `observe()` and `watch()` will
 call this function.
 if (!strictEquals(prevValue, currValue)) {
 if (prevValue ===
 INITIAL_VALUE) {
 prevValue = currValue;
 }
 this.updateInput(prop, prevValue,
 currValue);
 prevValue = currValue;
 }
 };
 })(input.prop);
 attrs.$observe(input.attr, observeFn);
 // Use `watch()` (in addition to `observe()`) in order to initialize the
 input in time
 // for `ngOnChanges()`. This is necessary if we
 are already in a `$digest`, which means that
 // `ngOnChanges()` (which is called by a watcher) will run before
 the `observe()` callback.
 let unwatch: Function|null = this.componentScope.$watch(() => {
 unwatch!();
 unwatch = null;
 observeFn(attrs[input.attr]);
 });
 } else if
 (attrs.hasOwnProperty(input.bindAttr)) {
 expr = attrs[input.bindAttr];
 } else if
 (attrs.hasOwnProperty(input.bracketAttr)) {
 expr = attrs[input.bracketAttr];
 } else if
 (attrs.hasOwnProperty(input.bindonAttr)) {
 expr = attrs[input.bindonAttr];
 } else if
 (attrs.hasOwnProperty(input.bracketParenAttr)) {
 expr = attrs[input.bracketParenAttr];
 }
 if (expr !=
 null) {
 const watchFn =
 (prop => (currValue: any, prevValue: any) =>
 this.updateInput(prop, prevValue, currValue))(input.prop);
 this.componentScope.$watch(expr, watchFn);
 }
 }
 }

 // Invoke `ngOnChanges()` and Change Detection (when necessary)
 const detectChanges = () =>
 this.changeDetector.detectChanges();
 const prototype = this.componentFactory.componentType.prototype;
 this.implementsOnChanges = !!
 (prototype && (<OnChanges>prototype).ngOnChanges);
 this.componentScope.$watch(() => this.inputChangeCount, this.wrapCallback(() => {
 // Invoke
 `ngOnChanges()`
 if (this.implementsOnChanges) {
 const inputChanges = this.inputChanges;
 this.inputChanges = {};
 (<OnChanges>this.component).ngOnChanges(inputChanges!);
 }
 this.viewChangeDetector.markForCheck();
 // If opted out of propagating digests, invoke change detection
 when inputs change.
 if (!propagateDigest) {
 detectChanges();
 }
 }));
 // If not opted out of
 propagating digests, invoke change detection on every digest
 if (propagateDigest) {
 this.componentScope.$watch(this.wrapCallback(detectChanges));
 }

 // If necessary, attach the view so that it will be dirty-checked.
 // (Allow time for the initial input
 values to be set and `ngOnChanges()` to be called.)
 if (manuallyAttachView || !propagateDigest) {
 let
 unwatch: Function|null = this.componentScope.$watch(() => {
 unwatch!();
 unwatch = null;
 });
 const appRef = this.parentInjector.get<ApplicationRef>(ApplicationRef);
 appRef.attachView(this.componentRef.hostView);
 }

 setupOutputs() {
 const attrs =
 this.attrs;
 const outputs = this.componentFactory.outputs || [];
 for (let j = 0; j < outputs.length; j++) {
 const output = new PropertyBinding(outputs[j].propName, outputs[j].templateName);
 const bindonAttr =
 output.bindonAttr.substring(0, output.bindonAttr.length - 6);
 const bracketParenAttr =
 `((${output.bracketParenAttr.substring(2, output.bracketParenAttr.length - 8)}))`;
 //
 order below is important - first update bindings then evaluate expressions
 if
 (attrs.hasOwnProperty(bindonAttr)) {
 this.subscribeToOutput(output, attrs[bindonAttr], true);
 }
 if
 (attrs.hasOwnProperty(bracketParenAttr)) {
 this.subscribeToOutput(output, attrs[bracketParenAttr], true);
 }
 if
 (attrs.hasOwnProperty(output.onAttr)) {
 this.subscribeToOutput(output, attrs[output.onAttr]);
 }
 if
 (attrs.hasOwnProperty(output.parenAttr)) {
 this.subscribeToOutput(output,
 attrs[output.parenAttr]);
 }
 }
 private subscribeToOutput(output: PropertyBinding, expr: string,
 isAssignment: boolean = false) {
 const getter = this.$parse(expr);
 const setter = getter.assign;
 if
 (isAssignment && !setter) {
 throw new Error('Expression `${expr}` is not assignable!');
 }
 const emitter
 = this.component[output.prop] as EventEmitter<any>;
 if (emitter) {
 emitter.subscribe({

```

```

 next: isAssignment ? (v: any) => setter!(this.scope, v) : (v: any) => getter(this.scope,
 {'$event': v}))\n });\n } else {\n throw new Error('Missing emitter '${output.prop}' on component '${\n
 getTypeName(this.componentFactory.componentType)}');\n }\n }\n\n registerCleanup() {\n const
 testabilityRegistry = this.componentRef.injector.get(TestabilityRegistry);\n const destroyComponentRef =
 this.wrapCallback(() => this.componentRef.destroy());\n let destroyed = false;\n\n this.element.on!('$destroy', ()
 => this.componentScope.$destroy());\n this.componentScope.$on('$destroy', () => {\n if (!destroyed) {\n
 destroyed = true;\n testabilityRegistry.unregisterApplication(this.componentRef.location.nativeElement);\n
 destroyComponentRef();\n }\n });\n }\n\n getInjector(): Injector {\n return this.componentRef.injector;\n
 }\n\n private updateInput(prop: string, prevValue: any,
 currValue: any) {\n if (this.implementsOnChanges) {\n this.inputChanges[prop] = new
 SimpleChange(prevValue, currValue, prevValue === currValue);\n }\n\n this.inputChangeCount++;\n
 this.component[prop] = currValue;\n }\n\n groupProjectableNodes() {\n let ngContentSelectors =
 this.componentFactory.ngContentSelectors;\n return groupNodesBySelector(ngContentSelectors,
 this.element.contents!());\n }\n\n /**\n * Group a set of DOM nodes into `ngContent` groups, based on the given
 content selectors.\n */\n export function groupNodesBySelector(ngContentSelectors: string[], nodes: Node[]):
 Node[][] {\n const projectableNodes: Node[][] = [];\n let wildcardNgContentIndex: number;\n\n for (let i = 0, ii =
 ngContentSelectors.length; i < ii; ++i) {\n projectableNodes[i] = [];\n }\n\n for (let j = 0, jj = nodes.length; j < jj;
 ++j) {\n const node = nodes[j];\n const ngContentIndex = findMatchingNgContentIndex(node,
 ngContentSelectors);\n if (ngContentIndex
 != null) {\n projectableNodes[ngContentIndex].push(node);\n }\n }\n\n return
 projectableNodes;\n }\n\n function findMatchingNgContentIndex(element: any, ngContentSelectors: string[]):
 number|null {\n const ngContentIndices: number[] = [];\n let wildcardNgContentIndex: number = -1;\n for (let i =
 0; i < ngContentSelectors.length; i++) {\n const selector = ngContentSelectors[i];\n if (selector === '*') {\n
 wildcardNgContentIndex = i;\n } else {\n if (matchesSelector(element, selector)) {\n
 ngContentIndices.push(i);\n }\n }\n }\n ngContentIndices.sort();\n\n if (wildcardNgContentIndex !== -1) {\n
 ngContentIndices.push(wildcardNgContentIndex);\n }\n\n return ngContentIndices.length ? ngContentIndices[0] :
 null;\n }\n\n let _matches: (this: any, selector: string) => boolean;\n function matchesSelector(el: any, selector:
 string): boolean {\n if (!_matches) {\n const elProto = <any>Element.prototype;\n _matches = elProto.matches ||
 elProto.matchesSelector\n || elProto.mozMatchesSelector || elProto.msMatchesSelector || elProto.oMatchesSelector ||
 elProto.webkitMatchesSelector;\n }\n return el.nodeType === Node.ELEMENT_NODE ? _matches.call(el,
 selector) : false;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source
 code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
 */\n import {isFunction} from './util';\n export interface Thenable<T> {\n then(callback: (value: T) => any):
 any;\n }\n\n export function isThenable<T>(obj: unknown): obj is Thenable<T> {\n return !!obj && isFunction((obj
 as any).then);\n }\n\n /**\n * Synchronous, promise-like object.\n */\n export class SyncPromise<T> {\n protected
 value: T|undefined;\n private resolved = false;\n private callbacks: ((value: T) => unknown)[] = [];\n\n static
 all<T>(valuesOrPromises: (T|Thenable<T>][]): SyncPromise<T[]> {\n const aggrPromise = new
 SyncPromise<T[]>();\n\n let resolvedCount = 0;\n const results: T[] = [];\n const resolve = (idx: number, value: T) => {\n
 results[idx] = value;\n if (++resolvedCount === valuesOrPromises.length) aggrPromise.resolve(results);\n
 }\n\n valuesOrPromises.forEach((p, idx) => {\n if (isThenable(p)) {\n p.then(v => resolve(idx, v));\n }
 else {\n resolve(idx, p);\n }\n });\n\n return aggrPromise;\n }\n\n resolve(value: T): void {\n // Do
 nothing, if already resolved.\n if (this.resolved) return;\n\n this.value = value;\n this.resolved = true;\n\n //
 Run the queued callbacks.\n this.callbacks.forEach(callback => callback(value));\n this.callbacks.length = 0;\n
 }\n\n then(callback: (value: T) => unknown): void {\n if (this.resolved) {\n callback(this.value!);\n } else {\n
 this.callbacks.push(callback);\n }\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights
 Reserved.\n * Use of this

```

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```

import { ComponentFactory, ComponentFactoryResolver, Injector, NgZone, Type }
from '@angular/core';
import { IAnnotatedFunction, IAttributes, IAugmentedJQuery, ICompileService,
IDirective, IInjectorService, INgModelController, IParseService, IScope } from './angular1';
import { $COMPILE, $INJECTOR, $PARSE, INJECTOR_KEY, LAZY_MODULE_REF, REQUIRE_INJECTOR,
REQUIRE_NG_MODEL } from './constants';
import { DowngradeComponentAdapter } from
'./downgrade_component_adapter';
import { SyncPromise, Thenable } from './promise_util';
import { controllerKey,
getDowngradedModuleCount, getTypeName, getUpgradeAppType, LazyModuleRef, UpgradeAppType,
validateInjectionKey } from './util';

```

A helper function that allows an Angular component to be used from AngularJS.

Part of the [upgrade/static](api?query=upgrade%2Fstatic) library for hybrid

This helper function returns a factory function to be used for registering an AngularJS wrapper directive for "downgrading" an Angular component.

##### Examples

Let's assume that you have an Angular component called `ng2Heroes` that needs to be made available in AngularJS templates.

```

@example upgrade/static/ts/full/module.ts region="ng2-heroes"

```

We must create an AngularJS [directive](https://docs.angularjs.org/guide/directive) that will make this Angular component available inside AngularJS templates.

The `downgradeComponent()` function returns a factory function that we can use to define the AngularJS directive that wraps the "downgraded" component.

```

@example upgrade/static/ts/full/module.ts region="ng2-heroes-wrapper"

```

For more details and examples on downgrading Angular components to AngularJS components please visit the [Upgrade guide](guide/upgrade#using-angular-components-from-angularjs-code).

@param info contains information about the Component that is being downgraded:

- `component: Type<any>`: The type of the Component that will be downgraded
- `downgradedModule?: string`: The name of the downgraded module (if any) that the component "belongs to", as returned by a call to `downgradeModule()`. It is the module, whose corresponding Angular module will be bootstrapped, when the component needs to be instantiated.
- `propagateDigest?: boolean`: Whether to perform { @link ChangeDetectorRef#detectChanges } change detection on the component on every { @link \$digest } (https://docs.angularjs.org/api/ng/type/\$rootScope.Scope#\$digest). If set to `false`, change detection will still be performed when any of the component's inputs changes. (Default: true)
- @returns a factory function that can be used to register the component in an AngularJS module.
- @publicApi
- function downgradeComponent(info: {
  - component: Type<any>
  - downgradedModule?: string
  - propagateDigest?: boolean
- /\*\* @deprecated since v4. This parameter is no longer used \*/
- inputs?: string[]
- /\*\* @deprecated since v4. This parameter is no longer used \*/
- outputs?: string[]
- /\*\* @deprecated since v4. This parameter is no longer used \*/
- selectors?: string[]

- any /\* angular.IInjectable \*/ {
- const directiveFactory: IAnnotatedFunction = function(
  - \$compile: ICompileService,
  - \$injector: IInjectorService,
  - \$parse: IParseService): IDirective {
    - // When using `downgradeModule()`, we need to handle certain things specially. For example:
      - // - We always need to attach the component view to the `ApplicationRef` for it to be dirty-checked.
      - // - We need to ensure callbacks to Angular APIs (e.g. change detection) are run inside the Angular zone.
      - NOTE: This is not needed, when using `UpgradeModule`, because `\$digest()` will be run inside the Angular zone (except if explicitly escaped, in which case we shouldn't force it back in).
    - const isNgUpgradeLite = getUpgradeAppType(\$injector) === UpgradeAppType.Lite;
    - const wrapCallback: <T>(cb: () => T) => typeof cb =
    - isNgUpgradeLite ? cb => cb : cb => () => NgZone.isInAngularZone() ? cb() : NgZone.run(cb);
    - let ngZone: NgZone;
    - // When downgrading multiple modules, special handling is needed wrt injectors.
    - const hasMultipleDowngradedModules =
    - isNgUpgradeLite && (getDowngradedModuleCount(\$injector) > 1);
    - return {
      - restrict: 'E',
      - terminal: true,
      - require: [REQUIRE\_INJECTOR, REQUIRE\_NG\_MODEL],
      - link: (scope: IScope, element: IAugmentedJQuery, attrs: IAttributes, required: any[]) => {
        - // We might have

```

to compile the contents asynchronously, because this might have been\n // triggered by
`UpgradeNg1ComponentAdapterBuilder`, before the Angular templates have\n // been compiled.\n\n const
ngModel: INgModelController = required[1];\n const parentInjector: Injector|Thenable<Injector>|undefined =
required[0];\n let moduleInjector: Injector|Thenable<Injector>|undefined = undefined;\n let ranAsync =
false;\n\n if (!parentInjector || hasMultipleDowngradedModules) {\n const downgradedModule =
info.downgradedModule || "";\n const lazyModuleRefKey =
`${LAZY_MODULE_REF}${downgradedModule}`;\n const attemptedAction = `instantiating component
`${getTypeName(info.component)}";\n\n validateInjectionKey($injector, downgradedModule,
lazyModuleRefKey, attemptedAction);\n\n const lazyModuleRef = $injector.get(lazyModuleRefKey) as
LazyModuleRef;\n moduleInjector = lazyModuleRef.injector || lazyModuleRef.promise
as Promise<Injector>;\n }\n\n // Notes:\n //\n // There are two injectors: `finalModuleInjector` and
`finalParentInjector` (they might be\n // the same instance, but that is irrelevant);\n // -
`finalModuleInjector` is used to retrieve `ComponentFactoryResolver`, thus it must be\n // on the same tree as
the `NgModule` that declares this downgraded component.\n // - `finalParentInjector` is used for all other
injection purposes.\n // (Note that Angular knows to only traverse the component-tree part of that injector,\n // when looking for an injectable and then switch to the module injector.)\n //\n // There are basically three
cases:\n // - If there is no parent component (thus no `parentInjector`), we bootstrap the downgraded\n //
`NgModule` and use its injector as both `finalModuleInjector` and\n // `finalParentInjector`.\n // - If there
is a parent component
(and thus a `parentInjector`) and we are sure that it\n // belongs to the same `NgModule` as this downgraded
component (e.g. because there is only\n // one downgraded module, we use that `parentInjector` as both
`finalModuleInjector` and\n // `finalParentInjector`.\n // - If there is a parent component, but it may belong
to a different `NgModule`, then we\n // use the `parentInjector` as `finalParentInjector` and this downgraded
component's\n // declaring `NgModule`'s injector as `finalModuleInjector`.\n // Note 1: If the
`NgModule` is already bootstrapped, we just get its injector (we don't\n // bootstrap again).\n // Note
2: It is possible that (while there are multiple downgraded modules) this\n // downgraded component and
its parent component both belong to the same NgModule.\n // In that case, we could have used the
`parentInjector` as both\n //
`finalModuleInjector` and `finalParentInjector`, but (for simplicity) we are\n // treating this case as
if they belong to different `NgModule`s. That doesn't\n // really affect anything, since `parentInjector` has
`moduleInjector` as ancestor\n // and trying to resolve `ComponentFactoryResolver` from either one will
return\n // the same instance.\n // If there is a parent component, use its injector as parent injector.\n\n
 // If this is a "top-level" Angular component, use the module injector.\n const finalParentInjector =
parentInjector || moduleInjector!;\n\n // If this is a "top-level" Angular component or the parent component
may belong to a\n // different `NgModule`, use the module injector for module-specific dependencies.\n // If
there is a parent component that belongs to the same `NgModule`, use its injector.\n const finalModuleInjector
= moduleInjector
|| parentInjector!;\n\n const doDowngrade = (injector: Injector, moduleInjector: Injector) => {\n //
Retrieve `ComponentFactoryResolver` from the injector tied to the `NgModule` this\n // component belongs
to.\n const componentFactoryResolver: ComponentFactoryResolver =\n moduleInjector.get(ComponentFactoryResolver);\n const componentFactory: ComponentFactory<any> =\n componentFactoryResolver.resolveComponentFactory(info.component!);\n if (!componentFactory) {\n
throw new Error(`Expecting ComponentFactory for: ${getTypeName(info.component)}`);\n }\n\n const injectorPromise = new ParentInjectorPromise(element);\n const facade = new
DowngradeComponentAdapter(\n element, attrs, scope, ngModel, injector, $injector, $compile, $parse,\n componentFactory, wrapCallback);\n const projectableNodes = facade.compileContents();\n facade.createComponent(projectableNodes);\n

```



```

 facade.setupInputs(isNgUpgradeLite, info.propagateDigest);\n facade.setupOutputs();\n
 facade.registerCleanup();\n injectorPromise.resolve(facade.getInjector());\n if (ranAsync) {\n
 // If this is run async, it is possible that it is not run inside a\n // digest and initial input values will not be
 detected.\n scope.$evalAsync(() => {});\n }\n const downgradeFn =\n
 !isNgUpgradeLite ? doDowngrade : (pInjector: Injector, mInjector: Injector) => {\n if (!ngZone) {\n
 ngZone = pInjector.get(NgZone);\n }\n wrapCallback(() => doDowngrade(pInjector,\n
 mInjector));\n }\n // NOTE:\n // Not using `ParentInjectorPromise.all()` (which is inherited from\n
 `SyncPromise`), because\n // Closure Compiler (or some related tool) complains:\n // `TypeError:\n
 ...srcdowngrade_component_ParentInjectorPromise.all is not a function`\n
 SyncPromise.all([finalParentInjector, finalModuleInjector]).then(([pInjector, mInjector]) =>\n
 downgradeFn(pInjector, mInjector));\n ranAsync = true;\n }\n }\n }\n // bracket-notation because of\n
 closure - see #14441\n directiveFactory['$inject'] = [$COMPILE, $INJECTOR, $PARSE];\n return\n
 directiveFactory;\n }\n /**\n * Synchronous promise-like object to wrap parent injectors,\n * to preserve the\n
 synchronous nature of AngularJS's `$compile`.\n */\n class ParentInjectorPromise extends SyncPromise<Injector>\n
 {\n private injectorKey: string = controllerKey(INJECTOR_KEY);\n constructor(private element:\n
 IAugmentedJQuery) {\n super();\n // Store the promise on the element.\n element.data!(this.injectorKey,\n
 this);\n }\n resolve(injector: Injector): void {\n // Store the real injector on the element.\n
 this.element.data!(this.injectorKey, injector);\n }\n
 // Release the element to prevent memory leaks.\n this.element = null;\n // Resolve the promise.\n
 super.resolve(injector);\n }\n }\n ", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of\n
 this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n
 https://angular.io/license\n */\n import {Injector} from '@angular/core';\n import {IInjectorService} from\n
 './angular1';\n import {$INJECTOR, INJECTOR_KEY} from './constants';\n import {getTypeName, isFunction,\n
 validateInjectionKey} from './util';\n /**\n * @description\n *\n * A helper function to allow an Angular service to\n
 be accessible from AngularJS.\n *\n * Part of the [upgrade/static](api?query=upgrade%2Fstatic)\n * library for\n
 hybrid upgrade apps that support AOT compilation.\n *\n * This helper function returns a factory function that\n
 provides access to the Angular\n * service identified by the `token` parameter.\n *\n * @usageNotes\n * ###\n
 Examples\n *\n
 * First ensure that the service to be downgraded is provided in an `NgModule`\n * that will be part of the upgrade\n
 application. For example, let's assume we have\n * defined `HeroesService`\n * {\n * @example\n
 upgrade/static/ts/full/module.ts region="ng2-heroes-service"\n * }\n * and that we have included this in our upgrade\n
 app `NgModule`\n * {\n * @example upgrade/static/ts/full/module.ts region="ng2-module"\n * }\n * Now we can\n
 register the `downgradeInjectable` factory function for the service\n * on an AngularJS module.\n * {\n * @example\n
 upgrade/static/ts/full/module.ts region="downgrade-ng2-heroes-service"\n * }\n * Inside an AngularJS component's\n
 controller we can get hold of the\n * downgraded service via the name we gave when downgrading.\n * {\n * @example upgrade/static/ts/full/module.ts region="example-app"\n * }\n * <div class="alert is-important">\n
 *\n * When using `downgradeModule()`, downgraded injectables will not be available until the Angular\n * module that\n
 provides them is instantiated. In order to be safe, you need to ensure that the\n * downgraded injectables are not\n
 used anywhere _outside_ the part of the app where it is\n * guaranteed that their module has been instantiated.\n *\n * For example, it is _OK_ to use a downgraded service in an upgraded component that is only used\n * from a\n
 downgraded Angular component provided by the same Angular module as the injectable, but\n * it is _not OK_ to\n
 use it in an AngularJS component that may be used independently of Angular or\n * use it in a downgraded\n
 Angular component from a different module.\n * </div>\n * @param token an `InjectionToken` that\n
 identifies a service provided from Angular.\n * @param downgradedModule the name of the downgraded module\n
 (if any) that the injectable\n * "belongs to", as returned by a call to `downgradeModule()`. It is the module, whose\n
 injector will\n * be used for instantiating the injectable.
\n * (This option is only necessary

```

```

when using `downgradeModule()` to downgrade more than one Angular module.))\n * @returns a [factory
function](https://docs.angularjs.org/guide/di) that can be\n * used to register the service on an AngularJS module.\n
*\n * @publicApi\n */\nexport function downgradeInjectable(token: any, downgradedModule: string = ''): Function {\n
 const factory = function($injector: IIInjectorService) {\n const injectorKey =
`${INJECTOR_KEY}${downgradedModule}`;\n const injectableName = isFunction(token) ?
getTypeName(token) : String(token);\n const attemptedAction = `instantiating injectable '${injectableName}'`;\n\n
 validateInjectionKey($injector, downgradedModule, injectorKey, attemptedAction);\n\n try {\n const injector:
Injector = $injector.get(injectorKey);\n return injector.get(token);\n } catch (err) {\n throw new Error(`Error
while ${attemptedAction}: ${err.message || err}`);\n }\n };\n (factory as any)['$inject'] = ['$INJECTOR'];\n\n
 return factory;\n}\n", "/*\n
* @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an
MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\n * @module\n
* @description\n * Entry point for all public APIs of the common package.\n */\n\nimport {Version} from
'@angular/core';\n\n\n * @publicApi\n */\nexport const VERSION = new Version('11.0.2');\n", "/*\n\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n\nimport
{IIInjectorService} from '../src/common/src/angular1';\n\n// We have to do a little dance to get the ng1 injector into
the module injector.\n// We store the ng1 injector so that the provider in the module injector can access it\n// Then
we \"get\" the ng1 injector from the module injector, which triggers the provider to read\n// the stored
injector and release the reference to it.\nlet tempInjectorRef: IIInjectorService|null = null;\n\nexport function
setTempInjectorRef(injector: IIInjectorService) {\n tempInjectorRef = injector;\n}\n\nexport function
injectorFactory() {\n if (!tempInjectorRef) {\n throw new Error(\"Trying to get the AngularJS injector before it
being set.\");\n }\n\n const injector: IIInjectorService = tempInjectorRef;\n tempInjectorRef = null; // clear the value
to prevent memory leaks\n return injector;\n}\n\n\nexport function rootScopeFactory(i: IIInjectorService) {\n return
i.get('$rootScope');\n}\n\n\nexport function compileFactory(i: IIInjectorService) {\n return
i.get('$compile');\n}\n\n\nexport function parseFactory(i: IIInjectorService) {\n return i.get('$parse');\n}\n\n\nexport
const angular1Providers = [\n // We must use exported named functions for the ng2 factories to keep the compiler
happy:\n // > Metadata collected contains an error that will be reported at runtime:\n // > Function calls
are not supported.\n // > Consider replacing the function or lambda with a reference to an exported function\n
{\n provide: '$injector', useFactory: injectorFactory, deps: [],\n},\n {\n provide: '$rootScope', useFactory: rootScopeFactory,\n deps: ['$injector'],\n},\n {\n provide: '$compile', useFactory: compileFactory, deps: ['$injector'],\n},\n {\n provide: '$parse',\n useFactory: parseFactory, deps: ['$injector']\n}];\n", "/*\n\n *
@license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n\nimport {Injector,\nNOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR as\nNOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR} from '@angular/core';\n\n\nexport class
NgAdapterInjector implements Injector {\n constructor(private modInjector: Injector) {\n // When Angular
locate a service in the component injector tree, the not found value is set to\n
// `NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR`. In such
a case we should not walk up to the module\n // injector.\n // AngularJS only supports a single tree and should
always check the module injector.\n get(token: any, notFoundValue?: any): any {\n if (notFoundValue ===
NOT_FOUND_CHECK_ONLY_ELEMENT_INJECTOR) {\n return notFoundValue;\n }\n\n return
this.modInjector.get(token, notFoundValue);\n }\n }\n}\n", "/*\n\n *
@license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\n\nimport {Injector, NgModuleFactory, NgModuleRef,\nStaticProvider} from '@angular/core';\n\nimport {platformBrowser} from '@angular/platform-browser';\n\nimport
{IIInjectorService, IProvideService, module_ as angularModule} from '../src/common/src/angular1';\n\nimport
{$INJECTOR, $PROVIDE, DOWNGRADED_MODULE_COUNT_KEY, INJECTOR_KEY,

```

```

LAZY_MODULE_REF, UPGRADE_APP_TYPE_KEY, UPGRADE_MODULE_NAME} from
'./../src/common/src/constants';\nimport
{getDowngradedModuleCount, isFunction, LazyModuleRef, UpgradeAppType} from
'./../src/common/src/util';\n\nimport {angular1Providers, setTempInjectorRef} from './angular1_providers';\nimport
{NgAdapterInjector} from './util';\n\n\nlet moduleUid = 0;\n\n/**\n * @description\n * A helper function for
creating an AngularJS module that can bootstrap an Angular module\n * \"on-demand\" (possibly lazily) when a
{@link downgradeComponent} needs to be\n * instantiated.\n * Part of the
[upgrade/static](api?query=upgrade/static) library for hybrid upgrade apps that\n * support AOT compilation.\n * It allows loading/bootstrapping the Angular part of a hybrid application lazily and not having to\n * pay the cost
up-front. For example, you can have an AngularJS application that uses Angular for\n * specific routes and only
instantiate the Angular modules if/when the user visits one of these\n * routes.\n * The Angular module will be
bootstrapped
once (when requested for the first time) and the same\n * reference will be used from that point onwards.\n *
`downgradeModule()` requires either an `NgModuleFactory` or a function:\n * - `NgModuleFactory`: If you pass an
`NgModuleFactory`, it will be used to instantiate a module\n * using `platformBrowser`'s {@link
PlatformRef#bootstrapModuleFactory} bootstrapModuleFactory().\n * - `Function`: If you pass a function, it is
expected to return a promise resolving to an\n * `NgModuleRef`. The function is called with an array of extra
{@link StaticProvider} Providers\n * that are expected to be available from the returned `NgModuleRef`'s
`Injector`.\n *
`downgradeModule()` returns the name of the created AngularJS wrapper module. You can use it
to\n * declare a dependency in your main AngularJS module.\n * { @example upgrade/static/ts/lite/module.ts
region=\"basic-how-to\" }\n * For more details on how to use `downgradeModule()` see\n * [Upgrading for
Performance](guide/upgrade-performance).\n
*\n * @usageNotes\n * Apart from `UpgradeModule`, you can use the rest of the `upgrade/static` helpers as
usual to\n * build a hybrid application. Note that the Angular pieces (e.g. downgraded services) will not be\n *
available until the downgraded module has been bootstrapped, i.e. by instantiating a downgraded\n * component.\n
*\n * <div class=\"alert is-important\">\n * You cannot use `downgradeModule()` and `UpgradeModule` in the
same hybrid application.
\n * Use one or the other.\n * </div>\n * ### Differences with
`UpgradeModule`\n * Besides their different API, there are two important internal differences between\n *
`downgradeModule()` and `UpgradeModule` that affect the behavior of hybrid applications:\n * 1. Unlike
`UpgradeModule`, `downgradeModule()` does not bootstrap the main AngularJS module\n * inside the {@link
NgZone} Angular zone).\n * 2. Unlike `UpgradeModule`, `downgradeModule()` does not automatically
run a\n * [$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest) when changes are\n *
detected in the Angular part of the application.\n * What this means is that applications using `UpgradeModule`
will run change detection more\n * frequently in order to ensure that both frameworks are properly notified about
possible changes.\n * This will inevitably result in more change detection runs than necessary.\n *
`downgradeModule()`, on the other side, does not try to tie the two change detection systems as\n * tightly,
restricting the explicit change detection runs only to cases where it knows it is\n * necessary (e.g. when the inputs of
a downgraded component change). This improves performance,\n * especially in change-detection-heavy
applications, but leaves it up to the developer to manually\n * notify each framework as needed.\n * For a more
detailed discussion of the differences and their implications, see\n * [Upgrading for Performance](guide/upgrade-
performance).\n
*\n * <div class=\"alert is-helpful\">\n * You can manually trigger a change detection run in AngularJS
using\n * [scope.$apply()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$apply) or\n *
[$rootScope.$digest()](https://docs.angularjs.org/api/ng/type/$rootScope.Scope#$digest).\n * You can
manually trigger a change detection run in Angular using {@link NgZone#run} \n * ngZone.run(...).\n *
</div>\n * ### Downgrading multiple modules\n * It is possible to downgrade multiple modules and include
them in an AngularJS application. In\n * that case, each downgraded module will be bootstrapped when an
associated downgraded component or\n * injectable needs to be instantiated.\n * Things to keep in mind, when

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downgrading multiple modules:\n \* - Each downgraded component/injectable needs to be explicitly associated with a downgraded\n \* module. See `downgradeComponent()` and `downgradeInjectable()` for more details.\n \* - If you want some injectables to be shared among all downgraded modules, you can provide them as\n \* `StaticProvider`s, when creating the `PlatformRef` (e.g. via `platformBrowser` or\n \* `platformBrowserDynamic`).\n \* - When using `{ @link PlatformRef#bootstrapModule bootstrapModule() }` or\n \* `{ @link PlatformRef#bootstrapModuleFactory bootstrapModuleFactory() }` to bootstrap the\n \* downgraded modules, each one is considered a \"root\" module. As a consequence, a new instance\n \* will be created for every injectable provided in \"root\" (via\n \* `{ @link Injectable#providedIn providedIn }`).\n \* If this is not your intention, you can have a shared module (that will act as the \"root\"\n \* module) and create all downgraded modules using that module's injector:\n \* {\n \* @example upgrade/static/ts/lite-multi-shared/module.ts\n \* region=\"shared-root-module\"\n \* @publicApi\n \* ^\n \* nexport function\n \* downgradeModule<T>(moduleFactoryOrBootstrapFn: NgModuleFactory<T> | (\n \* (extraProviders: StaticProvider[]) => Promise<NgModuleRef<T>>)): string {\n \* const lazyModuleName = `\${UPGRADE\_MODULE\_NAME}.lazy\${++moduleId}`;\n \* const lazyModuleRefKey = `\${LAZY\_MODULE\_REF}\${lazyModuleName}`;\n \* const lazyInjectorKey = `\${INJECTOR\_KEY}\${lazyModuleName}`;\n \* const bootstrapFn = isFunction(moduleFactoryOrBootstrapFn)\n \* ? moduleFactoryOrBootstrapFn : (\n \* (extraProviders: StaticProvider[]) =>\n \* platformBrowser(extraProviders).bootstrapModuleFactory(moduleFactoryOrBootstrapFn);\n \* );\n \* let injector: Injector;\n \* // Create an ng1 module to bootstrap.\n \* angularModule(lazyModuleName, [])\n \* .constant(UPGRADE\_APP\_TYPE\_KEY, UpgradeAppType.Lite)\n \* .factory(INJECTOR\_KEY, [lazyInjectorKey, identity])\n \* .factory(\n \* lazyInjectorKey,\n \* () => {\n \* if (!injector) {\n \* throw new Error(`Trying to get the Angular injector before bootstrapping the corresponding '\n \* 'Angular module.'`);\n \* }\n \* return injector;\n \* })\n \* .factory(LAZY\_MODULE\_REF, [lazyModuleRefKey, identity])\n \* .factory(\n \* lazyModuleRefKey,\n \* [\n \* \$INJECTOR,\n \* (\$injector: IInjectorService) => {\n \* setTempInjectorRef(\$injector);\n \* const result: LazyModuleRef = {\n \* promise: bootstrapFn(angular1Providers).then(ref => {\n \* injector = result.injector = new NgAdapterInjector(ref.injector);\n \* injector.get(\$INJECTOR);\n \* return injector;\n \* })\n \* };\n \* return result;\n \* })\n \* ])\n \* .config([\n \* \$INJECTOR, \$PROVIDE,\n \* (\$injector: IInjectorService, \$provide: IProvideService) => {\n \* \$provide.constant(DOWNGRADED\_MODULE\_COUNT\_KEY, getDowngradedModuleCount(\$injector) + 1);\n \* }\n \* ]);\n \* return lazyModuleName;\n \* }\n \* }\n \* \n \* function identity<T> = any>(x: T): T {\n \* return x;\n \* }\n \* \"\", \"\*\*\" \* @license\n \* Copyright Google LLC All Rights Reserved.\n \* Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n \* }\n \* \n \* import {ElementRef, Injector, SimpleChanges} from '@angular/core';\n \* import {DirectiveRequireProperty, element as angularElement, IAugmentedJQuery, ICloneAttachFunction, ICompileService, IController, IControllerService, IDirective, IHttpBackendService, IInjectorService, ILinkFn, IScope, ITemplateCacheService, SingleOrListOrMap} from './angular1';\n \* import {\$COMPILE, \$CONTROLLER, \$HTTP\_BACKEND, \$INJECTOR, \$TEMPLATE\_CACHE} from './constants';\n \* import {controllerKey, directiveNormalize, isFunction} from './util';\n \* \n \* // Constants\n \* const REQUIRE\_PREFIX\_RE = /^(\\|\\^|\\^)?(\\|)?(\\|\\^|\\^)?;/\n \* \n \* // Interfaces\n \* export interface IBindingDestination {\n \* [key: string]: any;\n \* }\n \* \n \* export interface IControllerInstance extends IBindingDestination {\n \* \$doCheck?(): void;\n \* \$onDestroy?(): void;\n \* \$onInit?(): void;\n \* \$postLink?(): void;\n \* }\n \* \n \* // Classes\n \* export class UpgradeHelper {\n \* public readonly \$injector: IInjectorService;\n \* public readonly element: ElementRef;\n \* public readonly \$element: IAugmentedJQuery;\n \* public readonly directive: IDirective;\n \* private readonly \$compile: ICompileService;\n \* private readonly \$controller: IControllerService;\n \* constructor(\n \* private injector: Injector,\n \* private name: string,\n \* elementRef: ElementRef,\n \* directive?: IDirective\n \* ) {\n \* this.\$injector = injector.get(\$INJECTOR);\n \* this.\$compile = this.\$injector.get(\$COMPILE);\n \* this.\$controller = this.\$injector.get(\$CONTROLLER);\n \* this.element =

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elementRef.nativeElement;\n this.$element = angularElement(this.element);\n\n this.directive = directive ||
UpgradeHelper.getDirective(this.$injector, name);\n }\n\n static getDirective($injector: IInjectorService,
 name: string): IDirective {\n const directives: IDirective[] = $injector.get(name + 'Directive');\n if
(directives.length > 1) {\n throw new Error(`Only support single directive definition for: ${name}`);\n }\n\n const directive = directives[0];\n\n // AngularJS will transform `link: xyz` to `compile: () => xyz`. So we can only
tell there was a\n // user-defined `compile` if there is no `link`. In other cases, we will just ignore `compile`.\n if
(directive.compile && !directive.link) notSupported(name, 'compile');\n if (directive.replace) notSupported(name,
'replace');\n if (directive.terminal) notSupported(name, 'terminal');\n\n return directive;\n }\n\n static
getTemplate(\n $injector: IInjectorService, directive: IDirective, fetchRemoteTemplate = false,\n $element?:
IAugmentedJQuery): string|Promise<string> {\n if (directive.template !== undefined) {\n return
getOrCall<string>(directive.template, $element);\n } else if
(directive.templateUrl) {\n const $templateCache = $injector.get($TEMPLATE_CACHE) as
ITemplateCacheService;\n const url = getOrCall<string>(directive.templateUrl, $element);\n const template =
$templateCache.get(url);\n\n if (template !== undefined) {\n return template;\n } else if
(!fetchRemoteTemplate) {\n throw new Error('loading directive templates asynchronously is not supported');\n }\n\n return new Promise((resolve, reject) => {\n const $httpBackend = $injector.get($HTTP_BACKEND)
as IHttpBackendService;\n $httpBackend('GET', url, null, (status: number, response: string) => {\n if
(status === 200) {\n resolve($templateCache.put(url, response));\n } else {\n reject(`GET
component template from '${url}' returned '${status}: ${response}'`);\n }\n });\n })\n } else {\n throw new Error(`Directive '${directive.name}' is not a component, it is missing template.`);\n }\n }\n\n buildController(controllerType: IController, $scope: IScope) {\n // TODO: Document that we do not
pre-assign bindings on the controller instance.\n // Quoted properties below so that this code can be optimized with
Closure Compiler.\n const locals = {'$scope': $scope, '$element': this.$element};\n const controller =
this.$controller(controllerType, locals, null, this.directive.controllerAs);\n\n this.$element.data!(controllerKey(this.directive.name!), controller);\n\n return controller;\n }\n\n compileTemplate(template?: string): ILinkFn {\n if (template === undefined) {\n template =\nUpgradeHelper.getTemplate(this.$injector, this.directive, false, this.$element) as string;\n }\n\n return
this.compileHtml(template);\n }\n\n onDestroy($scope: IScope, controllerInstance?: any) {\n if
(controllerInstance && isFunction(controllerInstance.$onDestroy)) {\n controllerInstance.$onDestroy();\n }\n\n $scope.$destroy();\n\n // Clean the jQuery/jqLite data on the component+child elements.\n // Equivelent to how jQuery/jqLite invoke
`cleanData` on an Element (this.element)\n //
https://github.com/jquery/jquery/blob/e743cbd28553267f955f71ea7248377915613fd9/src/manipulation.js#L223\n //
https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/jqLite.js#L306-L312\n // `cleanData` will invoke the AngularJS `$destroy` DOM event\n //
https://github.com/angular/angular.js/blob/26ddc5f830f902a3d22f4b2aab70d86d4d688c82/src/Angular.js#L1911-L1924\n angularElement.cleanData([this.element]);\n\n angularElement.cleanData(this.element.querySelectorAll('*'));\n }\n\n prepareTransclusion(): ILinkFn|undefined
{\n const transclude = this.directive.transclude;\n const contentChildNodes = this.extractChildNodes();\n const
attachChildrenFn: ILinkFn = (scope, cloneAttachFn) => {\n // Since AngularJS v1.5.8, `cloneAttachFn` will try
to destroy the
transclusion scope if\n // `$template` is empty. Since the transcluded content comes from Angular, not
AngularJS,\n // there will be no transclusion scope here.\n // Provide a dummy `scope.$destroy()` method to
prevent `cloneAttachFn` from throwing.\n scope = scope || {$destroy: () => undefined};\n return
cloneAttachFn!($template, scope);\n };\n let $template = contentChildNodes;\n\n if (transclude) {\n const
slots = Object.create(null);\n\n if (typeof transclude === 'object') {\n $template = [];\n\n const slotMap =
Object.create(null);\n const filledSlots = Object.create(null);\n\n // Parse the element selectors.\n Object.keys(transclude).forEach(slotName => {\n let selector = transclude[slotName];\n const optional =

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selector.charAt(0) === '?';\n selector = optional ? selector.substring(1) : selector;\n\n slotMap[selector] = slotName;\n slots[slotName] = null;\n\n // `null`: Defined but not yet filled.\n filledSlots[slotName] = optional; // Consider optional slots as filled.\n });\n\n // Add the matching elements into their slot.\n contentChildNodes.forEach(node => {\n const slotName = slotMap[directiveNormalize(node.nodeName.toLowerCase())];\n if (slotName) {\n filledSlots[slotName] = true;\n slots[slotName] = slots[slotName] || [];\n slots[slotName].push(node);\n } else {\n $template.push(node);\n }\n });\n\n // Check for required slots that were not filled.\n Object.keys(filledSlots).forEach(slotName => {\n if (!filledSlots[slotName]) {\n throw new Error(`Required transclusion slot '${slotName}' on directive: ${this.name}`);\n }\n });\n\n Object.keys(slots).filter(slotName => slots[slotName]).forEach(slotName => {\n const nodes = slots[slotName];\n slots[slotName] = (scope: IScope, cloneAttach: ICloneAttachFunction) => {\n return cloneAttach!(nodes, scope);\n };\n });\n\n // Attach `$$slots` to default slot transclude fn.\n attachChildrenFn.$$slots = slots;\n\n // AngularJS v1.6+ ignores empty or whitespace-only transcluded text nodes. But Angular\n // removes all text content after the first interpolation and updates it later, after\n // evaluating the expressions. This would result in AngularJS failing to recognize text\n // nodes that start with an interpolation as transcluded content and use the fallback\n // content instead.\n // To avoid this issue, we add a\n // [zero-width non-joiner character](https://en.wikipedia.org/wiki/Zero-width_non-joiner)\n // to empty text nodes (which can only be a result of Angular removing their initial content).\n // NOTE: Transcluded text content that starts with whitespace followed by an interpolation\n // will still fail to be detected by AngularJS v1.6+\n $template.forEach(node => {\n if (node.nodeType === Node.TEXT_NODE && !node.nodeValue) {\n node.nodeValue = '\\u200C';\n }\n });\n\n return attachChildrenFn;\n }\n\n resolveAndBindRequiredControllers(controllerInstance: IControllerInstance|null) {\n const directiveRequire = this.getDirectiveRequire();\n const requiredControllers = this.resolveRequire(directiveRequire);\n\n if (controllerInstance && this.directive.bindToController && isMap(directiveRequire)) {\n const requiredControllersMap = requiredControllers as {[key: string]: IControllerInstance};\n Object.keys(requiredControllersMap).forEach(key => {\n controllerInstance[key] = requiredControllersMap[key];\n });\n }\n\n return requiredControllers;\n }\n\n private compileHtml(html: string): ILinkFn {\n this.element.innerHTML = html;\n return this.$compile(this.element.childNodes);\n }\n\n private extractChildNodes(): Node[] {\n const childNodes: Node[] = [];\n let childNode: Node|null;\n\n while (childNode = this.element.firstChild) {\n this.element.removeChild(childNode);\n childNodes.push(childNode);\n }\n\n return childNodes;\n }\n\n private getDirectiveRequire(): DirectiveRequireProperty {\n const require = this.directive.require || (this.directive.controller && this.directive.name);\n\n if (isMap(require)) {\n Object.keys(require).forEach(key => {\n const value = require[key];\n const match = value.match(REQUIRE_PREFIX_RE);\n const name = value.substring(match[0].length);\n\n if (!name) {\n require[key] = match[0] + key;\n }\n });\n }\n\n return require;\n }\n\n private resolveRequire(require: DirectiveRequireProperty, controllerInstance?: any): SingleOrListOrMap<IControllerInstance>|null {\n if (!require) {\n return null;\n } else if (Array.isArray(require)) {\n return require.map(req => this.resolveRequire(req));\n } else if (typeof require === 'object') {\n const value: {[key: string]: IControllerInstance} = {};\n Object.keys(require).forEach(key => {\n value[key] = this.resolveRequire(require[key]);\n });\n return value;\n } else if (typeof require === 'string') {\n const match = require.match(REQUIRE_PREFIX_RE);\n const inheritType = match[1] || match[3];\n const name = require.substring(match[0].length);\n const isOptional = !!match[2];\n const searchParents = !!inheritType;\n const startOnParent = inheritType === '^';\n const ctrlKey = controllerKey(name);\n const elem = startOnParent ? this.$element.parent() : this.$element;\n const value = searchParents ? elem.inheritedData!(ctrlKey) : elem.data!(ctrlKey);\n\n if (!value && !isOptional) {\n throw new Error(`Unable to find required '${require}' in upgraded directive`);\n }\n }\n }\n}

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'${this.name}'.');\n }\n\n return value;\n } else {\n throw new Error(\n `Unrecognized 'require'
syntax on upgraded directive '${this.name}': ${require}`);\n }\n }\n}\n\nfunction getOrCall<T>(property:
T|Function, ...args: any[]): T {\n return isFunction(property) ? property(...args) : property;\n}\n\n// NOTE: Only
works for `typeof T !== 'object'.\nfunction isMap<T>(value: SingleOrListOrMap<T>): value is {[key: string]: T}
{\n return value && !Array.isArray(value) && typeof value === 'object';\n}\n\nfunction notSupported(name:
string, feature: string) {\n throw new Error(`Upgraded directive '${name}' contains unsupported feature:
'${feature}'.`);\n}\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*\n\nimport {Directive, DoCheck, ElementRef, EventEmitter, Injector, OnChanges, OnDestroy,
OnInit, SimpleChanges} from '@angular/core';\n\nimport {IAttributes, IAugmentedJQuery, IDirective,
IInjectorService, ILinkFn, IScope, ITranscludeFunction} from '../src/common/src/angular1';\n\nimport {$SCOPE}
from '../src/common/src/constants';\n\nimport {IBindingDestination, IControllerInstance, UpgradeHelper} from
'../src/common/src/upgrade_helper';\n\nimport {isFunction} from '../src/common/src/util';\n\nconst
NOT_SUPPORTED: any = 'NOT_SUPPORTED';\n\nconst INITIAL_VALUE = {\n __UNINITIALIZED__:
true\n};\n\n\nclass Bindings {\n twoWayBoundProperties: string[] = [];\n twoWayBoundLastValues: any[] = [];\n\n expressionBoundProperties: string[] = [];\n\n propertyToOutputMap: {[propName: string]: string} =
{};\n}\n\n/**\n * @description\n * \n * A helper class that allows an AngularJS component to be used from
Angular.\n * \n * *Part of the [upgrade/static](api?query=upgrade%2Fstatic)\n * library for hybrid upgrade apps that
support AOT compilation.\n * \n * This helper class should
be used as a base class for creating Angular directives\n * that wrap AngularJS components that need to be
`'upgraded'`.\n * \n * @usageNotes\n * #### Examples\n * \n * Let's assume that you have an AngularJS component
called `ng1Hero` that needs\n * to be made available in Angular templates.\n * \n * { @example
upgrade/static/ts/full/module.ts region="ng1-hero" }\n * \n * We must create a `Directive` that will make this
AngularJS component\n * available inside Angular templates.\n * \n * { @example upgrade/static/ts/full/module.ts
region="ng1-hero-wrapper" }\n * \n * In this example you can see that we must derive from the
`UpgradeComponent`\n * base class but also provide an { @link Directive `@Directive` } decorator. This is\n *
because the AOT compiler requires that this information is statically available at\n * compile time.\n * \n * Note that
we must do the following:\n * * specify the directive's selector (`ng1-hero`)\n * * specify all inputs and outputs that
the AngularJS component
expects\n * * derive from `UpgradeComponent`\n * * call the base class from the constructor, passing\n * * the
AngularJS name of the component (`ng1Hero`)\n * * the `ElementRef` and `Injector` for the component wrapper\n
*\n * @publicApi\n */\n\n@Directive()\nexport class UpgradeComponent implements OnInit, OnChanges, DoCheck,
OnDestroy {\n private helper: UpgradeHelper;\n\n private $injector: IInjectorService;\n\n private element:
Element;\n private $element: IAugmentedJQuery;\n private $componentScope: IScope;\n\n private directive:
IDirective;\n private bindings: Bindings;\n\n // TODO(issue/24571): remove '!'.\n private controllerInstance!:
IControllerInstance;\n // TODO(issue/24571): remove '!'.\n private bindingDestination!: IBindingDestination;\n\n // We will be instantiating the controller in the `ngOnInit` hook, when the\n // first `ngOnChanges` will have been
already triggered. We store the\n // `SimpleChanges` and `play them back` later.\n // TODO(issue/24571):
remove '!'.\n private pendingChanges!: SimpleChanges|null;\n\n // TODO(issue/24571): remove '!'.\n private
unregisterDoCheckWatcher!: Function;\n\n /**\n * Create a new `UpgradeComponent` instance. You should not
normally need to do this.\n * Instead you should derive a new class from this one and call the super constructor\n
* from the base class.\n * \n * { @example upgrade/static/ts/full/module.ts region="ng1-hero-wrapper" }\n
*\n * * The `name` parameter should be the name of the AngularJS directive.\n * * The `elementRef` and `injector`
parameters should be acquired from Angular by dependency\n * injection into the base class constructor.\n */\n
 constructor(private name: string, private elementRef: ElementRef, private injector: Injector) {\n this.helper = new
UpgradeHelper(injector, name, elementRef);\n\n this.$injector = this.helper.$injector;\n\n this.element =
this.helper.element;\n this.$element = this.helper.$element;\n\n this.directive

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= this.helper.directive;\n this.bindings = this.initializeBindings(this.directive);\n\n // We ask for the AngularJS
scope from the Angular injector, since\n // we will put the new component scope onto the new injector for each
component\n const $parentScope = injector.get($SCOPE);\n // QUESTION 1: Should we create an isolated
scope if the scope is only true?\n // QUESTION 2: Should we make the scope accessible through
`$element.scope()/isolateScope()`?\n this.$componentScope = $parentScope.$new(!this.directive.scope);\n\n
this.initializeOutputs();\n } \n\n ngOnInit() {\n // Collect contents, insert and compile template\n const
attachChildNodes: ILinkFn|undefined = this.helper.prepareTransclusion();\n const linkFn =
this.helper.compileTemplate();\n\n // Instantiate controller\n const controllerType = this.directive.controller;\n
const bindToController = this.directive.bindToController;\n if (controllerType) {\n this.controllerInstance
= this.helper.buildController(controllerType, this.$componentScope);\n } else if (bindToController) {\n throw
new Error(`Upgraded directive '${\n this.directive.name\n }' specifies 'bindToController' but no controller.`);\n
}\n\n // Set up outputs\n this.bindingDestination = bindToController ? this.controllerInstance :
this.$componentScope;\n this.bindOutputs();\n\n // Require other controllers\n const requiredControllers =\n this.helper.resolveAndBindRequiredControllers(this.controllerInstance);\n\n // Hook: $onChanges\n if
(this.pendingChanges) {\n this.forwardChanges(this.pendingChanges);\n this.pendingChanges = null;\n
}\n\n // Hook: $onInit\n if (this.controllerInstance && isFunction(this.controllerInstance.$onInit)) {\n
this.controllerInstance.$onInit();\n }\n\n // Hook: $doCheck\n if (this.controllerInstance &&
isFunction(this.controllerInstance.$doCheck)) {\n const callDoCheck = () =>
this.controllerInstance.$doCheck!();\n\n this.unregisterDoCheckWatcher = this.$componentScope.$parent.$watch(callDoCheck);\n callDoCheck();\n
}\n\n // Linking\n const link = this.directive.link;\n const preLink = typeof link === 'object' && link.pre;\n
const postLink = typeof link === 'object' ? link.post : link;\n const attrs: IAttributes = NOT_SUPPORTED;\n
const transcludeFn: ITranscludeFunction = NOT_SUPPORTED;\n if (preLink) {\n
preLink(this.$componentScope, this.$element, attrs, requiredControllers, transcludeFn);\n }\n\n
linkFn(this.$componentScope, null!, {parentBoundTranscludeFn: attachChildNodes});\n if (postLink) {\n
postLink(this.$componentScope, this.$element, attrs, requiredControllers, transcludeFn);\n }\n\n // Hook:
$postLink\n if (this.controllerInstance && isFunction(this.controllerInstance.$postLink)) {\n
this.controllerInstance.$postLink();\n }\n }\n\n ngOnChanges(changes: SimpleChanges) {\n if
(!this.bindingDestination)\n {\n this.pendingChanges = changes;\n } else {\n this.forwardChanges(changes);\n }\n }\n\n
ngDoCheck() {\n const twoWayBoundProperties = this.bindings.twoWayBoundProperties;\n const
twoWayBoundLastValues = this.bindings.twoWayBoundLastValues;\n const propertyToOutputMap =
this.bindings.propertyToOutputMap;\n\n twoWayBoundProperties.forEach((propName, idx) => {\n const
newValue = this.bindingDestination[propName];\n const oldValue = twoWayBoundLastValues[idx];\n if
(!Object.is(newValue, oldValue)) {\n const outputName = propertyToOutputMap[propName];\n const
eventEmitter: EventEmitter<any> = (this as any)[outputName];\n eventEmitter.emit(newValue);\n
twoWayBoundLastValues[idx] = newValue;\n }\n });\n }\n\n ngOnDestroy() {\n if
(isFunction(this.unregisterDoCheckWatcher)) {\n this.unregisterDoCheckWatcher();\n }\n
this.helper.onDestroy(this.$componentScope, this.controllerInstance);\n
}\n\n private initializeBindings(directive: IDirective) {\n const btcIsObject = typeof directive.bindToController
=== 'object';\n if (btcIsObject && Object.keys(directive.scope!).length) {\n throw new Error(`\n `Binding
definitions on scope and controller at the same time is not supported.`);\n }\n\n const context = btcIsObject ?
directive.bindToController : directive.scope;\n const bindings = new Bindings();\n\n if (typeof context ===
'object') {\n Object.keys(context).forEach(propName => {\n const definition = context[propName];\n
const bindingType = definition.charAt(0);\n\n // QUESTION: What about `=*`? Ignore? Throw? Support?\n\n
switch (bindingType) {\n case '@':\n case '<':\n // We don't need to do anything special. They
will be defined as inputs on the\n // upgraded component facade and the change propagation will be handled
by\n // `ngOnChanges()`.\n

```



```

break;\n case '=':\n bindings.twoWayBoundProperties.push(propName);\nbindings.twoWayBoundLastValues.push(INITIAL_VALUE);\n bindings.propertyToOutputMap[propName]\n= propName + 'Change';\n break;\n case '&':\nbindings.expressionBoundProperties.push(propName);\n bindings.propertyToOutputMap[propName] =\npropName;\n break;\n default:\n let json = JSON.stringify(context);\n throw new Error(\n`Unexpected mapping '${bindingType}' in '${json}' in '${this.name}' directive.`);\n }\n });\n }\n\n return bindings;\n}\n\n private initializeOutputs() {\n // Initialize the outputs for `=` and `&` bindings\n this.bindings.twoWayBoundProperties.concat(this.bindings.expressionBoundProperties)\n .forEach(propName\n=> {\n const outputName = this.bindings.propertyToOutputMap[propName];\n (this as\nany)[outputName] = new EventEmitter();\n });\n }\n\n private bindOutputs() {\n // Bind `&` bindings to the\n corresponding outputs\n this.bindings.expressionBoundProperties.forEach(propName => {\n const outputName\n= this.bindings.propertyToOutputMap[propName];\n const emitter = (this as any)[outputName];\n\n this.bindingDestination[propName] = (value: any) => emitter.emit(value);\n });\n }\n\n private\nforwardChanges(changes: SimpleChanges) {\n // Forward input changes to `bindingDestination`\n Object.keys(changes).forEach(\n propName => this.bindingDestination[propName] =\nchanges[propName].currentValue);\n\n if (isFunction(this.bindingDestination.$onChanges)) {\n this.bindingDestination.$onChanges(changes);\n }\n }\n}\n\n },\n /**\n * @license\n * Copyright Google LLC All\n Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the\n LICENSE file at https://angular.io/license\n */\n import

```

See `downgradeInjectable`.  
3. Bootstrapping of a hybrid Angular application which contains both of the frameworks coexisting in a single application.

```
@usageNotes`ts`import {UpgradeModule} from '@angular/upgrade/static';`
```

See also the `@link UpgradeModule#examples examples` below.

#### Mental Model

When reasoning about how a hybrid application works it is useful to have a mental model which describes what is happening and explains what is happening at the lowest level.

- There are two independent frameworks running in a single application, each framework treats the other as a black box.
- Each DOM element on the page is owned exactly by one framework. Whichever framework instantiated the element is the owner. Each framework only updates/interacts with its own DOM elements and ignores others.
- AngularJS directives always execute inside the AngularJS framework codebase regardless

of\n \* where they are instantiated.\n \* 4. Angular components always execute inside the Angular framework codebase regardless of\n \* where they are instantiated.\n \* 5. An AngularJS component can be \"upgraded\" to an Angular component. This is achieved by\n \* defining an Angular directive, which bootstraps the AngularJS component at its location\n \* in the DOM. See `UpgradeComponent`.\n \* 6. An Angular component can be \"downgraded\" to an AngularJS component. This is achieved by\n \* defining an AngularJS directive, which bootstraps the Angular component at its location\n \* in the DOM. See `downgradeComponent`.\n \* 7. Whenever an \"upgraded\"/\"downgraded\" component is instantiated the host element is owned by\n \* the framework doing the instantiation. The other framework then instantiates and owns the\n \* view for that component.\n \* 8. This implies that the component bindings will always follow the semantics of the\n \* instantiation framework.\n \* 9. The DOM attributes are parsed by the framework that owns the current template. So\n \* attributes in AngularJS templates must use kebab-case, while AngularJS templates must use\n \* camelCase.\n \* 10. However the template binding syntax will always use the Angular style, e.g. square\n \* brackets `[...]` for property binding.\n \* 11. Angular is bootstrapped first; AngularJS is bootstrapped second. AngularJS always owns the\n \* root component of the application.\n \* 12. The new application is running in an Angular zone, and therefore it no longer needs calls to\n \* `\$apply()`.\n \* ### The `UpgradeModule` class\n \* This class is an `NgModule`, which you import to provide AngularJS core services,\n \* and has an instance method used to bootstrap the hybrid upgrade application.\n \* Core AngularJS services\n \* Importing this `NgModule` will add providers for the core\n \* [AngularJS services](https://docs.angularjs.org/api/ng/service) to the root injector.\n \* Bootstrap\n \* The runtime instance of this class contains a {@link UpgradeModule#bootstrap} method, which you use to bootstrap the top level AngularJS module onto an element in the\n \* DOM for the hybrid upgrade app.\n \* It also contains properties to access the {@link UpgradeModule#injector}, the\n \* bootstrap `NgZone` and the\n \* [AngularJS \$injector](https://docs.angularjs.org/api/auto/service/\$injector).\n \* Examples\n \* Import the `UpgradeModule` into your top level {@link NgModule}.\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='ng2-module'\n \* Then inject `UpgradeModule` into your Angular `NgModule` and use it to bootstrap the top level\n \* [AngularJS module](https://docs.angularjs.org/api/ng/type/angular.Module) in the\n \* `ngDoBootstrap()` method.\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='bootstrap-ng1'\n \* Finally, kick off the whole process, by bootstrapping your top level Angular `NgModule`.\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='bootstrap-ng2'\n \* }\n \* {\n \* @a upgrading-an-angular-1-service\n \* }\n \* ### Upgrading an AngularJS service\n \* There is no specific API for upgrading an AngularJS service. Instead you should just follow the\n \* following recipe:\n \* Let's say you have an AngularJS service:\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='ng1-text-formatter-service'\n \* }\n \* Then you should define an Angular provider to be included in your `NgModule`'s\n \* `providers` property.\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='upgrade-ng1-service'\n \* }\n \* Then you can use the \"upgraded\" AngularJS service by injecting it into an Angular component\n \* or service.\n \* {\n \* @example\n \* upgrade/static/ts/full/module.ts\n \* region='use-ng1-upgraded-service'\n \* }\n \* {\n \* @publicApi\n \* /\n \* @NgModule({\n \* providers: [angular1Providers]\n \* })\n \* export class UpgradeModule {\n \* /\*\*\n \* The AngularJS `\$injector` for the upgrade application.\n \*/\n \* public \$injector: any /\*angular.IInjectorService\*/;\n \* /\*\*\n \* The Angular Injector\n \*/\n \* public injector: Injector;\n \* /\*\*\n \* The root `Injector` for the upgrade application.\n \*/\n \* private \_injector: Injector;\n \* /\*\*\n \* The bootstrap zone for the upgrade application\n \*/\n \* public ngZone: NgZone;\n \* }\n \* this.injector = new NgAdapterInjector(injector);\n \* }\n \* {\n \* Bootstrap an AngularJS application from this NgModule\n \* @param element the element on which to bootstrap the AngularJS application\n \* @param [modules] the AngularJS modules to bootstrap for this application\n \* @param [config] optional extra AngularJS bootstrap configuration\n \*/\n \* bootstrap(element: Element, modules: string[] = [], config?: any /\*angular.IAngularBootstrapConfig\*/) {\n \* const INIT\_MODULE\_NAME = UPGRADE\_MODULE\_NAME + '.init';\n \* // Create an ng1 module to bootstrap\n \* const initModule = angularModule(INIT\_MODULE\_NAME,

```

[])\n\n .constant(UPGRADE_APP_TYPE_KEY, UpgradeAppType.Static)\n\n .value(INJECTOR_KEY, this.injector)\n\n .factory(\n LAZY_MODULE_REF,\n [INJECTOR_KEY, (injector: Injector) => ({injector} as LazyModuleRef)]\n)\n\n .config([\n $PROVIDE, $INJECTOR,\n ($provide: IProvideService, $injector: IInjectorService) => {\n if\n ($injector.has($$TESTABILITY)) {\n $provide.decorator($$TESTABILITY, [\n $DELEGATE,\n (testabilityDelegate: ITestabilityService) => {\n const\n originalWhenStable: Function = testabilityDelegate.whenStable;\n const injector = this.injector;\n\n // Cannot use arrow function below because we need the context\n const newWhenStable =\n function(callback: Function) {\n originalWhenStable.call(testabilityDelegate,\n function() {\n const ng2Testability: Testability = injector.get(Testability);\n if\n (ng2Testability.isStable()) {\n callback();\n } else {\n ng2Testability.whenStable(\n newWhenStable.bind(testabilityDelegate, callback));\n }\n }\n }\n);\n testabilityDelegate.whenStable = newWhenStable;\n return testabilityDelegate;\n }\n]);\n }\n }\n if\n ($injector.has($INTERVAL)) {\n $provide.decorator($INTERVAL, [\n $DELEGATE,\n (intervalDelegate: IIntervalService) => {\n // Wrap the $interval service so that setInterval is\n // called outside NgZone,\n // but the callback is still invoked within it. This is so that $interval\n // won't block stability, which\n // preserves the behavior from AngularJS.\n let wrappedInterval =\n (fn: Function, delay:\n number, count?: number, invokeApply?: boolean,\n ...pass: any[]) => {\n return\n this.ngZone.runOutsideAngular(() => {\n return intervalDelegate((...args: any[]) => {\n // Run callback in the next VM turn - $interval calls\n // $rootScope.$apply, and running\n // the callback in NgZone will\n // cause a '$digest already in progress' error if it's in the\n // same vm turn.\n setTimeout(() => {\n this.ngZone.run(() =>\n fn(...args));\n });\n }, delay, count, invokeApply, ...pass);\n });\n });\n return wrappedInterval;\n }\n]);\n]);\n }\n }\n .run([\n $INJECTOR,\n ($injector:\n IInjectorService) => {\n this.$injector = $injector;\n // Initialize the ng1 $injector provider\n setTempInjectorRef($injector);\n this.injector.get($INJECTOR);\n // Put the injector on\n the DOM, so that it can be \"required\"\n angularElement(element).data!(controllerKey(INJECTOR_KEY), this.injector);\n // Wire up the ng1\n rootScope to run a digest cycle whenever the zone settles\n // We need to do this in the next tick so that we\n don't\n prevent the bootup\n // stabilizing\n setTimeout(() => {\n const $rootScope =\n $injector.get('$rootScope');\n const subscription = this.ngZone.onMicrotaskEmpty.subscribe(() => {\n if ($rootScope.$$phase) {\n if (isDevMode()) {\n console.warn(\n 'A digest was triggered while one was already in progress. This may mean that something is triggering digests\n outside the Angular zone.');

```

```

windowAngular.resumeBootstrap = originalResumeBootstrap;\n return ngZone.run() =>
windowAngular.resumeBootstrap.apply(this, args));\n };\n }\n }\n }\n }"/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file
at https://angular.io/license\n *\n\nexport {getAngularJSGlobal, getAngularLib, setAngularJSGlobal,
setAngularLib} from './src/common/src/angular1';\nexport {downgradeComponent} from
'./src/common/src/downgrade_component';\nexport {downgradeInjectable} from
'./src/common/src/downgrade_injectable';\nexport {VERSION} from './src/common/src/version';\nexport
{downgradeModule} from './src/downgrade_module';\nexport {UpgradeComponent} from
'./src/upgrade_component';\nexport {UpgradeModule} from './src/upgrade_module';\n\n\n// This file only re-exports
items to appear in the public api. Keep it that way.\n"/**\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n *\n\n// This file is not used to build this module. It is only used during
editing\n// by the TypeScript language service and during build for verification. `ngc`\n// replaces
this file with production index.ts when it rewrites private symbol\n// names.\n\nexport * from
'./public_api';\n"/**\n * Generated bundle index. Do not edit.\n *\n\nexport * from './index';\n\nexport
{angular1Providers as angular_packages_upgrade_static_static_e,compileFactory as
angular_packages_upgrade_static_static_c,injectorFactory as
angular_packages_upgrade_static_static_a,parseFactory as
angular_packages_upgrade_static_static_d,rootScopeFactory as angular_packages_upgrade_static_static_b} from
'./src/angular1_providers';\n];\n\nnames":["Injector","ChangeDetectorRef","Testability","TestabilityRegistry","Applicati
onRef","SimpleChange","NgZone","ComponentFactoryResolver","Version","NOT_FOUND_CHECK_ONLY_EL
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,"Directive","ElementRef","element","isDevMode","NgModule"],"mappings":";;;;;;;;;;IAAA;;;;;;;;;IAkOA,SAAS,I
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```

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AiBA;;ICjBA;;;;;;ICAA;,,,,,,,,,,,,,,,,,,,,,,,,,,,,," }

Found

in path(s):

\* /upgrade-11-0-2-tgz/package/bundles/upgrade-static.umd.js.map

No license file was found, but licenses were detected in source scan.

/\*\*

\* @license Angular v11.0.2

\* (c) 2010-2020 Google LLC. <https://angular.io/>

\* License: MIT

\*/

Found in path(s):

\* /upgrade-11-0-2-tgz/package/static/testing.d.ts

\* /upgrade-11-0-2-tgz/package/upgrade.d.ts

\* /upgrade-11-0-2-tgz/package/static/testing/testing.d.ts

\* /upgrade-11-0-2-tgz/package/static/static.d.ts

\* /upgrade-11-0-2-tgz/package/static.d.ts

MIT

No license file was found, but licenses were detected in source scan.

```
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testing.umd.js", "sources": ["../..../packages/upgrade/src/common/src/angular1.ts", "../..../packages/upgrade/sr
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../..../packages/upgrade/static/testing/src/create_angularjs_testing_module.ts", "../..../packages/upgrade/static/testi
ng/public_api.ts", "../..../packages/upgrade/static/testing/index.ts", "../..../packages/upgrade/static/testing/testi
ng.ts"], "sourcesContent": ["/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport type Ng1Token = string;\n\nexport type Ng1Expression =
string|Function;\n\nexport interface IAnnotatedFunction extends Function {\n // Older versions
 of `@types/angular` typings extend the global `Function` interface with\n // `$inject?: string[]`, which is not
compatible with `$inject?: ReadonlyArray<string>` (used in\n // latest versions).\n $inject?: Function extends
{$inject?: string[]}? Ng1Token[]: ReadonlyArray<Ng1Token>;\n}\n\nexport type IInjectable =
(Ng1Token|Function)[]|IAnnotatedFunction;\n\nexport type SingleOrListOrMap<T> = T|T[]|{[key: string]:
T};\n\nexport interface IModule {\n name: string;\n requires: (string|IInjectable)[];\n config(fn: IInjectable):
IModule;\n directive(selector: string, factory: IInjectable): IModule;\n component(selector: string, component:
IComponent): IModule;\n controller(name: string, type: IInjectable): IModule;\n factory(key: Ng1Token,
factoryFn: IInjectable): IModule;\n value(key: Ng1Token, value: any): IModule;\n constant(token: Ng1Token,
value: any): IModule;\n run(a: IInjectable): IModule;\n}\n\nexport interface ICompileService {\n (element:
Element|NodeList|Node[])string,
transclude?: Function): ILinkFn;\n}\n\nexport interface ILinkFn {\n (scope: IScope, cloneAttachFn?:
ICloneAttachFunction, options?: ILinkFnOptions): IAugmentedJQuery;\n $$slots?: {[slotName: string]:
ILinkFn};\n}\n\nexport interface ILinkFnOptions {\n parentBoundTranscludeFn?: Function;\n transcludeControllers?: {[key: string]: any};\n futureParentElement?: Node;\n}\n\nexport interface
IRootScopeService {\n $new(isolate?: boolean): IScope;\n $id: string;\n $parent: IScope;\n $root: IScope;\n $watch(exp: Ng1Expression, fn?: (a1?: any, a2?: any) => void): Function;\n $on(event: string, fn?: (event?: any,
...args: any[]) => void): Function;\n $destroy(): any;\n $apply(exp?: Ng1Expression): any;\n $digest(): any;\n $evalAsync(exp: Ng1Expression, locals?: any): void;\n $on(event: string, fn?: (event?: any, ...args: any[]) => void):
Function;\n $$childTail: IScope;\n $$childHead: IScope;\n $$nextSibling: IScope;\n [key: string]: any;\n}\n\nexport
interface IScope extends IRootScopeService
{\n}\n\nexport interface IAngularBootstrapConfig {\n strictDi?: boolean;\n}\n\nexport interface IDirective {\n compile?: IDirectiveCompileFn;\n controller?: IController;\n controllerAs?: string;\n bindToController?:
boolean|{[key: string]: string};\n link?: IDirectiveLinkFn|IDirectivePrePost;\n name?: string;\n priority?:
number;\n replace?: boolean;\n require?: DirectiveRequireProperty;\n restrict?: string;\n scope?: boolean|{[key:
string]: string};\n template?: string|Function;\n templateUrl?: string|Function;\n templateNamespace?: string;\n terminal?: boolean;\n transclude?: DirectiveTranscludeProperty;\n}\n\nexport type DirectiveRequireProperty =
SingleOrListOrMap<string>;\n\nexport type DirectiveTranscludeProperty = boolean|'element'|{[key: string]:
```

```

string};\nexport interface IDirectiveCompileFn {\n (templateElement: IAugmentedJQuery, templateAttributes:
IAttributes,\n transclude: ITranscludeFunction): IDirectivePrePost;\n}\nexport interface IDirectivePrePost
{\n pre?: IDirectiveLinkFn;\n post?: IDirectiveLinkFn;\n}\nexport interface IDirectiveLinkFn {\n (scope: IScope,
instanceElement: IAugmentedJQuery, instanceAttributes: IAttributes,\n controller: any, transclude:
ITranscludeFunction): void;\n}\nexport interface IComponent {\n bindings?: {[key: string]: string};\n controller?:
string|IInjectable;\n controllerAs?: string;\n require?: DirectiveRequireProperty;\n template?: string|Function;\n
templateUrl?: string|Function;\n transclude?: DirectiveTranscludeProperty;\n}\nexport interface IAttributes {\n
$observe(attr: string, fn: (v: string) => void): void;\n [key: string]: any;\n}\nexport interface ITranscludeFunction
{\n // If the scope is provided, then the cloneAttachFn must be as well.\n (scope: IScope, cloneAttachFn:
ICloneAttachFunction): IAugmentedJQuery;\n // If one argument is provided, then it's assumed to be the
cloneAttachFn.\n (cloneAttachFn?: ICloneAttachFunction): IAugmentedJQuery;\n}\nexport interface
ICloneAttachFunction
{\n (clonedElement: IAugmentedJQuery, scope: IScope): any;\n}\nexport type IAugmentedJQuery = Node[]&{\n
on?: (name: string, fn: () => void) => void;\n data?: (name: string, value?: any) => any;\n text?: () => string;\n
inheritedData?: (name: string, value?: any) => any;\n contents?: () => IAugmentedJQuery;\n parent?: () =>
IAugmentedJQuery;\n empty?: () => void;\n append?: (content: IAugmentedJQuery|string) =>
IAugmentedJQuery;\n controller?: (name: string) => any;\n isolateScope?: () => IScope;\n injector?: () =>
IInjectorService;\n triggerHandler?: (eventTypeOrObject: string|Event, extraParameters?: any[]) =>
IAugmentedJQuery;\n remove?: () => void;\n removeData?: () => void;\n}\nexport interface IProvider {\n $get:
IInjectable;\n}\nexport interface IProvideService {\n provider(token: Ng1Token, provider: IProvider): IProvider;\n
factory(token: Ng1Token, factory: IInjectable): IProvider;\n service(token: Ng1Token, type: IInjectable):
IProvider;\n
value(token: Ng1Token, value: any): IProvider;\n constant(token: Ng1Token, value: any): void;\n
decorator(token: Ng1Token, factory: IInjectable): void;\n}\nexport interface IParseService {\n (expression: string):
ICompiledExpression;\n}\nexport interface ICompiledExpression {\n (context: any, locals: any): any;\n assign?:
(context: any, value: any) => any;\n}\nexport interface IHttpBackendService {\n (method: string, url: string, post?:
any, callback?: Function, headers?: any, timeout?: number,\n withCredentials?: boolean): void;\n}\nexport
interface ICacheObject {\n put<T>(key: string, value?: T): T;\n get(key: string): any;\n}\nexport interface
ITemplateCacheService extends ICacheObject {\n}\nexport interface ITemplateRequestService {\n (template:
string|any /* TrustedResourceUrl */, ignoreRequestError?: boolean): Promise<string>;\n totalPendingRequests:
number;\n}\nexport type IController = string|IInjectable;\nexport interface IControllerService {\n
(controllerConstructor:
IController, locals?: any, later?: any, ident?: any): any;\n (controllerName: string, locals?: any): any;\n}\nexport
interface IInjectorService {\n get(key: string): any;\n has(key: string): boolean;\n}\nexport interface
IIntervalService {\n (func: Function, delay: number, count?: number, invokeApply?: boolean,\n ...args: any[]):
Promise<any>;\n cancel(promise: Promise<any>): boolean;\n}\nexport interface ITestabilityService {\n
findBindings(element: Element, expression: string, opt_exactMatch?: boolean): Element[];\n findModels(element:
Element, expression: string, opt_exactMatch?: boolean): Element[];\n getLocation(): string;\n setLocation(url:
string): void;\n whenStable(callback: Function): void;\n}\nexport interface INgModelController {\n $render():
void;\n $isEmpty(value: any): boolean;\n $setValidity(validationErrorKey: string, isValid: boolean): void;\n
$setPristine(): void;\n $setDirty(): void;\n $setUntouched(): void;\n $setTouched(): void;\n
$rollbackViewValue(): void;\n $validate(): void;\n $commitViewValue(): void;\n $setViewValue(value: any,
trigger: string): void;\n $viewValue: any;\n $modelValue: any;\n $parsers: Function[];\n $formatters:
Function[];\n $validators: {[key: string]: Function};\n $asyncValidators: {[key: string]: Function};\n
$viewChangeListeners: Function[];\n $error: Object;\n $pending: Object;\n $untouched: boolean;\n $touched:
boolean;\n $pristine: boolean;\n $dirty: boolean;\n $valid: boolean;\n $invalid: boolean;\n $name:
string;\n}\n\nfunction noNg(): never {\n throw new Error('AngularJS v1.x is not loaded!');\n}\n\nconst
noNgElement: typeof angular.element = ((() => noNg()) as any);\nnonNgElement.cleanData = noNg;\n\nlet angular:

```

```

{\n bootstrap: (e: Element, modules: (string|IInjectable)[], config?: IAngularBootstrapConfig) =>\n
IInjectorService,\n module: (prefix: string, dependencies?: string[]) => IModule,\n element: {\n (e:
string|Element|Document|IAugmentedJQuery):
IAugmentedJQuery;\n cleanData: (nodes: Node[]|NodeList) => void;\n },\n injector: (modules:
Array<string|IInjectable>, strictDi?: boolean) => IInjectorService,\n version: {major: number},\n resumeBootstrap:
() => void,\n getTestability: (e: Element) => ITestabilityService\n } = {\n bootstrap: noNg,\n module: noNg,\n
element: noNgElement,\n injector: noNg,\n version: undefined as any,\n resumeBootstrap: noNg,\n getTestability:
noNg\n};\n\ntry {\n if (window.hasOwnProperty('angular')) {\n angular = (<any>window).angular;\n }\n} catch
{\n // ignore in CJS mode.\n}\n\n/**\n * @deprecated Use `setAngularJSGlobal` instead.\n *\n * @publicApi\n
*/\n\nexport function setAngularLib(ng: any): void {\n setAngularJSGlobal(ng);\n}\n\n/**\n * @deprecated Use
`getAngularJSGlobal` instead.\n *\n * @publicApi\n */\n\nexport function getAngularLib(): any {\n return
getAngularJSGlobal();\n}\n\n/**\n * Resets the AngularJS global.\n *\n * Used when AngularJS is loaded lazily,
and not
available on `window`.\n *\n * @publicApi\n */\n\nexport function setAngularJSGlobal(ng: any): void {\n angular =
ng;\n}\n\n/**\n * Returns the current AngularJS global.\n *\n * @publicApi\n */\n\nexport function
getAngularJSGlobal(): any {\n return angular;\n}\n\nexport const bootstrap: typeof angular.bootstrap = (e, modules,
config?) =>\n angular.bootstrap(e, modules, config);\n\n// Do not declare as `module` to avoid webpack bug\n//
(see https://github.com/angular/angular/issues/30050).\n\nexport const module_: typeof angular.module = (prefix,
dependencies?) =>\n angular.module(prefix, dependencies);\n\nexport const element: typeof angular.element = (e
=> angular.element(e)) as typeof angular.element;\n\nexport const cleanData = nodes =>
angular.element.cleanData(nodes);\n\nexport const injector: typeof angular.injector =\n (modules:
Array<string|IInjectable>, strictDi?: boolean) => angular.injector(modules, strictDi);\n\nexport const
resumeBootstrap: typeof angular.resumeBootstrap
= () => angular.resumeBootstrap();\n\nexport const getTestability: typeof angular.getTestability = e =>
angular.getTestability(e);\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nexport const $COMPILE = '$compile';\nexport const $CONTROLLER =
'$controller';\nexport const $DELEGATE = '$delegate';\nexport const $EXCEPTION_HANDLER =
'$exceptionHandler';\nexport const $HTTP_BACKEND = '$httpBackend';\nexport const $INJECTOR =
'$injector';\nexport const $INTERVAL = '$interval';\nexport const $PARSE = '$parse';\nexport const $PROVIDE =
'$provide';\nexport const $ROOT_SCOPE = '$rootScope';\nexport const $SCOPE = '$scope';\nexport const
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'$$angularCompiler';\n\nexport
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NG_ZONE_KEY = '$$angularNgZone';\nexport const UPGRADE_APP_TYPE_KEY =
'$angularUpgradeAppType';\n\nexport const REQUIRE_INJECTOR = '?^^' + INJECTOR_KEY;\nexport const
REQUIRE_NG_MODEL = '?ngModel';\n\nexport const UPGRADE_MODULE_NAME =
'$angularUpgradeModule';\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Injector, NgModule, Type} from '@angular/core';\nimport * as angular
from '../././src/common/src/angular1';\nimport {$INJECTOR, INJECTOR_KEY, UPGRADE_APP_TYPE_KEY}
from '../././src/common/src/constants';\nimport {UpgradeAppType} from '../././src/common/src/util';\n\nlet
$injector: angular.IInjectorService|null = null;\n\nlet injector: Injector;\n\nexport function $injectorFactory() {\n
return $injector;\n}\n\n@NgModule({providers: [{provide: $INJECTOR, useFactory: $injectorFactory}]}))\nexport
class AngularTestingModule {\n constructor(i: Injector) {\n injector = i;\n }\n\n\n/**\n * A helper function to

```

use when unit testing Angular services that depend upon upgraded AngularJS services. This function returns an `NgModule` decorated class that is configured to wire up the Angular and AngularJS injectors without the need to actually bootstrap a hybrid application. This makes it simpler and faster to unit test services. Use the returned class as an `import` when configuring the `TestBed`. In the following code snippet, we are configuring the `TestBed` with two imports. The `Ng2AppModule` is the Angular part of our hybrid application and the `ng1AppModule` is the AngularJS part.

```
* <code-example path="upgrade/static/ts/full/module.spec.ts" region="angular-setup"></code-example>
```

Once this is done we can get hold of services via the Angular `Injector` as normal. Services that are (or have dependencies on) an upgraded AngularJS service, will be instantiated as needed by the Angular `$injector`. In the following code snippet, `HeroesService` is an Angular service that depends upon an AngularJS service, `titleCase`.

```
* <code-example path="upgrade/static/ts/full/module.spec.ts" region="angular-spec"></code-example>
```

This helper is for testing services not Components. For Component testing you must still bootstrap a hybrid app. See `UpgradeModule` or `downgradeModule` for more information.

The resulting configuration does not wire up AngularJS digests to Zone hooks. It is the responsibility of

the test writer to call `$rootScope.$apply`, as necessary, to trigger AngularJS handlers of async events from Angular.

The helper sets up global variables to hold the shared Angular and AngularJS injectors.

Only call this helper once per spec. Do not use `createAngularTestingModule` in the same spec as `createAngularJSTestingModule`.

Here is the example application and its unit tests that use `createAngularTestingModule` and `createAngularJSTestingModule`.

```
* <code-tabs>
* <code-pane header="module.spec.ts"
path="upgrade/static/ts/full/module.spec.ts"></code-pane>
* <code-pane header="module.ts"
path="upgrade/static/ts/full/module.ts"></code-pane>
* </code-tabs>
```

@param angularJSMODULES a collection of the names of AngularJS modules to include in the configuration. @param [strictDi] whether the AngularJS injector should have `strictDi`

```
* @publicApi
* @next export function createAngularTestingModule(
 angularJSMODULES: string[],
 strictDi?: boolean): Type<any> {
 angular.module('$angularJSTestingModule', angularJSMODULES)
 .constant(UPGRADE_APP_TYPE_KEY, UpgradeAppType.Static)
 .factory(INJECTOR_KEY, () => injector);
 $injector = angular.injector(['ng', '$angularJSTestingModule'], strictDi);
 return AngularTestingModule;
}
```

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```
* @angular/core';
* import { TestBed } from '@angular/core/testing';
* import * as ng from '../src/common/src/angular1';
* import { $INJECTOR, INJECTOR_KEY, UPGRADE_APP_TYPE_KEY } from '../src/common/src/constants';
* import { UpgradeAppType } from '../src/common/src/util';
```

A helper function to use when unit testing AngularJS services that depend upon downgraded Angular services. This function returns an AngularJS module that is configured to wire up the AngularJS and Angular injectors without the need to actually bootstrap a hybrid application. This makes it simpler and faster to unit test services. Use the returned AngularJS module in a call to

`angular.mock.module` (<https://docs.angularjs.org/api/ngMock/function/angular.mock.module>) to include this module in the unit test injector. In the following code snippet, we are configuring the `$injector` with two modules: The AngularJS `ng1AppModule`, which is the AngularJS part of our hybrid application and the `Ng2AppModule`, which is the Angular part.

```
* <code-example path="upgrade/static/ts/full/module.spec.ts" region="angularjs-setup"></code-example>
```

Once this is done we can get hold of services via the AngularJS `$injector` as normal. Services that are (or have dependencies on) a downgraded Angular service, will be instantiated as needed by the Angular root `Injector`. In the following code snippet, `heroesService` is a downgraded Angular service that we are

```
accessing from AngularJS.\n * <code-example path=\"upgrade/static/ts/full/module.spec.ts\">\n *
region=\"angularjs-spec\"></code-example>\n * <div class=\"alert is-important\">\n * \n * This helper is for
testing services not components.\n * For Component testing you must still bootstrap a hybrid app. See
`UpgradeModule` or\n * `downgradeModule` for more information.\n * </div>\n * <div class=\"alert is-
important\">\n * \n * The resulting configuration does not wire up AngularJS digests to Zone hooks. It is the\n * responsibility of the test writer to call `$rootScope.$apply`, as necessary, to trigger\n * AngularJS handlers of async events from Angular.\n * </div>\n * <div class=\"alert is-important\">\n * \n * The helper sets up global variables to

hold the shared Angular and AngularJS injectors.\n * \n * Only call this helper once per spec.\n * \n * Do not use
`createAngularJSTestingModule` in the same spec as `createAngularTestingModule`. \n * </div>\n * \n * Here is the example application and its unit tests that use `createAngularTestingModule`\n * and
`createAngularJSTestingModule`. \n * \n * <code-tabs>\n * <code-pane header=\"module.spec.ts\">
path=\"upgrade/static/ts/full/module.spec.ts\"></code-pane>\n * <code-pane header=\"module.ts\">
path=\"upgrade/static/ts/full/module.ts\"></code-pane>\n * </code-tabs>\n * \n * @param angularModules a collection of Angular modules to include in the configuration.\n * \n * @publicApi\n * ^\n * export function createAngularJSTestingModule(angularModules: any[]): string {\n * return ng.module_('$$angularJSTestingModule', [])\n * .constant(UPGRADE_APP_TYPE_KEY, UpgradeAppType.Static)\n * .factory(\n * INJECTOR_KEY,\n * [\n * $INJECTOR,\n * ($injector: ng.IInjectorService) => {\n * TestBed.configureTestingModule({\n * imports: angularModules,\n * providers: [{provide: $INJECTOR, useValue: $injector}]\n * });\n * return TestBed.inject($INJECTOR);\n * })\n *)\n * .name('');\n * }\n * \n * \"\", \"**\" \n * @license \n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * ^\n * export {createAngularTestingModule} from './src/create_angular_testing_module';\n * export {createAngularJSTestingModule} from './src/create_angularjs_testing_module';\n * \n * \"\", \"**\" \n * @license \n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n * ^\n * export * from './public_api';\n * \n * \"\", \"**\" \n * Generated bundle index. Do not edit.\n * \n * ^\n * export * from './index';\n * \n * export { module_ as angular_packages_upgrade_static_testing_testing_a } from '../src/common/src/angular1';\n * export { INJECTOR_KEY as angular_packages_upgrade_static_testing_testing_d, UPGRADE_APP_TYPE_KEY as angular_packages_upgrade_static_testing_testing_b } from '../src/common/src/constants';\n * export { UpgradeAppType as angular_packages_upgrade_static_testing_testing_c } from '../src/common/src/util';\n * \n *], \"names\": [\"injector\", \"NgModule\", \"Injector\", \"angular.module_\", \"angular.injector\", \"ng.module_\", \"TestBed\"], \"mappings\": \";;;;;;;;;;IAAA;;;;;;;;;IAkOA,SAAS,IAAI;QACX,MAAM,IAAI,KAAK,CAAC,+BAA+B,CAAC,CAAC;IACnD,CAAC;IAED,IAAM,WAAW,IAA4B,cAAM,OAAA,IAAI,EAAE,GAAA,CAAQ,CAAC;IACIE,WAAW,CAAC,SAAS,GAAG,IAAI,CAAC;IAE7B,IAAI,OAAO,GAYP;QACF,SAAS,EAAE,IAAI;QACf,MAAM,EAAE,IAAI;QACZ,OAAO,EAAE,WAAW;QACpB,QAAQ,EAAE,IAAI;QACd,OAAO,EAAE,SAAgB;QACzB,eAAe,EAAE,IAAI;QACrB,cAAc,EAAE,IAAI;KACrB,CAAC;IAEF,IAAI;QACF,IAAI,MAAM,CAAC,cAAc,CAAC,SAAS,CAAC,EAAE;YACpC,OAAO,GAAS,MAAO,CAAC,OAAO,CAAC;SACjC;KACF;IAAC,WAAM;;KAEP;IAED;;;;aAKgB,aAAa,CAAC,EAAO;QACnC,kBAAkB,CAAC,EAAE,CAAC,CAAC;IACzB,CAAC;IAED;;;;aAKgB,aAAa;QAC3B,OAAO,kBAAkB,EAAE,CAAC;IAC9B,CAAC;IAED;;;;;aAoGB,kBAAkB,CAAC,EAAO;QACxC,OAAO,GAAG,EAAE,CAAC;IACf,CAAC;IAED;;;;;aAKgB,kBAAkB;QACChC,OAAO,OAAO,C AAC;IACjB,CAAC;IAEM,IAAM,SAAS,GAA6B,UAAU,CAAC,EAAE,OAAO,EAAE,MAAO,IACnE,OAAA,OAAO,CAAC,SAAS,CAAC,CAAC,EAAE,OAAO,EAAE,MAAM,CAAC,GAAA,CAAC;IAEI C;IACA;QACa,OAAO,GAA0B,UAAU,MAAM,EAAE,YAAa,IACHe,OAAA,OAAO,CAAC,MAAM,CAAC,MAAM,EAAE,YAAY,CAAC,IAAC;IAEIC,IAAM,OAAO,IAA4B,UAAA,CAAC,IAAI,OAAA,OAAO,CAAC,OAAO,CAAC,CAAC,CAAC,GAAA,CAA2B,CAAC;IACnG,OAAO,CAAC,SAAS,GAAG,UAAA,KAAK,IAAI,OAAA,OAAO,CAAC,OAAO,CAAC,SAAS,CAAC,KAAK,CAAC,GAAA,CAAC;IAEvD,IAAM,QAAQ,GACjB,UAAU,OAakC,EAAE,QAAkB,IA
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in path(s):

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No license file was found, but licenses were detected in source scan.

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OAAO","sourcesContent":["/\*\n

```
* @license Angular v11.0.2\n * (c) 2010-2020 Google LLC. https://angular.io\n * License: MIT\n *\n\n(function\n(global, factory) {\n typeof exports === 'object' && typeof module !== 'undefined' ? factory(exports,\nrequire('@angular/core'), require('@angular/core/testing')) :\n typeof define === 'function' && define.amd ?\n define('@angular/upgrade/static/testing',\n ['exports', '@angular/core', '@angular/core/testing'], factory) :\n (global = global || self, factory((global.ng =\nglobal.ng || {}, global.ng.upgrade = global.ng.upgrade || {}, global.ng.upgrade.static = global.ng.upgrade.static || {},\nglobal.ng.upgrade.static.testing = {}), global.ng.core, global.ng.core.testing));\n})(this, (function (exports, core,\ntesting) {\n 'use strict';\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n *\n function noNg() {\n throw new Error('AngularJS v1.x is not loaded!');\n }\n\n var noNgElement = (function () {\n return noNg();\n });\n\n noNgElement.cleanData = noNg;\n\n var angular =\n {\n bootstrap: noNg,\n module: noNg,\n element: noNgElement,\n injector: noNg,\n version:\nundefined,\n resumeBootstrap: noNg,\n\n getTestability: noNg\n };\n\n try {\n if (window.hasOwnProperty('angular')) {\n angular =\nwindow.angular;\n }\n\n catch (_a) {\n // ignore in CJS mode.\n }\n\n /**\n * @deprecated Use\n`setAngularJSGlobal` instead.\n *\n * @publicApi\n *\n function setAngularLib(ng) {\n setAngularJSGlobal(ng);\n }\n\n /**\n * @deprecated Use `getAngularJSGlobal` instead.\n *\n *\n * @publicApi\n *\n function getAngularLib() {\n return getAngularJSGlobal();\n }\n\n /**\n * Resets the AngularJS global.\n *\n * Used when AngularJS is loaded lazily, and not available on `window`.\n *\n * @publicApi\n *\n function setAngularJSGlobal(ng) {\n angular = ng;\n }\n\n /**\n * Returns the current AngularJS global.\n *\n * @publicApi\n *\n function getAngularJSGlobal() {\n return\nangular;\n }\n\n var bootstrap = function (e, modules,\nconfig) {\n return angular.bootstrap(e, modules, config);\n };\n // Do not declare as `module` to avoid webpack bug\n// (see https://github.com/angular/angular/issues/30050).\n var module_ = function (prefix, dependencies) {\n return\nangular.module(prefix, dependencies);\n };\n var element = (function (e) {\n return angular.element(e);\n });\n\n element.cleanData = function (nodes) {\n return angular.element.cleanData(nodes);\n };\n var injector = function\n(modules, strictDi) {\n return angular.injector(modules, strictDi);\n };\n var resumeBootstrap = function () {\n return\nangular.resumeBootstrap();\n };\n var getTestability = function (e) {\n return\nangular.getTestability(e);\n };\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by\nan MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n var\n$COMPILE = '$compile';\n var $CONTROLLER = '$controller';\n\n var $DELEGATE = '$delegate';\n var $EXCEPTION_HANDLER = '$exceptionHandler';\n var\n$http_BACKEND = '$httpBackend';\n var $INJECTOR = '$injector';\n var $INTERVAL = '$interval';\n var\n$PARSE = '$parse';\n var $PROVIDE = '$provide';\n var $ROOT_SCOPE = '$rootScope';\n var $SCOPE =
```

```
'$scope';\n var $TEMPLATE_CACHE = '$templateCache';\n var $TEMPLATE_REQUEST =
'$templateRequest';\n var $$TESTABILITY = '$$testability';\n var COMPILER_KEY = '$$angularCompiler';\n
 var DOWNGRADED_MODULE_COUNT_KEY = '$$angularDowngradedModuleCount';\n var
GROUP_PROJECTABLE_NODES_KEY = '$$angularGroupProjectableNodes';\n var INJECTOR_KEY =
'$angularInjector';\n var LAZY_MODULE_REF = '$$angularLazyModuleRef';\n var NG_ZONE_KEY =
'$angularNgZone';\n var UPGRADE_APP_TYPE_KEY = '$$angularUpgradeAppType';\n var
REQUIRE_INJECTOR = '?^^' + INJECTOR_KEY;\n var REQUIRE_NG_MODEL = '?ngModel';\n var
UPGRADE_MODULE_NAME = '$$UpgradeModule';\n\n /**\n
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by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n var
$injector = null;\n var injector$1;\n function $injectorFactory() {\n return $injector;\n }\n var
AngularTestingModule = /** @class */ (function () {\n function AngularTestingModule(i) {\n injector$1
= i;\n }\n return AngularTestingModule;\n })();\n AngularTestingModule.decorators = [\n { type:
core.NgModule, args: [{ providers: [{ provide: $INJECTOR, useFactory: $injectorFactory }] }]\n];\n
 AngularTestingModule.ctorParameters = function () { return [\n { type: core.Injector }\n]; };\n /**\n
 * A helper function to use when unit testing Angular services that depend upon upgraded AngularJS\n * services.\n
 *\n * This function returns an `NgModule` decorated
class that is configured to wire up the Angular\n * and AngularJS injectors without the need to actually bootstrap
a hybrid application.\n * This makes it simpler and faster to unit test services.\n *\n * Use the returned class
as an `import` when configuring the `TestBed`.\n *\n * In the following code snippet, we are configuring the
TestBed with two imports.\n * The `Ng2AppModule` is the Angular part of our hybrid application and the
`ng1AppModule` is the\n * AngularJS part.\n *\n * <code-example
path=\"upgrade/static/ts/full/module.spec.ts\" region=\"angular-setup\"></code-example>\n *\n * Once this is
done we can get hold of services via the Angular `Injector` as normal.\n * Services that are (or have dependencies
on) an upgraded AngularJS service, will be instantiated\n * as needed by the AngularJS `$injector`.\n *\n *
In the following code snippet, `HeroesService` is an Angular service that depends upon an\n *
AngularJS service, `titleCase`.\n *\n * <code-example path=\"upgrade/static/ts/full/module.spec.ts\"
region=\"angular-spec\"></code-example>\n *\n * <div class=\"alert is-important\">\n *\n * This helper is
for testing services not Components.\n * For Component testing you must still bootstrap a hybrid app. See
`UpgradeModule` or\n * `downgradeModule` for more information.\n *\n * </div>\n *\n * <div
class=\"alert is-important\">\n *\n * The resulting configuration does not wire up AngularJS digests to Zone
hooks. It is the\n * responsibility of the test writer to call `$rootScope.$apply`, as necessary, to trigger\n *
AngularJS handlers of async events from Angular.\n *\n * </div>\n *\n * <div class=\"alert is-
important\">\n *\n * The helper sets up global variables to hold the shared Angular and AngularJS injectors.\n
 *\n * Only call this helper once per spec.\n * Do not use `createAngularTestingModule`
in the same spec as `createAngularJSTestingModule`.\n *\n * </div>\n *\n * Here is the example
application and its unit tests that use `createAngularTestingModule`\n * and `createAngularJSTestingModule`.\n
 *\n * <code-tabs>\n * <code-pane header=\"module.spec.ts\"
path=\"upgrade/static/ts/full/module.spec.ts\"></code-pane>\n * <code-pane header=\"module.ts\"
path=\"upgrade/static/ts/full/module.ts\"></code-pane>\n * </code-tabs>\n *\n * @param
angularJSMODULES a collection of the names of AngularJS modules to include in the\n * configuration.\n *
@param [strictDi] whether the AngularJS injector should have `strictDi` enabled.\n *\n * @publicApi\n */\n
function createAngularTestingModule(angularJSMODULES, strictDi) {\n module_('$$angularJSTestingModule',
angularJSMODULES)\n .constant(UPGRADE_APP_TYPE_KEY, 2 /* Static */)\n
 .factory(INJECTOR_KEY, function ()\n {\n return injector$1; })\n $injector = injector(['ng', '$$angularJSTestingModule'], strictDi);\n return
AngularTestingModule;\n })\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
```



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 */
/*! *****
Copyright (c) Microsoft Corporation.
```

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\*\*\*\*\* \*/

Found in path(s):

```
* /upgrade-11-0-2-tgz/package/bundles/upgrade.umd.min.js
* /upgrade-11-0-2-tgz/package/bundles/upgrade.umd.js
* /upgrade-11-0-2-tgz/package/bundles/upgrade-static.umd.js
```

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Angular

=====

The sources for this package are in the main [Angular](<https://github.com/angular/angular>) repo. Please file issues and pull requests against that repo.

Usage information and reference details can be found in [Angular documentation](<https://angular.io/docs>).

License: MIT

Found in path(s):

```
* /upgrade-11-0-2-tgz/package/README.md
```

# 1.452 angular-cli 11.0.2

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# 1.453 watch 1.0.2

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## 1.454 @angular/material-moment-adapter

### 11.0.1

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# 1.455 angular-cdk 11.0.1

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# 1.456 angular-forms 11.0.2

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```
{ "version": 3, "file": "forms.umd.js", "sources": ["../../../../packages/forms/src/directives/control_value_accessor.ts", "../../../../packages/forms/src/directives/checkbox_value_accessor.ts", "../../../../packages/forms/src/directives/default_value_accessor.ts", "../../../../external/npm/node_modules/tslib/tslib.es6.js", "../../../../packages/forms/src/validators.ts", "../../../../packages/forms/src/directives/abstract_control_directive.ts", "../../../../packages/forms/src/directives/control_container.ts", "../../../../packages/forms/src/directives/ng_control.ts", "../../../../packages/forms/src/directives/ng_control_status.ts", "../../../../packages/forms/src/directives/number_value_accessor.ts", "../../../../packages/forms/src/directives/radio_control_value_accessor.ts", "../../../../packages/forms/src/directives/range_value_accessor.ts", "../../../../packages/forms/src/directives/error_examples.ts", "../../../../packages/forms/src/directives/reactive_errors.ts", "../../../../packages/forms/src/directives/select_control_value_accessor.ts", "../../../../packages/forms/src/directives/select_multiple_control_value_accessor.ts", "../../../../packages/forms/src/directives/shared.ts", "../../../../packages/forms/src/model.ts", "../../../../packages/forms/src/directives/ng_form.ts", "../../../../packages/forms/src/directives/abstract_form_group_directive.ts", "../../../../packages/forms/src/directives/template_driven_errors.ts", "../../../../packages/forms/src/directives/ng_model_group.ts", "../../../../packages/forms/src/directives/ng_model.ts", "../../../../packages/forms/src/directives/ng_no_validate_directive.ts", "../../../../packages/forms/src/directives/reactive_di
```

```

rectives/form_control_directive.ts","../..../packages/forms/src/directives/reactive_directives/form_group_directive.ts","../..../packages/forms/src/directives/reactive_directives/form_group_name.ts","../..../packages/forms/src/directives/reactive_directives/form_control_name.ts","../..../packages/forms/src/directives/validators.ts","../..../packages/forms/src/directives.ts","../..../packages/forms/src/form_builder.ts","../..../packages/forms/src/version.ts","../..../packages/forms/src/form_providers.ts","../..../packages/forms/src/forms.ts","../..../packages/forms/public_api.ts","../..../packages/forms/index.ts","../..../packages/forms/forms.ts"],"sourcesContent":["/**
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 */
import {InjectionToken} from '@angular/core';

/**
 * @description
 * Defines an interface that acts as a bridge between the Angular forms API and a native element in the DOM.
 * Implement this interface to create a custom form control directive that integrates with Angular forms.
 */
@export interface ControlValueAccessor {
 /**
 * @description
 * Writes a new value to the element.
 * This method is called by the forms API to write to the view when programmatic changes from model to view are requested.
 */
 @usageNotes
 """
 Write a value to the element
 The following example writes a value to the native DOM element.
 """
 writeValue(value: any): void {
 this._renderer.setProperty(this._elementRef.nativeElement, 'value', value);
 }

 /**
 * @param obj The new value for the element
 */
 writeValue(obj: any): void;

 /**
 * @description
 * Registers a callback function that is called when the control's value changes in the UI.
 * This method is called by the forms API on initialization to update the form model when values propagate from the view to the model.
 * When implementing the `registerOnChange` method in your own value accessor, save the given function so your class calls it at the appropriate time.
 */
 @usageNotes
 """
 Store the change function
 The following example stores the provided function as an internal method.
 """
 registerOnChange(fn: (_: any) => void): void {
 this._onChange = fn;
 }

 /**
 * When the value changes in the UI, call the registered function to allow the forms API to update itself.
 */
 host: {
 (change): '_onChange($event.target.value)'
 }

 /**
 * @param fn The callback function to register
 */
 registerOnChange(fn: any): void;

 /**
 * @description
 * Registers a callback function that is called by the forms API on initialization to update the form model on blur.
 * When implementing `registerOnTouched` in your own value accessor, save the given function so your class calls it when the control should be considered blurred or "touched".
 */
 @usageNotes
 """
 Store the callback function
 The following example stores the provided function as an internal method.
 """
 registerOnTouched(fn: any): void {
 this._onTouched = fn;
 }

 /**
 * On blur (or equivalent), your class should call the registered function to allow the forms API to update itself.
 */
 host: {
 (blur): '_onTouched()'
 }

 /**
 * @param fn The callback function to register
 */
 registerOnTouched(fn: any): void;

 /**
 * @description
 * Function that is called by the forms API when the control status changes to or from 'DISABLED'. Depending on the status, it enables or disables the appropriate DOM element.
 */
 @usageNotes
 """
 The following is an example of writing the disabled property to a native DOM element.
 """
 setDisabledState(isDisabled: boolean): void {
 this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);
 }

 /**
 * @param isDisabled The disabled status to set on the element
 */
 setDisabledState?(isDisabled: boolean): void;
}

/**
 * Used to provide a `ControlValueAccessor` for form controls.
 * See `DefaultValueAccessor` for how to implement one.
 */
@export const NG_VALUE_ACCESSOR = new InjectionToken<ReadonlyArray<ControlValueAccessor>>('NgValueAccessor');

/**
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 */
import {Directive, ElementRef, forwardRef, Renderer2} from '@angular/core';
import {ControlValueAccessor, NG_VALUE_ACCESSOR} from

```

```

'/control_value_accessor';\n\nexport
const CHECKBOX_VALUE_ACCESSOR: any = {\n provide: NG_VALUE_ACCESSOR,\n useExisting:
forwardRef(() => CheckboxControlValueAccessor),\n multi: true,\n};\n\n/**\n * @description\n * A
`ControlValueAccessor` for writing a value and listening to changes on a checkbox input\n * element.\n *\n *
@usageNotes\n *\n * ### Using a checkbox with a reactive form.\n *\n * The following example shows how to use
a checkbox with a reactive form.\n *\n * ```ts\n * const rememberLoginControl = new FormControl();\n * ```\n *\n *
```  

☐https://angular.io/license\n */\nimport { getDOM as
getDOM } from '@angular/common';\nimport { Directive, ElementRef, forwardRef, Inject, InjectionToken, Optional,
Renderer2 } from '@angular/core';\nimport { ControlValueAccessor, NG_VALUE_ACCESSOR } from
'/control_value_accessor';\n\nexport const DEFAULT_VALUE_ACCESSOR: any = {\n  provide:
NG_VALUE_ACCESSOR,\n  useExisting: forwardRef(() => DefaultValueAccessor),\n  multi: true,\n};\n\n/**\n *
We must check whether the agent is Android because composition events\n * behave differently between iOS and
Android.\n */\nfunction _isAndroid(): boolean
{\n  const userAgent = getDOM() ? getDOM().getUserAgent() : '';\n  return /android
(\\d+\\.)/.test(userAgent.toLowerCase());\n}\n\n/**\n * @description\n * Provide this token to control if form
directives buffer IME input until\n * the "compositionend" event occurs.\n * @publicApi\n */\nexport const
COMPOSITION_BUFFER_MODE = new InjectionToken<boolean>('CompositionEventMode');\n\n/**\n *
@description\n *\n * {@searchKeywords ngDefaultControl}\n *\n * The default `ControlValueAccessor` for
writing a value and listening to changes on input\n * elements. The accessor is used by the `FormControlDirective`,
`FormControlName`, and\n * `NgModel` directives.\n *\n * @usageNotes\n *\n * ### Using the default value
accessor\n *\n * The following example shows how to use an input element that activates the default value
accessor\n * (in this case, a text field).\n *\n * ```ts\n * const firstNameControl = new FormControl();\n * ```\n *\n *
```  


<custom-input-component ngDefaultControl [(ngModel)]="value"></custom-input-
component>\n * ```\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n
*/\n@Directive({\n selector:


```

```
TODO: vsavkin replace the above selector with the one below it once\n //
https://github.com/angular/angular/issues/3011 is implemented\n // selector:
[ngModel],[formControl],[formControlName]'\n
host: {\n '(input)': '$any(this)._handleInput($event.target.value)',\n '(blur)': 'onTouched()',\n '(compositionstart)': '$any(this)._compositionStart()',\n '(compositionend)':
'$any(this)._compositionEnd($event.target.value)'\n },\n providers:
[DEFAULT_VALUE_ACCESSOR]\n})\nexport class DefaultValueAccessor implements ControlValueAccessor
\n /**\n * The registered callback function called when an input event occurs on the input element.\n *\n @nodoc\n */\n ngOnChange = (_: any) => {};\n /**\n * The registered callback function called when a blur event
occurs on the input element.\n *\n @nodoc\n */\n onTouched = () => {};\n /** Whether the user is creating a
composition string (IME events). \n */\n private _composing = false;\n constructor(\n private _renderer:
Renderer2, private _elementRef: ElementRef,\n @Optional() @Inject(COMPOSITION_BUFFER_MODE)
private _compositionMode: boolean) {\n if (this._compositionMode == null) {\n this._compositionMode
= !_isAndroid();\n }\n }\n /**\n * Sets the \"value\" property on the input element.\n *\n @nodoc\n */\n writeValue(value: any): void {\n const normalizedValue = value == null ? '' : value;\n this._renderer.setProperty(this._elementRef.nativeElement, 'value', normalizedValue);\n }\n /**\n * Registers a
function called when the control value changes.\n *\n @nodoc\n */\n registerOnChange(fn: (_: any) => void): void {\n this.onChange = fn;\n }\n /**\n * Registers a function called when the control is touched.\n *\n @nodoc\n */\n registerOnTouched(fn: () => void): void {\n this.onTouched = fn;\n }\n /**\n * Sets the \"disabled\"\nproperty on the input element.\n *\n @nodoc\n */\n setDisabledState(isDisabled: boolean): void {\n this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n }\n }

@internal\n _handleInput(value: any): void {\n if (!this._compositionMode || (this._compositionMode
&& !this._composing)) {\n this.onChange(value);\n }\n }\n
@internal\n _compositionStart(): void {\n this._composing = true;\n }\n
@internal\n _compositionEnd(value: any): void {\n this._composing
= false;\n this._compositionMode && this.onChange(value);\n }\n }\";/*!
*****\r\nCopyright (c)
Microsoft Corporation.\r\n\r\nPermission to use, copy, modify, and/or distribute this software for any\r\npurpose
with or without fee is hereby granted.\r\n\r\nTHE SOFTWARE IS PROVIDED \"AS IS\" AND THE AUTHOR
DISCLAIMS ALL WARRANTIES WITH\r\nREGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED
WARRANTIES OF MERCHANTABILITY\r\nAND FITNESS. IN NO EVENT SHALL THE AUTHOR BE
LIABLE FOR ANY SPECIAL, DIRECT,\r\nINDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY
DAMAGES WHATSOEVER RESULTING FROM\r\nLOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR\r\nOTHER TORTIOUS ACTION,
ARISING OUT OF OR IN CONNECTION WITH THE USE OR\r\nPERFORMANCE OF THIS
SOFTWARE.\r\n*****
/\r\n/ global Reflect, Promise */\r\n\r\nvar extendStatics = function(d, b) {\r\n extendStatics =
Object.setPrototypeOf ||\r\n ({ __proto__: [] } instanceof Array && function(d, b) { d.__proto__ = b; }) ||\r\n function(d, b) { for (var p in b) if (b.hasOwnProperty(p)) d[p] = b[p]; }; \r\n return extendStatics(d,
b);\r\n};\r\n\r\nexport function __extends(d, b) {\r\n extendStatics(d, b);\r\n function __() { this.constructor = d;
}\r\n d.prototype = b === null ? Object.create(b) : (__proto__ = b.prototype, new __());\r\n}\r\n\r\nexport var
__assign = function() {\r\n __assign = Object.assign || function __assign(t) {\r\n for (var s, i = 1, n =
arguments.length; i < n; i++) {\r\n s = arguments[i];\r\n for (var p in s) if
(Object.prototype.hasOwnProperty.call(s,
p)) t[p] = s[p];\r\n }\r\n return t;\r\n }\r\n return __assign.apply(this, arguments);\r\n}\r\n\r\nexport
function __rest(s, e) {\r\n var t = {};\r\n for (var p in s) if (Object.prototype.hasOwnProperty.call(s, p) &&
e.indexOf(p) < 0)\r\n t[p] = s[p];\r\n if (s != null && typeof Object.getPrototypeOfSymbols ===
\"function\")\r\n for (var i = 0, p = Object.getPrototypeOfSymbols(s); i < p.length; i++) {\r\n if
(e.indexOf(p[i]) < 0 && Object.prototype.propertyIsEnumerable.call(s, p[i]))\r\n t[p[i]] = s[p[i]];\r\n }\r\n}
```

```

}\r\n return t;\r\n}\r\n\r\n\r\nexport function __decorate(decorators, target, key, desc) {\r\n var c = arguments.length,
r = c < 3 ? target : desc === null ? desc = Object.getOwnPropertyDescriptor(target, key) : desc, d;\r\n if (typeof
Reflect === \"object\" && typeof Reflect.decorate === \"function\") r = Reflect.decorate(decorators, target, key,
desc);\r\n else for (var i = decorators.length -
1; i >= 0; i--) if (d = decorators[i]) r = (c < 3 ? d(r) : c > 3 ? d(target, key, r) : d(target, key)) || r;\r\n return c > 3
&& r && Object.defineProperty(target, key, r, r);\r\n}\r\n\r\n\r\nexport function __param(paramIndex, decorator) {\r\n
return function (target, key) { decorator(target, key, paramIndex); }\r\n}\r\n\r\n\r\nexport function
__metadata(metadataKey, metadataValue) {\r\n if (typeof Reflect === \"object\" && typeof Reflect.metadata ===
\"function\") return Reflect.metadata(metadataKey, metadataValue);\r\n}\r\n\r\n\r\nexport function __awaiter(thisArg,
_arguments, P, generator) {\r\n function adopt(value) { return value instanceof P ? value : new P(function
(resolve) { resolve(value); }); }\r\n return new (P || (P = Promise))(function (resolve, reject) {\r\n function
fulfilled(value) { try { step(generator.next(value)); } catch (e) { reject(e); } }\r\n function rejected(value) { try {
step(generator[\"throw\"](value)); } catch (e) { reject(e); } }\r\n
 function step(result) { result.done ? resolve(result.value) : adopt(result.value).then(fulfilled, rejected); }\r\n
 step((generator = generator.apply(thisArg, _arguments || [])).next());\r\n });\r\n}\r\n\r\n\r\nexport function
__generator(thisArg, body) {\r\n var _ = { label: 0, sent: function() { if (t[0] & 1) throw t[1]; return t[1]; }, trys: [],
ops: [] }, f, y, t, g;\r\n return g = { next: verb(0), \"throw\": verb(1), \"return\": verb(2) }, typeof Symbol ===
\"function\" && (g[Symbol.iterator] = function() { return this; }), g;\r\n function verb(n) { return function (v) {
return step([n, v]); }; }\r\n function step(op) {\r\n if (f) throw new TypeError(\"Generator is already
executing.\");\r\n while (__) try {\r\n if (f = 1, y && (t = op[0] & 2 ? y[\"return\"] : op[0] ? y[\"throw\"] ||
((t = y[\"return\"] && t.call(y, 0) : y.next) && !(t = t.call(y, op[1])).done) return t;\r\n if (y = 0, t) op =
[op[0] & 2, t.value];\r\n
 switch (op[0]) {\r\n case 0: case 1: t = op; break;\r\n case 4: _.label++; return { value:
op[1], done: false }; \r\n case 5: _.label++; y = op[1]; op = [0]; continue;\r\n case 7: op =
_.ops.pop(); _.trys.pop(); continue;\r\n default:\r\n if (!t = _.trys, t = t.length > 0 && t[t.length
- 1]) && (op[0] === 6 || op[0] === 2)) { _ = 0; continue; }\r\n if (op[0] === 3 && (!t || (op[1] > t[0] &&
op[1] < t[3]))) { _.label = op[1]; break; }\r\n if (op[0] === 6 && _.label < t[1]) { _.label = t[1]; t = op;
break; }\r\n if (t && _.label < t[2]) { _.label = t[2]; _.ops.push(op); break; }\r\n if (t[2])
_.ops.pop();\r\n _.trys.pop(); continue;\r\n }\r\n op = body.call(thisArg, _);\r\n } catch
(e) { op = [6, e]; y = 0; } finally { f = t = 0; }\r\n if (op[0] & 5) throw
op[1]; return { value: op[0] ? op[1] : void 0, done: true }; }\r\n }\r\n}\r\n\r\n\r\nexport var __createBinding =
Object.create ? (function(o, m, k, k2) {\r\n if (k2 === undefined) k2 = k;\r\n Object.defineProperty(o, k2, {
enumerable: true, get: function() { return m[k]; } });\r\n}) : (function(o, m, k, k2) {\r\n if (k2 === undefined) k2 =
k;\r\n o[k2] = m[k];\r\n});\r\n\r\n\r\nexport function __exportStar(m, exports) {\r\n for (var p in m) if (p !==
\"default\" && !exports.hasOwnProperty(p)) __createBinding(exports, m, p);\r\n}\r\n\r\n\r\nexport function __values(o)
{\r\n var s = typeof Symbol === \"function\" && Symbol.iterator, m = s && o[s], i = 0;\r\n if (m) return
m.call(o);\r\n if (o && typeof o.length === \"number\") return {\r\n next: function () {\r\n if (o && i
>= o.length) o = void 0;\r\n return { value: o && o[i++], done: !o }; }\r\n }\r\n }\r\n throw new
TypeError(s ? \"Object is not iterable.\" : \"Symbol.iterator is
not defined.\");\r\n}\r\n\r\n\r\nexport function __read(o, n) {\r\n var m = typeof Symbol === \"function\" &&
o[Symbol.iterator];\r\n if (!m) return o;\r\n var i = m.call(o), r, ar = [], e;\r\n try {\r\n while ((n === void 0
|| n-- > 0) && !(r = i.next()).done) ar.push(r.value);\r\n }\r\n catch (error) { e = { error: error }; }\r\n finally
{\r\n try {\r\n if (r && !r.done && (m = i[\"return\"])) m.call(i);\r\n }\r\n finally { if (e) throw
e.error; }\r\n }\r\n }\r\n return ar;\r\n}\r\n\r\n\r\nexport function __spread() {\r\n for (var ar = [], i = 0; i <
arguments.length; i++)\r\n ar = ar.concat(__read(arguments[i]));\r\n return ar;\r\n}\r\n\r\n\r\nexport function
__spreadArrays() {\r\n for (var s = 0, i = 0, il = arguments.length; i < il; i++) s += arguments[i].length;\r\n for
(var r = Array(s), k = 0, i = 0; i < il; i++)\r\n for (var a = arguments[i], j = 0, jl = a.length; j < jl; j++, k++)\r\n
 r[k] =

```

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a[j];\r\n return r;\r\n};\r\n\r\nexport function __await(v) {\r\n return this instanceof __await ? (this.v = v, this) :
new __await(v);\r\n}\r\n\r\nexport function __asyncGenerator(thisArg, _arguments, generator) {\r\n if
(!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not defined.");\r\n var g =
generator.apply(thisArg, _arguments || []), i, q = [];\r\n return i = {}, verb("next"), verb("throw"),
verb("return"), i[Symbol.asyncIterator] = function () { return this; }, i;\r\n function verb(n) { if (g[n]) i[n] =
function (v) { return new Promise(function (a, b) { q.push([n, v, a, b]) > 1 || resume(n, v); }); }; }\r\n function
resume(n, v) { try { step(g[n](v)); } catch (e) { settle(q[0][3], e); } }\r\n function step(r) { r.value instanceof
__await ? Promise.resolve(r.value.v).then(fulfill, reject) : settle(q[0][2], r); }\r\n function fulfill(value) {
resume("next", value); }\r\n function reject(value) { resume("throw", value);
}\r\n function settle(f, v) { if (f(v), q.shift(), q.length) resume(q[0][0], q[0][1]); }\r\n}\r\n\r\nexport function
__asyncDelegator(o) {\r\n var i, p;\r\n return i = {}, verb("next"), verb("throw"), function (e) { throw e; },
verb("return"), i[Symbol.iterator] = function () { return this; }, i;\r\n function verb(n, f) { i[n] = o[n] ? function
(v) { return (p = !p) ? { value: __await(o[n](v)), done: n === "return" } : f ? f(v) : v; } : f; }\r\n}\r\n\r\nexport
function __asyncValues(o) {\r\n if (!Symbol.asyncIterator) throw new TypeError("Symbol.asyncIterator is not
defined.");\r\n var m = o[Symbol.asyncIterator], i;\r\n return m ? m.call(o) : (o = typeof __values ===
"function" ? __values(o) : o[Symbol.iterator](), i = {}, verb("next"), verb("throw"), verb("return"),
i[Symbol.asyncIterator] = function () { return this; }, i);\r\n function verb(n) { i[n] = o[n] && function (v) { return
new Promise(function (resolve, reject) { v = o[n](v), settle(resolve,
reject, v.done, v.value); }); }; }\r\n function settle(resolve, reject, d, v) { Promise.resolve(v).then(function(v) {
resolve({ value: v, done: d }); }, reject); }\r\n}\r\n\r\nexport function __makeTemplateObject(cooked, raw) {\r\n if
(Object.defineProperty) { Object.defineProperty(cooked, "raw", { value: raw }); } else { cooked.raw = raw; }\r\n
return cooked;\r\n};\r\n\r\nvar __setModuleDefault = Object.create ? (function(o, v) {\r\n Object.defineProperty(o,
"default", { enumerable: true, value: v });\r\n}) : function(o, v) {\r\n o["default"] = v;\r\n};\r\n\r\nexport
function __importStar(mod) {\r\n if (mod && mod.__esModule) return mod;\r\n var result = {};\r\n if (mod !==
null) for (var k in mod) if (Object.hasOwnProperty.call(mod, k)) __createBinding(result, mod, k);\r\n __setModuleDefault(result, mod);\r\n return result;\r\n}\r\n\r\nexport function __importDefault(mod) {\r\n
return (mod && mod.__esModule) ? mod : { default: mod }; }\r\n\r\nexport
function __classPrivateFieldGet(receiver, privateMap) {\r\n if (!privateMap.has(receiver)) {\r\n throw new
TypeError("attempted to get private field on non-instance");\r\n }\r\n return
privateMap.get(receiver);\r\n}\r\n\r\nexport function __classPrivateFieldSet(receiver, privateMap, value) {\r\n if
(!privateMap.has(receiver)) {\r\n throw new TypeError("attempted to set private field on non-instance");\r\n }\r\n
privateMap.set(receiver, value);\r\n return value;\r\n}\r\n\r\n"/**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport { InjectionToken, isObservable as isObservable,
isPromise as isPromise } from '@angular/core';\nimport { forkJoin, from, Observable } from 'rxjs';\nimport { map }
from 'rxjs/operators';\nimport { AsyncValidator, AsyncValidatorFn, ValidationErrors,
Validator, ValidatorFn } from './directives/validators';\nimport { AbstractControl } from './model';\n\nfunction
isEmptyInputValue(value: any): boolean {\n // we don't check for string here so it also works with arrays\n return
value == null || value.length === 0;\n}\n\nfunction isValidLength(value: any): boolean {\n // non-strict
comparison is intentional, to check for both `null` and `undefined` values\n return value != null && typeof
value.length === 'number';\n}\n\n/**\n * @description\n * An `InjectionToken` for registering additional
synchronous validators used with\n * `AbstractControl`s.\n *\n * @see `NG_ASYNC_VALIDATORS`\n *\n * @usageNotes\n *\n * ### Providing a custom validator\n *\n * The following example registers a custom validator
directive. Adding the validator to the\n * existing collection of validators requires the `multi: true` option.\n *\n * ```typescript\n * @Directive({\n * selector: '[customValidator]',\n * providers: [{ provide: NG_VALIDATORS,
useExisting:
CustomValidatorDirective, multi: true }]\n * })\n * class CustomValidatorDirective implements Validator {\n *
validate(control: AbstractControl): ValidationErrors | null {\n * return { 'custom': true }; }\n * }\n * ```\n *\n

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* @publicApi\n * /\nexport const NG_VALIDATORS = new
InjectionToken<Array<Validator|Function>>('NgValidators');\n\n/**\n * @description\n * An `InjectionToken` for
registering additional asynchronous validators used with\n * `AbstractControl`s.\n *\n * @see
`NG_VALIDATORS`\n *\n * @publicApi\n * /\nexport const NG_ASYNC_VALIDATORS =\n new
InjectionToken<Array<Validator|Function>>('NgAsyncValidators');\n\n/**\n * A regular expression that matches
valid e-mail addresses.\n *\n * At a high level, this regexp matches e-mail addresses of the format `local-part@tld`,
where:\n * - `local-part` consists of one or more of the allowed characters (alphanumeric and some\n * punctuation
symbols).\n * - `local-part` cannot begin or end with a period (`.`).\n *
- `local-part` cannot be longer than 64 characters.\n * - `tld` consists of one or more `labels` separated by periods
(`.`). For example `localhost` or\n * `foo.com`.\n * - A `label` consists of one or more of the allowed characters
(alphanumeric, dashes (`-`) and\n * periods (`.`)).\n * - A `label` cannot begin or end with a dash (`-`) or a period
(`.`).\n * - A `label` cannot be longer than 63 characters.\n * - The whole address cannot be longer than 254
characters.\n *\n * ## Implementation background\n *\n * This regexp was ported over from AngularJS (see there
for git history):\n * https://github.com/angular/angular.js/blob/c133ef836/src/ng/directive/input.js#L27\n * It is
based on the\n * [WHATWG version](https://html.spec.whatwg.org/multipage/input.html#valid-e-mail-address)
with\n * some enhancements to incorporate more RFC rules (such as rules related to domain names and the\n *
lengths of different parts of the address). The main differences from the WHATWG version are:\n
* - Disallow `local-part` to begin or end with a period (`.`).\n * - Disallow `local-part` length to exceed 64
characters.\n * - Disallow total address length to exceed 254 characters.\n *\n * See [this
commit](https://github.com/angular/angular.js/commit/f3f5cf72e) for more details.\n *\nconst EMAIL_REGEXP
=\n /^(?=. {1,254}$)(?=. {1,64} @)[a-zA-Z0-9!#$%&'*/+=?^_`{|}~]+(?:\\. [a-zA-Z0-9!#$%&'*/+=?^_`{|}~
-+)*@[a-zA-Z0-9](?:[a-zA-Z0-9-]{0,61}[a-zA-Z0-9])?(?:\\. [a-zA-Z0-9](?:[a-zA-Z0-9-]{0,61}[a-zA-Z0-
9])?)*$/;\n\n/**\n * @description\n * Provides a set of built-in validators that can be used by form controls.\n *\n * A validator is a function that processes a `FormControl` or collection of\n * controls and returns an error map or
null. A null map means that validation has passed.\n *\n * @see [Form Validation](/guide/form-validation)\n *\n *
@publicApi\n * /\nexport class Validators {\n /**\n * @description\n * Validator that requires the control's value
to be greater than
or equal to the provided number.\n * The validator exists only as a function and not as a directive.\n *\n *
@usageNotes\n *\n * ### Validate against a minimum of 3\n *\n * ```typescript\n * const control = new
FormControl(2, Validators.min(3));\n *\n * console.log(control.errors); // {min: {min: 3, actual: 2}}\n *\n *
`\n *\n * @returns A validator function that returns an error map with the\n * `min` property if the validation check
fails, otherwise `null`.\n *\n * @see `updateValueAndValidity()`\n *\n * /\n static min(min: number):
ValidatorFn {\n return (control: AbstractControl): ValidationErrors|null => {\n if
(isEmptyInputValue(control.value) || isEmptyInputValue(min)) {\n return null; // don't validate empty values to
allow optional controls\n }\n const value = parseFloat(control.value);\n // Controls with NaN values after
parsing should be treated as not having a\n // minimum, per the HTML forms spec:
https://www.w3.org/TR/html5/forms.html#attr-input-min\n
return !isNaN(value) && value < min ? {'min': {'min': min, 'actual': control.value}} : null;\n }\n }\n\n /**\n *
@description\n * Validator that requires the control's value to be less than or equal to the provided number.\n *
The validator exists only as a function and not as a directive.\n *\n * @usageNotes\n *\n * ### Validate against
a maximum of 15\n *\n * ```typescript\n * const control = new FormControl(16, Validators.max(15));\n *\n *
console.log(control.errors); // {max: {max: 15, actual: 16}}\n *\n * ```\n *\n * @returns A validator function that
returns an error map with the\n * `max` property if the validation check fails, otherwise `null`.\n *\n * @see
`updateValueAndValidity()`\n *\n * /\n static max(max: number): ValidatorFn {\n return (control:
AbstractControl): ValidationErrors|null => {\n if (isEmptyInputValue(control.value) || isEmptyInputValue(max))
{\n return
null; // don't validate empty values to allow optional controls\n }\n const value = parseFloat(control.value);\n
// Controls with NaN values after parsing should be treated as not having a\n // maximum, per the HTML

```

```

forms spec: https://www.w3.org/TR/html5/forms.html#attr-input-max
return isNaN(value) && value > max ?
{ 'max': { 'max': max, 'actual': control.value } } : null;
}
}
/**
 * @description
 * Validator that
requires the control have a non-empty value.
 *
 * @usageNotes
 *
 * ### Validate that the field is non-
empty
 *
 * ```typescript
 * const control = new FormControl("", Validators.required);
 * console.log(control.errors); // {required: true}
 *
 * @returns An error map with the `required`
property
 * if the validation check fails, otherwise `null`.
 *
 * @see `updateValueAndValidity()`
 *
 * /\n static required(control: AbstractControl): ValidationErrors|null {
return isEmptyInputValue(control.value) ? { 'required': true } : null;
}
}
/**
 * @description
 * Validator
that requires the control's value be true. This validator is commonly
 * used for required checkboxes.
 *
 * @usageNotes
 *
 * ### Validate that the field value is true
 *
 * ```typescript
 * const control = new
FormControl("", Validators.requiredTrue);
 * console.log(control.errors); // {required: true}
 *
 * @returns An error map that contains the `required` property
 * set to `true` if the validation check fails, otherwise
`null`.
 *
 * @see `updateValueAndValidity()`
 *
 * /\n static requiredTrue(control: AbstractControl):
ValidationErrors|null {
return control.value === true ? null : { 'required': true };
}
}
/**
 * @description
 * Validator that requires the control's value pass an email validation test.
 *
 * Tests the value using a [regular
 * expression](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Regular_Expressions)
 * pattern suitable for common usecases. The pattern is based on the definition of a valid email
 * address in the
[WHATWG HTML
 * specification](https://html.spec.whatwg.org/multipage/input.html#valid-e-mail-address)
with
 * some enhancements to incorporate more RFC rules (such as rules related to domain names and the
lengths of different parts of the address).
 *
 * The differences from the WHATWG version include:
 *
 * - Disallow `local-part` (the part before the `@` symbol) to begin or end with a period (`.`).
 *
 * - Disallow `local-part`
to be longer than 64 characters.
 *
 * - Disallow the whole address to be longer than 254 characters.
 *
 * If this
pattern does not satisfy your business needs, you can use `Validators.pattern()` to
 * validate the value against a
different pattern.
 *
 * @usageNotes
 *
 * ### Validate that the field matches a valid email pattern
 *
 * ```typescript
 * const control = new FormControl('bad@', Validators.email);
 * console.log(control.errors); // {email: true}
 *
 * @returns An error map with the `email` property
 * if the validation check fails, otherwise `null`.
 *
 * @see `updateValueAndValidity()`
 *
 * /\n static
email(control: AbstractControl): ValidationErrors|null {
if (isEmptyInputValue(control.value)) {
return
null; // don't validate empty values to allow optional controls
}
return EMAIL_REGEXP.test(control.value)
? null : { 'email': true };
}
}
/**
 * @description
 * Validator that requires the length of the control's value
to be greater than or equal
 * to the provided minimum length. This validator is also provided by default if you
use the
 * the HTML5 `minlength` attribute. Note that the `minLength` validator is intended to be used
 * only
for types that have a numeric `length` property, such as strings or arrays.
 *
The
 * `minLength` validator logic is also not invoked for values when their `length` property is 0
 * (for
example in case of an empty string or an empty array), to support optional controls. You
 * can use the standard
`required` validator if empty values should not be considered valid.
 *
 * @usageNotes
 *
 * ### Validate
that the field has a minimum of 3 characters
 *
 * ```typescript
 * const control = new FormControl('ng',
Validators.minLength(3));
 * console.log(control.errors); // {minlength: {requiredLength: 3, actualLength:
2}}
 *
 * ```html
 * <input minlength="5">
 *
 * @returns A validator function that
returns an error map with the
 * `minlength` if the validation check fails, otherwise `null`.
 *
 * @see
`updateValueAndValidity()`
 *
 * /\n static minLength(minLength: number): ValidatorFn {
return (control:
AbstractControl): ValidationErrors|null => {
if (isEmptyInputValue(control.value)
|| !hasValidLength(control.value)) {
// don't validate empty values to allow optional controls
// don't
validate values without `length` property
return null;
}
return control.value.length < minLength
? { 'minlength': { 'requiredLength': minLength, 'actualLength': control.value.length } } :
null;
}
}
}
/**
 * @description
 * Validator that requires the length of the control's value to be less than or equal
 * to the provided maximum length. This validator is also provided by default if you use the
 * the HTML5
`maxlength` attribute. Note that the `maxLength` validator is intended to be used
 * only
for types that have a

```



```

numeric `length` property, such as strings or arrays.\n * \n * @usageNotes\n * \n * ### Validate that the field
has maximum of 5 characters\n * \n * ```typescript\n * const control = new FormControl('Angular',
Validators.maxLength(5));\n * \n * console.log(control.errors);
// {maxLength: {requiredLength: 5, actualLength: 7}}\n * ```\n * \n * ```html\n * <input maxlength="5">\n *
```\n * \n * @returns A validator function that returns an error map with the\n * `maxLength` property if the
validation check fails, otherwise `null`.\n * \n * @see `updateValueAndValidity()`\n * \n * /\n static
maxLength(maxLength: number): ValidatorFn {\n   return (control: AbstractControl): ValidationErrors|null => {\n
return hasValidLength(control.value) && control.value.length > maxLength ?\n     {'maxLength':
{'requiredLength': maxLength, 'actualLength': control.value.length}} :\n     null;\n   };\n }\n /\n *
\n * @description\n * Validator that requires the control's value to match a regex pattern. This validator is also\n *
provided by default if you use the HTML5 `pattern` attribute.\n * \n * @usageNotes\n * \n * ### Validate that
the field only contains letters or spaces\n * \n * ```typescript\n
\n * const control = new FormControl('1', Validators.pattern('[a-zA-Z ]*'));\n * \n * console.log(control.errors); //
{pattern: {requiredPattern: '^[a-zA-Z ]*$', actualValue: '1'}}\n * \n * ```\n * \n * ```html\n * <input pattern="[a-zA-
Z ]*">\n * \n * \n * ### Pattern matching with the global or sticky flag\n * \n * `RegExp` objects created
with the `g` or `y` flags that are passed into `Validators.pattern`\n * can produce different results on the same input
when validations are run consecutively. This is\n * due to how the behavior of `RegExp.prototype.test` is\n *
specified in [ECMA-262](https://tc39.es/ecma262/#sec-regexpbuiltinexec)\n * (`RegExp` preserves the index of
the last match when the global or sticky flag is used).\n * Due to this behavior, it is recommended that when
using\n * `Validators.pattern` you **do not** pass in a `RegExp` object with either the global or sticky\n * flag
enabled.\n * \n * ```typescript\n * // Not recommended
\n * (since the `g` flag is used)\n * const controlOne = new FormControl('1', Validators.pattern(/foo/g));\n * \n * //
Good\n * const controlTwo = new FormControl('1', Validators.pattern(/foo/));\n * \n * \n * @param pattern A
regular expression to be used as is to test the values, or a string.\n * If a string is passed, the `^` character is
prepended and the `$` character is\n * appended to the provided string (if not already present), and the resulting
regular\n * expression is used to test the values.\n * \n * @returns A validator function that returns an error map
with the\n * `pattern` property if the validation check fails, otherwise `null`.\n * \n * @see
`updateValueAndValidity()`\n * \n * /\n static pattern(pattern: string|RegExp): ValidatorFn {\n   if (!pattern)
return Validators.nullValidator;\n   let regex: RegExp;\n   let regexStr: string;\n   if (typeof pattern === 'string') {\n
regexStr = ";\n   if (pattern.charAt(0) !== '^') regexStr
+= '^';\n   regexStr += pattern;\n   if (pattern.charAt(pattern.length - 1) !== '$') regexStr += '$';\n   regex
= new RegExp(regexStr);\n   } else {\n   regexStr = pattern.toString();\n   regex = pattern;\n   }\n   return
(control: AbstractControl): ValidationErrors|null => {\n   if (isEmptyInputValue(control.value)) {\n   return
null; // don't validate empty values to allow optional controls\n   }\n   const value: string = control.value;\n
return regex.test(value) ? null :\n     {'pattern': {'requiredPattern': regexStr, 'actualValue': value}};\n
};\n }\n /\n * \n * @description\n * Validator that performs no operation.\n * \n * @see
`updateValueAndValidity()`\n * \n * /\n static nullValidator(control: AbstractControl): ValidationErrors|null {\n
return null;\n }\n /\n * \n * @description\n * Compose multiple validators into a single function that returns the
union\n * of the individual
error maps for the provided control.\n * \n * @returns A validator function that returns an error map with the\n *
merged error maps of the validators if the validation check fails, otherwise `null`.\n * \n * @see
`updateValueAndValidity()`\n * \n * /\n static compose(validators: null): null;\n static compose(validators:
(ValidatorFn|null|undefined)[]): ValidatorFn|null;\n static compose(validators: (ValidatorFn|null|undefined)[]|null):
ValidatorFn|null {\n   if (!validators) return null;\n   const presentValidators: ValidatorFn[] =
validators.filter(isPresent) as any;\n   if (presentValidators.length === 0) return null;\n   return function(control:
AbstractControl) {\n   return mergeErrors(executeValidators<ValidatorFn>(control, presentValidators));\n   };\n
}\n /\n * \n * @description\n * Compose multiple async validators into a single function that returns the union\n
* of the individual error objects for the provided control.\n * \n * @returns A validator

```

```

function that returns an error map with the
 * merged error objects of the async validators if the validation check
fails, otherwise `null`.
 *
 * @see `updateValueAndValidity()`
 *
 * /\n static composeAsync(validators:
(AsyncValidatorFn|null)[]): AsyncValidatorFn|null {
  if (!validators) return null;
  const presentValidators:
AsyncValidatorFn[] = validators.filter(isPresent) as any;
  if (presentValidators.length === 0) return null;

  return function(control: AbstractControl) {
    const observables =
executeValidators<AsyncValidatorFn>(control, presentValidators).map(toObservable);
    return
forkJoin(observables).pipe(map(mergeErrors));
  };
}

function isPresent(o: any): boolean {
  return o !=
null;
}

export function toObservable(r: any): Observable<any> {
  const obs = isPromise(r) ? from(r) : r;
  if
(!isObservable(obs)) && (typeof ngDevMode === 'undefined' || ngDevMode)) {
    throw new Error('Expected
validator to return Promise or Observable.');
```

}
 }
 return obs;
}

function mergeErrors(arrayOfErrors:
(ValidationErrors|null)[]): ValidationErrors|null {
 let res: {[key: string]: any} = {};

 // Not using Array.reduce
 here due to a Chrome 80 bug
 // https://bugs.chromium.org/p/chromium/issues/detail?id=1049982
 arrayOfErrors.forEach((errors: ValidationErrors|null) => {
 res = errors != null ? {...res!, ...errors} : res!;
 });

 return Object.keys(res).length === 0 ? null : res;
}

type GenericValidatorFn = (control:
AbstractControl) => any;

function executeValidators<V extends GenericValidatorFn>(
 control:
AbstractControl,
 validators: V[]): ReturnType<V>[] {
 return validators.map(validator =>
validator(control));
}

function isValidatorFn<V>(validator: V|Validator|AsyncValidator): validator is V {
 return !(validator as Validator).validate;
}

 * Given the list of validators that may contain both functions as
well as classes, return the
list
 * of validator functions (convert validator classes into validator functions). This is needed to
 * have
consistent structure in validators list before composing them.
 *
 * @param validators The set of validators that
may contain validators both in plain function form
 * as well as represented as a validator class.
 *
 * /\n export
function normalizeValidators<V>(validators: (V|Validator|AsyncValidator)[]): V[] {
 return
validators.map(validator => {
 return isValidatorFn<V>(validator) ?
 validator :
 ((c: AbstractControl)
=> validator.validate(c)) as unknown as V;
 });
}

 * Merges synchronous validators into a single
validator function (combined using
 * `Validators.compose`).
 *
 * /\n export function composeValidators(validators:
Array<Validator|ValidatorFn>): ValidatorFn|null {
 return validators != null ?
Validators.compose(normalizeValidators<ValidatorFn>(validators)) :
null;
}

 * Merges asynchronous
validators into a single validator function (combined using
 * `Validators.composeAsync`).
 *
 * /\n export function
composeAsyncValidators(validators: Array<AsyncValidator|AsyncValidatorFn>):
 AsyncValidatorFn|null {
 return validators != null ?
Validators.composeAsync(normalizeValidators<AsyncValidatorFn>(validators)) :
null;
}

 * Merges raw control validators with a given directive validator and returns the combined list of
 * validators as an array.
 *
 * /\n export function mergeValidators<V>(controlValidators: V[V[]|null, dirValidator: V]:
V[] {
 if (controlValidators === null) return [dirValidator];
 return Array.isArray(controlValidators) ?
[...controlValidators, dirValidator] :
[controlValidators, dirValidator];
}

 * Retrieves the list of raw synchronous validators attached to a given control.
 *
 * /\n export function
getControlValidators(control: AbstractControl): ValidatorFn[]|ValidatorFn[]|null {
 return (control as any)._rawValidators as ValidatorFn | ValidatorFn[] | null;
}

 * Retrieves the list of
raw asynchronous validators attached to a given control.
 *
 * /\n export function getControlAsyncValidators(control:
AbstractControl): AsyncValidatorFn[]|
 AsyncValidatorFn[]|null {
 return (control as any)._rawAsyncValidators
as AsyncValidatorFn | AsyncValidatorFn[] | null;
}

 *
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Reserved.
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 * found in the
LICENSE file at https://angular.io/license
 *
 * /\n import {Observable} from 'rxjs';
 * /\n import {AbstractControl}
from '../model';
 * /\n import {composeAsyncValidators, composeValidators} from './validators';
 * /\n import
{AsyncValidator, AsyncValidatorFn, ValidationErrors, Validator, ValidatorFn} from './validators';

 *
 * @description
 * Base class for control directives.
 *
 * This class is only used internally in the
`ReactiveFormsModule`

```

and the `FormsModule`.
\n * @publicApi
\n * export abstract class AbstractControlDirective {
\n /**
\n * @description
\n * A reference to the underlying control.
\n * @returns the control that backs this directive.
Most properties fall through to that instance.
\n *
\n * abstract get control(): AbstractControl|null;
\n /**
\n * @description
\n * Reports the value of the control if it is present, otherwise null.
\n *
\n * get value(): any {
\n return this.control ? this.control.value : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is valid. A control is considered valid if no
\n * validation errors exist with the current value.
\n * If the control is not present, null is returned.
\n *
\n * get valid(): boolean|null {
\n return this.control ? this.control.valid : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is invalid, meaning that an error exists in the input value.
\n * If the control is not present,
\n null is returned.
\n *
\n * get invalid(): boolean|null {
\n return this.control ? this.control.invalid : null;
\n }
\n /**
\n * @description
\n * Reports whether a control is pending, meaning that that async validation is occurring
and
\n * errors are not yet available for the input value. If the control is not present, null is
\n * returned.
\n *
\n * get pending(): boolean|null {
\n return this.control ? this.control.pending : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is disabled, meaning that the control is disabled
\n * in the UI and is exempt from validation checks and excluded from aggregate
\n * values of ancestor controls. If the control is not present, null is
\n returned.
\n *
\n * get disabled(): boolean|null {
\n return this.control ? this.control.disabled : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is enabled, meaning that the control is included in ancestor
\n * calculations of validity or value.
\n If the control is not present, null is returned.
\n *
\n * get enabled(): boolean|null {
\n return this.control ?
this.control.enabled : null;
\n }
\n /**
\n * @description
\n * Reports the control's validation errors. If the control
is not present, null is returned.
\n *
\n * get errors(): ValidationErrors|null {
\n return this.control ?
this.control.errors : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is pristine, meaning that
the user has not yet changed
\n * the value in the UI. If the control is not present, null is returned.
\n *
\n * get
pristine(): boolean|null {
\n return this.control ? this.control.pristine : null;
\n }
\n /**
\n * @description
\n * Reports whether the control is dirty, meaning that the user has changed
\n * the value in the UI. If the control is not
present, null is returned.
\n *
\n * get dirty(): boolean|null {
\n return this.control ? this.control.dirty : null;
\n }
\n /**
\n * @description
\n * Reports
whether the control is touched, meaning that the user has triggered
\n * a `blur` event on it. If the control is not
present, null is returned.
\n *
\n * get touched(): boolean|null {
\n return this.control ? this.control.touched : null;
\n }
\n /**
\n * @description
\n * Reports the validation status of the control. Possible values include:
\n *
\n * 'VALID', 'INVALID', 'DISABLED', and 'PENDING'.
\n * If the control is not present, null is returned.
\n *
\n * get
status(): string|null {
\n return this.control ? this.control.status : null;
\n }
\n /**
\n * @description
\n * Reports
whether the control is untouched, meaning that the user has not yet triggered
\n * a `blur` event on it. If the control
is not present, null is returned.
\n *
\n * get untouched(): boolean|null {
\n return this.control ?
this.control.untouched : null;
\n }
\n /**
\n * @description
\n * Returns a multicasting observable that emits a
validation status whenever it is
\n * calculated for the
control. If the control is not present, null is returned.
\n *
\n * get statusChanges(): Observable<any>|null {
\n return this.control ? this.control.statusChanges : null;
\n }
\n /**
\n * @description
\n * Returns a multicasting
observable of value changes for the control that emits every time the
\n * value of the control changes in the UI or
programmatically.
\n * If the control is not present, null is returned.
\n *
\n * get valueChanges():
Observable<any>|null {
\n return this.control ? this.control.valueChanges : null;
\n }
\n /**
\n * @description
\n * Returns an array that represents the path from the top-level form to this control.
\n * Each index is the string name
of the control on that level.
\n *
\n * get path(): string[]|null {
\n return null;
\n }
\n /**
\n * Contains the result of
merging synchronous validators into a single validator function
\n * (combined using `Validators.compose`).
\n *
\n * private _composedValidatorFn: ValidatorFn|null|undefined;
\n /**
\n * Contains the result of merging asynchronous validators into a single validator function
\n * (combined
using `Validators.composeAsync`).
\n *
\n * private _composedAsyncValidatorFn:
AsyncValidatorFn|null|undefined;
\n /**
\n * Set of synchronous validators as they were provided while calling

```

```
`setValidators` function.\n * @internal\n */\n _rawValidators: Array<Validator|ValidatorFn> = [];\n /**\n Set of asynchronous validators as they were provided while calling `setAsyncValidators`\n * function.\n *\n @internal\n */\n _rawAsyncValidators: Array<AsyncValidator|AsyncValidatorFn> = [];\n /\n * Sets synchronous validators for this directive.\n *\n @internal\n */\n _setValidators(validators:\n Array<Validator|ValidatorFn>|undefined): void {\n   this._rawValidators = validators || [];\n }\n\nthis._composedValidatorFn = composeValidators(this._rawValidators);\n}\n/\n * Sets asynchronous validators for this directive.\n *\n @internal\n*/\n _setAsyncValidators(validators: Array<AsyncValidator|AsyncValidatorFn>|undefined): void {\n  this._rawAsyncValidators = validators || [];\n  this._composedAsyncValidatorFn =\n    composeAsyncValidators(this._rawAsyncValidators);\n}\n/**\n * Synchronous validator function composed of all the synchronous validators registered with this\n * directive.\n *\n get validator(): ValidatorFn|null {\n   return this._composedValidatorFn || null;\n }\n /\n * Asynchronous validator function composed of all the asynchronous validators registered with\n * this directive.\n *\n get asyncValidator(): AsyncValidatorFn|null {\n   return this._composedAsyncValidatorFn || null;\n }\n /\n * The set of callbacks to be invoked when directive instance is being destroyed.\n *\n private _onDestroyCallbacks: (() => void)[] = [];\n /\n * Internal function to register callbacks that should be invoked\n * when directive instance is being destroyed.\n *\n @internal\n */\n _registerOnDestroy(fn: () => void): void {\n   this._onDestroyCallbacks.push(fn);\n }\n /\n * Internal function to invoke all registered \"on destroy\"\n callbacks.\n *\n Note: calling this function also clears the list of callbacks.\n *\n @internal\n */\n _invokeOnDestroyCallbacks(): void {\n   this._onDestroyCallbacks.forEach(fn => fn());\n }\n\nthis._onDestroyCallbacks = [];\n}\n/\n * Resets the control with the provided value if the control is present.\n *\n reset(value: any = undefined): void {\n   if (this.control) this.control.reset(value);\n }\n /\n *\n @description\n Reports whether the control with the given path has the error specified.\n *\n *\n @param errorCode The code of the error to check\n *\n @param path A list of control names that designates how to move from the current control\n * to the control that should be queried for errors.\n *\n *\n @usageNotes\n\n * For example, for the following `FormGroup`: \n\n ```\n form = new FormGroup({\n   address: new FormGroup({\n     street: new FormControl()\n })\n });\n ```\n\n * The path to the 'street' control from the root form would be 'address' -> 'street'. \n\n *\n It can be provided to this method in one of two formats: \n\n *\n 1. An array of string control names, e.g. `[address, street]` \n\n *\n 1. A period-delimited list of control names in one string, e.g. `address.street` \n\n *\n If no path is given, this method checks for the error on the current control.\n\n *\n @returns whether the given error is present in the control at the given path.\n *\n If the control is not present, false is returned.\n\n *\n hasError(errorCode: string, path?: Array<string|number>|string): boolean {\n   return this.control ? this.control.hasError(errorCode, path) : false;\n }\n /\n *\n @description\n Reports error data for the control with the given path.\n\n *\n *\n @param errorCode The code of the error to check\n *\n @param path A list of control names that designates how to move from the current control\n * to the control that should be queried for errors.\n *\n *\n @usageNotes\n\n * For example, for the following `FormGroup`: \n\n ```\n form = new FormGroup({\n   address: new FormGroup({\n     street: new FormControl()\n })\n });\n ```\n\n * The path to the 'street' control from the root form would be 'address' -> 'street'. \n\n *\n It can be provided to this method in one of two formats: \n\n *\n 1. An array of string control names, e.g. `[address, street]` \n\n *\n 1. A period-delimited list of control names in one string, e.g. `address.street` \n\n *\n @returns error data for that particular error. If the control or error is not present,\n * null is returned.\n\n *\n getError(errorCode: string, path?: Array<string|number>|string): any {\n   return this.control ? this.control.getError(errorCode,
```

```

class FormControl extends AbstractControlDirective {\n /**\n * @description\n * The name for the\n control\n */\n // TODO(issue/24571): remove '!.\n name!: string|number|null;\n\n /**\n * @description\n * The top-level form directive for the control.\n */\n get formDirective(): Form|null {\n return null;\n }\n\n /**\n * @description\n * The path to this group.\n */\n get path(): string[]|null {\n return null;\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is\n governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AbstractControlDirective } from './abstract_control_directive';\nimport { FormControl } from\n './control_form';\nimport { ControlValueAccessor } from './control_value_accessor';\n\n\n/**\n * @description\n * A base class that all `FormControl`-based directives extend. It binds a `FormControl`\n * object to a DOM\n element.\n */\n * @publicApi\n */\nexport abstract class NgControl extends AbstractControlDirective {\n /**\n * @description\n * The parent form for the control.\n */\n * @internal\n */\n _parent: FormControl|null =\n null;\n\n /**\n * @description\n * The name for the control\n */\n name: string|number|null = null;\n\n /**\n * @description\n * The value accessor for the control\n */\n valueAccessor: ControlValueAccessor|null\n = null;\n\n /**\n * @description\n * The callback method to update the model from the view when requested\n */\n * @param newValue The new value for the view\n */\n abstract viewToModelUpdate(newValue: any):\n void;\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is\n governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { Directive, Self } from '@angular/core';\nimport { AbstractControlDirective } from\n './abstract_control_directive';\nimport { FormControl } from './control_form';\nimport { NgControl } from\n './ng_control';\n\nexport class AbstractControlStatus {\n private _cd: AbstractControlDirective;\n\n constructor(cd:\n AbstractControlDirective) {\n this._cd = cd;\n }\n\n get ngClassUntouched(): boolean {\n return\n this._cd.control ? this._cd.control.untouched : false;\n }\n\n get ngClassTouched(): boolean {\n return\n this._cd.control\n ? this._cd.control.touched : false;\n }\n\n get ngClassPristine(): boolean {\n return this._cd.control ?\n this._cd.control.pristine : false;\n }\n\n get ngClassDirty(): boolean {\n return this._cd.control ?\n this._cd.control.dirty : false;\n }\n\n get ngClassValid(): boolean {\n return this._cd.control ? this._cd.control.valid\n : false;\n }\n\n get ngClassInvalid(): boolean {\n return this._cd.control ? this._cd.control.invalid : false;\n }\n\n get\n ngClassPending(): boolean {\n return this._cd.control ? this._cd.control.pending : false;\n }\n\n }\n\n\nexport const\n ngControlStatusHost = {\n 'class.ng-untouched': 'ngClassUntouched',\n 'class.ng-touched': 'ngClassTouched',\n 'class.ng-pristine': 'ngClassPristine',\n 'class.ng-dirty': 'ngClassDirty',\n 'class.ng-valid': 'ngClassValid',\n 'class.ng-invalid': 'ngClassInvalid',\n 'class.ng-pending': 'ngClassPending',\n };\n\n\n/**\n * @description\n * Directive automatically applied to Angular form controls that sets\n CSS classes\n */\n * based on control status.\n */\n * @usageNotes\n */\n * ### CSS classes applied\n */\n * The\n following classes are applied as the properties become true:\n */\n * * ng-valid\n */\n * * ng-invalid\n */\n * * ng-pending\n */\n * * ng-pristine\n */\n * * ng-dirty\n */\n * * ng-untouched\n */\n * * ng-touched\n */\n * @ngModule ReactiveFormsModule\n */\n * @ngModule FormsModule\n */\n * @publicApi\n */\n * @Directive({selector:\n '[formControlName],[ngModel],[formControl]', host: ngControlStatusHost})\nexport class NgControlStatus extends\n AbstractControlStatus {\n constructor(@Self() cd: NgControl) {\n super(cd);\n }\n\n }\n\n\n/**\n * @description\n * Directive automatically applied to Angular form groups that sets CSS classes\n */\n * based on control status\n (valid/invalid/dirty/etc).\n */\n * @see `NgControlStatus`\n */\n * @ngModule ReactiveFormsModule\n */\n * @ngModule FormsModule\n */\n * @publicApi\n */\n * @Directive({\n selector:\n '[formGroupName],[formArrayName],[ngModelGroup],[formGroup],form:not([ngNoForm]),[ngForm]',\n host: ngControlStatusHost\n })\nexport class NgControlStatusGroup extends AbstractControlStatus {\n\n constructor(@Self() cd: FormControl) {\n super(cd);\n }\n\n }\n\n", "/*\n * @license\n * Copyright Google LLC\n All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in\n the LICENSE file at https://angular.io/license\n */\n\nimport { Directive, ElementRef, forwardRef, Renderer2 } from\n '@angular/core';\nimport { ControlValueAccessor, NG_VALUE_ACCESSOR } from\n './control_value_accessor';\n\nexport const NUMBER_VALUE_ACCESSOR: any = {\n provide:

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NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() => NumberValueAccessor),\n multi: true\n});\n\n/**\n * @description\n * The `ControlValueAccessor` for writing a number value and listening to number input changes.\n * The value accessor is used by the `FormControlDirective`, `FormControlName`, and `NgModel`\n * directives.\n *\n * @usageNotes\n *\n * ### Using a number input with a reactive form.\n *\n * The following example shows how to use a number input with a reactive form.\n *\n * ``ts\n * const\n totalCountControl = new FormControl();\n *\n * ``\n *\n * ``\n *\n * <input type=\"number\"\n [formControl]=\"totalCountControl\">\n *\n * ``\n *\n * @ngModule ReactiveFormsModule\n * @ngModule\n FormsModule\n * @publicApi\n *\n * @Directive({\n selector:\n 'input[type=number][formControlName],input[type=number][formControl],input[type=number][ngModel]',\n host:\n {'(input)': 'onChange($event.target.value)', '(blur)': 'onTouched()' },\n providers:\n [NUMBER_VALUE_ACCESSOR]\n })\n\n * @ngexport class NumberValueAccessor implements ControlValueAccessor\n {\n /**\n * The registered callback function called when a change or input event occurs on the input\n * element.\n * @nodoc\n */\n onChange = (_: any) => {};\n\n /**\n * The registered callback function called\n when a blur event occurs on the input element.\n * @nodoc\n */\n onTouched = () => {};\n\n constructor(private\n _renderer:\n Renderer2, private _elementRef: ElementRef) {\n\n /**\n * Sets the \"value\" property on the input element.\n * @nodoc\n */\n writeValue(value: number): void {\n // The value needs to be normalized for IE9, otherwise it is\n set to 'null' when null\n const normalizedValue = value == null ? \"\" : value;\n\n this._renderer.setProperty(this._elementRef.nativeElement, 'value', normalizedValue);\n }\n\n /**\n * Registers a\n function called when the control value changes.\n * @nodoc\n */\n registerOnChange(fn: (_: number|null) =>\n void): void {\n this.onChange = (value) => {\n fn(value == \"\" ? null : parseFloat(value));\n };\n }\n\n /**\n * Registers a function called when the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => void):\n void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the \"disabled\" property on the input element.\n * @nodoc\n */\n setDisabledState(isDisabled: boolean): void {\n\n this._renderer.setProperty(this._elementRef.nativeElement,\n 'disabled', isDisabled);\n }\n }\n\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of\n this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n *\n\n * @ngimport {Directive, ElementRef, forwardRef, Injectable, Injector, Input, OnDestroy,\n OnInit, Renderer2} from '@angular/core';\n *\n * @ngimport {ControlValueAccessor, NG_VALUE_ACCESSOR} from\n './control_value_accessor';\n *\n * @ngimport {NgControl} from './ng_control';\n *\n * @ngexport const\n RADIO_VALUE_ACCESSOR: any = {\n provide: NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() =>\n RadioControlValueAccessor),\n multi: true\n};\n\n * @ngfunction throwError() {\n throw new Error(`\n If you\n define both a name and a FormControlName attribute on your radio button, their values\n must match. Ex: <input\n type=\"radio\" FormControlName=\"food\" name=\"food\">\n `);\n }\n\n * @description\n * Class used by\n Angular to track radio\n buttons. For internal use only.\n *\n * @ngInjectable()\n *\n * @ngexport class RadioControlRegistry {\n private _accessors:\n any[] = [];\n\n /**\n * @description\n * Adds a control to the internal registry. For internal use only.\n */\n add(control: NgControl, accessor: RadioControlValueAccessor) {\n this._accessors.push([control, accessor]);\n }\n\n /**\n * @description\n * Removes a control from the internal registry. For internal use only.\n */\n remove(accessor: RadioControlValueAccessor) {\n for (let i = this._accessors.length - 1; i >= 0; --i) {\n if\n (this._accessors[i][1] === accessor) {\n this._accessors.splice(i, 1);\n return;\n }\n }\n }\n\n /**\n * @description\n * Selects a radio button. For internal use only.\n */\n select(accessor:\n RadioControlValueAccessor) {\n this._accessors.forEach((c) => {\n if (this._isSameGroup(c, accessor) &&\n c[1] !== accessor) {\n c[1].fireUncheck(accessor.value);\n }\n });\n }\n\n private _isSameGroup(\n controlPair: [NgControl, RadioControlValueAccessor],\n accessor:\n RadioControlValueAccessor): boolean {\n if (!controlPair[0].control) return false;\n return\n controlPair[0]._parent === accessor._control._parent &&\n controlPair[1].name === accessor.name;\n }\n }\n\n * @description\n * The `ControlValueAccessor` for writing radio control values and listening to radio

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control\n * changes. The value accessor is used by the `FormControlDirective`, `FormControlName`, and\n * `NgModel` directives.\n * \n * @usageNotes\n * \n * ### Using radio buttons with reactive form directives\n * \n * The follow example shows how to use radio buttons in a reactive form. When using radio buttons in\n * a reactive form, radio buttons in the same group should have the same `formControlName`.\n * Providing a `name` attribute is optional.\n * \n * { @example forms/ts/reactiveRadioButtons/reactive_radio_button_example.ts region='Reactive'}\n * \n * @ngModule

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ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n * @Directive({\n selector:\n 'input[type=radio][formControlName],input[type=radio][formControl],input[type=radio][ngModel]',\n host:\n {'(change)': 'onChange()', '(blur)': 'onTouched()' },\n providers: [RADIO_VALUE_ACCESSOR] }\n )\nexport class\n RadioControlValueAccessor implements ControlValueAccessor, OnDestroy, OnInit {\n //\n // TODO(issue/24571): remove '!'.\n _state!: boolean;\n //\n // TODO(issue/24571): remove '!'.\n _control!: NgControl;\n //\n // TODO(issue/24571): remove '!'.\n _fn!: Function;\n\n /**\n * The\n registered callback function called when a change event occurs on the input element.\n * @nodoc\n */\n onChange = () => {};\n\n /**\n * The registered callback function called when a blur event occurs on the input\n element.\n * @nodoc\n */\n onTouched = () => {};\n\n /**\n * @description\n * Tracks the name of the radio\n input element.\n\n */\n // TODO(issue/24571): remove '!'.\n @Input() name!: string;\n\n /**\n * @description\n * Tracks the\n name of the `FormControl` bound to the directive. The name corresponds\n * to a key in the parent `FormGroup`\n or `FormArray`.\n */\n // TODO(issue/24571): remove '!'.\n @Input() formControlName!: string;\n\n /**\n * @description\n * Tracks the value of the radio input element\n */\n @Input() value: any;\n\n constructor(\n private _renderer: Renderer2, private _elementRef: ElementRef,\n private _registry: RadioControlRegistry,\n private _injector: Injector) {\n\n /**\n * @nodoc\n */\n ngOnInit(): void {\n this._control =\n this._injector.get(NgControl);\n this._checkName();\n this._registry.add(this._control, this);\n }\n\n /**\n * @nodoc\n */\n ngOnDestroy(): void {\n this._registry.remove(this);\n }\n\n /**\n * Sets the `"checked"` property\n value on the radio input element.\n * @nodoc\n */\n writeValue(value: any): void {\n this._state\n = value === this.value;\n this._renderer.setProperty(this._elementRef.nativeElement, 'checked', this._state);\n }\n\n /**\n * Registers a function called when the control value changes.\n * @nodoc\n */\n registerOnChange(fn: (_: any) => {}): void {\n this._fn = fn;\n this.onChange = () => {\n fn(this.value);\n this._registry.select(this);\n }\n }\n\n /**\n * Sets the `"value"` on the radio input element and unchecks it.\n */\n * @param value\n */\n fireUncheck(value: any): void {\n this.writeValue(value);\n }\n\n /**\n * Registers a function called when the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => {}): void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the `"disabled"` property on the input element.\n * @nodoc\n */\n setDisabledState(isDisabled: boolean): void {\n this._renderer.setProperty(this._elementRef.nativeElement,\n 'disabled', isDisabled);\n }\n\n private _checkName(): void {\n\n if (this.name && this.formControlName && this.name !== this.formControlName &&\n (typeof ngDevMode\n === 'undefined' || ngDevMode)) {\n throwNameError();\n }\n\n if (!this.name && this.formControlName)\n this.name = this.formControlName;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at\n https://angular.io/license\n */\n\nimport {Directive, ElementRef, forwardRef, Renderer2, StaticProvider} from\n '@angular/core';\nimport {ControlValueAccessor, NG_VALUE_ACCESSOR} from\n './control_value_accessor';\nexport const RANGE_VALUE_ACCESSOR: StaticProvider = {\n provide:\n NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() => RangeValueAccessor),\n multi: true\n};\n\n/**\n * @description\n * The `ControlValueAccessor` for writing a range value and listening to range input changes.\n * \n * The value accessor is used by the `FormControlDirective`, `FormControlName`,\n and `NgModel`\n * directives.\n * \n * @usageNotes\n * \n * ### Using a range input with a reactive form\n * \n * The following example shows how to use a range input with a reactive form.\n * \n * ``ts\n * const ageControl =\n new FormControl();\n * \n * <input type="range" [formControl]=ageControl>\n * \n * \n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n * @Directive({\n

```

```

selector:\n


```



```

    }

    static groupParentException(): void {
        throw new Error(`formGroupName must be used with a
parent formGroup directive. You'll want to add a formGroup
directive and pass it an existing FormGroup
instance (you can create one in your class).
Example:
    ${Examples.formGroupName}`);
    }

    static
arrayParentException(): void {
        throw new Error(`formArrayName must be used with a parent formGroup
directive. You'll want to add a formGroup
directive and pass it an existing FormGroup instance (you can
create one in your class).
Example:
    ${Examples.formArrayName}`);
    }

    static
disabledAttrWarning(): void {
        console.warn(`It looks like you're using the disabled attribute with a
reactive form directive. If you set disabled to true
when you set up this control in your component class, the
disabled attribute will actually be set in the DOM for
you. We recommend using this approach
to avoid 'changed after checked' errors.
Example:
    form = new FormGroup({
        first: new
FormControl({ value: 'Nancy', disabled: true }, Validators.required),
        last: new FormControl('Drew',
Validators.required)
    });
`);
    }

    static ngModelWarning(directiveName: string): void {
        console.warn(`It looks like you're using ngModel on the same form field as ${directiveName}.
Support for
using the ngModel input property and ngModelChange event with
reactive form directives has been deprecated
in Angular v6 and will be removed
in a future version of Angular.
For more information on this, see our
API docs here:
    https://angular.io/api/forms/${directiveName} === 'FormControl' ? 'FormControlDirective'
: 'FormControlName' #use-with-ngmodel`);
    }
}

/**
 * @license
 * Copyright Google LLC All Rights Reserved.
 * Use of this source code is governed by
 * an MIT-style license that can be
 * found in the LICENSE file at https://angular.io/license
 */
import {
    Directive, ElementRef, forwardRef, Host, Input, OnDestroy, Optional, Renderer2, StaticProvider
} from '@angular/core';
import { ControlValueAccessor, NG_VALUE_ACCESSOR } from
'./control_value_accessor';
export const SELECT_VALUE_ACCESSOR: StaticProvider = {
    provide:
NG_VALUE_ACCESSOR,
    useExisting: forwardRef(() => SelectControlValueAccessor),
    multi:
true
};
function _buildValueString(id: string | null, value: any): string {
    if (id == null) return `${value}`;
    if
(value && typeof value === 'object') value = 'Object';
    return `${id}: ${value}.slice(0, 50)`;
}
function
_extractId(valueString: string): string {
    return valueString.split(':')[0];
}

/**
 * @description
 * The
`ControlValueAccessor` for writing select control values and listening to select control
changes. The value
accessor is used by the `FormControlDirective`, `FormControlName`,
and `NgModel` directives.
 * @usageNotes
 * ### Using select controls in a reactive form
 * The following examples show how to use a select control in a reactive form.
 * { @example
forms/ts/reactiveSelectControl/reactive_select_control_example.ts
region=Component' }
 * ### Using select
controls in a template-driven form
 * To use a select in a template-driven form, simply add an `ngModel` and a
`name`
attribute to the main `<select>` tag.
 * { @example forms/ts/selectControl/select_control_example.ts
region=Component' }
 * ### Customizing option selection
 * Angular uses object identity to select option.
It's possible for the identities of items
to change while the data does not. This can happen, for example, if the
items are produced
from an RPC to the server, and that RPC is re-run. Even if the data hasn't changed, the
second response will produce objects with different identities.
 * To customize the default option
comparison algorithm, `<select>` supports `compareWith` input.
`compareWith` takes a **function** which
has two arguments: `option1` and `option2`.
If `compareWith` is given, Angular selects option by the return
value of the function.
 * ```ts
const selectedCountriesControl = new FormControl();
<select [compareWith]="compareFn" [formControl]="selectedCountriesControl">
    <option *ngFor="let
country of countries" [ngValue]="country">
        { {country.name} }
    </option>
</select>
 * ```
 * compareFn(c1: Country, c2: Country): boolean {
    return c1 && c2 ? c1.id === c2.id : c1 !== c2;
}
 * **Note:** We listen to the 'change' event because 'input' events aren't fired
for selects in Firefox and
IE.
 * https://bugzilla.mozilla.org/show_bug.cgi?id=1024350
 * https://developer.microsoft.com/en-us/microsoft-
edge/platform/issues/4660045
 * @ngModule ReactiveFormsModule
 * @ngModule FormsModule
 * @publicApi
 */
@Directive({
    selector: '
select:not([multiple])[formControlName],select:not([multiple])[formControl],select:not([multiple])[ngModel]',
    ng

```

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host: {'(change)': 'onChange($event.target.value)', '(blur)': 'onTouched()' },\n providers:
[SELECT_VALUE_ACCESSOR]\n})\nexport class SelectControlValueAccessor implements
ControlValueAccessor {\n /** @nodoc */\n value: any;\n /** @internal */\n _optionMap: Map<string, any> =
new Map<string, any>();\n /** @internal */\n _idCounter: number = 0;\n /**\n * The registered callback
function called when a change event occurs on the input element.\n * @nodoc */\n onChange = (_: any) =>
{};\n /**\n * The registered callback function called when a blur event occurs on the input element.\n *
@nodoc */\n onTouched = () => {};\n /**\n * @description\n * Tracks the option comparison algorithm for
tracking identities when\n * checking for changes.\n */\n @Input()\n set compareWith(fn:
(o1: any, o2: any) => boolean) {\n if (typeof fn !== 'function' && (typeof ngDevMode === 'undefined' ||
ngDevMode)) {\n throw new Error('compareWith must be a function, but received ${JSON.stringify(fn)}');\n
}\n this._compareWith = fn;\n }\n private _compareWith: (o1: any, o2: any) => boolean = Object.is;\n\n
constructor(private _renderer: Renderer2, private _elementRef: ElementRef) {\n\n /**\n * Sets the \"value\"
property on the input element. The \"selectedIndex\" property is also set if an ID is provided on the option
element.\n * @nodoc */\n writeValue(value: any): void {\n this.value = value;\n const id: string|null =
this._getOptionId(value);\n if (id == null) {\n this._renderer.setProperty(this._elementRef.nativeElement,
'selectedIndex', -1);\n }\n const valueString = _buildValueString(id, value);\n
this._renderer.setProperty(this._elementRef.nativeElement, 'value', valueString);\n }\n\n /**\n * Registers a
function
called when the control value changes.\n * @nodoc */\n registerOnChange(fn: (value: any) => any): void {\n
this.onChange = (valueString: string) => {\n this.value = this._getOptionValue(valueString);\n
fn(this.value);\n };\n }\n\n /**\n * Registers a function called when the control is touched.\n * @nodoc */\n
registerOnTouched(fn: () => any): void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the \"disabled\" property
on the select input element.\n * @nodoc */\n setDisabledState(isDisabled: boolean): void {\n
this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n }\n\n /** @internal */\n
_registerOption(): string {\n return (this._idCounter++).toString();\n }\n\n /** @internal */\n
_getOptionId(value: any): string|null {\n for (const id of Array.from(this._optionMap.keys())) {\n if
(this._compareWith(this._optionMap.get(id), value)) return id;\n }\n return null;\n }\n\n /** @internal
*/\n _getOptionValue(valueString: string): any {\n const id: string = _extractId(valueString);\n return
this._optionMap.has(id) ? this._optionMap.get(id) : valueString;\n }\n\n /**\n * @description\n * Marks
`<option>` as dynamic, so Angular can be notified when options change.\n */\n * @see
`SelectControlValueAccessor`\n */\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n *
@publicApi\n * @Directive({ selector: 'option' })\nexport class NgSelectOption implements OnDestroy {\n /**\n
* @description\n * ID of the option element\n */\n // TODO(issue/24571): remove '!'\n id!: string;\n\n
constructor(\n private _element: ElementRef, private _renderer: Renderer2,\n @Optional() @Host() private
_select: SelectControlValueAccessor) {\n if (this._select) this.id = this._select._registerOption();\n }\n\n /**\n
* @description\n * Tracks the value bound to the option element. Unlike the value binding,\n * ngValue supports
binding to objects.\n\n */\n @Input('ngValue')\n set ngValue(value: any) {\n if (this._select == null) return;\n
this._select._optionMap.set(this.id, value);\n this._setElementValue(_buildValueString(this.id, value));\n
this._select.writeValue(this._select.value);\n }\n\n /**\n * @description\n * Tracks simple string values bound to
the option element.\n * For objects, use the `ngValue` input binding.\n */\n @Input('value')\n set value(value:
any) {\n this._setElementValue(value);\n if (this._select) this._select.writeValue(this._select.value);\n }\n\n /**
@internal */\n _setElementValue(value: string): void {\n this._renderer.setProperty(this._element.nativeElement,
'value', value);\n }\n\n /** @nodoc */\n ngOnDestroy(): void {\n if (this._select) {\n
this._select._optionMap.delete(this.id);\n this._select.writeValue(this._select.value);\n }\n }\n\n /**\n
* @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code
is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport {Directive, ElementRef, forwardRef, Host, Input, OnDestroy, Optional, Renderer2, StaticProvider}

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from '@angular/core';\n\nimport { ControlValueAccessor, NG_VALUE_ACCESSOR } from
'./control_value_accessor';\n\nexport const SELECT_MULTIPLE_VALUE_ACCESSOR: StaticProvider = {\n
provide: NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() => SelectMultipleControlValueAccessor),\n
multi: true;\n};\n\nfunction _buildValueString(id: string, value: any): string {\n if (id == null) return `${value}`;\n if
(typeof value === 'string') value = `${value}`;\n if (value && typeof value === 'object') value = 'Object';\n return
`${id}: ${value}`.slice(0, 50);\n}\n\nfunction _extractId(valueString: string): string {\n return
valueString.split(':')[0];\n}\n\n/** Mock interface for HTML Options */\ninterface HTMLOption {\n value:
string;\n selected: boolean;\n}\n\n/** Mock interface
for HTMLCollection */\nabstract class HTMLCollection {\n // TODO(issue/24571): remove '!'\n length!:
number;\n abstract item(_: number): HTMLOption;\n}\n\n/**\n * @description\n * The `ControlValueAccessor`
for writing multi-select control values and listening to multi-select\n * control changes. The value accessor is used
by the `FormControlDirective`, `FormControlName`, and\n * `NgModel` directives.\n *\n * @see
`SelectControlValueAccessor`\n *\n * @usageNotes\n *\n * ### Using a multi-select control\n *\n * The follow
example shows you how to use a multi-select control with a reactive form.\n *\n * ```ts\n * const countryControl =
new FormControl();\n *\n * <select multiple name="countries" [formControl]="countryControl">\n *
<option *ngFor="let country of countries" [ngValue]="country">\n *   {{ country.name }}\n * </option>\n *
</select>\n *\n * ### Customizing option selection\n *\n * To customize the default option comparison
algorithm,\n *\n * <select> supports `compareWith` input.\n * See the `SelectControlValueAccessor` for usage.\n *\n * @ngModule
ReactiveFormsModule\n *\n * @ngModule FormsModule\n *\n * @publicApi\n *\n * @Directive({\n selector:\n
'select[multiple][formControlName],select[multiple][formControl],select[multiple][ngModel]',\n host: {'(change)':
'onChange($event.target)', '(blur)': 'onTouched()' },\n providers:
[SELECT_MULTIPLE_VALUE_ACCESSOR] })\n\nexport class SelectMultipleControlValueAccessor implements
ControlValueAccessor {\n /**\n * The current value.\n * @nodoc\n */\n value: any;\n\n /** @internal */\n
_optionMap: Map<string, NgSelectMultipleOption> = new Map<string, NgSelectMultipleOption>();\n\n /**
@internal */\n _idCounter: number = 0;\n\n /**\n * The registered callback function called when a change event
occurs on the input element.\n * @nodoc\n */\n onChange = (_: any) => {};\n\n /**\n * The registered callback
function called when a blur event occurs on the input
element.\n * @nodoc\n */\n onTouched = () => {};\n\n /**\n * @description\n * Tracks the option
comparison algorithm for tracking identities when\n * checking for changes.\n */\n @Input()\n set
compareWith(fn: (o1: any, o2: any) => boolean) {\n if (typeof fn !== 'function' && (typeof ngDevMode ===
'undefined' || ngDevMode)) {\n throw new Error(`compareWith must be a function, but received
${JSON.stringify(fn)}`);\n }\n this._compareWith = fn;\n }\n\n private _compareWith: (o1: any, o2: any) =>
boolean = Object.is;\n\n constructor(private _renderer: Renderer2, private _elementRef: ElementRef) {\n\n /**\n
* Sets the `value` property on one or of more of the select's options.\n * @nodoc\n */\n writeValue(value: any):
void {\n this.value = value;\n let optionSelectedStateSetter: (opt: NgSelectMultipleOption, o: any) => void;\n
if (Array.isArray(value)) {\n // convert values to ids\n const ids = value.map((v) => this._getOptionId(v));\n
optionSelectedStateSetter = (opt, o) => {\n opt._setSelected(ids.indexOf(o.toString()) > -1);\n };;\n }
else {\n optionSelectedStateSetter = (opt, o) => {\n opt._setSelected(false);\n };;\n }\n
this._optionMap.forEach(optionSelectedStateSetter);\n }\n\n /**\n * Registers a function called when the control
value changes\n * and writes an array of the selected options.\n * @nodoc\n */\n registerOnChange(fn: (value:
any) => any): void {\n this.onChange = (_: any) => {\n const selected: Array<any> = [];\n if
(_selectedOptions !== undefined) {\n const options: HTMLCollection = _selectedOptions;\n for (let i = 0;
i < options.length; i++) {\n const opt: any = options.item(i);\n const val: any =
this._getOptionValue(opt.value);\n selected.push(val);\n }\n }\n // Degrade on IE\n else {\n
const options: HTMLCollection = <HTMLCollection>_options;\n
for (let i = 0; i < options.length; i++) {\n const opt: HTMLOption = options.item(i);\n if
(opt.selected) {\n const val: any = this._getOptionValue(opt.value);\n selected.push(val);\n }\n }\n }\n }\n }\n }

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    }\n    }\n    this.value = selected;\n    fn(selected);\n    };\n    }\n\n    /**\n     * Registers a function called when the
control is touched.\n     * @nodoc\n     */\n    registerOnTouched(fn: () => any): void {\n    this.onTouched = fn;\n    }\n\n    /**\n     * Sets the \"disabled\" property on the select input element.\n     * @nodoc\n     */\n    setDisabledState(isDisabled: boolean): void {\n    this._renderer.setProperty(this._elementRef.nativeElement,
'disabled', isDisabled);\n    }\n\n    /** @internal */\n    _registerOption(value: NgSelectMultipleOption): string {\n
const id: string = (this._idCounter++).toString();\n    this._optionMap.set(id, value);\n    return id;\n    }\n\n    /**
@internal */\n    _getOptionId(value: any): string|null {\n    for
    (const id of Array.from(this._optionMap.keys())) {\n    if (this._compareWith(this._optionMap.get(id)!._value,
value)) return id;\n    }\n    return null;\n    }\n\n    /** @internal */\n    _getOptionValue(valueString: string): any {\n
const id: string = _extractId(valueString);\n    return this._optionMap.has(id) ? this._optionMap.get(id)!._value :
valueString;\n    }\n\n    /**\n     * Marks `<option>` as dynamic, so Angular can be notified when
options change.\n     */\n    * @see `SelectMultipleControlValueAccessor`\n     */\n    * @ngModule ReactiveFormsModule\n    * @ngModule FormsModule\n    * @publicApi\n    */\n    @Directive({selector: 'option'})\n    export class
NgSelectMultipleOption implements OnDestroy {\n    // TODO(issue/24571): remove '!'.\n    id!: string;\n\n    /**
@internal */\n    _value: any;\n\n    constructor(\n    private _element: ElementRef, private _renderer: Renderer2,\n    @Optional() @Host() private _select: SelectMultipleControlValueAccessor) {\n    if (this._select) {\n    this.id
= this._select._registerOption(this);\n    }\n    }\n\n    /**\n     * Tracks the value bound to the option
element. Unlike the value binding,\n     * ngValue supports binding to objects.\n     */\n    @Input('ngValue')\n    set
ngValue(value: any) {\n    if (this._select == null) return;\n    this._value = value;\n
this._setElementValue(_buildValueString(this.id, value));\n    this._select.writeValue(this._select.value);\n    }\n\n    /**\n     * Tracks simple string values bound to the option element.\n     * For objects, use the
`ngValue` input binding.\n     */\n    @Input('value')\n    set value(value: any) {\n    if (this._select) {\n    this._value =
value;\n    this._setElementValue(_buildValueString(this.id, value));\n
this._select.writeValue(this._select.value);\n    } else {\n    this._setElementValue(value);\n    }\n    }\n\n    /**
@internal */\n    _setElementValue(value: string): void {\n    this._renderer.setProperty(this._element.nativeElement,
'value', value);\n    }\n\n    /** @internal */\n    _setSelected(selected: boolean) {\n
this._renderer.setProperty(this._element.nativeElement, 'selected', selected);\n    }\n\n    /** @nodoc */\n
ngOnDestroy(): void {\n    if (this._select) {\n    this._select._optionMap.delete(this.id);\n
this._select.writeValue(this._select.value);\n    }\n    }\n\n    export {NgSelectMultipleOption as
NgSelectMultipleOption};\n    ", "*/\n    * @license\n    * Copyright Google LLC All Rights Reserved.\n    */\n    * Use of this
source code is governed by an MIT-style license that can be\n    * found in the LICENSE file at
https://angular.io/license\n    */\n\n    import {isDevMode} from '@angular/core';\n\n    import {AbstractControl,
FormArray, FormControl, FormGroup} from '../model';\n    import {getControlAsyncValidators, getControlValidators,
mergeValidators} from '../validators';\n    import {AbstractControlDirective} from
'./abstract_control_directive';\n    import {AbstractFormGroupDirective} from
'./abstract_form_group_directive';\n    import
{CheckboxControlValueAccessor} from './checkbox_value_accessor';\n    import {ControlContainer} from
'./control_container';\n    import {ControlValueAccessor} from './control_value_accessor';\n    import
{DefaultValueAccessor} from './default_value_accessor';\n    import {NgControl} from './ng_control';\n    import
{NumberValueAccessor} from './number_value_accessor';\n    import {RadioControlValueAccessor} from
'./radio_control_value_accessor';\n    import {RangeValueAccessor} from './range_value_accessor';\n    import
{FormArrayName} from './reactive_directives/form_group_name';\n    import {ReactiveErrors} from
'./reactive_errors';\n    import {SelectControlValueAccessor} from './select_control_value_accessor';\n    import
{SelectMultipleControlValueAccessor} from './select_multiple_control_value_accessor';\n    import
{AsyncValidatorFn, Validator, ValidatorFn} from './validators';\n\n    export function controlPath(name: string|null,
parent: ControlContainer): string[] {\n    return [...parent.path!, name!];\n    }\n\n    export function
setUpControl(control: FormControl, dir: NgControl): void {\n    if (typeof ngDevMode === 'undefined' ||
ngDevMode) {\n    if (!control) _throwError(dir, 'Cannot find control with');\n    if (!dir.valueAccessor)

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    _throwError(dir, 'No value accessor for form control with');\n }\n\n setUpValidators(control, dir, /*
handleOnValidatorChange */ true);\n\n dir.valueAccessor!.writeValue(control.value);\n\n
setUpViewChangePipeline(control, dir);\n setUpModelChangePipeline(control, dir);\n\n
setUpBlurPipeline(control, dir);\n\n setUpDisabledChangeHandler(control, dir);\n}\n\nexport function
cleanUpControl(control: FormControl|null, dir: NgControl) {\n  const noop = () => {\n    if (typeof ngDevMode ===
'undefined' || ngDevMode) {\n      _noControlError(dir);\n    }\n  };\n\n  dir.valueAccessor!.registerOnChange(noop);\n  dir.valueAccessor!.registerOnTouched(noop);\n\n
cleanUpValidators(control, dir, /* handleOnValidatorChange */ true);\n\n  if (control) {\n
dir._invokeOnDestroyCallbacks();\n
    control._registerOnCollectionChange(() => {});\n  }\n}\n\nfunction registerOnValidatorChange<V>(validators:
(V|Validator)[], onChange: () => void): void {\n  validators.forEach((validator: (V|Validator)) => {\n    if
((<Validator>validator).registerOnValidatorChange)\n
(<Validator>validator).registerOnValidatorChange!(onChange);\n  });\n}\n\n/**\n * Sets up disabled change
handler function on a given form control if ControlValueAccessor\n * associated with a given directive instance
supports the `setDisabledState` call.\n * @param control Form control where disabled change handler should be
setup.\n * @param dir Corresponding directive instance associated with this control.\n */\nexport function
setUpDisabledChangeHandler(control: FormControl, dir: NgControl): void {\n  if
(dir.valueAccessor!.setDisabledState) {\n    const onDisabledChange = (isDisabled: boolean) => {\n
dir.valueAccessor!.setDisabledState!(isDisabled);\n    };\n
    control.registerOnDisabledChange(onDisabledChange);\n\n
    // Register a callback function to cleanup disabled change handler\n // from a control instance when a directive
is destroyed.\n    dir._registerOnDestroy(() => {\n      control._unregisterOnDisabledChange(onDisabledChange);\n
    });\n  }\n}\n\n/**\n * Sets up sync and async directive validators on provided form control.\n * This function merges
validators from the directive into the validators of the control.\n * @param control Form control where directive
validators should be setup.\n * @param dir Directive instance that contains validators to be setup.\n * @param
handleOnValidatorChange Flag that determines whether directive validators should be setup\n * to handle
validator input change.\n */\nexport function setUpValidators(\n  control: AbstractControl, dir:
AbstractControlDirective,\n  handleOnValidatorChange: boolean): void {\n  const validators =
getControlValidators(control);\n  if (dir.validator !== null) {\n
control.setValidators(mergeValidators<ValidatorFn>(validators,
dir.validator));\n  } else if (typeof validators === 'function') {\n    // If sync validators are represented by a single
validator function, we force the\n // `Validators.compose` call to happen by executing the `setValidators` function
with\n // an array that contains that function. We need this to avoid possible discrepancies in\n // validators
behavior, so sync validators are always processed by the `Validators.compose`.\n // Note: we should consider
moving this logic inside the `setValidators` function itself, so we\n // have consistent behavior on AbstractControl
API level. The same applies to the async\n // validators logic below.\n    control.setValidators([validators]);\n
  }\n\n  const asyncValidators = getControlAsyncValidators(control);\n  if (dir.asyncValidator !== null) {\n
control.setAsyncValidators(\n    mergeValidators<AsyncValidatorFn>(asyncValidators, dir.asyncValidator));\n  }
else if (typeof asyncValidators
=== 'function') {\n    control.setAsyncValidators([asyncValidators]);\n  }\n\n  // Re-run validation when validator
binding changes, e.g. minlength=3 -> minlength=4\n  if (handleOnValidatorChange) {\n    const onValidatorChange
= () => control.updateValueAndValidity();\n    registerOnValidatorChange<ValidatorFn>(dir._rawValidators,
onValidatorChange);\n    registerOnValidatorChange<AsyncValidatorFn>(dir._rawAsyncValidators,
onValidatorChange);\n  }\n}\n\n/**\n * Cleans up sync and async directive validators on provided form control.\n *
This function reverts the setup performed by the `setUpValidators` function, i.e.\n * removes directive-specific
validators from a given control instance.\n * @param control Form control from where directive validators
should be removed.\n * @param dir Directive instance that contains validators to be removed.\n * @param
handleOnValidatorChange Flag that determines whether directive validators should also be\n * cleaned up to stop

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handling validator input change (if previously configured to do so).\n */\nexport function cleanUpValidators(\n
control: AbstractControl|null, dir: AbstractControlDirective,\n  handleOnValidatorChange: boolean): void {\n  if
(control !== null) {\n    if (dir.validator !== null) {\n      const validators = getControlValidators(control);\n      if
(Array.isArray(validators) && validators.length > 0) {\n        // Filter out directive validator function.\n
control.setValidators(validators.filter(validator => validator !== dir.validator));\n      }\n    }\n    if
(dir.asyncValidator !== null) {\n      const asyncValidators = getControlAsyncValidators(control);\n      if
(Array.isArray(asyncValidators) && asyncValidators.length > 0) {\n        // Filter out directive async validator
function.\n        control.setAsyncValidators(\n          asyncValidators.filter(asyncValidator => asyncValidator !==
dir.asyncValidator));\n      }\n    }\n  }\n  if (handleOnValidatorChange)
{\n    // Clear onValidatorChange callbacks by providing a noop function.\n    const noop = () => {};\n
registerOnValidatorChange<ValidatorFn>(dir._rawValidators, noop);\n
registerOnValidatorChange<AsyncValidatorFn>(dir._rawAsyncValidators, noop);\n  }\n}\n\nfunction
setUpViewChangePipeline(control: FormControl, dir: NgControl): void {\n
dir.valueAccessor!.registerOnChange((newValue: any) => {\n  control._pendingValue = newValue;\n
control._pendingChange = true;\n  control._pendingDirty = true;\n  if (control.updateOn === 'change')
updateControl(control, dir);\n  });\n}\n\nfunction setUpBlurPipeline(control: FormControl, dir: NgControl): void {\n
dir.valueAccessor!.registerOnTouched(() => {\n  control._pendingTouched = true;\n  if (control.updateOn ===
'blur' && control._pendingChange) updateControl(control, dir);\n  if (control.updateOn !== 'submit')
control.markAsTouched();\n  });\n}\n\nfunction updateControl(control: FormControl, dir: NgControl): void {\n
if (control._pendingDirty) control.markAsDirty();\n  control.setValue(control._pendingValue,\n
{emitModelToViewChange: false});\n  dir.viewToModelUpdate(control._pendingValue);\n
control._pendingChange = false;\n}\n\nfunction setUpModelChangePipeline(control: FormControl, dir: NgControl):
void {\n  const onChange = (newValue: any, emitModelEvent: boolean) => {\n    // control -> view\n
dir.valueAccessor!.writeValue(newValue);\n    // control -> ngModel\n    if (emitModelEvent)
dir.viewToModelUpdate(newValue);\n  }; \n  control.registerOnChange(onChange);\n  // Register a callback
function to cleanup onChange handler\n  // from a control instance when a directive is destroyed.\n
dir._registerOnDestroy(() => {\n    control._unregisterOnChange(onChange);\n  });\n}\n\nexport function
setUpFormContainer(\n  control: FormGroup|FormArray, dir: AbstractFormGroupDirective|FormArrayName) {\n
if (control === null && (typeof ngDevMode === 'undefined' || ngDevMode))\n  _throwError(dir, 'Cannot
find control with');\n  setUpValidators(control, dir, /* handleOnValidatorChange */ false);\n}\n\nfunction
_noControlError(dir: NgControl) {\n  return _throwError(dir, 'There is no FormControl instance attached to form
control element with');\n}\n\nfunction _throwError(dir: AbstractControlDirective, message: string): void {\n
let messageEnd: string;\n  if (dir.path!.length > 1) {\n    messageEnd = `path: '${dir.path!.join(' -> ')}';\n  }
else if (dir.path![0]) {\n    messageEnd = `name: '${dir.path}'`; \n  } else {\n    messageEnd = 'unspecified name attribute';\n
  }\n  throw new Error(`${message} ${messageEnd}`);\n}\n\nexport function isPropertyUpdated(changes: {[key:
string]: any}, viewModel: any): boolean {\n  if (!changes.hasOwnProperty('model')) return false;\n  const change =
changes['model'];\n  if (change.isFirstChange()) return true;\n  return !Object.is(viewModel,
change.currentValue);\n}\n\nconst BUILTIN_ACCESSORS = [\n  CheckboxControlValueAccessor,\n
RangeValueAccessor,\n
NumberValueAccessor,\n
SelectControlValueAccessor,\n
SelectMultipleControlValueAccessor,\n
RadioControlValueAccessor,\n];\n\nexport function isBuiltInAccessor(valueAccessor: ControlValueAccessor):
boolean {\n  return BUILTIN_ACCESSORS.some(a => valueAccessor.constructor === a);\n}\n\nexport function
syncPendingControls(form: FormGroup, directives: NgControl[]): void {\n  form._syncPendingControls();\n
directives.forEach(dir => {\n    const control = dir.control as FormControl;\n    if (control.updateOn ===
'submit' && control._pendingChange) {\n      dir.viewToModelUpdate(control._pendingValue);\n
control._pendingChange = false;\n    }\n  });\n}\n\n// TODO: vsavkin remove it once
https://github.com/angular/angular/issues/3011 is implemented\n
export function selectValueAccessor(\n  dir:
NgControl, valueAccessors: ControlValueAccessor[]): ControlValueAccessor|null {\n  if (!valueAccessors) return

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null;\n\n if (!Array.isArray(valueAccessors) && (typeof ngDevMode ===
'undefined' || ngDevMode))\n  _throwError(dir, 'Value accessor was not provided as an array for form control
with');\n\n let defaultAccessor: ControlValueAccessor|undefined = undefined;\n let builtinAccessor:
ControlValueAccessor|undefined = undefined;\n let customAccessor: ControlValueAccessor|undefined =
undefined;\n\n valueAccessors.forEach((v: ControlValueAccessor) => {\n  if (v.constructor ===
DefaultValueAccessor) {\n    defaultAccessor = v;\n\n  } else if (isBuiltInAccessor(v)) {\n    if (builtinAccessor
&& (typeof ngDevMode === 'undefined' || ngDevMode))\n      _throwError(dir, 'More than one built-in value
accessor matches form control with');\n    builtinAccessor = v;\n\n  } else {\n    if (customAccessor && (typeof
ngDevMode === 'undefined' || ngDevMode))\n      _throwError(dir, 'More than one custom value accessor matches
form control with');\n    customAccessor = v;\n  }\n});\n\n if (customAccessor) return customAccessor;\n if
(builtinAccessor)
  return builtinAccessor;\n if (defaultAccessor) return defaultAccessor;\n\n if (typeof ngDevMode === 'undefined' ||
ngDevMode) {\n  _throwError(dir, 'No valid value accessor for form control with');\n }\n return
null;\n}\n\nexport function removeListItem<T>(list: T[], el: T): void {\n  const index = list.indexOf(el);\n  if (index
> -1) list.splice(index, 1);\n}\n\n// TODO(kara): remove after deprecation period\nexport function
_ngModelWarning(\n  name: string, type: { _ngModelWarningSentOnce: boolean },\n  instance:
{ _ngModelWarningSent: boolean }, warningConfig: string|null) {\n  if (!isDevMode() || warningConfig === 'never')
return;\n\n  if (((warningConfig === null || warningConfig === 'once') && !type._ngModelWarningSentOnce) ||\n
(warningConfig === 'always' && !instance._ngModelWarningSent)) {\n    if (typeof ngDevMode === 'undefined' ||
ngDevMode) {\n      ReactiveErrors.ngModelWarning(name);\n    }\n    type._ngModelWarningSentOnce = true;\n
instance._ngModelWarningSent
= true;\n  }\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\nimport { EventEmitter } from '@angular/core';\nimport { Observable } from 'rxjs';\n\nimport { removeListItem }
from './directives/shared';\nimport { AsyncValidatorFn, ValidationErrors, ValidatorFn } from
'./directives/validators';\nimport { composeAsyncValidators, composeValidators, toObservable } from
'./validators';\n\n/**\n * Reports that a FormControl is valid, meaning that no errors exist in the input value.\n *\n *
@see `status`\n */\nexport const VALID = 'VALID';\n\n/**\n * Reports that a FormControl is invalid, meaning that
an error exists in the input value.\n *\n * @see `status`\n */\nexport const INVALID = 'INVALID';\n\n/**\n *
Reports that a FormControl is pending, meaning that that async validation is occurring and\n * errors are not yet
available
for the input value.\n *\n * @see `markAsPending`\n */\nexport const PENDING =
'PENDING';\n\n/**\n * Reports that a FormControl is disabled, meaning that the control is exempt from ancestor\n
* calculations of validity or value.\n *\n * @see `markAsDisabled`\n */\nexport const DISABLED
= 'DISABLED';\n\nfunction _find(control: AbstractControl, path: Array<string|number>|string, delimiter: string) {\n
if (path === null) return null;\n\n if (!Array.isArray(path)) {\n   path = path.split(delimiter);\n }\n\n if
(Array.isArray(path) && path.length === 0) return null;\n\n // Not using Array.reduce here due to a Chrome 80
bug\n // https://bugs.chromium.org/p/chromium/issues/detail?id=1049982\n let controlToFind:
AbstractControl|null = control;\n  path.forEach((name: string|number) => {\n    if (controlToFind instanceof
FormGroup) {\n      controlToFind = controlToFind.controls.hasOwnProperty(name as string) ?\n
controlToFind.controls[name]
      :\n      null;\n    } else if (controlToFind instanceof FormArray) {\n      controlToFind =
controlToFind.at(<number>name) || null;\n    } else {\n      controlToFind = null;\n    }\n  });\n  return
controlToFind;\n}\n\n/**\n * Gets validators from either an options object or given validators.\n */\nfunction
pickValidators(validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|\n\n\n      null):
ValidatorFn|ValidatorFn[]|null {\n  return (isOptionsObj(validatorOrOpts) ? validatorOrOpts.validators :
validatorOrOpts) || null;\n}\n\n/**\n * Creates validator function by combining provided validators.\n */\nfunction
coerceToValidator(validator: ValidatorFn|ValidatorFn[]|null): ValidatorFn|null {\n  return Array.isArray(validator) ?

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this._rawValidators = validators;\n  this._rawAsyncValidators = asyncValidators;\n
  this._composedValidatorFn = coerceToValidator(this._rawValidators);\n  this._composedAsyncValidatorFn =
coerceToAsyncValidator(this._rawAsyncValidators);\n }\n\n /**\n * The function that is used to determine the
validity of this control synchronously.\n */\n get validator(): ValidatorFn|null {\n  return
this._composedValidatorFn;\n }\n set validator(validatorFn: ValidatorFn|null) {\n  this._rawValidators =
this._composedValidatorFn = validatorFn;\n }\n\n /**\n * The function that is used to determine the validity of
this control asynchronously.\n */\n get asyncValidator(): AsyncValidatorFn|null {\n  return
this._composedAsyncValidatorFn;\n }\n set asyncValidator(asyncValidatorFn: AsyncValidatorFn|null) {\n
this._rawAsyncValidators = this._composedAsyncValidatorFn = asyncValidatorFn;\n }\n\n /**\n * The parent
control.\n */\n get parent(): FormGroup|FormArray|null {\n  return this._parent;\n }\n\n /**\n * The validation
status of the control.

There are four possible\n * validation status values:\n * \n * * **VALID***: This control has passed all
validation checks.\n * * **INVALID***: This control has failed at least one validation check.\n * *
**PENDING***: This control is in the midst of conducting a validation check.\n * * **DISABLED***: This control
is exempt from validation checks.\n * \n * These status values are mutually exclusive, so a control cannot be\n *
both valid AND invalid or invalid AND disabled.\n * \n // TODO(issue/24571): remove '!'.\n public readonly
status!: string;\n\n /**\n * A control is `valid` when its `status` is `VALID`.\n * \n * @see {@link
AbstractControl.status}\n * \n * @returns True if the control has passed all of its validation tests,\n * false
otherwise.\n * \n get valid(): boolean {\n  return this.status === VALID;\n }\n\n /**\n * A control is `invalid`
when its `status` is `INVALID`.\n * \n * @see {@link AbstractControl.status}\n * \n * @returns
True if this control has failed one or more of its validation checks,\n * false otherwise.\n * \n get invalid():
boolean {\n  return this.status === INVALID;\n }\n\n /**\n * A control is `pending` when its `status` is
`PENDING`.\n * \n * @see {@link AbstractControl.status}\n * \n * @returns True if this control is in the
process of conducting a validation check,\n * false otherwise.\n * \n get pending(): boolean {\n  return
this.status === PENDING;\n }\n\n /**\n * A control is `disabled` when its `status` is `DISABLED`.\n * \n *
Disabled controls are exempt from validation checks and\n * are not included in the aggregate value of their
ancestor\n * controls.\n * \n * @see {@link AbstractControl.status}\n * \n * @returns True if the control is
disabled, false otherwise.\n * \n get disabled(): boolean {\n  return this.status === DISABLED;\n }\n\n /**\n *
A control is `enabled` as long as its `status` is not `DISABLED`.\n * \n * @returns
True if the control has any status other than `DISABLED`,\n * false if the status is `DISABLED`.\n * \n * @see
{@link AbstractControl.status}\n * \n * \n get enabled(): boolean {\n  return this.status !== DISABLED;\n
}\n\n /**\n * An object containing any errors generated by failing validation,\n * or null if there are no errors.\n
*\n // TODO(issue/24571): remove '!'.\n public readonly errors!: ValidationErrors|null;\n\n /**\n * A control is
`pristine` if the user has not yet changed\n * the value in the UI.\n * \n * @returns True if the user has not yet
changed the value in the UI; compare `dirty`.\n * \n Programmatic changes to a control's value do not mark it dirty.\n
*\n public readonly pristine: boolean = true;\n\n /**\n * A control is `dirty` if the user has changed the value\n *
in the UI.\n * \n * @returns True if the user has changed the value of this control in the UI; compare `pristine`.\n
*\n Programmatic changes to a control's value
do not mark it dirty.\n * \n get dirty(): boolean {\n  return !this.pristine;\n }\n\n /**\n * True if the control is
marked as `touched`.\n * \n * A control is marked `touched` once the user has triggered\n * a `blur` event on it.\n
*\n public readonly touched: boolean = false;\n\n /**\n * True if the control has not been marked as touched\n
*\n * A control is `untouched` if the user has not yet triggered\n * a `blur` event on it.\n * \n get untouched():
boolean {\n  return !this.touched;\n }\n\n /**\n * A multicasting observable that emits an event every time the
value of the control changes, in\n * the UI or programmatically. It also emits an event each time you call enable()
or disable()\n * without passing along {emitEvent: false} as a function argument.\n * \n // TODO(issue/24571):
remove '!'.\n public readonly valueChanges!: Observable<any>;\n\n /**\n * A multicasting observable that emits
an event every time the validation `status`

```

```

of the control\n * recalculates.\n *\n * @see { @link AbstractControl.status}\n *\n */\n //
TODO(issue/24571): remove '!'.\n public readonly statusChanges!: Observable<any>;\n\n /**\n * Reports the
update strategy of the `AbstractControl` (meaning\n * the event on which the control updates itself).\n * Possible
values: `change` | `blur` | `submit`\n * Default value: `change`\n */\n get updateOn(): FormHooks {\n return
this._updateOn ? this._updateOn : (this.parent ? this.parent.updateOn : 'change');\n }\n\n /**\n * Sets the
synchronous validators that are active on this control. Calling\n * this overwrites any existing sync validators.\n
*\n * When you add or remove a validator at run time, you must call\n * `updateValueAndValidity()` for the new
validation to take effect.\n *\n */\n setValidators(newValidator: ValidatorFn|ValidatorFn[]|null): void {\n
this._rawValidators = newValidator;\n this._composedValidatorFn = coerceToValidator(newValidator);\n
}\n\n /**\n * Sets the async validators that are active on this control. Calling this\n * overwrites any existing
async validators.\n *\n * When you add or remove a validator at run time, you must call\n *
`updateValueAndValidity()` for the new validation to take effect.\n *\n */\n setAsyncValidators(newValidator:
AsyncValidatorFn|AsyncValidatorFn[]|null): void {\n this._rawAsyncValidators = newValidator;\n
this._composedAsyncValidatorFn = coerceToAsyncValidator(newValidator);\n }\n\n /**\n * Empties out the
sync validator list.\n *\n * When you add or remove a validator at run time, you must call\n *
`updateValueAndValidity()` for the new validation to take effect.\n *\n */\n clearValidators(): void {\n
this.validator = null;\n }\n\n /**\n * Empties out the async validator list.\n *\n * When you add or remove a
validator at run time, you must call\n * `updateValueAndValidity()` for the new validation to take
effect.\n *\n */\n clearAsyncValidators(): void {\n this.asyncValidator = null;\n }\n\n /**\n * Marks the
control as `touched`. A control is touched by focus and\n * blur events that do not change the value.\n *\n *
@see `markAsUntouched()`\n * @see `markAsDirty()`\n * @see `markAsPristine()`\n *\n * @param opts
Configuration options that determine how the control propagates changes\n * and emits events after marking is
applied.\n * * `onlySelf`: When true, mark only this control. When false or not supplied,\n * marks all direct
ancestors. Default is false.\n */\n markAsTouched(opts: {onlySelf?: boolean} = {}): void {\n (this as {touched:
boolean}).touched = true;\n\n if (this._parent && !opts.onlySelf) {\n this._parent.markAsTouched(opts);\n
}\n }\n\n /**\n * Marks the control and all its descendant controls as `touched`.\n * @see `markAsTouched()`\n
*/\n markAllAsTouched(): void {\n this.markAsTouched({onlySelf: true});\n }\n\n this._forEachChild((control: AbstractControl) => control.markAllAsTouched());\n }\n\n /**\n * Marks the
control as `untouched`.\n *\n * If the control has any children, also marks all children as `untouched`\n * and
recalculates the `touched` status of all parent controls.\n *\n * @see `markAsTouched()`\n * @see
`markAsDirty()`\n * @see `markAsPristine()`\n *\n * @param opts Configuration options that determine how
the control propagates changes\n * and emits events after the marking is applied.\n * * `onlySelf`: When true,
mark only this control. When false or not supplied,\n * marks all direct ancestors. Default is false.\n */\n
markAsUntouched(opts: {onlySelf?: boolean} = {}): void {\n (this as {touched: boolean}).touched = false;\n
this._pendingTouched = false;\n\n this._forEachChild((control: AbstractControl) => {\n
control.markAsUntouched({onlySelf: true});\n });\n\n if (this._parent && !opts.onlySelf) {\n
this._parent._updateTouched(opts);\n
}\n }\n\n /**\n * Marks the control as `dirty`. A control becomes dirty when\n * the control's value is changed
through the UI; compare `markAsTouched`.\n *\n * @see `markAsTouched()`\n * @see
`markAsUntouched()`\n * @see `markAsPristine()`\n *\n * @param opts Configuration options that determine
how the control propagates changes\n * and emits events after marking is applied.\n * * `onlySelf`: When true,
mark only this control. When false or not supplied,\n * marks all direct ancestors. Default is false.\n */\n
markAsDirty(opts: {onlySelf?: boolean} = {}): void {\n (this as {pristine: boolean}).pristine = false;\n\n if
(this._parent && !opts.onlySelf) {\n this._parent.markAsDirty(opts);\n }\n }\n\n /**\n * Marks the control as
`pristine`.\n *\n * If the control has any children, marks all children as `pristine`,\n * and recalculates the
`pristine` status of all parent\n * controls.\n *\n * @see `markAsTouched()`\n
* @see `markAsUntouched()`\n * @see `markAsDirty()`\n *\n * @param opts Configuration options that
determine how the control emits events after\n * marking is applied.\n * * `onlySelf`: When true, mark only this

```

control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n */ \n markAsPristine(opts: {onlySelf?: boolean} = {}): void { \n (this as {pristine: boolean}).pristine = true; \n this._pendingDirty = false; \n \n this._forEachChild((control: AbstractControl) => { \n control.markAsPristine({onlySelf: true}); \n }); \n \n if (this._parent && !opts.onlySelf) { \n this._parent.updatePristine(opts); \n } \n } \n \n /** \n * Marks the control as `pending`. \n * \n * A control is pending while the control performs async validation. \n * \n * @see { @link AbstractControl.status} \n * \n * @param opts Configuration options that determine how the control propagates changes and \n * emits events after marking is applied. \n * * `onlySelf`: When true, mark only this control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n * * `emitEvent`: When true or not supplied (the default), the `statusChanges` \n * observable emits an event with the latest status the control is marked pending. \n * When false, no events are emitted. \n * \n * \n markAsPending(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void { \n (this as {status: string}).status = PENDING; \n \n if (opts.emitEvent !== false) { \n (this.statusChanges as EventEmitter<any>).emit(this.status); \n } \n \n if (this._parent && !opts.onlySelf) { \n this._parent.markAsPending(opts); \n } \n } \n \n /** \n * Disables the control. This means the control is exempt from validation checks and \n * excluded from the aggregate value of any parent. Its status is `DISABLED`. \n * \n * If the control has children, all children are also disabled. \n * \n * @see { @link AbstractControl.status} \n * \n * @param opts Configuration options that determine how the control propagates \n * changes and emits events after the control is disabled. \n * * `onlySelf`: When true, mark only this control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n * * `emitEvent`: When true or not supplied (the default), both the `statusChanges` and \n * `valueChanges` \n * observables emit events with the latest status and value when the control is disabled. \n * When false, no events are emitted. \n * \n * \n disable(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void { \n // If parent has been marked artificially dirty we don't want to re-calculate the \n // parent's dirtiness based on the children. \n const skipPristineCheck = this._parentMarkedDirty(opts.onlySelf); \n \n (this as {status: string}).status = DISABLED; \n (this as {errors: ValidationErrors | null}).errors = null; \n \n this._forEachChild((control: AbstractControl) => { \n control.disable({...opts, onlySelf: true}); \n }); \n \n this._updateValue(); \n \n if (opts.emitEvent !== false) { \n (this.valueChanges as EventEmitter<any>).emit(this.value); \n (this.statusChanges as EventEmitter<string>).emit(this.status); \n } \n \n this._updateAncestors({...opts, skipPristineCheck}); \n \n this._onDisabledChange.forEach((changeFn) => changeFn(true)); \n } \n \n /** \n * Enables the control. This means the control is included in validation checks and \n * the aggregate value of its parent. Its status recalculates based on its value and \n * its validators. \n * \n * By default, if the control has children, all children are enabled. \n * \n * @see { @link AbstractControl.status} \n * \n * @param opts Configure options that control how the control propagates changes and \n * emits events when marked as untouched \n * * `onlySelf`: When true, mark only this control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n * * `emitEvent`: When true or not supplied (the default), both the `statusChanges` and \n * `valueChanges` \n * observables emit events with the latest status and value when the control is enabled. \n * When false, no events are emitted. \n * \n * \n enable(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void { \n // If parent has been marked artificially dirty we don't want to re-calculate the \n // parent's dirtiness based on the children. \n const skipPristineCheck = this._parentMarkedDirty(opts.onlySelf); \n \n (this as {status: string}).status = VALID; \n \n this._forEachChild((control: AbstractControl) => { \n control.enable({...opts, onlySelf: true}); \n }); \n \n this.updateValueAndValidity({onlySelf: true, emitEvent: opts.emitEvent}); \n \n this._updateAncestors({...opts, skipPristineCheck}); \n \n this._onDisabledChange.forEach((changeFn) => changeFn(false)); \n } \n \n private _updateAncestors(\n opts: {onlySelf?: boolean, emitEvent?: boolean, skipPristineCheck?: boolean}) { \n if (this._parent && !opts.onlySelf) { \n this._parent.updateValueAndValidity(opts); \n \n if (!opts.skipPristineCheck) { \n this._parent._updatePristine(); \n } \n \n this._parent._updateTouched(); \n } \n } \n \n /** \n * @param parent Sets the parent of the control \n * \n * setParent(parent: FormGroup|FormArray): void { \n this._parent = parent; \n } \n \n /** \n * Sets the value of the control. Abstract method (implemented in sub-classes). \n */ \n abstract

```

setValue(value: any, options?: Object): void;\n\n /**\n * Patches the value of the control. Abstract method
(implemented in sub-classes).\n */\n abstract patchValue(value: any, options?: Object): void;\n\n /**\n * Resets
the control. Abstract method (implemented in sub-classes).\n */\n abstract reset(value?: any, options?: Object):
void;\n\n /**\n * Recalculates the value and validation status of the control.\n */\n * By default, it also updates
the value
and validity of its ancestors.\n */\n * @param opts Configuration options determine how the control propagates
changes and emits events\n * after updates and validity checks are applied.\n * * `onlySelf`: When true, only
update this control. When false or not supplied,\n * update all direct ancestors. Default is false.\n * * `emitEvent`:
When true or not supplied (the default), both the `statusChanges` and\n * `valueChanges`\n * observables emit
events with the latest status and value when the control is updated.\n * When false, no events are emitted.\n */\n
updateValueAndValidity(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n
this._setInitialStatus();\n this._updateValue();\n\n if (this.enabled) {\n this._cancelExistingSubscription();\n
(this as {errors: ValidationErrors | null}).errors = this._runValidator();\n (this as {status: string}).status =
this._calculateStatus();\n\n if (this.status === VALID || this.status
=== PENDING) {\n this._runAsyncValidator(opts.emitEvent);\n }\n }\n\n if (opts.emitEvent !== false)
{\n (this.valueChanges as EventEmitter<any>).emit(this.value);\n (this.statusChanges as
EventEmitter<string>).emit(this.status);\n }\n\n if (this._parent && !opts.onlySelf) {\n
this._parent.updateValueAndValidity(opts);\n }\n }\n\n /** @internal */\n _updateTreeValidity(opts:
{emitEvent?: boolean} = {emitEvent: true}): void {\n this._forEachChild((ctrl: AbstractControl) =>
ctrl._updateTreeValidity(opts));\n this.updateValueAndValidity({onlySelf: true, emitEvent: opts.emitEvent});\n
}\n\n private _setInitialStatus() {\n (this as {status: string}).status = this._allControlsDisabled() ? DISABLED :
VALID;\n }\n\n private _runValidator(): ValidationErrors|null {\n return this.validator ? this.validator(this) :
null;\n }\n\n private _runAsyncValidator(emitEvent?: boolean): void {\n if (this.asyncValidator) {\n (this as
{status:
string}).status = PENDING;\n this._hasOwnPendingAsyncValidator = true;\n const obs =
toObservable(this.asyncValidator(this));\n this._asyncValidationSubscription = obs.subscribe((errors:
ValidationErrors|null) => {\n this._hasOwnPendingAsyncValidator = false;\n // This will trigger the
recalculation of the validation status, which depends on\n // the state of the asynchronous validation (whether it
is in progress or not). So, it is\n // necessary that we have updated the `_hasOwnPendingAsyncValidator`
boolean flag first.\n this.setErrors(errors, {emitEvent});\n });\n }\n }\n\n private
_cancelExistingSubscription(): void {\n if (this._asyncValidationSubscription) {\n
this._asyncValidationSubscription.unsubscribe();\n this._hasOwnPendingAsyncValidator = false;\n }\n }\n\n
/**\n * Sets errors on a form control when running validations manually, rather than automatically.\n */\n *
Calling `setErrors` also updates
the validity of the parent control.\n */\n * @usageNotes\n */\n * ### Manually set the errors for a control\n */\n
* ```\n * const login = new FormControl('someLogin');\n * login.setErrors({\n * notUnique: true\n * });\n
*\n * expect(login.valid).toEqual(false);\n * expect(login.errors).toEqual({ notUnique: true });\n *\n *
login.setValue('someOtherLogin');\n *\n * expect(login.valid).toEqual(true);\n * ```\n */\n setErrors(errors:
ValidationErrors|null, opts: {emitEvent?: boolean} = {}): void {\n (this as {errors: ValidationErrors | null}).errors
= errors;\n this._updateControlsErrors(opts.emitEvent !== false);\n }\n\n /**\n * Retrieves a child control given
the control's name or path.\n */\n * @param path A dot-delimited string or array of string/number values that
define the path to the\n * control.\n */\n * @usageNotes\n * ### Retrieve a nested control\n */\n * For
example, to get a `name` control nested within a `person`
sub-group:\n */\n * * `this.form.get('person.name');`\n */\n * -OR-\n */\n * * `this.form.get(['person',
'name']);`\n */\n * get(path: Array<string|number>|string): AbstractControl|null {\n return _find(this, path, '.');\n
}\n\n /**\n * @description\n * Reports error data for the control with the given path.\n */\n * @param
errorCode The code of the error to check\n * @param path A list of control names that designates how to move
from the current control\n * to the control that should be queried for errors.\n */\n * @usageNotes\n * For

```


Check to see if parent has been marked artificially dirty.

```

    * @internal
    private
    _parentMarkedDirty(onlySelf?: boolean): boolean {
    const parentDirty = this._parent && this._parent.dirty;
    return !onlySelf && !parentDirty && !this._parent!._anyControlsDirty();
    }
    }
    * Tracks the value and validation status of an individual form control.
    * This is one of the three fundamental building blocks of Angular forms, along with `FormGroup` and `FormArray`. It extends the `AbstractControl` class that implements most of the base functionality for accessing the value, validation status, user interactions and events. See [usage examples below](#usage-notes).
    * @see `AbstractControl`
    * @see [Reactive Forms Guide](guide/reactive-forms)
    * @see [Usage Notes](#usage-notes)
    * @usageNotes
    * ### Initializing Form Controls
    * Instantiate a `FormControl`, with an initial value.
    * ```ts
    * const control = new FormControl('some value');
    * console.log(control.value); // 'some value'
    * ```
    * The following example initializes the control with a form state object. The `value` and `disabled` keys are required in this case.
    * ```ts
    * const control = new FormControl({ value: 'a', disabled: true });
    * console.log(control.value); // 'a'
    * console.log(control.status); // 'DISABLED'
    * ```
    * The following example initializes the control with a sync validator.
    * ```ts
    * const control = new FormControl("", Validators.required);
    * console.log(control.value); // ""
    * console.log(control.status); // 'INVALID'
    * ```
    * The following example initializes the control using an options object.
    * ```ts
    * const control = new FormControl("", {
    *   validators: Validators.required,
    *   asyncValidators: myAsyncValidator
    * });
    * ```
    * ### Configure the control to update on a blur event
    * Set the `updateOn` option to `blur` to update on the blur event.
    * ```ts
    * const control = new FormControl("", { updateOn: 'blur' });
    * ```
    * ### Configure the control to update on a submit event
    * Set the `updateOn` option to `submit` to update on a submit event.
    * ```ts
    * const control = new FormControl("", { updateOn: 'submit' });
    * ```
    * ### Reset the control back to an initial value
    * You reset to a specific form state by passing through a standalone value or a form state object that contains both a value and a disabled state (these are the only two properties that cannot be calculated).
    * ```ts
    * const control = new FormControl('Nancy');
    * console.log(control.value); // 'Nancy'
    * control.reset('Drew');
    * console.log(control.value); // 'Drew'
    * ```
    * ### Reset the control back to an initial value and disabled
    * ```ts
    * const control = new FormControl('Nancy');
    * console.log(control.value); // 'Nancy'
    * console.log(control.status); // 'VALID'
    * control.reset({ value: 'Drew', disabled: true });
    * console.log(control.value); // 'Drew'
    * console.log(control.status); // 'DISABLED'
    * ```
    * @publicApi
    * @next
    * export class FormControl extends AbstractControl {
    *   /** @internal */
    *   _onChange: Function[] = [];
    *   /** @internal */
    *   _pendingValue: any;
    *   /** @internal */
    *   _pendingChange: any;
    *   /**
    *    * Creates a new `FormControl` instance.
    *    * @param formState Initializes the control with an initial value, or an object that defines the initial value and disabled state.
    *    * @param validatorOrOpts A synchronous validator function, or an array of such functions, or an `AbstractControlOptions` object that contains validation functions and a validation trigger.
    *    * @param asyncValidator A single async validator or array of async validator functions.
    *    */
    *   constructor(
    *     formState: any = null,
    *     validatorOrOpts?:
    *       ValidatorFn | ValidatorFn[] | AbstractControlOptions | null,
    *     asyncValidator?: AsyncValidatorFn | AsyncValidatorFn[] | null
    *   ) {
    *     super(pickValidators(validatorOrOpts), pickAsyncValidators(asyncValidator, validatorOrOpts));
    *     this._applyFormState(formState);
    *     this._setUpdateStrategy(validatorOrOpts);
    *     this._initObservables();
    *     this.updateValueAndValidity({
    *       onlySelf: true,
    *       // If `asyncValidator` is present, it will trigger control status change from `PENDING` to `VALID` or `INVALID`.
    *       // The status should be broadcasted via the `statusChanges` observable, so we set `emitEvent` to `true` to allow that during the control creation process.
    *       emitEvent: !!asyncValidator
    *     });
    *   }
    *   /**
    *    * Sets a new value for the form control.
    *    * @param value The new value for the control.
    *    * @param options Configuration options that determine how the control propagates changes and emits events when the value changes.
    *    * The configuration options are passed to the { @link AbstractControl#updateValueAndValidity updateValueAndValidity } method.
    *    * `onlySelf`: When true, each change only affects this control, and not its parent. Default is false.
    *    */
    *   setValue(
    *     value: any,
    *     options: {
    *       onlySelf?: boolean;
    *     }
    *   ): void {
    *     this._pendingValue = value;
    *     this._pendingChange = options;
    *     this._emitStatusChange();
    *     this._emitValueChange();
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Resets the control to its initial state.
    *    * @param formState Resets the control to its initial state.
    *    * If not provided, will default to the `value` property of the control.
    *    * @param options Configuration options that determine how the control propagates changes and emits events when the value changes.
    *    * The configuration options are passed to the { @link AbstractControl#updateValueAndValidity updateValueAndValidity } method.
    *    * `onlySelf`: When true, each change only affects this control, and not its parent. Default is false.
    *    */
    *   reset(
    *     formState: any,
    *     options: {
    *       onlySelf?: boolean;
    *     }
    *   ): void {
    *     this._pendingValue = formState;
    *     this._pendingChange = options;
    *     this._emitStatusChange();
    *     this._emitValueChange();
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Sets the control's value and validation status to `PENDING`.
    *    * @param emitEvent Whether to emit the `statusChanges` event.
    *    */
    *   markAsPending(emitEvent?: boolean): void {
    *     this._pendingValue = null;
    *     this._pendingChange = null;
    *     this._emitStatusChange(emitEvent);
    *   }
    *   /**
    *    * Sets the control's value and validation status to `INVALID` or `VALID`.
    *    * @param status The validation status to set.
    *    * @param emitEvent Whether to emit the `statusChanges` event.
    *    */
    *   markAsInvalid(status: string, emitEvent?: boolean): void {
    *     this._pendingValue = null;
    *     this._pendingChange = null;
    *     this._emitStatusChange(emitEvent);
    *   }
    *   /**
    *    * Sets the control's value and validation status to `VALID`.
    *    * @param emitEvent Whether to emit the `statusChanges` event.
    *    */
    *   markAsValid(emitEvent?: boolean): void {
    *     this._pendingValue = null;
    *     this._pendingChange = null;
    *     this._emitStatusChange(emitEvent);
    *   }
    *   /**
    *    * Sets the control's value and validation status to `DISABLED`.
    *    * @param emitEvent Whether to emit the `statusChanges` event.
    *    */
    *   markAsDisabled(emitEvent?: boolean): void {
    *     this._pendingValue = null;
    *     this._pendingChange = null;
    *     this._emitStatusChange(emitEvent);
    *   }
    *   /**
    *    * Returns the validation status of the control.
    *    */
    *   get status(): string {
    *     return this._status;
    *   }
    *   /**
    *    * Returns the validation status of the control.
    *    */
    *   get statusChanges(): Observable<string> {
    *     return this._statusChanges;
    *   }
    *   /**
    *    * Returns the value of the control.
    *    */
    *   get value(): any {
    *     return this._value;
    *   }
    *   /**
    *    * Returns the value of the control.
    *    */
    *   set value(value: any) {
    *     this._value = value;
    *     this._emitValueChange();
    *   }
    *   /**
    *    * Returns the disabled state of the control.
    *    */
    *   get disabled(): boolean {
    *     return this._disabled;
    *   }
    *   /**
    *    * Returns the disabled state of the control.
    *    */
    *   set disabled(disabled: boolean) {
    *     this._disabled = disabled;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validators of the control.
    *    */
    *   get validators(): ValidatorFn[] {
    *     return this._validators;
    *   }
    *   /**
    *    * Returns the async validators of the control.
    *    */
    *   get asyncValidators(): AsyncValidatorFn[] {
    *     return this._asyncValidators;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get updateOn(): string {
    *     return this._updateOn;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set updateOn(updateOn: string) {
    *     this._updateOn = updateOn;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get validatorsFn(): ValidatorFn[] {
    *     return this._validatorsFn;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set validatorsFn(validatorsFn: ValidatorFn[]) {
    *     this._validatorsFn = validatorsFn;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get asyncValidatorsFn(): AsyncValidatorFn[] {
    *     return this._asyncValidatorsFn;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set asyncValidatorsFn(asyncValidatorsFn: AsyncValidatorFn[]) {
    *     this._asyncValidatorsFn = asyncValidatorsFn;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get updateStrategy(): UpdateStrategy {
    *     return this._updateStrategy;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set updateStrategy(updateStrategy: UpdateStrategy) {
    *     this._updateStrategy = updateStrategy;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitEvent(): boolean {
    *     return this._emitEvent;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitEvent(emitEvent: boolean) {
    *     this._emitEvent = emitEvent;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitValue(): boolean {
    *     return this._emitValue;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitValue(emitValue: boolean) {
    *     this._emitValue = emitValue;
    *     this._emitValueChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitStatus(): boolean {
    *     return this._emitStatus;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitStatus(emitStatus: boolean) {
    *     this._emitStatus = emitStatus;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitDisabled(): boolean {
    *     return this._emitDisabled;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitDisabled(emitDisabled: boolean) {
    *     this._emitDisabled = emitDisabled;
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitValueAndStatus(): boolean {
    *     return this._emitValueAndStatus;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitValueAndStatus(emitValueAndStatus: boolean) {
    *     this._emitValueAndStatus = emitValueAndStatus;
    *     this._emitValueChange();
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitValueAndDisabled(): boolean {
    *     return this._emitValueAndDisabled;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitValueAndDisabled(emitValueAndDisabled: boolean) {
    *     this._emitValueAndDisabled = emitValueAndDisabled;
    *     this._emitValueChange();
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitStatusAndDisabled(): boolean {
    *     return this._emitStatusAndDisabled;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitStatusAndDisabled(emitStatusAndDisabled: boolean) {
    *     this._emitStatusAndDisabled = emitStatusAndDisabled;
    *     this._emitStatusChange();
    *     this._emitStatusChange();
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   get emitValueAndStatusAndDisabled(): boolean {
    *     return this._emitValueAndStatusAndDisabled;
    *   }
    *   /**
    *    * Returns the validation trigger of the control.
    *    */
    *   set emitValueAndStatusAndDisabled(emitValueAndStatusAndDisabled: boolean) {
    *     this._emitValueAndStatusAndDisabled = emitValueAndStatusAndDisabled;
    *     this._emitValueChange();
    *     this._emitStatusChange();
    *     this._emitStatusChange();
    *   }
    * }
    *

```

```

`emitEvent`: When true or not supplied (the default), both the `statusChanges`
and\n * `valueChanges`\n * observables emit events with the latest status and value when the control value is
updated.\n * When false, no events are emitted.\n * * `emitModelToViewChange`: When true or not supplied
(the default), each change triggers an\n * `onChange` event to\n * update the view.\n * *
`emitViewToModelChange`: When true or not supplied (the default), each change triggers an\n *
`ngModelChange`\n * event to update the model.\n * \n * \n setValue(value: any, options: {\n onlySelf?:
boolean,\n emitEvent?: boolean,\n emitModelToViewChange?: boolean,\n emitViewToModelChange?:
boolean\n } = {}): void {\n (this as {value: any}).value = this._pendingValue = value;\n if
(this._onChange.length && options.emitModelToViewChange !== false) {\n this._onChange.forEach(\n
(changeFn) => changeFn(this.value, options.emitViewToModelChange !== false));\n }\n
this.updateValueAndValidity(options);\n }\n\n /**\n
* Patches the value of a control.\n * \n * This function is functionally the same as { @link FormControl#setValue
setValue } at this level.\n * It exists for symmetry with { @link FormGroup#patchValue patchValue } on
`FormGroups` and\n * `FormArrays`, where it does behave differently.\n * \n * @see `setValue` for options\n
* \n patchValue(value: any, options: {\n onlySelf?: boolean,\n emitEvent?: boolean,\n
emitModelToViewChange?: boolean,\n emitViewToModelChange?: boolean\n } = {}): void {\n
this.setValue(value, options);\n }\n\n /**\n
* Resets the form control, marking it `pristine` and `untouched`, and
setting\n * the value to null.\n * \n * @param formState Resets the control with an initial value,\n * or an object
that defines the initial value and disabled state.\n * \n * @param options Configuration options that determine how
the control propagates changes\n * and emits events after the value changes.\n * \n * * `onlySelf`: When true,
each change only affects this control, and not its parent. Default is\n * false.\n * * `emitEvent`: When true or not
supplied (the default), both the `statusChanges` and\n * `valueChanges`\n * observables emit events with the
latest status and value when the control is reset.\n * When false, no events are emitted.\n * \n * \n
reset(formState: any = null, options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n
this._applyFormState(formState);\n this.markAsPristine(options);\n this.markAsUntouched(options);\n
this.setValue(this.value, options);\n this._pendingChange = false;\n }\n\n /**\n
* @internal\n * \n
_updateValue() {\n\n /**\n
* @internal\n * \n
_anyControls(condition: Function): boolean {\n return false;\n
}\n\n /**\n
* @internal\n * \n
_allControlsDisabled(): boolean {\n return this.disabled;\n }\n\n /**\n
*
Register a listener for change events.\n * \n * @param fn The method that is called when the value
changes\n * \n
registerOnChange(fn: Function): void {\n this._onChange.push(fn);\n }\n\n /**\n
* Internal
function to unregister a change events listener.\n * @internal\n * \n
_unregisterOnChange(fn: Function): void {\n
removeListItem(this._onChange, fn);\n }\n\n /**\n
* Register a listener for disabled events.\n * \n * @param
fn The method that is called when the disabled status changes.\n * \n
registerOnDisabledChange(fn: (isDisabled:
boolean) => void): void {\n this._onDisabledChange.push(fn);\n }\n\n /**\n
* Internal function to unregister a
disabled event listener.\n * @internal\n * \n
_unregisterOnDisabledChange(fn: (isDisabled: boolean) => void):
void {\n removeListItem(this._onDisabledChange, fn);\n }\n\n /**\n
* @internal\n * \n
_forEachChild(cb:
Function): void {\n\n /**\n
* @internal\n * \n
_syncPendingControls(): boolean {\n if (this.updateOn === 'submit')
{\n if (this._pendingDirty) this.markAsDirty();\n if (this._pendingTouched)
this.markAsTouched();\n if (this._pendingChange) {\n this.setValue(this._pendingValue, {onlySelf: true,
emitModelToViewChange: false});\n return true;\n }\n }\n return false;\n }\n\n private
_applyFormState(formState: any) {\n if (this._isBoxedValue(formState)) {\n (this as {value: any}).value =
this._pendingValue = formState.value;\n formState.disabled ? this.disable({onlySelf: true, emitEvent: false}) : \n
this.enable({onlySelf: true, emitEvent: false});\n } else {\n (this as {value: any}).value =
this._pendingValue = formState;\n }\n }\n\n /**\n
* Tracks the value and validity state of a group of
`FormControl` instances.\n * \n * A `FormGroup` aggregates the values of each child `FormControl` into one
object,\n * with each control name as the key. It calculates its status by reducing the status values\n * of its children.
For example, if one of the controls in a group is invalid, the

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entire\n * group becomes invalid.\n *\n * `FormGroup` is one of the three fundamental building blocks used to define forms in Angular,\n * along with `FormControl` and `FormArray`.\n *\n * When instantiating a `FormGroup`, pass in a collection of child controls as the first\n * argument. The key for each child registers the name for the control.\n *\n * @usageNotes\n *\n * ### Create a form group with 2 controls\n *\n * ```\n * const form = new FormGroup({\n * first: new FormControl('Nancy', Validators.minLength(2)),\n * last: new FormControl('Drew'),\n * });\n *\n * console.log(form.value); // {first: 'Nancy', last: 'Drew'}\n *\n * console.log(form.status); // 'VALID'\n * ```\n *\n * ### Create a form group with a group-level validator\n *\n * You include group-level validators as the second arg, or group-level async\n * validators as the third arg. These come in handy when you want to perform validation\n * that considers the value of more than one child control.\n *\n * ```\n *\n * const form = new FormGroup({\n * password: new FormControl('', Validators.minLength(2)),\n * passwordConfirm: new FormControl('', Validators.minLength(2)),\n * }, { passwordMatchValidator });\n *\n * function passwordMatchValidator(g: FormGroup) {\n * return g.get('password').value === g.get('passwordConfirm').value\n * ? null : { 'mismatch': true };\n * }\n *\n * Like `FormControl` instances, you choose to pass in\n * validators and async validators as part of an options object.\n *\n * ```\n * const form = new FormGroup({\n * password: new FormControl(''),\n * passwordConfirm: new FormControl(''),\n * }, {\n * validators: passwordMatchValidator,\n * asyncValidators: otherValidator\n * });\n *\n * ### Set the updateOn property for all controls in a form group\n *\n * The options object is used to set a default value for each child\n * control's `updateOn` property. If you set `updateOn` to `blur` at the\n * group level, all child controls default to `blur`, unless the child\n * has explicitly specified a different `updateOn` value.\n *\n * ```ts\n * const c = new FormGroup({\n * one: new FormControl(),\n * }, { updateOn: 'blur' });\n * ```\n *\n * @publicApi\n */\nexport class FormGroup extends AbstractControl {\n * Creates a new `FormGroup` instance.\n *\n * @param controls A collection of child controls. The key for each child is the name\n * under which it is registered.\n *\n * @param validatorOrOpts A synchronous validator function, or an array of\n * such functions, or an `AbstractControlOptions` object that contains validation functions\n * and a validation trigger.\n *\n * @param asyncValidator A single async validator or array of async validator functions\n */\n * constructor(controls: {[key: string]: AbstractControl},\n * validatorOrOpts?: ValidatorFn | ValidatorFn[] | AbstractControlOptions | null,\n * asyncValidator?: AsyncValidatorFn | AsyncValidatorFn[] | null) {\n * super(pickValidators(validatorOrOpts), pickAsyncValidators(asyncValidator, validatorOrOpts));\n * this._initObservables();\n * this._setUpdateStrategy(validatorOrOpts);\n * this._setUpControls();\n * this.updateValueAndValidity({\n * onlySelf: true,\n * // If `asyncValidator` is present, it will trigger control status change from `PENDING` to\n * `VALID` or `INVALID`. The status should be broadcasted via the `statusChanges` observable,\n * // so we set `emitEvent` to `true` to allow that during the control creation process.\n * emitEvent: !!asyncValidator\n * });\n * }\n *\n * /**\n * Registers a control with the group's list of controls.\n *\n * This method does not update the value or validity of the control.\n * Use {@link FormGroup#addControl addControl} instead.\n *\n * @param name The control name to register in the collection\n *\n * @param control Provides the control for the given name\n */\n * registerControl(name: string, control: AbstractControl): AbstractControl {\n * if (this.controls[name]) return this.controls[name];\n * this.controls[name] = control;\n * control.setParent(this);\n * control._registerOnCollectionChange(this._onCollectionChange);\n * return control;\n * }\n *\n * /**\n * Add a control to this group.\n *\n * This method also updates the value and validity of the control.\n *\n * @param name The control name to add to the collection\n *\n * @param control Provides the control for the given name\n */\n * addControl(name: string, control: AbstractControl): void {\n * this.registerControl(name, control);\n * this.updateValueAndValidity();\n * this._onCollectionChange();\n * }\n *\n * /**\n * Remove a control from this group.\n *\n * @param name The control name to remove from the collection\n */\n * removeControl(name: string): void {\n * if (this.controls[name])\n * this.controls[name]._registerOnCollectionChange(() => {});\n * delete (this.controls[name]);\n * }\n * }\n


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this.updateValueAndValidity();\n  this._onCollectionChange();\n
  }\n\n /**\n   * Replace an existing control.\n   * \n   * @param name The control name to replace in the
collection\n   * @param control Provides the control for the given name\n   * \n   * setControl(name: string, control:
AbstractControl): void {\n   *   if (this.controls[name]) this.controls[name]._registerOnCollectionChange(() => {});\n   *   delete (this.controls[name]);\n   *   if (control) this.registerControl(name, control);\n   *   this.updateValueAndValidity();\n   *   this._onCollectionChange();\n   * }\n\n /**\n   * Check whether there is an
enabled control with the given name in the group.\n   * \n   * Reports false for disabled controls. If you'd like to
check for existence in the group\n   * only, use { @link AbstractControl#get get } instead.\n   * \n   * @param
controlName The control name to check for existence in the collection\n   * \n   * @returns false for disabled
controls, true otherwise.\n   * \n   * contains(controlName: string): boolean {\n   *   return
this.controls.hasOwnProperty(controlName)
&& this.controls[controlName].enabled;\n   * }\n\n /**\n   * Sets the value of the `FormGroup`. It accepts an object
that matches\n   * the structure of the group, with control names as keys.\n   * \n   * @usageNotes\n   * ### Set the
complete value for the form group\n   * \n   * ```\n   * const form = new FormGroup({\n   *   first: new
FormControl(),\n   *   last: new FormControl()\n   * });\n   * \n   * console.log(form.value); // {first: null, last:
null}\n   * \n   * form.setValue({first: 'Nancy', last: 'Drew'});\n   * console.log(form.value); // {first: 'Nancy', last:
'Drew'}\n   * ```\n   * \n   * @throws When strict checks fail, such as setting the value of a control\n   * that doesn't
exist or if you exclude a value of a control that does exist.\n   * \n   * @param value The new value for the control
that matches the structure of the group.\n   * @param options Configuration options that determine how the control
propagates changes\n   * and emits events after
the value changes.\n   * The configuration options are passed to the { @link
AbstractControl#updateValueAndValidity\n   * updateValueAndValidity } method.\n   * \n   * * `onlySelf`: When
true, each change only affects this control, and not its parent. Default is\n   * false.\n   * * `emitEvent`: When true or
not supplied (the default), both the `statusChanges` and\n   * `valueChanges`\n   * observables emit events with the
latest status and value when the control value is updated.\n   * When false, no events are emitted.\n   * \n   *
setValue(value: {[key: string]: any}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}):\n   *   void {\n   *
this._checkAllValuesPresent(value);\n   *   Object.keys(value).forEach(name => {\n   *     this._throwIfControlMissing(name);\n   *     this.controls[name].setValue(value[name], { onlySelf: true, emitEvent:
options.emitEvent});\n   *   });\n   *   this.updateValueAndValidity(options);\n   * }\n\n /**\n   * Patches the value of the
`FormGroup`. It accepts an object
with control\n   * names as keys, and does its best to match the values to the correct controls\n   * in the group.\n   * \n   * It accepts both super-sets and sub-sets of the group without throwing an error.\n   * \n   * @usageNotes\n   *
### Patch the value for a form group\n   * \n   * ```\n   * const form = new FormGroup({\n   *   first: new
FormControl(),\n   *   last: new FormControl()\n   * });\n   * \n   * console.log(form.value); // {first: null, last: null}\n   *
\n   * form.patchValue({first: 'Nancy'});\n   * console.log(form.value); // {first: 'Nancy', last: null}\n   * ```\n   *
\n   * @param value The object that matches the structure of the group.\n   * @param options Configuration options that
determine how the control propagates changes and\n   * emits events after the value is patched.\n   * * `onlySelf`:
When true, each change only affects this control and not its parent. Default is\n   * true.\n   * * `emitEvent`: When
true or not supplied (the default), both the `statusChanges`
and\n   * `valueChanges`\n   * observables emit events with the latest status and value when the control value is
updated.\n   * When false, no events are emitted.\n   * The configuration options are passed to the { @link
AbstractControl#updateValueAndValidity\n   * updateValueAndValidity } method.\n   * \n   * \n   * patchValue(value:
{[key: string]: any}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}):\n   *   void {\n   *
Object.keys(value).forEach(name => {\n   *     if (this.controls[name]) {\n   *       this.controls[name].patchValue(value[name], { onlySelf: true, emitEvent: options.emitEvent});\n   *     }\n   *   });\n   *   this.updateValueAndValidity(options);\n   * }\n\n /**\n   * Resets the `FormGroup`, marks all descendants `pristine`
and `untouched` and sets\n   * the value of all descendants to null.\n   * \n   * You reset to a specific form state by
passing in a map of states\n   * that matches the structure of your form, with control names as keys. The state\n   * is

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a standalone value

or a form state object with both a value and a disabled\n * status.\n * \n * @param value Resets the control with an initial value,\n * or an object that defines the initial value and disabled state.\n * \n * @param options Configuration options that determine how the control propagates changes\n * and emits events when the group is reset.\n * * `onlySelf`: When true, each change only affects this control, and not its parent. Default is\n * false.\n * * `emitEvent`: When true or not supplied (the default), both the `statusChanges` and\n * `valueChanges`\n * observables emit events with the latest status and value when the control is reset.\n * When false, no events are emitted.\n * The configuration options are passed to the { @link AbstractControl#updateValueAndValidity\n * updateValueAndValidity } method.\n * \n * @usageNotes\n * \n * ### Reset the form group values\n * \n * ```ts\n * const form = new FormGroup({\n * first: new FormControl('first name'),\n * last: new FormControl('last name')\n * });\n * \n * console.log(form.value); // {first: 'first name', last: 'last name'}\n * \n * form.reset({ first: 'name', last: 'last name' });\n * \n * console.log(form.value); // {first: 'name', last: 'last name'}\n * \n * ```\n * \n * ### Reset the form group values and disabled status\n * \n * ```\n * const form = new FormGroup({\n * first: new FormControl('first name'),\n * last: new FormControl('last name')\n * });\n * \n * form.reset({\n * first: { value: 'name', disabled: true },\n * last: 'last'\n * });\n * \n * console.log(this.form.value); // {first: 'name', last: 'last name'}\n * console.log(this.form.get('first').status); // 'DISABLED'\n * \n * \n * reset(value: any = {}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n * this._forEachChild((control: AbstractControl, name: string) => {\n * control.reset(value[name], {onlySelf: true, emitEvent: options.emitEvent});\n * });\n * this._updatePristine(options);\n * this._updateTouched(options);\n * this.updateValueAndValidity(options);\n * }\n * \n * /**\n * The aggregate value of the `FormGroup`, including any disabled controls.\n * \n * Retrieves all values regardless of disabled status.\n * \n * The `value` property is the best way to get the value of the group, because\n * it excludes disabled controls in the `FormGroup`.\n * \n * \n * getRawValue(): any {\n * return this._reduceChildren(\n * {}, (acc: {[k: string]: AbstractControl}, control: AbstractControl, name: string) => {\n * acc[name] = control instanceof FormControl ? control.value : (<any>control).getRawValue();\n * return acc;\n * });\n * }\n * \n * /** @internal *\n * _syncPendingControls(): boolean {\n * let subtreeUpdated = this._reduceChildren(false, (updated: boolean, child: AbstractControl) => {\n * return child._syncPendingControls() ? true : updated;\n * });\n * if (subtreeUpdated) this.updateValueAndValidity({onlySelf: true});\n * return subtreeUpdated;\n * }\n * \n * /** @internal *\n * _throwIfControlMissing(name: string): void {\n * if (!Object.keys(this.controls).length) {\n * throw new Error`\n * There are no form controls registered with this group yet. If you're using ngModel,\n * you may want to check next tick (e.g. use setTimeout).\n * `;\n * }\n * if (!this.controls[name]) {\n * throw new Error`Cannot find form control with name: \${name}.`;\n * }\n * }\n * \n * /** @internal *\n * _forEachChild(cb: (v: any, k: string) => void): void {\n * Object.keys(this.controls).forEach(k => cb(this.controls[k], k));\n * }\n * \n * /** @internal *\n * _setUpControls(): void {\n * this._forEachChild((control: AbstractControl) => {\n * control.setParent(this);\n * control._registerOnCollectionChange(this._onCollectionChange);\n * });\n * }\n * \n * /** @internal *\n * _updateValue(): void {\n * (this as {value: any}).value = this._reduceValue();\n * }\n * \n * /** @internal *\n * _anyControls(condition: Function): boolean {\n * for (const controlName of Object.keys(this.controls)) {\n * const control = this.controls[controlName];\n * if (this.contains(controlName) && condition(control)) {\n * return true;\n * }\n * }\n * return false;\n * }\n * \n * /** @internal *\n * _reduceValue() {\n * return this._reduceChildren(\n * {}, (acc: {[k: string]: AbstractControl}, control: AbstractControl, name: string) => {\n * if (control.enabled || this.disabled) {\n * acc[name] = control.value;\n * }\n * return acc;\n * });\n * }\n * \n * /** @internal *\n * _reduceChildren(initValue: any, fn: Function) {\n * let res = initValue;\n * this._forEachChild((control: AbstractControl, name: string) => {\n * res = fn(res, control, name);\n * });\n * return res;\n * }\n * \n * /** @internal *\n * _allControlsDisabled(): boolean {\n * for (const controlName of Object.keys(this.controls)) {\n * if (this.controls[controlName].enabled) {\n * return false;\n * }\n * }\n * return Object.keys(this.controls).length > 0 || this.disabled;\n * }\n * \n * /** @internal *\n * _checkAllValuesPresent(value: any): void {\n * this._forEachChild((control: AbstractControl, name: void {\n * this._forEachChild((control: AbstractControl, name: void {\n

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string) => {\n    if (value[name] === undefined) {\n        throw new Error(`Must supply a value for form control
with name: '${name}'.`);\n    }\n    };\n    }\n\n    /**\n     * Tracks the value and validity state of an array of
`FormControl`,\n     * `FormGroup` or `FormArray` instances.\n     * A `FormArray` aggregates the values of each
child `FormControl` into an array.\n     * It calculates its status by reducing the status values of its children. For
example, if one of\n     * the controls in a `FormArray` is invalid, the entire array becomes invalid.\n     * `FormArray` is one of the three fundamental building blocks used to define forms in Angular,\n     * along with
`FormControl` and `FormGroup`.\n     * @usageNotes\n     * ###
Create an array of form controls\n     * ```\n     * const arr = new FormArray([\n     *   new FormControl('Nancy',
Validators.minLength(2)),\n     *   new FormControl('Drew'),\n     * ]);\n     * console.log(arr.value); // ['Nancy',
'Drew']\n     * console.log(arr.status); // 'VALID'\n     * ```\n     * ### Create a form array with array-level validators\n
     * You include array-level validators and async validators. These come in handy\n     * when you want to perform
validation that considers the value of more than one child\n     * control.\n     * The two types of validators are passed
in separately as the second and third arg\n     * respectively, or together as part of an options object.\n     * ```\n
     * const arr = new FormArray([\n     *   new FormControl('Nancy'),\n     *   new FormControl('Drew')\n     * ], {validators:
myValidator, asyncValidators: myAsyncValidator});\n     * ```\n     * ### Set the updateOn property for all controls in
a form array\n     * The options object is used to set a default value for each child\n
     * control's `updateOn` property. If you set `updateOn` to `blur` at the\n     * array level, all child controls default to
`blur`, unless the child\n     * has explicitly specified a different `updateOn` value.\n     * ```ts\n     * const arr = new
FormArray([\n     *   new FormControl(),\n     * ], {updateOn: 'blur'});\n     * ```\n     * ### Adding or removing controls
from a form array\n     * To change the controls in the array, use the `push`, `insert`, `removeAt` or `clear`
methods\n     * in `FormArray` itself. These methods ensure the controls are properly tracked in the\n     * form's
hierarchy. Do not modify the array of `AbstractControl`s used to instantiate\n     * the `FormArray` directly, as that
result in strange and unexpected behavior such\n     * as broken change detection.\n     * @publicApi\n     */\n    export
class FormArray extends AbstractControl {\n    /**\n     * Creates a new `FormArray` instance.\n     * @param
controls An array of child controls. Each child control is given an index\n     * where it
is registered.\n     * @param validatorOrOpts A synchronous validator function, or an array of\n     * such
functions, or an `AbstractControlOptions` object that contains validation functions\n     * and a validation trigger.\n
     * @param asyncValidator A single async validator or array of async validator functions\n     */\n    constructor(\n      public controls: AbstractControl[],\n      validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n      asyncValidator?:
AsyncValidatorFn|AsyncValidatorFn[]|null) {\n      super(pickValidators(validatorOrOpts),
pickAsyncValidators(asyncValidator, validatorOrOpts));\n      this._initObservables();\n      this._setUpdateStrategy(validatorOrOpts);\n      this._setUpControls();\n      this.updateValueAndValidity({\n        onlySelf: true,\n        // If `asyncValidator` is present, it will trigger control status change from `PENDING` to\n        //
`VALID` or `INVALID`.\n        // The status should be broadcasted via the `statusChanges`
observable, so we set `emitEvent` to `true` to allow that during the control creation process.\n        emitEvent:
!!asyncValidator\n      });\n    }\n\n    /**\n     * Get the `AbstractControl` at the given `index` in the array.\n     * @param index Index in the array to retrieve the control\n     */\n    at(index: number): AbstractControl {\n      return
this.controls[index];\n    }\n\n    /**\n     * Insert a new `AbstractControl` at the end of the array.\n     * @param
control Form control to be inserted\n     */\n    push(control: AbstractControl): void {\n      this.controls.push(control);\n      this._registerControl(control);\n      this.updateValueAndValidity();\n      this._onCollectionChange();\n    }\n\n    /**\n     * Insert a new `AbstractControl` at the given `index` in the array.\n     * @param index Index in the array to
insert the control\n     * @param control Form control to be inserted\n     */\n    insert(index: number, control:
AbstractControl): void {\n      this.controls.splice(index,\n        0, control);\n      this._registerControl(control);\n      this.updateValueAndValidity();\n    }\n\n    /**\n     * Remove the
control at the given `index` in the array.\n     * @param index Index in the array to remove the control\n     */\n    removeAt(index: number): void {\n      if (this.controls[index]) this.controls[index]._registerOnCollectionChange(()
=> {});\n      this.controls.splice(index, 1);\n      this.updateValueAndValidity();\n    }\n\n    /**\n     * Replace an existing

```

```

control.\n * \n * @param index Index in the array to replace the control\n * @param control The
`AbstractControl` control to replace the existing control\n * \n setControl(index: number, control:
AbstractControl): void {\n   if (this.controls[index]) this.controls[index]._registerOnCollectionChange() => { });\n   this.controls.splice(index, 1);\n   if (control) {\n     this.controls.splice(index, 0, control);\n     this._registerControl(control);\n   }\n   this.updateValueAndValidity();\n   this._onCollectionChange();\n }\n\n /**\n  * Length of the control array.\n  * \n get length(): number {\n   return this.controls.length;\n }\n\n /**\n  * Sets the value of the `FormArray`. It accepts an array that matches\n  * the structure of the control.\n  * \n * This method performs strict checks, and throws an error if you try\n  * to set the value of a control that doesn't
exist or if you exclude the\n  * value of a control.\n  * \n * @usageNotes\n  * ### Set the values for the controls in
the form array\n  * \n * ```\n  * const arr = new FormArray([\n  *   new FormControl(),\n  *   new
FormControl()\n  * ]);\n  * console.log(arr.value); // [null, null]\n  * \n * arr.setValue(['Nancy', 'Drew']);\n  *
console.log(arr.value); // ['Nancy', 'Drew']\n  * ```\n  * \n * @param value Array of values for the controls\n  *
@param options Configure options that determine how the control propagates changes and\n  * emits events after
the value changes\n  * \n *
* `onlySelf`: When true, each change only affects this control, and not its parent. Default\n  * is false.\n  * *
`emitEvent`: When true or not supplied (the default), both the `statusChanges` and\n  * `valueChanges`\n  *
observables emit events with the latest status and value when the control value is updated.\n  * When false, no
events are emitted.\n  * The configuration options are passed to the { @link
AbstractControl#updateValueAndValidity\n  * updateValueAndValidity } method.\n  * \n * \n * setValue(value: any[],
options: { onlySelf?: boolean, emitEvent?: boolean } = {}): void {\n  *   this._checkAllValuesPresent(value);\n  *
value.forEach((newValue: any, index: number) => {\n  *     this._throwIfControlMissing(index);\n  *
this.at(index).setValue(newValue, { onlySelf: true, emitEvent: options.emitEvent });\n  *   });\n  *
this.updateValueAndValidity(options);\n  * }\n\n /**\n  * Patches the value of the `FormArray`. It accepts an array
that matches the\n  * structure of the control, and
does its best to match the values to the correct\n  * controls in the group.\n  * \n * It accepts both super-sets and
sub-sets of the array without throwing an error.\n  * \n * @usageNotes\n  * ### Patch the values for controls in a
form array\n  * \n * ```\n  * const arr = new FormArray([\n  *   new FormControl(),\n  *   new FormControl()\n  *
]);\n  * console.log(arr.value); // [null, null]\n  * \n * arr.patchValue(['Nancy']);\n  * console.log(arr.value); //
['Nancy', null]\n  * ```\n  * \n * @param value Array of latest values for the controls\n  * @param options
Configure options that determine how the control propagates changes and\n  * emits events after the value
changes\n  * \n * * `onlySelf`: When true, each change only affects this control, and not its parent. Default\n  * is
false.\n  * * * `emitEvent`: When true or not supplied (the default), both the `statusChanges` and\n  *
`valueChanges`\n  * * observables emit events with the latest status
and value when the control value is updated.\n  * When false, no events are emitted.\n  * The configuration
options are passed to the { @link AbstractControl#updateValueAndValidity\n  * updateValueAndValidity }
method.\n  * \n * \n * patchValue(value: any[], options: { onlySelf?: boolean, emitEvent?: boolean } = {}): void {\n  *
value.forEach((newValue: any, index: number) => {\n  *   if (this.at(index)) {\n  *
this.at(index).patchValue(newValue, { onlySelf: true, emitEvent: options.emitEvent });\n  *   }\n  * });\n  *
this.updateValueAndValidity(options);\n  * }\n\n /**\n  * Resets the `FormArray` and all descendants are marked
`pristine` and `untouched`, and the\n  * value of all descendants to null or null maps.\n  * \n * You reset to a
specific form state by passing in an array of states\n  * that matches the structure of the control. The state is a
standalone value\n  * or a form state object with both a value and a disabled status.\n  * \n * @usageNotes\n  *
### Reset the values
in a form array\n  * \n * ```ts\n  * const arr = new FormArray([\n  *   new FormControl(),\n  *   new
FormControl()\n  * ]);\n  * arr.reset(['name', 'last name']);\n  * \n * console.log(this.arr.value); // ['name', 'last
name']\n  * ```\n  * \n * ### Reset the values in a form array and the disabled status for the first control\n  * \n *
```ts\n  * this.arr.reset([\n  *   { value: 'name', disabled: true },\n  *   'last'\n  * ]);\n  * \n *
console.log(this.arr.value); // ['name', 'last name']\n * console.log(this.arr.get(0).status); // 'DISABLED'\n * ```

```

```

* @param value Array of values for the controls
* @param options Configure options that determine how
the control propagates changes and
* emits events after the value changes
* ** `onlySelf`: When true,
each change only affects this control, and not its parent. Default
* is false.
* ** `emitEvent`: When true or not
supplied (the default), both the `statusChanges` and
* `valueChanges`
* observables emit events with the latest status and value when the control is reset.
* When
false, no events are emitted.
* The configuration options are passed to the { @link
AbstractControl#updateValueAndValidity
* updateValueAndValidity } method.
* /n reset(value: any = [],
options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {
 this._forEachChild((control: AbstractControl,
index: number) => {
 control.reset(value[index], {onlySelf: true, emitEvent: options.emitEvent});
 });
 this._updatePristine(options);
 this._updateTouched(options);
 this.updateValueAndValidity(options);
}
/n
/**
* The aggregate value of the array, including any disabled controls.
*
* Reports all values regardless of
disabled status.
* For enabled controls only, the `value` property is the best way to get the value of the array.
*
* /n getRawValue(): any[] {
 return this.controls.map((control: AbstractControl) =>
 {
 return control instanceof FormControl ? control.value : (<any>control).getRawValue();
 });
}
/n
/**
* Remove all controls in the `FormArray`.
*
* @usageNotes
* ### Remove all elements from a
FormArray
*
* ```ts
* const arr = new FormArray([
 new FormControl(),
 new
FormControl()
]);
* console.log(arr.length); // 2
*
* arr.clear();
* console.log(arr.length); // 0
*
* ```
*
* It's a simpler and more efficient alternative to removing all elements one by one:
*
* ```ts
* const arr = new FormArray([
 new FormControl(),
 new FormControl()
]);
*
* while
(arr.length) {
 arr.removeAt(0);
}
*
* ```
*
* /n clear(): void {
 if (this.controls.length < 1) return;
 this._forEachChild((control: AbstractControl) => control._registerOnCollectionChange(() => {}));
 this.controls.splice(0);
 this.updateValueAndValidity();
}
/n
/**
* @internal
* /n _syncPendingControls(): boolean {
 let subtreeUpdated = this.controls.reduce((updated: boolean,
child: AbstractControl) => {
 return child._syncPendingControls() ? true : updated;
 }, false);
 if
(subtreeUpdated) this.updateValueAndValidity({onlySelf: true});
 return subtreeUpdated;
}
/n
/**
* @internal
* /n _throwIfControlMissing(index: number): void {
 if (!this.controls.length) {
 throw new Error(`
There are no form controls registered with this array yet. If you're using ngModel,
you may want to check
next tick (e.g. use setTimeout).
`);
 }
 if (!this.at(index)) {
 throw new Error(`Cannot find form
control at index ${index}`);
 }
}
/n
/**
* @internal
* /n _forEachChild(cb: Function): void {
 this.controls.forEach((control: AbstractControl, index: number) => {
 cb(control, index);
 });
}
/n
/**
* @internal
* /n _updateValue(): void {
 (this as {value: any}).value
=
 this.controls.filter((control) => control.enabled || this.disabled)
 .map((control) => control.value);
}
/n
/**
* @internal
* /n _anyControls(condition: Function): boolean {
 return this.controls.some((control:
AbstractControl) => control.enabled && condition(control));
}
/n
/**
* @internal
* /n _setUpControls(): void
{
 this._forEachChild((control: AbstractControl) => this._registerControl(control));
}
/n
/**
* @internal
* /n _checkAllValuesPresent(value: any): void {
 this._forEachChild((control: AbstractControl, i: number) => {
 if (value[i] === undefined) {
 throw new Error(`Must supply a value for form control at index: ${i}.`);
 }
 });
}
/n
/**
* @internal
* /n _allControlsDisabled(): boolean {
 for (const control of this.controls) {
 if (control.enabled) return false;
 }
 return this.controls.length > 0 || this.disabled;
}
/n
private
_registerControl(control: AbstractControl) {
 control.setParent(this);
 control._registerOnCollectionChange(this._onCollectionChange);
}
/n
"/**
*
* @license
* Copyright Google LLC All Rights Reserved.
*
* Use of this source code is governed by an MIT-
style license that can be
* found in the LICENSE file at https://angular.io/license
*
*/
import {AfterViewInit,
Directive, EventEmitter, forwardRef, Inject, Input, Optional, Self} from '@angular/core';
import {
AbstractControl, FormControl, FormGroup, FormHooks} from './model';
import {composeAsyncValidators,
composeValidators, NG_ASYNC_VALIDATORS, NG_VALIDATORS} from './validators';
import {
ControlContainer} from './control_container';
import {Form} from './form_interface';
import {NgControl} from
'./ng_control';
import {NgModel} from './ng_model';
import {NgModelGroup} from './ng_model_group';
import

```

```

{removeListItem, setUpControl, setUpFormContainer, syncPendingControls} from './shared';\nimport
{AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn}
from './validators';\n\nexport const formDirectiveProvider: any = {\n provide: ControlContainer,\n useExisting:
forwardRef(() => NgForm)\n};\n\nconst resolvedPromise = (() => Promise.resolve(null))();\n\n/**\n *
 * @description\n * Creates a top-level `FormGroup` instance and binds it to a form\n * to track aggregate form value
and validation status.\n *\n * As soon as you import the `FormsModule`, this directive becomes active by default
on\n * all `` tags. You don't need to add a special selector.\n *\n * You optionally export the directive into a
local template variable using `ngForm` as the key\n * (ex: `#myForm="ngForm"`). This is optional, but useful.
Many properties from the underlying\n * `FormGroup` instance are duplicated on the directive itself, so a reference
to it\n * gives you access to the aggregate value and validity status of the form, as well as\n * user interaction
properties like `dirty` and `touched`.\n *\n * To register child controls with the form,
use `NgModel` with a `name`\n * attribute. You may use `NgModelGroup` to create sub-groups within the form.\n
*\n * If necessary, listen to the directive's `ngSubmit` event to be notified when the user has\n * triggered a form
submission. The `ngSubmit` event emits the original form\n * submission event.\n *\n * In template driven forms,
all `` tags are automatically tagged as `NgForm`.\n * To import the `FormsModule` but skip its usage in
some forms,\n * for example, to use native HTML5 validation, add the `ngNoForm` and the ``\n * tags won't
create an `NgForm` directive. In reactive forms, using `ngNoForm` is\n * unnecessary because the `` tags are
inert. In that case, you would\n * refrain from using the `formGroup` directive.\n *\n * @usageNotes\n *\n * ###
Listening for form submission\n *\n * The following example shows how to capture the form values from the
`ngSubmit` event.\n *\n * { @example forms/ts/simpleForm/simple_form_example.ts region='Component' }\n
*\n * ### Setting the update options\n *\n * The following example shows you how to change the `updateOn`
option from its default using\n * ngFormOptions.\n *\n * ```html\n * <form [ngFormOptions]="{ updateOn:
'blur' }">\n * <input name="one" ngModel> <!-- this ngModel will update on blur -->\n * </form>\n * ```\n
*\n * ### Native DOM validation UI\n *\n * In order to prevent the native DOM form validation UI from interfering
with Angular's form\n * validation, Angular automatically adds the `novalidate` attribute on any ``
whenever\n * `FormsModule` or `ReactiveFormsModule` are imported into the application.\n * If you want to
explicitly enable native DOM validation UI with Angular forms, you can add the\n * `ngNativeValidate` attribute to
the `` element:\n *\n * ```html\n * <form ngNativeValidate>\n * ...</form>\n * ```\n
*\n * @ngModule\n * FormsModule\n * @publicApi\n * /\n * @Directive({\n * selector: 'form:not([ngNoForm]):not([formGroup]),ng-
form,[ngForm]',\n * providers: [formDirectiveProvider],\n * host: {\n * '(submit)': 'onSubmit($event)',\n * '(reset)': 'onReset()',\n * outputs:
['ngSubmit'],\n * exportAs: 'ngForm'\n * })\n * export class NgForm extends ControlContainer implements Form,\n * AfterViewInit {\n * /**\n * * @description\n * * Returns whether the form submission has been triggered.\n * * /\n * public readonly submitted: boolean = false;\n * private _directives: NgModel[] = [];\n * /**\n * * @description\n * * The `FormGroup` instance created for this form.\n * * /\n * form: FormGroup;\n * /**\n * * @description\n * * Event emitter for the `ngSubmit` event\n * * /\n * ngSubmit = new EventEmitter();\n * /**\n * * @description\n * * Tracks options for the `NgForm` instance.\n * * /\n * **updateOn**: Sets the default `updateOn` value for all child
`NgModels` below it\n * * unless explicitly set by a child `NgModel` using `ngModelOptions`. Defaults to
'change'.\n * * Possible values: `change` | `blur` | `submit`.\n * * /\n * /\n * // TODO(issue/24571):
remove '!'.\n * @Input('ngFormOptions') options!: { updateOn?: FormHooks};\n * constructor(\n * @Optional()
@Self() @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],\n * @Optional() @Self()
@Inject(NG_ASYNC_VALIDATORS) asyncValidators: (AsyncValidator|AsyncValidatorFn[]) {\n * super();\n * this.form =\n * new FormGroup({ }, composeValidators(validators),\n * composeAsyncValidators(asyncValidators));\n * }\n * /\n * @nodoc\n * /\n * ngAfterViewInit() {\n * this._setUpdateStrategy();\n * }\n * /\n * /**\n * * @description\n * * The directive instance.\n * * /\n * get formDirective():
Form {\n * return this;\n * }\n * /\n * /**\n * * @description\n * * The internal `FormGroup` instance.\n * * /\n * get
control(): FormGroup {\n * return this.form;\n * }\n * /\n * /**\n * * @description\n * * Returns an array representing the
path to this group. Because this directive\n * * always lives at the top level of a form, it is always an empty array.\n

```

```
*\n get path(): string[] {\n
 return [];\n }\n\n /**\n * @description\n * Returns a map of the controls in this group.\n */\n get controls():\n {[key: string]: AbstractControl} {\n return this.form.controls;\n }\n\n /**\n * @description\n * Method that sets up the control directive in this group, re-calculates its value\n * and validity, and adds the instance to the internal list of directives.\n */\n * @param dir The `NgModel` directive instance.\n */\n addControl(dir: NgModel): void {\n resolvedPromise.then(() => {\n const container = this._findContainer(dir.path);\n (dir as {control: FormControl}).control =\n <FormControl>container.registerControl(dir.name, dir.control);\n setUpControl(dir.control, dir);\n dir.control.updateValueAndValidity({emitEvent: false});\n this._directives.push(dir);\n });\n }\n\n /**\n * @description\n * Retrieves the `FormControl` instance from the provided `NgModel` directive.\n */\n * @param dir The `NgModel` directive instance.\n */\n getControl(dir: NgModel): FormControl {\n return <FormControl>this.form.get(dir.path);\n }\n\n /**\n * @description\n * Removes the `NgModel` instance from the internal list of directives\n */\n * @param dir The `NgModel` directive instance.\n */\n removeControl(dir: NgModel): void {\n resolvedPromise.then(() => {\n const container = this._findContainer(dir.path);\n if (container) {\n container.removeControl(dir.name);\n }\n removeListItem(this._directives, dir);\n });\n }\n\n /**\n * @description\n * Adds a new `NgModelGroup` directive instance to the form.\n */\n * @param dir The `NgModelGroup` directive instance.\n */\n addFormGroup(dir: NgModelGroup): void {\n resolvedPromise.then(() => {\n const container = this._findContainer(dir.path);\n const group = new FormGroup({});\n setUpFormContainer(group, dir);\n container.registerControl(dir.name, group);\n group.updateValueAndValidity({emitEvent: false});\n });\n }\n\n /**\n * @description\n * Removes the `NgModelGroup` directive instance from the form.\n */\n * @param dir The `NgModelGroup` directive instance.\n */\n removeFormGroup(dir: NgModelGroup): void {\n resolvedPromise.then(() => {\n const container = this._findContainer(dir.path);\n if (container) {\n container.removeControl(dir.name);\n }\n });\n }\n\n /**\n * @description\n * Retrieves the `FormGroup` for a provided `NgModelGroup` directive instance\n */\n * @param dir The `NgModelGroup` directive instance.\n */\n getFormGroup(dir: NgModelGroup): FormGroup {\n return <FormGroup>this.form.get(dir.path);\n }\n\n /**\n * Sets the new value for the provided `NgControl` directive.\n */\n * @param dir The `NgControl` directive instance.\n * @param value The new value for the directive's control.\n */\n updateModel(dir: NgControl, value: any): void {\n resolvedPromise.then(() => {\n const ctrl = <FormControl>this.form.get(dir.path!);\n ctrl.setValue(value);\n });\n }\n\n /**\n * @description\n * Sets the value for this `FormGroup`. \n */\n * @param value The new value\n */\n setValue(value: {[key: string]: any}): void {\n this.control.setValue(value);\n }\n\n /**\n * @description\n * Method called when the \"submit\" event is triggered on the form. \n */\n * Triggers the `ngSubmit` emitter to emit the \"submit\" event as its payload.\n */\n * @param $event The \"submit\" event object\n */\n onSubmit($event: Event): boolean {\n (this as {submitted: boolean}).submitted = true;\n syncPendingControls(this.form, this._directives);\n this.ngSubmit.emit($event);\n return false;\n }\n\n /**\n * @description\n * Method called when the \"reset\" event is triggered on the form.\n */\n * OnReset(): void {\n this.resetForm();\n }\n\n /**\n * @description\n * Resets the form to an initial value and resets its submitted status.\n */\n * @param value The new value for the form.\n */\n resetForm(value: any = undefined): void {\n this.form.reset(value);\n (this as {submitted: boolean}).submitted = false;\n }\n\n private _setUpdateStrategy() {\n if (this.options && this.options.updateOn != null) {\n this.form._updateOn = this.options.updateOn;\n }\n }\n\n /**\n * @internal\n */\n _findContainer(path: string[]): FormGroup {\n path.pop();\n return path.length ? <FormGroup>this.form.get(path) : this.form;\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\n import {Directive, OnDestroy, OnInit} from '@angular/core';\n import {FormGroup} from './model';\n import {ControlContainer} from './control_container';\n import {Form} from './form_interface';\n import {controlPath} from './shared';\n\n
```





example shows you how to combine controls together in a sub-group of the form. `@example forms/ts/ngModelGroup/ng_model_group_example.ts` region='Component'

```

 * @ngModule FormsModule
 * @publicApi
 * @Directive({ selector: '[ngModelGroup]', providers: [modelGroupProvider], exportAs:
'ngModelGroup' })
 * export class NgModelGroup extends AbstractFormGroupDirective implements OnInit,
 * OnDestroy {
 * /**
 * * Tracks the name of the `NgModelGroup` bound to the directive. The
 * * name corresponds to a key in the parent `NgForm`.
 * * // TODO(issue/24571): remove '!'.
 * * @Input('ngModelGroup') name!: string;
 * * constructor(@Host() @SkipSelf() parent: ControlContainer,
 * * @Optional() @Self() @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],
 * * @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators: (AsyncValidator|AsyncValidatorFn)[]) {
 * * super();
 * * this._parent = parent;
 * * this._setValidators(validators);
 * * this._setAsyncValidators(asyncValidators);
 * * }
 * /** @internal
 * * _checkParentType(): void {
 * * if
 * * (!this._parent instanceof NgModelGroup) && !(this._parent instanceof NgForm) &&
 * * (typeof ngDevMode === 'undefined' || ngDevMode)) {
 * * TemplateDrivenErrors.modelGroupParentException();
 * * }
 * * }
 * * "*/
 * * @license
 * * Copyright Google LLC All Rights Reserved.
 * * Use of this source code is
 * * governed by an MIT-style license that can be
 * * found in the LICENSE file at
 * * https://angular.io/license
 * *
 * * import {Directive, EventEmitter, forwardRef, Host, Inject, Input, OnChanges, OnDestroy, Optional, Output,
 * * Self, SimpleChanges} from '@angular/core';
 * * import {FormControl, FormHooks} from './model';
 * * import {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from './validators';
 * * import {AbstractFormGroupDirective} from './abstract_form_group_directive';
 * * import {ControlContainer} from './control_container';
 * * import {ControlValueAccessor, NG_VALUE_ACCESSOR} from './control_value_accessor';
 * * import {NgControl} from './ng_control';
 * * import {NgForm} from './ng_form';
 * * import {NgModelGroup} from './ng_model_group';
 * * import {controlPath, isPropertyUpdated, selectValueAccessor, setUpControl} from './shared';
 * * import {TemplateDrivenErrors} from './template_driven_errors';
 * * import {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from './validators';
 * *
 * * export const formControlBinding: any = {
 * * provide: NgControl,
 * * useExisting: forwardRef(() => NgModel)
 * * };
 * *
 * * /**
 * * `ngModel` forces an additional change detection run when its inputs change.
 * * E.g.:
 * *
 * * <div>{ {myModel.valid} }</div>
 * * <input [(ngModel)]="myValue" #myModel="ngModel">
 * *
 * * I.e. `ngModel` can export itself on the element and then be used in the template.
 * * Normally, this would result in expressions before the `input` that use the exported directive
 * * to have an old value as they have been dirty checked before.
 * * As this is a very common case for `ngModel`, we added this second change
 * * detection run.
 * *
 * * Notes:
 * * - this is just one extra run no matter how many `ngModel`s have been changed.
 * * - this is a general problem when using `exportAs` for directives!
 * *
 * * const resolvedPromise = (() => Promise.resolve(null))();
 * *
 * * /**
 * * @description
 * * Creates a `FormControl` instance from a domain model and binds it to a form control element.
 * *
 * * The `FormControl` instance tracks the value, user interaction, and validation status of the control and keeps the view synced with the model.
 * * If used within a parent form, the directive also registers itself with the form as a child control.
 * *
 * * This directive is used by itself or as part of a larger form. Use the `ngModel` selector to activate it.
 * *
 * * It accepts a domain model as an optional `Input`. If you have a one-way binding to `ngModel` with `[]` syntax, changing the domain model's value in the component class sets the value in the view.
 * * If you have a two-way binding with `[]` syntax (also known as 'banana-in-a-box syntax'), the value in the UI always syncs back to the domain model in your class.
 * *
 * * To inspect the properties of the associated `FormControl` (like the validity state), export the directive into a local template variable using `ngModel` as the key (ex: `#myVar="ngModel"`). You can then access the control using the directive's `control` property.
 * *
 * * However, the most commonly used properties (like `valid` and `dirty`) also exist on the control for direct access. See a full list of properties directly available in `AbstractControlDirective`.
 * *
 * * @see `RadioControlValueAccessor`
 * * @see `SelectControlValueAccessor`
 * * @usageNotes
 * *
 * * ### Using ngModel on a standalone control
 * *
 * * The following examples show a simple standalone control using `ngModel`:
 * *
 * * @example forms/ts/simpleNgModel/simple_ng_model_example.ts
 * * region='Component'

```

\* When using the `ngModel` within `` tags, you'll also need to supply a `name` attribute so that the control can be registered with the parent form under that name.

\* In the context of a parent form, it's often unnecessary to include one-way or two-way binding, as the parent form syncs the value for you. You access its properties by exporting it into a local template variable using `ngForm` such as (`#f="ngForm"`). Use the variable where needed on form submission.

\* If you do need to populate initial values into your form, using a one-way binding for `ngModel` tends to be sufficient as long as you use the exported form's value rather than the domain model's value on submit.

\* ### Using ngModel within a form

\* The following example shows controls using `ngModel` within a form:

```
forms/ts/simpleForm/simple_form_example.ts region='Component'
```

\* ### Using a standalone ngModel within a group

The following example shows you how to use a standalone ngModel control within a form. This controls the display of the form, but doesn't contain form data.

```
html
<form>
 <input name="login" ngModel
 placeholder="Login">
 <input type="checkbox" ngModel [ngModelOptions]="{standalone: true}"> Show
 more options?
</form>

```



```

{ReactiveErrors} from './reactive_errors';\nimport { _ngModelWarning, isPropertyUpdated, selectValueAccessor,
setUpControl} from './shared';\nimport { AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from
'./validators';\n\n/**\n * Token to provide to turn off the ngModel warning on FormControl and
FormControlName.\n */\nexport const NG_MODEL_WITH_FORM_CONTROL_WARNING =\n new
InjectionToken('NgModelWithFormControlWarning');\n\nexport const FormControlBinding: any = {\n provide:
NgControl,\n useExisting: forwardRef(() => FormControlDirective)\n};\n\n/**\n * @description\n * Synchronizes
a standalone `FormControl` instance to a form control element.\n */\n * Note that support for using the `ngModel`
input property and `ngModelChange` event with reactive\n * form directives was deprecated in Angular v6 and is
scheduled for removal in\n * a future version of Angular.\n * For details, see [Deprecated
features](guide/deprecations#ngmodel-with-reactive-forms).\n\n
*\n * @see [Reactive Forms Guide](guide/reactive-forms)\n * @see `FormControl`\n * @see `AbstractControl`\n\n
*\n * @usageNotes\n *\n * The following example shows how to register a standalone control and set its value.\n\n
*\n * { @example forms/ts/simpleFormControl/simple_form_control_example.ts region='Component' }\n *\n *
@ngModule ReactiveFormsModule\n * @publicApi\n */\n@Directive({selector: '[formControl]', providers:
[FormControlBinding], exportAs: 'ngForm'})\nexport class FormControlDirective extends NgControl implements
OnChanges {\n /**\n * Internal reference to the view model value.\n */\n @nodoc\n */\n viewModel: any;\n\n
/**\n * @description\n * Tracks the `FormControl` instance bound to the directive.\n */\n /\n
//\n\n
TODO(issue/24571): remove '!'.\n @Input('formControl') form!: FormControl;\n\n
/**\n * @description\n *
Triggers a warning in dev mode that this input should not be used with reactive forms.\n */\n @Input('disabled')\n
set isDisabled(isDisabled:
boolean) {\n if (typeof ngDevMode === 'undefined' || ngDevMode) {\n
ReactiveErrors.disabledAttrWarning();\n }\n }\n\n
// TODO(kara): remove next 4 properties once deprecation
period is over\n\n
/** @deprecated as of v6 */\n @Input('ngModel') model: any;\n\n
/** @deprecated as of v6 */\n @Output('ngModelChange') update = new EventEmitter();\n\n
/**\n * @description\n * Static property used to
track whether any ngModel warnings have been sent across\n * all instances of FormControlDirective. Used to
support warning config of `\"once\"`.\n */\n @internal\n */\n static _ngModelWarningSentOnce = false;\n\n
/**\n * @description\n * Instance property used to track whether an ngModel warning has been sent out for this\n
* particular `FormControlDirective` instance. Used to support warning config of `\"always\"`.\n */\n @internal\n
*/\n _ngModelWarningSent = false;\n\n
constructor(\n @Optional() @Self() @Inject(NG_VALIDATORS)
validators: (Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators:\n
(AsyncValidator|AsyncValidatorFn)[],\n @Optional() @Self() @Inject(NG_VALUE_ACCESSOR)
valueAccessors: ControlValueAccessor[],\n @Optional()
@Inject(NG_MODEL_WITH_FORM_CONTROL_WARNING) private _ngModelWarningConfig: string|\n
null) {\n super();\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n
this.valueAccessor = selectValueAccessor(this, valueAccessors);\n }\n\n
/** @nodoc */\n ngOnChanges(changes:
SimpleChanges): void {\n if (this._isControlChanged(changes)) {\n setUpControl(this.form, this);\n if
(this.control.disabled && this.valueAccessor!.setDisabledState) {\n
this.valueAccessor!.setDisabledState!(true);\n }\n this.form.updateValueAndValidity({emitEvent: false});\n
}\n if (isPropertyUpdated(changes, this.viewModel)) {\n _ngModelWarning('formControl',
FormControlDirective, this,\n this._ngModelWarningConfig);\n this.form.setValue(this.model);\n this.viewModel = this.model;\n }\n }\n\n
/**\n * @description\n * Returns an array that represents the path from the top-level form to this control.\n
* Each index is the string name of the control on that level.\n */\n get path(): string[] {\n return [];\n }\n\n
/**\n * @description\n * The `FormControl` bound to this directive.\n */\n get control(): FormControl {\n return
this.form;\n }\n\n
/**\n * @description\n * Sets the new value for the view model and emits an
`ngModelChange` event.\n */\n @param newValue The new value for the view model.\n */\n viewToModelUpdate(newValue: any): void {\n this.viewModel = newValue;\n this.update.emit(newValue);\n
}

```

```

}\n\n private _isControlChanged(changes: {[key: string]: any}): boolean {\n return
changes.hasOwnProperty('form');\n } }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Directive, EventEmitter, forwardRef, Inject, Input, OnChanges, Optional,
Output, Self, SimpleChanges} from '@angular/core';\n\nimport {FormArray, FormControl, FormGroup} from
'./../model';\n\nimport {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from './../validators';\n\nimport
{ControlContainer} from './control_container';\n\nimport {Form} from './form_interface';\n\nimport {ReactiveErrors}
from './reactive_errors';\n\nimport {cleanUpControl, cleanUpValidators, removeListItem, setUpControl,
setUpFormContainer, setUpValidators, syncPendingControls} from './shared';\n\nimport {AsyncValidator,
AsyncValidatorFn, Validator, ValidatorFn} from './validators';\n\nimport {FormControlName} from
'./form_control_name';\n\nimport {FormArrayName, FormGroupName} from './form_group_name';\n\n\nexport const
formDirectiveProvider: any = {\n provide: ControlContainer,\n useExisting:
forwardRef(() => FormGroupDirective)\n};\n\n\n/*\n * @description\n * \n * Binds an existing `FormGroup` to a
DOM element.\n * \n * This directive accepts an existing `FormGroup` instance. It will then use this\n *
`FormGroup` instance to match any child `FormControl`, `FormGroup`,\n * and `FormArray` instances to child
`FormControlName`, `FormGroupName`,\n * and `FormArrayName` directives.\n * \n * @see [Reactive Forms
Guide](guide/reactive-forms)\n * @see `AbstractControl`\n * \n * ### Register Form Group\n * \n * The following
example registers a `FormGroup` with first name and last name controls,\n * and listens for the `ngSubmit` event
when the button is clicked.\n * \n * { @example forms/ts/simpleFormGroup/simple_form_group_example.ts
region='Component' }\n * \n * @ngModule ReactiveFormsModule\n * @publicApi\n */\n\n@Directive({\n selector:
'[formGroup]',\n providers: [formDirectiveProvider],\n host: {\n '(submit)': 'onSubmit($event)',\n '(reset)':
'onReset()' \n },\n exportAs: 'ngForm'\n})\nexport
class FormGroupDirective extends ControlContainer implements Form, OnChanges {\n /**\n * @description\n
* Reports whether the form submission has been triggered.\n * \n public readonly submitted: boolean = false;\n\n
/**\n * Reference to an old form group input value, which is needed to cleanup old instance in case it\n * was
replaced with a new one.\n * \n private _oldForm: FormGroup|undefined;\n\n /**\n * @description\n
* Tracks the list of added `FormControlName` instances\n * \n directives: FormControlName[] = [];\n\n /**\n
* @description\n
* Tracks the `FormGroup` bound to this directive.\n * \n @Input('formGroup') form: FormGroup
= null!;\n\n /**\n * @description\n
* Emits an event when the form submission has been triggered.\n * \n @Output() ngSubmit = new EventEmitter();\n\n
constructor(\n @Optional() @Self()
@Inject(NG_VALIDATORS) private validators: (Validator|ValidatorFn)[],\n @Optional() @Self()
@Inject(NG_ASYNC_VALIDATORS)
private asyncValidators: (AsyncValidator|AsyncValidatorFn[]) {\n super();\n
this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n } }\n\n /** @nodoc */\n\n
ngOnChanges(changes: SimpleChanges): void {\n this._checkFormPresent();\n if
(changes.hasOwnProperty('form')) {\n this._updateValidators();\n this._updateDomValue();\n
this._updateRegistrations();\n this._oldForm = this.form;\n } }\n\n /**\n * @description\n
* Returns this directive's instance.\n * \n get formDirective(): Form {\n return this;\n } }\n\n /**\n
* @description\n
* Returns the `FormGroup` bound to this directive.\n * \n get control(): FormGroup {\n return this.form;\n } }\n\n
/**\n * @description\n
* Returns an array representing the path to this group. Because this directive\n * always
lives at the top level of a form, it always an empty array.\n * \n get path(): string[] {\n return [];\n } }\n\n
/**\n * @description\n
* Method that sets up the control directive in this group, re-calculates its value\n * and validity,
and adds the instance to the internal list of directives.\n * \n * @param dir The `FormControlName` directive
instance.\n * \n addControl(dir: FormControlName): FormControl {\n const ctrl: any = this.form.get(dir.path);\n
setUpControl(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n this.directives.push(dir);\n
return ctrl;\n } }\n\n /**\n * @description\n
* Retrieves the `FormControl` instance from the provided
`FormControlName` directive\n * \n * @param dir The `FormControlName` directive instance.\n * \n

```

```

getControl(dir: FormControlName): FormControl {\n return <FormControl>this.form.get(dir.path);\n }\n\n /**\n * @description\n * Removes the `FormControlName` instance from the internal list of directives\n *\n * @param dir The `FormControlName` directive instance.\n */\n removeControl(dir: FormControlName): void {\n removeListItem(this.directives, dir);\n }\n\n /**\n * Adds a new `FormGroupName` directive instance to the form.\n *\n * @param dir The `FormGroupName` directive instance.\n */\n addFormGroup(dir: FormGroupName): void {\n const ctrl: any = this.form.get(dir.path);\n setUpFormContainer(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n }\n\n /**\n * No-op method to remove the form group.\n *\n * @param dir The `FormGroupName` directive instance.\n */\n removeFormGroup(dir: FormGroupName): void {\n }\n\n /**\n * @description\n * Retrieves the `FormGroup` for a provided `FormGroupName` directive instance.\n *\n * @param dir The `FormGroupName` directive instance.\n */\n getFormGroup(dir: FormGroupName): FormGroup {\n return <FormGroup>this.form.get(dir.path);\n }\n\n /**\n * Adds a new `FormArrayName` directive instance to the form.\n *\n * @param dir The `FormArrayName` directive instance.\n */\n addFormArray(dir: FormArrayName): void {\n const ctrl: any = this.form.get(dir.path);\n setUpFormContainer(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n }\n\n /**\n * No-op method to remove the form array.\n *\n * @param dir The `FormArrayName` directive instance.\n */\n removeFormArray(dir: FormArrayName): void {\n }\n\n /**\n * @description\n * Retrieves the `FormArray` for a provided `FormArrayName` directive instance.\n *\n * @param dir The `FormArrayName` directive instance.\n */\n getFormArray(dir: FormArrayName): FormArray {\n return <FormArray>this.form.get(dir.path);\n }\n\n /**\n * Sets the new value for the provided `FormControlName` directive.\n *\n * @param dir The `FormControlName` directive instance.\n * @param value The new value for the directive's control.\n */\n updateModel(dir: FormControlName, value: any): void {\n const ctrl = <FormControl>this.form.get(dir.path);\n ctrl.setValue(value);\n }\n\n /**\n * @description\n * Method called with the `\"submit\"` event is triggered on the form.\n * Triggers the `ngSubmit` emitter to emit the `\"submit\"` event as its payload.\n *\n * @param $event The `\"submit\"` event object.\n */\n onSubmit($event: Event): boolean {\n (this as {submitted: boolean}).submitted = true;\n syncPendingControls(this.form, this.directives);\n this.ngSubmit.emit($event);\n return false;\n }\n\n /**\n * @description\n * Method called when the `\"reset\"` event is triggered on the form.\n */\n onReset(): void {\n this.resetForm();\n }\n\n /**\n * @description\n * Resets the form to an initial value and resets its submitted status.\n *\n * @param value The new value for the form.\n */\n resetForm(value: any = undefined): void {\n this.form.reset(value);\n (this as {submitted: boolean}).submitted = false;\n }\n\n /**\n * @internal\n */\n _updateDomValue() {\n this.directives.forEach(dir => {\n const newCtrl: any = this.form.get(dir.path);\n if (dir.control !== newCtrl) {\n // Note: the value of the `dir.control` may not be defined, for example when it's a first\n // `FormControl` that is added to a `FormGroup` instance (via `addControl` call).\n cleanupControl(dir.control || null, dir);\n if (newCtrl) setUpControl(newCtrl, dir);\n (dir as {control: FormControl}).control = newCtrl;\n }\n });\n this.form._updateTreeValidity({emitEvent: false});\n }\n\n private _updateRegistrations() {\n this.form._registerOnCollectionChange(() => this._updateDomValue());\n if (this._oldForm) {\n this._oldForm._registerOnCollectionChange(() => {});\n }\n }\n\n private _updateValidators() {\n setUpValidators(this.form, this, /* handleOnValidatorChange */ false);\n if (this._oldForm) {\n cleanupValidators(this._oldForm, this, /* handleOnValidatorChange */ false);\n }\n }\n\n private _checkFormPresent() {\n if (!this.form && (typeof ngDevMode === 'undefined' || ngDevMode)) {\n ReactiveErrors.missingFormException();\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport {Directive, forwardRef, Host, Inject, Input, OnDestroy, OnInit, Optional, Self, SkipSelf} from '@angular/core';\nimport {FormArray} from '../model';\nimport {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from '../validators';\nimport {AbstractFormGroupDirective} from '../abstract_form_group_directive';\nimport {ControlContainer} from '../control_container';\nimport

```



```

{\n super();\n this._parent = parent;\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n }\n\n /**\n * A lifecycle method called when the directive's inputs
 are initialized. For internal use only.\n * @throws If the directive does not have a valid parent.\n * @nodoc\n */\n ngOnInit():\n\n void {\n this._checkParentType();\n this.formDirective!.addFormArray(this);\n }\n\n /**\n * A lifecycle
 method called before the directive's instance is destroyed. For internal use only.\n * @nodoc\n */\n ngOnDestroy(): void {\n if (this.formDirective) {\n this.formDirective.removeFormArray(this);\n }\n }\n\n /**\n * @description\n * The `FormArray` bound to this directive.\n */\n get control(): FormArray {\n return
 this.formDirective!.getFormArray(this);\n }\n\n /**\n * @description\n * The top-level directive for this group if
 present, otherwise null.\n */\n get formDirective(): FormGroupDirective|null {\n return this._parent ?
 <FormGroupDirective>this._parent.formDirective : null;\n }\n\n /**\n * @description\n * Returns an array that
 represents the path from the top-level form to this control.\n * Each index is the string name of the control on that
 level.\n */\n get path(): string[] {\n return controlPath(this.name
 == null ? this.name : this.name.toString(), this._parent);\n }\n\n private _checkParentType(): void {\n if
 (_hasInvalidParent(this._parent) && (typeof ngDevMode === 'undefined' || ngDevMode)) {\n
 ReactiveErrors.arrayParentException();\n }\n\n }\n\n function _hasInvalidParent(parent: ControlContainer):
 boolean {\n return !(parent instanceof FormGroupName) && !(parent instanceof FormGroupDirective) &&\n
 !(parent instanceof FormArrayName);\n }\n\n ,"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
 *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
 https://angular.io/license\n */\n\n import {Directive, EventEmitter, forwardRef, Host, Inject, Input, OnChanges,
 OnDestroy, Optional, Output, Self, SimpleChanges, SkipSelf} from '@angular/core';\n import {FormControl}
 from '../model';\n import {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from '../validators';\n import
 {AbstractFormGroupDirective} from './abstract_form_group_directive';\n import
 {ControlContainer} from './control_container';\n import {ControlValueAccessor, NG_VALUE_ACCESSOR} from
 './control_value_accessor';\n import {NgControl} from './ng_control';\n import {ReactiveErrors} from
 './reactive_errors';\n import {_ngModelWarning, controlPath, isPropertyUpdated, selectValueAccessor} from
 './shared';\n import {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from '../validators';\n import
 {NG_MODEL_WITH_FORM_CONTROL_WARNING} from './form_control_directive';\n import
 {FormGroupDirective} from './form_group_directive';\n import {FormArrayName, FormGroupName} from
 './form_group_name';\n\n export const controlNameBinding: any = {\n provide: NgControl,\n useExisting:
 forwardRef(() => FormControlName)\n };\n\n /**\n * @description\n * Syncs a `FormControl` in an existing
 `FormGroup` to a form control\n * element by name.\n */\n * @see [Reactive Forms Guide](guide/reactive-forms)\n
 * @see `FormControl`\n * @see `AbstractControl`\n\n * @usageNotes\n * ### Register `FormControl` within a group\n * The following example shows how
 to register multiple form controls within a form group\n * and set their value.\n * {\n * @example\n
 forms/ts/simpleFormGroup/simple_form_group_example.ts region='Component'\n * To see
 `formControlName` examples with different form control types, see:\n * {\n * * Radio buttons:\n
 `RadioControlValueAccessor`\n * * Selects: `SelectControlValueAccessor`\n * * ### Use with ngModel is
 deprecated\n * * Support for using the `ngModel` input property and `ngModelChange` event with reactive\n *
 form directives has been deprecated in Angular v6 and is scheduled for removal in\n * a future version of Angular.\n
 *\n * For details, see [Deprecated features](guide/deprecations#ngmodel-with-reactive-forms).\n * {\n * @ngModule
 ReactiveFormsModule\n * @publicApi\n */\n @Directive({selector: '[formControlName]', providers:
 [controlNameBinding]})\n export class FormControlName extends NgControl\n
 implements OnChanges, OnDestroy {\n private _added = false;\n\n /**\n * Internal reference to the view model
 value.\n * @internal\n */\n viewModel: any;\n\n /**\n * @description\n * Tracks the `FormControl` instance
 bound to the directive.\n */\n // TODO(issue/24571): remove '!'.\n readonly control!: FormControl;\n\n /**\n
 * @description\n * Tracks the name of the `FormControl` bound to the directive. The name corresponds\n * to a
 key in the parent `FormGroup` or `FormArray`.\n * Accepts a name as a string or a number.\n * The name in the

```





```

*\\n * ### Provide a custom validator\\n *\\n * The following example implements the `Validator` interface to create
a\\n * validator directive with a custom error key.\\n *\\n * ```typescript\\n * @Directive({\\n * selector:
'[customValidator]',\\n * providers: [{provide: NG_VALIDATORS, useExisting: CustomValidatorDirective, multi:
true}\\n *]}\\n * })\\n * class CustomValidatorDirective implements Validator {\\n * validate(control: AbstractControl):
ValidationErrors|null
{\\n * return {'custom': true};\\n * }\\n * }\\n * ```\\n *\\n * @publicApi\\n *\\n * @export interface Validator {\\n * //**\\n
* @description\\n * Method that performs synchronous validation against the provided control.\\n *\\n * @param
control The control to validate against.\\n *\\n * @returns A map of validation errors if validation fails,\\n *
otherwise null.\\n *\\n * validate(control: AbstractControl): ValidationErrors|null;\\n * //**\\n * @description\\n *
Registers a callback function to call when the validator inputs change.\\n *\\n * @param fn The callback function\\n
*\\n * registerOnValidatorChange?(fn: () => void): void;\\n * }\\n * //**\\n * @description\\n * An interface implemented
by classes that perform asynchronous validation.\\n *\\n * @usageNotes\\n *\\n * ### Provide a custom async validator
directive\\n *\\n * The following example implements the `AsyncValidator` interface to create an\\n * async validator
directive with a custom error key.\\n *\\n * ```typescript\\n * import
{ of } from 'rxjs';\\n *\\n * @Directive({\\n * selector: '[customAsyncValidator]',\\n * providers: [{provide:
NG_ASYNC_VALIDATORS, useExisting: CustomAsyncValidatorDirective, multi:\\n * true}\\n *]}\\n * })\\n * class
CustomAsyncValidatorDirective implements AsyncValidator {\\n * validate(control: AbstractControl):
Observable<ValidationErrors|null> {\\n * return of({'custom': true});\\n * }\\n * }\\n * ```\\n *\\n * @publicApi\\n
*\\n * @export interface AsyncValidator extends Validator {\\n * //**\\n * @description\\n * Method that performs async
validation against the provided control.\\n *\\n * @param control The control to validate against.\\n *\\n *
@returns A promise or observable that resolves a map of validation errors\\n * if validation fails, otherwise null.\\n
*\\n * validate(control: AbstractControl):\\n
Promise<ValidationErrors|null>|Observable<ValidationErrors|null>;\\n * }\\n * //**\\n * @description\\n * Provider which
adds `RequiredValidator` to the `NG_VALIDATORS` multi-provider
list.\\n *\\n * @export const REQUIRED_VALIDATOR: StaticProvider = {\\n * provide: NG_VALIDATORS,\\n
* useExisting: forwardRef(() => RequiredValidator),\\n * multi: true\\n * };\\n * }\\n * //**\\n * @description\\n * Provider which
adds `CheckboxRequiredValidator` to the `NG_VALIDATORS` multi-provider list.\\n *\\n * @export const
CHECKBOX_REQUIRED_VALIDATOR: StaticProvider = {\\n * provide: NG_VALIDATORS,\\n * useExisting:
forwardRef(() => CheckboxRequiredValidator),\\n * multi: true\\n * };\\n * }\\n * //**\\n * @description\\n * A directive that
adds the `required` validator to any controls marked with the\\n * `required` attribute. The directive is provided with
the `NG_VALIDATORS` multi-provider list.\\n *\\n * @see [Form Validation](guide/form-validation)\\n *\\n *
@usageNotes\\n *\\n * ### Adding a required validator using template-driven forms\\n *\\n * ```\\n * <input
name="fullName" ngModel required>\\n * ```\\n *\\n * @ngModule FormsModule\\n * @ngModule
ReactiveFormsModule\\n * @publicApi\\n *\\n * @Directive({\\n * selector:\\n
*:not([type=checkbox])[required][formControlName],:not([type=checkbox])[required][formControl],:not([type=checkbox])[required][ngModel]',\\n
* providers: [REQUIRED_VALIDATOR],\\n * host: {'[attr.required]': 'required ? \\'\\' : null'}\\n * })\\n * }\\n * @export class
RequiredValidator implements Validator {\\n * private _required = false;\\n * private _onChange?: () => void;\\n * }\\n * //**\\n
* @description\\n * Tracks changes to the required attribute bound to this directive.\\n *\\n * @Input() get
required(): boolean|string {\\n * return this._required;\\n * }\\n *\\n * set required(value: boolean|string) {\\n * this._required
= value != null && value !== false && `${value}` !== 'false';\\n * if (this._onChange) this._onChange();\\n * }\\n * }\\n * //**\\n
* Method that validates whether the control is empty.\\n *\\n * Returns the validation result if enabled, otherwise
null.\\n *\\n * @nodoc\\n *\\n * validate(control: AbstractControl): ValidationErrors|null {\\n * return this.required ?
Validators.required(control) : null;\\n * }\\n * }\\n * //**\\n
* Registers a callback function to call when the validator inputs change.\\n *\\n * @nodoc\\n *\\n *
registerOnValidatorChange(fn: () => void): void {\\n * this._onChange = fn;\\n * }\\n * }\\n * }\\n * //**\\n * A Directive that
adds the `required` validator to checkbox controls marked with the\\n * `required` attribute. The directive is provided
with the `NG_VALIDATORS` multi-provider list.\\n *\\n * @see [Form Validation](guide/form-validation)\\n *\\n *

```

```
@usageNotes\n * \n * ### Adding a required checkbox validator using template-driven forms\n * \n * The following example shows how to add a checkbox required validator to an input attached to an\n * ngModel binding.\n * \n * ```\n * <input type=\"checkbox\" name=\"active\" ngModel required>\n * ```\n * \n * @publicApi\n * @ngModule\n FormsModule\n * @ngModule ReactiveFormsModule\n * /\n @Directive({\n selector:\n 'input[type=checkbox][required][formControlName],input[type=checkbox][required][formControl],input[type=checkbox][required][ngModel]',\n providers:\n [CHECKBOX_REQUIRED_VALIDATOR],\n host: {\n attr.required: 'required ? \"\": null'\n })\n }\n export class\n CheckboxRequiredValidator extends RequiredValidator {\n /**\n * Method that validates whether or not the checkbox has been checked.\n * Returns the validation result if enabled, otherwise null.\n * @nodoc\n */\n validate(control: AbstractControl): ValidationErrors|null {\n return this.required ?\n Validators.requiredTrue(control) : null;\n } }\n }\n\n /**\n * Provider which adds `EmailValidator` to the `NG_VALIDATORS` multi-provider list.\n */\n export const EMAIL_VALIDATOR: any = {\n provide: NG_VALIDATORS,\n useExisting: forwardRef(() => EmailValidator),\n multi: true;\n};\n\n /**\n * A directive that adds the `email` validator to controls marked with the `email` attribute. The directive is provided with the `NG_VALIDATORS` multi-provider list.\n */\n * @see [Form Validation](guide/form-validation)\n */\n * @usageNotes\n * \n * ### Adding an email validator\n * \n * The following example shows how to add an email validator to an input attached to an ngModel\n * binding.\n * \n * ```\n * <input type=\"email\" name=\"email\" ngModel email>\n * <input type=\"email\" name=\"email\" ngModel email=\"true\">\n * <input type=\"email\" name=\"email\" ngModel [email]=\"true\">\n * ```\n * \n * @publicApi\n * @ngModule\n FormsModule\n * @ngModule\n ReactiveFormsModule\n * /\n @Directive({\n selector: '[email][formControlName],[email][formControl],[email][ngModel]',\n providers:\n [EMAIL_VALIDATOR]\n })\n }\n\n export class EmailValidator implements Validator {\n private _enabled = false;\n\n private _onChange?: () => void;\n\n /**\n * Tracks changes to the email attribute bound to this directive.\n */\n @Input()\n set email(value: boolean|string) {\n this._enabled = value === '' || value === true || value === 'true';\n if (this._onChange) this._onChange();\n }\n\n /**\n * Method that validates whether an email address is valid.\n * Returns the validation result if enabled, otherwise null.\n * @nodoc\n */\n validate(control: AbstractControl): ValidationErrors|null {\n return this._enabled ? Validators.email(control) : null;\n }\n\n /**\n * Registers a callback function to call when the validator inputs change.\n */\n @nodoc\n registerOnValidatorChange(fn: () => void): void {\n this._onChange = fn;\n }\n }\n\n /**\n * A function that receives a control and returns a Promise or observable that emits validation errors if present, otherwise null.\n */\n * @publicApi\n */\n export interface ValidatorFn {\n (control: AbstractControl): ValidationErrors|null;\n }\n\n /**\n * A function that receives a control and returns a Promise or observable that emits validation errors if present, otherwise null.\n */\n * @publicApi\n */\n export interface AsyncValidatorFn {\n (control: AbstractControl): Promise<ValidationErrors|null>|Observable<ValidationErrors|null>;\n }\n\n /**\n * Provider which adds `MinLengthValidator` to the `NG_VALIDATORS` multi-provider list.\n */\n export const MIN_LENGTH_VALIDATOR: any = {\n provide: NG_VALIDATORS,\n useExisting: forwardRef(() => MinLengthValidator),\n multi: true;\n};\n\n /**\n * A directive that adds minimum length validation to controls marked with the `minlength` attribute. The directive is provided with the `NG_VALIDATORS` multi-provider list.\n */\n * @see [Form Validation](guide/form-validation)\n */\n * @usageNotes\n * \n * ### Adding a minimum length validator\n * \n * The following example shows how to add a minimum length validator to an input attached to an\n * ngModel binding.\n * \n * ```\n * <input name=\"firstName\" ngModel minlength=\"4\">\n * ```\n * \n * @ngModule\n ReactiveFormsModule\n * @ngModule\n FormsModule\n * @publicApi\n */\n @Directive({\n selector:\n '[minlength][formControlName],[minlength][formControl],[minlength][ngModel]',\n providers:\n [MIN_LENGTH_VALIDATOR],\n host:
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{[attr.minlength]: 'minlength ? minlength : null'}\n))\nexport class MinLengthValidator implements Validator,
OnChanges {\n private _validator: ValidatorFn = Validators.nullValidator;\n private _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the the minimum length bound to this directive.\n */\n @Input()\n minlength!: string|number; // This input is always defined, since the name matches selector.\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n if ('minlength' in changes) {\n this._createValidator();\n }\n if (this._onChange) this._onChange();\n }\n\n /**\n * Method that validates whether the value meets a
 minimum length requirement.\n * Returns the validation result if enabled, otherwise null.\n */\n @nodoc\n validate(control: AbstractControl): ValidationErrors|null {\n return this.minlength == null ? null :
 this._validator(control);\n }\n\n /**\n * Registers a callback function to call when
 the validator inputs change.\n */\n @nodoc\n registerOnValidatorChange(fn: () => void): void {\n
 this._onChange = fn;\n }\n\n private _createValidator(): void {\n this._validator = Validators.minLength(\n
 typeof this.minlength === 'number' ? this.minlength : parseInt(this.minlength, 10));\n }\n\n /**\n *
 @description\n * Provider which adds `MaxLengthValidator` to the `NG_VALIDATORS` multi-provider list.\n */\n @NgModule\n static MAX_LENGTH_VALIDATOR: any = {\n provide: NG_VALIDATORS,\n useExisting:
 forwardRef(() => MaxLengthValidator),\n multi: true\n };\n\n /**\n * A directive that adds max length validation to
 controls marked with the\n * `maxlength` attribute. The directive is provided with the `NG_VALIDATORS` multi-
 provider list.\n */\n @see [Form Validation](guide/form-validation)\n @usageNotes\n ### Adding a
 maximum length validator\n The following example shows how to add a maximum length validator to an input
 attached to an\n * ngModel
 binding.\n */\n ```html\n <input name="firstName" ngModel maxlength="25">\n ```\n */\n @NgModule\n static ReactiveFormsModule\n @NgModule FormsModule\n @publicApi\n @Directive({\n selector:
 '[maxlength][formControlName],[maxlength][formControl],[maxlength][ngModel]',\n providers:
 [MAX_LENGTH_VALIDATOR],\n host: {[attr.maxlength]: 'maxlength ? maxlength : null'}\n })\n export class
 MaxLengthValidator implements Validator, OnChanges {\n private _validator: ValidatorFn =
 Validators.nullValidator;\n private _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the
 the maximum length bound to this directive.\n */\n @Input()\n maxlength!: string|number; // This input is always
 defined, since the name matches selector.\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n
 if ('maxlength' in changes) {\n this._createValidator();\n }\n if (this._onChange) this._onChange();\n }\n\n /**\n * Method that validates whether the
 value exceeds the maximum length requirement.\n */\n @nodoc\n validate(control: AbstractControl):
 ValidationErrors|null {\n return this.maxlength != null ? this._validator(control) : null;\n }\n\n /**\n * Registers
 a callback function to call when the validator inputs change.\n */\n @nodoc\n registerOnValidatorChange(fn: ()
 => void): void {\n this._onChange = fn;\n }\n\n private _createValidator(): void {\n this._validator =
 Validators.maxLength(\n typeof this.maxlength === 'number' ? this.maxlength : parseInt(this.maxlength, 10));\n }\n }\n\n /**\n *
 @description\n * Provider which adds `PatternValidator` to the `NG_VALIDATORS` multi-
 provider list.\n */\n @NgModule\n static PATTERN_VALIDATOR: any = {\n provide: NG_VALIDATORS,\n useExisting:
 forwardRef(() => PatternValidator),\n multi: true\n };\n\n /**\n * @description\n * A directive that
 adds regex pattern validation to controls marked with the\n * `pattern` attribute. The regex must match the entire
 control value.\n * The directive is provided with the `NG_VALIDATORS` multi-provider list.\n */\n @see [Form
 Validation](guide/form-validation)\n @usageNotes\n ### Adding a pattern validator\n The
 following example shows how to add a pattern validator to an input attached to an\n * ngModel binding.\n */\n ```html\n <input name="firstName" ngModel pattern="[a-zA-Z]*">\n ```\n */\n @NgModule\n static ReactiveFormsModule\n @NgModule FormsModule\n @publicApi\n @Directive({\n selector:
 '[pattern][formControlName],[pattern][formControl],[pattern][ngModel]',\n providers:
 [PATTERN_VALIDATOR],\n host: {[attr.pattern]: 'pattern ? pattern : null'}\n })\n export class PatternValidator
 implements Validator, OnChanges {\n private _validator: ValidatorFn = Validators.nullValidator;\n private
 _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the pattern bound to this directive.\n */\n @Input()\n pattern!: string|RegExp; // This input is
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always defined, since the name matches selector.\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges):
void {\n if ('pattern' in changes) {\n this._createValidator();\n if (this._onChange) this._onChange();\n }\n}\n\n /**\n * Method that validates whether the value matches the the pattern requirement.\n * @nodoc\n */\n validate(control: AbstractControl): ValidationErrors|null {\n return this._validator(control);\n }\n\n /**\n *
Registers a callback function to call when the validator inputs change.\n * @nodoc\n */\n registerOnValidatorChange(fn: () => void): void {\n this._onChange = fn;\n }\n\n private _createValidator():
void {\n this._validator = Validators.pattern(this.pattern);\n }\n}\n\n", "/*\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n\nimport {NgModule, Type} from '@angular/core';\nimport
{CheckboxControlValueAccessor} from './directives/checkbox_value_accessor';\nimport {DefaultValueAccessor}
from './directives/default_value_accessor';\nimport {NgControlStatus, NgControlStatusGroup} from
'./directives/ng_control_status';\nimport {NgForm} from './directives/ng_form';\nimport {NgModel} from
'./directives/ng_model';\nimport {NgModelGroup} from './directives/ng_model_group';\nimport {NgNoValidate}
from './directives/ng_no_validate_directive';\nimport {NumberValueAccessor} from
'./directives/number_value_accessor';\nimport {RadioControlValueAccessor} from
'./directives/radio_control_value_accessor';\nimport {RangeValueAccessor} from
'./directives/range_value_accessor';\nimport {FormControlDirective} from
'./directives/reactive_directives/form_control_directive';\nimport {FormControlName} from
'./directives/reactive_directives/form_control_name';\nimport {FormGroupDirective} from
'./directives/reactive_directives/form_group_directive';\nimport {FormArrayName,
FormGroupName} from './directives/reactive_directives/form_group_name';\nimport {NgSelectOption,
SelectControlValueAccessor} from './directives/select_control_value_accessor';\nimport {NgSelectMultipleOption,
SelectMultipleControlValueAccessor} from './directives/select_multiple_control_value_accessor';\nimport
{CheckboxRequiredValidator, EmailValidator, MaxLengthValidator, MinLengthValidator, PatternValidator,
RequiredValidator} from './directives/validators';\n\nexport {CheckboxControlValueAccessor} from
'./directives/checkbox_value_accessor';\nexport {ControlValueAccessor} from
'./directives/control_value_accessor';\nexport {DefaultValueAccessor} from
'./directives/default_value_accessor';\nexport {NgControl} from './directives/ng_control';\nexport {NgControlStatus,
NgControlStatusGroup} from './directives/ng_control_status';\nexport {NgForm} from
'./directives/ng_form';\nexport {NgModel} from './directives/ng_model';\nexport {NgModelGroup} from
'./directives/ng_model_group';\nexport
{NumberValueAccessor} from './directives/number_value_accessor';\nexport {RadioControlValueAccessor} from
'./directives/radio_control_value_accessor';\nexport {RangeValueAccessor} from
'./directives/range_value_accessor';\nexport {FormControlDirective,
NG_MODEL_WITH_FORM_CONTROL_WARNING} from
'./directives/reactive_directives/form_control_directive';\nexport {FormControlName} from
'./directives/reactive_directives/form_control_name';\nexport {FormGroupDirective} from
'./directives/reactive_directives/form_group_directive';\nexport {FormArrayName, FormGroupName} from
'./directives/reactive_directives/form_group_name';\nexport {NgSelectOption, SelectControlValueAccessor} from
'./directives/select_control_value_accessor';\nexport {NgSelectMultipleOption,
SelectMultipleControlValueAccessor} from './directives/select_multiple_control_value_accessor';\n\nexport const
SHARED_FORM_DIRECTIVES: Type<any>[] = [\n NgNoValidate,\n NgSelectOption,\n NgSelectMultipleOption,\n DefaultValueAccessor,\n NumberValueAccessor,\n RangeValueAccessor,\n CheckboxControlValueAccessor,\n SelectControlValueAccessor,\n SelectMultipleControlValueAccessor,\n RadioControlValueAccessor,\n NgControlStatus,\n NgControlStatusGroup,\n RequiredValidator,\n MinLengthValidator,\n MaxLengthValidator,\n PatternValidator,\n CheckboxRequiredValidator,\n EmailValidator,\n];\n\nexport const
TEMPLATE_DRIVEN_DIRECTIVES: Type<any>[] = [NgModel, NgModelGroup, NgForm];\n\nexport const

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REACTIVE_DIRECTIVES: Type<any>[] =\n [FormControlDirective, FormGroupDirective,
FormControlName, FormGroupName, FormArrayName];\n\n/**\n * Internal module used for sharing directives
between FormsModule and ReactiveFormsModule\n */\n@NgModule({\n declarations:
SHARED_FORM_DIRECTIVES,\n exports: SHARED_FORM_DIRECTIVES,\n})\nexport class
InternalFormsSharedModule {\n}\n\nexport { InternalFormsSharedModule as
InternalFormsSharedModule};\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n
*\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Injectable} from '@angular/core';\n\nimport {AsyncValidatorFn,
ValidatorFn} from './directives/validators';\nimport {AbstractControl, AbstractControlOptions, FormArray,
FormControl, FormGroup, FormHooks} from './model';\n\nfunction isAbstractControlOptions(options:
AbstractControlOptions|\n {[key: string]: any}): options is AbstractControlOptions {\n return
(<AbstractControlOptions>options).asyncValidators !== undefined ||\n (<AbstractControlOptions>options).validators !== undefined ||\n (<AbstractControlOptions>options).updateOn
!== undefined;\n}\n\n/**\n * @description\n * Creates an `AbstractControl` from a user-specified configuration.\n
*\n * The `FormBuilder` provides syntactic sugar that shortens creating instances of a `FormControl`,\n *\n
`FormGroup`, or `FormArray`. It reduces
the amount of boilerplate needed to build complex\n * forms.\n *\n * @see [Reactive Forms
Guide](/guide/reactive-forms)\n *\n * @publicApi\n */\n\n@Injectable()\nexport class FormBuilder {\n /**\n *
@description\n * Construct a new `FormGroup` instance.\n *\n * @param controlsConfig A collection of child
controls. The key for each child is the name\n * under which it is registered.\n *\n * @param options
Configuration options object for the `FormGroup`. The object can\n * have two shapes:\n *\n * 1)
`AbstractControlOptions` object (preferred), which consists of:\n * * `validators`: A synchronous validator
function, or an array of validator functions\n * * `asyncValidators`: A single async validator or array of async
validator functions\n * * `updateOn`: The event upon which the control should be updated (options: 'change' | 'blur'
| 'submit')\n *\n * 2) Legacy configuration object, which consists of:\n * * `validator`: A synchronous
validator function,
or an array of validator functions\n * * `asyncValidator`: A single async validator or array of async validator
functions\n *\n */\n group(\n controlsConfig: {[key: string]: any},\n options:
AbstractControlOptions|{[key: string]: any}|null = null): FormGroup {\n const controls =
this._reduceControls(controlsConfig);\n\n let validators: ValidatorFn|ValidatorFn[]|null = null;\n let
asyncValidators: AsyncValidatorFn|AsyncValidatorFn[]|null = null;\n let updateOn: FormHooks|undefined =
undefined;\n\n if (options != null) {\n if (isAbstractControlOptions(options)) {\n // `options` are
`AbstractControlOptions`\n validators = options.validators != null ? options.validators : null;\n
asyncValidators = options.asyncValidators != null ? options.asyncValidators : null;\n updateOn =
options.updateOn != null ? options.updateOn : undefined;\n } else {\n // `options` are legacy form group
options\n validators = options['validator']
!= null ? options['validator'] : null;\n asyncValidators = options['asyncValidator'] != null ?
options['asyncValidator'] : null;\n }\n }\n\n return new FormGroup(controls, {asyncValidators, updateOn,
validators});\n }\n\n /**\n * @description\n * Construct a new `FormControl` with the given state, validators
and options.\n *\n * @param formState Initializes the control with an initial state value, or\n * with an object
that contains both a value and a disabled status.\n *\n * @param validatorOrOpts A synchronous validator
function, or an array of\n * such functions, or an `AbstractControlOptions` object that contains\n * validation
functions and a validation trigger.\n *\n * @param asyncValidator A single async validator or array of async
validator\n * functions.\n *\n * @usageNotes\n *\n * ### Initialize a control as disabled\n *\n * The
following example returns a control with an initial value in a disabled state.\n
*\n * <code-example path="/forms/ts/formBuilder/form_builder_example.ts" region="disabled-control">\n *
</code-example>\n *\n control(\n formState: any, validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n asyncValidator?:

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AsyncValidatorFn|AsyncValidatorFn[]|null): FormControl {\n return new FormControl(formState,
validatorOrOpts, asyncValidator);\n }\n\n /**\n * Constructs a new `FormArray` from the given array of
configurations,\n * validators and options.\n *\n * @param controlsConfig An array of child controls or control
configs. Each\n * child control is given an index when it is registered.\n *\n * @param validatorOrOpts A
synchronous validator function, or an array of\n * such functions, or an `AbstractControlOptions` object that
contains\n * validation functions and a validation trigger.\n *\n * @param asyncValidator A single async
validator or array of async validator\n * functions.\n */\n array(\n
controlsConfig: any[],\n validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n
asyncValidator?: AsyncValidatorFn|AsyncValidatorFn[]|null): FormArray {\n const controls =
controlsConfig.map(c => this._createControl(c));\n return new FormArray(controls, validatorOrOpts,
asyncValidator);\n }\n\n /** @internal *\n _reduceControls(controlsConfig: {[k: string]: any}): {[key: string]:
AbstractControl} {\n const controls: {[key: string]: AbstractControl} = {};\n
Object.keys(controlsConfig).forEach(controlName => {\n controls[controlName] =
this._createControl(controlsConfig[controlName]);\n });\n return controls;\n })\n\n /** @internal *\n
_createControl(controlConfig: any): AbstractControl {\n if (controlConfig instanceof FormControl ||
controlConfig instanceof FormGroup ||\n controlConfig instanceof FormArray) {\n return controlConfig;\n
} else if (Array.isArray(controlConfig)) {\n const value = controlConfig[0];\n
const validator: ValidatorFn = controlConfig.length > 1 ? controlConfig[1] : null;\n const asyncValidator:
AsyncValidatorFn = controlConfig.length > 2 ? controlConfig[2] : null;\n return this.control(value, validator,
asyncValidator);\n }\n } else {\n return this.control(controlConfig);\n }\n }\n\n }", /**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n */\n * @module\n * @description\n
 * Entry point for all public APIs of the common package.\n */\n \nimport {Version} from '@angular/core';\n\n /**\n *
 * @publicApi\n */\n \nexport const VERSION = new Version('11.0.2');\n\n", /**\n * @license\n * Copyright Google LLC
All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in
the LICENSE file at https://angular.io/license\n */\n \nimport {ModuleWithProviders,
NgModule} from '@angular/core';\n\nimport {InternalFormsSharedModule,
NG_MODEL_WITH_FORM_CONTROL_WARNING, REACTIVE_DRIVEN_DIRECTIVES,
TEMPLATE_DRIVEN_DIRECTIVES} from './directives';\nimport {RadioControlRegistry} from
'./directives/radio_control_value_accessor';\nimport {FormBuilder} from './form_builder';\n\n\n /**\n * Exports the
required providers and directives for template-driven forms,\n * making them available for import by NgModules
that import this module.\n *\n * @see [Forms Overview](/guide/forms-overview)\n *\n * @see [Template-driven Forms
Guide](/guide/forms)\n *\n * @publicApi\n */\n \n@NgModule({\n declarations:
TEMPLATE_DRIVEN_DIRECTIVES,\n providers: [RadioControlRegistry],\n exports:
[InternalFormsSharedModule, TEMPLATE_DRIVEN_DIRECTIVES]\n })\n \nexport class FormsModule
{\n }\n\n\n /**\n * Exports the required infrastructure and directives for reactive forms,\n * making them available for
import by NgModules that import this module.\n *\n * @see [Forms Overview](guide/forms-overview)\n
 *\n * @see [Reactive Forms Guide](guide/reactive-forms)\n *\n * @publicApi\n */\n \n@NgModule({\n declarations:
[REACTIVE_DRIVEN_DIRECTIVES],\n providers: [FormBuilder, RadioControlRegistry],\n exports:
[InternalFormsSharedModule, REACTIVE_DRIVEN_DIRECTIVES]\n })\n \nexport class ReactiveFormsModule {\n
 /**\n * @description\n * Provides options for configuring the reactive forms module.\n *\n * @param opts An
object of configuration options\n * * `warnOnNgModelWithFormControl` Configures when to emit a warning
when an `ngModel`\n * binding is used with reactive form directives.\n */\n \n static withConfig(opts: {\n
 /**\n * @deprecated as of v6 */\n warnOnNgModelWithFormControl: 'never'|'once'|'always'\n }):
ModuleWithProviders<ReactiveFormsModule> {\n return {\n ngModule: ReactiveFormsModule,\n
 providers: [\n {provide: NG_MODEL_WITH_FORM_CONTROL_WARNING, useValue:
opts.warnOnNgModelWithFormControl}\n]\n };\n }\n\n }", /**\n * @license\n

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that can be\n * found in the LICENSE file at https://angular.io/license\n *
\n/**\n * @module\n * @description\n
* This module is used for handling user input, by defining and building a `FormGroup` that\n * consists of
`FormControl` objects, and mapping them onto the DOM. `FormControl`\n * objects can then be used to read
information from the form DOM elements.\n *
* Forms providers are not included in default providers; you must
import these providers\n * explicitly.\n */
\nexport { InternalFormsSharedModule } from './directives';\nexport
{ AbstractControlDirective } from './directives/abstract_control_directive';\nexport { AbstractFormGroupDirective }
from './directives/abstract_form_group_directive';\nexport { CheckboxControlValueAccessor } from
'./directives/checkbox_value_accessor';\nexport { ControlContainer } from './directives/control_container';\nexport
{ ControlValueAccessor,
 NG_VALUE_ACCESSOR } from './directives/control_value_accessor';\nexport
{ COMPOSITION_BUFFER_MODE, DefaultValueAccessor } from './directives/default_value_accessor';\nexport
{ Form } from './directives/form_interface';\nexport { NgControl } from './directives/ng_control';\nexport
{ NgControlStatus, NgControlStatusGroup } from './directives/ng_control_status';\nexport { NgForm } from
'./directives/ng_form';\nexport { NgModel } from './directives/ng_model';\nexport { NgModelGroup } from
'./directives/ng_model_group';\nexport { NgNoValidate } from './directives/ng_no_validate_directive';\nexport
{ NumberValueAccessor } from './directives/number_value_accessor';\nexport { RadioControlValueAccessor } from
'./directives/radio_control_value_accessor';\nexport { RangeValueAccessor } from
'./directives/range_value_accessor';\nexport { FormControlDirective } from
'./directives/reactive_directives/form_control_directive';\nexport { FormControlName } from
'./directives/reactive_directives/form_control_name';\nexport
{ FormGroupDirective } from './directives/reactive_directives/form_group_directive';\nexport { FormArrayName }
from './directives/reactive_directives/form_group_name';\nexport { FormGroupName } from
'./directives/reactive_directives/form_group_name';\nexport { NgSelectOption, SelectControlValueAccessor } from
'./directives/select_control_value_accessor';\nexport { SelectMultipleControlValueAccessor } from
'./directives/select_multiple_control_value_accessor';\nexport { NgSelectMultipleOption } from
'./directives/select_multiple_control_value_accessor';\nexport { AsyncValidator, AsyncValidatorFn,
 CheckboxRequiredValidator, EmailValidator, MaxLengthValidator, MinLengthValidator, PatternValidator,
 RequiredValidator, ValidationErrors, Validator, ValidatorFn } from './directives/validators';\nexport { FormBuilder }
from './form_builder';\nexport { AbstractControl, AbstractControlOptions, FormArray, FormControl, FormGroup }
from './model';\nexport { NG_ASYNC_VALIDATORS, NG_VALIDATORS, Validators } from
'./validators';\nexport { VERSION } from './version';\n\nexport * from './form_providers';\n\n\n/**\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *
* Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *
\n/**\n * @module\n * @description\n
* Entry point for all public APIs of this package.\n */
\nexport * from './src/forms';\n\n// This file only reexports
content of the `src` folder. Keep it that way.\n\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n
\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *
\n// This file is not used to build this module. It is only used during editing\n// by the
TypeScript language service and during build for verification. `ngc`\n// replaces this file with production index.ts
when it rewrites private symbol\n// names.\n\nexport * from './public_api';\n\n\n/**\n
* Generated bundle index. Do not edit.\n */
\nexport * from './index';\n\nexport { InternalFormsSharedModule as
angular_packages_forms_forms_d, REACTIVE_DRIVEN_DIRECTIVES as
angular_packages_forms_forms_c, SHARED_FORM_DIRECTIVES as
angular_packages_forms_forms_a, TEMPLATE_DRIVEN_DIRECTIVES as angular_packages_forms_forms_b }
from './src/directives';\nexport { CHECKBOX_VALUE_ACCESSOR as angular_packages_forms_forms_e } from
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angular_packages_forms_forms_g, NgControlStatusHost as angular_packages_forms_forms_h } from

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CAAC;YAC/B,IAAI,CAAC,sBAAsB,EAAE,CAAC;SAC/B;;;;;;;;;QAQD,8BAAU,GAUV,UAAW,KAAa,EAAE,OAAwB;YACHd,IAAI,IAAI,CAAC,QAAQ,CAAC,KAAK,CAAC;gBAAE,IAAI,CAAC,QAAQ,CAAC,KAAK,CAAC,CAAC,2BAA2B,CAAC,eAAQ,CAAC,CAAC;YACrF,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC,KAAK,EA AE,CAAC,CAAC,CAAC;YAE/B,IAAI,OAAO,EAAE;gBACX,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC,KAA K,EAAE,CAAC,EAAE,OAAO,CAAC,CAAC;gBACxC,IAAI,CAAC,gBAAgB,CAAC,OAAO,CAAC,CAAC;aAC hC;YAED,IAAI,CAAC,sBAAsB,EAAE,CAAC;YAC9B,IAAI,CAAC,mBAAmB,EAAE,CAAC;SAC5B;QAKD,sB AAI,6BAAM;;;iBAAV;gBACE,OAAO,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC;aAC7B;;;WAAA;;;;;;;;;; ;;;;;;;;;;QAqCD,4BAAQ,GAAR,UAAAS,KAAAY,EAAE,OAAuD;YAA9E,iBAOC;YAPsB,wBAAA,EAAA,YA AuD;YAC5E,IAAI,CAAC,sBAAsB,CAAC,KAAK,CAAC,CAAC;YACnC,KAAK,CAAC,OAAO,CAAC,UAA C,QAAa,EAAE,KAAa;gBACzC,KAAI,CAAC,sBAAsB,CAAC,KAAK,CAAC,CAAC;gBACnC,KAAI,CAAC,EAA E,CAAC,KAAK,CAAC,CAAC,QAAQ,CAAC,QAAQ,EAAE,EAAC,QAAQ,EAAE,IAAI,EAAE,SAAS,EAAE,OA AO,CAAC,SAAS,EAAC,CAAC,CAAC;aACnF,CAAC,CAAC;YACH,IAAI,CAAC,sBAAsB,CAAC,OAAO,CAA C,CAAC;SACtC;;;;;;;;;QAoCD,8BAAU,GAUV,UAAW,KAAAY,EAAE,OAAuD;YAAhF,iBAOC; YAPwB,wBAAA,EAAA,YAAuD;YAC9E,KAAK,CAAC,OAAO,CAAC,UAA C,QAAa,EAAE,KAAa;gBACzC,IA AI,KAAI,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE;oBACIB,KAAI,CAAC,EAAE,CAAC,KAAK,CAAC,CAAC ,UAAU,CAAC,QAAQ,EAAE,EAAC,QAAQ,EAAE,IAAI,EAAE,SAAS,EAAE,OAAO,CAAC,SAAS,EAAC,CAA C,CAAC;iBACrF;aACF,CAAC,CAAC;YACH,IAAI,CAAC,sBAAsB,CAAC,OAAO,CAAC,CAAC;SACtC;;;;;;;;; ;;;;;;;;;;QAgDD,yBAAK,GAAL,UAAAM,KAAe,EAAE,OAAuD;YAAxE,sBAAA,EAAA,UAAe;Y AAE,wBAAA,EAAA,YAAuD;YAC5E,IAAI,CAAC,aAAa,CAAC,UAA C,OAAwB,EAAE,KAAa;gBACzD,OAA O,CAAC,KAAK,CAAC,KAAK,CAAC,KAAK,CAAC,EAAE,EAAC,QAAQ,EAAE,IAAI,EAAE,SAAS,EAAE,O AAO,CAAC,SAAS,EAAC,CAAC,CAAC;aAC7E,CAAC,CAAC;YACH,IAAI,CAAC,eAAe,CAAC,OAAO,CAAC ,CAAC;YAC9B,IAAI,CAAC,cAAc,CAAC,OAAO,CAAC,CAAC;YAC7B,IAAI,CAAC,sBAAsB,CAAC,OAAO,C AAC,CAAC;SACtC;;;;;;;;;QAQD,+BAAW,GAAX;YACE,OAAO,IAAI,CAAC,QAAQ,CAAC,GAAG,CAAC,UAA C,OAAwB;gBACbD,OAAO,OAAO,YAAY,WAAG,GAAG,OAAO,CAAC,KAAK,GAAS,OAAQ,CAAC,WAAG ,EAAE,CAAC;aACf,CAAC,CAAC;SACJ;;;;;;;;;QAGCD,yBAAK,GAAL;YACE,IAAI,IAAI,CAA C,QAAQ,CAAC,MAAM,GAAG,CAAC;gBAAE,OAAO;YACrC,IAAI,CAAC,aAAa,CAAC,UAA C,OAAwB,IAA K,OAAA,OAAO,CAAC,2BAA2B,CAAC,eAAQ,CAAC,GAAA,CAAC,CAAC;YACbG,IAAI,CAAC,QAAQ,CAA C,MAAM,CAAC,CAAC,CAAC,CAAC;YACxB,IAAI,CAAC,sBAAsB,EAAE,CAAC;SAC/B;;QAGD,wCAAoB,G AApB;YACE,IAAI,cAAc,GAAG,IAAI,CAAC,QAAQ,CAAC,MAAM,CAAC,UAA C,OAAgB,EAAE,KAAa;gB ACjF,OAAO,KAAK,CAAC,oBAAoB,EAAE,GAAG,IAAI,GAAG,OAAO,CAAC;aACtD,EAAE,KAAK,CAAC,C AAC;YACV,IAAI,cAAc;gBAAE,IAAI,CAAC,sBAAsB,CAAC,EAAC,QAAQ,EAAE,IAAI,EAAC,CAAC,CAAC; YACIE,OAAO,cAAc,CAAC;SACvB;;QAGD,0CAAsB,GAAtB,UAAuB,KAAa;YACIC,IAAI,CAAC,IAAI,CAAC, QAAQ,CAAC,MAAM,EAAE;gBACzB,MAAM,IAAI,KAAK,CAAC,uKAGf,CAAC,CAAC;aACJ;YACD,IAAI,C AAC,IAAI,CAAC,EAAE,CAAC,KAAK,CAAC,EAAE;gBACnB,MAAM,IAAI,KAAK,CAAC,uCAAqC,KAAO,C AAC,CAAC;aAC/D;SACF;;QAGD,iCAaA,GAAb,UAAc,EAAY;YACxB,IAAI,CAAC,QAAQ,CAAC,OAAO,CA AC,UAA C,OAAwB,EAAE,KAAa;gBAC5D,EAAE,CAAC,OAAO,EAAE,KAAK,CAAC,CAAC;aACpB,CAAC,C AAC;SACJ;;QAGD,gCAAY,GAAG,YAAA,iBAIC;YAHE,IAAqB,CAAC,KAAK;gBACxB,IAAI,CAAC,QAAQ,C AAC,MAAM,CAAC,UAA C,OAAO,IAAK,OAAA,OAAO,CAAC,OAAO,IAAI,KAAI,CAAC,QAAQ,GAAA,CAA C;qBAC9D,GAAG,CAAC,UAA C,OAAO,IAAK,OAAA,OAAO,CAAC,KAAK,GAAA,CAAC,CAAC;SAC1C;;Q AGD,gCAAY,GAAG,UAAa,SAAM;YAC9B,OAAO,IAAI,CAAC,QAAQ,CAAC,IAAI,CAAC,UAA C,OAAwB,I AAK,OAAA,OAAO,CAAC,OAAO,IAAI,SAAS,CAAC,OAAO,CAAC,GAAA,CAAC,CAAC;SACbG;;QAGD,kC AAc,GAAd;YAAA,iBAEC;YADC,IAAI,CAAC,aAAa,CAAC,UAA C,OAAwB,IAAK,OAAA,KAAI,CAAC,gBAA gB,CAAC,OAAO,CAAC,GAAA,CAAC,CAAC;SACIF;;QAGD,0CAAsB,GAAtB,UAAuB,KAAU;YAC/B,IAAI,C AAC,aAAa,CAAC,UAA C,OAAwB,EAAE,CAAS;gBACrD,IAAI,KAAK,CAAC,CAAC,CAAC,KAAK,SAAS,EA AE;oBACIB,MAAM,IAAI,KAAK,CAAC,oDAaK,CAAC,MAAG,CAAC,CAAC;iBACzE;aACF,CAAC,CAAC; SACJ;;QAGD,wCAAoB,GAAPB;;gBACE,KAAaB,IAAA,KAAA,SAAA,IAAI,CAAC,QAAQ,CAAA,gBAAA,4B AAE;oBAAhC,IAAM,OAAO,WAAA;oBACHb,IAAI,OAAO,CAAC,OAAO;wBAAE,OAAO,KAAK,CAAC;iBA CnC;;;;;;;;;YACD,OAAO,IAAI,CAAC,QAAQ,CAAC,MAAM,GAAG,CAAC,IAAI,IAAI,CAAC,QAAQ,CAAC;S

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Found

in path(s):

\* /forms-11-0-2-tgz/package/bundles/forms.umd.js.map

MIT

No license file was found, but licenses were detected in source scan.

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```
 * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport { InjectionToken } from '@angular/core';\n\n * @description\n * Defines an interface that acts as a bridge between the Angular forms API and a native element in the
```

```

DOM.\n *\n * Implement this interface to create a custom form control directive\n * that integrates with Angular
forms.\n *\n * @see DefaultValueAccessor\n *\n * @publicApi\n */\nexport interface ControlValueAccessor {\n
/**\n * @description\n * Writes a new value to the element.\n *\n * This method is called by the forms API to
write to the view when programmatic\n * changes from model to view are requested.\n *\n * @usageNotes\n *
Write a value to the element\n *\n * The following example writes a value to the native DOM element.\n *\n
* ```ts\n * writeValue(value: any): void {\n * this._renderer.setProperty(this._elementRef.nativeElement, 'value',
value);\n * }\n * ```\n *\n * @param obj The new value for the element\n */\n writeValue(obj: any): void;\n
/**\n * @description\n * Registers a callback function that is called when the control's value\n * changes in the
UI.\n *\n * This method is called by the forms API on initialization
to update the form\n * model when values propagate from the view to the model.\n *\n * When implementing
the `registerOnChange` method in your own value accessor,\n * save the given function so your class calls it at the
appropriate time.\n *\n * @usageNotes\n * ### Store the change function\n *\n * The following example
stores the provided function as an internal method.\n *\n * ```ts\n * registerOnChange(fn: (_: any) => void): void
{\n * this._onChange = fn;\n * }\n * ```\n *\n * When the value changes in the UI, call the registered\n *
function to allow the forms API to update itself:\n *\n * ```ts\n * host: {\n * '(change)':
'_onChange($event.target.value)'\n * }\n * ```\n *\n * @param fn The callback function to register\n */\n
registerOnChange(fn: any): void;\n
/**\n * @description\n * Registers a callback function that is called by the
forms API on initialization\n * to update the form model on blur.\n
*\n * When implementing `registerOnTouched` in your own value accessor, save the given\n * function so your
class calls it when the control should be considered\n * blurred or "touched".\n *\n * @usageNotes\n * ###
Store the callback function\n *\n * The following example stores the provided function as an internal method.\n
*\n * ```ts\n * registerOnTouched(fn: any): void {\n * this._onTouched = fn;\n * }\n * ```\n *\n * On blur
(or equivalent), your class should call the registered function to allow\n * the forms API to update itself:\n *\n
* ```ts\n * host: {\n * '(blur)': '_onTouched()'\n * }\n * ```\n *\n * @param fn The callback function to
register\n */\n registerOnTouched(fn: any): void;\n
/**\n * @description\n * Function that is called by the
forms API when the control status changes to\n * or from 'DISABLED'. Depending on the status, it enables or
disables the\n * appropriate DOM element.\n *\n
* @usageNotes\n * The following is an example of writing the disabled property to a native DOM element:\n *\n
* ```ts\n * setDisabledState(isDisabled: boolean): void {\n *
this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n * }\n * ```\n *\n * @param
isDisabled The disabled status to set on the element\n */\n setDisabledState?(isDisabled: boolean):
void;\n
}\n
/**\n * Used to provide a `ControlValueAccessor` for form controls.\n *\n * See
`DefaultValueAccessor` for how to implement one.\n *\n * @publicApi\n */\nexport const
NG_VALUE_ACCESSOR =\n new
InjectionToken<ReadonlyArray<ControlValueAccessor>>('NgValueAccessor');\n
/**\n * @license\n * Copyright
Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n
* found in the LICENSE file at https://angular.io/license\n */\nimport {Directive, ElementRef, forwardRef,
Renderer2} from '@angular/core';\nimport {ControlValueAccessor,
NG_VALUE_ACCESSOR} from './control_value_accessor';\nexport const CHECKBOX_VALUE_ACCESSOR:
any = {\n provide: NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() =>
CheckboxControlValueAccessor),\n multi: true,\n};\n
/**\n * @description\n * A `ControlValueAccessor` for
writing a value and listening to changes on a checkbox input\n * element.\n *\n * @usageNotes\n *\n * ### Using a
checkbox with a reactive form.\n *\n * The following example shows how to use a checkbox with a reactive form.\n
*\n * ```ts\n * const rememberLoginControl = new FormControl();\n * ```\n *\n * <input type="checkbox"\n [formControl]=>"rememberLoginControl">\n * ```\n *\n * @ngModule ReactiveFormsModule\n * @ngModule
FormsModule\n * @publicApi\n */\n@Directive({\n selector: '\n
input[type=checkbox][formControlName],input[type=checkbox][formControl],input[type=checkbox][ngModel]',\n
host: {'(change)': 'onChange($event.target.checked)', '(blur)': 'onTouched()' },\n providers:

```

```

[CHECKBOX_VALUE_ACCESSOR]\n))\nexport
class CheckboxControlValueAccessor implements ControlValueAccessor {\n /**\n * The registered callback
function called when a change event occurs on the input element.\n * @nodoc\n */\n onChange = (_: any) =>
{};\n /**\n * The registered callback function called when a blur event occurs on the input element.\n *
@nodoc\n */\n onTouched = () => {};\n\n constructor(private _renderer: Renderer2, private _elementRef:
ElementRef) {\n\n /**\n * Sets the "checked" property on the input element.\n * @nodoc\n */\n
writeValue(value: any): void {\n this._renderer.setProperty(this._elementRef.nativeElement, 'checked', value);\n
}\n\n /**\n * Registers a function called when the control value changes.\n * @nodoc\n */\n
registerOnChange(fn: (_: any) => {}): void {\n this.onChange = fn;\n }\n\n /**\n * Registers a function called
when the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => {}): void {\n
this.onTouched = fn;\n }\n\n /**\n * Sets the "disabled" property on the input element.\n * @nodoc\n */\n
setDisabledState(isDisabled: boolean): void {\n this._renderer.setProperty(this._elementRef.nativeElement,
'disabled', isDisabled);\n }\n\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {getDOM as getDOM} from '@angular/common';\nimport {Directive,
ElementRef, forwardRef, Inject, InjectionToken, Optional, Renderer2} from '@angular/core';\n\nimport
{ControlValueAccessor, NG_VALUE_ACCESSOR} from './control_value_accessor';\n\nexport const
DEFAULT_VALUE_ACCESSOR: any = {\n provide: NG_VALUE_ACCESSOR,\n useExisting: forwardRef(()
=> DefaultValueAccessor),\n multi: true\n};\n\n/**\n * We must check whether the agent is Android because
composition events\n * behave differently between iOS and
Android.\n */\nfunction _isAndroid(): boolean {\n const userAgent = getDOM() ? getDOM().getUserAgent() : '';\n
return /android(\\d+)/.test(userAgent.toLowerCase());\n }\n\n/**\n * @description\n * Provide this token to control
if form directives buffer IME input until\n * the "compositionend" event occurs.\n * @publicApi\n */\nexport
const COMPOSITION_BUFFER_MODE = new InjectionToken<boolean>('CompositionEventMode');\n\n/**\n *
@description\n *\n * {@searchKeywords ngDefaultControl}\n *\n * The default `ControlValueAccessor` for
writing a value and listening to changes on input\n * elements. The accessor is used by the `FormControlDirective`,
`FormControlName`, and\n * `NgModel` directives.\n *\n * @usageNotes\n *\n * ### Using the default value
accessor\n *\n * The following example shows how to use an input element that activates the default value
accessor\n * (in this case, a text field).\n *\n * ```ts\n * const firstNameControl = new FormControl();\n *\n * ```\n *\n * <input
type="text" [formControl]="firstNameControl">\n *\n * This value accessor is used by default for <input
type="text"> and <textarea> elements, but\n * you could also use it for custom components that have similar
behavior and do not require special\n * processing. In order to attach the default value accessor to a custom element,
add the\n * `ngDefaultControl` attribute as shown below.\n *\n * ```\n * <custom-input-component
ngDefaultControl [(ngModel)]="value"></custom-input-component>\n *\n * @ngModule
ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n */\n@Directive({\n selector: '\n
input:not([type=checkbox])[formControlName],textarea[formControlName],input:not([type=checkbox])[formContr
ol],textarea[formControl],input:not([type=checkbox])[ngModel],textarea[ngModel],[ngDefaultControl]',\n //
TODO: vsavkin replace the above selector with the one below it once\n //
https://github.com/angular/angular/issues/3011 is implemented\n // selector:
'[ngModel],[formControl],[formControlName]',\n host: {\n '(input)':
'$any(this)._handleInput($event.target.value)',\n '(blur)': 'onTouched()',\n '(compositionstart)':
'$any(this)._compositionStart()',\n '(compositionend)': '$any(this)._compositionEnd($event.target.value)'\n },\n
providers: [DEFAULT_VALUE_ACCESSOR]\n))\nexport class DefaultValueAccessor implements
ControlValueAccessor {\n /**\n * The registered callback function called when an input event occurs on the input
element.\n * @nodoc\n */\n onChange = (_: any) => {};\n\n /**\n * The registered callback function called
when a blur event occurs on the input element.\n * @nodoc\n */\n onTouched = () => {};\n\n /**\n * Whether the
user is creating a composition string (IME events).\n */\n private _composing = false;\n\n constructor(\n private

```

```

_renderer: Renderer2, private _elementRef: ElementRef,\n @Optional()
@Inject(COMPOSITION_BUFFER_MODE) private _compositionMode: boolean) {\n if
(this._compositionMode == null) {\n this._compositionMode = !_isAndroid();\n }\n}\n\n/**\n * Sets the
"value" property on the input element.\n * @nodoc\n */\n writeValue(value: any): void {\n const
normalizedValue = value == null ? '' : value;\n this._renderer.setProperty(this._elementRef.nativeElement, 'value',
normalizedValue);\n}\n\n/**\n * Registers a function called when the control value changes.\n * @nodoc\n */\n
registerOnChange(fn: (_: any) => void): void {\n this.onChange = fn;\n}\n\n/**\n * Registers a function
called when the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => void): void {\n
this.onTouched = fn;\n}\n\n/**\n * Sets the "disabled" property on the input element.\n * @nodoc\n */\n
setDisabledState(isDisabled: boolean): void {\n this._renderer.setProperty(this._elementRef.nativeElement,
'disabled', isDisabled);\n}\n}\n\n*** @internal */\n _handleInput(value: any): void {\n
 if (!this._compositionMode || (this._compositionMode && !this._composing)) {\n this.onChange(value);\n }\n}\n\n*** @internal */\n _compositionStart(): void {\n this._composing = true;\n}\n\n*** @internal */\n
_compositionEnd(value: any): void {\n this._composing = false;\n this._compositionMode &&
this.onChange(value);\n}\n}\n\n",/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { InjectionToken, isObservable as isObservable, isPromise as isPromise }
from '@angular/core';\nimport { forkJoin, from, Observable } from 'rxjs';\nimport { map } from
'rxjs/operators';\nimport { AsyncValidator, AsyncValidatorFn, ValidationErrors, Validator, ValidatorFn } from
'./directives/validators';\nimport { AbstractControl } from './model';\n\nfunction isEmptyInputValue(value: any):
boolean {\n // we don't check for
string here so it also works with arrays\n return value == null || value.length === 0;\n}\n\nfunction
hasValidLength(value: any): boolean {\n // non-strict comparison is intentional, to check for both `null` and
`undefined` values\n return value != null && typeof value.length === 'number';\n}\n\n\n***\n * @description\n * An
`InjectionToken` for registering additional synchronous validators used with\n * `AbstractControl`s.\n */\n * @see
`NG_ASYNC_VALIDATORS`\n */\n * @usageNotes\n */\n * ### Providing a custom validator\n */\n * The
following example registers a custom validator directive. Adding the validator to the\n * existing collection of
validators requires the `multi: true` option.\n */\n * ```typescript\n * @Directive({\n * selector:
'[customValidator]',\n * providers: [{ provide: NG_VALIDATORS, useExisting: CustomValidatorDirective, multi:
true }]\n * })\n * class CustomValidatorDirective implements Validator {\n * validate(control: AbstractControl):
ValidationErrors | null {\n
 * return { 'custom': true }; \n * }\n * }\n * ```\n */\n * @publicApi\n */\n\nexport const NG_VALIDATORS = new
InjectionToken<Array<Validator|Function>>('NgValidators');\n\n\n***\n * @description\n * An `InjectionToken` for
registering additional asynchronous validators used with\n * `AbstractControl`s.\n */\n * @see
`NG_ASYNC_VALIDATORS`\n */\n * @publicApi\n */\n\nexport const NG_ASYNC_VALIDATORS =\n * new
InjectionToken<Array<Validator|Function>>('NgAsyncValidators');\n\n\n***\n * A regular expression that matches
valid e-mail addresses.\n */\n * At a high level, this regexp matches e-mail addresses of the format `local-part@tld`,
where:\n * - `local-part` consists of one or more of the allowed characters (alphanumeric and some\n * punctuation
symbols).\n * - `local-part` cannot begin or end with a period (`.`).\n * - `local-part` cannot be longer than 64
characters.\n * - `tld` consists of one or more `labels` separated by periods (`.`). For example `localhost` or\n *
`foo.com`.\n */\n * - A
`label` consists of one or more of the allowed characters (alphanumeric, dashes (`-`) and\n * periods (`.`)).\n */\n * - A
`label` cannot begin or end with a dash (`-`) or a period (`.`).\n */\n * - A `label` cannot be longer than 63 characters.\n */\n *
- The whole address cannot be longer than 254 characters.\n */\n * ## Implementation background\n */\n * This
regexp was ported over from AngularJS (see there for git history):\n *
https://github.com/angular/angular.js/blob/c133ef836/src/ng/directive/input.js#L27\n * It is based on the\n *
[WHATWG version](https://html.spec.whatwg.org/multipage/input.html#valid-e-mail-address) with\n * some
enhancements to incorporate more RFC rules (such as rules related to domain names and the\n * lengths of different

```





suitable for common usecases. The pattern is based on the definition of a valid email address in the [WHATWG HTML specification](https://html.spec.whatwg.org/multipage/input.html#valid-e-mail-address) with some enhancements to incorporate more RFC rules (such as rules related to domain names and the lengths of different parts of the address).

The differences from the WHATWG version include:

- Disallow `local-part` (the part before the `@` symbol) to begin or end with a period (`.`).
- Disallow `local-part` to be longer than 64 characters.
- Disallow the whole address to be longer than 254 characters.

If this pattern does not satisfy your business needs, you can use `Validators.pattern()` to validate the value against a different pattern.

```

@usageNotes
Validate that the field matches a valid email pattern
`typescript`
const control = new FormControl('bad@', Validators.email);
console.log(control.errors); // {email: true}
`returns`
An error map with the `email` property if the validation check fails, otherwise `null`.
`@see`
`updateValueAndValidity()`
`static email(control: AbstractControl): ValidationErrors|null`
if (isEmptyInputValue(control.value)) {
 return null; // don't validate empty values to allow optional controls
}
return EMAIL_REGEXP.test(control.value) ? null : {email: true};
`/`
`@description`
Validator that requires the length of the control's value to be greater than or equal to the provided minimum length. This validator is also provided by default if you use the `HTML5` `minlength` attribute. Note that the `minLength` validator is intended to be used only for types that have a numeric `length` property, such as strings or arrays. The `minLength` validator logic is also not invoked for values when their `length` property is 0 (for example in case of an empty string or an empty array), to support optional controls. You can use the standard `required` validator if empty values should not be considered valid.
@usageNotes
Validate that the field has a minimum of 3 characters
`typescript`
const control = new FormControl('ng', Validators.minLength(3));
console.log(control.errors); // {minlength: {requiredLength: 3, actualLength: 2}}
`/`
`@returns`
A validator function that returns an error map with the `minlength` if the validation check fails, otherwise `null`.
`@see`
`updateValueAndValidity()`
`static minLength(minLength: number): ValidatorFn`
return (control: AbstractControl): ValidationErrors|null => {
 if (isEmptyInputValue(control.value) || !hasValidLength(control.value)) {
 // don't validate empty values to allow optional controls
 // don't validate values without `length` property
 return null;
 }
 return control.value.length < minLength ? {minlength: {requiredLength: minLength, 'actualLength': control.value.length}} : null;
};
`/`
`@description`
Validator that requires the length of the control's value to be less than or equal to the provided maximum length. This validator is also provided by default if you use the `HTML5` `maxlength` attribute. Note that the `maxLength` validator is intended to be used only for types that have a numeric `length` property, such as strings or arrays.
@usageNotes
Validate that the field has maximum of 5 characters
`typescript`
const control = new FormControl('Angular', Validators.maxLength(5));
console.log(control.errors); // {maxlength: {requiredLength: 5, actualLength: 7}}
`/`
`@returns`
A validator function that returns an error map with the `maxlength` property if the validation check fails, otherwise `null`.
`@see`
`updateValueAndValidity()`
`static maxLength(maxLength: number): ValidatorFn`
return (control: AbstractControl): ValidationErrors|null => {
 if (hasValidLength(control.value) && control.value.length > maxLength) {
 {maxlength: {requiredLength: maxLength, 'actualLength': control.value.length}} : null;
 }
};
`/`
`@description`
Validator that requires the control's value to match a regex pattern. This validator is also provided by default if you use the `HTML5` `pattern` attribute.
@usageNotes
Validate that the field only contains letters or spaces
`typescript`
const control = new FormControl('1', Validators.pattern('[a-zA-Z]*'));
console.log(control.errors); // {pattern: {requiredPattern: '^[a-zA-Z]*$', actualValue: '1'}}
`/`
`@returns`
A validator function that returns an error map with the `pattern` if the validation check fails, otherwise `null`.
`@see`
`updateValueAndValidity()`
`static pattern(pattern: string): ValidatorFn`
return (control: AbstractControl): ValidationErrors|null => {
 if (!control.value || !pattern || !RegExp(pattern)) {
 return null;
 }
 return !RegExp(pattern).test(control.value) ? {pattern: {requiredPattern: pattern, actualValue: control.value}} : null;
};
`/`
`@description`
Pattern matching with the global or sticky flag
`RegExp` objects created with the `g` or `y` flags that are passed into

```

`Validators.pattern` can produce different results on the same input when validations are run consecutively. This is due to how the behavior of `RegExp.prototype.test` is specified in [ECMA-262](https://tc39.es/ecma262/#sec-regexpbuiltinexec) (`RegExp` preserves the index of the last match when the global or sticky flag is used). Due to this behavior, it is recommended that when using `Validators.pattern` you **do not** pass in a `RegExp` object with either the global or sticky flag enabled. ```typescript``

```
// Not recommended (since the `g` flag is used)
const controlOne = new FormControl('1',
Validators.pattern(/foo/g));
// Good
const controlTwo = new FormControl('1',
Validators.pattern(/foo/));
```

```` `@param pattern` A regular expression to be used as is to test the values, or a string. If a string is passed, the `^` character is prepended and the `$` character is appended to the provided string (if not already present), and the resulting regular expression is used to test the values. `@returns` A validator function that returns an error map with the `pattern` property if the validation check fails, otherwise `null`.

```
@see `updateValueAndValidity()`
return Validators.nullValidator;
let regex: RegExp;
let regexStr: string;
if (typeof pattern === 'string') {
  regexStr = "";
  if (pattern.charAt(0) !== '^') regexStr += '^';
  regexStr += pattern;
  if (pattern.charAt(pattern.length - 1) !== '$') regexStr += '$';
  regex = new RegExp(regexStr);
} else {
  regexStr = pattern.toString();
  regex = pattern;
}
return (control: AbstractControl):
ValidationErrors|null => {
  if (isEmptyInputValue(control.value)) {
    return null; // don't validate empty
    values to allow optional controls
  }
  const value: string = control.value;
  return regex.test(value) ? null
  : {
    'pattern': { 'requiredPattern': regexStr, 'actualValue': value }
  };
}
/**
 * @description
 * Validator that performs no operation.
 * @see `updateValueAndValidity()`
 * static nullValidator(control: AbstractControl): ValidationErrors|null {
  return null;
}
/**
 * @description
 * Compose multiple validators into a single function that returns the union
 * of the individual error maps for the provided control.
 * @returns A validator function that returns an error map with the
 * merged error maps of the validators if the validation
 * check fails, otherwise `null`.
 * @see `updateValueAndValidity()`
 * static compose(validators:
  null): null;
 * static compose(validators: (ValidatorFn|null|undefined)[]): ValidatorFn|null;
 * static
  compose(validators: (ValidatorFn|null|undefined)[]|null): ValidatorFn|null {
  if (!validators) return null;
  const
  presentValidators: ValidatorFn[] = validators.filter(isPresent) as any;
  if (presentValidators.length === 0) return
  null;
  return function(control: AbstractControl) {
    return
    mergeErrors(executeValidators<ValidatorFn>(control, presentValidators));
  };
}
/**
 * @description
 * Compose multiple async validators into a single function that returns the union
 * of the individual error objects for the provided control.
 * @returns A validator function that returns an error map with the
 * merged
 * error objects of the async validators if the validation check fails, otherwise `null`.
 * @see
 * `updateValueAndValidity()`
 * static composeAsync(validators: (AsyncValidatorFn|null)[]): AsyncValidatorFn|null {
  if
  (!validators) return null;
  const presentValidators: AsyncValidatorFn[] = validators.filter(isPresent) as any;
  if
  (presentValidators.length === 0) return null;
  return function(control: AbstractControl) {
    const observables
    = executeValidators<AsyncValidatorFn>(control, presentValidators).map(toObservable);
    return
    forkJoin(observables).pipe(map(mergeErrors));
  };
}
function isPresent(o: any): boolean {
  return o !==
  null;
}
export function toObservable(r: any): Observable<any> {
  const obs = isPromise(r) ? from(r) : r;
  if
  (!(isObservable(obs)) && (typeof ngDevMode === 'undefined' || ngDevMode)) {
    throw new Error('Expected
    validator to return Promise or Observable.');
```

```
}
return obs;
}
function mergeErrors(arrayOfErrors:
  (ValidationErrors|null)[]): ValidationErrors|null {
  let res: {[key:
  string]: any} = {};
  // Not using Array.reduce here due to a Chrome 80 bug
  arrayOfErrors.forEach((errors:
  ValidationErrors|null) => {
    res = errors != null ? {...res!, ...errors} : res!;
  });
  return
  Object.keys(res).length === 0 ? null : res;
}
type GenericValidatorFn = (control: AbstractControl) =>
```

```

any;\n\nfunction executeValidators<V extends GenericValidatorFn>(\n  control: AbstractControl, validators: V[]):
ReturnType<V>[] {\n  return validators.map((validator) => validator(control));\n}\n\nfunction
isValidatorFn<V>(\n  validator: V|Validator|AsyncValidator): validator is V {\n  return !(validator as
Validator).validate;\n}\n\n/**\n * Given the list of validators that may contain both functions as well as classes,
return the list\n * of validator functions (convert validator classes into validator functions). This is needed to\n *
have consistent structure in validators list before composing them.\n
*\n * @param validators The set of validators that may contain validators both in plain function form\n * as well
as represented as a validator class.\n */\nexport function normalizeValidators<V>(validators:
(V|Validator|AsyncValidator)[]): V[] {\n  return validators.map((validator) => {\n    return
isValidatorFn<V>(validator) ?\n      validator : (\n        (c: AbstractControl) => validator.validate(c)) as unknown as
V;\n    });\n  }\n}\n\n/**\n * Merges synchronous validators into a single validator function (combined using\n *
`Validators.compose`).\n */\nexport function composeValidators(validators: Array<Validator|ValidatorFn>):
ValidatorFn|null {\n  return validators != null ? Validators.compose(normalizeValidators<ValidatorFn>(validators))
:\n    null;\n}\n\n/**\n * Merges asynchronous validators into a single validator function (combined
using\n * `Validators.composeAsync`).\n */\nexport function composeAsyncValidators(validators:
Array<AsyncValidator|AsyncValidatorFn>):\n  AsyncValidatorFn|null {\n    return validators != null ?\n      Validators.composeAsync(normalizeValidators<AsyncValidatorFn>(validators)) :\n        null;\n  }\n}\n\n/**\n * Merges
raw control validators with a given directive validator and returns the combined list of\n * validators as an array.\n
*/\nexport function mergeValidators<V>(\n  controlValidators: V|V[]|null, dirValidator: V): V[] {\n  if
(controlValidators === null) return [dirValidator];\n  return Array.isArray(controlValidators) ? [...controlValidators,
dirValidator] :\n    [controlValidators, dirValidator];\n}\n\n/**\n * Retrieves the list of raw
synchronous validators attached to a given control.\n */\nexport function getControlValidators(control:
AbstractControl): ValidatorFn|ValidatorFn[]|null {\n  return (control as any)._rawValidators as ValidatorFn |
ValidatorFn[] | null;\n}\n\n/**\n * Retrieves the list of raw asynchronous validators attached to a given control.\n
*/\nexport function getControlAsyncValidators(control: AbstractControl): AsyncValidatorFn|\n  AsyncValidatorFn[]|null {\n    return (control as any)._rawAsyncValidators as AsyncValidatorFn |
AsyncValidatorFn[] | null;\n  }\n}\n\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Observable} from 'rxjs';\nimport {AbstractControl} from
'./model';\nimport {composeAsyncValidators, composeValidators} from './validators';\nimport {AsyncValidator,
AsyncValidatorFn, ValidationErrors, Validator, ValidatorFn} from './validators';\n\n/**\n * @description\n * Base
class for control directives.\n *\n * This class is only used internally in the `ReactiveFormsModule` and the
`FormsModule`.\n *\n * @publicApi\n */\nexport abstract class AbstractControlDirective {\n  /**\n   *
@description\n   * A reference to the underlying control.\n
*\n   * @returns the control that backs this directive. Most properties fall through to that instance.\n   */\n  abstract
get control(): AbstractControl|null;\n\n  /**\n   * @description\n   * Reports the value of the control if it is present,
otherwise null.\n   */\n  get value(): any {\n    return this.control ? this.control.value : null;\n  }\n\n  /**\n   *
@description\n   * Reports whether the control is valid. A control is considered valid if no\n   * validation errors
exist with the current value.\n   * If the control is not present, null is returned.\n   */\n  get valid(): boolean|null {\n
return this.control ? this.control.valid : null;\n  }\n\n  /**\n   * @description\n   * Reports whether the control is
invalid, meaning that an error exists in the input value.\n   * If the control is not present, null is returned.\n   */\n  get
invalid(): boolean|null {\n    return this.control ? this.control.invalid : null;\n  }\n\n  /**\n   * @description\n   *
Reports whether a
control is pending, meaning that that async validation is occurring and\n   * errors are not yet available for the input
value. If the control is not present, null is\n   * returned.\n   */\n  get pending(): boolean|null {\n    return this.control
? this.control.pending : null;\n  }\n\n  /**\n   * @description\n   * Reports whether the control is disabled, meaning
that the control is disabled\n   * in the UI and is exempt from validation checks and excluded from aggregate\n   *

```

values of ancestor controls. If the control is not present, null is returned.

```

    *^ get disabled(): boolean|null {
    return this.control ? this.control.disabled : null;
    }
    /**
     * @description
     * Reports whether the control is enabled, meaning that the control is included in ancestor
     * calculations of validity or value. If the control is not present, null is returned.
    *^ get enabled(): boolean|null {
    return this.control ? this.control.enabled : null;
    }
    /**
     * @description
     * Reports the control's validation errors. If the control is not present, null is returned.
    *^ get errors():
    ValidationErrors|null {
    return this.control ? this.control.errors : null;
    }
    /**
     * @description
     * Reports whether the control is pristine, meaning that the user has not yet changed
     * the value in the UI. If the control is not present, null is returned.
    *^ get pristine(): boolean|null {
    return this.control ?
    this.control.pristine : null;
    }
    /**
     * @description
     * Reports whether the control is dirty, meaning that the user has changed
     * the value in the UI. If the control is not present, null is returned.
    *^ get dirty():
    boolean|null {
    return this.control ? this.control.dirty : null;
    }
    /**
     * @description
     * Reports whether the control is touched, meaning that the user has triggered
     * a `blur` event on it. If the control is not present, null is returned.
    *^ get touched(): boolean|null
    {
    return this.control ? this.control.touched : null;
    }
    /**
     * @description
     * Reports the validation status of the control. Possible values include:
     * 'VALID', 'INVALID', 'DISABLED', and 'PENDING'.
     * If the control is not present, null is returned.
    *^ get status(): string|null {
    return this.control ? this.control.status :
    null;
    }
    /**
     * @description
     * Reports whether the control is untouched, meaning that the user has not yet triggered
     * a `blur` event on it. If the control is not present, null is returned.
    *^ get untouched():
    boolean|null {
    return this.control ? this.control.untouched : null;
    }
    /**
     * @description
     * Returns a multicasting observable that emits a validation status whenever it is
     * calculated for the control. If the control is not present, null is returned.
    *^ get statusChanges(): Observable<any>|null {
    return this.control ?
    this.control.statusChanges : null;
    }
    /**
     * @description
     * Returns a multicasting observable of value changes for the control that emits every time the
     * value of the control changes in the UI or programmatically.
     * If the control is not present, null is returned.
    *^ get valueChanges(): Observable<any>|null {
    return this.control ?
    this.control.valueChanges : null;
    }
    /**
     * @description
     * Returns an array that represents the path from the top-level form to this control.
     * Each index is the string name of the control on that level.
    *^ get path():
    string[]|null {
    return null;
    }
    /**
     * Contains the result of merging synchronous validators into a single validator function
     * (combined using `Validators.compose`).
    *^ private _composedValidatorFn:
    ValidatorFn|null|undefined;
    /**
     * Contains the result of merging asynchronous validators into a single validator function
     * (combined using `Validators.composeAsync`).
    *^ private
    _composedAsyncValidatorFn: AsyncValidatorFn|null|undefined;
    /**
     * Set of synchronous validators as they were provided while calling `setValidators` function.
     * @internal
    *^ private _rawValidators:
    Array<Validator|ValidatorFn> = [];
    /**
     * Set of asynchronous validators as they were provided while calling `setAsyncValidators`
     * function.
     * @internal
    *^ private _rawAsyncValidators:
    Array<AsyncValidator|AsyncValidatorFn> = [];
    /**
     * Sets synchronous validators for this directive.
     * @internal
    *^ private _setValidators(validators: Array<Validator|ValidatorFn>|undefined): void {
    this._rawValidators = validators || [];
    this._composedValidatorFn = composeValidators(this._rawValidators);
    }
    /**
     * Sets asynchronous validators for this directive.
     * @internal
    *^ private
    _setAsyncValidators(validators: Array<AsyncValidator|AsyncValidatorFn>|undefined): void {
    this._rawAsyncValidators = validators || [];
    this._composedAsyncValidatorFn
    = composeAsyncValidators(this._rawAsyncValidators);
    }
    /**
     * @description
     * Synchronous validator function composed of all the synchronous validators registered with this
     * directive.
    *^ get validator():
    ValidatorFn|null {
    return this._composedValidatorFn || null;
    }
    /**
     * @description
     * Asynchronous validator function composed of all the asynchronous validators registered with
     * this directive.
    *^ get
    asyncValidator(): AsyncValidatorFn|null {
    return this._composedAsyncValidatorFn || null;
    }
    /**
     * The set of callbacks to be invoked when directive instance is being destroyed.
    *^ private _onDestroyCallbacks: ()

```

```

=> void)[] = [];\n\n /**\n * Internal function to register callbacks that should be invoked\n * when directive
instance is being destroyed.\n * @internal\n */\n _registerOnDestroy(fn: () => void): void {\n
this._onDestroyCallbacks.push(fn);\n }\n\n /**\n * Internal function
to invoke all registered \"on destroy\" callbacks.\n * Note: calling this function also clears the list of callbacks.\n
* @internal\n */\n _invokeOnDestroyCallbacks(): void {\n this._onDestroyCallbacks.forEach(fn => fn());\n
this._onDestroyCallbacks = [];\n }\n\n /**\n * @description\n * Resets the control with the provided value if the
control is present.\n */\n reset(value: any = undefined): void {\n if (this.control) this.control.reset(value);\n }\n\n
/**\n * @description\n * Reports whether the control with the given path has the error specified.\n */\n *
@param errorCode The code of the error to check\n * @param path A list of control names that designates how to
move from the current control\n * to the control that should be queried for errors.\n */\n * @usageNotes\n * For
example, for the following `FormGroup`:\n */\n * ```\n * form = new FormGroup({\n * address: new
FormGroup({ street: new FormControl() })\n * });\n * ```\n
\n * The path to the 'street' control from the root form would be 'address' -> 'street'.\n */\n * It can be provided
to this method in one of two formats:\n */\n * 1. An array of string control names, e.g. `['address', 'street']`\n * 1.
A period-delimited list of control names in one string, e.g. `address.street`\n */\n * If no path is given, this method
checks for the error on the current control.\n */\n * @returns whether the given error is present in the control at the
given path.\n */\n * If the control is not present, false is returned.\n */\n * hasError(errorCode: string, path?:
Array<string|number>|string): boolean {\n return this.control ? this.control.hasError(errorCode, path) : false;\n
}\n\n /**\n * @description\n * Reports error data for the control with the given path.\n */\n * @param
errorCode The code of the error to check\n * @param path A list of control names that designates how to move
from the current control\n * to the control
that should be queried for errors.\n */\n * @usageNotes\n * For example, for the following `FormGroup`:\n */\n *
```\n * form = new FormGroup({\n * address: new FormGroup({ street: new FormControl() })\n * });\n *
```\n */\n * The path to the 'street' control from the root form would be 'address' -> 'street'.\n */\n * It can be
provided to this method in one of two formats:\n */\n * 1. An array of string control names, e.g. `['address',
'street']`\n * 1. A period-delimited list of control names in one string, e.g. `address.street`\n */\n * @returns error
data for that particular error. If the control or error is not present,\n * null is returned.\n */\n * getError(errorCode:
string, path?: Array<string|number>|string): any {\n return this.control ? this.control.getError(errorCode, path) :
null;\n }\n\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is
governed by an MIT-style license that can
be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport { AbstractControlDirective } from
'./abstract_control_directive';\nimport { Form } from './form_interface';\n\n/**\n * @description\n * A base class
for directives that contain multiple registered instances of `NgControl`.\n * Only used by the forms module.\n */\n *
\n * @publicApi\n */\n\nexport abstract class ControlContainer extends AbstractControlDirective {\n /**\n *
\n * @description\n * The name for the control\n */\n // TODO(issue/24571): remove '!'.\n name!:
string|number|null;\n\n /**\n * @description\n * The top-level form directive for the control.\n */\n get
formDirective(): Form|null {\n return null;\n }\n\n /**\n * @description\n * The path to this group.\n */\n get
path(): string[]|null {\n return null;\n }\n\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE
file at https://angular.io/license\n */\n\nimport { AbstractControlDirective } from
'./abstract_control_directive';\nimport { ControlContainer } from './control_container';\nimport
{ ControlValueAccessor } from './control_value_accessor';\n\n/**\n * @description\n * A base class that all
`FormControl`-based directives extend. It binds a `FormControl`\n * object to a DOM element.\n */\n *
\n * @publicApi\n */\n\nexport abstract class NgControl extends AbstractControlDirective {\n /**\n *
\n * @description\n * The parent form for the control.\n */\n * @internal\n */\n _parent: ControlContainer|null = null;\n\n /**\n *
\n * @description\n * The name for the control\n */\n name: string|number|null = null;\n\n /**\n *
\n * @description\n * The value accessor for the control\n */\n valueAccessor: ControlValueAccessor|null = null;\n\n /**\n *
\n * @description\n * The callback method to update the model from the view when requested\n */\n * @param

```

newValue The new value for the view\n

```
*/\n abstract viewToModelUpdate(newValue: any): void;\n}\n"/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Directive, Self} from '@angular/core';\nimport {AbstractControlDirective} from './abstract_control_directive';\nimport {ControlContainer} from './control_container';\nimport {NgControl} from './ng_control';\n\nexport class AbstractControlStatus {\n  private _cd: AbstractControlDirective;\n\n  constructor(cd: AbstractControlDirective) {\n    this._cd = cd;\n  }\n\n  get ngClassUntouched(): boolean {\n    return this._cd.control ? this._cd.control.untouched : false;\n  }\n\n  get ngClassTouched(): boolean {\n    return this._cd.control ? this._cd.control.touched : false;\n  }\n\n  get ngClassPristine(): boolean {\n    return this._cd.control ? this._cd.control.pristine : false;\n  }\n\n  get ngClassDirty(): boolean {\n    return this._cd.control ? this._cd.control.dirty : false;\n  }\n\n  get ngClassValid(): boolean {\n    return this._cd.control ? this._cd.control.valid : false;\n  }\n\n  get ngClassInvalid(): boolean {\n    return this._cd.control ? this._cd.control.invalid : false;\n  }\n\n  get ngClassPending(): boolean {\n    return this._cd.control ? this._cd.control.pending : false;\n  }\n}\n\nexport const ngControlStatusHost = {\n  '[class.ng-untouched]': 'ngClassUntouched',\n  '[class.ng-touched]': 'ngClassTouched',\n  '[class.ng-pristine]': 'ngClassPristine',\n  '[class.ng-dirty]': 'ngClassDirty',\n  '[class.ng-valid]': 'ngClassValid',\n  '[class.ng-invalid]': 'ngClassInvalid',\n  '[class.ng-pending]': 'ngClassPending',\n};\n\n/**\n * @description\n * Directive automatically applied to Angular form controls that sets CSS classes\n * based on control status.\n *\n * @usageNotes\n *\n * ### CSS classes applied\n *\n * The following classes are applied as the properties become true:\n *\n * ng-valid\n * ng-invalid\n * ng-pending\n * ng-pristine\n * ng-dirty\n * ng-untouched\n * ng-touched\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n */\n\n@Directive({ selector: '[formControlName],[ngModel],[formControl]', host: ngControlStatusHost })\nexport class NgControlStatus extends AbstractControlStatus {\n  constructor(@Self() cd: NgControl) {\n    super(cd);\n  }\n\n  /**\n   * @description\n   * Directive automatically applied to Angular form groups that sets CSS classes\n   * based on control status (valid/invalid/dirty/etc).\n *\n * @see `NgControlStatus`\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n */\n\n  @Directive({\n    selector: '[formGroupName],[formArrayName],[ngModelGroup],[formGroup],form:not([ngNoForm]),[ngForm]',\n    host: ngControlStatusHost\n  })\n  export class NgControlStatusGroup extends AbstractControlStatus {\n    constructor(@Self() cd: ControlContainer) {\n      super(cd);\n    }\n  }\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {Directive, ElementRef, forwardRef, Renderer2} from '@angular/core';\nimport {ControlValueAccessor, NG_VALUE_ACCESSOR} from './control_value_accessor';\n\nexport const NUMBER_VALUE_ACCESSOR: any = {\n  provide: NG_VALUE_ACCESSOR,\n  useExisting: forwardRef(() => NumberValueAccessor),\n  multi: true\n};\n\n/**\n * @description\n * The `ControlValueAccessor` for writing a number value and listening to number input changes.\n *\n * The value accessor is used by the `FormControlDirective`, `FormControlName`, and `NgModel` directives.\n *\n * @usageNotes\n *\n * ### Using a number input with a reactive form.\n *\n * The following example shows how to use a number input with a reactive form.\n *\n * ```ts\n * const totalCountControl = new FormControl();\n *\n * <input type="number" [formControl]=totalCountControl">\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n */\n\n@Directive({\n  selector: 'input[type=number][formControlName],input[type=number][formControl],input[type=number][ngModel]',\n  host: {\n    '(input)': 'onChange($event.target.value)',\n    '(blur)': 'onTouched()'\n  },\n  providers: [NUMBER_VALUE_ACCESSOR]\n})\nexport class NumberValueAccessor implements ControlValueAccessor {\n  /**\n   * The registered callback function called when a change or input event occurs on the input\n   * element.\n *\n * @nodoc\n */\n  onChange = (_: any) => {};\n\n  /**\n   * The registered callback function called when a blur event occurs on the input element.\n *\n * @nodoc\n */\n  onTouched = () => {};\n\n  constructor(private
```

```

_renderer: Renderer2, private _elementRef: ElementRef) {} \n\n /** \n * Sets the \"value\" property on the input
element. \n * @nodoc \n */ \n writeValue(value: number): void {} \n //
The value needs to be normalized for IE9, otherwise it is set to 'null' when null \n const normalizedValue = value
== null ? \"\": value; \n this._renderer.setProperty(this._elementRef.nativeElement, 'value', normalizedValue); \n
} \n\n /** \n * Registers a function called when the control value changes. \n * @nodoc \n */ \n
registerOnChange(fn: (_: number | null) => void): void {} \n this.onChange = (value) => {} \n fn(value == \"\" ? null :
parseFloat(value)); \n }; \n } \n\n /** \n * Registers a function called when the control is touched. \n * @nodoc \n
*/ \n registerOnTouched(fn: () => void): void {} \n this.onTouched = fn; \n } \n\n /** \n * Sets the \"disabled\"
property on the input element. \n * @nodoc \n */ \n setDisabledState(isDisabled: boolean): void {} \n
this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled); \n } \n\n \"\", /** \n * @license \n
Copyright Google LLC All Rights Reserved. \n * \n * Use of this source code is governed
by an MIT-style license that can be \n * found in the LICENSE file at https://angular.io/license \n */ \n\n import
{Directive, ElementRef, forwardRef, Injectable, Injector, Input, OnDestroy, OnInit, Renderer2} from
'@angular/core'; \n\n import {ControlValueAccessor, NG_VALUE_ACCESSOR} from
'./control_value_accessor'; \n\n import {NgControl} from './ng_control'; \n\n export const
RADIO_VALUE_ACCESSOR: any = {} \n provide: NG_VALUE_ACCESSOR, \n useExisting: forwardRef(() =>
RadioControlValueAccessor), \n multi: true \n }; \n\n function throwError() {} \n throw new Error(` \n If you
define both a name and a FormControlName attribute on your radio button, their values \n must match. Ex: <input
type=\"radio\" FormControlName=\"food\" name=\"food\"> \n `); \n } \n\n /** \n * @description \n * Class used by
Angular to track radio buttons. For internal use only. \n */ \n @Injectable() \n export class RadioControlRegistry {} \n
private _accessors: any[] = []; \n\n /** \n * @description \n * Adds a control to
the internal registry. For internal use only. \n */ \n add(control: NgControl, accessor: RadioControlValueAccessor)
{} \n this._accessors.push([control, accessor]); \n } \n\n /** \n * @description \n * Removes a control from the
internal registry. For internal use only. \n */ \n remove(accessor: RadioControlValueAccessor) {} \n for (let i =
this._accessors.length - 1; i >= 0; --i) {} \n if (this._accessors[i][1] === accessor) {} \n this._accessors.splice(i,
1); \n return; \n } \n } \n\n /** \n * @description \n * Selects a radio button. For internal use only. \n
*/ \n select(accessor: RadioControlValueAccessor) {} \n this._accessors.forEach((c) => {} \n if
(this._isSameGroup(c, accessor) && c[1] !== accessor) {} \n c[1].fireUncheck(accessor.value); \n } \n }); \n
} \n\n private _isSameGroup(\n controlPair: [NgControl, RadioControlValueAccessor], \n accessor:
RadioControlValueAccessor): boolean {} \n if (!controlPair[0].control)
return false; \n return controlPair[0]._parent === accessor._control._parent && \n controlPair[1].name ===
accessor.name; \n } \n } \n\n /** \n * @description \n * The `ControlValueAccessor` for writing radio control values
and listening to radio control \n * changes. The value accessor is used by the `FormControlDirective`,
`FormControlName`, and \n * `NgModel` directives. \n */ \n * @usageNotes \n * \n * ### Using radio buttons with
reactive form directives \n * \n * The follow example shows how to use radio buttons in a reactive form. When using
radio buttons in \n * a reactive form, radio buttons in the same group should have the same `FormControlName`. \n
* Providing a `name` attribute is optional. \n * \n * @example
forms/ts/reactiveRadioButtons/reactive_button_example.ts \n region='Reactive' \n \n * @ngModule
ReactiveFormsModule \n * @ngModule FormsModule \n * @publicApi \n */ \n @Directive({ \n selector: \n
'input[type=radio][FormControlName], input[type=radio][FormControl], input[type=radio][NgModel]', \n
host: {'(change)': 'onChange()', '(blur)': 'onTouched()' }, \n providers: [RADIO_VALUE_ACCESSOR] \n }) \n export
class RadioControlValueAccessor implements ControlValueAccessor, OnDestroy, OnInit {} \n /** \n * @internal \n */ \n //
TODO(issue/24571): remove '!'. \n _state!: boolean; \n /** \n * @internal \n */ \n // TODO(issue/24571): remove '!'. \n
_control!: NgControl; \n /** \n * @internal \n */ \n // TODO(issue/24571): remove '!'. \n _fn!: Function; \n\n /** \n * The
registered callback function called when a change event occurs on the input element. \n * @nodoc \n */ \n
onChange = () => {}; \n\n /** \n * The registered callback function called when a blur event occurs on the input
element. \n * @nodoc \n */ \n onTouched = () => {}; \n\n /** \n * @description \n * Tracks the name of the radio
input element. \n */ \n // TODO(issue/24571): remove '!'. \n @Input() name!: string; \n\n /** \n * @description \n

```

```

* Tracks the name of the `FormControl` bound to the directive. The name
corresponds\n * to a key in the parent `FormGroup` or `FormArray`.\n * /\n // TODO(issue/24571): remove '!'.\n
@Input() formControlName!: string;\n\n /**\n * @description\n * Tracks the value of the radio input element\n
*\n @Input() value: any;\n\n constructor(\n private _renderer: Renderer2, private _elementRef: ElementRef,\n private _registry: RadioControlRegistry, private _injector: Injector) {\n\n /** @nodoc *\n ngOnInit(): void {\n
this._control = this._injector.get(NgControl);\n this._checkName();\n this._registry.add(this._control, this);\n
}\n\n /** @nodoc *\n ngOnDestroy(): void {\n this._registry.remove(this);\n }\n\n /**\n * Sets the
`checked` property value on the radio input element.\n * @nodoc\n *\n writeValue(value: any): void {\n
this._state = value === this.value;\n this._renderer.setProperty(this._elementRef.nativeElement, 'checked',
this._state);\n }\n\n /**\n * Registers a function called when the control
value changes.\n * @nodoc\n *\n registerOnChange(fn: (_: any) => {}): void {\n this._fn = fn;\n
this.onChange = () => {\n fn(this.value);\n this._registry.select(this);\n }; }\n\n /**\n * Sets the `value`
on the radio input element and unchecks it.\n * /\n * @param value\n *\n fireUncheck(value: any): void {\n
this.writeValue(value);\n }\n\n /**\n * Registers a function called when the control is touched.\n * @nodoc\n
*\n registerOnTouched(fn: () => {}): void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the `disabled`
property on the input element.\n * @nodoc\n *\n setDisabledState(isDisabled: boolean): void {\n
this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n }\n\n private _checkName():
void {\n if (this.name && this.formControlName && this.name !== this.formControlName &&\n (typeof
ngDevMode === 'undefined' || ngDevMode)) {\n throwNameError();\n }\n
if (!this.name && this.formControlName) this.name = this.formControlName;\n }\n\n", /\n * @license\n *
Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\nimport {Directive, ElementRef,
forwardRef, Renderer2, StaticProvider} from '@angular/core';\n\nimport {ControlValueAccessor,
NG_VALUE_ACCESSOR} from './control_value_accessor';\n\nexport const RANGE_VALUE_ACCESSOR:
StaticProvider = {\n provide: NG_VALUE_ACCESSOR,\n useExisting: forwardRef(() =>
RangeValueAccessor),\n multi: true\n};\n\n /**\n * @description\n * The `ControlValueAccessor` for writing a
range value and listening to range input changes.\n * The value accessor is used by the `FormControlDirective`,
`FormControlName`, and `NgModel`\n * directives.\n *\n * @usageNotes\n *\n * ### Using a range input with a
reactive form\n *\n * The following example shows how to use a range input
with a reactive form.\n *\n * ``ts\n * const ageControl = new FormControl();\n * ``\n *\n * ``\n * <input
type="range" [formControl]="ageControl">\n * ``\n *\n * @ngModule ReactiveFormsModule\n * @ngModule
FormsModule\n * @publicApi\n *\n @Directive({\n selector:\n
'input[type=range][formControlName],input[type=range][formControl],input[type=range][ngModel]',\n host: {\n
'change': 'onChange($event.target.value)',\n '(input)': 'onChange($event.target.value)',\n '(blur)':
'onTouched()',\n },\n providers: [RANGE_VALUE_ACCESSOR]\n })\n\nexport class RangeValueAccessor
implements ControlValueAccessor {\n\n /**\n * The registered callback function called when a change or input
event occurs on the input\n * element.\n * @nodoc\n *\n onChange = (_: any) => {};\n\n /**\n * The
registered callback function called when a blur event occurs on the input element.\n * @nodoc\n *\n onTouched
= () => {};\n\n constructor(private _renderer: Renderer2, private
_elementRef: ElementRef) {\n\n /**\n * Sets the `value` property on the input element.\n * @nodoc\n *\n
writeValue(value: any): void {\n this._renderer.setProperty(this._elementRef.nativeElement, 'value',
parseFloat(value));\n }\n\n /**\n * Registers a function called when the control value changes.\n * @nodoc\n
*\n registerOnChange(fn: (_: number|null) => void): void {\n this.onChange = (value) => {\n fn(value === " ?
null : parseFloat(value));\n }; }\n\n /**\n * Registers a function called when the control is touched.\n *
*\n @nodoc\n *\n registerOnTouched(fn: () => void): void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the
`disabled` property on the range input element.\n * @nodoc\n *\n setDisabledState(isDisabled: boolean): void
{\n this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n }\n\n", /\n * @license\n *
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```


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```

*
export const FormErrorExamples = {
  formControlName: `
    <div [formGroup]="myGroup">
      <input formControlName="firstName">
    </div>
    In your class:
    this.myGroup = new FormGroup({
      firstName: new FormControl()
    });
    formGroupName: `
    <div [formGroup]="myGroup">
      <div formGroupName="person">
        <input formControlName="firstName">
      </div>
    </div>
    In your class:
    this.myGroup = new FormGroup({
      person: new FormGroup({ firstName: new FormControl() })
    });
    formArrayName: `
    <div [formGroup]="myGroup">
      <div formArrayName="cities">
        <div *ngFor="let city of cityArray.controls; index as i">
          <input [formControlName]="i">
        </div>
      </div>
    </div>
    In your class:
    this.cityArray = new FormArray([new
    FormControl('SF')]);

    this.myGroup = new FormGroup({
      cities: this.cityArray
    });
    ngModelGroup: `
    <form>
    <div ngModelGroup="person">
      <input [(ngModel)]="person.name" name="firstName">
    </div>
    </form>
    ngModelWithFormGroup: `
    <div [formGroup]="myGroup">
      <input
      formControlName="firstName">
      <input [(ngModel)]="showMoreControls"
      [ngModelOptions]="{standalone: true}">
    </div>
  `;
  /**
   * @license
   * Copyright Google LLC All
   * Rights Reserved.
   * Use of this source code is governed by an MIT-style license that can be found in the
   * LICENSE file at https://angular.io/license
   */
  import { FormErrorExamples as Examples } from
  './error_examples';
  export class ReactiveErrors {
    static controlParentException(): void {
      throw new
      Error(`formControlName must be used with a parent formGroup directive. You'll want to add a formGroup
      directive and pass it an
      existing FormGroup instance (you can create one in your class).
      Example:
      ${Examples.formControlName}`);
    }
    static ngModelGroupException(): void {
      throw new Error(`
      formControlName cannot be used with an ngModelGroup parent. It is only compatible with parents
      that also
      have a "form" prefix: formGroupName, formArrayName, or formGroup.
      Option 1: Update the parent to be
      formGroupName (reactive form strategy)
      ${Examples.formGroupName}
      Option 2: Use ngModel
      instead of formControlName (template-driven strategy)
      ${Examples.ngModelGroup}`);
    }
    static
    missingFormException(): void {
      throw new Error(`formGroup expects a FormGroup instance. Please pass one
      in.
      Example:
      ${Examples.formControlName}`);
    }
    static groupParentException(): void {
      throw new Error(`
      formGroupName must be used with a parent formGroup directive. You'll want to add a
      formGroup
      directive and pass it an existing FormGroup instance (you can create one in your class).
      Example:
      ${Examples.formGroupName}`);
    }
    static arrayParentException(): void {
      throw new Error(`
      formArrayName must be used with a parent formGroup directive. You'll want to add a formGroup
      directive
      and pass it an existing FormGroup instance (you can create one in your class).
      Example:
      ${Examples.formArrayName}`);
    }
    static disabledAttrWarning(): void {
      console.warn(`
      It looks like
      you're using the disabled attribute with a reactive form directive. If you set disabled to true
      when you set up this
      control in your component class, the disabled attribute will actually be set in the DOM for
      you. We recommend
      using this approach to avoid 'changed after checked' errors.
      Example:
      form = new FormGroup({
        first: new FormControl({value: 'Nancy', disabled: true}, Validators.required),
        last: new FormControl('Drew', Validators.required)
      });
      `);
    }
    static
    ngModelWarning(directiveName: string): void {
      console.warn(`
      It looks like you're using ngModel on the
      same form field as ${directiveName}.
      Support for using the ngModel input property and ngModelChange event
      with
      reactive form directives has been deprecated in Angular v6 and will be removed
      in a future version of
      Angular.
      For more information on this, see our API docs here:
      https://angular.io/api/forms/${
        directiveName === 'formControl' ? 'FormControlDirective' : 'FormControlName'}#use-
      with-ngmodel
      `);
    }
  }
  /**
   * @license
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   * Use of
   * this source code is governed by an MIT-style license that can be found in the LICENSE file at
   * https://angular.io/license
   */
  import { Directive, ElementRef, forwardRef, Host, Input, OnDestroy, Optional,

```

```

    Renderer2, StaticProvider} from '@angular/core';\n\nimport { ControlValueAccessor, NG_VALUE_ACCESSOR }
from './control_value_accessor';\n\nexport const SELECT_VALUE_ACCESSOR: StaticProvider = {\n  provide:
NG_VALUE_ACCESSOR,\n  useExisting: forwardRef(() => SelectControlValueAccessor),\n  multi:
true\n};\n\nfunction _buildValueString(id: string|null, value: any): string {\n  if (id == null) return `${value}`;\n  if
(value && typeof value === 'object') value = 'Object';\n  return `${id}: ${value}`.slice(0, 50);\n}\n\nfunction
_extractId(valueString: string): string {\n  return valueString.split(':')[0];\n}\n\n/**\n * @description\n * The
`ControlValueAccessor` for writing select control values and listening to select control\n * changes. The value
accessor is used by the `FormControlDirective`, `FormControlName`, and\n * `NgModel` directives.\n *\n *
@usageNotes\n *\n * ### Using select controls in a reactive form\n *\n * The following examples show how to use
a select control in a reactive
form.\n *\n * { @example forms/ts/reactiveSelectControl/reactive_select_control_example.ts
region='Component'}\n *\n * ### Using select controls in a template-driven form\n *\n * To use a select in a
template-driven form, simply add an `ngModel` and a `name`\n * attribute to the main `<select>` tag.\n *\n *
{ @example forms/ts/selectControl/select_control_example.ts region='Component'}\n *\n * ### Customizing option
selection\n *\n * Angular uses object identity to select option. It's possible for the identities of items\n * to change
while the data does not. This can happen, for example, if the items are produced\n * from an RPC to the server, and
that RPC is re-run. Even if the data hasn't changed, the\n * second response will produce objects with different
identities.\n *\n * To customize the default option comparison algorithm, `<select>` supports `compareWith`
input.\n * `compareWith` takes a **function** which has two arguments: `option1` and `option2`.\n * If
`compareWith`
is given, Angular selects option by the return value of the function.\n *\n * ```ts\n * const selectedCountriesControl
= new FormControl();\n *\n * ```\n *\n * ```\n * <select [compareWith]="compareFn"\n
[formControl]="selectedCountriesControl">\n *   <option *ngFor="let country of countries"\n
[ngValue]="country">\n *     {{ country.name }}\n *   </option>\n * </select>\n *\n * compareFn(c1: Country,
c2: Country): boolean {\n *   return c1 && c2 ? c1.id === c2.id : c1 === c2;\n * }\n *\n * ```\n *\n * **Note:** We
listen to the 'change' event because 'input' events aren't fired\n * for selects in Firefox and IE:\n *
https://bugzilla.mozilla.org/show\_bug.cgi?id=1024350\n *
https://developer.microsoft.com/en-us/microsoft-edge/platform/issues/4660045/\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n *
@publicApi\n *\n * @Directive({\n *   selector:\n
'select:not([multiple])[formControlName],select:not([multiple])[formControl],select:not([multiple])[ngModel]',\n
host:
{'(change)': 'onChange($event.target.value)', '(blur)': 'onTouched()' },\n *   providers:
[SELECT_VALUE_ACCESSOR]\n * })\n * export class SelectControlValueAccessor implements
ControlValueAccessor {\n *   /** @nodoc */\n *   value: any;\n *   /** @internal */\n *   _optionMap: Map<string, any> =
new Map<string, any>();\n *   /** @internal */\n *   _idCounter: number = 0;\n *   /**\n *    * The registered callback
function called when a change event occurs on the input element.\n *    * @nodoc\n *    */\n *   onChange = (_: any) =>
{};\n *   /**\n *    * The registered callback function called when a blur event occurs on the input element.\n *    *
@nodoc\n *    */\n *   onTouched = () => {};\n *   /**\n *    * @description\n *    * Tracks the option comparison algorithm for
tracking identities when\n *    * checking for changes.\n *    */\n *   @Input()\n *   set compareWith(fn: (o1: any, o2: any) =>
boolean) {\n *     if (typeof fn !== 'function' && (typeof ngDevMode === 'undefined' || ngDevMode)) {\n *       throw
new Error(`compareWith must be a function,
but received ${JSON.stringify(fn)}`);\n *     }\n *     this._compareWith = fn;\n *   }\n *   private _compareWith: (o1: any,
o2: any) => boolean = Object.is;\n *   constructor(private _renderer: Renderer2, private _elementRef: ElementRef)
{\n *   }\n *   /**\n *    * Sets the "value" property on the input element. The "selectedIndex"\n *    * property is also set if an
ID is provided on the option element.\n *    * @nodoc\n *    */\n *   writeValue(value: any): void {\n *     this.value = value;\n *
const id: string|null = this._getOptionId(value);\n *     if (id == null) {\n *
this._renderer.setProperty(this._elementRef.nativeElement, 'selectedIndex', -1);\n *     }\n *     const valueString =
_buildValueString(id, value);\n *     this._renderer.setProperty(this._elementRef.nativeElement, 'value', valueString);\n

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}\n\n /**\n * Registers a function called when the control value changes.\n * @nodoc\n */\n
registerOnChange(fn: (value: any) => any): void {\n  this.onChange = (valueString: string) => {\n    this.value
= this._getOptionValue(valueString);\n    fn(this.value);\n  };\n}\n\n /**\n * Registers a function called when
the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => any): void {\n  this.onTouched = fn;\n}
}\n\n /**\n * Sets the `disabled` property on the select input element.\n * @nodoc\n */\n
setDisabledState(isDisabled: boolean): void {\n  this._renderer.setProperty(this._elementRef.nativeElement,
'disabled', isDisabled);\n}\n\n /** @internal */\n _registerOption(): string {\n  return
(this._idCounter++).toString();\n}\n\n /** @internal */\n _getOptionId(value: any): string|null {\n  for (const id
of Array.from(this._optionMap.keys())) {\n    if (this._compareWith(this._optionMap.get(id), value)) return id;\n}
\n  return null;\n}\n\n /** @internal */\n _getOptionValue(valueString: string): any {\n  const id: string =
_extractId(valueString);\n  return this._optionMap.has(id) ? this._optionMap.get(id) : valueString;\n}
}\n}\n\n /**\n * @description\n * Marks `<option>` as dynamic, so Angular can be notified when options change.\n
*\n * @see `SelectControlValueAccessor`\n */\n * @ngModule ReactiveFormsModule\n * @ngModule
FormsModule\n * @publicApi\n */\n @Directive({selector: 'option'})\n export class NgSelectOption implements
OnDestroy {\n  /**\n * @description\n * ID of the option element\n */\n // TODO(issue/24571): remove '!'.\n id!:
string;\n\n  constructor(\n    private _element: ElementRef, private _renderer: Renderer2,\n    @Optional()
@Host() private _select: SelectControlValueAccessor) {\n    if (this._select) this.id =
this._select._registerOption();\n  }\n\n  /**\n * @description\n * Tracks the value bound to the option element.
Unlike the value binding,\n * ngValue supports binding to objects.\n */\n @Input('ngValue')\n  set
ngValue(value: any) {\n    if (this._select == null) return;\n    this._select._optionMap.set(this.id, value);\n}
\n  this._setElementValue(_buildValueString(this.id,
value));\n  this._select.writeValue(this._select.value);\n}\n\n /**\n * @description\n * Tracks simple string
values bound to the option element.\n * For objects, use the `ngValue` input binding.\n */\n @Input('value')\n  set
value(value: any) {\n    this._setElementValue(value);\n    if (this._select)
this._select.writeValue(this._select.value);\n}\n\n /** @internal */\n _setElementValue(value: string): void {\n
this._renderer.setProperty(this._element.nativeElement, 'value', value);\n}\n\n /** @nodoc\n */\n ngOnDestroy():
void {\n  if (this._select) {\n    this._select._optionMap.delete(this.id);\n    this._select.writeValue(this._select.value);\n  }\n}\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n */\n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {Directive, ElementRef, forwardRef, Host, Input,
OnDestroy, Optional, Renderer2, StaticProvider} from '@angular/core';\n\nimport {ControlValueAccessor,
NG_VALUE_ACCESSOR} from './control_value_accessor';\n\nexport const
SELECT_MULTIPLE_VALUE_ACCESSOR: StaticProvider = {\n  provide: NG_VALUE_ACCESSOR,\n  useExisting: forwardRef(() => SelectMultipleControlValueAccessor),\n  multi: true\n};\n\nfunction
_buildValueString(id: string, value: any): string {\n  if (id == null) return `${value}`;\n  if (typeof value === 'string')
value = `${value}`;\n  if (value && typeof value === 'object') value = 'Object';\n  return `${id}: ${value}`.slice(0,
50);\n}\n\nfunction _extractId(valueString: string): string {\n  return valueString.split(':')[0];\n}\n\n/** Mock
interface for HTML Options */\ninterface HTMLOption {\n  value: string;\n  selected: boolean;\n}\n\n/** Mock
interface for HTMLCollection */\nabstract class HTMLCollection {\n  // TODO(issue/24571): remove '!'.\n  length!:
number;\n  abstract item(_: number): HTMLOption;\n}\n\n/**\n * @description\n
*\n * The `ControlValueAccessor` for writing multi-select control values and listening to multi-select\n * control
changes. The value accessor is used by the `FormControlDirective`, `FormControlName`, and\n * `NgModel`
directives.\n */\n * @see `SelectControlValueAccessor`\n */\n * @usageNotes\n */\n * ### Using a multi-select
control\n */\n * The follow example shows you how to use a multi-select control with a reactive form.\n */\n * ```ts\n
* const countryControl = new FormControl();\n * ```\n */\n * <select multiple name="countries"\n
[formControl]="countryControl">\n *   <option *ngFor="let country of countries" [ngValue]="country">\n *
{{ country.name }}\n * </option>\n * </select>\n * ```\n */\n * ### Customizing option selection\n */\n * To
customize the default option comparison algorithm, `<select>` supports `compareWith` input.\n * See the

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`SelectControlValueAccessor` for usage.\n *\n * @ngModule ReactiveFormsModule\n * @ngModule
FormsModule\n * @publicApi\n
*/\n@Directive({\n selector:\n
'select[multiple][formControlName],select[multiple][formControl],select[multiple][ngModel]',\n host: {'(change)':
'onChange($event.target)', '(blur)': 'onTouched()' },\n providers:
[SELECT_MULTIPLE_VALUE_ACCESSOR]\n})\nexport class SelectMultipleControlValueAccessor implements
ControlValueAccessor {\n /**\n * The current value.\n * @nodoc\n */\n value: any;\n\n /** @internal */\n _optionMap: Map<string, NgSelectMultipleOption> = new Map<string, NgSelectMultipleOption>();\n\n /**
@internal */\n _idCounter: number = 0;\n\n /**\n * The registered callback function called when a change event
occurs on the input element.\n * @nodoc\n */\n onChange = (_: any) => {};\n\n /**\n * The registered callback
function called when a blur event occurs on the input element.\n * @nodoc\n */\n onTouched = () => {};\n\n
/**\n * @description\n * Tracks the option comparison algorithm for tracking identities when\n * checking for
changes.\n */\n @Input()\n set compareWith(fn: (o1: any, o2: any) => boolean) {\n if (typeof fn !== 'function'
&& (typeof ngDevMode === 'undefined' || ngDevMode)) {\n throw new Error(`compareWith must be a function,
but received ${JSON.stringify(fn)}`);\n }\n this._compareWith = fn;\n }\n\n private _compareWith: (o1: any,
o2: any) => boolean = Object.is;\n\n constructor(private _renderer: Renderer2, private _elementRef: ElementRef)
{\n\n /**\n * Sets the \"value\" property on one or of more of the select's options.\n * @nodoc\n */\n
writeValue(value: any): void {\n this.value = value;\n let optionSelectedStateSetter: (opt:
NgSelectMultipleOption, o: any) => void;\n if (Array.isArray(value)) {\n // convert values to ids\n const ids
= value.map((v) => this._getOptionId(v));\n optionSelectedStateSetter = (opt, o) => {\n
opt._setSelected(ids.indexOf(o.toString()) > -1);\n }; \n } else {\n optionSelectedStateSetter
= (opt, o) => {\n opt._setSelected(false);\n }; \n }\n
this._optionMap.forEach(optionSelectedStateSetter);\n }\n\n /**\n * Registers a function called when the control
value changes\n * and writes an array of the selected options.\n * @nodoc\n */\n registerOnChange(fn: (value:
any) => any): void {\n this.onChange = (_: any) => {\n const selected: Array<any> = [];\n if
(_._selectedOptions !== undefined) {\n const options: HTMLCollection = _._selectedOptions;\n for (let i = 0;
i < options.length; i++) {\n const opt: any = options.item(i);\n const val: any =
this._getOptionValue(opt.value);\n selected.push(val);\n }\n }\n // Degrade on IE\n else {\n
const options: HTMLCollection = <HTMLCollection>_._options;\n for (let i = 0; i < options.length; i++) {\n
const opt: HTMLOption = options.item(i);\n if (opt.selected) {\n const val: any =
this._getOptionValue(opt.value);\n
selected.push(val);\n }\n }\n }\n this.value = selected;\n fn(selected);\n }; \n }\n\n /**\n
* Registers a function called when the control is touched.\n * @nodoc\n */\n registerOnTouched(fn: () => any):
void {\n this.onTouched = fn;\n }\n\n /**\n * Sets the \"disabled\" property on the select input element.\n *
@nodoc\n */\n setDisabledState(isDisabled: boolean): void {\n
this._renderer.setProperty(this._elementRef.nativeElement, 'disabled', isDisabled);\n }\n\n /** @internal */\n
_registerOption(value: NgSelectMultipleOption): string {\n const id: string = (this._idCounter++).toString();\n
this._optionMap.set(id, value);\n return id;\n }\n\n /** @internal */\n _getOptionId(value: any): string|null {\n
for (const id of Array.from(this._optionMap.keys())) {\n if (this._compareWith(this._optionMap.get(id)!._value,
value)) return id;\n }\n return null;\n }\n\n /** @internal
*/\n _getOptionValue(valueString: string): any {\n const id: string = _extractId(valueString);\n return
this._optionMap.has(id) ? this._optionMap.get(id)!._value : valueString;\n }\n\n /**\n * @description\n * Marks
`<option>` as dynamic, so Angular can be notified when options change.\n */\n * @see
`SelectMultipleControlValueAccessor`\n *\n * @ngModule ReactiveFormsModule\n * @ngModule
FormsModule\n * @publicApi\n */\n@Directive({selector: 'option'})\nexport class NgSelectMultipleOption
implements OnDestroy {\n // TODO(issue/24571): remove '!'\n id!: string;\n\n /** @internal */\n _value: any;\n\n
constructor(\n private _element: ElementRef, private _renderer: Renderer2,\n @Optional() @Host() private
_select: SelectMultipleControlValueAccessor) {\n if (this._select) {\n this.id =

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this._select._registerOption(this);\n  }\n }\n\n /**\n  * @description\n  * Tracks the value bound to the option
element. Unlike the value binding,\n  * ngValue
supports binding to objects.\n  */\n @Input('ngValue')\n set ngValue(value: any) {\n  if (this._select == null)
return;\n  this._value = value;\n  this._setElementValue(_buildValueString(this.id, value));\n
this._select.writeValue(this._select.value);\n }\n\n /**\n  * @description\n  * Tracks simple string values bound to
the option element.\n  * For objects, use the `ngValue` input binding.\n  */\n @Input('value')\n set value(value:
any) {\n  if (this._select) {\n    this._value = value;\n    this._setElementValue(_buildValueString(this.id,
value));\n    this._select.writeValue(this._select.value);\n  } else {\n    this._setElementValue(value);\n  }\n
}\n\n\n /**\n  * @internal\n  */\n _setElementValue(value: string): void {\n
this._renderer.setProperty(this._element.nativeElement, 'value', value);\n }\n\n\n /**\n  * @internal\n  */\n _setSelected(selected: boolean) {\n  this._renderer.setProperty(this._element.nativeElement, 'selected', selected);\n
}\n\n\n /**\n  * @nodoc\n  */\n ngOnDestroy(): void {\n  if (this._select) {\n    this._select._optionMap.delete(this.id);\n
this._select.writeValue(this._select.value);\n  }\n }\n }\n\n\nexport {NgSelectMultipleOption as
NgSelectMultipleOption};\n\n", "/*\n  * @license\n  * Copyright Google LLC All Rights Reserved.\n  *\n  * Use of this
source code is governed by an MIT-style license that can be\n  * found in the LICENSE file at
https://angular.io/license\n  */\n\nimport {isDevMode} from '@angular/core';\n\nimport {AbstractControl,
FormArray, FormControl, FormGroup} from './model';\n\nimport {getControlAsyncValidators, getControlValidators,
mergeValidators} from './validators';\n\nimport {AbstractControlDirective} from
'./abstract_control_directive';\n\nimport {AbstractFormGroupDirective} from
'./abstract_form_group_directive';\n\nimport {CheckboxControlValueAccessor} from
'./checkbox_value_accessor';\n\nimport {ControlContainer} from './control_container';\n\nimport
{ControlValueAccessor} from './control_value_accessor';\n\nimport
{DefaultValueAccessor} from './default_value_accessor';\n\nimport {NgControl} from './ng_control';\n\nimport
{NumberValueAccessor} from './number_value_accessor';\n\nimport {RadioControlValueAccessor} from
'./radio_control_value_accessor';\n\nimport {RangeValueAccessor} from './range_value_accessor';\n\nimport
{FormArrayName} from './reactive_directives/form_group_name';\n\nimport {ReactiveErrors} from
'./reactive_errors';\n\nimport {SelectControlValueAccessor} from './select_control_value_accessor';\n\nimport
{SelectMultipleControlValueAccessor} from './select_multiple_control_value_accessor';\n\nimport
{AsyncValidatorFn, Validator, ValidatorFn} from './validators';\n\n\nexport function controlPath(name: string|null,
parent: ControlContainer): string[] {\n  return [...parent.path!, name!];\n }\n\n\nexport function setUpControl(control:
FormControl, dir: NgControl): void {\n  if (typeof ngDevMode === 'undefined' || ngDevMode) {\n    if (!control)
_throwError(dir, 'Cannot find control
with');\n    if (!dir.valueAccessor) _throwError(dir, 'No value accessor for form control with');\n  }\n\n
setUpValidators(control, dir, /* handleOnValidatorChange */ true);\n\n
dir.valueAccessor!.writeValue(control.value);\n\n  setUpViewChangePipeline(control, dir);\n\n
setUpModelChangePipeline(control, dir);\n\n  setUpBlurPipeline(control, dir);\n\n
setUpDisabledChangeHandler(control, dir);\n }\n\n\nexport function cleanUpControl(control: FormControl|null, dir:
NgControl) {\n  const noop = () => {\n    if (typeof ngDevMode === 'undefined' || ngDevMode) {\n      _noControlError(dir);\n    }\n  }\n\n  dir.valueAccessor!.registerOnChange(noop);\n
dir.valueAccessor!.registerOnTouched(noop);\n\n  cleanUpValidators(control, dir, /* handleOnValidatorChange */
true);\n\n  if (control) {\n    dir._invokeOnDestroyCallbacks();\n    control._registerOnCollectionChange(() => {});\n
}\n }\n\n\nfunction registerOnValidatorChange<V>(validators: (V|Validator)[], onChange: () => void): void {\n
validators.forEach((validator:
(V|Validator)) => {\n  if ((<Validator>validator).registerOnValidatorChange)\n    (<Validator>validator).registerOnValidatorChange!(onChange);\n });\n }\n\n\n/**\n  * Sets up disabled change
handler function on a given form control if ControlValueAccessor\n  * associated with a given directive instance
supports the `setDisabledState` call.\n  *\n  * @param control Form control where disabled change handler should be

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setup.\n * @param dir Corresponding directive instance associated with this control.\n */\nexport function
setUpDisabledChangeHandler(control: FormControl, dir: NgControl): void {\n if
(dir.valueAccessor!.setDisabledState) {\n const onDisabledChange = (isDisabled: boolean) => {\n
dir.valueAccessor!.setDisabledState!(isDisabled);\n };\n
control.registerOnDisabledChange(onDisabledChange);\n\n // Register a callback function to cleanup disabled
change handler\n // from a control instance when a directive is destroyed.\n dir._registerOnDestroy(()
=> {\n control._unregisterOnDisabledChange(onDisabledChange);\n });\n }\n}\n\n/**\n * Sets up sync and
async directive validators on provided form control.\n * This function merges validators from the directive into the
validators of the control.\n */\n * @param control Form control where directive validators should be setup.\n *
@param dir Directive instance that contains validators to be setup.\n * @param handleOnValidatorChange Flag that
determines whether directive validators should be setup\n * to handle validator input change.\n */\nexport
function setUpValidators(\n control: AbstractControl, dir: AbstractControlDirective,\n
handleOnValidatorChange: boolean): void {\n const validators = getControlValidators(control);\n if (dir.validator
!== null) {\n control.setValidators(mergeValidators<ValidatorFn>(validators, dir.validator));\n } else if (typeof
validators === 'function') {\n // If sync validators are represented by a single validator
function, we force the\n // `Validators.compose` call to happen by executing the `setValidators` function with\n
// an array that contains that function. We need this to avoid possible discrepancies in\n // validators behavior, so
sync validators are always processed by the `Validators.compose`.\n // Note: we should consider moving this logic
inside the `setValidators` function itself, so we\n // have consistent behavior on AbstractControl API level. The
same applies to the async\n // validators logic below.\n control.setValidators([validators]);\n }\n\n const
asyncValidators = getControlAsyncValidators(control);\n if (dir.asyncValidator !== null) {\n
control.setAsyncValidators(\n mergeValidators<AsyncValidatorFn>(asyncValidators, dir.asyncValidator));\n }
else if (typeof asyncValidators === 'function') {\n control.setAsyncValidators([asyncValidators]);\n }\n\n // Re-
run validation when validator binding changes, e.g. minlength=3 -> minlength=4\n
if (handleOnValidatorChange) {\n const onValidatorChange = () => control.updateValueAndValidity();\n
registerOnValidatorChange<ValidatorFn>(dir._rawValidators, onValidatorChange);\n
registerOnValidatorChange<AsyncValidatorFn>(dir._rawAsyncValidators, onValidatorChange);\n }\n}\n\n/**\n *
Cleans up sync and async directive validators on provided form control.\n * This function reverts the setup
performed by the `setUpValidators` function, i.e.\n * removes directive-specific validators from a given control
instance.\n */\n * @param control Form control from where directive validators should be removed.\n * @param dir
Directive instance that contains validators to be removed.\n * @param handleOnValidatorChange Flag that
determines whether directive validators should also be\n * cleaned up to stop handling validator input change (if
previously configured to do so).\n */\nexport function cleanUpValidators(\n control: AbstractControl|null, dir:
AbstractControlDirective,\n
handleOnValidatorChange: boolean): void {\n if (control !== null) {\n if (dir.validator !== null) {\n const
validators = getControlValidators(control);\n if (Array.isArray(validators) && validators.length > 0) {\n //
Filter out directive validator function.\n control.setValidators(validators.filter(validator => validator !==
dir.validator));\n }\n }\n\n if (dir.asyncValidator !== null) {\n const asyncValidators =
getControlAsyncValidators(control);\n if (Array.isArray(asyncValidators) && asyncValidators.length > 0) {\n
// Filter out directive async validator function.\n control.setAsyncValidators(\n
asyncValidators.filter(asyncValidator => asyncValidator !== dir.asyncValidator));\n }\n }\n\n if
(handleOnValidatorChange) {\n // Clear onValidatorChange callbacks by providing a noop function.\n const
noop = () => {};\n registerOnValidatorChange<ValidatorFn>(dir._rawValidators, noop);\n
registerOnValidatorChange<AsyncValidatorFn>(dir._rawAsyncValidators, noop);\n }\n }\n}\n\nfunction
setUpViewChangePipeline(control: FormControl, dir: NgControl): void {\n
dir.valueAccessor!.registerOnChange((newValue: any) => {\n control._pendingValue = newValue;\n
control._pendingChange = true;\n control._pendingDirty = true;\n\n if (control.updateOn === 'change')
updateControl(control, dir);\n });\n }\n}\n\nfunction setUpBlurPipeline(control: FormControl, dir: NgControl): void {\n

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dir.valueAccessor!.registerOnTouched(() => {\n  control._pendingTouched = true;\n\n  if (control.updateOn ===
'blur' && control._pendingChange) updateControl(control, dir);\n  if (control.updateOn !== 'submit')
control.markAsTouched();\n });\n\n\nfunction updateControl(control: FormControl, dir: NgControl): void {\n if
(control._pendingDirty) control.markAsDirty();\n  control.setValue(control._pendingValue,
{emitModelToViewChange: false});\n  dir.viewToModelUpdate(control._pendingValue);\n
control._pendingChange = false;\n}\n\nfunction setUpModelChangePipeline(control: FormControl, dir:
NgControl): void {\n  const onChange = (newValue: any, emitModelEvent: boolean) => {\n    // control -> view\n    dir.valueAccessor!.writeValue(newValue);\n\n    // control -> ngModel\n    if (emitModelEvent)
dir.viewToModelUpdate(newValue);\n  };\n  control.registerOnChange(onChange);\n\n  // Register a callback
function to cleanup onChange handler\n  // from a control instance when a directive is destroyed.\n  dir._registerOnDestroy(() => {\n    control._unregisterOnChange(onChange);\n  });\n}\n\n\nexport function
setUpFormContainer(\n  control: FormGroup|FormArray, dir: AbstractFormGroupDirective|FormArrayName) {\n
if (control == null && (typeof ngDevMode === 'undefined' || ngDevMode))\n  _throwError(dir, 'Cannot find
control with');\n  setUpValidators(control, dir, /* handleOnValidatorChange */ false);\n}\n\n\nfunction
_noControlError(dir: NgControl) {\n  return _throwError(dir, 'There
is no FormControl instance attached to form control element with');\n}\n\n\nfunction _throwError(dir:
AbstractControlDirective, message: string): void {\n  let messageEnd: string;\n  if (dir.path!.length > 1) {\n
messageEnd = `path: ${dir.path!.join(' -> ')} `;\n  } else if (dir.path![0]) {\n    messageEnd = `name: ${dir.path}`;\n
  } else {\n    messageEnd = 'unspecified name attribute';\n  }\n  throw new Error(`${message}
${messageEnd}`);\n}\n\n\nexport function isPropertyUpdated(changes: {[key: string]: any}, viewModel: any):
boolean {\n  if (!changes.hasOwnProperty('model')) return false;\n  const change = changes['model'];\n\n  if
(change.isFirstChange()) return true;\n  return !Object.is(viewModel, change.currentValue);\n}\n\n\nconst
BUILTIN_ACCESSORS = [\n  CheckboxControlValueAccessor,\n  RangeValueAccessor,\n
NumberValueAccessor,\n  SelectControlValueAccessor,\n  SelectMultipleControlValueAccessor,\n
RadioControlValueAccessor,\n];\n\n\nexport function isBuiltInAccessor(valueAccessor:
ControlValueAccessor): boolean {\n  return BUILTIN_ACCESSORS.some(a => valueAccessor.constructor ===
a);\n}\n\n\nexport function syncPendingControls(form: FormGroup, directives: NgControl[]): void {\n
form._syncPendingControls();\n  directives.forEach(dir => {\n    const control = dir.control as FormControl;\n    if
(control.updateOn === 'submit' && control._pendingChange) {\n
dir.viewToModelUpdate(control._pendingValue);\n    control._pendingChange = false;\n  }\n});\n}\n\n\n// TODO:
vsavkin remove it once https://github.com/angular/angular/issues/3011 is implemented\n\nexport function
selectValueAccessor(\n  dir: NgControl, valueAccessors: ControlValueAccessor[]): ControlValueAccessor|null {\n
if (!valueAccessors) return null;\n\n  if (!Array.isArray(valueAccessors) && (typeof ngDevMode === 'undefined' ||
ngDevMode))\n    _throwError(dir, 'Value accessor was not provided as an array for form control with');\n\n  let
defaultAccessor: ControlValueAccessor|undefined
= undefined;\n  let builtinAccessor: ControlValueAccessor|undefined = undefined;\n  let customAccessor:
ControlValueAccessor|undefined = undefined;\n\n  valueAccessors.forEach((v: ControlValueAccessor) => {\n    if
(v.constructor === DefaultValueAccessor) {\n      defaultAccessor = v;\n\n    } else if (isBuiltInAccessor(v)) {\n
if (builtinAccessor && (typeof ngDevMode === 'undefined' || ngDevMode))\n      _throwError(dir, 'More than one
built-in value accessor matches form control with');\n      builtinAccessor = v;\n\n    } else {\n      if (customAccessor
&& (typeof ngDevMode === 'undefined' || ngDevMode))\n        _throwError(dir, 'More than one custom value
accessor matches form control with');\n      customAccessor = v;\n    }\n  });\n\n  if (customAccessor) return
customAccessor;\n  if (builtinAccessor) return builtinAccessor;\n  if (defaultAccessor) return defaultAccessor;\n\n  if (typeof ngDevMode === 'undefined' || ngDevMode) {\n    _throwError(dir, 'No valid value accessor
for form control with');\n  }\n  return null;\n}\n\n\nexport function removeListItem<T>(list: T[], el: T): void {\n
const index = list.indexOf(el);\n  if (index > -1) list.splice(index, 1);\n}\n\n\n// TODO(kara): remove after deprecation
period\n\nexport function _ngModelWarning(\n  name: string, type: {_ngModelWarningSentOnce: boolean},\n
instance: {_ngModelWarningSent: boolean}, warningConfig: string|null) {\n  if (!isDevMode() || warningConfig

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=== 'never') return;\n\n if (((warningConfig === null || warningConfig === 'once') &&
!type._ngModelWarningSentOnce) ||\n (warningConfig === 'always' && !instance._ngModelWarningSent)) {\n
if (typeof ngDevMode === 'undefined' || ngDevMode) {\n ReactiveErrors.ngModelWarning(name);\n }\n
type._ngModelWarningSentOnce = true;\n instance._ngModelWarningSent = true;\n }\n}\n", "/*\n * @license\n
* Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is governed by an MIT-style license
that can be\n
* found in the LICENSE file at https://angular.io/license\n */\n\nimport { EventEmitter } from
'@angular/core';\nimport { Observable } from 'rxjs';\nimport { removeListItem } from './directives/shared';\nimport
{ AsyncValidatorFn, ValidationErrors, ValidatorFn } from './directives/validators';\nimport
{ composeAsyncValidators, composeValidators, toObservable } from './validators';\n\n/**\n * Reports that a
FormControl is valid, meaning that no errors exist in the input value.\n *\n * @see `status`\n */\nexport const
VALID = 'VALID';\n\n/**\n * Reports that a FormControl is invalid, meaning that an error exists in the input
value.\n *\n * @see `status`\n */\nexport const INVALID = 'INVALID';\n\n/**\n * Reports that a FormControl is
pending, meaning that that async validation is occurring and\n * errors are not yet available for the input value.\n
*\n * @see `markAsPending`\n * @see `status`\n */\nexport const PENDING = 'PENDING';\n\n/**\n * Reports that a
FormControl is disabled, meaning that
the control is exempt from ancestor\n * calculations of validity or value.\n *\n * @see `markAsDisabled`\n * @see
`status`\n */\nexport const DISABLED = 'DISABLED';\n\nfunction _find(control: AbstractControl, path:
Array<string|number>|string, delimiter: string) {\n if (path == null) return null;\n\n if (!Array.isArray(path)) {\n
path = path.split(delimiter);\n }\n if (Array.isArray(path) && path.length === 0) return null;\n\n // Not using
Array.reduce here due to a Chrome 80 bug\n // https://bugs.chromium.org/p/chromium/issues/detail?id=1049982\n
let controlToFind: AbstractControl|null = control;\n path.forEach((name: string|number) => {\n if (controlToFind
instanceof FormGroup) {\n controlToFind = controlToFind.controls.hasOwnProperty(name as string) ?\n
controlToFind.controls[name] : null;\n } else if (controlToFind instanceof FormArray) {\n
controlToFind = controlToFind.at(<number>name) || null;\n } else {\n controlToFind = null;\n
}\n });\n return controlToFind;\n }\n\n/**\n * Gets validators from either an options object or given validators.\n
*\nfunction pickValidators(validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null):
ValidatorFn|ValidatorFn[]|null {\n return (isOptionsObj(validatorOrOpts) ? validatorOrOpts.validators :
validatorOrOpts) || null;\n }\n\n/**\n * Creates validator function by combining provided validators.\n
*\nfunction
coerceToValidator(validator: ValidatorFn|ValidatorFn[]|null): ValidatorFn|null {\n return Array.isArray(validator) ?
composeValidators(validator) : validator || null;\n }\n\n/**\n * Gets async validators from either an options object or
given validators.\n
*\nfunction pickAsyncValidators(\n asyncValidator?:
AsyncValidatorFn|AsyncValidatorFn[]|null,\n validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null): AsyncValidatorFn| AsyncValidatorFn[]|null {\n return
(isOptionsObj(validatorOrOpts) ?
validatorOrOpts.asyncValidators : asyncValidator) || null;\n }\n\n/**\n * Creates async validator function by
combining provided async validators.\n
*\nfunction coerceToAsyncValidator(asyncValidator?:
AsyncValidatorFn|AsyncValidatorFn[]|null): AsyncValidatorFn|null {\n return
Array.isArray(asyncValidator) ? composeAsyncValidators(asyncValidator) :\n
asyncValidator || null;\n }\n\nexport type FormHooks = 'change'|'blur'|'submit';\n\n/**\n * Interface for options
provided to an `AbstractControl`.\n *\n * @publicApi\n */\nexport interface AbstractControlOptions {\n /**\n
* @description\n * The list of validators applied to a control.\n */\n validators?: ValidatorFn|ValidatorFn[]|null;\n
/**\n * @description\n * The list of async validators applied to control.\n */\n asyncValidators?:
AsyncValidatorFn|AsyncValidatorFn[]|null;\n /**\n * @description\n * The event name for control to update
upon.\n */\n updateOn?: 'change'|'blur'|'submit';\n }\n\nfunction isOptionsObj(validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null): validatorOrOpts is AbstractControlOptions
{\n return validatorOrOpts != null && !Array.isArray(validatorOrOpts) &&\n typeof validatorOrOpts ===

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'object';\n}\n\n/**\n * This is the base class for `FormControl`, `FormGroup`, and `FormArray`.\n *\n * It provides some of the shared behavior that all controls and groups of controls have, like\n * running validators, calculating status, and resetting state. It also defines the properties\n * that are shared between all sub-classes, like `value`, `valid`, and `dirty`. It shouldn't be\n * instantiated directly.\n *\n * @see [Forms Guide](/guide/forms)\n * @see [Reactive Forms Guide](/guide/reactive-forms)\n * @see [Dynamic Forms Guide](/guide/dynamic-form)\n *\n * @publicApi\n */\nexport abstract class AbstractControl {\n  /** @internal */\n  // TODO(issue/24571): remove '!'\n  _pendingDirty!: boolean;\n\n  /**\n   * Indicates that a control has its own pending asynchronous validation in progress.\n   *\n   * @internal\n   */\n  _hasOwnPendingAsyncValidator = false;\n\n  /** @internal */\n  // TODO(issue/24571): remove '!'\n  _pendingTouched!: boolean;\n\n  /** @internal */\n  _onCollectionChange = () => {};\n\n  /** @internal */\n  // TODO(issue/24571): remove '!'\n  _updateOn!: FormHooks;\n\n  private _parent: FormGroup|FormArray|null = null;\n  private _asyncValidationSubscription: any;\n\n  /**\n   * Contains the result of merging synchronous validators into a single validator function\n   * (combined using `Validators.compose`).\n   *\n   * @internal\n   */\n  private _composedValidatorFn: ValidatorFn|null;\n\n  /**\n   * Contains the result of merging asynchronous validators into a single validator function\n   * (combined using `Validators.composeAsync`).\n   *\n   * @internal\n   */\n  private _composedAsyncValidatorFn: AsyncValidatorFn|null;\n\n  /**\n   * Synchronous validators as they were provided:\n   * - in `AbstractControl` constructor\n   * - as an argument while calling `setValidators` function\n   * - while calling the setter on the `validator` field (e.g. `control.validator = validatorFn`)\n   *\n   * @internal\n   */\n  private _rawValidators: ValidatorFn|ValidatorFn[]|null;\n\n  /**\n   * Asynchronous validators as they were provided:\n   * - in `AbstractControl` constructor\n   * - as an argument while calling `setAsyncValidators` function\n   * - while calling the setter on the `asyncValidator` field (e.g. `control.asyncValidator =\n   *   asyncValidatorFn`)\n   *\n   * @internal\n   */\n  private _rawAsyncValidators: AsyncValidatorFn|AsyncValidatorFn[]|null;\n\n  /**\n   * The current value of the control.\n   * ** For a `FormControl`, the current value.\n   * ** For an enabled `FormGroup`, the values of enabled controls as an object\n   *   with a key-value pair for each member of the group.\n   * ** For a disabled `FormGroup`, the values of all controls as an object\n   *   with a key-value pair for each member of the group.\n   * ** For a `FormArray`, the values of enabled controls as an array.\n   *\n   */\n  public readonly value: any;\n\n  /**\n   * Initialize the AbstractControl instance.\n   *\n   * @param validators The function or array of functions that is used to determine the validity of\n   *   this control synchronously.\n   * @param asyncValidators The function or array of functions that is used to determine validity of\n   *   this control asynchronously.\n   *\n   */\n  constructor(\n    validators: ValidatorFn|ValidatorFn[]|null,\n    asyncValidators: AsyncValidatorFn|AsyncValidatorFn[]|null\n  ) {\n    this._rawValidators = validators;\n    this._rawAsyncValidators = asyncValidators;\n    this._composedValidatorFn = coerceToValidator(this._rawValidators);\n    this._composedAsyncValidatorFn = coerceToAsyncValidator(this._rawAsyncValidators);\n  }\n\n  /**\n   * The function that is used to determine the validity of this control synchronously.\n   *\n   */\n  get validator(): ValidatorFn|null {\n    return this._composedValidatorFn;\n  }\n  set validator(validatorFn: ValidatorFn|null) {\n    this._rawValidators = this._composedValidatorFn = validatorFn;\n  }\n\n  /**\n   * The function that is used to determine the validity of this control asynchronously.\n   *\n   */\n  get asyncValidator(): AsyncValidatorFn|null {\n    return this._composedAsyncValidatorFn;\n  }\n  set asyncValidator(asyncValidatorFn: AsyncValidatorFn|null) {\n    this._rawAsyncValidators = this._composedAsyncValidatorFn = asyncValidatorFn;\n  }\n\n  /**\n   * The parent control.\n   *\n   */\n  get parent(): FormGroup|FormArray|null {\n    return this._parent;\n  }\n\n  /**\n   * The validation status of the control. There are four possible\n   * validation status values:\n   * **VALID**: This control has passed all validation checks.\n   * **INVALID**: This control has failed at least one validation check.\n   * **PENDING**: This control is in the midst of conducting a validation check.\n   * **DISABLED**: This control is exempt from validation checks.\n   *\n   * These status values are mutually exclusive, so a control cannot be\n   * both valid AND invalid or invalid AND disabled.\n   *\n   */\n  // TODO(issue/24571): remove '!'\n  public readonly status!: string;\n\n  /**\n   * A control is `valid` when its `status` is `VALID`.\n   *\n   * @see {@link AbstractControl.status}\n   *\n   * @returns True if the control has passed all of

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its validation tests,\n * false otherwise.\n */\n get valid(): boolean {\n   return this.status === VALID;\n }\n\n/**\n * A control is `invalid` when its `status` is `INVALID`.\n *\n * @see {@link AbstractControl.status}\n *\n * @returns True if this control has failed one or more of its validation checks,\n * false otherwise.\n */\n get\n invalid(): boolean {\n   return this.status === INVALID;\n }\n\n/**\n * A control is `pending` when its `status` is `PENDING`.\n *\n * @see {@link AbstractControl.status}\n *\n * @returns True if this control is in the process of conducting a validation check,\n * false otherwise.\n */\n get\n pending(): boolean {\n   return this.status === PENDING;\n }\n\n/**\n * A control is `disabled` when its\n `status` is `DISABLED`.\n *\n * Disabled controls are exempt from validation checks and\n * are not included\n in the aggregate value of their ancestor\n * controls.\n *\n * @see {@link AbstractControl.status}\n *\n * @returns True if the control is disabled, false otherwise.\n */\n get\n disabled(): boolean {\n   return this.status ===\n     DISABLED;\n }\n\n/**\n * A control is `enabled` as long as its `status` is not `DISABLED`.\n *\n * @returns\n True if the control has any status other than 'DISABLED',\n * false if the status is 'DISABLED'.\n *\n * @see\n {@link AbstractControl.status}\n *\n */\n get\n enabled():\n boolean {\n   return this.status !== DISABLED;\n }\n\n/**\n * An object containing any errors generated by\n failing validation,\n * or null if there are no errors.\n */\n // TODO(issue/24571): remove '!'.\n public readonly\n errors!: ValidationErrors|null;\n\n/**\n * A control is `pristine` if the user has not yet changed\n * the value in\n the UI.\n *\n * @returns True if the user has not yet changed the value in the UI; compare `dirty`.\n *\n Programmatic changes to a control's value do not mark it dirty.\n */\n public readonly\n pristine: boolean = true;\n\n/**\n * A control is `dirty` if the user has changed the value\n * in the UI.\n *\n * @returns True if the user has\n changed the value of this control in the UI; compare `pristine`.\n *\n Programmatic changes to a control's value do\n not mark it dirty.\n */\n get\n dirty(): boolean {\n   return !this.pristine;\n }\n\n/**\n * True if the control is\n marked as `touched`.\n *\n * A control is\n marked `touched` once the user has triggered\n * a `blur` event on it.\n */\n public readonly\n touched: boolean =\n false;\n\n/**\n * True if the control has not been marked as touched\n *\n * A control is `untouched` if the user\n has not yet triggered\n * a `blur` event on it.\n */\n get\n untouched(): boolean {\n   return !this.touched;\n }\n\n/**\n * A multicasting observable that emits an event every time the value of the control changes, in\n * the UI or\n programmatically. It also emits an event each time you call enable() or disable()\n * without passing along\n {emitEvent: false} as a function argument.\n */\n // TODO(issue/24571): remove '!'.\n public readonly\n valueChanges!: Observable<any>;\n\n/**\n * A multicasting observable that emits an event every time the\n validation `status` of the control\n * recalculates.\n *\n * @see {@link AbstractControl.status}\n *\n */\n //\n TODO(issue/24571): remove '!'.\n public readonly\n statusChanges!: Observable<any>;\n\n/**\n * Reports the update strategy of the `AbstractControl` (meaning\n * the event on which the control updates\n itself).\n * Possible values: `change` | `blur` | `submit`\n * Default value: `change`\n */\n get\n updateOn():\n FormHooks {\n   return this._updateOn ? this._updateOn : (this.parent ? this.parent.updateOn : 'change');\n }\n\n/**\n * Sets the synchronous validators that are active on this control. Calling\n * this overwrites any existing\n sync validators.\n *\n * When you add or remove a validator at run time, you must call\n * `updateValueAndValidity()` for the new validation to take effect.\n *\n */\n set\n validators(newValidator:\n ValidatorFn|ValidatorFn[]|null): void {\n   this._rawValidators = newValidator;\n   this._composedValidatorFn =\n     coerceToValidator(newValidator);\n }\n\n/**\n * Sets the async validators that are active on this control. Calling\n this\n * overwrites any existing async validators.\n *\n * When you add or remove a validator at run time, you must call\n * `updateValueAndValidity()` for the new\n validation to take effect.\n *\n */\n set\n asyncValidators(newValidator:\n AsyncValidatorFn|AsyncValidatorFn[]|null): void {\n   this._rawAsyncValidators = newValidator;\n   this._composedAsyncValidatorFn =\n     coerceToAsyncValidator(newValidator);\n }\n\n/**\n * Empties out the\n sync validator list.\n *\n * When you add or remove a validator at run time, you must call\n * `updateValueAndValidity()` for the new validation to take effect.\n *\n */\n clear\n validators(): void {\n   this.validator = null;\n }\n\n/**\n * Empties out the async validator list.\n *\n * When you add or remove a\n validator at run time, you must call\n * `updateValueAndValidity()` for the new validation to take effect.\n *\n */

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* /\n clearAsyncValidators(): void {\n  this.asyncValidator = null;\n } /\n * Marks the control as `touched`.
A control is touched by focus and\n
* blur events that do not change the value.\n * /\n * @see `markAsUntouched()`\n * @see `markAsDirty()`\n *
@see `markAsPristine()`\n * /\n * @param opts Configuration options that determine how the control propagates
changes\n * and emits events after marking is applied.\n * * `onlySelf`: When true, mark only this control. When
false or not supplied,\n * marks all direct ancestors. Default is false.\n * /\n markAsTouched(opts: {onlySelf?:
boolean} = {}): void {\n  (this as {touched: boolean}).touched = true;\n\n  if (this._parent && !opts.onlySelf) {\n
  this._parent.markAsTouched(opts);\n  }\n } /\n * Marks the control and all its descendant controls as
`touched`.\n * @see `markAsTouched()`\n * /\n markAllAsTouched(): void {\n  this.markAsTouched({onlySelf:
true});\n\n  this._forEachChild((control: AbstractControl) => control.markAllAsTouched());\n } /\n *
Marks the control as `untouched`.\n * /\n * If the control has any children,
also marks all children as `untouched`\n * and recalculates the `touched` status of all parent controls.\n * /\n
* @see `markAsTouched()`\n * @see `markAsDirty()`\n * @see `markAsPristine()`\n * /\n * @param opts
Configuration options that determine how the control propagates changes\n * and emits events after the marking is
applied.\n * * `onlySelf`: When true, mark only this control. When false or not supplied,\n * marks all direct
ancestors. Default is false.\n * /\n markAsUntouched(opts: {onlySelf?: boolean} = {}): void {\n  (this as
{touched: boolean}).touched = false;\n\n  this._pendingTouched = false;\n\n  this._forEachChild((control:
AbstractControl) => {\n    control.markAsUntouched({onlySelf: true});\n  });\n\n  if (this._parent &&
!opts.onlySelf) {\n    this._parent._updateTouched(opts);\n  }\n } /\n * Marks the control as `dirty`. A
control becomes dirty when\n * the control's value is changed through the UI; compare `markAsTouched`.\n
* /\n * @see `markAsTouched()`\n * @see `markAsUntouched()`\n * @see `markAsPristine()`\n * /\n *
@param opts Configuration options that determine how the control propagates changes\n * and emits events after
marking is applied.\n * * `onlySelf`: When true, mark only this control. When false or not supplied,\n * marks all
direct ancestors. Default is false.\n * /\n markAsDirty(opts: {onlySelf?: boolean} = {}): void {\n  (this as
{pristine: boolean}).pristine = false;\n\n  if (this._parent && !opts.onlySelf) {\n
  this._parent.markAsDirty(opts);\n  }\n } /\n * Marks the control as `pristine`.\n * /\n * If the control has
any children, marks all children as `pristine`,\n * and recalculates the `pristine` status of all parent\n * controls.\n
* /\n * @see `markAsTouched()`\n * @see `markAsUntouched()`\n * @see `markAsDirty()`\n * /\n * @param
opts Configuration options that determine how the control emits events after\n * marking
is applied.\n * * `onlySelf`: When true, mark only this control. When false or not supplied,\n * marks all direct
ancestors. Default is false.\n * /\n markAsPristine(opts: {onlySelf?: boolean} = {}): void {\n  (this as {pristine:
boolean}).pristine = true;\n\n  this._pendingDirty = false;\n\n  this._forEachChild((control: AbstractControl) => {\n
    control.markAsPristine({onlySelf: true});\n  });\n\n  if (this._parent && !opts.onlySelf) {\n
  this._parent._updatePristine(opts);\n  }\n } /\n * Marks the control as `pending`.\n * /\n * A control is
pending while the control performs async validation.\n * /\n * @see { @link AbstractControl.status }\n * /\n
* @param opts Configuration options that determine how the control propagates changes and\n * emits events after
marking is applied.\n * * `onlySelf`: When true, mark only this control. When false or not supplied,\n * marks all
direct ancestors. Default is false.\n * * `emitEvent`: When true
or not supplied (the default), the `statusChanges`\n * observable emits an event with the latest status the control is
marked pending.\n * When false, no events are emitted.\n * /\n * /\n markAsPending(opts: {onlySelf?: boolean,
emitEvent?: boolean} = {}): void {\n  (this as {status: string}).status = PENDING;\n\n  if (opts.emitEvent !==
false) {\n    (this.statusChanges as EventEmitter<any>).emit(this.status);\n  }\n\n  if (this._parent &&
!opts.onlySelf) {\n    this._parent.markAsPending(opts);\n  }\n } /\n * Disables the control. This means
the control is exempt from validation checks and\n * excluded from the aggregate value of any parent. Its status is
`DISABLED`.\n * /\n * If the control has children, all children are also disabled.\n * /\n * @see { @link
AbstractControl.status }\n * /\n * @param opts Configuration options that determine how the control propagates\n
* changes and emits events after the control is disabled.\n * * `onlySelf`:

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When true, mark only this control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n *`emitEvent`: When true or not supplied (the default), both the `statusChanges` and \n * `valueChanges` \n * observables emit events with the latest status and value when the control is disabled. \n * When false, no events are emitted. \n */ \n disable(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n // If parent has been marked artificially dirty we don't want to re-calculate the \n // parent's dirtiness based on the children. \n const skipPristineCheck = this._parentMarkedDirty(opts.onlySelf); \n \n (this as {status: string}).status = DISABLED; \n (this as {errors: ValidationErrors | null}).errors = null; \n this._forEachChild((control: AbstractControl) => {\n control.disable({...opts, onlySelf: true}); \n }); \n this._updateValue(); \n \n if (opts.emitEvent !== false) {\n (this.valueChanges as EventEmitter<any>).emit(this.value); \n \n (this.statusChanges as EventEmitter<string>).emit(this.status); \n } \n \n this._updateAncestors({...opts, skipPristineCheck}); \n this._onDisabledChange.forEach((changeFn) => changeFn(true)); \n } \n \n /** \n * Enables the control. This means the control is included in validation checks and \n * the aggregate value of its parent. Its status recalculates based on its value and \n * its validators. \n * \n * By default, if the control has children, all children are enabled. \n * \n * @see { @link AbstractControl.status} \n * \n * @param opts Configure options that control how the control propagates changes and \n * emits events when marked as untouched \n * *`onlySelf`: When true, mark only this control. When false or not supplied, \n * marks all direct ancestors. Default is false. \n * *`emitEvent`: When true or not supplied (the default), both the `statusChanges` and \n * `valueChanges` \n * observables emit events with the latest status and value when the control is enabled. \n * When false, no events are emitted. \n */ \n enable(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n // If parent has been marked artificially dirty we don't want to re-calculate the \n // parent's dirtiness based on the children. \n const skipPristineCheck = this._parentMarkedDirty(opts.onlySelf); \n \n (this as {status: string}).status = VALID; \n this._forEachChild((control: AbstractControl) => {\n control.enable({...opts, onlySelf: true}); \n }); \n this.updateValueAndValidity({onlySelf: true, emitEvent: opts.emitEvent}); \n \n this._updateAncestors({...opts, skipPristineCheck}); \n this._onDisabledChange.forEach((changeFn) => changeFn(false)); \n } \n \n private _updateAncestors(\n opts: {onlySelf?: boolean, emitEvent?: boolean, skipPristineCheck?: boolean}) {\n if (this._parent && !opts.onlySelf) {\n this._parent.updateValueAndValidity(opts); \n if (!opts.skipPristineCheck) {\n this._parent._updatePristine(); \n \n this._parent._updateTouched(); \n } \n } \n \n /** \n * @param parent Sets the parent of the control \n */ \n setParent(parent: FormGroup|FormArray): void {\n this._parent = parent; \n } \n \n /** \n * Sets the value of the control. Abstract method (implemented in sub-classes). \n */ \n abstract setValue(value: any, options?: Object): void; \n \n /** \n * Patches the value of the control. Abstract method (implemented in sub-classes). \n */ \n abstract patchValue(value: any, options?: Object): void; \n \n /** \n * Resets the control. Abstract method (implemented in sub-classes). \n */ \n abstract reset(value?: any, options?: Object): void; \n \n /** \n * Recalculates the value and validation status of the control. \n * \n * By default, it also updates the value and validity of its ancestors. \n * \n * @param opts Configuration options determine how the control propagates changes and emits events \n * after updates and validity checks are applied. \n * *`onlySelf`: When true, only update this control. When false or not supplied, \n * update all direct ancestors. Default is false. \n * *`emitEvent`: When true or not supplied (the default), both the `statusChanges` and \n * `valueChanges` \n * observables emit events with the latest status and value when the control is updated. \n * When false, no events are emitted. \n */ \n updateValueAndValidity(opts: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n this._setInitialStatus(); \n this._updateValue(); \n \n if (this.enabled) {\n this._cancelExistingSubscription(); \n (this as {errors: ValidationErrors | null}).errors = this._runValidator(); \n (this as {status: string}).status = this._calculateStatus(); \n \n if (this.status === VALID || this.status === PENDING) {\n this._runAsyncValidator(opts.emitEvent); \n } \n } \n \n if (opts.emitEvent !== false) {\n (this.valueChanges as EventEmitter<any>).emit(this.value); \n \n (this.statusChanges as EventEmitter<string>).emit(this.status); \n } \n \n if (this._parent && !opts.onlySelf) {\n this._parent.updateValueAndValidity(opts); \n } \n } \n \n /** @internal */ \n _updateTreeValidity(opts:

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{emitEvent?: boolean} = {emitEvent: true}) {\n  this._forEachChild((ctrl: AbstractControl) =>
ctrl._updateTreeValidity(opts));\n  this.updateValueAndValidity({onlySelf: true, emitEvent: opts.emitEvent});\n
}\n\n private _setInitialStatus() {\n  (this as {status: string}).status = this._allControlsDisabled() ? DISABLED :
VALID;\n }\n\n private _runValidator(): ValidationErrors|null {\n  return this.validator ? this.validator(this) :
null;\n }\n\n private _runAsyncValidator(emitEvent?: boolean): void {\n  if (this.asyncValidator) {\n    (this as
{status: string}).status = PENDING;\n    this._hasOwnPendingAsyncValidator = true;\n    const obs =
toObservable(this.asyncValidator(this));\n    this._asyncValidationSubscription
= obs.subscribe((errors: ValidationErrors|null) => {\n    this._hasOwnPendingAsyncValidator = false;\n    //
This will trigger the recalculation of the validation status, which depends on\n    // the state of the asynchronous
validation (whether it is in progress or not). So, it is\n    // necessary that we have updated the
`_hasOwnPendingAsyncValidator` boolean flag first.\n    this.setErrors(errors, {emitEvent});\n    });\n  }\n
}\n\n private _cancelExistingSubscription(): void {\n  if (this._asyncValidationSubscription) {\n
this._asyncValidationSubscription.unsubscribe();\n  this._hasOwnPendingAsyncValidator = false;\n  }\n }\n\n
/**\n * Sets errors on a form control when running validations manually, rather than automatically.\n *\n *
Calling `setErrors` also updates the validity of the parent control.\n *\n * @usageNotes\n *\n * ### Manually
set the errors for a control\n *\n * ```\n * const login = new FormControl('someLogin');\n *
login.setErrors({\n *   notUnique: true\n * });\n *\n * expect(login.valid).toEqual(false);\n *
expect(login.errors).toEqual({ notUnique: true });\n *\n * login.setValue('someOtherLogin');\n *\n *
expect(login.valid).toEqual(true);\n * ```\n *\n * @param errors ValidationErrors|null, opts: {emitEvent?:
boolean} = {}): void {\n  (this as {errors: ValidationErrors | null}).errors = errors;\n
this._updateControlsErrors(opts.emitEvent !== false);\n }\n\n /**\n * Retrieves a child control given the control's
name or path.\n *\n * @param path A dot-delimited string or array of string/number values that define the path to
the\n * control.\n *\n * @usageNotes\n * ### Retrieve a nested control\n *\n * For example, to get a `name`
control nested within a `person` sub-group:\n *\n * ```\n * this.form.get('person.name');\n *\n * -OR-\n *\n *
this.form.get(['person', 'name']);\n *\n * @param path Array<string|number>|string):
AbstractControl|null {\n  return _find(this, path, '.');\n }\n\n /**\n * @description\n * Reports error data for the
control with the given path.\n *\n * @param errorCode The code of the error to check\n * @param path A list of
control names that designates how to move from the current control\n * to the control that should be queried for
errors.\n *\n * @usageNotes\n * For example, for the following `FormGroup`:\n *\n * ```\n * form = new
FormGroup({\n *   address: new FormGroup({ street: new FormControl() })\n * });\n *\n * ```\n *\n * The path to
the 'street' control from the root form would be 'address' -> 'street'. \n *\n * It can be provided to this method in one
of two formats:\n *\n * 1. An array of string control names, e.g. `['address', 'street']`\n * 1. A period-delimited list
of control names in one string, e.g. `address.street`\n *\n * @returns error data for that particular error. If the
control or error is not present,\n
* null is returned.\n *\n * @param errorCode: string, path?: Array<string|number>|string): any {\n  const control
= path ? this.get(path) : this;\n  return control && control.errors ? control.errors[errorCode] : null;\n }\n\n
/**\n * @description\n * Reports whether the control with the given path has the error specified.\n *\n * @param
errorCode The code of the error to check\n * @param path A list of control names that designates how to move
from the current control\n * to the control that should be queried for errors.\n *\n * @usageNotes\n * For
example, for the following `FormGroup`:\n *\n * ```\n * form = new FormGroup({\n *   address: new
FormGroup({ street: new FormControl() })\n * });\n *\n * ```\n *\n * The path to the 'street' control from the root
form would be 'address' -> 'street'. \n *\n * It can be provided to this method in one of two formats:\n *\n * 1.
An array of string control names, e.g. `['address', 'street']`\n
* 1. A period-delimited list of control names in one string, e.g. `address.street`\n *\n * If no path is given, this
method checks for the error on the current control.\n *\n * @returns whether the given error is present in the
control at the given path.\n *\n * If the control is not present, false is returned.\n *\n * @param errorCode: string,
path?: Array<string|number>|string): boolean {\n  return !!this.getError(errorCode, path);\n }\n\n /**\n *
Retrieves the top-level ancestor of this control.\n *\n * @param root(): AbstractControl {\n  let x: AbstractControl =

```

```

this;\n\n while (x._parent) {\n   x = x._parent;\n };\n\n return x;\n }\n\n /** @internal */\n _updateControlsErrors(emitEvent: boolean): void {\n   (this as {status: string}).status = this._calculateStatus();\n\n   if (emitEvent) {\n     (this.statusChanges as EventEmitter<string>).emit(this.status);\n   }\n\n   if (this._parent) {\n     this._parent._updateControlsErrors(emitEvent);\n   }\n }\n\n /** @internal */\n _initObservables() {\n   (this as {valueChanges: Observable<any>}).valueChanges = new EventEmitter();\n   (this as {statusChanges: Observable<any>}).statusChanges = new EventEmitter();\n }\n\n private _calculateStatus(): string {\n   if (this._allControlsDisabled()) return DISABLED;\n   if (this.errors) return INVALID;\n   if (this._hasOwnPendingAsyncValidator || this._anyControlsHaveStatus(PENDING)) return PENDING;\n   if (this._anyControlsHaveStatus(INVALID)) return INVALID;\n   return VALID;\n }\n\n /** @internal */\n abstract _updateValue(): void;\n\n /** @internal */\n abstract _forEachChild(cb: Function): void;\n\n /** @internal */\n abstract _anyControls(condition: Function): boolean;\n\n /** @internal */\n abstract _allControlsDisabled(): boolean;\n\n /** @internal */\n abstract _syncPendingControls(): boolean;\n\n /** @internal */\n _anyControlsHaveStatus(status: string): boolean {\n   return this._anyControls((control: AbstractControl) => control.status === status);\n }\n\n /** @internal */\n _anyControlsDirty(): boolean {\n   return this._anyControls((control: AbstractControl) => control.dirty);\n }\n\n /** @internal */\n _anyControlsTouched(): boolean {\n   return this._anyControls((control: AbstractControl) => control.touched);\n }\n\n /** @internal */\n _updatePristine(opts: {onlySelf?: boolean} = {}): void {\n   (this as {pristine: boolean}).pristine = !this._anyControlsDirty();\n\n   if (this._parent && !opts.onlySelf) {\n     this._parent._updatePristine(opts);\n   }\n }\n\n /** @internal */\n _updateTouched(opts: {onlySelf?: boolean} = {}): void {\n   (this as {touched: boolean}).touched = this._anyControlsTouched();\n\n   if (this._parent && !opts.onlySelf) {\n     this._parent._updateTouched(opts);\n   }\n }\n\n /** @internal */\n _onDisabledChange: Function[] = [];\n\n /** @internal */\n _isBoxedValue(formState: any): boolean {\n   return typeof formState === 'object' && formState !== null && Object.keys(formState).length === 2 && 'value' in formState && 'disabled' in formState;\n }\n\n /** @internal */\n _registerOnCollectionChange(fn: () => void): void {\n   this._onCollectionChange = fn;\n }\n\n /** @internal */\n _setUpdateStrategy(opts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null): void {\n   if (isOptionsObj(opts) && opts.updateOn !== null) {\n     this._updateOn = opts.updateOn!;\n   }\n }\n\n /**\n  * Check to see if parent has been marked artificially dirty.\n  *\n  * @internal\n  *\n  * private _parentMarkedDirty(onlySelf?: boolean): boolean {\n    const parentDirty = this._parent && this._parent.dirty;\n    return !onlySelf && !parentDirty && !this._parent!._anyControlsDirty();\n  }\n }\n\n /**\n  * Tracks the value and validation status of an individual form control.\n  *\n  * This is one of the three fundamental building blocks of Angular forms, along with\n  * `FormGroup` and `FormArray`.\n  */

```

It extends the `AbstractControl` class that implements most of the base functionality for accessing the value, validation status, user interactions and events. See [usage examples below](#usage-notes).

@see `AbstractControl`

@see [Reactive Forms Guide](guide/reactive-forms)

@see [Usage Notes](#usage-notes)

@usageNotes

Initializing Form Controls

Instantiate a `FormControl`, with an initial value.

```
const control = new FormControl('some value');
console.log(control.value); // 'some value'
```

The following example initializes the control with a form state object. The `value` and `disabled` keys are required in this case.

```
const control = new FormControl({ value: 'n/a', disabled: true });
console.log(control.value); // 'n/a'
console.log(control.status); // 'DISABLED'
```

The following example initializes the control with a sync validator.

```
const control = new FormControl('', Validators.required);
console.log(control.value); // ''
console.log(control.status); // 'INVALID'
```

The following example initializes the control using an options object.

```
const control = new FormControl('', {
  validators: Validators.required,
  asyncValidators: myAsyncValidator
});
```

Configure the control to update on a blur event

```
Set the `updateOn` option to `blur` to update on the blur event.
const control = new FormControl('', { updateOn: 'blur' });
```

Configure the control to update on a submit event

```
Set the `updateOn` option to `submit` to update on a submit event.
const control = new
```

```

FormControl(", { updateOn: 'submit' });\n * ```\n * \n * ### Reset the control back to an initial value\n * \n * You
reset to a specific form state by passing through a standalone\n * value or a form state
object that contains both a value and a disabled state\n * (these are the only two properties that cannot be
calculated).\n * \n * ```\n * \n * const control = new FormControl('Nancy');\n * \n * console.log(control.value); //
'Nancy'\n * \n * control.reset('Drew');\n * \n * console.log(control.value); // 'Drew'\n * ```\n * \n * ### Reset the
control back to an initial value and disabled\n * \n * ```\n * \n * const control = new FormControl('Nancy');\n * \n *
console.log(control.value); // 'Nancy'\n * console.log(control.status); // 'VALID'\n * \n * control.reset({ value:
'Drew', disabled: true });\n * \n * console.log(control.value); // 'Drew'\n * console.log(control.status); //
'DISABLED'\n * ```\n * \n * @publicApi\n * \n * @export class FormControl extends AbstractControl {\n * \n * @internal
*\n * \n * _onChange: Function[] = [];\n * \n * @internal *\n * \n * _pendingValue: any;\n * \n * @internal *\n * \n *
_pendingChange: any;\n * \n * /**\n * \n * Creates a new `FormControl` instance.\n * \n * @param formState Initializes
the control with an initial value,\n * \n * or an object that defines the initial value and disabled state.\n * \n * @param
validatorOrOpts A synchronous validator function, or an array of\n * \n * such functions, or an
`AbstractControlOptions` object that contains validation functions\n * \n * and a validation trigger.\n * \n * @param
asyncValidator A single async validator or array of async validator functions\n * \n * \n * \n * constructor(\n
formState: any = null,\n * \n * validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n * \n *
asyncValidator?: AsyncValidatorFn|AsyncValidatorFn[]|null) {\n * \n * super(pickValidators(validatorOrOpts),
pickAsyncValidators(asyncValidator, validatorOrOpts));\n * \n * this._applyFormState(formState);\n * \n *
this._setUpdateStrategy(validatorOrOpts);\n * \n * this._initObservables();\n * \n * this.updateValueAndValidity({\n
onlySelf: true,\n * \n * // If `asyncValidator` is present, it will trigger control status change from `PENDING` to\n
// `VALID` or `INVALID`.\n * \n * // The status should be broadcasted via the `statusChanges` observable, so we set
`emitEvent`\n * \n * // to `true` to allow that during the control creation process.\n * \n * emitEvent: !!asyncValidator\n
});\n * \n * }\n * \n * /**\n * \n * Sets a new value for the form control.\n * \n * @param value The new value for the
control.\n * \n * @param options Configuration options that determine how the control propagates changes\n * \n * and
emits events when the value changes.\n * \n * The configuration options are passed to the { @link
AbstractControl#updateValueAndValidity\n * \n * updateValueAndValidity } method.\n * \n * * `onlySelf`: When
true, each change only affects this control, and not its parent. Default is\n * \n * false.\n * \n * * `emitEvent`: When true or
not supplied (the default), both the `statusChanges` and\n * \n * `valueChanges`\n * \n * observables emit events with the
latest status and value when the control value is updated.\n * \n * When false, no events are emitted.\n
* \n * * `emitModelToViewChange`: When true or not supplied (the default), each change triggers an\n * \n *
`onChange` event to\n * \n * update the view.\n * \n * * `emitViewToModelChange`: When true or not supplied (the
default), each change triggers an\n * \n * `ngModelChange`\n * \n * event to update the model.\n * \n * \n * \n *
set\n * \n * setValue(value: any, options: {\n * \n * onlySelf?: boolean,\n * \n * emitEvent?: boolean,\n * \n *
emitModelToViewChange?: boolean,\n * \n * emitViewToModelChange?: boolean\n * \n * } = {}): void {\n * \n * (this as { value: any }).value =
this._pendingValue = value;\n * \n * if (this._onChange.length && options.emitModelToViewChange !== false) {\n * \n *
this._onChange.forEach(\n * \n * (changeFn) => changeFn(this.value, options.emitViewToModelChange !==
false));\n * \n * }\n * \n * this.updateValueAndValidity(options);\n * \n * }\n * \n * /**\n * \n * Patches the value of a control.\n * \n * \n *
This function is functionally the same as { @link FormControl#setValue setValue } at this level.\n * \n * It exists for
symmetry with
{ @link FormGroup#patchValue patchValue } on `FormGroups` and\n * \n * `FormArrays`, where it does behave
differently.\n * \n * \n * @see `setValue` for options\n * \n * \n * patchValue(value: any, options: {\n * \n * onlySelf?:
boolean,\n * \n * emitEvent?: boolean,\n * \n * emitModelToViewChange?: boolean,\n * \n * emitViewToModelChange?:
boolean\n * \n * } = {}): void {\n * \n * this.setValue(value, options);\n * \n * }\n * \n * /**\n * \n * Resets the form control, marking it
`pristine` and `untouched`, and setting\n * \n * the value to null.\n * \n * \n * @param formState Resets the control with
an initial value,\n * \n * or an object that defines the initial value and disabled state.\n * \n * \n * @param options
Configuration options that determine how the control propagates changes\n * \n * and emits events after the value
changes.\n * \n * \n * * `onlySelf`: When true, each change only affects this control, and not its parent. Default is\n * \n *
false.\n * \n * * `emitEvent`: When true or not supplied (the default), both the `statusChanges` and\n

```

```

    * `valueChanges`\n * observables emit events with the latest status and value when the control is reset.\n *
    When false, no events are emitted.\n *
    */\n reset(formState: any = null, options: {onlySelf?: boolean,
    emitEvent?: boolean}) = {}): void {\n  this._applyFormState(formState);\n  this.markAsPristine(options);\n  this.markAsUntouched(options);\n  this.setValue(this.value, options);\n  this._pendingChange = false;\n }\n\n /**\n * @internal\n */\n _updateValue() {\n\n /**\n * @internal\n */\n _anyControls(condition: Function):
boolean {\n  return false;\n }\n\n /**\n * @internal\n */\n _allControlsDisabled(): boolean {\n  return
this.disabled;\n }\n\n /**\n * Register a listener for change events.\n * \n * @param fn The method that is called
when the value changes\n */\n registerOnChange(fn: Function): void {\n  this._onChange.push(fn);\n }\n\n /**\n * Internal function to unregister a change events listener.\n * @internal\n
*/\n _unregisterOnChange(fn: Function): void {\n  removeListItem(this._onChange, fn);\n }\n\n /**\n *
Register a listener for disabled events.\n * \n * @param fn The method that is called when the disabled status
changes.\n */\n registerOnDisabledChange(fn: (isDisabled: boolean) => void): void {\n
this._onDisabledChange.push(fn);\n }\n\n /**\n * Internal function to unregister a disabled event listener.\n *
@internal\n */\n _unregisterOnDisabledChange(fn: (isDisabled: boolean) => void): void {\n
removeListItem(this._onDisabledChange, fn);\n }\n\n /**\n * @internal\n */\n _forEachChild(cb: Function):
void {\n\n /**\n * @internal\n */\n _syncPendingControls(): boolean {\n  if (this.updateOn === 'submit') {\n    if
(this._pendingDirty) this.markAsDirty();\n    if (this._pendingTouched) this.markAsTouched();\n    if
(this._pendingChange) {\n      this.setValue(this._pendingValue, {onlySelf: true, emitModelToViewChange:
false});\n    }\n    return true;\n  }\n  return false;\n }\n\n private _applyFormState(formState: any) {\n  if
(this._isBoxedValue(formState)) {\n    (this as {value: any}).value = this._pendingValue = formState.value;\n    formState.disabled ? this.disable({onlySelf: true, emitEvent: false}) : this.enable({onlySelf: true,
emitEvent: false});\n  } else {\n    (this as {value: any}).value = this._pendingValue = formState;\n  }\n }\n\n /**\n * Tracks the value and validity state of a group of `FormControl` instances.\n * \n * A `FormGroup`
aggregates the values of each child `FormControl` into one object,\n * with each control name as the key. It
calculates its status by reducing the status values\n * of its children. For example, if one of the controls in a group is
invalid, the entire\n * group becomes invalid.\n * \n * `FormGroup` is one of the three fundamental building blocks
used to define forms in Angular,\n * along with `FormControl` and `FormArray`.\n
\n * \n * When instantiating a `FormGroup`, pass in a collection of child controls as the first\n * argument. The key for
each child registers the name for the control.\n * \n * @usageNotes\n * \n * ### Create a form group with 2
controls\n * \n * ```\n * const form = new FormGroup({\n *   first: new FormControl('Nancy',
Validators.minLength(2)),\n *   last: new FormControl('Drew'),\n * });\n * \n * console.log(form.value); // {first:
'Nancy', last: 'Drew'}\n * console.log(form.status); // 'VALID'\n * \n * ### Create a form group with a group-
level validator\n * \n * You include group-level validators as the second arg, or group-level async\n * validators as
the third arg. These come in handy when you want to perform validation\n * that considers the value of more than
one child control.\n * \n * ```\n * const form = new FormGroup({\n *   password: new FormControl(",
Validators.minLength(2)),\n *   passwordConfirm: new FormControl(", Validators.minLength(2)),\n * },
passwordMatchValidator);\n
\n * \n * function passwordMatchValidator(g: FormGroup) {\n *   return g.get('password').value ===
g.get('passwordConfirm').value\n *     ? null : {'mismatch': true};\n * }\n * \n * Like `FormControl`
instances, you choose to pass in\n * validators and async validators as part of an options object.\n * \n * ```\n * const
form = new FormGroup({\n *   password: new FormControl(""),\n *   passwordConfirm: new FormControl(""),\n * }, {\n
validators: passwordMatchValidator, asyncValidators: otherValidator });\n * \n * ### Set the updateOn
property for all controls in a form group\n * \n * The options object is used to set a default value for each child\n *
control's `updateOn` property. If you set `updateOn` to `blur` at the\n * group level, all child controls default to
`blur`, unless the child\n * has explicitly specified a different `updateOn` value.\n * \n * ```ts\n * const c = new
FormGroup({\n *   one: new FormControl(),\n * }, { updateOn: 'blur' });\n *

```



```

`FormGroup` instance.\n * @param controls A collection of child controls. The key for each child is the
name\n * under which it is registered.\n * @param validatorOrOpts A synchronous validator function, or an
array of\n * such functions, or an `AbstractControlOptions` object that contains validation functions\n * and a
validation trigger.\n * @param asyncValidator A single async validator or array of async validator functions\n
*\n * constructor(\n public controls: {[key: string]: AbstractControl},\n validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n asyncValidator?:
AsyncValidatorFn|AsyncValidatorFn[]|null) {\n super(pickValidators(validatorOrOpts),
pickAsyncValidators(asyncValidator, validatorOrOpts));\n this._initObservables();\n
this._setUpdateStrategy(validatorOrOpts);\n this._setUpControls();\n
this.updateValueAndValidity({\n onlySelf: true,\n // If `asyncValidator` is present, it will trigger control
status change from `PENDING` to\n // `VALID` or `INVALID`. The status should be broadcasted via the
`statusChanges` observable,\n // so we set `emitEvent` to `true` to allow that during the control creation
process.\n emitEvent: !!asyncValidator\n });\n }\n\n /**\n * Registers a control with the group's list of
controls.\n * This method does not update the value or validity of the control.\n * Use {@link
FormGroup#addControl addControl} instead.\n * @param name The control name to register in the
collection\n * @param control Provides the control for the given name\n */\n registerControl(name: string,
control: AbstractControl): AbstractControl {\n if (this.controls[name]) return this.controls[name];\n
this.controls[name] = control;\n control.setParent(this);\n
control._registerOnCollectionChange(this._onCollectionChange);\n
return control;\n }\n\n /**\n * Add a control to this group.\n * This method also updates the value and
validity of the control.\n * @param name The control name to add to the collection\n * @param control
Provides the control for the given name\n */\n addControl(name: string, control: AbstractControl): void {\n
this.registerControl(name, control);\n this.updateValueAndValidity();\n this._onCollectionChange();\n }\n\n
/**\n * Remove a control from this group.\n * @param name The control name to remove from the
collection\n */\n removeControl(name: string): void {\n if (this.controls[name])\n
this.controls[name]._registerOnCollectionChange(() => {});\n delete (this.controls[name]);\n
this.updateValueAndValidity();\n this._onCollectionChange();\n }\n\n /**\n * Replace an existing control.\n
*\n * @param name The control name to replace in the collection\n * @param control Provides the control for
the given name\n */\n setControl(name: string, control: AbstractControl): void {\n if (this.controls[name])\n
this.controls[name]._registerOnCollectionChange(() => {});\n delete (this.controls[name]);\n if (control)\n
this.registerControl(name, control);\n this.updateValueAndValidity();\n this._onCollectionChange();\n }\n\n
/**\n * Check whether there is an enabled control with the given name in the group.\n * Reports false for
disabled controls. If you'd like to check for existence in the group\n * only, use {@link AbstractControl#get get}
instead.\n * @param controlName The control name to check for existence in the collection\n * @returns false for disabled controls, true otherwise.\n */\n contains(controlName: string): boolean {\n return
this.controls.hasOwnProperty(controlName) && this.controls[controlName].enabled;\n }\n\n /**\n * Sets the
value of the `FormGroup`. It accepts an object that matches\n * the structure of the
group, with control names as keys.\n * @usageNotes\n * ### Set the complete value for the form group\n
*\n * ```\n * const form = new FormGroup({\n * first: new FormControl(),\n * last: new FormControl()\n *
});\n * console.log(form.value); // {first: null, last: null}\n * form.setValue({first: 'Nancy', last:
'Drew'});\n * console.log(form.value); // {first: 'Nancy', last: 'Drew'}\n * ```\n * @throws When strict
checks fail, such as setting the value of a control\n * that doesn't exist or if you exclude a value of a control that
does exist.\n * @param value The new value for the control that matches the structure of the group.\n *
@param options Configuration options that determine how the control propagates changes\n * and emits events
after the value changes.\n * The configuration options are passed to the {@link
AbstractControl#updateValueAndValidity\n * updateValueAndValidity} method.\n * ** `onlySelf`

```

When true, each change only affects this control, and not its parent. Default is `false`.
`* `emitEvent``: When true or not supplied (the default), both the ``statusChanges`` and ``valueChanges`` observables emit events with the latest status and value when the control value is updated.
 When false, no events are emitted.
`*``
`setValue(value: {[key: string]: any}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {`
`this._checkAllValuesPresent(value);`
`Object.keys(value).forEach(name => {`
`this._throwIfControlMissing(name);`
`this.controls[name].setValue(value[name], {onlySelf: true, emitEvent:`
`options.emitEvent});`
`});`
`this.updateValueAndValidity(options);`
`}`
 Patches the value of the ``FormGroup``. It accepts an object with control names as keys, and does its best to match the values to the correct controls in the group.
 It accepts both super-sets and sub-sets of the group without throwing an error.
`*``
`@usageNotes`
`### Patch the value for a form group`
`````  
`const form = new FormGroup({`  
`first: new FormControl(),`  
`last: new FormControl()`  
`});`  
`console.log(form.value); // {first: null, last: null}`  
`form.patchValue({first: 'Nancy'});`  
`console.log(form.value); // {first: 'Nancy', last: null}`  
`````  
`*``
`@param value` The object that matches the structure of the group.
`*``
`@param options` Configuration options that determine how the control propagates changes and emits events after the value is patched.
`*``
`onlySelf`: When true, each change only affects this control and not its parent. Default is `true`.
`*``
`emitEvent`: When true or not supplied (the default), both the ``statusChanges`` and ``valueChanges`` observables emit events with the latest status and value when the control value is updated.
 When false, no events are emitted.

The configuration options are passed to the `{@link AbstractControl#updateValueAndValidity}` method.
`patchValue(value: {[key: string]: any}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {`
`Object.keys(value).forEach(name => {`
`if (this.controls[name]) {`
`this.controls[name].patchValue(value[name], {onlySelf: true, emitEvent: options.emitEvent});`
`}`
`}`
`this.updateValueAndValidity(options);`
`}`
 Resets the ``FormGroup``, marks all descendants ``pristine`` and ``untouched`` and sets the value of all descendants to null.
 You reset to a specific form state by passing in a map of states that matches the structure of your form, with control names as keys. The state is a standalone value or a form state object with both a value and a disabled status.
`*``
`@param value` Resets the control with an initial value, or an object that defines the initial value and disabled state.
`*``
`@param options` Configuration options that determine how the control propagates changes and emits events when the group is reset.
`*``
`onlySelf`: When true, each change only affects this control, and not its parent. Default is `false`.
`*``
`emitEvent`: When true or not supplied (the default), both the ``statusChanges`` and ``valueChanges`` observables emit events with the latest status and value when the control is reset.
 When false, no events are emitted.
 The configuration options are passed to the `{@link AbstractControl#updateValueAndValidity}` method.
`reset(value: {[key: string]: any}, options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {`
`this._forEachChild((control: AbstractControl, name: string) => {`
`control.reset(value[name], {onlySelf: true, emitEvent: options.emitEvent});`
`});`
`this._updatePristine(options);`
`this._updateTouched(options);`
`this.updateValueAndValidity(options);`
`}`
 The aggregate value of the ``FormGroup``, including any disabled controls.
`*``
`value` Retrieves all values regardless of disabled status.
 The ``value`` property is the best way to get the value of the group, because it excludes disabled controls in the ``FormGroup``.
`getRawValue(): any {`
`return this._reduceChildren({}, (acc: {[key:`

```

string]: AbstractControl}, control: AbstractControl, name: string) => {\n      acc[name] = control instanceof
FormControl ? control.value : (<any>control).getRawValue();\n      return acc;\n    });\n  }\n\n  /** @internal
*/\n  _syncPendingControls(): boolean {\n    let subtreeUpdated = this._reduceChildren(false, (updated: boolean,
child: AbstractControl) => {\n      return child._syncPendingControls() ? true : updated;\n    });\n    if
(subtreeUpdated) this.updateValueAndValidity({onlySelf: true});\n    return subtreeUpdated;\n  }\n\n  /** @internal
*/\n  _throwIfControlMissing(name: string): void {\n    if (!Object.keys(this.controls).length)
{\n      throw new Error(`\n      There are no form controls registered with this group yet. If you're using
ngModel,\n      you may want to check next tick (e.g. use setTimeout).\n      `);\n    }\n    if (!this.controls[name])
{\n      throw new Error(`Cannot find form control with name: ${name}.`);\n    }\n  }\n\n  /** @internal */\n  _forEachChild(cb: (v: any, k: string) => void): void {\n    Object.keys(this.controls).forEach(k =>
cb(this.controls[k], k));\n  }\n\n  /** @internal */\n  _setUpControls(): void {\n    this._forEachChild((control:
AbstractControl) => {\n      control.setParent(this);\n      control._registerOnCollectionChange(this._onCollectionChange);\n    });\n  }\n\n  /** @internal */\n  _updateValue(): void {\n    (this as {value: any}).value = this._reduceValue();\n  }\n\n  /** @internal */\n  _anyControls(condition: Function): boolean {\n    for (const controlName of Object.keys(this.controls)) {\n      const
control = this.controls[controlName];\n      if (this.contains(controlName) && condition(control)) {\n        return true;\n      }\n    }\n    return false;\n  }\n\n  /** @internal */\n  _reduceValue() {\n    return this._reduceChildren(\n      {}, (acc: {[k: string]: AbstractControl},
control: AbstractControl, name: string) => {\n        if (control.enabled || this.disabled) {\n          acc[name] =
control.value;\n        }\n        return acc;\n      });\n  }\n\n  /** @internal */\n  _reduceChildren(initValue: any, fn:
Function) {\n    let res = initValue;\n    this._forEachChild((control: AbstractControl, name: string) => {\n      res =
fn(res, control, name);\n    });\n    return res;\n  }\n\n  /** @internal */\n  _allControlsDisabled(): boolean {\n    for
(const controlName of Object.keys(this.controls)) {\n      if (this.controls[controlName].enabled) {\n        return
false;\n      }\n    }\n    return Object.keys(this.controls).length > 0 || this.disabled;\n  }\n\n  /** @internal */\n  _checkAllValuesPresent(value:
any): void {\n    this._forEachChild((control: AbstractControl, name: string) => {\n      if (value[name] ===
undefined) {\n        throw new Error(`Must supply a value for form control with name: '${name}'.`);\n      }\n    });\n  }\n\n  /**\n   * Tracks the value and validity state of an array of `FormControl`,\n   * `FormGroup` or `FormArray`\n   * instances.\n   * A `FormArray` aggregates the values of each child `FormControl` into an array.\n   * It calculates\n   * its status by reducing the status values of its children. For example, if one of\n   * the controls in a `FormArray` is\n   * invalid, the entire array becomes invalid.\n   * `FormArray` is one of the three fundamental building blocks used\n   * to define forms in Angular,\n   * along with `FormControl` and `FormGroup`.\n   * @usageNotes\n   * ###\n   * Create an array of form controls\n   * ```\n   * const arr = new FormArray([\n   *   new FormControl('Nancy',\n   *     Validators.minLength(2)),\n   *   new FormControl('Drew'),\n   * ]);\n   *\n   * console.log(arr.value); // ['Nancy', 'Drew']\n   * console.log(arr.status); // 'VALID'\n   * ```\n   * ### Create a\n   * form array with array-level validators\n   * You include array-level validators and async validators. These come in\n   * handy\n   * when you want to perform validation that considers the value of more than one child\n   * control.\n   * The two types of validators are passed in separately as the second and third arg\n   * respectively, or together as part\n   * of an options object.\n   * ```\n   * const arr = new FormArray([\n   *   new FormControl('Nancy'),\n   *   new\n   *   FormControl('Drew')\n   * ], { validators: myValidator, asyncValidators: myAsyncValidator });\n   * ```\n   * ### Set\n   * the updateOn property for all controls in a form array\n   * The options object is used to set a default value for\n   * each child\n   * control's `updateOn` property. If you set `updateOn` to `blur` at the\n   * array level, all child controls\n   * default to `blur`, unless the child\n   * has explicitly specified\n   * a different `updateOn` value.\n   * ```ts\n   * const arr = new FormArray([\n   *   new FormControl(),\n   * ],\n   * {updateOn: 'blur'});\n   * ```\n   * ### Adding or removing controls from a form array\n   * To change the\n   * controls in the array, use the `push`, `insert`, `removeAt` or `clear` methods\n   * in `FormArray` itself. These\n   * methods ensure the controls are properly tracked in the\n   * form's hierarchy. Do not modify the array of\n   * `AbstractControl`s used to instantiate\n   * the `FormArray` directly, as that result in strange and unexpected behavior

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```

such\n * as broken change detection.\n *\n * @publicApi\n */\nexport class FormArray extends AbstractControl {\n
/**\n * Creates a new `FormArray` instance.\n *\n * @param controls An array of child controls. Each child
control is given an index\n * where it is registered.\n *\n * @param validatorOrOpts A synchronous validator
function, or an array of\n * such functions, or an `AbstractControlOptions` object that contains validation
functions\n * and a validation trigger.\n *\n * @param asyncValidator A single async validator or array of async
validator functions\n *\n */\n constructor(\n public controls: AbstractControl[],\n validatorOrOpts?:
ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,\n asyncValidator?:
AsyncValidatorFn|AsyncValidatorFn[]|null) {\n super(pickValidators(validatorOrOpts),
pickAsyncValidators(asyncValidator, validatorOrOpts));\n this._initObservables();\n
this._setUpdateStrategy(validatorOrOpts);\n this._setUpControls();\n this.updateValueAndValidity({\n
onlySelf: true,\n // If `asyncValidator` is present, it will trigger control status change from `PENDING` to\n //
`VALID` or `INVALID`.\n // The status should be broadcasted via the `statusChanges` observable, so we set
`emitEvent`\n // to `true` to allow that during the control creation process.\n emitEvent: !!asyncValidator\n
});\n }\n\n /**\n * Get the
`AbstractControl` at the given `index` in the array.\n *\n * @param index Index in the array to retrieve the
control\n */\n at(index: number): AbstractControl {\n return this.controls[index];\n }\n\n /**\n * Insert a new
`AbstractControl` at the end of the array.\n *\n * @param control Form control to be inserted\n */\n
push(control: AbstractControl): void {\n this.controls.push(control);\n this._registerControl(control);\n
this.updateValueAndValidity();\n this._onCollectionChange();\n }\n\n /**\n * Insert a new `AbstractControl` at
the given `index` in the array.\n *\n * @param index Index in the array to insert the control\n * @param control
Form control to be inserted\n */\n insert(index: number, control: AbstractControl): void {\n
this.controls.splice(index, 0, control);\n this._registerControl(control);\n this.updateValueAndValidity();\n
}\n\n /**\n * Remove the control at the given `index` in the array.\n *\n * @param
index Index in the array to remove the control\n */\n removeAt(index: number): void {\n if
(this.controls[index]) this.controls[index]._registerOnCollectionChange(() => {});\n this.controls.splice(index,
1);\n this.updateValueAndValidity();\n }\n\n /**\n * Replace an existing control.\n *\n * @param index
Index in the array to replace the control\n * @param control The `AbstractControl` control to replace the existing
control\n */\n setControl(index: number, control: AbstractControl): void {\n if (this.controls[index])
this.controls[index]._registerOnCollectionChange(() => {});\n this.controls.splice(index, 1);\n\n if (control) {\n
this.controls.splice(index, 0, control);\n this._registerControl(control);\n }\n\n this.updateValueAndValidity();\n
this._onCollectionChange();\n }\n\n /**\n * Length of the control array.\n */\n get length(): number {\n return
this.controls.length;\n }\n\n /**\n * Sets the value of the
`FormArray`. It accepts an array that matches\n * the structure of the control.\n *\n * This method performs
strict checks, and throws an error if you try\n * to set the value of a control that doesn't exist or if you exclude the\n
* value of a control.\n *\n * @usageNotes\n * ### Set the values for the controls in the form array\n *\n *
```\n * const arr = new FormArray([\n * new FormControl(),\n * new FormControl()\n * ]);\n *
console.log(arr.value); // [null, null]\n *\n * arr.setValue(['Nancy', 'Drew']);\n * console.log(arr.value); //
['Nancy', 'Drew']\n * ```\n *\n * @param value Array of values for the controls\n * @param options Configure
options that determine how the control propagates changes and\n * emits events after the value changes\n *\n * *
`onlySelf`: When true, each change only affects this control, and not its parent. Default\n * is false.\n * *
`emitEvent`: When true or not supplied (the default), both the
`statusChanges` and\n * `valueChanges`\n * observables emit events with the latest status and value when the
control value is updated.\n * When false, no events are emitted.\n * The configuration options are passed to the
{@link AbstractControl#updateValueAndValidity\n * updateValueAndValidity} method.\n */\n setValue(value:
any[], options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n this._checkAllValuesPresent(value);\n
value.forEach((newValue: any, index: number) => {\n this._throwIfControlMissing(index);\n
this.at(index).setValue(newValue, {onlySelf: true, emitEvent: options.emitEvent});\n });\n
this.updateValueAndValidity(options);\n }\n\n /**\n * Patches the value of the `FormArray`. It accepts an array

```

that matches the\n \* structure of the control, and does its best to match the values to the correct\n \* controls in the group.\n \* It accepts both super-sets and sub-sets of the array without throwing an error.\n

\n \* @usageNotes\n \* ### Patch the values for controls in a form array\n \* \n \* ```\n \* const arr = new\n \* FormArray([\n \* new FormControl(),\n \* new FormControl()\n \* ]);\n \* console.log(arr.value); // [null,\n \* null]\n \* \n \* arr.patchValue(['Nancy']);\n \* console.log(arr.value); // ['Nancy', null]\n \* ```\n \* \n \* @param\n \* value Array of latest values for the controls\n \* @param options Configure options that determine how the control\n \* propagates changes and\n \* emits events after the value changes\n \* \n \* \* `onlySelf`: When true, each change\n \* only affects this control, and not its parent. Default\n \* is false.\n \* \* `emitEvent`: When true or not supplied (the\n \* default), both the `statusChanges` and\n \* `valueChanges`\n \* observables emit events with the latest status and\n \* value when the control value is updated.\n \* When false, no events are emitted.\n \* The configuration options are\n \* passed to the { @link AbstractControl#updateValueAndValidity\n

\* updateValueAndValidity} method.\n \* /\n \* patchValue(value: any[], options: {onlySelf?: boolean, emitEvent?:\n \* boolean} = {}): void {\n \* value.forEach((newValue: any, index: number) => {\n \* if (this.at(index)) {\n \* this.at(index).patchValue(newValue, {onlySelf: true, emitEvent: options.emitEvent});\n \* }\n \* });\n \* this.updateValueAndValidity(options);\n \* } }\n \* \n \* Resets the `FormArray` and all descendants are marked\n \* `pristine` and `untouched`, and the\n \* value of all descendants to null or null maps.\n \* \n \* You reset to a\n \* specific form state by passing in an array of states\n \* that matches the structure of the control. The state is a\n \* standalone value\n \* or a form state object with both a value and a disabled status.\n \* \n \* @usageNotes\n \* ### Reset the values in a form array\n \* \n \* ```ts\n \* const arr = new FormArray([\n \* new FormControl(),\n \* new FormControl()\n \* ]);\n \* arr.reset(['name', 'last name']);\n \* \n \* console.log(this.arr.value); // ['name', 'last name']\n \* ```\n \* \n \* ### Reset the values in a form array\n \* and the disabled status for the first control\n \* \n \* ```\n \* this.arr.reset([\n \* {value: 'name', disabled: true},\n \* 'last'\n \* ]);\n \* console.log(this.arr.value); // ['name', 'last name']\n \* console.log(this.arr.get(0).status);\n \* // 'DISABLED'\n \* ```\n \* \n \* @param value Array of values for the controls\n \* @param options Configure\n \* options that determine how the control propagates changes and\n \* emits events after the value changes\n \* \n \* \* `onlySelf`: When true, each change only affects this control, and not its parent. Default\n \* is false.\n \* \* `emitEvent`: When true or not supplied (the default), both the `statusChanges` and\n \* `valueChanges`\n \* observables emit events with the latest status and value when the control is reset.\n \* When false, no events are\n \* emitted.\n \* The configuration options\n

are passed to the { @link AbstractControl#updateValueAndValidity\n \* updateValueAndValidity} method.\n \* /\n \* reset(value: any = [], options: {onlySelf?: boolean, emitEvent?: boolean} = {}): void {\n \* this.\_forEachChild((control: AbstractControl, index: number) => {\n \* control.reset(value[index], {onlySelf: true,\n \* emitEvent: options.emitEvent});\n \* });\n \* this.\_updatePristine(options);\n \* this.\_updateTouched(options);\n \* this.updateValueAndValidity(options);\n \* } }\n \* \n \* The aggregate value of the array, including any disabled\n \* controls.\n \* \n \* Reports all values regardless of disabled status.\n \* For enabled controls only, the `value`\n \* property is the best way to get the value of the array.\n \* /\n \* getRawValue(): any[] {\n \* return\n \* this.controls.map((control: AbstractControl) => {\n \* return control instanceof FormControl ? control.value :\n \* (<any>control).getRawValue();\n \* });\n \* } }\n \* \n \* Remove all controls in the `FormArray`.\n \* \n \* @usageNotes\n \* ### Remove all elements from a FormArray\n \* \n \* ```ts\n \* const arr = new FormArray([\n \* new FormControl(),\n \* new FormControl()\n \* ]);\n \* console.log(arr.length); // 2\n \* \n \* arr.clear();\n \* console.log(arr.length); // 0\n \* ```\n \* \n \* It's a simpler and more efficient alternative to removing all\n \* elements one by one:\n \* \n \* ```ts\n \* const arr = new FormArray([\n \* new FormControl(),\n \* new\n \* FormControl()\n \* ]);\n \* \n \* while (arr.length) {\n \* arr.removeAt(0);\n \* }\n \* ```\n \* \n \* /\n \* clear(): void\n \* {\n \* if (this.controls.length < 1) return;\n \* this.\_forEachChild((control: AbstractControl) =>\n \* control.\_registerOnCollectionChange(() => {}));\n \* this.controls.splice(0);\n \* this.updateValueAndValidity();\n \* } }\n \* \n \* @internal\n \* /\n \* \_syncPendingControls(): boolean {\n \* let subtreeUpdated =\n \* this.controls.reduce((updated: boolean, child: AbstractControl) => {\n \* return child.\_syncPendingControls()\n

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? true : updated;\n }, false);\n if (subtreeUpdated) this.updateValueAndValidity({onlySelf: true});\n return
subtreeUpdated;\n }\n\n /** @internal */\n _throwIfControlMissing(index: number): void {\n if
(!this.controls.length) {\n throw new Error`\n There are no form controls registered with this array yet. If
you're using ngModel,\n you may want to check next tick (e.g. use setTimeout).\n `);\n }\n if
(!this.at(index)) {\n throw new Error(`Cannot find form control at index ${index}`);\n }\n }\n\n /** @internal
*/\n _forEachChild(cb: Function): void {\n this.controls.forEach((control: AbstractControl, index: number) => {\n
 cb(control, index);\n });\n }\n\n /** @internal */\n _updateValue(): void {\n (this as {value: any}).value =\n
this.controls.filter((control) => control.enabled || this.disabled)\n .map((control) => control.value);\n }\n\n
/** @internal */\n _anyControls(condition:
Function): boolean {\n return this.controls.some((control: AbstractControl) => control.enabled &&
condition(control));\n }\n\n /** @internal */\n _setUpControls(): void {\n this._forEachChild((control:
AbstractControl) => this._registerControl(control));\n }\n\n /** @internal */\n _checkAllValuesPresent(value:
any): void {\n this._forEachChild((control: AbstractControl, i: number) => {\n if (value[i] === undefined) {\n
 throw new Error(`Must supply a value for form control at index: ${i}.`);\n }\n });\n }\n\n /** @internal */\n
_allControlsDisabled(): boolean {\n for (const control of this.controls) {\n if (control.enabled) return false;\n
 }\n return this.controls.length > 0 || this.disabled;\n }\n\n private _registerControl(control: AbstractControl) {\n
control.setParent(this);\n control._registerOnChange(this._onCollectionChange);\n }\n}\n\n", "/*\n *
@license\n * Copyright Google LLC All Rights Reserved.\n *\n
* Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { AfterViewInit, Directive, EventEmitter, forwardRef, Inject, Input,
Optional, Self } from '@angular/core';\n\nimport { AbstractControl, FormControl, FormGroup, FormHooks } from
'./model';\nimport { composeAsyncValidators, composeValidators, NG_ASYNC_VALIDATORS,
NG_VALIDATORS } from './validators';\n\nimport { ControlContainer } from './control_container';\nimport { Form }
from './form_interface';\nimport { NgControl } from './ng_control';\nimport { NgModel } from './ng_model';\nimport
{ NgModelGroup } from './ng_model_group';\nimport { removeListItem, setUpControl, setUpFormContainer,
syncPendingControls } from './shared';\nimport { AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn } from
'./validators';\n\nexport const formDirectiveProvider: any = {\n provide: ControlContainer,\n useExisting:
forwardRef(() => NgForm)\n};\n\nconst resolvedPromise
= (() => Promise.resolve(null))();\n\n/**\n * @description\n * Creates a top-level `FormGroup` instance and binds
it to a form\n * to track aggregate form value and validation status.\n *\n * As soon as you import the
`FormsModule`, this directive becomes active by default on\n * all `` tags. You don't need to add a special
selector.\n *\n * You optionally export the directive into a local template variable using `ngForm` as the key\n * (ex:
`#myForm="ngForm"`). This is optional, but useful. Many properties from the underlying\n * `FormGroup`
instance are duplicated on the directive itself, so a reference to it\n * gives you access to the aggregate value and
validity status of the form, as well as\n * user interaction properties like `dirty` and `touched`.\n *\n * To register
child controls with the form, use `NgModel` with a `name` attribute. You may use `NgModelGroup` to create
sub-groups within the form.\n *\n * If necessary, listen to the directive's `ngSubmit` event
to be notified when the user has\n * triggered a form submission. The `ngSubmit` event emits the original form\n *
submission event.\n *\n * In template driven forms, all `` tags are automatically tagged as `NgForm`.\n *\n
To import the `FormsModule` but skip its usage in some forms,\n * for example, to use native HTML5 validation, add
the `ngNoForm` and the `` tags won't create an `NgForm` directive. In reactive forms, using `ngNoForm`
is\n * unnecessary because the `` tags are inert. In that case, you would\n * refrain from using the
`formGroup` directive.\n *\n * @usageNotes\n *\n * ### Listening for form submission\n *\n * The following
example shows how to capture the form values from the `ngSubmit` event.\n *\n * { @example
forms/ts/simpleForm/simple_form_example.ts region='Component' }\n *\n * ### Setting the update options\n *\n *
The following example shows you how to change the `updateOn` option from its default using\n *
ngFormOptions.\n *\n * ```html\n

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* <form [ngFormOptions]="{updateOn: 'blur'}">\n * <input name="one" ngModel> <!-- this ngModel will
update on blur -->\n * </form>\n * ```\n * \n * ### Native DOM validation UI\n * \n * In order to prevent the native
DOM form validation UI from interfering with Angular's form\n * validation, Angular automatically adds the
`novalidate` attribute on any `<form>` whenever\n * `FormModule` or `ReactiveFormModule` are imported into the
application.\n * If you want to explicitly enable native DOM validation UI with Angular forms, you can add the\n *
`ngNativeValidate` attribute to the `<form>` element:\n * \n * ```html\n * <form ngNativeValidate>\n * ... \n *
</form>\n * ```\n * \n * @NgModule FormsModule\n * @publicApi\n * \n * @Directive({\n selector:
'form:not([ngNoForm]):not([formGroup]),ng-form,[ngForm]',\n providers: [formDirectiveProvider],\n host:
{'(submit)': 'onSubmit($event)', '(reset)': 'onReset()' },\n outputs: ['ngSubmit'],\n exportAs: 'ngForm'\n })\n export
class NgForm
 extends ControlContainer implements Form, AfterViewInit {\n /**\n * @description\n * Returns whether the
form submission has been triggered.\n * \n * public readonly submitted: boolean = false;\n \n private _directives:
NgModel[] = [];\n \n /**\n * @description\n * The `FormGroup` instance created for this form.\n * \n * form:
FormGroup;\n \n /**\n * @description\n * Event emitter for the `ngSubmit` event\n * \n * ngSubmit = new
EventEmitter();\n \n /**\n * @description\n * Tracks options for the `NgForm` instance.\n * \n *
updateOn: Sets the default `updateOn` value for all child `NgModels` below it\n * unless explicitly set by a
child `NgModel` using `ngModelOptions`). Defaults to `change`.\n * Possible values: `change` | `blur` |
`submit`.\n * \n * \n * // TODO(issue/24571): remove '!'.\n * @Input('ngFormOptions') options!: {updateOn?:
FormHooks};\n \n constructor(\n @Optional() @Self() @Inject(NG_VALIDATORS) validators:
(Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators:\n
(AsyncValidator|AsyncValidatorFn)[]) {\n super();\n this.form =\n new FormGroup({,\n
composeValidators(validators), composeAsyncValidators(asyncValidators));\n }\n \n /** @nodoc */\n
ngAfterViewInit() {\n this._setUpdateStrategy();\n }\n \n /**\n * @description\n * The directive instance.\n *
\n * \n * get formDirective(): Form {\n return this;\n }\n \n /**\n * @description\n * The internal `FormGroup`
instance.\n * \n * get control(): FormGroup {\n return this.form;\n }\n \n /**\n * @description\n * Returns an
array representing the path to this group. Because this directive\n * always lives at the top level of a form, it is
always an empty array.\n * \n * get path(): string[] {\n return [];\n }\n \n /**\n * @description\n * Returns a
map of the controls in this group.\n * \n * get controls(): {[key: string]: AbstractControl} {\n return
this.form.controls;\n }\n \n /**\n * @description\n * Method that sets up the control directive in this group, re-calculates its value\n *
and validity, and adds the instance to the internal list of directives.\n * \n * @param dir The `NgModel` directive
instance.\n * \n * addControl(dir: NgModel): void {\n resolvedPromise.then(() => {\n const container =
this._findContainer(dir.path);\n (dir as {control: FormControl}).control =\n
<FormControl>container.registerControl(dir.name, dir.control);\n setUpControl(dir.control, dir);\n
dir.control.updateValueAndValidity({emitEvent: false});\n this._directives.push(dir);\n });\n }\n \n /**\n *
\n * @description\n * Retrieves the `FormControl` instance from the provided `NgModel` directive.\n * \n * @param
dir The `NgModel` directive instance.\n * \n * getControl(dir: NgModel): FormControl {\n return
<FormControl>this.form.get(dir.path);\n }\n \n /**\n * @description\n * Removes the `NgModel`
instance from the internal list of directives\n * \n * @param dir The `NgModel` directive instance.\n * \n *
removeControl(dir: NgModel): void {\n resolvedPromise.then(() => {\n const container =
this._findContainer(dir.path);\n if (container) {\n container.removeControl(dir.name);\n }\n
removeListItem(this._directives, dir);\n });\n }\n \n /**\n * @description\n * Adds a new `NgModelGroup`
directive instance to the form.\n * \n * @param dir The `NgModelGroup` directive instance.\n * \n *
addFormGroup(dir: NgModelGroup): void {\n resolvedPromise.then(() => {\n const container =
this._findContainer(dir.path);\n const group = new FormGroup({});\n setUpFormContainer(group, dir);\n
container.registerControl(dir.name, group);\n group.updateValueAndValidity({emitEvent: false});\n });\n }\n \n /**\n *
\n * @description\n * Removes the `NgModelGroup` directive instance from the form.\n * \n * \n *

```





```

 }\n\n static formGroupNameException(): void {\n throw new Error(`\n ngModel cannot be used to register
form controls with a parent formGroupName or formArrayName directive.\n\n Option 1: Use formControlName
instead of ngModel (reactive strategy):\n\n ${Examples.formGroupName}\n\n Option 2: Update ngModel's
parent be ngModelGroup (template-driven strategy):\n\n ${Examples.ngModelGroup}`);\n\n }\n\n\n static
missingNameException() {\n throw new Error(`\n If ngModel is used within a form tag, either the name
attribute must be set or the form\n control must be defined as 'standalone' in ngModelOptions.\n\n Example 1:
<input [(ngModel)]=\"person.firstName\" name=\"first\">\n Example 2: <input
[(ngModel)]=\"person.firstName\" [ngModelOptions]=\"{standalone: true}\">`);\n\n }\n\n\n static
modelGroupParentException() {\n throw new Error(`\n ngModelGroup cannot be used with a parent
formGroup directive.\n\n Option
1: Use formGroupName instead of ngModelGroup (reactive strategy):\n\n ${Examples.formGroupName}\n\n
Option 2: Use a regular form tag instead of the FormGroup directive (template-driven strategy):\n\n
${Examples.ngModelGroup}`);\n\n }\n\n\n", /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n *
 * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Directive, forwardRef, Host, Inject, Input, OnDestroy, OnInit, Optional,
Self, SkipSelf} from '@angular/core';\n\nimport {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from
'./validators';\n\nimport {AbstractFormGroupDirective} from './abstract_form_group_directive';\n\nimport
{ControlContainer} from './control_container';\n\nimport {NgForm} from './ng_form';\n\nimport
{TemplateDrivenErrors} from './template_driven_errors';\n\nimport {AsyncValidator, AsyncValidatorFn, Validator,
ValidatorFn} from './validators';\n\nexport const modelGroupProvider:
any = {\n provide: ControlContainer,\n useExisting: forwardRef(() => NgModelGroup)\n};\n\n/**\n *
 * @description\n * Creates and binds a `FormGroup` instance to a DOM element.\n * This directive can only be
used as a child of `NgForm` (within `<form>` tags).\n * Use this directive to validate a sub-group of your form
separately from the\n * rest of your form, or if some values in your domain model make more sense\n * to consume
together in a nested object.\n * Provide a name for the sub-group and it will become the key\n * for the sub-
group in the form's full value. If you need direct access, export the directive into\n * a local template variable using
`ngModelGroup` (ex: `#myGroup="ngModelGroup"`).\n * @usageNotes\n * ### Consuming controls in a
grouping\n * The following example shows you how to combine controls together in a sub-group\n * of the
form.\n * { @example forms/ts/ngModelGroup/ng_model_group_example.ts region='Component' }\n *
 * @ngModule FormsModule\n * @publicApi\n */\n\n@Directive({selector: '[ngModelGroup]', providers:
[modelGroupProvider], exportAs: 'ngModelGroup'})\nexport class NgModelGroup extends
AbstractFormGroupDirective implements OnInit, OnDestroy {\n /**\n * @description\n * Tracks the name of
the `NgModelGroup` bound to the directive. The name corresponds\n * to a key in the parent `NgForm`.\n */\n //
TODO(issue/24571): remove '!'.\n @Input('ngModelGroup') name!: string;\n\n constructor(\n @Host()\n @SkipSelf() parent: ControlContainer,\n @Optional() @Self() @Inject(NG_VALIDATORS) validators:
(Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators:
(AsyncValidator|AsyncValidatorFn)[]) {\n super();\n this._parent = parent;\n\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n }\n\n /** @internal */\n _checkParentType(): void {\n if (!(this._parent instanceof NgModelGroup) && !(this._parent
instanceof NgForm) &&\n (typeof ngDevMode === 'undefined' || ngDevMode)) {\n\n TemplateDrivenErrors.modelGroupParentException();\n }\n }\n\n /**\n * @license\n * Copyright Google
LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found
in the LICENSE file at https://angular.io/license\n */\n\nimport {Directive, EventEmitter, forwardRef, Host, Inject,
Input, OnChanges, OnDestroy, Optional, Output, Self, SimpleChanges} from '@angular/core';\n\nimport
{FormControl, FormHooks} from './model';\n\nimport {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from
'./validators';\n\nimport {AbstractFormGroupDirective} from './abstract_form_group_directive';\n\nimport
{ControlContainer} from './control_container';\n\nimport {ControlValueAccessor, NG_VALUE_ACCESSOR} from
'./control_value_accessor';\n\nimport {NgControl} from './ng_control';\n\nimport {NgForm} from './ng_form';\n\nimport

```

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{NgModelGroup} from './ng_model_group';\nimport {controlPath,
isPropertyUpdated, selectValueAccessor, setUpControl} from './shared';\nimport {TemplateDrivenErrors} from
'/template_driven_errors';\nimport {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from
'/validators';\n\nexport const formControlBinding: any = {\n provide: NgControl,\n useExisting: forwardRef(() =>
NgModel)\n};\n\n/**\n * `ngModel` forces an additional change detection run when its inputs change:\n * E.g.: \n *
`<div>{ myModel.valid }</div>\n * <input [(ngModel)]="myValue" #myModel="ngModel">\n * `
\n * I.e. `ngModel` can export itself on the element and then be used in the template.\n * Normally, this would result in
expressions before the `input` that use the exported directive\n * to have an old value as they have been\n * dirty
checked before. As this is a very common case for `ngModel`, we added this second change\n * detection run.\n *\n * Notes:\n * - this is just one extra run no matter how many `ngModel`s have been changed.\n * - this
is a general problem when using `exportAs` for directives!\n *\nconst resolvedPromise = (() =>
Promise.resolve(null))();\n\n/**\n * @description\n * Creates a `FormControl` instance from a domain model and
binds it\n * to a form control element.\n *\n * The `FormControl` instance tracks the value, user interaction, and\n *
validation status of the control and keeps the view synced with the model. If used\n * within a parent form, the
directive also registers itself with the form as a child\n * control.\n *\n * This directive is used by itself or as part of
a larger form. Use the\n * `ngModel` selector to activate it.\n *\n * It accepts a domain model as an optional `Input`.
If you have a one-way binding\n * to `ngModel` with `[]` syntax, changing the domain model's value in the
component\n * class sets the value in the view. If you have a two-way binding with `[()]` syntax\n * (also known as
'banana-in-a-box syntax'), the value in the UI always syncs back to\n * the domain model in
your class.\n *\n * To inspect the properties of the associated `FormControl` (like the validity state),\n * export the
directive into a local template variable using `ngModel` as the key (ex: \n * `#myVar="ngModel"`). You can then
access the control using the directive's `control` property.\n * However, the most commonly used properties (like
`valid` and `dirty`) also exist on the control\n * for direct access. See a full list of properties directly available in\n *
`AbstractControlDirective`.\n *\n * @see `RadioControlValueAccessor`\n * @see `SelectControlValueAccessor`\n *\n * @usageNotes\n *\n * ### Using ngModel on a standalone control\n *\n * The following examples show a
simple standalone control using `ngModel`:\n *\n * { @example
forms/ts/simpleNgModel/simple_ng_model_example.ts region='Component'}\n *\n * When using the `ngModel`
within `<form>` tags, you'll also need to supply a `name` attribute\n * so that the control can be registered with the
parent form under that name.\n *\n * In the context of a parent form, it's often unnecessary to include one-way or two-way binding,\n * as the
parent form syncs the value for you. You access its properties by exporting it into a\n * local template variable using
`ngForm` such as (`#f="ngForm"`). Use the variable where\n * needed on form submission.\n *\n * If you do need
to populate initial values into your form, using a one-way binding for\n * `ngModel` tends to be sufficient as long as
you use the exported form's value rather\n * than the domain model's value on submit.\n *\n * ### Using ngModel
within a form\n *\n * The following example shows controls using `ngModel` within a form:\n *\n * { @example
forms/ts/simpleForm/simple_form_example.ts region='Component'}\n *\n * ### Using a standalone ngModel within
a group\n *\n * The following example shows you how to use a standalone ngModel control\n * within a form. This
controls the display of the form, but doesn't contain form data.\n *\n * ```html\n * <form>\n *
<input name="login" ngModel placeholder="Login">\n * <input type="checkbox" ngModel
[ngModelOptions]="{standalone: true}"> Show more options?\n * </form>\n * <!-- form value: {login: " } -->\n *
`
\n * ### Setting the ngModel `name` attribute through options\n *\n * The following example shows you an
alternate way to set the name attribute. Here,\n * an attribute identified as name is used within a custom form control
component. To still be able\n * to specify the NgModel's name, you must specify it using the `ngModelOptions`
input instead.\n *\n * ```html\n * <form>\n *
<my-custom-form-control name="Nancy" ngModel
[ngModelOptions]="{name: 'user'}">\n * </my-custom-form-control>\n * </form>\n * <!-- form value: {user: " }
-->\n * `
\n * @ngModule FormsModule\n * @publicApi\n *\n @Directive({\n selector:
'ngModel':not([formControlName]):not([formControl]),\n providers: [formControlBinding],\n exportAs:
'ngModel'\n})\nexport class NgModel extends NgControl

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implements OnChanges, OnDestroy {\n public readonly control: FormControl = new FormControl();\n\n // At
runtime we coerce arbitrary values assigned to the \"disabled\" input to a \"boolean\".\n // This is not reflected in the
type of the property because outside of templates, consumers\n // should only deal with booleans. In templates, a
string is allowed for convenience and to\n // match the native \"disabled attribute\" semantics which can be
observed on input elements.\n // This static member tells the compiler that values of type \"string\" can also be
assigned\n // to the input in a template.\n /** @nodoc */\n static ngAcceptInputType_isDisabled:
boolean|string;\n\n /** @internal */\n _registered = false;\n\n /**\n * Internal reference to the view model
value.\n * @nodoc\n */\n viewModel: any;\n\n /**\n * @description\n * Tracks the name bound to the
directive. If a parent form exists, it\n * uses this name as a key to retrieve this control's value.\n\n */\n // TODO(issue/24571): remove '!\n @Input() name!: string;\n\n /**\n * @description\n * Tracks
whether the control is disabled.\n */\n // TODO(issue/24571): remove '!\n @Input('disabled') isDisabled!:
boolean;\n\n /**\n * @description\n * Tracks the value bound to this directive.\n */\n @Input('ngModel')
model: any;\n\n /**\n * @description\n * Tracks the configuration options for this `ngModel` instance.\n */\n *
name: An alternative to setting the name attribute on the form control element. See\n * the
[example](api/forms/NgModel#using-ngmodel-on-a-standalone-control) for using `NgModel`\n * as a standalone
control.\n * \n * **standalone**: When set to true, the `ngModel` will not register itself with its parent form,\n *
and acts as if it's not in the form. Defaults to false. If no parent form exists, this option\n * has no effect.\n * \n *
updateOn: Defines the event upon which the form control value and validity update.\n\n * Defaults to 'change'. Possible values: `change` | `blur` | `submit`.\n */\n // TODO(issue/24571): remove
'!\n @Input('ngModelOptions') options!: {name?: string, standalone?: boolean, updateOn?: FormHooks};\n\n /**\n * @description\n * Event emitter for producing the `ngModelChange` event after\n * the view model
updates.\n */\n @Output('ngModelChange') update = new EventEmitter();\n\n constructor(\n @Optional()
@Host() parent: ControlContainer,\n @Optional() @Self() @Inject(NG_VALIDATORS) validators:
(Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators:\n (AsyncValidator|AsyncValidatorFn)[],\n @Optional() @Self() @Inject(NG_VALUE_ACCESSOR)
valueAccessors: ControlValueAccessor[]) {\n super();\n this._parent = parent;\n\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n this.valueAccessor =
selectValueAccessor(this, valueAccessors);\n }\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges) {\n this._checkForErrors();\n if (!this._registered)\n this._setUpControl();\n if ('isDisabled' in changes) {\n this._updateDisabled(changes);\n }\n\n if
(isPropertyUpdated(changes, this.viewModel)) {\n this._updateValue(this.model);\n this.viewModel =
this.model;\n }\n }\n\n /** @nodoc */\n ngOnDestroy(): void {\n this.formDirective &&
this.formDirective.removeControl(this);\n }\n\n /**\n * @description\n * Returns an array that represents the
path from the top-level form to this control.\n * Each index is the string name of the control on that level.\n */\n get path(): string[] {\n return this._parent ? controlPath(this.name, this._parent) : [this.name];\n }\n\n /**\n *
 * @description\n * The top-level directive for this control if present, otherwise null.\n */\n get formDirective(): any
{\n return this._parent ? this._parent.formDirective : null;\n }\n\n /**\n * @description\n * Sets the new value for the view model and emits an `ngModelChange` event.\n */\n *
 * @param newValue The new value emitted by `ngModelChange`.\n */\n viewToModelUpdate(newValue: any):
void {\n this.viewModel = newValue;\n this.update.emit(newValue);\n }\n\n private _setUpControl(): void {\n
 this._setUpdateStrategy();\n this._isStandalone() ? this._setUpStandalone() :\n this.formDirective.addControl(this);\n this._registered = true;\n }\n\n private _setUpdateStrategy(): void {\n if
(this.options && this.options.updateOn != null) {\n this.control._updateOn = this.options.updateOn;\n }\n }\n\n private _isStandalone(): boolean {\n return !this._parent || !(this.options && this.options.standalone);\n }\n\n private _setUpStandalone(): void {\n setUpControl(this.control, this);\n\n this.control.updateValueAndValidity({emitEvent: false});\n }\n\n private _checkForErrors(): void {\n if
(!this._isStandalone()) {\n this._checkParentType();\n }\n }\n}

```

```

 this._checkName();\n }\n\n private _checkParentType(): void {\n if (typeof ngDevMode === 'undefined' ||\n ngDevMode) {\n if (!(this._parent instanceof NgModelGroup) && this._parent instanceof\n AbstractFormGroupDirective) {\n TemplateDrivenErrors.formGroupNameException();\n } else if\n (!(this._parent instanceof NgModelGroup) && !(this._parent instanceof NgForm)) {\n TemplateDrivenErrors.modelParentException();\n }\n }\n\n private _checkName(): void {\n if\n (this.options && this.options.name) this.name = this.options.name;\n if (!(this._isStandalone() && !this.name\n && (typeof ngDevMode === 'undefined' || ngDevMode))) {\n TemplateDrivenErrors.missingNameException();\n }\n }\n\n private _updateValue(value: any): void {\n resolvedPromise.then(() => {\n this.control.setValue(value, {emitViewToModelChange: false});\n });\n }\n\n private _updateDisabled(changes: SimpleChanges) {\n const\n disabledValue = changes['isDisabled'].currentValue;\n const isDisabled = disabledValue === '' || (disabledValue\n && disabledValue !== 'false');\n resolvedPromise.then(() => {\n if (isDisabled && !this.control.disabled) {\n this.control.disable();\n } else if (!isDisabled && this.control.disabled) {\n this.control.enable();\n }\n });\n }\n }\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n import {Directive} from '@angular/core';\n\n /**\n * @description\n * Adds `novalidate` attribute to all forms by default.\n * `novalidate` is used to disable browser's native form validation.\n * If you want to use native validation with Angular forms, just add `ngNativeValidate` attribute:\n * <form ngNativeValidate></form>\n * @publicApi\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @Directive({\n * selector: 'form:not([ngNoForm]):not([ngNativeValidate])',\n * host: {'novalidate': ''},\n * })\n * export class NgNoValidate {\n * }\n * export {NgNoValidate as NgNoValidate};\n */\n\n /**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\n import {Directive, EventEmitter, forwardRef, Inject, InjectionToken, Input, OnChanges, Optional, Output, Self, SimpleChanges} from\n '@angular/core';\n import {FormControl} from '../model';\n import {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from '../validators';\n import {ControlValueAccessor, NG_VALUE_ACCESSOR} from\n './control_value_accessor';\n import {NgControl} from './ng_control';\n import {ReactiveErrors} from\n './reactive_errors';\n import {_ngModelWarning, isPropertyUpdated, selectValueAccessor, setUpControl} from\n './shared';\n import {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from '../validators';\n\n /**\n * Token to provide to turn off the ngModel warning on formControl and formControlName.\n */\n export const\n NG_MODEL_WITH_FORM_CONTROL_WARNING = new\n InjectionToken('NgModelWithFormControlWarning');\n\n export const formControlBinding: any = {\n provide: NgControl,\n useExisting: forwardRef(() => FormControlDirective);\n }; \n\n /**\n * @description\n * Synchronizes a standalone `FormControl` instance to a form control element.\n * Note that support for using the `ngModel` input property and `ngModelChange` event with reactive\n * form directives was deprecated in Angular v6 and is scheduled for removal in\n * a future version of Angular.\n * For details, see [Deprecated features](guide/deprecations#ngmodel-with-reactive-forms).\n * @see [Reactive Forms Guide](guide/reactive-forms)\n * @see `FormControl`\n * @see `AbstractControl`\n * @usageNotes\n * The following example shows how to register a standalone control and set its value.\n * @example\n * forms/ts/simpleFormControl/simple_form_control_example.ts\n * region='Component'\n * @ngModule\n * ReactiveFormsModule\n * @publicApi\n * @Directive({\n * selector: '[formControl]',\n * providers: [formControlBinding],\n * exportAs: 'ngForm'\n * })\n * export class FormControlDirective extends NgControl implements\n * OnChanges {\n * /**\n * Internal reference to the view model value.\n * @nodoc\n * @ngModel\n * viewModel: any;\n * */\n * /**\n * Tracks the `FormControl` instance bound to the directive.\n * @ngModel\n * //\n * TODO(issue/24571): remove '!'.\n * @Input('formControl') form!: FormControl;\n * */\n * /**\n * @description\n * Triggers a warning in dev mode that this input should not be used with reactive forms.\n * @ngModel\n * @Input('disabled')\n
```

```

set isDisabled(isDisabled: boolean) {\n if (typeof ngDevMode === 'undefined' || ngDevMode) {\n
ReactiveErrors.disabledAttrWarning();\n }\n }\n\n // TODO(kara): remove next 4 properties once
deprecation period is over\n\n /** @deprecated as of v6 */\n @Input('ngModel') model: any;\n\n /** @deprecated
as of v6 */\n @Output('ngModelChange') update = new EventEmitter();\n\n /**\n * @description\n * Static
property used to track whether any ngModel warnings have been sent across\n * all instances of
FormControlDirective. Used to support warning config of \"once\".\n * \n * @internal\n */\n static
_ngModelWarningSentOnce = false;\n\n /**\n * @description\n * Instance property used to track whether an
ngModel warning has been sent out for this\n * particular `FormControlDirective` instance. Used to support
warning config of \"always\".\n * \n * @internal\n */\n _ngModelWarningSent = false;\n\n constructor(\n
@Optional() @Self() @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],\n @Optional()
@Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators: (AsyncValidator|AsyncValidatorFn)[],\n
@Optional() @Self() @Inject(NG_VALUE_ACCESSOR)
valueAccessors: ControlValueAccessor[],\n @Optional()
@Inject(NG_MODEL_WITH_FORM_CONTROL_WARNING) private _ngModelWarningConfig: string|\n
null) {\n super();\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n
this.valueAccessor = selectValueAccessor(this, valueAccessors);\n }\n\n /** @nodoc */\n ngOnChanges(changes:
SimpleChanges): void {\n if (this._isControlChanged(changes)) {\n setUpControl(this.form, this);\n if
(this.control.disabled && this.valueAccessor!.setDisabledState) {\n
this.valueAccessor!.setDisabledState!(true);\n }\n this.form.updateValueAndValidity({emitEvent: false});\n
}\n if (isPropertyUpdated(changes, this.viewModel)) {\n _ngModelWarning('formControl',
FormControlDirective, this, this._ngModelWarningConfig);\n this.form.setValue(this.model);\n
this.viewModel = this.model;\n }\n }\n\n /**\n * @description\n * Returns an array that represents
the path from the top-level form to this control.\n * Each index is the string name of the control on that level.\n
*/\n get path(): string[] {\n return [];\n }\n\n /**\n * @description\n * The `FormControl` bound to this
directive.\n */\n get control(): FormControl {\n return this.form;\n }\n\n /**\n * @description\n * Sets the
new value for the view model and emits an `ngModelChange` event.\n * \n * @param newValue The new value
for the view model.\n */\n viewToModelUpdate(newValue: any): void {\n this.viewModel = newValue;\n
this.update.emit(newValue);\n }\n\n private _isControlChanged(changes: {[key: string]: any}): boolean {\n
return changes.hasOwnProperty('form');\n }\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n * \n * Use of this source code is governed by an MIT-style license that can be\n * found in the
LICENSE file at https://angular.io/license\n */\n\nimport {Directive, EventEmitter, forwardRef, Inject,
Input, OnChanges, Optional, Output, Self, SimpleChanges} from '@angular/core';\n\nimport {FormArray,
FormControl, FormGroup} from '../model';\nimport {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from
'../validators';\nimport {ControlContainer} from '../control_container';\nimport {Form} from
'../form_interface';\nimport {ReactiveErrors} from '../reactive_errors';\nimport {cleanupControl, cleanupValidators,
removeListItem, setUpControl, setUpFormContainer, setUpValidators, syncPendingControls} from
'../shared';\nimport {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from '../validators';\n\nimport
{FormControlName} from '../form_control_name';\nimport {FormArrayName, FormGroupName} from
'../form_group_name';\n\nexport const formDirectiveProvider: any = {\n provide: ControlContainer,\n useExisting:
forwardRef(() => FormGroupDirective)\n};\n\n/**\n * @description\n * \n * Binds an existing `FormGroup` to a
DOM element.\n * \n * This directive accepts an existing `FormGroup`
instance. It will then use this\n * `FormGroup` instance to match any child `FormControl`, `FormGroup`,\n * and
`FormArray` instances to child `FormControlName`, `FormGroupName`,\n * and `FormArrayName` directives.\n\n
*/\n * @see [Reactive Forms Guide](guide/reactive-forms)\n * @see `AbstractControl`\n */\n * ### Register Form
Group\n\n * The following example registers a `FormGroup` with first name and last name controls,\n * and
listens for the `ngSubmit` event when the button is clicked.\n */\n * { @example
forms/ts/simpleFormGroup/simple_form_group_example.ts region='Component'\n\n * @ngModule
ReactiveFormsModule\n * @publicApi\n */\n @Directive({\n selector: '[formGroup]',\n providers:

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[formDirectiveProvider],\n host: {'(submit)': 'onSubmit($event)', '(reset)': 'onReset()' },\n exportAs:
'ngForm'\n})\nexport class FormGroupDirective extends ControlContainer implements Form, OnChanges {\n /**\n * @description\n * Reports whether the form submission has been triggered.\n */\n\n public readonly submitted: boolean = false;\n\n /**\n * Reference to an old form group input value, which is
needed to cleanup old instance in case it\n * was replaced with a new one.\n */\n private _oldForm:
FormGroup|undefined;\n\n /**\n * @description\n * Tracks the list of added `FormControlName` instances\n */\n directives: FormControlName[] = [];\n\n /**\n * @description\n * Tracks the `FormGroup` bound to this
directive.\n */\n @Input('formGroup') form: FormGroup = null!;\n\n /**\n * @description\n * Emits an event
when the form submission has been triggered.\n */\n @Output() ngSubmit = new EventEmitter();\n\n constructor(\n @Optional() @Self() @Inject(NG_VALIDATORS) private validators:
(Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) private
asyncValidators: (AsyncValidator|AsyncValidatorFn[]) {\n super();\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n\n }\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n this._checkFormPresent();\n if
(changes.hasOwnProperty('form')) {\n this._updateValidators();\n this._updateDomValue();\n this._updateRegistrations();\n this._oldForm = this.form;\n }\n }\n\n /**\n * @description\n * Returns this
directive's instance.\n */\n get formDirective(): Form {\n return this;\n }\n\n /**\n * @description\n *
Returns the `FormGroup` bound to this directive.\n */\n get control(): FormGroup {\n return this.form;\n }\n\n /**\n * @description\n * Returns an array representing the path to this group. Because this directive\n * always
lives at the top level of a form, it always an empty array.\n */\n get path(): string[] {\n return [];\n }\n\n /**\n *
@description\n * Method that sets up the control directive in this group, re-calculates its value\n * and validity,
and adds the instance to the internal list of directives.\n */\n * @param dir The `FormControlName` directive instance.\n */\n addControl(dir: FormControlName):
FormControl {\n const ctrl: any = this.form.get(dir.path);\n setUpControl(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n this.directives.push(dir);\n return ctrl;\n }\n\n /**\n *
@description\n * Retrieves the `FormControl` instance from the provided `FormControlName` directive\n */\n * @param dir The `FormControlName` directive instance.\n */\n getControl(dir: FormControlName): FormControl {\n return <FormControl>this.form.get(dir.path);\n }\n\n /**\n * @description\n * Removes the
`FormControlName` instance from the internal list of directives\n */\n * @param dir The `FormControlName`
directive instance.\n */\n removeControl(dir: FormControlName): void {\n removeListItem(this.directives,
dir);\n }\n\n /**\n * Adds a new `FormGroupName` directive instance to the form.\n */\n * @param dir The
`FormGroupName`
directive instance.\n */\n addFormGroup(dir: FormGroupName): void {\n const ctrl: any =
this.form.get(dir.path);\n setUpFormContainer(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n }\n\n /**\n * No-op method to remove the form group.\n */\n * @param dir The `FormGroupName` directive
instance.\n */\n removeFormGroup(dir: FormGroupName): void {\n }\n\n /**\n * @description\n * Retrieves the
`FormGroup` for a provided `FormGroupName` directive instance\n */\n * @param dir The `FormGroupName`
directive instance.\n */\n getFormGroup(dir: FormGroupName): FormGroup {\n return
<FormGroup>this.form.get(dir.path);\n }\n\n /**\n * Adds a new `FormArrayName` directive instance to the
form.\n */\n * @param dir The `FormArrayName` directive instance.\n */\n addFormArray(dir:
FormArrayName): void {\n const ctrl: any = this.form.get(dir.path);\n setUpFormContainer(ctrl, dir);\n ctrl.updateValueAndValidity({emitEvent: false});\n }\n\n /**\n * No-op method to remove the form array.\n */\n * @param dir The `FormArrayName` directive
instance.\n */\n removeFormArray(dir: FormArrayName): void {\n }\n\n /**\n * @description\n * Retrieves the
`FormArray` for a provided `FormArrayName` directive instance.\n */\n * @param dir The `FormArrayName`
directive instance.\n */\n getFormArray(dir: FormArrayName): FormArray {\n return
<FormArray>this.form.get(dir.path);\n }\n\n /**\n * Sets the new value for the provided `FormControlName`
directive.\n */\n * @param dir The `FormControlName` directive instance.\n * @param value The new value for

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the directive's control.

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 * /n updateModel(dir: FormControlName, value: any): void { /n const ctrl =
<FormControl>this.form.get(dir.path); /n ctrl.setValue(value); /n } /n /n /** /n * @description /n * Method called
with the "submit" event is triggered on the form. /n * Triggers the `ngSubmit` emitter to emit the "submit" event
as its payload. /n
 * /n * @param $event The "submit" event object /n * /n onSubmit($event: Event): boolean { /n (this as
{submitted: boolean}).submitted = true; /n syncPendingControls(this.form, this.directives); /n
this.ngSubmit.emit($event); /n return false; /n } /n /n /** /n * @description /n * Method called when the "reset"
event is triggered on the form. /n * /n onReset(): void { /n this.resetForm(); /n } /n /n /** /n * @description /n *
Resets the form to an initial value and resets its submitted status. /n * /n * @param value The new value for the
form. /n * /n resetForm(value: any = undefined): void { /n this.form.reset(value); /n (this as {submitted:
boolean}).submitted = false; /n } /n /n /n /** @internal /n * /n _updateDomValue() { /n this.directives.forEach(dir =>
{ /n const newCtrl: any = this.form.get(dir.path); /n if (dir.control !== newCtrl) { /n // Note: the value of the
`dir.control` may not be defined, for example when it's a first /n //
`FormControl` that is added to a `FormGroup` instance (via `addControl` call). /n cleanUpControl(dir.control ||
null, dir); /n if (newCtrl) setUpControl(newCtrl, dir); /n (dir as {control: FormControl}).control = newCtrl; /n
 } /n }); /n this.form._updateTreeValidity({emitEvent: false}); /n } /n /n private _updateRegistrations() { /n
this.form._registerOnCollectionChange(() => this._updateDomValue()); /n if (this._oldForm) { /n
this._oldForm._registerOnCollectionChange(() => {}); /n } /n } /n private _updateValidators() { /n
setUpValidators(this.form, this, /* handleOnValidatorChange */ false); /n if (this._oldForm) { /n
cleanUpValidators(this._oldForm, this, /* handleOnValidatorChange */ false); /n } /n } /n private
_checkFormPresent() { /n if (!this.form && (typeof ngDevMode === 'undefined' || ngDevMode)) { /n
ReactiveErrors.missingFormException(); /n } /n } /n } /n " /n /** /n * @license /n * Copyright Google LLC All Rights
Reserved. /n
 * /n * Use of this source code is governed by an MIT-style license that can be /n * found in the LICENSE file at
https://angular.io/license /n * /n
import {Directive, forwardRef, Host, Inject, Input, OnDestroy, OnInit, Optional,
Self, SkipSelf} from '@angular/core'; /n
import {FormArray} from '../model'; /n
import {NG_ASYNC_VALIDATORS, NG_VALIDATORS} from '../validators'; /n
import {AbstractFormGroupDirective} from './abstract_form_group_directive'; /n
import {ControlContainer} from './control_container'; /n
import {ReactiveErrors} from './reactive_errors'; /n
import {controlPath} from './shared'; /n
import {AsyncValidator, AsyncValidatorFn, Validator, ValidatorFn} from '../validators'; /n
import {FormGroupDirective} from './form_group_directive'; /n
export const formGroupNameProvider: any = { /n
provide: ControlContainer, /n
useExisting: forwardRef(() => FormGroupName), /n
}; /n /n /** /n * @description /n * /n *
Syncs a nested `FormGroup` to a DOM element. /n * /n * This directive can only be
used with a parent `FormGroupDirective`. /n * /n * It accepts the string name of the nested `FormGroup` to link,
and /n * looks for a `FormGroup` registered with that name in the parent /n * `FormGroup` instance you passed into
`FormGroupDirective`. /n * /n * Use nested form groups to validate a sub-group of a /n * form separately from the rest
or to group the values of certain /n * controls into their own nested object. /n * /n * @see [Reactive Forms
Guide](guide/reactive-forms) /n * /n * @usageNotes /n * /n * ### Access the group by name /n * /n * The following
example uses the { @link AbstractControl#get get } method to access the /n * associated `FormGroup` /n * /n * ```ts /n
* this.form.get('name'); /n * ``` /n * /n * ### Access individual controls in the group /n * /n * The following example
uses the { @link AbstractControl#get get } method to access /n * individual controls within the group using dot
syntax. /n * /n * ```ts /n
* this.form.get('name.first'); /n * ``` /n * /n * ### Register a nested `FormGroup` /n * /n * The following example registers a nested *name* `FormGroup` within an existing `FormGroup`, /n * and
provides methods to retrieve the nested `FormGroup` and individual controls. /n * /n * { @example
forms/ts/nestedFormGroup/nested_form_group_example.ts region='Component' /n * /n * @ngModule
ReactiveFormsModule /n * @publicApi /n * /n * @Directive({selector: '[formGroupName]', providers:
[formGroupNameProvider]}) /n * /n * export class FormGroupName extends AbstractFormGroupDirective implements
OnInit, OnDestroy { /n * /n * /** /n * * Tracks the name of the `FormGroup` bound to the directive. The

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name corresponds\n * to a key in the parent `FormGroup` or `FormArray`. \n * Accepts a name as a string or a number.\n * The name in the form of a string is useful for individual forms,\n * while the numerical form allows for form groups to be bound\n * to indices when iterating over groups in a `FormArray`. \n */\n\n//\n\nTODO(issue/24571): remove '!'.\n @Input('formGroupName') name!: string|number|null;\n\n constructor(\n @Optional() @Host() @SkipSelf() parent: ControlContainer,\n @Optional() @Self() @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators: (AsyncValidator|AsyncValidatorFn)[])\n {\n super();\n this._parent = parent;\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n }\n\n /** @internal *\n _checkParentType(): void {\n if (_hasInvalidParent(this._parent) && (typeof ngDevMode === 'undefined' || ngDevMode)) {\n ReactiveErrors.groupParentException();\n }\n }\n\n\nexport const formArrayNameProvider: any = {\n provide: ControlContainer,\n useExisting: forwardRef(() => FormArrayName),\n};\n\n/**\n * @description\n * Syncs a nested `FormArray` to a DOM element.\n * This directive is designed to be used with a parent `FormGroupDirective` (selector: `[formGroup]`).\n * It accepts the string name of the nested `FormArray` you want to link, and will look for a `FormArray` registered with that name in the parent `FormGroup` instance you passed into `FormGroupDirective`.\n * @see [Reactive Forms Guide](guide/reactive-forms)\n * @see `AbstractControl`\n * @usageNotes\n * ### Example\n *\n * { @example forms/ts/nestedFormArray/nested_form_array_example.ts region='Component' }\n *\n * @ngModule ReactiveFormsModule\n * @publicApi\n */\n@Directive({ selector: '[formArrayName]', providers: [formArrayNameProvider] })\nexport class FormArrayName extends ControlContainer implements OnInit, OnDestroy {\n /** @internal *\n _parent: ControlContainer;\n\n /**\n * @description\n * Tracks the name of the `FormArray` bound to the directive. The name corresponds\n * to a key in the parent `FormGroup` or `FormArray`. \n * Accepts a name as a string or a number. \n * The name in the form of a string is useful for individual forms,\n * while the numerical form allows for form arrays to be bound\n * to indices when iterating over arrays in a `FormArray`. \n */\n\n //\n\n TODO(issue/24571): remove '!'.\n @Input('formArrayName') name!: string|number|null;\n\n constructor(\n @Optional() @Host() @SkipSelf() parent: ControlContainer,\n @Optional() @Self() @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],\n @Optional() @Self() @Inject(NG_ASYNC_VALIDATORS) asyncValidators: (AsyncValidator|AsyncValidatorFn)[])\n {\n super();\n this._parent = parent;\n this._setValidators(validators);\n this._setAsyncValidators(asyncValidators);\n }\n\n /**\n * A lifecycle method called when the directive's inputs are initialized. For internal use only.\n * @throws If the directive does not have a valid parent.\n * @nodoc\n */\n ngOnInit(): void {\n this._checkParentType();\n this.formDirective!.addFormArray(this);\n }\n\n /**\n * A lifecycle method called before the directive's instance is destroyed. For internal use only.\n * @nodoc\n */\n ngOnDestroy(): void {\n if (this.formDirective) {\n this.formDirective.removeFormArray(this);\n }\n }\n\n /**\n * @description\n * The `FormArray` bound to this directive.\n */\n get control(): FormArray {\n return this.formDirective!.getFormArray(this);\n }\n\n /**\n * @description\n * The top-level directive for this group if present, otherwise null.\n */\n get formDirective(): FormGroupDirective|null {\n return this._parent ? <FormGroupDirective>this._parent.formDirective : null;\n }\n\n /**\n * @description\n * Returns an array that represents the path from the top-level form to this control.\n * Each index is the string name of the control on that level.\n */\n get path(): string[] {\n return controlPath(this.name == null ? this.name : this.name.toString(), this._parent);\n }\n\n private _checkParentType(): void {\n if (_hasInvalidParent(this._parent) && (typeof ngDevMode === 'undefined' || ngDevMode)) {\n ReactiveErrors.arrayParentException();\n }\n }\n\n private _hasInvalidParent(parent: ControlContainer): boolean {\n return !(parent instanceof FormGroupName) && !(parent instanceof FormGroupDirective) && !(parent instanceof FormArrayName);\n }\n}\n\n/**\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\nimport { Directive, EventEmitter, forwardRef, Host,
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Inject, Input, OnChanges, OnDestroy, Optional, Output, Self, SimpleChanges, SkipSelf} from
'@angular/core';\n\nimport {FormControl} from '../model';\nimport {NG_ASYNC_VALIDATORS,
NG_VALIDATORS} from '../validators';\nimport {AbstractFormGroupDirective} from
'../abstract_form_group_directive';\nimport {ControlContainer} from '../control_container';\nimport
{ControlValueAccessor, NG_VALUE_ACCESSOR} from '../control_value_accessor';\nimport
{NgControl} from '../ng_control';\nimport {ReactiveErrors} from '../reactive_errors';\nimport {_ngModelWarning,
controlPath, isPropertyUpdated, selectValueAccessor} from '../shared';\nimport {AsyncValidator,
AsyncValidatorFn, Validator, ValidatorFn} from '../validators';\n\nimport
{NG_MODEL_WITH_FORM_CONTROL_WARNING} from './form_control_directive';\nimport
{FormGroupDirective} from './form_group_directive';\nimport {FormArrayName, FormGroupName} from
'./form_group_name';\n\nexport const controlNameBinding: any = {\n provide: NgControl,\n useExisting:
forwardRef(() => FormControlName)\n};\n\n/**\n * @description\n * Syncs a `FormControl` in an existing
`FormGroup` to a form control\n * element by name.\n * @see [Reactive Forms Guide](guide/reactive-forms)\n
* @see `FormControl`\n * @see `AbstractControl`\n * @usageNotes\n * ### Register `FormControl` within
a group\n * The following example shows how to register multiple form controls within a form group\n * and set
their value.\n * @example forms/ts/simpleFormGroup/simple_form_group_example.ts region='Component'\n
*\n * To see `FormControlName` examples with different form control types, see:\n * * Radio buttons:
`RadioControlValueAccessor`\n * * Selects: `SelectControlValueAccessor`\n * * ### Use with ngModel is
deprecated\n * Support for using the `ngModel` input property and `ngModelChange` event with reactive\n *
form directives has been deprecated in Angular v6 and is scheduled for removal in\n * a future version of Angular.\n
*\n * For details, see [Deprecated features](guide/deprecations#ngmodel-with-reactive-forms).\n * @ngModule
ReactiveFormsModule\n * @publicApi\n */\n@Directive({selector: '[formControlName]', providers:
[controlNameBinding]})\nexport class FormControlName extends NgControl implements OnChanges, OnDestroy
{\n private _added = false;\n /**\n * Internal reference to the view model value.\n * @internal\n */\n viewModel: any;\n /**\n * @description\n
 * Tracks the `FormControl` instance bound to the directive.\n */\n // TODO(issue/24571): remove '!'.\n readonly
control!: FormControl;\n /**\n * @description\n * Tracks the name of the `FormControl` bound to the
directive. The name corresponds\n * to a key in the parent `FormGroup` or `FormArray`.\n * Accepts a name as a
string or a number.\n * The name in the form of a string is useful for individual forms,\n * while the numerical
form allows for form controls to be bound\n * to indices when iterating over controls in a `FormArray`.\n */\n //
TODO(issue/24571): remove '!'.\n @Input('formControlName') name!: string|number|null;\n /**\n *
 * @description\n * Triggers a warning in dev mode that this input should not be used with reactive forms.\n */\n
 @Input('disabled')\n set isDisabled(isDisabled: boolean) {\n if (typeof ngDevMode === 'undefined' ||
ngDevMode) {\n ReactiveErrors.disabledAttrWarning();\n }\n }\n // TODO(kara):
 remove next 4 properties once deprecation period is over\n /** @deprecated as of v6 */\n @Input('ngModel')
model: any;\n /** @deprecated as of v6 */\n @Output('ngModelChange') update = new EventEmitter();\n /**\n *
 * @description\n * Static property used to track whether any ngModel warnings have been sent across\n *
all instances of FormControlName. Used to support warning config of `"once"`. \n * @internal\n */\n static
_ngModelWarningSentOnce = false;\n /**\n * @description\n * Instance property used to track whether an
ngModel warning has been sent out for this\n * particular FormControlName instance. Used to support warning
config of `"always"`. \n * @internal\n */\n _ngModelWarningSent = false;\n constructor(\n @Optional()
@Host() @SkipSelf() parent: ControlContainer,\n @Optional() @Self()\n @Inject(NG_VALIDATORS) validators: (Validator|ValidatorFn)[],\n @Optional() @Self()\n @Inject(NG_ASYNC_VALIDATORS) asyncValidators:\n (AsyncValidator|AsyncValidatorFn)[],\n @Optional() @Self() @Inject(NG_VALUE_ACCESSOR)
valueAccessors: ControlValueAccessor[],\n @Optional()\n @Inject(NG_MODEL_WITH_FORM_CONTROL_WARNING) private _ngModelWarningConfig: string|\n null) {\n super();\n this._parent = parent;\n this._setValidators(validators);\n

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this._setAsyncValidators(asyncValidators);\n this.valueAccessor = selectValueAccessor(this, valueAccessors);\n}\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges) {\n if (!this._added) this._setUpControl();\n if (isPropertyUpdated(changes, this.viewModel)) {\n _ngModelWarning('formControlName', FormControlName, this, this._ngModelWarningConfig);\n this.viewModel = this.model;\n this.formDirective.updateModel(this, this.model);\n }\n}\n\n /** @nodoc */\n ngOnDestroy(): void {\n if (this.formDirective) {\n this.formDirective.removeControl(this);\n }\n}\n\n /**\n * @description\n * Sets the new value for the view model and emits an `ngModelChange` event.\n * @param newValue The new value for the view model.\n */\n viewToModelUpdate(newValue: any): void {\n this.viewModel = newValue;\n this.update.emit(newValue);\n}\n\n /**\n * @description\n * Returns an array that represents the path from the top-level form to this control.\n * Each index is the string name of the control on that level.\n */\n get path(): string[] {\n return controlPath(this.name == null ? this.name : this.name.toString(), this._parent!);\n}\n\n /**\n * @description\n * The top-level directive for this group if present, otherwise null.\n */\n get formDirective(): any {\n return this._parent ? this._parent.formDirective : null;\n}\n\n private _checkParentType(): void {\n if (typeof ngDevMode === 'undefined' || ngDevMode) {\n if (!(this._parent instanceof FormGroupName) && !(this._parent instanceof AbstractFormGroupDirective) {\n ReactiveErrors.ngModelGroupException();\n } else if (!(this._parent instanceof FormGroupName) && !(this._parent instanceof FormGroupDirective) && !(this._parent instanceof FormArrayName)) {\n ReactiveErrors.controlParentException();\n }\n }\n}\n\n private _setUpControl() {\n this._checkParentType();\n (this as {control: FormControl}).control = this.formDirective.addControl(this);\n if (this.control.disabled && this.valueAccessor!.setDisabledState) {\n this.valueAccessor!.setDisabledState!(true);\n }\n this._added = true;\n}\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n * Use of this source code is governed by an MIT-style license that can be found in the LICENSE file at https://angular.io/license\n */\n\nimport {Directive, forwardRef, Input, OnChanges, SimpleChanges, StaticProvider} from '@angular/core';\nimport {Observable} from 'rxjs';\nimport {AbstractControl} from '../model';\nimport {NG_VALIDATORS, Validators} from '../validators';\n\n /**\n * @description\n * Defines the map of errors returned from failed validation checks.\n */\n * @publicApi\n */\nexport type ValidationErrors = {\n [key: string]: any\n};\n\n /**\n * @description\n * An interface implemented by classes that perform synchronous validation.\n */\n * @usageNotes\n * ### Provide a custom validator\n * The following example implements the `Validator` interface to create a validator directive with a custom error key.\n * ```typescript\n * @Directive({\n * selector: '[customValidator]',\n * providers: [{provide: NG_VALIDATORS, useExisting: CustomValidatorDirective, multi: true}]\n * })\n * class CustomValidatorDirective implements Validator {\n * validate(control: AbstractControl): ValidationErrors|null {\n * return {'custom': true};\n * }\n * }\n * ```\n */\n * @publicApi\n */\nexport interface Validator {\n /**\n * @description\n * Method that performs synchronous validation against the provided control.\n * @param control The control to validate against.\n * @returns A map of validation errors if validation fails, otherwise null.\n */\n validate(control: AbstractControl): ValidationErrors|null;\n}\n\n /**\n * @description\n * Registers a callback function to call when the validator inputs change.\n * @param fn The callback function\n */\n registerOnValidatorChange?(fn: () => void): void;\n}\n\n /**\n * @description\n * An interface implemented by classes that perform asynchronous validation.\n */\n * @usageNotes\n * ### Provide a custom async validator directive\n * The following example implements the `AsyncValidator` interface to create an async validator directive with a custom error key.\n * ```typescript\n * import { of } from 'rxjs';\n * @Directive({\n * selector: '[customAsyncValidator]',\n * providers: [{provide: NG_ASYNC_VALIDATORS, useExisting: CustomAsyncValidatorDirective, multi: true}]\n * })\n * class CustomAsyncValidatorDirective implements AsyncValidator {\n * validate(control: AbstractControl): Observable<ValidationErrors|null> {\n * return of({'custom': true});\n * }\n * }\n * ```\n */\n * @publicApi\n */\nexport interface AsyncValidator extends Validator {\n /**\n * @description\n * Method that performs async validation against the provided control.\n * @param control The control to

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validate against.\n * \n * @returns A promise or observable that resolves a map of validation errors\n * if
validation fails, otherwise null.\n * \n validate(control: AbstractControl):
Promise<ValidationErrors|null>|Observable<ValidationErrors|null>;\n}\n\n/**\n * @description\n * Provider which
adds `RequiredValidator` to the `NG_VALIDATORS` multi-provider list.\n * \n\nexport const
REQUIRED_VALIDATOR: StaticProvider = {\n provide: NG_VALIDATORS,\n useExisting: forwardRef(() =>
RequiredValidator),\n multi: true\n};\n\n/**\n
* @description\n * Provider which adds `CheckboxRequiredValidator` to the `NG_VALIDATORS` multi-provider
list.\n * \n\nexport const CHECKBOX_REQUIRED_VALIDATOR: StaticProvider = {\n provide:
NG_VALIDATORS,\n useExisting: forwardRef(() => CheckboxRequiredValidator),\n multi: true\n};\n\n\n/**\n *
@description\n * A directive that adds the `required` validator to any controls marked with the\n * `required`
attribute. The directive is provided with the `NG_VALIDATORS` multi-provider list.\n * \n * @see [Form
Validation](guide/form-validation)\n * \n * @usageNotes\n * \n * ### Adding a required validator using template-
driven forms\n * \n * ```\n * <input name=\`fullName\` ngModel required>\n * ```\n * \n * @ngModule
FormsModule\n * @ngModule ReactiveFormsModule\n * @publicApi\n * \n\n@Directive({\n selector:\n
':not([type=checkbox])[required][formControlName],:not([type=checkbox])[required][formControl],:not([type=checkbox])[required][ngModel]',\n providers: [REQUIRED_VALIDATOR],\n host:
{'[attr.required]': 'required ? \'\' : null'}\n})\n\nexport class RequiredValidator implements Validator {\n private
_required = false;\n private _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the required
attribute bound to this directive.\n * \n * @Input()\n get required(): boolean|string {\n return this._required;\n
}\n\n set required(value: boolean|string) {\n this._required = value !== null && value !== false && `${value}` !==
'false';\n if (this._onChange) this._onChange();\n }\n\n /**\n * Method that validates whether the control is
empty.\n * \n * Returns the validation result if enabled, otherwise null.\n * @nodoc\n * \n validate(control:
AbstractControl): ValidationErrors|null {\n return this.required ? Validators.required(control) : null;\n }\n\n /**\n
* Registers a callback function to call when the validator inputs change.\n * @nodoc\n * \n\n registerOnValidatorChange(fn: () => void): void {\n this._onChange =
fn;\n }\n}\n\n\n/**\n * A Directive that adds the `required` validator to checkbox controls marked with the\n *
`required` attribute. The directive is provided with the `NG_VALIDATORS` multi-provider list.\n * \n * @see
[Form Validation](guide/form-validation)\n * \n * @usageNotes\n * \n * ### Adding a required checkbox validator
using template-driven forms\n * \n * The following example shows how to add a checkbox required validator to an
input attached to an\n * ngModel binding.\n * \n * ```\n * <input type=\`checkbox\` name=\`active\` ngModel
required>\n * ```\n * \n * @publicApi\n * @ngModule FormsModule\n * @ngModule ReactiveFormsModule\n * \n\n@Directive({\n selector:\n
'input[type=checkbox][required][formControlName],input[type=checkbox][required][formControl],input[type=checkbox][required][ngModel]',\n providers: [CHECKBOX_REQUIRED_VALIDATOR],\n host: {'[attr.required]':
'required ? \'\' : null'}\n})\n\nexport class CheckboxRequiredValidator extends RequiredValidator {\n /**\n
* Method that validates whether or not the checkbox has been checked.\n * \n * Returns the validation result if
enabled, otherwise null.\n * @nodoc\n * \n validate(control: AbstractControl): ValidationErrors|null {\n return
this.required ? Validators.requiredTrue(control) : null;\n }\n}\n\n\n/**\n * @description\n * Provider which adds
`EmailValidator` to the `NG_VALIDATORS` multi-provider list.\n * \n\nexport const EMAIL_VALIDATOR: any =
{\n provide: NG_VALIDATORS,\n useExisting: forwardRef(() => EmailValidator),\n multi: true\n};\n\n\n/**\n * A
directive that adds the `email` validator to controls marked with the\n * `email` attribute. The directive is provided
with the `NG_VALIDATORS` multi-provider list.\n * \n * @see [Form Validation](guide/form-validation)\n * \n *
@usageNotes\n * \n * ### Adding an email validator\n * \n * The following example shows how to add an email
validator to an input attached to an ngModel\n * binding.\n * \n * ```\n * <input type=\`email\` name=\`email\`
ngModel email>\n * <input type=\`email\` name=\`email\` ngModel email=\`true\`>\n * <input type=\`email\`
name=\`email\` ngModel [email]=\`true\`>\n * ```\n * \n * @publicApi\n * @ngModule FormsModule\n *
@ngModule ReactiveFormsModule\n * \n\n@Directive({\n selector:\n
'[email][formControlName],[email][formControl],[email][ngModel]',\n providers:

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[EMAIL_VALIDATOR]\n})\nexport class EmailValidator implements Validator {\n private _enabled = false;\n private _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the email attribute bound to this directive.\n *\n * @Input()\n * set email(value: boolean|string) {\n * this._enabled = value === " || value === true || value === 'true';\n * if (this._onChange) this._onChange();\n * }\n\n /**\n * Method that validates whether an email address is valid.\n * Returns the validation result if enabled, otherwise null.\n *\n * @nodoc\n *\n * validate(control: AbstractControl): ValidationErrors|null {\n * return this._enabled\n * ? Validators.email(control) : null;\n * }\n\n /**\n * Registers a callback function to call when the validator inputs change.\n *\n * @nodoc\n *\n * registerOnValidatorChange(fn: () => void): void {\n * this._onChange = fn;\n * }\n\n /**\n * @description\n * A function that receives a control and synchronously returns a map of\n * validation errors if present, otherwise null.\n *\n * @publicApi\n *\n * export interface ValidatorFn {\n * (control: AbstractControl): ValidationErrors|null;\n * }\n\n /**\n * @description\n * A function that receives a control and returns a Promise or observable\n * that emits validation errors if present, otherwise null.\n *\n * @publicApi\n *\n * export interface AsyncValidatorFn {\n * (control: AbstractControl): Promise<ValidationErrors|null>|Observable<ValidationErrors|null>;\n * }\n\n /**\n * @description\n * Provider which adds `MinLengthValidator` to the `NG_VALIDATORS` multi-provider list.\n *\n * export const MIN_LENGTH_VALIDATOR: any = {\n * provide: NG_VALIDATORS,\n * useExisting: forwardRef(() => MinLengthValidator),\n * multi: true\n * };\n\n /**\n * A directive that adds minimum length validation to controls marked with the\n * `minlength` attribute. The directive is provided with the `NG_VALIDATORS`\n * multi-provider list.\n *\n * @see [Form Validation](guide/form-validation)\n *\n * @usageNotes\n * ### Adding a minimum length validator\n * The following example shows how to add a minimum length validator to an input attached to an\n * ngModel binding.\n *\n * ```html\n * <input name="firstName" ngModel minlength="4">\n * ```\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n *\n * @Directive({\n * selector: '[minlength][formControlName],[minlength][formControl],[minlength][ngModel]',\n * providers: [MIN_LENGTH_VALIDATOR],\n * host: {'[attr.minlength]': 'minlength ? minlength : null'}\n * })\n * export class MinLengthValidator implements Validator, OnChanges {\n * private _validator: ValidatorFn = Validators.nullValidator;\n *\n * private _onChange?: () => void;\n *\n * @description\n * Tracks changes to the the minimum length bound to this directive.\n *\n * @Input()\n * minlength!: string|number; // This input is always defined, since the name matches selector.\n *\n * @nodoc\n *\n * ngOnChanges(changes: SimpleChanges): void {\n * if ('minlength' in changes) {\n * this._createValidator();\n * }\n * if (this._onChange) this._onChange();\n * }\n\n * /**\n * Method that validates whether the value meets a minimum length requirement.\n * Returns the validation result if enabled, otherwise null.\n *\n * @nodoc\n *\n * validate(control: AbstractControl): ValidationErrors|null {\n * return this.minlength == null ? null : this._validator(control);\n * }\n\n * /**\n * Registers a callback function to call when the validator inputs change.\n *\n * @nodoc\n *\n * registerOnValidatorChange(fn: () => void): void {\n * this._onChange = fn;\n * }\n\n * private _createValidator(): void {\n * this._validator = Validators.minLength(\n * typeof this.minlength === 'number' ? this.minlength : parseInt(this.minlength, 10);\n *);\n * }\n\n /**\n * @description\n * Provider which adds `MaxLengthValidator` to the `NG_VALIDATORS` multi-provider list.\n *\n * export const MAX_LENGTH_VALIDATOR: any = {\n * provide: NG_VALIDATORS,\n * useExisting: forwardRef(() => MaxLengthValidator),\n * multi: true\n * };\n\n /**\n * A directive that adds max length validation to controls marked with the\n * `maxlength` attribute. The directive is provided with the `NG_VALIDATORS`\n * multi-provider list.\n *\n * @see [Form Validation](guide/form-validation)\n *\n * @usageNotes\n * ### Adding a maximum length validator\n * The following example shows how to add a maximum length validator to an input attached to an\n * ngModel binding.\n *\n * ```html\n * <input name="firstName" ngModel maxlength="25">\n * ```\n *\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n *\n * @Directive({\n * selector: '[maxlength][formControlName],[maxlength][formControl],[maxlength][ngModel]',\n * providers: [MAX_LENGTH_VALIDATOR],\n * host: {'[attr.maxlength]': 'maxlength ? maxlength : null'}\n * })\n * export class

```

```

MaxLengthValidator implements Validator, OnChanges {\n private _validator: ValidatorFn =
Validators.nullValidator;\n private _onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the
the maximum length bound to this directive.\n * /\n @Input()\n maxlength!: string|number; // This input is always
defined, since the name matches selector.\n\n /** @nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n
if ('maxlength' in changes) {\n this._createValidator();\n if (this._onChange) this._onChange();\n }\n }\n\n
/**\n * Method that validates whether the value exceeds the maximum length requirement.\n * @nodoc\n */\n
validate(control: AbstractControl): ValidationErrors|null {\n return this.maxlength != null ?
this._validator(control)
: null;\n }\n\n /**\n * Registers a callback function to call when the validator inputs change.\n * @nodoc\n */\n
registerOnValidatorChange(fn: () => void): void {\n this._onChange = fn;\n }\n\n private _createValidator():
void {\n this._validator = Validators.maxLength(\n typeof this.maxlength === 'number' ? this.maxlength :
parseInt(this.maxlength, 10));\n }\n}\n\n/**\n * @description\n * Provider which adds `PatternValidator` to the
`NG_VALIDATORS` multi-provider list.\n */\nexport const PATTERN_VALIDATOR: any = {\n provide:
NG_VALIDATORS,\n useExisting: forwardRef(() => PatternValidator),\n multi: true;\n};\n\n/**\n *
@description\n * A directive that adds regex pattern validation to controls marked with the\n * `pattern` attribute.
The regex must match the entire control value.\n * The directive is provided with the `NG_VALIDATORS` multi-
provider list.\n */\n * @see [Form Validation](guide/form-validation)\n */\n * @usageNotes\n */\n * ###
Adding a pattern validator\n */\n * The following example shows how to add a pattern validator to an input attached
to an\n * ngModel binding.\n */\n * ```html\n * <input name="firstName" ngModel pattern="[a-zA-Z]*">\n *
``` \n */\n * @ngModule ReactiveFormsModule\n * @ngModule FormsModule\n * @publicApi\n
*/\n@Directive({\n selector: '[pattern][formControlName],[pattern][formControl],[pattern][ngModel]',\n providers:
[PATTERN_VALIDATOR],\n host: {'[attr.pattern]': 'pattern ? pattern : null'}\n})\nexport class PatternValidator
implements Validator, OnChanges {\n private _validator: ValidatorFn = Validators.nullValidator;\n private
_onChange?: () => void;\n\n /**\n * @description\n * Tracks changes to the pattern bound to this directive.\n
*/\n @Input()\n pattern!: string|RegExp; // This input is always defined, since the name matches selector.\n\n /**
@nodoc */\n ngOnChanges(changes: SimpleChanges): void {\n if ('pattern' in changes) {\n
this._createValidator();\n
if (this._onChange) this._onChange();\n }\n }\n\n /**\n * Method that validates whether the value matches
the the pattern requirement.\n * @nodoc\n */\n validate(control: AbstractControl): ValidationErrors|null {\n
return this._validator(control);\n }\n\n /**\n * Registers a callback function to call when the validator inputs
change.\n * @nodoc\n */\n registerOnValidatorChange(fn: () => void): void {\n this._onChange = fn;\n }\n\n
private _createValidator(): void {\n this._validator = Validators.pattern(this.pattern);\n }\n}\n\n",/**\n *
@license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of this source code is governed by an MIT-
style license that can be\n * found in the LICENSE file at https://angular.io/license\n */\n\nimport {NgModule,
Type} from '@angular/core';\nimport {CheckboxControlValueAccessor} from
'./directives/checkbox_value_accessor';\nimport {DefaultValueAccessor} from
'./directives/default_value_accessor';\nimport
{NgControlStatus, NgControlStatusGroup} from './directives/ng_control_status';\nimport {NgForm} from
'./directives/ng_form';\nimport {NgModel} from './directives/ng_model';\nimport {NgModelGroup} from
'./directives/ng_model_group';\nimport {NgNoValidate} from './directives/ng_no_validate_directive';\nimport
{NumberValueAccessor} from './directives/number_value_accessor';\nimport {RadioControlValueAccessor} from
'./directives/radio_control_value_accessor';\nimport {RangeValueAccessor} from
'./directives/range_value_accessor';\nimport {FormControlDirective} from
'./directives/reactive_directives/form_control_directive';\nimport {FormControlName} from
'./directives/reactive_directives/form_control_name';\nimport {FormGroupDirective} from
'./directives/reactive_directives/form_group_directive';\nimport {FormArrayName, FormGroupName} from
'./directives/reactive_directives/form_group_name';\nimport {NgSelectOption, SelectControlValueAccessor} from
'./directives/select_control_value_accessor';\nimport

```

```

{NgSelectMultipleOption, SelectMultipleControlValueAccessor} from
'./directives/select_multiple_control_value_accessor';\nimport {CheckboxRequiredValidator, EmailValidator,
MaxLengthValidator, MinLengthValidator, PatternValidator, RequiredValidator} from
'./directives/validators';\n\nexport {CheckboxControlValueAccessor} from
'./directives/checkbox_value_accessor';\nexport {ControlValueAccessor} from
'./directives/control_value_accessor';\nexport {DefaultValueAccessor} from
'./directives/default_value_accessor';\nexport {NgControl} from './directives/ng_control';\nexport {NgControlStatus,
NgControlStatusGroup} from './directives/ng_control_status';\nexport {NgForm} from
'./directives/ng_form';\nexport {NgModel} from './directives/ng_model';\nexport {NgModelGroup} from
'./directives/ng_model_group';\nexport {NumberValueAccessor} from './directives/number_value_accessor';\nexport
{RadioControlValueAccessor} from './directives/radio_control_value_accessor';\nexport {RangeValueAccessor}
from './directives/range_value_accessor';\nexport {FormControlDirective,
NG_MODEL_WITH_FORM_CONTROL_WARNING} from
'./directives/reactive_directives/form_control_directive';\nexport {FormControlName} from
'./directives/reactive_directives/form_control_name';\nexport {FormGroupDirective} from
'./directives/reactive_directives/form_group_directive';\nexport {FormArrayName, FormGroupName} from
'./directives/reactive_directives/form_group_name';\nexport {NgSelectOption, SelectControlValueAccessor} from
'./directives/select_control_value_accessor';\nexport {NgSelectMultipleOption,
SelectMultipleControlValueAccessor} from './directives/select_multiple_control_value_accessor';\n\nexport const
SHARED_FORM_DIRECTIVES: Type<any>[] = [\n  NgNoValidate,\n  NgSelectOption,\n  NgSelectMultipleOption,\n  DefaultValueAccessor,\n  NumberValueAccessor,\n  RangeValueAccessor,\n  CheckboxControlValueAccessor,\n  SelectControlValueAccessor,\n  SelectMultipleControlValueAccessor,\n  RadioControlValueAccessor,\n  NgControlStatus,\n  NgControlStatusGroup,\n  RequiredValidator,\n  MinLengthValidator,\n  MaxLengthValidator,\n  PatternValidator,\n  CheckboxRequiredValidator,\n  EmailValidator,\n];\n\nexport const
TEMPLATE_DRIVEN_DIRECTIVES: Type<any>[] = [NgModel, NgModelGroup, NgForm];\n\nexport const
REACTIVE_DRIVEN_DIRECTIVES: Type<any>[] = [\n  FormControlDirective, FormGroupDirective,
FormControlName, FormGroupName, FormArrayName];\n\n/**\n * Internal module used for sharing directives
between FormsModule and ReactiveFormsModule\n */\n@NgModule({\n  declarations:
SHARED_FORM_DIRECTIVES,\n  exports: SHARED_FORM_DIRECTIVES,\n})\nexport class
InternalFormsSharedModule {\n}\n\nexport {InternalFormsSharedModule as
InternalFormsSharedModule};\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n */\n * Use of
this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport {Injectable} from
'@angular/core';\n\nimport {AsyncValidatorFn, ValidatorFn} from './directives/validators';\nimport
{AbstractControl, AbstractControlOptions, FormArray, FormControl, FormGroup, FormHooks} from
'./model';\n\nfunction isAbstractControlOptions(options: AbstractControlOptions)\n  {[key: string]: any}): options is AbstractControlOptions {\n  return (<AbstractControlOptions>options).asyncValidators
!== undefined ||\n    (<AbstractControlOptions>options).validators !== undefined ||\n    (<AbstractControlOptions>options).updateOn !== undefined;\n}\n\n/**\n * @description\n * Creates an
`AbstractControl` from a user-specified configuration.\n */\n * The `FormBuilder` provides syntactic sugar that
shortens creating instances of a `FormControl`,\n * `FormGroup`, or `FormArray`. It reduces the amount of
boilerplate needed to build complex\n * forms.\n */\n * @see [Reactive Forms Guide](/guide/reactive-forms)\n */\n *
@publicApi\n */\n @Injectable()\n export class FormBuilder\n {\n  /**\n   * @description\n   * Construct a new `FormGroup` instance.\n   */\n   * @param controlsConfig A
collection of child controls. The key for each child is the name\n   * under which it is registered.\n   */\n   * @param
options Configuration options object for the `FormGroup`. The object can\n   * have two shapes:\n   */\n   * 1)
`AbstractControlOptions` object (preferred), which consists of:\n   * * `validators`: A synchronous validator

```

function, or an array of validator functions

`* `asyncValidators``: A single async validator or array of async validator functions

`* `updateOn``: The event upon which the control should be updated (options: 'change' | 'blur' | 'submit')

`* 2) Legacy configuration object, which consists of:`

`* `validator``: A synchronous validator function, or an array of validator functions

`* `asyncValidator``: A single async validator or array of async validator functions

`* `group``

`controlsConfig: {[key: string]: any},`

`options: AbstractControlOptions{|key: string]: any}|null = null): FormGroup {`

`const controls = this._reduceControls(controlsConfig);`

`let validators: ValidatorFn|ValidatorFn[]|null = null;`

`let asyncValidators: AsyncValidatorFn|AsyncValidatorFn[]|null = null;`

`let updateOn: FormHooks|undefined = undefined;`

`if (options != null) {`

`if (isAbstractControlOptions(options)) {`

`// `options` are `AbstractControlOptions``

`validators = options.validators != null ? options.validators : null;`

`asyncValidators = options.asyncValidators != null ? options.asyncValidators : null;`

`updateOn = options.updateOn != null ? options.updateOn : undefined;`

`} else {`

`// `options` are legacy form group options`

`validators = options['validator'] != null ? options['validator'] : null;`

`asyncValidators = options['asyncValidator'] != null ? options['asyncValidator'] : null;`

`}`

`return new FormGroup(controls, {asyncValidators, updateOn, validators});`

`}/`

`Construct a new `FormControl` with the given state, validators and options.`

`@param formState` Initializes the control with an initial state value, or

`with an object that contains both a value and a disabled status.`

`@param validatorOrOpts` A synchronous validator function, or an array of

`such functions, or an `AbstractControlOptions` object that contains`

`validation functions and a validation trigger.`

`@param asyncValidator` A single async validator or array of async validator

`functions.`

`@usageNotes`

`### Initialize a control as disabled`

`The following example returns a control with an initial value in a disabled state.`

`<code-example path="forms/ts/formBuilder/form_builder_example.ts" region="disabled-control">`

`control({`

`formState: any,`

`validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,`

`asyncValidator?: AsyncValidatorFn|AsyncValidatorFn[]|null): FormControl {`

`return new FormControl(formState, validatorOrOpts, asyncValidator);`

`}`

`Constructs a new `FormArray` from the given array of configurations,`

`validators and options.`

`@param controlsConfig` An array of child controls or control configs. Each

`child control is given an index when it is registered.`

`@param validatorOrOpts` A synchronous validator function, or an array of

`such functions, or an `AbstractControlOptions` object that contains`

`validation functions and a validation trigger.`

`@param asyncValidator` A single async validator or array of async validator

`functions.`

`array({`

`controlsConfig: any[],`

`validatorOrOpts?: ValidatorFn|ValidatorFn[]|AbstractControlOptions|null,`

`asyncValidator?: AsyncValidatorFn|AsyncValidatorFn[]|null):`

`FormArray {`

`const controls = controlsConfig.map(c => this._createControl(c));`

`return new FormArray(controls, validatorOrOpts, asyncValidator);`

`}`

`@internal`

`_reduceControls(controlsConfig: {[k: string]: any}): {[key: string]: AbstractControl} {`

`const controls: {[key: string]: AbstractControl} = {};`

`Object.keys(controlsConfig).forEach(controlName => {`

`controls[controlName] = this._createControl(controlsConfig[controlName]);`

`});`

`return controls;`

`}`

`@internal`

`_createControl(controlConfig: any): AbstractControl {`

`if (controlConfig instanceof FormControl || controlConfig instanceof FormGroup ||`

`controlConfig instanceof FormArray) {`

`return controlConfig;`

`} else if (Array.isArray(controlConfig)) {`

`const value = controlConfig[0];`

`const validator: ValidatorFn = controlConfig.length > 1 ? controlConfig[1] : null;`

`const asyncValidator: AsyncValidatorFn = controlConfig.length >`

`2 ? controlConfig[2] : null;`

`return this.control(value, validator, asyncValidator);`

`} else {`

`return this.control(controlConfig);`

`}`

`}/`

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`found in the LICENSE file at`

`https://angular.io/license`

`@module`

`@description`

`Entry point for all public APIs of the common package.`

`import { Version } from '@angular/core';`

`@publicApi`

`export const`

```

VERSION = new Version('11.0.2');\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n *
Use of this source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n */\n\nimport { ModuleWithProviders, NgModule } from '@angular/core';\n\nimport
{ InternalFormsSharedModule, NG_MODEL_WITH_FORM_CONTROL_WARNING,
REACTIVE_DRIVEN_DIRECTIVES, TEMPLATE_DRIVEN_DIRECTIVES }
from './directives';\n\nimport { RadioControlRegistry } from './directives/radio_control_value_accessor';\n\nimport
{ FormBuilder } from './form_builder';\n\n/**\n * Exports the required providers and directives for template-driven
forms,\n * making them available for import by NgModules that import this module.\n *\n * @see [Forms
Overview](/guide/forms-overview)\n * @see [Template-driven Forms Guide](/guide/forms)\n *\n * @publicApi\n */\n\n@NgModule({\n  declarations: TEMPLATE_DRIVEN_DIRECTIVES,\n  providers: [RadioControlRegistry],\n  exports: [InternalFormsSharedModule, TEMPLATE_DRIVEN_DIRECTIVES]\n})\n\nexport class FormsModule
{\n}\n\n/**\n * Exports the required infrastructure and directives for reactive forms,\n * making them available for
import by NgModules that import this module.\n *\n * @see [Forms Overview](/guide/forms-overview)\n * @see
[Reactive Forms Guide](/guide/reactive-forms)\n *\n * @publicApi\n */\n\n@NgModule({\n  declarations:
[REACTIVE_DRIVEN_DIRECTIVES],\n  providers: [FormBuilder,
RadioControlRegistry],\n  exports: [InternalFormsSharedModule,
REACTIVE_DRIVEN_DIRECTIVES]\n})\n\nexport class ReactiveFormsModule {\n  /**\n   * @description\n   *
Provides options for configuring the reactive forms module.\n   *\n   * @param opts An object of configuration
options\n   * * `warnOnNgModelWithFormControl` Configures when to emit a warning when an `ngModel`\n   *
binding is used with reactive form directives.\n   *\n   * static withConfig(opts: {\n   *   /** @deprecated as of v6 */
warnOnNgModelWithFormControl: 'never'|'once'|'always'\n   }): ModuleWithProviders<ReactiveFormsModule> {\n
return {\n   ngModule: ReactiveFormsModule,\n   providers: [\n     { provide:
NG_MODEL_WITH_FORM_CONTROL_WARNING, useValue: opts.warnOnNgModelWithFormControl }\n   ]\n   };\n }\n }\n\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source
code is governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n
*/\n\n/**\n * @module\n * @description\n * This module is used for handling user input, by defining and building
a `FormGroup` that\n * consists of `FormControl` objects, and mapping them onto the DOM. `FormControl`\n *
objects can then be used to read information from the form DOM elements.\n *\n * Forms providers are not included
in default providers; you must import these providers\n * explicitly.\n */\n\nexport { InternalFormsSharedModule }
from './directives';\n\nexport { AbstractControlDirective } from './directives/abstract_control_directive';\n\nexport
{ AbstractFormGroupDirective } from './directives/abstract_form_group_directive';\n\nexport
{ CheckboxControlValueAccessor } from './directives/checkbox_value_accessor';\n\nexport { ControlContainer } from
'./directives/control_container';\n\nexport { ControlValueAccessor, NG_VALUE_ACCESSOR } from
'./directives/control_value_accessor';\n\nexport { COMPOSITION_BUFFER_MODE, DefaultValueAccessor } from
'./directives/default_value_accessor';\n\nexport
{ Form } from './directives/form_interface';\n\nexport { NgControl } from './directives/ng_control';\n\nexport
{ NgControlStatus, NgControlStatusGroup } from './directives/ng_control_status';\n\nexport { NgForm } from
'./directives/ng_form';\n\nexport { NgModel } from './directives/ng_model';\n\nexport { NgModelGroup } from
'./directives/ng_model_group';\n\nexport { NgNoValidate } from './directives/ng_no_validate_directive';\n\nexport
{ NumberValueAccessor } from './directives/number_value_accessor';\n\nexport { RadioControlValueAccessor } from
'./directives/radio_control_value_accessor';\n\nexport { RangeValueAccessor } from
'./directives/range_value_accessor';\n\nexport { FormControlDirective } from
'./directives/reactive_directives/form_control_directive';\n\nexport { FormControlName } from
'./directives/reactive_directives/form_control_name';\n\nexport { FormGroupDirective } from
'./directives/reactive_directives/form_group_directive';\n\nexport { FormArrayName } from
'./directives/reactive_directives/form_group_name';\n\nexport
{ FormGroupName } from './directives/reactive_directives/form_group_name';\n\nexport { NgSelectOption,
SelectControlValueAccessor } from './directives/select_control_value_accessor';\n\nexport

```



```

{SelectMultipleControlValueAccessor} from './directives/select_multiple_control_value_accessor';\nexport
{NgSelectMultipleOption} from './directives/select_multiple_control_value_accessor';\nexport {AsyncValidator,
AsyncValidatorFn, CheckboxRequiredValidator, EmailValidator, MaxLengthValidator, MinLengthValidator,
PatternValidator, RequiredValidator, ValidationErrors, Validator, ValidatorFn} from
'./directives/validators';\nexport {FormBuilder} from './form_builder';\nexport {AbstractControl,
AbstractControlOptions, FormArray, FormControl, FormGroup} from './model';\nexport
{NG_ASYNC_VALIDATORS, NG_VALIDATORS, Validators} from './validators';\nexport {VERSION} from
'./version';\n\nexport * from './form_providers';\n", "/*\n * @license\n * Copyright Google LLC All Rights
Reserved.\n *\n * Use of this
source code is governed by an MIT-style license that can be\n * found in the LICENSE file at
https://angular.io/license\n *\n\n/*\n * @module\n * @description\n * Entry point for all public APIs of this
package.\n *\n\nexport * from './src/forms';\n\n// This file only reexports content of the `src` folder. Keep it that
way.\n", "/*\n * @license\n * Copyright Google LLC All Rights Reserved.\n *\n * Use of this source code is
governed by an MIT-style license that can be\n * found in the LICENSE file at https://angular.io/license\n *\n\n//
This file is not used to build this module. It is only used during editing\n// by the TypeScript language service and
during build for verification. `ngc`\n// replaces this file with production index.ts when it rewrites private symbol\n//
names.\n\nexport * from './public_api';\n", "/*\n * Generated bundle index. Do not edit.\n *\n\nexport * from
'./index';\n\nexport {InternalFormsSharedModule as
angular_packages_forms_forms_d, REACTIVE_DRIVEN_DIRECTIVES
as angular_packages_forms_forms_c, SHARED_FORM_DIRECTIVES as
angular_packages_forms_forms_a, TEMPLATE_DRIVEN_DIRECTIVES as angular_packages_forms_forms_b}
from './src/directives';\nexport {CHECKBOX_VALUE_ACCESSOR as angular_packages_forms_forms_e} from
'./src/directives/checkbox_value_accessor';\nexport {DEFAULT_VALUE_ACCESSOR as
angular_packages_forms_forms_f} from './src/directives/default_value_accessor';\nexport {AbstractControlStatus as
angular_packages_forms_forms_g, ngControlStatusHost as angular_packages_forms_forms_h} from
'./src/directives/ng_control_status';\nexport {formDirectiveProvider as angular_packages_forms_forms_i} from
'./src/directives/ng_form';\nexport {formControlBinding as angular_packages_forms_forms_j} from
'./src/directives/ng_model';\nexport {modelGroupProvider as angular_packages_forms_forms_k} from
'./src/directives/ng_model_group';\nexport {NgNoValidate as angular_packages_forms_forms_y} from
'./src/directives/ng_no_validate_directive';\nexport
{NUMBER_VALUE_ACCESSOR as angular_packages_forms_forms_l} from
'./src/directives/number_value_accessor';\nexport {RADIO_VALUE_ACCESSOR as
angular_packages_forms_forms_m, RadioControlRegistry as angular_packages_forms_forms_n} from
'./src/directives/radio_control_value_accessor';\nexport {RANGE_VALUE_ACCESSOR as
angular_packages_forms_forms_o} from './src/directives/range_value_accessor';\nexport
{NG_MODEL_WITH_FORM_CONTROL_WARNING as angular_packages_forms_forms_p, formControlBinding
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B;IAC1B,kCAAKC;IAC1C,yBAAYB;IACzB,eAAe;IACf,oBAAoB;IACpB,iBAAiB;IACjB,kBAAKB;IAC1B,kBAAkB;IAC1B,gBAAGB;IACbB,yBAAYB;IACzB,cAAc;EACd;MAEW,0BAA0B,GAAGB,CAAC,OAAO,EAAE,YAA Y,EAAE,MAAM,EAAE;MAE1E,0BAA0B,GACnC,CAAC,oBAAoB,EAAE,kBAAKB,EAAE,eAAe,EAAE,aAAa, EAAE,aAAa,EAAE;AAE9F;;;MAOa,0BAA0B;;;YAJtC,QAAQ,SAAC;gBACR,YAAY,EAAE,sBAAsB;gBACpC, OAAO,EAAE,sBAAsB;aChC;;;AC9ED;;;;;AAaA,SAAS,wBAAwB,CAAC,OACoB;IACpD,OAAgC,OAAQ,C AAC,eAAe,KAAC,SAAS;QACzC,OAAQ,CAAC,UAAU,KAAC,SAAS;QACjC,OAAQ,CAAC,QAAQ,KAAC,SA AS,CAAC;AAC/D,CAAC;AAED;;;;;MAaa,WAAW;;;;;IAsBtB,KAAC,CACD,cAAoC,EACpC,U AA4D,IAAI;QACIE,MAAM,QAAQ,GAAG,IAAI,CAAC,eAAe,CAAC,cAAc,CAAC,CAAC;QAEtD,IAAI,UAAU, GAAMC,IAAI,CAAC;QACtD,IAAI,eAAe,GAA6C,IAAI,CAAC;QACrE,IAAI,QAAQ,GAAwB,SAAS,CAAC;QA E9C,IAAI,OAAO,IAAI,IAAI,EAAE;YACnB,IAAI,wBAAwB,CAAC,OAAO,CAAC,EAAE;;gBAErC,UAAU,GA AG,OAAO,CAAC,UAAU,IAAI,IAAI,GAAG,OAAO,CAAC,UAAU,GAAG,IAAI,CAAC;gBACpE,eAAe,GAAG, OAAO,CAAC,eAAe,IAAI,IAAI,GAAG,OAAO,CAAC,eAAe,GAAG,IAAI,CAAC;gBACnF,QAAQ,GAAG,OAA O,CAAC,QAAQ,IAAI,IAAI,GAAG,OAAO,CAAC,QAAQ,GAAG,SAAS,CAAC;aAcPe;IBAAM;;gBAEL,UAAU ,GAAG,OAAO,CAAC,WAAW,CAAC,IAAI,IAAI,GAAG,OAAO,CAAC,WAAW,CAAC,GAAG,IAAI,CAAC;gB ACxE,eAAe,GAAG,OAAO,CAAC,gBAAGB,CAAC,IAAI,IAAI,GAAG,OAAO,CAAC,gBAAGB,CAAC,GAAG,I AAI,CAAC;aACxF;SACF;QAED,OAAO,IAAI,SAAS,CAAC,QAAQ,EAAE,EAAC,eAAe,EAAE,QAAQ,EAAE,U AAU,EAAC,CAAC,CAAC;KACzE;;;;;IAyBD,OAAO,CACH,SAAc,EAAE,eAAuE,EACvF,cAAyD; QAC3D,OAAO,IAAI,WAAW,CAAC,SAAS,EAAE,eAAe,EAAE,cAAc,CAAC,CAAC;KACpE;;;;;IAGBD, KAAK,CACD,cAAqB,EACrB,eAAuE,EACvE,cAAyD;QAC3D,MAAM,QAAQ,GAAG,cAAc,CAAC,GAAG,CA AC,CAAC,IAAI,IAAI,CAAC,cAAc,CAAC,CAAC,CAAC,CAAC,CAAC;QACjE,OAAO,IAAI,SAAS,CAAC,QA AQ,EAAE,eAAe,EAAE,cAAc,CAAC,CAAC;KACjE;;IAGD,eAAe,CAAC,cAAkC;QACHD,MAAM,QAAQ,GAA qC,EAAE,CAAC;QACtD,MAAM,CAAC,IAAI,CAAC,cAAc,CAAC,CAAC,OAAO,CAAC,WAAW;YAC7C,QAA Q,CAAC,WAAW,CAAC,GAAG,IAAI,CAAC,cAAc,CAAC,cAAc,CAAC,WAAW,CAAC,CAAC,CAAC;SAC1E, CAAC,CAAC;QACH,OAAO,QAAQ,CAAC;KACjB;;IAGD,cAAc,CAAC,aAAkB;QAC/B,IAAI,aAAa,YAAY,W AAW,IAAI,aAAa,YAAY,SAAS;YAC1E,aAAa,YAAY,SAAS,EAAE;YACtC,OAAO,aAAa,CAAC;SAEtB;aAM, IAAI,KAAK,CAAC,OAAO,CAAC,aAAa,CAAC,EAAE;YACvC,MAAM,KAAK,GAAG,aAAa,CAAC,CAAC,CA AC,CAAC;YAC/B,MAAM,SAAS,GAAGB,aAAa,CAAC,MAAM,GAAG,CAAC,GAAG,aAAa,CAAC,CAAC,CA AC,GAAG,IAAI,CAAC;YACIF,MAAM,cAAc,GAAqB,aAAa,CAAC,MAAM,GAAG,CAAC,GAAG,aAAa,CAAC ,CAAC,CAAC,GAAG,IAAI,CAAC;YAC5F,OAAO,IAAI,CAAC,OAAO,CAAC,KAAK,EAAE,SAAS,EAAE,cAA c,CAAC,CAAC;SAEvD;aAAM;YACL,OAAO,IAAI,CAAC,OAAO,CAAC,aAAa,CAAC,CAAC;SACpC;KACF;; YA3HF,UAAU;;;AChCX;;;;;AAGBA;;MAGa,OAAO,GAAG,IAAI,OAAO,CAAC,mBAAMb;;ACnBtD;;;;;AAc A;;;;;MAca,WAAW;;YALvB,QAAQ,SAAC;gBACR,YAAY,EAAE,0BAA0B;gBACxC,SAAS,EAAE,CAAC,o BAAoB,CAAC;gBACjC,OAAO,EAAE,CAACC,0BAAYB,EAAE,0BAA0B,CAAC;aACjE;;AAID;;;;;MAca,mB AAmB;;;;;IAS9B,OAAO,UAAU,CAAC,IAejB;QACC,OAAO;YACL,QAAQ,EAAE,mBAAMb;YAC7B,SAAS, EAAE;gBACT,EAAC,OAAO,EAAE,kCAAKC,EAAE,QAAQ,EAAE,IAAI,CAAC,4BAA4B,EAAC;aAC3F;SACF, CAAC;KACH;;YAvBF,QAAQ,SAAC;gBACR,YAAY,EAAE,CAAC,0BAA0B,CAAC;gBAC1C,SAAS,EAAE,C AAC,WAAW,EAAE,oBAAoB,CAAC;gBAC9C,OAAO,EAAE,CAACA,0BAAYB,EAAE,0BAA0B,CAAC;aACjE; ;AC5CD;;;;;ACAA;;;;;AAeA;;ACfA;;;;;ACAA;;;;;"} }

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1.457 material-icons 0.6.1

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1.459 json2csv 4.5.3

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1.461 karma-coverage-istanbul-reporter 3.0.2

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1.462 types-vis 4.21.9

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1.463 html2canvas 1.0.0-rc.4

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1.464 json-formatter-js 2.2.0

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1.466 karma 5.0.0

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1.467 ng-packagr 11.0.0

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1.468 types-d3 5.0.1

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1.470 moment 2.29.4

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1.472 zlib 1.2.11

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/* zlib.h -- interface of the 'zlib' general purpose compression library
version 1.2.11, January 15th, 2017

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://tools.ietf.org/html/rfc1950> (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

*/

1.473 sass 1.54.0

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* /wsgiref-0-1-2-2-zip/wsgiref-0.1.2/wsgiref/validate.py

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Metadata-Version: 1.0

Name: wsgiref

Version: 0.1.2

Summary: WSGI (PEP 333) Reference Library

Home-page: <http://cheeseshop.python.org/pypi/wsgiref>

Author: Phillip J. Eby

Author-email: web-sig@python.org

License: PSF or ZPL

Description: This is a standalone release of the ``wsgiref`` library to be included in Python 2.5. For the standalone version's documentation, see:

HTML

http://peak.telecommunity.com/wsgiref_docs/

PDF

<http://peak.telecommunity.com/wsgiref.pdf>

Platform: UNKNOWN

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* /wsgiref-0-1-2-2-zip/wsgiref-0.1.2/wsgiref.egg-info/PKG-INFO

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1.476 cglib 3.3.0

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1.478 gson 2.8.9

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* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/JsonTreeReader.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/CollectionTypeAdapterFactory.java
* /gson-2-8-9-sources-4-jar/com/google/gson/TypeAdapter.java
*
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/ReflectiveTypeAdapterFactory.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/TypeAdapters.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/ObjectTypeAdapter.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/ArrayTypeAdapter.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/MapTypeAdapterFactory.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/JsonTreeWriter.java
* /gson-2-8-9-sources-4-jar/com/google/gson/TypeAdapterFactory.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/TypeAdapterRuntimeTypeWrapper.java
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* /gson-2-8-9-sources-4-jar/com/google/gson/internal/reflect/UnsafeReflectionAccessor.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/reflect/ReflectionAccessor.java
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/reflect/PreJava9ReflectionAccessor.java
*
* /gson-2-8-9-sources-4-jar/com/google/gson/internal/PreJava9DateFormatProvider.java
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- * /gson-2-8-9-sources-4-jar/com/google/gson/stream/JsonScope.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/stream/JsonWriter.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/stream/JsonReader.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/stream/MalformedJsonException.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/LongSerializationPolicy.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonParser.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/FieldAttributes.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonStreamParser.java

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 * /gson-2-8-9-sources-4-jar/com/google/gson/internal/UnsafeAllocator.java
 * /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/DateTypeAdapter.java
 * /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/TreeTypeAdapter.java
 * /gson-2-8-9-sources-4-jar/com/google/gson/internal/ConstructorConstructor.java
 *

/gson-2-8-9-sources-4-jar/com/google/gson/internal/sql/SqlDateTypeAdapter.java

* /gson-2-8-9-sources-4-jar/com/google/gson/internal/LazilyParsedNumber.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/LinkedTreeMap.java
- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/LinkedHashMap.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/Streams.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonDeserializationContext.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/Primitives.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/annotations/Expose.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/GsonBuilder.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonNull.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonSerializationContext.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/InstanceCreator.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonParseException.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonObject.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/FieldNamingStrategy.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonArray.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/\$Gson\$Preconditions.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/annotations/Since.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/ObjectConstructor.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/Excluder.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/ExclusionStrategy.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/JsonSerializer.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/annotations/Until.java

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- * /gson-2-8-9-sources-4-jar/com/google/gson/FieldNamingPolicy.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/reflect/TypeToken.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/Gson.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/annotations/SerializedName.java

- * /gson-2-8-9-sources-4-jar/com/google/gson/internal/bind/DefaultDateTypeAdapter.java

* /gson-2-8-9-sources-4-jar/com/google/gson/JsonIOException.java

* /gson-2-8-9-sources-4-jar/com/google/gson/JsonDeserializer.java

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1.481 apr-util 1.6.1-2

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```
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```
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misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

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- ```
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```

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From strings/apr_strnatcmp.c, include/apr_strings.h:

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The following was received February 23, 2000 From: "Linn, John" February 19, 2000

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1.482 apr 1.6.3-2

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From strings/apr_fnmatch.c, include/apr_fnmatch.h, misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

```
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```

From network_io/unix/inet_ntop.c, network_io/unix/inet_pton.c:

```
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```

```
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```

From dso/aix/dso.c:

```
* Based on libdl (dlfcn.c/dlfcn.h) which is
```

```
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```

From strings/apr_strnatcmp.c,
include/apr_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.

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From

strings/apr_snprintf.c:

*

* cvt - IEEE floating point formatting routines.

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*

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From strings/apr_fnmatch.c, include/apr_fnmatch.h,
misc/unix/getopt.c,
file_io/unix/mktemp.c, strings/apr_strings.c:

/*

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```

From dso/aix/dso.c:

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From strings/apr\_strnatcmp.c, include/apr\_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.  
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X-Source-Downloaded-From:

<http://www.firebirdsql.org/download/prerelease/source/>

X-Repackaged: Yes

Table of contents

=====

This file is long, but complete. Here's what's inside:

- \* How to get re-packaged upstream source
- \* What is removed from upstream source and why
- \* The easy part: files under debian/
- \* Upstream licensing summary
- \* Upstream copyright summary
- \* Complete list of the files in the repackaged upstream tarball, grouped by license and copyright holders.
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How to get re-packaged upstream source

=====

Run 'uscan --force' or debian/rules get-orig-source

That will download from upstream, remove what is to be removed and create an .orig.tar.xz

What is removed from upstream source and why

=====

\* Bundled libraries

The following libraries are supplied

by upstream in their source

tarball. These are present in Debian and using the Debian packages is better because:

- improved security: no need to watch the bundled libraries for security problems -- Debian Security already handles that for the Debian packages
- get fixes and improvements automatically when the Debian library package is upgraded
- the source tarball decreases in size from 13MB to 7.5MB (42% decrease)

Removed library sources:

- extern/editline
- src/include/firebird/impl/boost
- extern/libtommath

\* Removed sources with non-free/missing licensing

The following files are removed as they contain only copyright information without any license allowing their distribution. Luckily, they are not needed when building on Debian.

- builds/install/arch-specific/solaris/
- src/messages/templates.sql
- extern/SfIO/

\* Generated files without source

These two files are generated from SGML sources, but the sources are not in the upstream tarball.

- doc/ReleaseNotes.pdf

Other

generated files are removed from the source, as listed in  
debian/prune-upstream-dfsg.lst

\* Generated files and other cruft.

Since we are repackaging, we take the opportunity to also remove the following files, which are generated during the build:

- configure
- builds/make.new/config/config.guess
- builds/make.new/config/config.h.in
- builds/make.new/config/config.sub
- builds/make.new/config/install-sh
- builds/make.new/config/ltmain.sh

Also, the following files are just cruft and are present in the upstream tarball by mistake:

- .cvsignore (in several directories)

The easy part: files under debian/

=====

Files: debian/\*

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=====

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 Konstantin Kuznetsov  
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 Mark O'Donohue <skywalker@users.sourceforge.net>, 2002  
 Michael Rimov  
 Michal Bukovjan  
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 Philippe Makowski  
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 Toni Martir  
 Victor Seryodkin  
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 2011  
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.travis.yml  
autogen.sh  
binreloc.m4  
builds/cmake/\*  
builds/install/arch-specific/aix/classic/rpmfiles.txt.in  
builds/install/arch-specific/aix/classic/rpmheader.txt.in  
builds/install/arch-specific/aix/misc/aixLibrary.sh.in  
builds/install/arch-specific/aix/misc/firebird.init.d.aix.in  
builds/install/arch-specific/aix/misc/rc.config.firebird.aix.in  
builds/install/arch-specific/darwin/\*  
builds/install/arch-specific/hpux/classic/firebirdCS.psf.in  
builds/install/arch-specific/hpux/misc/changedbaPassword.sh.in  
builds/install/arch-specific/hpux/misc/rc.config.firebird.hpux.in  
builds/install/arch-specific/hpux/super/postInstall.sh.in  
builds/install/arch-specific/hpux/super/postUninstall.sh.in  
builds/install/arch-specific/hpux/super/preInstall.sh.in  
builds/install/arch-specific/hpux/super/preUninstall.sh.in  
builds/install/arch-specific/linux/firebird-classic.service.in  
builds/install/arch-specific/linux/firebird-classic.socket.in  
builds/install/arch-specific/linux/firebird-superserver.service.in  
builds/install/arch-specific/linux/firebird.init.d.debian.in  
builds/install/arch-specific/linux/firebird.init.d.generic.in  
builds/install/arch-specific/linux/firebird.init.d.gentoo.in  
builds/install/arch-specific/linux/firebird.init.d.mandrake.in  
builds/install/arch-specific/linux/firebird.init.d.slackware.in  
builds/install/arch-specific/linux/firebird.xinetd.in  
builds/install/arch-specific/linux/rc.config.firebird.in  
builds/install/arch-specific/linux/README  
builds/install/arch-specific/mingw/\*  
builds/install/arch-specific/solx86/Makefile.in  
builds/install/arch-specific/solx86gcc/CS/pkginfo.in  
builds/install/arch-specific/solx86gcc/CS/prototype.in  
builds/install/arch-specific/solx86gcc/LIBGCC/pkginfo.in  
builds/install/arch-specific/solx86gcc/LIBGCC/prototype.in  
builds/install/arch-specific/win32/After\_Installation.url  
builds/install/arch-specific/win32/ba/\*  
builds/install/arch-specific/win32/custom\_messages.inc  
builds/install/arch-specific/win32/cz/\*  
builds/install/arch-specific/win32/de/\*  
builds/install/arch-specific/win32/es/\*  
builds/install/arch-specific/win32/firebird\_install\_logo1.bmp  
builds/install/arch-specific/win32/firebirdsql.org.url  
builds/install/arch-specific/win32/fr/\*

builds/install/arch-specific/win32/hu/\*  
builds/install/arch-specific/win32/i18n\_readme.txt  
builds/install/arch-specific/win32/install\_service.bat  
builds/install/arch-specific/win32/installation\_readme.txt  
builds/install/arch-specific/win32/installation\_scripted.txt  
builds/install/arch-specific/win32/it/\*  
builds/install/arch-specific/win32/pl/\*  
builds/install/arch-specific/win32/pt/\*  
builds/install/arch-specific/win32/Readme.txt  
builds/install/arch-specific/win32/readme\_snapshot.txt  
builds/install/arch-specific/win32/ru/\*  
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builds/install/arch-specific/win32/strip\_comments.sed  
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builds/install/misc/databases.conf.in  
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builds/install/misc/firebird.conf.in  
builds/install/misc/firebird.init.d.Solaris.in  
builds/install/misc/plugins.conf  
builds/mac\_os\_x/CS/\*  
builds/posix/make.android.arme  
builds/posix/make.android.arm64  
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builds/win32/adjust\_vc7\_files.cmd  
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builds/win32/make\_boot.bat  
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builds/win32/make\_icu.bat  
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builds/win32/msvc12/\*  
builds/win32/msvc14/\*  
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ChangeLog  
CMakeLists.txt  
configure.ac  
doc/\*.html  
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doc/Firebird\_conf.txt  
doc/license/README.license.usage.txt  
doc/README.\*  
doc/sql.extensions/\*  
doc/WhatsNew  
examples/build\_win32/\*.bat  
examples/CMakeLists.txt  
examples/dbcrypt/ReadMe.txt  
examples/empbuild/\*.inp  
extern/cloop/cloop.sln  
extern/cloop/Makefile  
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extern/cloop/src/tests/test1/CalcCApi.c  
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src/auth/SecureRemotePassword/Message.h  
src/auth/SecureRemotePassword/misc/prime.cpp  
src/auth/SecureRemotePassword/misc/test.sh  
src/auth/SecureRemotePassword/misc/test\_srp.cpp  
src/auth/SecureRemotePassword/srp.cpp  
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src/CMakeLists.txt  
src/common/classes/misc/test.sh  
src/common/fb\_exception.cpp  
src/common/os/win32/mod\_loader.cpp  
src/common/os/win32/path\_utils.cpp  
src/dsql/btyacc\_fb.ske

src/gpre/CMakeLists.txt  
src/include/cross/android.arme  
src/include/cross/android.arm64  
src/include/cross/android.x86  
src/include/cross/android.x86\_64  
src/include/fb\_blk.h  
src/include/fb\_macros.h  
src/include/gen/Firebird.pas  
src/include/gen/README.txt  
src/include/gen/autoconfig\_msvc.h  
src/include/gen/files.txt  
src/include/ibase.h  
src/include/iberror.h  
src/include/old\_fb\_blk.h  
src/intl/charsets/cs\_koi8r.h  
src/intl/charsets/cs\_koi8u.h  
src/intl/charsets/cs\_w1258.h  
src/intl/moved\_files.txt  
src/jrd/build\_no.h  
src/jrd/intl\_builtin.cpp  
src/misc/copy-boost.sh  
src/misc/gds\_header.txt  
src/misc/headers.sed  
src/misc/ibase\_header.txt  
src/misc/intl.sql  
src/misc/makeHeader.cpp  
src/misc/pascal/Pascal.Constants.awk  
src/misc/pascal/Pascal.implementation.pas  
src/misc/pascal/Pascal.interface.pas  
src/misc/pascal/fb\_get\_master\_interface.pas  
src/misc/upgrade/recovering\_build.txt  
src/misc/upgrade/v2.1/metadata\_charset\_create.sql  
src/misc/upgrade/v2.1/metadata\_charset\_drop.sql  
src/misc/upgrade/v2/ib\_udf2\_params.txt  
src/misc/upgrade/v2/ib\_udf\_params.txt  
src/misc/upgrade/v2/security\_database.txt  
src/misc/upgrade/v3.0/security\_database.txt  
src/misc/writeBuildNum.sh  
src/messages/facilities2.sql  
src/messages/history2.sql  
src/messages/locales.sql  
src/messages/messages2.sql  
src/messages/msg.sql  
src/messages/sqlstates.sql  
src/messages/symbols2.sql  
src/messages/system\_errors2.sql  
src/messages/transmsgs.de\_DE2.sql  
src/messages/transmsgs.fr\_FR2.sql

src/plugins/udr\_engine/udr\_engine.conf  
src/remote/CMakeLists.txt  
src/remote/server/os/win32/caution.ico  
src/remote/server/os/win32/server.ico  
src/remote/server/os/win32/window\_proto.h  
src/utilities/CMakeLists.txt  
src/utilities/create\_db.cpp  
src/utilities/fbcpl/ctrlpan.cpp  
src/utilities/fbcpl/ctrlpan.h  
src/utilities/fbcpl/fbcontrol.clw  
src/utilities/fbcpl/fbcontrol.cpp  
src/utilities/fbcpl/fbcontrol.def  
src/utilities/fbcpl/fbcontrol.h  
src/utilities/fbcpl/FBControl.rc  
src/utilities/fbcpl/res/fbcontrol.rc2  
src/utilities/fbcpl/res/server.ico  
src/utilities/fbcpl/res/server\_stop.ico  
src/utilities/fbcpl/resource.h  
src/utilities/fbcpl/stdafx.cpp  
src/utilities/fbcpl/stdafx.h  
src/utilities/gsec/gsec\_proto.h  
src/utilities/ntrace/fbtrace.conf  
travis.sh

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src/common/sha.cpp  
NIST Secure Hash Algorithm  
heavily modified by Uwe Hollerbach <uh@alumni.caltech.edu>  
from Peter C. Gutmann's implementation as found in  
Applied Cryptography by Bruce Schneier  
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src/yvalve/config/os/posix/binreloc.c  
src/yvalve/config/os/posix/binreloc.h  
BinReloc - a library for creating relocatable executables  
Written by: Hongli Lai <h.lai@chello.nl>  
<http://autopackage.org/>

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See <http://autopackage.org/docs/binreloc/> for  
more information and how to use this.

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of files, then a list of contributors, as stated in them.

builds/posix/prefix.hpux\_ia64  
builds/win32/defs/build.def  
builds/win32/defs/burp.def  
builds/win32/defs/burp32.def  
builds/win32/defs/dsql.def  
builds/win32/defs/fbclient\_s.def  
builds/win32/defs/firebird.def  
builds/win32/defs/gds32.def  
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builds/win32/defs/ib\_util.def  
builds/win32/defs/intl.def  
builds/win32/defs/isql.def  
builds/win32/defs/iutls.def  
builds/win32/defs/jrd.def  
builds/win32/defs/utls.def  
examples/api/\*  
examples/dyn/dyn1.e  
examples/dyn/dyn2.e  
examples/dyn/dyn3.e  
examples/dyn/dyn4.e  
examples/dyn/dyn5.e  
examples/dyn/dynfull.e  
examples/empbuild/empbld.sql  
examples/empbuild/empbuild.e  
examples/empbuild/empddl.sql  
examples/empbuild/empdml.sql  
examples/empbuild/employe2.sql  
examples/empbuild/indexoff.sql  
examples/empbuild/indexon.sql  
examples/empbuild/intlbld.e  
examples/empbuild/intlbld.sql  
examples/empbuild/intlddl.sql  
examples/empbuild/intldml.sql  
examples/functions.c  
examples/include/example.h  
examples/readme  
examples/stat/\*  
examples/udf/\*  
lang\_helpers/gds.pas  
lang\_helpers/gds\_aix.f  
lang\_helpers/gds\_codes.ftn

lang\_helpers/gds\_codes.pas  
lang\_helpers/gds\_hp.f  
lang\_helpers/gds\_sun.f  
lang\_helpers/ib\_util.pas  
lang\_helpers/perf.pas  
src/alice/alice.h  
src/alice/alice\_meta.epp  
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src/alice/alice\_proto.h  
src/alice/exe\_proto.h  
src/alice/tdr\_proto.h  
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src/burp/canon\_proto.h  
src/burp/misc\_proto.h  
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src/burp/resto\_proto.h  
src/burp/split/spit.cpp  
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src/burp/std\_desc.h  
src/common/cdbtable.h  
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src/common/dsc.cpp  
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src/common/sdl.cpp  
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src/common/sdltable.h  
src/common/security.h  
src/common/xdr\_proto.h  
src/dbs/metadata.sql  
src/dsql/chars.h  
src/dsql/DSqlDataTypeUtil.cpp  
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src/dsql/errd\_proto.h  
src/dsql/gen\_proto.h  
src/dsql/metd\_proto.h  
src/dsql/movd.cpp  
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src/dsql/pass1\_proto.h

src/dsql/sqllda.h  
src/dsql/sqllda\_pub.h  
src/dsql/sym.h  
src/extlib/ib\_udf.h  
src/extlib/ib\_util.h  
src/gpre/boot/gpre\_meta\_boot.cpp  
src/gpre/cmd\_proto.h  
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src/gpre/exp\_proto.h  
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src/gpre/std/gpre\_meta.epp  
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src/intl/charsets/cs\_big5.h  
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src/intl/charsets/cs\_ksc5601.h  
src/intl/charsets/cs\_next.h  
src/intl/charsets/cs\_sjis.h  
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src/common/classes/BlrWriter.h

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src/jrd/Routine.cpp

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src/gpre/exp.cpp  
src/gpre/hsh.cpp  
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builds/posix/prefix.linux\_ia64  
builds/posix/prefix.linux\_mips  
builds/posix/prefix.linux\_mipsel  
builds/posix/prefix.linux\_powerpc  
builds/posix/prefix.linux\_sparc32  
src/common/classes/timestamp.cpp  
src/jrd/vio\_proto.h

builds/posix/prefix.darwin\_ppc64  
builds/posix/prefix.freebsd\_amd64  
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src/yvalve/gds.cpp  
src/jrd/tra.cpp  
src/lock/lock.cpp  
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builds/posix/firebird.vers  
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builds/posix/postfix.darwin  
builds/posix/prefix.darwin\_i386  
builds/posix/prefix.darwin\_powerpc  
builds/posix/prefix.darwin\_x86\_64  
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src/jrd/pag.cpp  
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src/utilities/install/registry.h  
src/utilities/install/services.cpp  
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src/lock/print.cpp  
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src/alice/alice.cpp

src/alice/aliceswi.h  
src/alice/exe.cpp  
src/alice/tdr.cpp  
src/burp/burp.cpp  
src/burp/burp.h  
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src/dsql/utld\_proto.h  
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src/intl/utls/dtest.c  
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src/jrd/val.h  
src/msgs/build\_file.epp  
src/qli/dtr.cpp  
src/qli/help.epp  
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src/remote/protocol.h  
src/remote/remote\_def.h  
src/remote/remote.h  
src/common/xdr.cpp  
src/common/xdr.h  
src/utilities/drop.cpp  
src/utilities/gstat/dba.epp  
src/utilities/gstat/ppg.cpp  
src/utilities/ibmgr/ibmgr.cpp  
builds/win32/defs/remote.def  
examples/include/align.h  
lang\_helpers/gds.hxx  
lang\_helpers/gdsold.h

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src/gpre/hsh.h  
src/gpre/lang\_proto.h  
src/gpre/languages/rmc.cpp  
src/gpre/words.h

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src/common/os/posix/fbsyslog.cpp  
src/common/os/win32/fbsyslog.cpp  
src/jrd/rpb\_chain.cpp  
src/jrd/rpb\_chain.h

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src/common/classes/array.h

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src/include/gen/codetext.h  
src/include/gen/iberror.h  
src/include/gen/msg\_facs.h  
src/include/gen/msgs.h  
src/include/gen/sql\_code.h

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src/include/fb\_api\_proto.h

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src/common/unicode\_util.h

src/intl/cs\_icu.cpp

src/intl/cs\_icu.h

src/intl/cv\_icu.cpp

src/intl/cv\_icu.h

src/intl/lc\_icu.cpp

src/intl/lc\_icu.h

src/jrd/IntlManager.cpp

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src/jrd/DataTypeUtil.cpp

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examples/udr/Functions.cpp

examples/udr/Procedures.cpp

examples/udr/Triggers.cpp

src/dsql/DdlNodes.h

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src/dsql/AggNodes.h

src/dsql/BoolNodes.h

src/dsql/ExprNodes.h  
src/dsql/WinNodes.cpp  
src/dsql/WinNodes.h  
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src/common/MsgMetadata.h  
src/common/StatementMetadata.cpp  
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extern/cloop/src/cloop/Expr.cpp  
extern/cloop/src/cloop/Expr.h  
extern/cloop/src/cloop/Generator.cpp  
extern/cloop/src/cloop/Generator.h  
extern/cloop/src/cloop/Lexer.cpp  
extern/cloop/src/cloop/Lexer.h  
extern/cloop/src/cloop/Main.cpp  
extern/cloop/src/cloop/Parser.cpp  
extern/cloop/src/cloop/Parser.h  
extern/cloop/src/tests/test1/CppTest.cpp  
extern/cloop/src/tests/test1/CTest.c  
extern/cloop/src/tests/test1/Interface.idl  
extern/cloop/src/tests/test1/PascalClasses.pas  
extern/cloop/src/tests/test1/PascalLibrary.dpr  
extern/cloop/src/tests/test1/PascalTest.dpr  
src/dsql/NodePrinter.h  
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builds/posix/udr\_plugin.vers  
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src/intl/collations/koi8r\_ru.h  
src/intl/collations/koi8u\_ua.h  
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src/intl/collations/win1257\_lt.h

src/intl/collations/win1257\_lv.h

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src/common/classes/auto.h

src/common/classes/fb\_pair.h

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src/common/classes/misc/string\_test.cmd

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src/alice/main/aliceMain.cpp

src/burp/main/burpMain.cpp

src/utilities/gsec/main/gsecMain.cpp

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src/common/classes/Aligner.h  
src/common/classes/semaphore.cpp  
src/common/UtilSvc.cpp  
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src/common/Auth.cpp  
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src/common/classes/GetPlugins.h  
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src/jrd/svc\_tab.cpp  
src/jrd/svc\_tab.h

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src/auth/SecureRemotePassword/server/SrpServer.cpp  
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src/common/IntlParametersBlock.cpp  
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src/jrd/CryptoManager.cpp  
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src/common/classes/AlignedBuffer.h  
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src/common/DynamicStrings.cpp

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src/common/classes/misc/lowtab.c

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src/common/stuff.h  
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src/misc/upgrade/v2.1/metadata\_charset.txt  
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src/common/classes/BaseStream.cpp  
src/common/classes/BaseStream.h  
src/common/classes/MsgPrint.cpp  
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src/common/CsConvert.h  
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src/utilities/fbcpl/fbdiallog.cpp

src/utilities/fbcpl/fbdiallog.h

src/utilities/fbcpl/fbpanel.cpp

src/utilities/fbcpl/fbpanel.h

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builds/install/arch-specific/hpux/classic/postUninstall.sh.in  
builds/install/arch-specific/hpux/classic/preInstall.sh.in  
builds/install/arch-specific/hpux/classic/preUninstall.sh.in  
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examples/build\_unix/Makefile.in.v5\_examples  
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```

depot
layout_version 1.0
vendor
tag Firebird
title Firebird Project
description "Firebird Database"
end

product
tag Firebird
title "Firebird Database for HP-UX"
description "Firebird Relational Database Classic"
revision 2.1.0
category database
category_title Database
preinstall install/scripts/preInstall.sh
postinstall install/scripts/postInstall.sh
preremove install/scripts/preUninstall.sh
postremove install/scripts/postUninstall.sh
#
architecture HP-UX_B.11_64
os_name HP-UX
os_release ?.11.*
os_version ?
#
fileset
tag main
file -u 0660 -g firebird -o firebird buildroot@prefix@/security2.fdb @prefix@/security2.fdb
file -u 0644 -g firebird -o firebird buildroot@prefix@/firebird.conf @prefix@/firebird.conf
file -u 0644 -g firebird -o firebird buildroot@prefix@/databases.conf @prefix@/databases.conf
file -u 0644 -g firebird -o firebird buildroot@prefix@/WhatsNew @prefix@/WhatsNew
end
#
fileset
tag include
directory buildroot@prefix@/include=@prefix@/include
file_permissions -u 0644 -g
 firebird -o firebird
file *
end
#
fileset
tag intl
file -u 0755 -g firebird -o firebird buildroot@prefix@/intl/fbintl @prefix@/intl/fbintl
file -u 0644 -g firebird -o firebird buildroot@prefix@/intl/fbintl.conf @prefix@/intl/fbintl.conf
end
#
fileset

```

```

tag UDF
file -u 0755 -g firebird -o firebird buildroot@prefix@/UDF/ib_udf.sl @prefix@/UDF/ib_udf.sl
file -u 0755 -g firebird -o firebird buildroot@prefix@/UDF/fbudf.sl @prefix@/UDF/fbudf.sl
file -u 0644 -g firebird -o firebird buildroot@prefix@/UDF/ib_udf.sql @prefix@/UDF/ib_udf.sql
file -u 0644 -g firebird -o firebird buildroot@prefix@/UDF/ib_udf2.sql @prefix@/UDF/ib_udf2.sql
file -u 0644 -g firebird -o firebird buildroot@prefix@/UDF/fbudf.sql @prefix@/UDF/fbudf.sql
end
#
fileset
tag bin
directory buildroot@prefix@/bin=@prefix@/bin
file_permissions -u 0755 -g firebird -o firebird
file *
end
#
fileset
tag misc
directory buildroot@prefix@/misc=@prefix@/misc
file_permissions -u 0644 -g firebird -o firebird
file *
directory buildroot@prefix@/misc/upgrade/security=@prefix@/misc/upgrade/security
file_permissions
-u 0644 -g firebird -o firebird
file *
end
#
fileset
tag examples
file -u 0644 -g firebird -o firebird firebird/examples/README @prefix@/examples/README
file -u 0644 -g firebird -o firebird firebird/examples/functions.c @prefix@/examples/functions/functions.c
directory firebird/examples/api=@prefix@/examples/api
file_permissions -u 0644 -g firebird -o firebird
file *
directory firebird/examples/dyn=@prefix@/examples/dyn
file_permissions -u 0644 -g firebird -o firebird
file *
directory firebird/examples/empbuild=@prefix@/examples/empbuild
file_permissions -u 0644 -g firebird -o firebird
file *
directory firebird/examples/include=@prefix@/examples/include
file_permissions -u 0644 -g firebird -o firebird
file *
directory firebird/examples/stat=@prefix@/examples/stat
file_permissions -u 0644 -g firebird -o firebird
file *
directory firebird/examples/udf=@prefix@/examples/udf
file_permissions -u 0644 -g firebird -o firebird
file

```



```

*
end
#
fileset
tag lib
directory buildroot@prefix@/lib=@prefix@/lib
file_permissions -u 0755 -g firebird -o firebird
file *
end
#
fileset
tag help
file -u 0444 -g firebird -o firebird firebird/help/help.fdb @prefix@/help/help.fdb
end
#
fileset
tag messages
file -u 0444 -g firebird -o firebird firebird/firebird.msg @prefix@/firebird.msg
file -u 0444 -g firebird -o firebird firebird/fr_FR.msg @prefix@/fr_FR.msg
file -u 0444 -g firebird -o firebird firebird/de_DE.msg @prefix@/de_DE.msg
end
#
fileset
tag docs
directory ../doc=@prefix@/doc
file_permissions -u 0644 -g firebird -o firebird
file *
end
end

```

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<ftp.gnu.org/pub/gnu/readline/readline-6.0.tar.gz>.

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`Gnomovision' (which makes passes at compilers) written by James Hacker.

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

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This is Debian GNU/Linux's prepackaged version of the rlfe program.  
This package was put together by Matthias Klose <doko@debian.org>.

Upstream source:  
<ftp.gnu.org/pub/gnu/readline/readline-4.3.tar.gz>.

Author: Per Bothner

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```
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*
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*
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*
* Some code from Johnson & Troan: "Linux Application Development"
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*/
```

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# 1.487 argon2 0~20161029-1.1

## 1.487.1 Available under license :

Argon2 reference source code package - reference C implementations

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## 1.488 snake-yaml 1.29

### 1.488.1 Available under license :

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```

Found in path(s):

```
* /snakeyaml-1-29-sources-3-jar/META-INF/maven/org.yaml/snakeyaml/pom.xml
```

No license file was found, but licenses were detected in source scan.

```
/* Copyright (c) 2008 Google Inc.
```

```
*
```

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- \*/

Found in path(s):

- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/external/com/google/gdata/util/common/base/Escaper.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/external/com/google/gdata/util/common/base/UnicodeEscaper.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/external/com/google/gdata/util/common/base/PercentEscaper.java

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```
/**
 * Copyright (c) 2008, http://www.snakeyaml.org
 *
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 */
```

Found in path(s):

- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/FlowMappingEndToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/GenericProperty.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/extensions/compactnotation/CompactConstructor.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/BlockEntryToken.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/BlockEndToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/emitter/EmitterState.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/env/EnvScalarConstructor.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/comments/CommentLine.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/AnchorNode.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/TagTuple.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/StreamStartEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/composer/Composer.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/error/Mark.java

- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/parser/ParserImpl.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/SequenceNode.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/resolver/Resolver.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/extensions/compactnotation/PackageCompactConstructor.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/PropertyUtils.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/SequenceStartEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/StreamEndToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/comments/CommentEventsCollector.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/BlockMappingStartToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/ValueToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/MappingStartEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/scanner/ScannerImpl.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/util/UriEncoder.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/Yaml.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/error/YAMLException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/parser/ParserException.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/TypeDescription.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/Constructor.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/CollectionEndEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/parser/VersionTagsTuple.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/parser/Production.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/AnchorToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/MappingNode.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/NodeEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/KeyToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/reader/StreamReader.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/util/PlatformFeatureDetector.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/WhitespaceToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/util/ArrayUtils.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/serializer/AnchorGenerator.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/Construct.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/BlockSequenceStartToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/BeanAccess.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/composer/ComposerException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/FieldProperty.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/util/ArrayStack.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/LoaderOptions.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/DocumentEndToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/scanner/Constant.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/emitter/EmitterException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/MappingEndEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/serializer/SerializerException.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/representer/SafeRepresenter.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/comments/CommentType.java

- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/MethodProperty.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/ScalarNode.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/Node.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/MissingProperty.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/emitter/ScalarAnalysis.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/CommentEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/reader/ReaderException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/NodeTuple.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/ScalarEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/serializer/NumberAnchorGenerator.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/AliasEvent.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/ScalarToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/Tag.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/representer/Represent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/DuplicateKeyException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/BaseConstructor.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/serializer/Serializer.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/emitter/Emitable.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/NodeId.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/AbstractConstruct.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/scanner/Scanner.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/DirectiveToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/DocumentStartToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/Event.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/AliasToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/TagToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/CommentToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/PropertySubstitute.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/representer/Representer.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/ConstructorException.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/Token.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/StreamStartToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/SafeConstructor.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/emitter/Emitter.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/ImplicitTuple.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/DocumentEndEvent.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/error/MarkedYAMLEException.java
- \*
- /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/parser/Parser.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/FlowMappingStartToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/nodes/CollectionNode.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/util/EnumUtils.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/scanner/SimpleKey.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/reader/UnicodeReader.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/FlowSequenceEndToken.java
- \* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/DocumentStartEvent.java

```

* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/introspector/Property.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/resolver/ResolverTuple.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/FlowEntryToken.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/extensions/compactnotation/CompactData.java
*
/sakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/SequenceEndEvent.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/DumperOptions.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/tokens/FlowSequenceStartToken.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/error/MissingEnvironmentVariableException.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/representer/BaseRepresenter.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/StreamEndEvent.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/constructor/CustomClassLoaderConstructor.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/events/CollectionStartEvent.java
* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/scanner/ScannerException.java
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```

```

// This module is multi-licensed and may be used under the terms
// EPL, Eclipse Public License, V1.0 or later, http://www.eclipse.org/legal
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/**
 * A Base64 encoder/decoder.
 *
 * <p>
 * This class is used to encode and decode data in Base64 format as described in
 * RFC 1521.
 *
 * <p>
 * Project home page: <a
 * href="http://www.source-code.biz/base64coder/java/">www.
 * source-code.biz/base64coder/java

 * Author: Christian d'Heureuse, Inventec Informatik AG, Zurich, Switzerland

 * Multi-licensed: EPL / LGPL / GPL / AL / BSD.
 */

```

Found in path(s):

```

* /snakeyaml-1-29-sources-3-jar/org/yaml/snakeyaml/external/biz/base64Coder/Base64Coder.java

```

# 1.489 jsr305 3.0.2

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Found in path(s):

\* /jsr305-3-0-2-sources-9-jar/javax/annotation/concurrent/ThreadSafe.java

\* /jsr305-3-0-2-sources-9-jar/javax/annotation/concurrent/NotThreadSafe.java

\* /jsr305-3-0-2-sources-9-jar/javax/annotation/concurrent/Immutable.java

\* /jsr305-3-0-2-sources-9-jar/javax/annotation/concurrent/GuardedBy.java

# 1.490 Iz4-java 1.8.0

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